



## CITY OF PORTLAND, OREGON

**Charlie Hales**  
Mayor

**Nick Fish**  
City Commissioner

September 6, 2016

Kristine Koch  
Remedial Project Manager  
Office of Environmental Cleanup  
U.S. Environmental Protection Agency  
1200 Sixth Avenue, Suite 900- M/S ECL-122  
Seattle, WA 98101-3104

**Subject: City of Portland Comments on the Portland Harbor Superfund Proposed Plan:  
Transmittal letter**

Dear Ms. Koch,

On behalf of the City of Portland, we are pleased to submit our comments regarding the Proposed Cleanup Plan for the Portland Harbor Superfund Site to the Environmental Protection Agency (EPA). This letter serves as a high-level summary of our comments, we invite you to review our full comments attached.

We appreciate the work of EPA and its partners, including the Oregon Department of Environmental Quality (DEQ), which has brought us to this important milestone. We would also like to thank Community Advisory Group (CAG) members for their years of service to this project. Their work, along with the work of community groups like the Portland Harbor Community Coalition, has played a key role in providing a diverse community perspective in the Superfund process.

The City joined the Lower Willamette Group to ensure that the public interest was represented in the investigative work. However, our comments do not represent the position of any other organization, nor does any other organization represent the position of the City of Portland.

The City has a longstanding and deep commitment to clean air and clean water, and to the protection of our natural resources. We are a national leader in sustainable environmental practices. This expertise, and our commitment to these values, will guide our ongoing work in the cleanup.

The Harbor provides habitat for fish and wildlife and is a food source for some members of our community. It has cultural and historic importance to Native American Tribes and is beloved by recreational users. It is also a working harbor with local, state, regional and national significance. It supports tens of thousands of living-wage jobs and is a West Coast gateway for international

trade. Our community requires a remedy that is protective of these multiple uses of the river and meets EPA cleanup goals within a reasonable timeframe.

In these comments, we advocate for a cleanup that protects our environment, enhances our community and holds polluters accountable. We ask that the cleanup start as soon as possible and that every action is taken to ensure that our local community reap the economic benefits of this cleanup. We want to see local companies and a local workforce driving this project.

### City's Unique Role

The City of Portland has three distinct roles in Superfund. We are a steward of the river and the important community resources it provides. We are a regulator and a planner, working to protect the health and future use of the Harbor. We are also a Potentially Responsible Party (PRP) and may be held liable for some cleanup costs.

In each of these roles, we are committed to a cleanup plan that considers the long-term needs of our community, and that reflects Portlanders' diverse perspectives. Two examples that highlight our commitment to these goals are described in more detail below.

**Community Engagement:** The cleanup must consider the values and voices of all Portlanders. To increase awareness of, and participation in, EPA's process the City initiated a multi-pronged public involvement program.

We provided assistance to EPA and the CAG to facilitate public information sessions and forums; conducted an online survey that received over 2,700 responses from people citywide; and created a small-grant program that provided over \$60,000 to community-based organizations for outreach to underserved and underrepresented communities. The City held a City Council listening session at the University of Portland, offering community members an opportunity to share feedback about EPA's cleanup plan directly with the Council. Finally, City staff also facilitated several community meetings to share information about EPA's cleanup plan.

We received feedback from a broad spectrum of Portlanders. Overwhelmingly, Portlanders agree that the river is a critically important regional resource and they want to see it cleaned up. Many would like to see a more aggressive cleanup to protect human and environmental health and to see fish advisories lifted as soon as possible; others want to keep cleanup costs down and have concerns about community impacts from cleanup activities and construction. This feedback has been reviewed and considered in developing the City's comments to EPA.

As a result of what we heard from the community, we have specific feedback that we would like EPA to consider. For example, although we recognize that there may be environmental and cost advantages of an onsite Confined Disposal Facility (CDF), we request that EPA address community concerns by not including an onsite CDF in the final plan.

**Preventing Recontamination:** The City has worked with DEQ and EPA to identify sources of contamination to City stormwater systems and to control those sources in Portland Harbor. DEQ has also been working with businesses that discharge through the hundreds of private outfalls in Portland Harbor. Together we have built a nationally recognized program of sewer/stormwater management that is a model for other cities and states. DEQ should be commended for its proactive evaluation of the sediment that is just upstream of the downtown area, which was done to better understand recontamination threats. Its work has concluded that this area is not a significant source of contamination. Having this work done before the cleanup starts is a great advantage moving forward.

Another recontamination concern is the possibility of an earthquake in the Portland Harbor. We ask EPA to ensure that the Record of Decision (ROD) take into account all appropriate measures to address the potential consequences of a catastrophic seismic event. This includes measures within remedy design, implementation strategy and active construction. In addition to remedy and cleanup activities, we would like the fuel tank farms on the site to be evaluated as a potential source of recontamination in the event of an earthquake. More than 90% of the fuel that powers the state of Oregon is received and distributed on the river's edge, on liquefiable soils within the superfund site. We request that EPA work with the City and other local, state and federal government agencies to address this risk.

#### Summary of General Comments and Requests

Although we are requesting changes to some elements, overall, we are supportive of moving forward with EPA's proposal.

Many of the cleanup goals in this plan are the most aggressive of any Superfund site in the country. EPA's approach targets areas with the highest contamination and allows broader areas that have less contamination be managed and remediated through institutional controls and natural processes. This strikes an important balance and will reduce 85% of human health risk when construction is complete.

A summary of our general comments below reflect the broad interests of the City and of our community, and highlight six values: equity and environmental justice; community interests and acceptance; transparency; accuracy; balance; and flexibility.

**Equity and Environmental Justice:** We reviewed the Proposed Plan through an equity and environmental justice lens. We believe that benefits associated with the cleanup process – including jobs, training opportunities and economic benefits – should be realized by local communities, especially those disproportionately impacted by the cleanup and those which have historically shouldered an unfair burden of pollution.

- We ask that the ROD include mechanisms to extend and facilitate community benefits associated with the cleanup. We also request that additional resources be dedicated to local training programs due to the enormous size of this site. This will help prepare our communities to take advantage of job opportunities associated with the cleanup.

- Our technical comments suggest ways that EPA could incorporate more-robust equity and environmental justice considerations in the ROD. One suggestion is for EPA to consider prioritizing public areas so that these sites are cleaned up first and high-use areas become healthier sooner. These areas include Swan Island Lagoon, Cathedral Park, and Willamette Cove.

**Community Interests and Acceptance:** It is important that the cleanup be consistent with the vision and goals identified in Portland’s 2035 Comprehensive Plan, Climate Action Plan, and the Portland Watershed Management Plan. These plans set the framework for a prosperous, educated, healthy, equitable, and resilient city.

To align with community interests and regional goals, the cleanup must include a meaningful and inclusive engagement process that reaches all communities. The City looks forward to partnering with EPA and other government agencies to ensure community perspectives are understood and considered in every stage of the cleanup process.

- We request that EPA reevaluate and expand its community engagement efforts to ensure that the public, in particular our most impacted communities — Native Americans, African-Americans, immigrants and refugees, people experiencing homelessness, pregnant women and nursing infants, children, and low-and no-income residents — have better opportunities to engage in the cleanup process.

**Transparency:** A fundamental component of community acceptance is an understanding of the reasoning behind EPA’s decisions and approaches.

- We request additional information about certain areas such as, short-term impacts of dredging and fish advisories, where the basis for decisions or approaches was not clear.

**Accuracy:** In our review of the Proposed Plan, we identified substantive errors and inconsistencies. For example, cost estimates appear to be unreasonably optimistic and significantly underestimated. It is important that the community and parties involved in the cleanup have an accurate estimate of what the cleanup will cost and what to expect during the cleanup.

- Our technical comments request clarity and consistency in how EPA describes the remedy.

**Balance:** Balancing many different factors to select a permanent and cost-effective remedy is a challenge. The City’s recent success with its Big Pipe project is a great example of that balance. We now have a system that reduces combined sewer overflows into the river by 94%. The City had the option of taking that to 100%; however, reaching that final 6% reduction would have doubled the price tag. In our judgment, the benefits did not outweigh the costs. Today we have a nationally regarded system, and we were able to fund the project while minimizing the burden to ratepayers. In general, the City agrees that EPA’s Proposed Plan also strikes an acceptable balance.

**Flexibility:** The City recommends that EPA approach this large and diverse site in a series of manageable pieces rather than trying to implement a single, site-wide action. The cleanup has the best chance of timely implementation if the areas that can or should move forward first are able to do so without having to wait for the 100 + potentially responsible parties to move together.

- In addition to addressing the site in smaller pieces, the City requests that EPA incorporate flexibility into its decisions on remedy selection, remedy design, and remedy construction, using updated data that reflects the most current state of the riverbed.

### Conclusion

Diverse environmental, economic, social and public health perspectives will shape EPA's approach to the Portland Harbor cleanup. This stretch of the Willamette River supports critical ecosystems and many human uses, and has important cultural significance to multiple Tribes in the region. The City appreciates the challenges EPA faces in this final stage of drafting the ROD. We hope EPA will look to the state in the concurrence process to help address some of those challenges.

