Mitigation and Conservation Banks: Report for River Plan Consideration

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Mitigation & Conservation Banks

Report for River Plan Consideration

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1. INTRODUCTION

PURPOSE OF THIS REPORT
This report summarizes the issues and feedback received to date regarding the feasibility of an off-site program that would allow mitigation of the environmental impacts associated with development to occur on sites other than where the impacts occur. Off-site mitigation could be one component of a natural resource management program that enhances watershed health while allowing industry to thrive along the North Reach of the Willamette River.

The report provides recommendations designed to assist River Plan staff with the development of an off-site mitigation program and to continue the work of the Mitigation & Conservation Bank Task Group. These recommendations were informed by feedback received from a variety of sources including background interviews with City bureau representatives, task group discussions, public outreach and consultation with River Plan staff.

The project investigated and analyzed potential program mechanisms, receiving sites and funding opportunities for off-site mitigation. The PSU Workshop Team will present the recommendations from this report to the River Plan Committee on June 19th, 2007. River Plan staff will use feedback received from the River Plan Committee and others to further development of an off-site mitigation program.

The recommendations included in this proposal should be considered for inclusion into the River Plan / North Reach document that is recommended to the River Plan Committee. The River Plan Committee’s proposal will be forwarded to the Planning Commission for consideration. The Planning Commission’s recommendations will be forwarded to City Council for consideration. The final version of this report will be included as an appendix to the River Plan.

There will be multiple opportunities for public comment on the draft River Plan / North Reach before it is submitted to City Council in the summer / fall of 2008.

WHAT IS THE RIVER PLAN?
The River Plan is a comprehensive multi-objective plan for the land along the Willamette River. It is an update of the 1987 Willamette Greenway Plan, zoning code and design guidelines. The Willamette Greenway Plan serves as Portland’s compliance with Statewide Planning Goal 15, and Metro Title 3 (which addresses Goals 6 and 7). The River Plan also helps to implement the River Renaissance Strategy and fulfill the five mutually supporting River Renaissance goals:

- Ensure a Clean and Healthy River System for Fish, Wildlife and People
- Maintain and Enhance a Prosperous Working Harbor
- Create Vibrant Waterfront Districts and Neighborhoods
- Embrace the River as Portland’s Front Yard
- Promote Partnerships, Leadership, and Education

The first phase of the River Plan focuses on the North Reach of the Willamette River in Portland (roughly the Broadway Bridge to the Columbia River) and includes a working harbor reinvestment strategy. Future planning will address the Central City and southern areas of the river.
The River Plan / North Reach will address a broad set of issues related to the Willamette River and its corridor in order to update the Greenway Plan and refine and streamline Portland's zoning code and design guidelines. These topics include:

**Industry:** Reinvestment in labor, land, and infrastructure; river-related / river-dependent definitions

**Neighborhoods:** North Beach, St. Johns, others

**Recreation:** Trails, viewpoints, parks, boating

**Natural Resources:** Habitat conservation and restoration, bank treatment, landscaping and stormwater management

**PLANNING PROCESS**
The diagram below illustrates the Workshop Team's planning process from background research and issue identification to the development of recommendations.

**ISSUE IDENTIFICATION**
Through a series of conversations with River Plan Project Manager Sallie Edmunds, and other River Plan staff, the Workshop Team began the process of identifying the issues associated with off-site mitigation. Additional knowledge and understanding were gained through a series of interviews conducted with representatives of City bureaus and independent consultants, and through research of mitigation programs in other jurisdictions.
THE MITIGATION & CONSERVATION BANK TASK GROUP
A key part of the River Plan process is the use of stakeholder task groups. The groups are convened to provide feedback, advice and analysis on issues and solution concepts, affirm criteria and priorities for successful solutions, and act as a technical sounding board for staff to ensure that a variety of data and viewpoints have been considered in the formulation of recommendations. The groups are not asked to reach consensus, but rather to provide staff with information on specific issues and provide perspectives on the recommendations. In addition to input from the Mitigation & Conservation Bank Task Group, the information for this report built upon prior work conducted by the Watershed Health Task Group and River Plan staff.