EPA will receive a multitude of contrasting and conflicting comments on the Proposed Plan. However, we can all agree that the river is the lifeblood of our community and our region. This cleanup commands our collaboration and our best effort.

The City of Portland is committed to a healthy river and a working harbor, and we know that our community depends on the river in many ways. After years of study and process, we want to see cleanup start as soon as possible.

We want to spend our time and resources in the river, not in court. We urge you to move forward expeditiously, and to issue a Record of Decision by the end of this year.



Nick Fish, Commissioner



Charlie Hales, Mayor

Enc. City of Portland Comments on the Portland Harbor Superfund Site Proposed Plan





CITY OF PORTLAND  
ENVIRONMENTAL SERVICES



1120 SW Fifth Avenue, Room 1000, Portland, Oregon 97204 ■ Nick Fish, Commissioner ■ Michael Jordan, Director

City of Portland  
Comments on the Proposed Plan for the  
Portland Harbor Superfund Site

September 2016

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## Introduction

The City of Portland (City) has reviewed the Environmental Protection Agency's (EPA's) Proposed Remedial Cleanup Plan (Proposed Plan) for the Portland Harbor Superfund Site (Site) and provides the following comments. We (the City) have a unique role in Portland Harbor and our (the City's) Proposed Plan review process and comments reflect that role. We are a steward of this important community resource, a regulator, and a potentially responsible party who may ultimately be liable for some of the cleanup costs. We also have the responsibility to spend public funds and resources judiciously and on efforts that benefit the community as a whole. Because of our role and many interests, the City became involved early in the process to support efforts to investigate river contamination and provide EPA with the information required to inform a cleanup plan. The City is very pleased that this important process continues to move forward, and are hopeful that our community will have a final Record of Decision (ROD) as expeditiously as possible.

The City's comments on the Proposed Plan are based on input from all parts of our community. To facilitate broad outreach, the City held meetings throughout the community, held a public forum, conducted a community survey, and provided grants to community-based organizations to expand outreach to underrepresented communities. The recipients of the grants included: Groundwork Portland, Right 2 Survive, St. Johns Main Street (Community Advisory Group), Iraqi Society of Oregon, Northeast Coalition of Neighborhoods, Willamette Riverkeeper, Audubon Society of Portland, East European Coalition, NAYA, Linnton Neighborhood Association, Collective Care, Urban League of Portland, Occupy St. Johns, IRCO, Latino Network, Portland Harbor Community Coalition, Community Advisory Group, Human Access Program. The City's goal was to encourage all Portlanders to share their thoughts during the comment period so that City comments reflect those of our community.

There are diverse environmental, economic, social, and public health considerations that will shape the approach to the Portland Harbor Cleanup. The Willamette River supports critical ecosystems and multiple human uses. It also is a part of the cultural heritage of multiple Tribal Nations. Because of this wide spectrum of significance, there are many stakeholders taking an interest in the cleanup, and the City fully understands the challenges EPA is facing in seeking a balance in the Proposed Plan that achieves an effective cleanup in a reasonable timeframe and at a reasonable cost. Although we have questions and are requesting specific changes to some elements of the Proposed Plan, overall, the City supports EPA's approach. We are requesting that our comments be addressed in EPA's response to comments or in the ROD, as appropriate. We believe EPA strikes an adequate balance by requiring active cleanups in areas with the highest contamination while allowing larger areas with less contamination to be addressed through institutional controls and natural processes.

The City's comments are organized by the broad themes expressed to the City during its outreach:

- Equity And Environmental Justice – It is important to the City that everyone has access to opportunities necessary to satisfy essential needs, advance their well-being, and achieve their full potential. This includes consideration of basic fairness and the environmental justice implications of the remedy.
- Balance – The remedy must address health and environmental risk, but also strike a balance among the other factors that EPA considers in selecting remedy, which include long-term

effectiveness, short-term effectiveness, implementability, cost, and reduction of toxicity, mobility, and volume of contamination.

- Community Interests and Acceptance – The remedy must be consistent with long-term community interests, including a healthy river and economic development.
- Transparency – EPA should provide additional information on certain issues where the basis for decisions or an approach was not clear.
- Implementability/Flexibility –The remedy will need to be flexible enough to accommodate new data and Site-specific information collected during the design phase, while providing clear guidance on what the remedy must achieve.
- Accuracy – Using accurate, complete information to the extent practical is essential for an effective remedy. There are a number of concerns about accuracy that were identified during the City’s review.
- Uncertainty – The work preceding the Proposed Plan includes a Remedial Investigation and a Feasibility Study (RI/FS). Uncertainty in the results of a RI/FS exist at every cleanup site because it is impossible to obtain perfect data, and scientific models used to study the Site cannot account for every piece of information that may or may not be available. This uncertainty needs to be considered in risk management and cleanup decisions, and the ROD needs to acknowledge these uncertainties.

## EQUITY AND ENVIRONMENTAL JUSTICE

The cleanup must consider all Portlanders by providing equal benefits to the cross-section of people and businesses that interact with the river within Portland Harbor. The City received input from groups with common and sometimes conflicting interests. The City is providing the following comments in the interest of promoting a practical degree of equity and fairness in establishing the cleanup requirements and technical approach. In striving to achieve equity in the cleanup, it is incumbent upon EPA to consider environmental justice issues and public engagement with multiple local communities.

### 1. Environmental justice

A human health risk assessment was performed for the Site which showed that health risks from exposure to contaminants in the river are highest for populations consuming large amounts of resident fish from the Site (Proposed Plan, p. 18-19). As a result, it makes sense that areas used more frequently by the most impacted or underserved and underrepresented populations should have a more aggressive schedule for cleanup. These populations include Native Americans, African Americans, immigrants and refugees, people experiencing homelessness, pregnant and nursing mothers, infants, children, and low- and no-income residents. The City has identified the areas of Willamette Cove, Swan Island Lagoon, and Cathedral Park – all public areas easily accessible to shoreline fishing– as needing a more aggressive cleanup schedule than described in the Proposed Plan in order to address environmental justice concerns.

The City requests that these environmental justice concerns be addressed first in the sequencing of the cleanup. Sequencing should be planned with a goal of achieving protective concentrations in areas with high public use as soon as possible, which means these areas should be cleaned up first. **Specifically, Willamette Cove, Swan Island Lagoon, and Cathedral Park should be prioritized in cleanup sequencing over other areas of the Site.**

Secondly, EPA has assigned different remedial action levels (RALs) to different areas of the Site, called sediment decision units (SDUs), in the preferred alternative (Proposed Plan, p. 66). The City notes that there are cleanup areas near each other with different RALs, even though they have the same uses. For example, the SDU at Willamette Cove has a less conservative RAL than the SDU at Cathedral Park, which is further downstream. Since both SDUs are expected to provide future recreational and fishing opportunities for the public, it is unclear why these two SDUs would have different RALs. This scenario also creates the potential for contaminated material left in place at the upstream SDU to re-contaminate the downstream area, which could impact the ability to achieve cleanup goals at the downstream SDU. The City recognizes that the RALs are not cleanup goals, but rather, are used to determine areas of active remediation, which will achieve interim risk targets so that monitored natural recovery can be effective. However, it is important to the City that public beaches, where subsistence fishers have easy access to the river and shoreline fishing, each receive similar protection, and that the final remedy minimize recontamination at Cathedral Park to maximize both short – and long-term effectiveness. **The City requests that this discrepancy in RAL assignments be evaluated and reconciled to be consistent in terms of the human uses in the areas described above.**

Consuming fish is the activity that results in the greatest health risk at the Site, and it was evaluated in the risk assessment on both Site-wide and river-mile basis (Proposed Plan, p. 18). Some fish, such as smallmouth bass, do not roam throughout the entire 10 mile stretch of the river during their lifetime,

but rather, only in smaller areas (approximately one river mile). As a result, earlier cleanup in smaller, localized areas may make it safer to eat certain fish from those locations sooner, even while the Site-wide cleanup is on-going.

**Once these localized areas are remediated, please evaluate the effectiveness of the RALS in achieving interim remediation goals at the scale of an exposure area for smallmouth bass fishing, which is one river mile. The evaluation should center the exposure area on the beaches and fishing areas at Cathedral Park, Willamette Cove, and Swan Island Lagoon.**

## 2. Fish Advisories – Future Updates

The remedy in the Proposed Plan relies on institutional controls, such as fish advisories, to protect the public while recovery of the river is on-going (Proposed Plan, p. 32). The City recognizes the need for fish advisories on a Site-wide scale, but believes that more fish may be eaten sooner on localized scales if areas that are more heavily used for fishing are a priority for cleanup, as described in comment #1. The City recognizes that this benefit would apply only to fish with small home ranges, such as smallmouth bass. **The City requests that EPA address the feasibility of easing fish advisories for small home-range fish species in localized areas when the monitoring data indicate that fish caught from these exposure areas have recovered enough to do so.**

## 3. Housing Justice

It is probable that cleanup activities will need to occur in areas where houseless people are living. **The City requests that EPA provide ample and adequate notice, with appropriate engagement notification strategies, before beginning the cleanup in areas where houseless people are living.**

## 4. Outreach to Underserved Communities

A critical component to aligning the cleanup with regional goals and addressing community interests is an inclusive and meaningful engagement process that reaches all communities. Public engagement is extremely important to ensure that the members of underserved communities have equal access to understandable information about the Site. Regulations require that EPA review the Community Involvement Plan prior to the initiation of remedial design (RD) to determine whether it should be revised to describe further public involvement activities during RD and remedial action (RA) that are not already addressed or provided for in the Community Involvement Plan<sup>1</sup>. The City has heard from the community that current public engagement efforts are not adequate. This is particularly important given the large areas of monitored natural recovery (MNR) that has been proposed for this Site. It is necessary that the public has a reliable way to stay informed on the progress of the cleanup and be engaged. The City would like to work with EPA and other government agencies to ensure the long-term Community Involvement Plan meets the needs of our communities. The City looks forward to partnership opportunities with EPA and other local government agencies to ensure community perspectives are understood and considered in every stage of cleanup process. **The City request that EPA reevaluate its current Community Involvement Plan to ensure it meets the needs of the public, and in particular our most impacted communities. We also request that EPA dedicate additional resources for engagement that is conducted in a culturally responsive manner.**

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<sup>1</sup> 40 CFR 300.435(c)(1).



## COMMUNITY INTERESTS AND ACCEPTANCE

Community acceptance will be improved with a remedy that meets the cleanup goals established by EPA within a reasonable timeframe, one that is protective of the multiple uses of the river, and one that is aligned with the City's long-term vision and goals addressed in Portland's 2035 Comprehensive Plan<sup>2</sup>, Climate Action Plan<sup>3</sup> and Portland Watershed Management Plan<sup>4</sup>. The City is asking EPA to respond to the comments below in order to address these needs and improve community acceptance of the Proposed Plan. The City also seeks a remedy that will promote economic development through:

- 1) A locally-sourced work force for cleanup activities,
- 2) Local contracting for construction material, equipment and services
- 3) Increased investment in the Harbor area

### 5. Confined Disposal Facility (CDF)

An on-Site confined disposal facility (CDF) is proposed as an option for disposal of contaminated sediment dredged from the river (Proposed Plan, p.31). As the Proposed Plan document describes, a CDF would be built on land adjacent to the river and extend into the river. It would be isolated from the surrounding environment, and its presence would convert open water to dry land (Proposed Plan, p.31). The City recognizes that this method of disposing contaminant sediment produces fewer carbon emissions than transporting sediment to a landfill, increases efficiency of the cleanup which saves money, and lowers risks from hauling the sediment to an off-Site disposal facility designed for hazardous waste, the closest of which is in eastern Oregon.

While the City recognizes the above benefits, it appreciates that there is significant public concern regarding recontamination potential from the CDF because of leakage or failure, particularly in the event of a subduction zone earthquake. The Port of Portland conducted a 60% design exercise, which evaluated the integrity of a CDF located in Slip 1, but it is not clear whether those findings may be similar at other locations. Based on the Proposed Plan, it is not clear that EPA has selected a location for a CDF.

**Based on community concerns, the City requests that an on-Site CDF not be considered as part of the remedy.**

**If an off-Site CDF is used for the Site, the City has the following requests:**

- **Engage the community and address concerns about all facets of its development.**
- **Describe how EPA has evaluated and considered issues related to CDF integrity, or how it will further evaluate these issues moving forward.**
- **Clarify the location(s) being considered for placement. The Proposed Plan mentions Terminal 4 as an option, but it is not clear how certain this location is, or what other locations are being considered.**

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<sup>2</sup> <http://www.portlandoregon.gov/bps/70936>

<sup>3</sup> <http://www.portlandoregon.gov/bps/article/531984>

<sup>4</sup> <http://www.portlandoregon.gov/bes/article/107808>

## 6. Economic Opportunities - Jobs

Cleaning the river can provide near-term job opportunities for the local job sector, and a clean river will provide increased economic opportunities by reducing economic uncertainties and promoting development along the river.<sup>5</sup> EPA's Workforce Development and Training Program provides a means to enable and enhance these opportunities, such as through grants for programs that "recruit, train, and place local, unemployed and under-employed residents with the skills needed to secure full-time employment in the environmental field"<sup>6</sup>.

The City values and supports diversity and is dedicated to advancing equity in public contracting by increasing opportunities for State of Oregon certified Minority, Women and Emerging Small Business enterprises ("M/W/ESB"). We encourage and support the use of strategies that promote the use of M/W/ESB contractors and mentoring opportunities between large and small M/W/ESB firms. The City has set a goal of 20% of PTE awards for prime consultant and sub-consultant contracts to State of Oregon certified M/W/ESB firms. We would like to see performing parties set similar targets for the work that lies ahead.

**The City appreciates EPA's ongoing efforts for workforce development. However, given the magnitude and complexity of the Site, the City requests that EPA use the opportunity to expand the job development program, and provide additional resources specific to Portland Harbor for local work force training. The City would also like to see every action possible in the ROD to ensure that local companies have preferential treatment in the contracting process in all stages of the cleanup.**

## 7. Economic Opportunities – Redevelopment

The selection of a remedy will help ease the economic uncertainty which can impede redevelopment. The City requests that EPA foster brownfield reuse through sequencing the remedy to allow vacant sites or sites with redevelopment plans to proceed separately and earlier than other sites. **The City encourages EPA to work with prospective property owners and use its existing brownfield redevelopment tools to facilitate property transactions including grants, comfort letters, bona fide prospective purchaser work agreements and prospective purchaser agreements.**

## 8. Communicating Cleanup Progress

The City has heard from the public the concern that fish advisories are not effective at deterring fish consumption. This may be due in part to the manner in which fish advisories are communicated. It is in the interest of the community that institutional controls such as fish advisories be kept to a minimum, and that the cleanup occurs so that advisories can be lifted or eased as early as possible. The City acknowledges that fish advisories are necessary to protect human health, and that monitoring will be conducted to evaluate short and long-term effectiveness of the remedy (Proposed Plan, p. 33). The City also acknowledged that some fish advisories may be required due to upstream contaminants not related to the remedy.

The Proposed Plan states that "statutory 5-year reviews of the remedy will be performed" (Proposed Plan, p.33). **In the event that the remedy does not achieve cleanup goals in the anticipated time**

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<sup>5</sup> ECONorthwest 2012. Portland Harbor: Industrial Land Supply Analysis. Portland, Oregon. June 2012.

<sup>6</sup> <https://www.epa.gov/grants/fy16-environmental-workforce-development-and-job-training-grants>

**frame, the 5-year plan must include information on how corrective actions will be evaluated and modified to improve remedy performance. Additionally, we request that the 5-year plan describe how the results of monitoring could impact fish advisories both Site-wide and on a more localized scale, and how these results will be communicated to the public to inform the community about progress being made in the river cleanup.**

#### 9. Earthquake Preparedness

The northwest coast of the United States has significant earthquake risk from a rupture along the Cascadia Fault. Although the effects of the earthquake would be attenuated somewhat from the coast to the Portland region, the strength and duration of shaking is still projected to be significant. Portland also has several shallow faults that run under the City, including one that abuts the Superfund study area in the Linnton neighborhood. The City has heard community concerns about the integrity of the remedy in the event of an earthquake, and acknowledges that an earthquake could have impacts on the City and Portland Harbor remedy. For example, an earthquake could cause sediment caps to crack, be displaced, or otherwise leak.

The west bank of the river along the Site also contains Oregon's Critical Energy Infrastructure Hub (Hub), a group of fuel infrastructure facilities. Almost all of the facilities in the Hub are located within 0.25 mile of the river's edge, within the floodplain. The Hub receives and distributes more than 90% of the fuel that powers the State of Oregon, including all of Oregon's major liquid fuel port terminals, liquid fuel transmission pipelines and transfer stations, natural gas transmission pipelines, a liquefied natural gas storage facility, and high-voltage electric substations and transmission lines.

Additional contamination of the Site from these infrastructure facilities due to a major earthquake is likely unless current owner-operators act to prevent it. Fortunately, seismic retrofitting of existing infrastructure is possible, and could significantly reduce the risk of massive earthquake-induced spills.

The Hub is a center of economic activity. It seems unwise to proceed with the Portland Harbor cleanup without consideration of potential recontamination from existing facilities and operations.

The National Earthquake Hazards Reduction Program was established in 1977 as a result of the Earthquake Hazard Reduction Act ((PL) 95-124), with the goal of "reducing risks to life and property in the United States that results in earthquakes"<sup>7</sup>. The Federal Emergency Management Agency (FEMA) is one of the primary federal agencies implementing the program, and provides a number of publications to guide policy makers in resilience planning and reducing risks from earthquakes.