The Mitigation & Conservation Bank Task Group was formed to provide advice on:

- Achieving optimal mitigation strategies for the North Reach (e.g. increasing flexibility for property owners and maximizing natural resource function)
- Applicability of alternative models for off-site mitigation in the North Reach (e.g. in-lieu fees and conservation banking)
- Opportunities to successfully integrate mitigation strategies with other North Reach priorities and actions (e.g. industrial and economic development)

Four individuals representing key interests were asked to serve on the Mitigation & Conservation Bank Task Group. Their selection was based on their expertise and ability to consider multiple perspectives within the larger context of river planning. The task group was small in size to allow the group to work more efficiently and effectively. The group met five times between April and June, 2007. The task group members include:

- Phil Grillo, Working Waterfront Coalition
- Nancy Munn, NOAA Fisheries
- Bob Sallinger, Audubon Society of Portland
- Greg Theisen, Port of Portland

A written charter was adopted to serve as a working agreement. The group was asked to strive for open and constructive dialogue to ensure that potential solutions were well tested and diverging opinions discussed. The task group addressed several key questions throughout the course of its work:

- Which principles should guide mitigation in the North Reach?
- What criteria should be used to determine whether mitigation should be required on-site and when it should be allowed off-site?
- Should mitigation compensation be in-kind in all circumstances?
- Which management tools or mechanisms should the City consider to advance mitigation goals?
PUBLIC OUTREACH

The Workshop Team gave presentations at a number of public venues, including two North Portland neighborhood association general meetings (St. Johns and Overlook), and at the Citywide Land Use Group monthly meeting. The content of the presentation included a summary of the River Plan and task group process, and a briefing on the off-site mitigation concept. An informational handout explaining the concept of off-site mitigation and the work of the Mitigation & Conservation Bank Task Group was developed for distribution at these meetings. This handout can be found in Appendix B. Following the presentation, the audience was asked to provide feedback on the mitigation concept and to comment on whether they believed off-site mitigation could be an effective strategy to balance environmental protection and economic development goals in the North Reach. The feedback generated at these meetings appears in Appendix C.

Another component of the public outreach effort involved contacting local anglers. The Workshop Team went to two Willamette River access points, Cathedral Park and Kelley Point Park, to conduct informal interviews about habitat features at local fishing spots. The key findings of the angler interviews are contained in Section 2 of Appendix C. Finally, the Workshop Team conducted a site visit to the North Reach via canoe from Cathedral Park to Kelley Point Park.

Sturgeon fishing in the North Reach
2. BACKGROUND

THE NORTH REACH: PHYSICAL CONTEXT
The Willamette River flows north through downtown Portland to its confluence with the Columbia River. This northern segment of the river, lowlands and flood area, contains the City’s industrial working harbor and multimodal freight infrastructure which serve as the backbone of the region’s economy and establish Portland’s position as a gateway to global trade. The North Reach remains vital to the region’s economy today. Approximately 1700 acres of the North Reach (34%) are in industrial land uses and harbor industries support 1 in 8 regional jobs.\(^1\) Many businesses that comprise the harbor’s manufacturing, distribution and energy clusters benefit from the competitive advantage river access provides as a means of connecting to regional and world markets.

The success of industrial activities in the North Reach has required intensive development, including the placement of fill material in the floodplain and in streams and wetlands, dredging of the navigational channel, and armoring of the banks. The once complex hydrologic systems that characterized the North Reach have been impaired by the cumulative effects of these activities, pollution discharge and stormwater run-off from industrial, commercial and residential development. The cumulative effect has reduced water quality, contributed to the Portland Harbor’s listing as a Superfund site, and reduced natural resource function and fish and wildlife habitat along this stretch of river.\(^2\)

THE NORTH REACH: REGULATORY CONTEXT
City Policy Goals
There are a number of City policy documents that include goals to conserve, protect and restore natural resources along the Willamette River. These include the Willamette Greenway Plan, the River Renaissance Strategy, the City’s commitment to salmon recovery through the Endangered Species Act (ESA)\(^3\), and The 2005 Portland Watershed Management Plan which calls for a comprehensive effort to improve and restore watershed health by focusing on the sources and causes of environmental problems through an integrated City response to local, state and federal environmental regulations.