**The City request that EPA work with FEMA, the City, and other local government agencies to include all appropriate measures in the ROD and RD/RA to address recontamination risks associated with a catastrophic earthquake. In addition to remedy selection, design and action, the City request that the fuel tank farms within the Site be evaluated as a potential source of recontamination in the event of an earthquake. After we have invested hundreds of millions of dollars in this cleanup, we want to make sure that we do everything in our power to keep it clean.**

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<sup>7</sup> <https://www.fema.gov/national-earthquake-hazards-reduction-program>

#### 10. Prioritize Areas With High Public Use

As mentioned previously, project sequencing to prioritize areas used by populations most impacted by the contamination would provide environmental justice benefits and increase community acceptance of the Proposed Plan. The more quickly cleanup goals are achieved in these areas, the more quickly people will be able to safely increase their fish meals per year, and the more accessible these open spaces will be to the community. **The City requests that EPA focus attention on areas easily accessible to the public for fishing, namely Willamette Cove, Swan Island Lagoon, and Cathedral Park, for initial cleanup efforts.**

#### 11. Future Land Use - Public Access & Industrial Use

EPA must ensure that the Site-wide remedy and the remedial design for specific areas be consistent with the anticipated future land uses of Portland Harbor established by the City.

Every Superfund remedy must be selected with consideration of future land use (CERCLA Land Use Directive, OSWER No. 9355.7-04, 1995 reaffirmed in the directive to Superfund National Policy Managers, OSWER 9355.7-06P in 2001). Oregon has unique land use laws that require development of enforceable land use plans and Portlanders are passionate about their involvement in planning the City's future land use.

Portland recently adopted an updated comprehensive land use plan to guide development and investment in the City for the next 20 years, as well as a Climate Action Plan, and the City has enacted detailed zoning overlays that apply to Portland Harbor. These requirements and development standards define, protect and enhance the anticipated future uses in Portland Harbor, including industrial lands that support middle-wage incomes, habitat protection, critical flood control, and public access to recreation.

Much of Portland Harbor is designated as prime industrial land and thus the selected remedy and any associated technology assignments should not create physical or economic barriers to redevelopment on this economically valuable land. It is especially important that prime industrial land that is currently vacant be allowed to build docks or dredging moorages as needed to access the federal navigation channel. Portland's land use planning also provides specific community visions for how public access, riverine habitat and flood storage potential will be maintained and improved. Portlanders have worked hard to incorporate the right mix of uses in Portland Harbor. This includes extensive plans for greenways and human access trails in some areas of the Harbor.

Portland's land use planning process has created a clear vision of the anticipated land uses in Portland Harbor. In short, Portlanders anticipate that all land in Portland Harbor will be used to fill multiple community needs. **The City requests that EPA engage City land use planners and the communities in and around Portland Harbor to ensure that anticipated future land uses in each area of the river are not impaired by the remedy, and that EPA provide flexibility in the ROD's application of cleanup technologies to be consistent with the detailed planning in place for current and anticipated land use.**

## TRANSPARENCY

Community acceptance can only be accomplished if the community understands the reasoning behind EPA's decisions and approaches. The City identified several aspects of the Proposed Plan that are difficult to assess without additional clarification.

### 12. Opportunities for Future Input

Members of the public have expressed concerns that there will not be opportunities for adjustments should the remedy not perform as planned. The City understands that if the remedy is not performing as expected, as shown through long-term monitoring, conditions may be re-evaluated and the remedy may be adjusted to ensure protectiveness is achieved. **We ask that EPA develop a response that describes the process for revising the remedy if it is not effective, and identify an ongoing public involvement process that will engage the public about the cleanup's process.**

### 13. Risk Communication

The Proposed Plan describes unacceptable human health and ecological risks from exposures in the Portland Harbor. However, some uses of the Harbor currently meet acceptable risk levels in many areas<sup>8</sup>. For example, as shown in the human health risk assessment, children may recreate on river beaches without the threat of unacceptable health risks from contact with the beach sediment or the river water<sup>9</sup>. In addition, health risks are below levels of concern for workers who come in direct contact with river sediment at 44 of the 47 river segments evaluated in the risk assessment<sup>10</sup>. **Please provide more information about exposure scenarios and locations where risks from the Harbor are already at acceptable levels.**

### 14. Air Toxics

The City has heard concerns from the public related to the potential for air toxics from the release into the air of contaminants found in the sediment. **Due to community concerns, please address the potential for volatilization of PCBs from sediment.**

### 15. Short-Term Impacts of Dredging

During the City's public input period, it was apparent that there was insufficient information in the Proposed Plan about the short-term impacts of dredging. The City appreciates discussion in the Proposed Plan of potential contaminant release and resuspension through the physical act of dredging (Proposed Plan, p.29). **Please also discuss the following short-term impacts and how they were considered in the remedy: potential damage to the ecological community at the bottom of the river, increased diesel emissions due to transportation of sediment to and from the Site, noise impacts to the local communities, and potential increase in contaminant concentrations in fish tissue for short periods of time.**

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<sup>8</sup> EPA 2016. *Portland Harbor Remedial Investigation Report, Final*. Prepared for the Lower Willamette Group, Portland, OR. Integral Consulting Inc., Mercer Island, WA; Windward LLC, Seattle, WA; Anchor QEA, LLC; Seattle, WA, Kennedy/Jenks Consultants, Portland, OR. As modified by U.S. EPA. April, 2016.

<sup>9</sup> Kennedy/Jenks 2013. *Portland Harbor RI/FS, Final Remedial Investigation Report, Appendix F, Baseline Human Health Risk Assessment*. Portland, OR. March 2013. Table 5-18 and Table 5-57.

<sup>10</sup> Kennedy/Jenks 2013. Table 5-43.

## 16. Fish Advisories – Communication Strategy

The Proposed Plan discusses fish advisories as an institutional control for the Site, and presents recommended ingestion rates for fish from the Portland Harbor in terms of number of meals per ten year period. This advisory is confusing and impractical because people generally do not think about or track their diets in terms of such a long time frame.

The Oregon Health Authority (OHA) has also issued a fish advisory that includes the Portland Harbor<sup>11</sup>, however, the OHA fish advisory is different from the one cited by EPA. In the Proposed Plan (p. 37, p. 59), EPA acknowledges the discrepancy and states that the OHA advisory is not a part of the Superfund response. The conflicting advisories add to the public's confusion about the recommendations on maximum fish consumption from Portland Harbor.

**To help the public better understand the fish advisories, please describe the reasons for the differences in advisories from the different agencies. The City also encourages EPA to partner with OHA in developing a means to communicate this process to the public.**

**Please revise the communication strategy for the EPA advisory so that it is more meaningful to the public. Due to the high reliance on fish advisories at the Site, the City would like EPA to perform a study to assess the effectiveness of fish advisories, to ensure they are successful in protecting the public.**

## 17. Shallow Water Zone

The FS defines three depth zones in the river and attempts to minimize impacts in the zone with the greatest fish use, described as the shallow zone. The FS states that, “[t]he determination of 4 feet NAVD88 as the boundary [of the shallow zone] for this region was based on an assumed cap thickness of 3 feet (if capping were to be applied) and a mean low water level (MLLW) elevation of 7 feet NAVD88.” This boundary does not account for the actual utilization of habitat by the 14 species listed under the Endangered Species Act for the Willamette River. In the City-sponsored Willamette Fish Study conducted by ODFW<sup>12</sup>, juvenile salmonid use was predominant in areas of shallow water habitat which was sampled as low as 3 meters below the water surface elevation, which, in two of the years sampled, was measured at 3 feet NAVD88. The shallow zone from this study is deeper than the shallow zone defined in the FS. In addition, the EPA's definition of shallow zone will, in many years, be fully exposed and not inundated during many months of the year. **Please provide justification for how EPA defined the shallow zone in relation to actual fish use.**

## 18. Consistent Level of Risk Reduction

The Proposed Plan states that “Alternative I is a modification of Alternative E, which allows for a *more consistent level of risk reduction* in all areas of the Site.” (Proposed Plan, p. 47). It is not clear whether this statement is intended to refer to risk levels achieved, or percent risk reduction over a certain area. **Please clarify what is meant by the phrase “consistent level of risk reduction” and explain how that was technically evaluated and applied to arrive at the combined RAL designations in Alternative I. The**

<sup>11</sup><https://public.health.oregon.gov/HealthyEnvironments/Recreation/FishConsumption/Pages/fishadvisories.aspx#table>

<sup>12</sup> Friesen, T.A., J.S. Vile, and A.L. Prlbyl. 2007. Outmigration of Juvenile Chinook Salmon in the Lower Willamette River, Oregon. Northwest Science, Vol. 81, No. 3.

**City notes that Table 17 of the Proposed Plan may be related to this statement, and requests clarification on what is represented in this table as well.**

19. Meeting State and Local Requirements

Portlanders need to understand whether and how the remedy will meet our State and local laws. The City requests that EPA provide an explanation of its “Applicable or Relevant and Appropriate Requirements” (ARARs) and “To Be Considered” (TBC) selection process specifically regarding these location-specific or action-specific state and local laws:

- State Historic Preservation Office laws ORS chapters 358 and 390;
- Fish Passage Laws ORS 509.580 through 509.910 which protect fish during and after remedy construction;
- Balanced cut and fill requirements of Portland City Code 24.50 which ensure flood resiliency
- The Willamette River Greenway laws and Statewide Planning Goal 15, ORS 390.310 and the Greenway requirements promulgated by the City in Portland City Code 33.440 to comply with State law; and
- Local noise ordinances that set maximum permissible sound levels and prohibit specific noise disturbances in Portland City Code 18.10 and 18.12.