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\(^2\) Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), commonly referred to as Superfund.

\(^3\) In March 1998 and March 1999, the National Marine Fisheries Service (NMFS) listed Columbia River steelhead trout and Chinook salmon respectively, as threatened species under the federal Endangered Species Act. Because the Columbia River system includes rivers and streams in the Portland area, the listings required the City of Portland to protect salmon and steelhead. In response, Portland City Council on July 29, 1998 adopted Resolution 35715 to develop an integrated, city-wide response in collaboration with the federal government to assist with the recovery of steelhead trout. A second resolution, 35894, adopted on July 14 2000, called for a comprehensive framework to develop a recovery plan for all ESA listed salmon and trout.
The River Concept, adopted by Portland City Council in April 2006, outlines the City’s vision for the North Reach:

“The North Reach will continue to provide Oregon with access to global markets and support the region’s economy as a west coast distribution hub and a heavy industrial area. Environmental cleanup, recreational access, and watershed health actions will contribute to the harbor’s long-term vitality.”

To achieve this vision, the City is committed to integrating economic and environmental objectives to protect and enhance the limited natural resources in the North Reach while also protecting and adding to the region’s economic and industrial base. Such an effort includes not imposing an undue economic burden on private property owners facing the effects of a tightening land supply within the harbor. Creative multi-objective approaches, both regulatory and non-regulatory, will be required to optimize watershed function and industrial operations simultaneously.

One element of the City’s River Plan may include a coordinated off-site mitigation program, designed to offset future natural resource loss as a result of development activities.

City Regulatory Obligations
There are federal, state and regional mandates requiring City compliance. These include the federal Endangered Species Act (ESA) and Clean Water Act (CWA), and Oregon Statewide Planning Goal 5 (Natural Resources, Scenic and Historic Areas, and Open Spaces), Goal 6 (Water Quality, Erosion Control, and Flood Hazard Management), Goal 9 (Economic Development) and Goal 15 (Willamette Greenway) and Oregon Removal-Fill Law. Additionally, the City must continue to comply with Metro’s Urban Growth Management Functional Plan, Title 3 (Water Quality), Title 4 (Industrial Employment) and has until January, 2009 to comply with Title 13 to protect, conserve and restore the region’s remaining wildlife habitat (Nature in Neighborhoods). The goals of Title 13 are to:

- Conserve, protect, and restore a continuous ecologically viable streamside corridor system that is integrated with upland wildlife habitat and with the surrounding urban landscape.
- Control and prevent water pollution for the protection of public health and safety, and to maintain and improve water quality throughout the region.

One aspect of Metro’s work was the development of an inventory to identify regionally significant riparian corridors and upland habitat. To achieve compliance with Title 13, the City may utilize Metro’s model ordinance, adopt its own set of regulatory and non-regulatory tools, or adopt area-specific district plans. The City has reviewed, and updated for use within Portland, Metro’s inventory as part of the City’s overall watershed health strategy. This natural resource inventory (NRI) and tools are meant to inform the evaluation of management options for natural resources protection and restoration.

In the North Reach, due to the importance of maintaining the economic vitality of the working harbor, an off-site program that strategically directs restoration and enhancement to identified sites while allowing for industrial expansion and re-development could be a useful component of the City’s strategy to meet the requirements of Title 13.
FEDERAL REGULATORY DRIVER
Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)
Portland Harbor was added to the National Priorities List (Superfund) in December 2000. EPA is the lead agency for the in-water portion of the cleanup and Oregon DEQ is the lead on the upland sites. Investigation and some cleanup is currently underway. The cleanup process may include compensation from responsible parties for damages to natural resources which could affect the overall demand for mitigation and restoration in the North Reach. This issue is discussed in more detail in Section V Demand for Mitigation.

THE NORTH REACH: NATURAL RESOURCES
Although the North Reach is highly industrialized, important, although relatively limited natural resources do remain including riparian and upland vegetation and beaches. These resources contribute to water storage, filtering of pollutants and provide fish and wildlife habitat. Many special status fish and wildlife species, such as Peregrine falcon and Chinook and Coho Salmon, make use of the resources in the North Reach. Also, due to its location at the confluence of the Willamette and Columbia Rivers, the North Reach provides connectivity to regional resource areas.

The City of Portland and the Oregon Department of Fish and Wildlife conducted a four year study of fish in the lower Willamette River. Key findings from the study include the importance of this stretch of the river for federally listed Chinook salmon:

- The lower Willamette River is not simply a migration corridor for Chinook salmon and provides important rearing habitat
- The migration period for Chinook salmon is longer than previously thought
- Chinook salmon are growing as they migrate through the Lower Willamette

The North Reach as a whole, including the Willamette River, covers 6,070 acres. Of this total, 737 acres (including over the River) are covered by overlay zones designed to protect and conserve natural resources and functions. However, within the North Reach riparian corridors and wildlife habitat areas exist outside of these overlay zones. According to the City’s NRI, 1,141 acres of riparian corridors and wildlife habitat areas have been identified and mapped as providing important values and functions. 764 acres have been ranked as being of high or medium relative value.

CURRENT CITY ZONES THAT REQUIRE MITIGATION
Greenway Overlay zones
The River Water Quality (q-overlay) zone protects the functional values of water quality resources by limiting or mitigating the impact of development in the greenway setback. An alternatives analysis describing how the proposed location of the activity will have the least detrimental impact to the functional values is required. However, the q-overlay does not apply to river-dependent industrial uses.

6 GIS analysis conducted by City of Portland, Bureau of Planning staff. May 30th, 2007. More information regarding the mapping and ranking of natural resource can be found in Draft Natural Resource Inventory Update Project Summary Report, City of Portland (June 2007)
The City achieved compliance with the water quality related requirements of Metro’s Title 3 on the Willamette through the q- overlay zone. Metro’s Title 3 also required balanced cut and fill in the floodplain and erosion control which are regulated through the City’s Title 24 (Building Regulations) and Title 10 Erosion Control. Within the q- overlay, development that requires greenway review must mitigate for any negative impacts to resources that perform a water quality function (e.g. natural water infiltration and purification, slope stabilization and stream temperature reduction). The mitigation plan must also ensure that the proposed development does not contribute to a cumulative loss of functional values.

The River Natural (n- overlay) zone protects, conserves, and enhances land of scenic quality or with significant wildlife habitat. Although there are no explicit mitigation requirements for impacts within the n- overlay, mitigation measures may be required as conditions of approval of a greenway review when significant detrimental impacts to wildlife habitat or scenic qualities cannot be avoided. The n- overlay applies to several parcels in public ownership within the North Reach, including areas clustered along Waud Bluff, riverward of the University of Portland and within the Harborton wetlands at the confluence of the Willamette River and Multnomah Channel.

**Environmental Overlay zones**

These zones protect and conserve resources and functional values that have been identified by the City as providing benefits to the public. The environmental zone requires development to meet certain standards. Development that cannot meet the standards must perform an alternatives analysis and complete a mitigation plan whenever a proposed development will result in unavoidable significant detrimental impact to the identified resources and functional values.

The Environmental Overlay zones also include a menu of site enhancement options to be performed in exchange for increases in building coverage and exterior improvements on already developed sites. These include restoration plantings, impervious surface reduction, parking lot retrofit, or payment of a re-vegetation fee to the Bureau of Environmental Services’ re-vegetation program. Within the North Reach, only a few narrow parcels along the Bonneville Power Administration powerline easement are within the Environmental Overlay zones.

*Existing riparian natural resources along the North Reach of the Willamette River.*
3. WHEN SHOULD MITIGATION BE ALLOWED OFF-SITE?