The City acknowledges that EPA does not have to consider these laws unless they meet EPA selection criteria (for example laws have to be in effect, consistently applied and be more stringent than federal requirements). However, these laws have been considered ARARs at other cleanup sites in Oregon (for example the Zidell cleanup<sup>13</sup> and the Teledyne Wah Chang Superfund Site). **The City requests that EPA explain to the community how compliance with federal standards will protect our community to the same extent as these specific state and local laws.**

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<sup>13</sup> Maul Foster Alongi. 2004. Feasibility Study, Zidell Waterfront Property. Appendix G. Prepared for ZRZ Realty Company, Inc. , Portland, OR. December 2, 2004.

## ACCURACY

During the review of the Proposed Plan, the City identified areas where information was incomplete or inaccurate. The following comments are focused on key issues related to accuracy that could potentially impact the remedy. These issues are important to the City and we encourage EPA to consider them during the preparation of the ROD and in their response to comments on the Proposed Plan.

### 20. Cost Estimates

The City believes the Proposed Plan underestimates the actual cost of Alternative I by as much as 50% to 100%. The City is concerned about the accuracy of EPA's Proposed Plan cost estimates, particularly the assumptions about construction parameters such as sediment management area footprints, continuous dredging, volumes dredged and thickness and/or types of capped layers (Proposed Plan, p.37). In addition, the State of Oregon requires compensation for use of state-owned submerged and submersible lands to implement a remedial action (see Oregon Administrative Rule 141-145). These costs are not included in the cost evaluation, but are needed to provide a more complete understanding of remedy costs.

While these inaccuracies may or may not impact final remedy selection, the cost evaluation presents a misleading estimate of the total remedy cost to the public, and could impact the willingness of performing parties to step forward and lead the larger cleanup efforts.

**Please recalculate the costs incorporating more realistic construction and monitoring assumptions, current discount factors, and compensation costs for use of state-owned land.**

### 21. Missing Data for Areas at River Mile 6 and River Mile 11

The FS and the Proposed Plan do not include all applicable data collected by the City and the River Mile (RM) 11E Group, which is a group of potentially responsible parties investigating the contamination at RM 11 East. As previously requested by the Lower Willamette Group (LWG) the RM11E Group, **the City requests the following RM 6E and RM 11E data be incorporated into the RI/FS database and the Administrative Record of the ROD, and be acknowledged within the ROD so that, at a minimum, these data can be used in the RD/RA process and to support remedy selection as will be presented in the ROD:**

- RM 6E Focused Sediment Characterization Field and Data Report (GSI, 2014)
- RM 11E Focused Sediment Characterization Bank Soil and Debris Field and Data Report (2010)
- RM 11E Supplemental Data Report: Archived Bank Soil and Sediment Re-Analysis (GSI, 2013)
- RM 11E Final Supplemental Remedial Investigation/Feasibility Study Field Sampling and Data Report (GSI, 2014)
- RM 11E Final Porewater Characterization Report (DOF, SEE, GSI, 2015)

By excluding the most recent RM 6E and RM 11E data, the areas of contamination evaluated in the FS and presented in the Proposed Plan (Proposed Plan, Figure 11) do not depict updated conditions in those areas. The assignment of technologies based on inaccurate data could result in incorrect volumes and acreages designated for remediation, which would also affect the accuracy of cost estimates and

implementation issues associated with the remedy. **The City requests that the Record of Decision acknowledge this more recent data so that it might be used to more accurately identify areas for active remediation during remedial design.**

## 22. Climate Change

The Proposed Plan does not account for the potential risks associated with climate change as required in Executive Order 13653 (Nov. 1, 2013). Specifically, the FS fails to account for the potential for increasing frequency of floods due to climate change, including climate impacts from the Columbia River in the Portland Harbor study area, which are different and temporally offset from the impacts in the Willamette River itself. EPA's Climate Change Adaptation Technical Fact Sheet<sup>14</sup> provides specific steps for addressing climate change for contaminated sediment remedies, including evaluation of vulnerabilities and identification of adaptation measures to provide additional resiliency<sup>15</sup>. Additional Site-specific scientific studies are also available<sup>16</sup>. **The City requests that EPA update its climate change evaluation to be more accurate and to develop a climate change adaptation plan for the cleanup.**

## 23. Compensatory Mitigation Calculations

Habitat mitigation requirements under the various alternatives are not described in a meaningful level of detail in the Proposed Plan or the FS. Alternative I requires compensatory mitigation for an estimated 34 acres at a cost of \$36.4M (Proposed Plan, p. 64-65). The city is concerned that the compensatory mitigation acreage could be underestimated, which could significantly impact cost estimates. In addition, the City is concerned that different remedial technologies could limit or prevent the use of valuable habitat areas for compensatory mitigation.

**Please clarify the calculation of compensatory mitigation acreage in the Proposed Plan, and acknowledge the need to maintain flexibility in technology selection so that areas appropriate for compensatory mitigation may be used accordingly.**

## 24. Uncertainties in the Conceptual Site Model (CSM)

The Site Background section of the Proposed Plan (p. 4-7) provides a discussion of the physical conditions and uses of the Site, contamination sources and distribution, contaminant release mechanisms, and risk components (i.e., exposure pathways, routes of exposure, and receptors). Figure 3 in the Proposed Plan also includes a pictorial representation of the CSM for the Site. The CSM should

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<sup>14</sup> EPA 542-F-15-009

<sup>15</sup> <https://sempub.epa.gov/work/HQ/177110.pdf>

<sup>16</sup> Hamlet, A. F., M. M. Elsner, G. S. Mauger, S.-Y. Lee, I. Tohver, and R. A. Norheim, 2013: An overview of the Columbia Basin Climate Change Scenarios project: Approach, methods, and summary of key results. *Atmosphere-Ocean*, 51, 392-415, doi:10.1080/07055900.2013.819555. [Available online at <http://www.tandfonline.com/doi/pdf/10.1080/07055900.2013.819555>]

Climate Leadership Initiative, University of Oregon (2009): Hamilton, R., Doppelt, B., Adams, S., & Vynne, S. Projected Future Conditions in the Lower Willamette River Subbasin of Northwest Oregon: Clackamas, Multnomah & Washington Counties. Eugene, OR. Retrieved January 9, 2014, from [http://www.theresourceinnovationgroup.org/storage/LW\\_ModelResults\\_Full\\_Final12.09.pdf](http://www.theresourceinnovationgroup.org/storage/LW_ModelResults_Full_Final12.09.pdf).

Tohver, I., A.F. Hamlet, and S-Y. Lee. (In review). Impacts of 21st century climate change on hydrologic extremes in the Pacific Northwest region of North America. Submitted to Journal of the American Water Resources Association.

provide the technical foundation for making decisions about exposures and developing appropriate response actions that will be effective based on Site conditions. The City believes that EPA's CSM needs more details on river hydrodynamics to provide an adequate foundation for the preferred alternative.

**Please provide a more detailed discussion of river hydrodynamics and deposition to better understand EPA's selection of MNR in Alternative I.**

#### 25. Contaminated Riverbanks

The proposed plan includes remediation of over 19,000 feet of river bank. The City has concerns that the RI and baseline risk assessments do not provide the necessary information for understanding the nature and extent of contamination in river bank soil. Without this information, there is an inadequate foundation for establishing cleanup goals or developing reasonable, effective remedial actions for river banks. EPA should review the Oregon Department of Environmental Quality's (DEQ's) most recent Upland Source Control Summary Report<sup>17</sup>, where the DEQ has identified the presence of uncontrolled river bank contamination. EPA should include these river banks in the maps and discussion. For example, DEQ's Summary Report identifies uncontrolled bank contamination at the Crawford Street Corporation cleanup site<sup>18</sup>, but this is not shown on the maps or discussed in the Proposed Plan or FS. Additionally, contaminated river banks are not always contiguous to an area identified to an area of active remediation, so integrated cleanup of the in-water area and river bank will not occur (i.e., the FS states on page 4-7 "Contaminated beach areas under RAO 1 are assumed to only be addressed in areas adjacent to SMAs for each alternative")<sup>19</sup>. Currently, the Proposed Plan only states that "*Additional contaminated river banks may be addressed by EPA or DEQ under its uplands source control actions*" (p. 12) which suggests that nothing may be done to address this issue. **Please discuss in the ROD how source control will be addressed at these non-contiguous river bank areas to protect the investment being made to clean up the Site. The ROD should also identify all contaminated river banks that are identified in DEQ's 2016 Portland Harbor Summary Report.**

#### 26. Uncertainties Regarding EPA's Assumptions on Ex-Situ Treatment Facilities & Transloading Facilities

EPA assumes a large amount of dredged sediment and excavated river bank soil will be transported by barge outside of the Site and treated at an upland facility before it is disposed of at an appropriate landfill. Transportation and disposal of contaminated materials is a significant concern to the public and there are many underlying assumptions related to cost, implementability, and schedule that are not readily clear. For example, EPA assumes that a transloading facility will be at an off-Site location along the Columbia River and once treated, the dredged sediment will be transferred to a land-based mode of transportation such as truck or rail. However, the Proposed Plan also mentions the possibility of an on-site transloading facility (Proposed Plan, p. 31). In addition, the timeframe for use of the transloading facility is not clear.