The traditional hierarchy followed by federal agencies (such as the U.S. Army Corps of Engineers) is for the applicant to undertake an alternatives analysis in an attempt to choose an alternative that would avoid impacts. If this is not possible then the development should minimize impacts, and mitigate for impacts deemed unavoidable. The preferred location for mitigation is on-site or as close to the site of disturbance as possible and within the same watershed. For off-site mitigation, the federal agencies will require mitigation ratios ranging from 1:1 to much greater than 1:1 depending on the functional values present. These ratios are generally higher as the distance from the mitigation site to the impacted site increases. Ratios in excess of 1:1 are also required to compensate for the temporal loss of natural resources and expected underperformance due to the difficulty of creating a fully functioning wetland or habitat unit. This is similar to the City’s existing policy for the Environmental Overlay zones.

Provisions which allow off-site mitigation to occur within the Environmental and Greenway Overlay zones necessitate that the applicant must own the mitigation site; possess a legal instrument that is approved by the City (such as an easement or deed restriction) sufficient to carry out and ensure the success of the mitigation program; or can demonstrate legal authority to acquire property through eminent domain. In general, except where mitigation could be better provided elsewhere, mitigation will occur:

- On-site and as close as practicable to the area of disturbance
- Within the same watershed as the development
- Within Portland City limits

FEEDBACK RECEIVED
The criteria for determining when off-site mitigation should be allowed were discussed in the Watershed Health Task Group, in the background interviews, with the Mitigation & Conservation Bank Task Group and at the neighborhood meetings. Responses ranged from strongly supporting on-site requirements to allowing mitigation off-site at the discretion of the property owner. Several individuals suggested that on-site is preferred unless it is impracticable to compensate for lost functions on-site and that there are many on-site design solutions such as green-roofs that should not be overlooked. In addition, the argument was made that small habitat patches, although isolated, can help support wildlife species, particularly in an industrial area. Concern was also voiced that using already protected public land as a receiving area will not increase natural resource function if these lands were already targeted for future restoration efforts by public agencies.

Other comments reflected a more pragmatic approach, that establishment of larger mitigation sites should be encouraged if such areas would provide a quantifiable benefit to fish and wildlife that exceeds the benefits of on-site mitigation. Finally, support was expressed for allowing off-site mitigation at the applicant’s discretion, to create larger habitat areas that would provide more ecological function and be less costly to maintain, and to allow marine industrial sites to develop to their maximum economic and operational potential.

Task group opinions diverged on the issue of whether off-site mitigation efforts should remain within the North Reach or could be applied outside of the area. The degraded condition of the North Reach, the presence of endangered species, and the need to enhance, protect or restore the limited natural resources in this stretch of the river were cited as reasons to keep receiving areas within the North Reach. Others support directing mitigation efforts to receiving areas outside of the North Reach based on existing restoration site opportunities, the lack of publicly owned land in the North Reach and preserving opportunities for future industrial expansion.
A range of opinion was also expressed regarding whether mitigation should be in-kind in all circumstances. In-kind is a type of mitigation in which the adverse impacts to one habitat type are mitigated through the creation, restoration or enhancement of the same type of habitat. For example, if a development impacted riparian habitat, in-kind mitigation would compensate this impact with restoration or creation of riparian habitat. Support was voiced for the traditional approach of preferring in-kind whenever possible. However, it was pointed out that following in-kind in all situations could result in the undesirable outcome of replacing one poorly functioning habitat, (e.g. invasives) with another similarly poorly functioning habitat. It was suggested, that “appropriate mitigation” may be preferable. Such an approach would compensate for impacts by replacing resources that are currently scarce, but present historically, or habitat types needed to support endangered species, depending on the circumstances.

In the North Reach, the largest limiting factors for salmonids are the presence of shallow water and off-channel habitat. Thus, the creation or restoration of these resources may be a priority in the North Reach. This philosophy was supported by the suggestion that mitigation should compensate for the habitat type suffering the greatest natural resource types suffering the greatest declines or facing the greatest threat. This approach bears further discussion in the North Reach given the fragmented nature of the habitat areas and the critical habitat needs of endangered salmonids.