**The City would like clarification on EPA's assumptions about the location of a transloading facility, and asks for flexibility to more fully evaluate the feasibility of a transloading and treatment facility within**

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<sup>17</sup> DEQ 2016. *Portland Harbor Upland Source Control Summary Report*. Portland, Oregon. November 21, 2014. Updated March 25, 2016.

<sup>18</sup> DEQ, Environmental Cleanup Site Information #2363.

<sup>19</sup> EPA, CDM Smith, 2016. *Portland Harbor Feasibility Study Report, Final*. Seattle, WA. June, 2016.

the Site. Ultimately, if a transloading facility is going to be located in the Harbor, the City requests that EPA work with the City to find an optimal location with the least amount of negative impact on the community.

If land within the Harbor is used for construction staging or dewatering before off-Site transport of contaminated materials, we recommend that the Sites not be held in these temporary uses for longer than ten years and be returned to the market for long-term industrial reuse as soon as practicable. If a time period longer than ten years is necessary, the City requests that a transloading facility not be located in the Harbor.

#### 27. Technology Assignment at Cathedral Park

The Proposed Plan technology assignments adjacent to Cathedral Park are based on inaccurate information. The FS<sup>20</sup> (Figure 1.2-4b) shows maintenance dredging areas adjacent to the boat ramp and fishing pier. The City has no plans or need to conduct maintenance dredging at these two locations (as accurately portrayed in the 2012 Draft FS (Figure 2.4-3c) and supported by the Cathedral Park Master Plan<sup>21</sup>). As the Proposed Plan (p.11) and the FS (Figure 3.6-2d) show, this area is erosional, as evidenced by the need to add additional riprap at the toe of the Park boat ramp in 2010 (404 permit NWP-2009-567). **Please remove these maintenance dredge areas off the shore of Cathedral Park, as shown in FS Figure 1.2-4b, and use the appropriate information for technology assignments for these areas.**

#### 28. Map Presentation of Remedy in Swan Island Lagoon

The maps in the Proposed Plan depicting Alternative I do not show that the area of remediation in Swan Island Lagoon includes the back of the lagoon (Proposed Plan, Figure 19a, Figure 19e). **Please clarify whether the remedy extends to the back of the lagoon, and revise and reissue the map to accurately reflect the proposed remedy.**

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<sup>20</sup> Anchor QEA, LLC, Windward Environmental, LLD, Kennedy/Jenks Consultants, Integral Consulting, Inc. 2012. *Portland Harbor RI/FS, Draft Feasibility Study*. Prepared for The Lower Willamette Group. Portland, OR. March 30, 2012.

<sup>21</sup> <http://www.portlandoregon.gov/parks/article/469520>

## BALANCE

Under the National Contingency Plan, EPA is required to evaluate potential cleanup alternatives against multiple criteria and use this evaluation to select a preferred remedy<sup>22</sup>. EPA must first determine that the remedy passes the threshold criteria of protectiveness and meeting ARARs. It then considers the five balancing criteria:

- Long- effectiveness
- Short-term effectiveness
- How well the remedy works in reducing the toxicity, mobility and volume of the contamination
- The ability to implement the remedy
- The cost of the remedy

There are trade-offs in valuing one criterion over another, and weighing these factors against each other on a large complex Site like Portland Harbor is challenging. The Site is over 10-miles long and conditions are different across those 10 miles. Additionally, even though an enormous amount of work has been completed to date, there remains uncertainty about conditions such as the rate of natural recovery of sediment contamination, the extent of contamination in some areas, and the actual exposures and risks that may occur at the Site. Making decisions considering these uncertainties required EPA to apply risk management principles and conduct a qualitative balancing of these criteria to identify the Proposed Cleanup Plan.

There are tradeoffs among achieving the different criteria, and the City supports EPA's efforts in identifying a plan that strikes a balance, despite knowing that it will not satisfy every party. For example, dredging and removing all contamination from the entire 10-mile Site would be clearly permanent in the long-term, but would take decades and would be done at an enormous environmental and economic cost. However, because most of the contamination is concentrated in small areas dispersed throughout the Site, a more balanced approach focuses on removal and capping of sediment in those most highly contaminated areas, and addressing broader areas with less contamination to be managed using natural recovery. This is the approach presented by EPA in the Proposed Plan, and this approach reduces a large percentage of the Site risks in a relatively short time frame, at a cost that can be fairly apportioned to the responsible parties to avoid years of court battles that would further delay the cleanup.

### 29. Risk Management Goals

The results of the risk assessments performed during the RI/FS are meant to serve as the basis for the cleanup, unacceptable risk to humans and the environment must be cleaned up protective levels. However, beyond the risk assessments, a number of decisions are required to determine how best to *manage* those risks in ways best suited to meet cleanup goals. The City notes that the primary goal of the cleanup is to provide a river that is protective of people and the environment, and that protectiveness is defined by acceptable risk levels described in law and guidance. These acceptable risk levels consider the fact that we live in an industrial society that uses chemicals, yet we also need to limit the amount of chemicals we are exposed to on a daily basis.

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<sup>22</sup> 40 CFR 300.430 (e)(9)(ii).

The City recognizes that the cleanup is not intended to remove all contamination from the river, and that many areas of the Site are already within the acceptable risk range for several uses of the river. These uses include: recreational swimming, recreating or working at many of the beaches, exposure to sediment that may occur as a result of in-water work or low-frequency fishing in many areas, and temporary use of beaches by houseless populations.

The Proposed Plan manages risks that are above acceptable levels through the active remedy, interim risk targets, institutional controls, monitored natural recovery, and long-term monitoring. The City again notes that given the tools available to address contamination at the Site, the Proposed Plan strikes an acceptable balance in managing the risks through a focus on risk reduction by active remediation in the areas of the river that are most contaminated. However, the City does not believe that the risk management component of remedy selection is adequately communicated in the Proposed Plan. **Please further describe the considerations of EPA’s risk management process in the Proposed Plan.**

### 30. Cost Effectiveness

It is EPA’s duty to ensure that cleanup costs are not excessive<sup>23</sup>. In evaluating different alternatives, there is a point at which each additional acre of dredging provides less and less reduction of overall contamination, despite the same cost of cleanup per acre. This “incremental benefit”, or cost effectiveness, was evaluated in the Proposed Plan (p. 67), but it is not clear how it was evaluated against the other balancing criteria in remedy selection. It is also not clear how time to achieve the remedial goals was incorporated into decision-making.

**Please describe the selection of Alternative I in terms of incremental benefits in contaminant reduction, and describe in clear, understandable language, how this was considered with the other balancing factors.**

### 31. Technology Assignments: Time to Achieve Protectiveness and Acres of Active Remedy

The City recognizes that many of the remedial technologies considered for the Portland Harbor could achieve protectiveness over time, and that an explicit difference between the technologies is the time it takes to reach the protectiveness goal. Remedies that require more dredging generally achieve protectiveness sooner than remedies that rely on natural processes to allow the river to recover. However, both technologies can reach the desired goal of a clean river. The time it takes to achieve protectiveness is an important consideration in balancing the appropriate technology assignments for a remedy, as there are trade-offs in these decisions. For example, a cleanup with more dredging can provide a benefit to the community and environment, however, it is often more expensive and more disruptive to ecological communities in the short-term. In addition, dredging could result in more diesel emissions and other air quality concerns than natural recovery, because dredging would require the transport of removed sediment to a disposal facility, as well as the transport of clean sediment into the Site to fill in the dredged areas of the river. As a result of these trade-offs, the City notes that both dredging and natural recovery are effective and both are needed to achieve a healthy river. The City believes EPA has generally struck an adequate balance in using the different types of technologies in the Proposed Plan to achieve protectiveness in a reasonable time frame.

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<sup>23</sup> 40 CFR 300.430 (f)(5)(ii)(D).

As part of the technology assignment section of the Proposed Plan, EPA decides how many acres of the Site to assign active remedies. This decision is based a number of factors, including how elevated the contaminant concentrations are in different areas. As shown in the FS and Proposed Plan, the contamination within Portland Harbor is not evenly distributed throughout the Site. Instead, contamination is concentrated in several discrete areas in the river. EPA has designated these areas of higher contaminant concentrations as “sediment management areas” (SMAs). By focusing active remedies (dredging, capping) primarily on the SMAs, a significant percentage of risk at the Site is reduced, even though the areas of active remediation only cover a small proportion of the total area of Site. For example, EPA has stated in their public presentations that because contaminant concentrations are concentrated in SMAs, applying active remedies to these areas as described in Alternative I would address 85% of the risk from fish ingestion<sup>24</sup>. The City believes that EPA has generally struck an adequate balance between acres assigned to the active remedies, such as capping and dredging, in the areas of the Site that are most contaminated, and the less disruptive remedies, such as monitoring the natural recovery of the river, in areas that have lower levels of contamination or are already considered protective for some uses. One area that is not adequately addressed in the Proposed Plan is the time needed to achieve protectiveness for each of the alternatives considered. **Please clearly lay out the timeline for each remedy to achieve cleanup goals. Include the cumulative time needed for baseline sampling, remedial design, and remedial action in the timeline.**

### 32. Community Acceptance

Community acceptance, as discussed in the next section, is an important factor in a remedy’s success, and a consideration that EPA must account for in selecting a remedy. EPA must assess which components of the remedy the community supports, has reservations about or opposes<sup>25</sup>.

The City heard from many in the community who would like to see a more aggressive cleanup and fish advisories lifted as soon as possible, as well as many who would like to keep cleanup cost down and had concerns over the impacts from cleanup activities and construction. It is not likely that a remedy will have 100% acceptance by all members of the community, **the City asks that EPA carefully consider community concerns and describe in detail how balancing community concerns with other factors was considered in remedy selection.**

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<sup>24</sup> EPA 2016. *Portland Harbor Superfund Site. Presentation to the Public.* Microsoft PowerPoint Presentation. August 2016. Portland, Oregon.

<sup>25</sup> 40 CFR 300.430(e)(9)(I).

## IMPLEMENTABILITY/FLEXIBILITY

The cleanup of Portland Harbor will be a massive effort requiring many years of design and construction, followed by long-term monitoring to track performance of the cleanup across the entire 10-mile Site. In representing the public interest of Portlanders, the City encourages EPA to seek opportunities and approaches to move the project forward quickly and efficiently. We are a large public entity, and are familiar with implementing projects at this scale (e.g. 'The Big Pipe', transportation planning, and utility infrastructure. We also have a detailed understanding of Site conditions and history, and feel we can offer an important perspective on the organization and implementation of this cleanup.

### 33. Separate Cleanup Areas

In the Proposed Plan (p. 65) EPA identifies the expectation for the project to be implemented "in a phased or sequenced approach" that considers prioritization of discrete areas for risk reduction, sequencing of design and construction, and other factors and potential effects of upstream work on downstream areas. The City agrees with this concept because large projects such as the Portland Harbor cleanup are most efficiently and effectively implemented by organizing the work into manageable elements that can be executed in logical, sequenced manner. In addition to the construction sequencing, another important consideration for Portland Harbor is that there are many different businesses that operate in specific areas over a span of 10 miles. These entities will be involved in specific portions of the cleanup, but not all of the cleanup. This will make it difficult for all parties to agree upon and act together on a single cleanup action. The remedy has the best chance of timely implementation if the areas that can or should move forward first, are able to do so without having to wait for all parties to be ready to move together.

Given the extent of the project area and the number of parties involved in the cleanup, the City recommends that EPA incorporate operable units (or similar legal mechanism) into the ROD. The National Contingency Plan states that a site can be broken down into smaller units "to expedite the completion of total site cleanup" 40 CFR 300.430(a)(1)(ii)(A). **To expedite the cleanup, the City believes that Portland Harbor should be broken down into smaller areas so that it can be addressed individually or in groups to build to a complete set of settlements and cleanup actions for the entire river.**

### 34. Protection of City Infrastructure

The City maintains critical public utilities that enter or cross the river including outfalls, water mains, sanitary lines and other utilities. Currently, the City has a water main crossing just upstream of the St. Johns Bridge and a sanitary force main crossing just upstream of the Railroad Bridge. The City will have to build additional utilities to accommodate Portland's growth. The continued operation and ability to make repairs to public infrastructure is a fundamental consideration of the implementability of a remedy.

EPA must take into account the continued operation of all public utilities in technology assignments, remedy selection, remedy design and in the use of institutional controls which will ensure unimpaired service. Some technologies simply may not be implementable with certain existing utilities. Precautionary measures will be needed to avoid impacts during construction and provide for long-term access for emergency and routine repair. **To the extent that the remedy considers relocation or any other alteration to these utilities, these costs should be factored into remedy costs. Likewise,**

**additional future costs for the City to access or maintain the utilities because of the remedy is a remedy cost that needs to be transparent in the cost estimates. The City encourages a close dialogue with EPA to mitigate these issues and related costs.**

### 35. Consideration of Flood Management Needs

EPA is required by Executive Order 11988 (as amended by Executive Order 13690) to improve the Nation's preparedness and resilience against flooding. The City agrees that FEMA flood rise regulations are a key ARAR (Proposed Plan, p. 34). The City qualifies for federally-backed flood insurance and federal disaster assistance because it follows the floodplain standards of the National Flood Insurance Program. Portland also qualifies for the Community Rating System incentives which result in a 25% discount on flood insurance. For EPA to ensure resilience against flooding, EPA's remedy should be consistent with National Flood Insurance Program requirements administered by FEMA (44 CFR 9, 44 CFR 60 and 44 CFR 65), Oregon statewide land use planning Goal 7 (OAR 660-015-0007), Metro Regional Government Title 3 requirements and Portland City Code 24.50. **The City requests that EPA ensure that remedy selection and design adequately consider flood management and not impair the City's ability to maintain its qualification for its favorable status under the National Flood Insurance Program.**

The Proposed Plan states that a HEC-RAS model will be run on the remedy selected in the ROD to ensure that flood rise management complies with regulatory requirements throughout the Site (Proposed Plan, p. 29) The City is the local jurisdiction that evaluates compliance with FEMA's requirement for no increase in the base (100-year) flood elevations. FEMA has concurred with the City's definition of "no rise" to mean less than 0.005 feet of rise, such that the rise would be equal to 0.00 feet when rounded and reported to the hundredth of a foot. **This definition should be used in evaluating compliance with FEMA 44 CFR 9 ARAR identified in Table 2.1-3 of the FS.**

Considering the significant volumes of proposed sediment removal and filling, the potential impacts of lost flood storage need to be carefully evaluated. While the Proposed Plan indicates the preferred alternative would result in a net removal, the analysis should also consider whether the removal is "hydraulically equivalent" to the fill. That is, fill placed below a particular elevation should be balanced by removal below that same elevation.

The evaluation of compliance with Federal flood rise management requirements needs to be updated periodically. Cut and fill amounts and location may change during remedial design based on Site-specific factors. Additionally, remedies are likely to be sequenced over a number of years in different areas of the river, with the potential to cause temporary flood rises. Therefore, the ROD may not accurately evaluate the eventual remedy if it is refined during the remedial design phase. **The ROD should describe how the HEC-RAS evaluation will be revised during individual project phases to assure that there are no cumulative effects of flood rise.**

### 36. Time Frame for Mitigation

All alternatives assume one year for demobilization and mitigation (Proposed Plan, p.37-48). Based on the City's experience with in-river restoration work, a five to ten year period of time is more realistic time-frame to carry out mitigation responsibilities (pre-design, design, permitting, construction, and post-construction monitoring). **Please update this assumption to at least 5 years.**

### 37. Stability of Beach Mix Backfill

Alternative I includes dredging the Intermediate Area (13 acres) and Shallow Areas (41 acres) and capping approximately 64 acres of contaminated sediment using engineered and armored caps (Proposed Plan, p. 64). The Proposed Plan states that areas assigned to dredge/cap will be backfilled to existing grade with a beach mix cover (p. 35). The beach mix cover provides valuable fish habit. Because parts of the river are erosional, measures should be required to ensure that it will stay in place. **Please explain design considerations to account for and counter any erosional forces on beach mix backfill.**

### 38. Administrative Efficiencies

**The City encourages EPA to incorporate an efficient process into the ROD for making anticipated adjustments to the remedy that will help implement remedial design.** This will allow reasonably foreseeable adjustments to be made to the general, Site-wide remedy concept presented in the ROD without delaying cleanup to complete EPA's administrative processes to prepare Explanations of Significant Differences or ROD amendments. **If EPA anticipates that such administrative processes are likely to be needed, it should clearly explain this and include these processes in the overall remedy timelines that are presented to the public.**

### 39. Consideration of Critical Site Factors that Limit Implementation

In applying their decision process to select technology assignments at various locations, it appears as though EPA did not consider location-specific factors that would limit the implementation of a selected remedy. The presence of over-steepened slopes, public utilities, piling fields, and other factors all impact the feasibility, cost, and duration of a selected remedy at a localized scale, and need to be considered in the technology assignments.

**The City requests that factors specific to localized cleanup areas be considered in technology assignments, and flexibility be granted for adjustments due to these factors if needed.**

### 40. Attainability of Preliminary Remediation Goals

Portland Harbor is located at the bottom of the 11,500 square mile Willamette River watershed. Point and non-point sources throughout the watershed contribute to low level contamination entering Portland Harbor. The cleanup is designed to address contamination currently within the Site. However, the river will continue to bring low levels of contamination into Portland Harbor, and some of these contaminants may hinder the ability to meet the preliminary remediation goals (PRGs) for water, tissue, and sediment. An example of upstream contamination is demonstrated by the presence of a fish advisory due to mercury upstream of Portland Harbor in the Willamette River<sup>26</sup>.

Consideration of background is important because PRGs need to be attainable, and some of the risk-based PRG concentrations are less than the naturally occurring or anthropogenic background concentrations, meaning that PRGs may not be attained. If remediation goals are not reached, the cleanup and associated monitoring could continue in perpetuity.

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<sup>26</sup><http://www.oregon.gov/oha/news/Pages/OHA%20issues%20statewide%20advisory%20recommending%20limited%20bass%20consumption.aspx>

For these reasons, it is common at cleanup Sites to require parties to achieve background concentrations as the remedial goal when there are known upstream sources. EPA makes this statement in the Feasibility Study (page ES-5) “If background concentrations are higher than the risk-based PRG, EPA defaults to background concentration, as a matter of policy.”

However, in the case of Portland Harbor, EPA has not used upstream background concentrations to set achievable remediation goals for surface water or tissue, and has not used background concentrations that appropriately characterize chemicals coming into the Site for sediment PRGs.

The Proposed Plan confirms that “on a Site-wide scale, none of the alternatives achieve surface water PRGs for PCBs and 2,3,7,8-TCDD eq.” (p. 61). This confirms the need to use background surface water concentrations for PRGs. The Proposed Plan states that there are insufficient data from which to compute defensible background concentrations in surface water, but one of the objectives of the Round 3A sampling effort was to collect data to support the FS evaluation of remedial alternatives, including monitored natural recovery, potential recontamination of sediment from surface water, and background conditions. Previously, the LWG calculated background values for surface water, and presented those in Section 7 of the Draft Final RI Report<sup>27</sup>.

While the Feasibility Study does calculate some background sediment concentrations, which are incorporated into remediation goals where appropriate, background sediment concentrations were not calculated based on data collected immediately upstream of the Site, but rather, three miles upstream, at RM 15. Background sediment concentrations were also calculated for a limited number of chemicals.

Parties involved in the cleanup need to have a reasonable understanding of the contaminant concentrations entering the Site from upstream. Ignoring upstream issues, such as mercury, could make meeting remediation goals impossible and make MNR less effective, whereas incorporating existing background data into PRG development provides an accurate, attainable, and measurable path towards Site closure. The City wants an effective cleanup that can be realistically measured against actual upstream conditions.

**The City requests that EPA use the surface water data collected at RM11W and RM16 (minus outliers) to calculate and provide background concentrations for surface water, and adjust PRGs accordingly, in accordance with EPA policy. In addition, achievable tissue PRGs should be modeled from background sediment values when the risk-based tissue PRG requires a sediment concentration below background. Finally, we request that baseline monitoring establish new background concentrations for sediment that represent the remedies currently being implemented in the downtown reach (e.g. data collected from around RM 12), and that remedial goals be adjusted to result in an implementable remedy.**

#### 41. Disposal issues

The Proposed Plan states that all principle threat waste (PTW) is assumed to be disposed at a Resource Conservation and Recovery Act (RCRA) Subtitle C disposal facility. Subtitle C disposal facilities are

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<sup>27</sup> Integral Consulting, Inc., Windward Environmental LLC, Kennedy/Jenks Consultants, and Anchor QEA LLC. 2011. Portland Harbor RI/FS Remedial Investigation Report, Draft Final. Prepared for the Lower Willamette Group, Portland, OR. Integral Consulting Inc., Mercer Island, WA; Windward LLC, Seattle, WA; Anchor QEA, LLC; Seattle, WA, Kennedy/Jenks Consultants, Portland, OR. August 29, 2011.

designed for RCRA hazardous waste and other high concentration wastes. Subtitle D disposal facilities are designed for lower concentration wastes. The costs for disposal are greater in a Subtitle C disposal facility than a Subtitle D disposal facility. Ex-situ treatment should reduce the toxicity, mobility, or volume of the PTW, precluding the need for disposal at a Subtitle C facility. **Please incorporate flexibility on disposal issues that can be more appropriately defined during remedial design.**

#### 42. Flexibility

The Portland Harbor Superfund Site is large and complex. While substantial, the existing information we have on the Site is dated. **EPA needs to incorporate flexibility into its decisions on remedy selection, remedy design, and remedy construction, to consider the new data that will be collected during design.** With flexibility, EPA will be able to make better decisions as new information is gathered during the remedial design phase of the project.

## ACKNOWLEDGING UNCERTAINTY

Uncertainty in the results of an RI/FS exist at every cleanup Site because it is impossible to obtain perfect data, and scientific models used to study the Site cannot account for every piece of information that may or may not be available. Therefore, uncertainty is accepted as inherent in the cleanup process, and remedies are based on a risk management approach that considers the uncertainties about the Site. Risk management decisions are meant to determine how to manage risk in a way best suited to protect human health and the environment. In the case of Portland Harbor, the uncertainty is significant because of the large scale of the project, the dynamic nature of the physical system and inherent unknowns in characterizing a river environment. The City acknowledges the challenges EPA is facing in developing a cleanup Plan in the face of this uncertainty. Listed below are comments and observations we made during our review of the Plan as they relate to uncertainty and risk management decisions by EPA.

### 43. Human Health Risk Models

The human health risk assessment was based on estimates of people's exposures to contaminants in the water, sediment, and fish, as well as estimates about the toxicity of those contaminants. While the estimates are based on scientific information and methods, they still create uncertainties in the risk assessment results. It is important to acknowledge the uncertainties of the risk assessment process, as the results provide the underpinnings for the entire cleanup. The City would like to emphasize that a risk-based cleanup goal is an estimate of a protective concentration, and that protectiveness may be better represented by a range of values to capture some of this uncertainty. This is acknowledged in EPA's directive on risk management<sup>28</sup>, which specifies a range within which EPA tries to manage risk.

**The City recognizes that EPA applied risk management principals in considering the uncertainties behind the risk assessment models, and requests flexibility in remedy selection that continues to acknowledge those uncertainties as they are better understood.**

### 44. Attainability of PRGs

As discussed previously, it is important to set achievable cleanup goals so that there are definitive end points to the cleanup process. Given the lines of evidence approach to EPA's assessment of natural recovery effectiveness, the City feels there is uncertainty in the period of attainability of PRGs through MNR. **The City requests additional information about EPA's planned monitoring program and how those results will be used in assessing the success of MNR.**

### 45. Spatial Scale Application of PRGs

Human health risk assessments are performed based on exposure areas that are sized according to the population and scenario being evaluated. For example, to evaluate risks to a person eating smallmouth bass caught while fishing at one location, the Portland Harbor risk assessment looked at tissue collected within a one-mile stretch of river surrounding that location, because smallmouth bass generally do not swim outside of a one mile area. To evaluate risks from fish that swim longer distances, such as carp, the risk assessment looked at data that spans a larger area. Alternatively, assessing risk for an area and

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<sup>28</sup> EPA 1991. *Role of the Baseline Risk Assessment in Superfund Remedy Selection Decisions*, Office of Solid Water and Emergency Response, Washington, 1991, OSWER Directive 9355.0-30.

location that does not match its use will yield inaccurate results. The same concept applies in the application of risk-based PRGs. EPA applied many of the PRGs to locations and at spatial scales that are inconsistent with the exposure scenarios for which they were developed, and regardless of whether there was unacceptable risk for a given location. **Please identify and explain the uncertainties of remedy selection that result from this approach.**

46. Discrepancies Between Residual Risk Calculations and Baseline Risk Calculations

Baseline risk assessments were performed in the RI, and used in the development of PRGs. As part of the FS, EPA calculated residual risk concentrations based on predicted conditions in the river after completion of each alternative remedy. The residual risk calculations were inconsistent with the methods used in the baseline risk assessment, particularly in regards to size of exposure areas. **Please address the uncertainties involved in using a residual risk assessment to measure remedy effectiveness that is based on methods that differ than those used in the baseline risk assessment.**

47. Construction Project Duration

The City believes that the time duration of the active Portland Harbor cleanup (i.e., sediment dredging and capping and river bank excavation and restoration) described in EPA's Proposed Plan is likely underestimated. For example, using a dredging schedule that consists of 24-hours, 7-days a week dredging, and the time considered for staging and mobilization/demobilization of a barge are both optimistic. **Please comment on the uncertainties related project construction duration and schedule.**

## Conclusions and Recommendations

The City appreciates the substantial efforts made by EPA to develop the Plan, and we share EPA's desire to publish a ROD by the end of 2016. The City recognizes that there is a diversity of interests and opinions regarding the cleanup plan, and all stakeholders' objectives cannot be satisfied. Alternative I strikes a balance of active remediation in highly contaminated areas, natural recovery in suitable areas with less contamination, institutional controls to limit adverse exposure to contaminants, and long-term monitoring of the system to evaluate the effectiveness of the remedial actions.

The City has heard many opinions from its constituents – all of which are valid perspectives. On balance, we believe that this Plan represents a reasonable starting point to move forward with the cleanup. What is most important at this critical time is to get the cleanup started at the areas of highest exposure (high use public fishing areas) and the most contaminated areas. These first steps include collecting new data to define current conditions to finalize contamination footprints and designs. During and after remedy implementation, the City supports routine monitoring to measure the impacts of the 'hot spot' cleanups on other areas of the Site. Finally we recognize there may be a need for additional active remediation in the future if the system does not respond favorably, or if recontamination occurs.