Additional concepts that were discussed at task group meetings include granting increased flexibility to property owners to meet particular standards, in certain situations through alternative means on or off-site. This could involve transferring riverbank planting, parking lot landscaping or screening requirements off-site. For example, with sites with contaminants beneath impervious surfaces, it is preferable to transfer landscaping requirements off-site, rather than have the paving perforated by plantings which would increase the risk of rain and stormwater infiltration mobilizing the contaminants, possibly into the groundwater, the river or both.

A second concept that emerged from the Watershed Health task Group includes allowing property owners to select from a menu of site-enhancement options. This option could take the form of a pre-development credit which could be applied toward future mitigation requirements and could include the constructing an eco-roof / green roof or stormwater bioswales, installing vertical landscaping, restoring an on-site natural resource or planting additional landscaping on the riverbank.
4. OFF-SITE MITIGATION PROGRAM OPTIONS

Table 1 identifies potential off-site mitigation options, provides applicable examples and lists the benefits and challenges of implementing each option as one element of a City natural resource management program when mitigation is required and allowed off-site. These options can be grouped in three categories: banking, in-lieu fees and partnerships. Off-site program options were developed based on research conducted by the Workshop Team and were tested in the task group meetings to determine implementation feasibility.

BANKING
A mitigation bank is a site where habitat is restored, created, enhanced, or preserved expressly for the purpose of providing compensatory mitigation in advance of authorized impacts to similar resources. Two banking options were identified, a mitigation bank and a conservation bank.

City Mitigation Bank
The City could identify, acquire and manage sites that would be used to mitigate the impacts to natural resource functions and values in the North Reach. Funds generated from in-lieu fees, perhaps in combination with other City, state and federal programs, could be directed toward the mitigation bank program. Both in-lieu fees and City developed mitigation banks could allow the City to strategically direct mitigation efforts to pre-identified priority areas (Refer to program option 1A in Table 1).

Conservation Bank
A conservation bank is a for-profit privately or publicly owned entity that manages land for natural resource values. The land is enhanced to offset environmental impacts from projects elsewhere. There are over seventy conservation banks in operation nationwide, although there are presently no conservation banks operating in Oregon. The natural resource benefits from this management regime are sold as “pre-approved credits” to property owners to satisfy the mitigation requirements of their projects. Unlike some wetlands mitigation banking schemes, conservation banks require land to be “banked” or protected from development prior to impact and permanently restricted through a conservation easement. Land ranking low in natural resource function may be purchased and enhanced, or existing areas with higher natural resource functions may be protected. Conservation banks offer incentives for property owners interested in banking by placing economic value on the creation, protection or restoration of natural resources and wildlife (Refer to program option 1B in Table 1).

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7 For a complete list of potential funding sources see Table 3.

8 In California, credits may be generated to meet any number of resource conservation needs, including compensation for impacts to wetlands, threatened or endangered species, Environmentally Sensitive Habitat Areas, mudflats, sub-tidal areas, and less sensitive resources. In 1995, the State of California adopted official policy to promote regional conservation through the use of conservation banks. Agreements were established among the appropriate state and federal resource agencies (California Fish & Game; Environmental Protection; Resources and Corps; USFWS). These agencies grant regulatory approval for conservation banks based on the documented resources protected on-site. Additional guidance was promulgated in 2003 by USFWS outlining comprehensive federal guidelines promoting conservation banks as a tool for mitigating impacts to endangered or threatened species. These guidelines established standard operating procedures and criteria for conservation banks nationwide.
IN- LIEU FEES
In-lieu-fee programs allow an applicant to pay the regulatory agency rather than completing an on-site, project-specific mitigation. The regulatory agency applies these funds toward the purchase, preservation, restoration or maintenance of designated off-site mitigation/conservation areas. In-lieu fees are similar to system development charges or impact fees used to fund infrastructure, parks and schools as part of new residential subdivisions. In-lieu fee revenue could be used by the City to fund a variety of enhancement activities such as planting of street trees in the right-of-way, park enhancements, or restoration of developed floodplain. (Refer to program options 2: C, D, E & F in Table 1).

PARTNERSHIPS
This approach expands the above mitigation bank option to include partnerships among the City, private property owners and non-profit organizations to jointly acquire and/or manage sites for their natural resource function in order to off-set the impacts of development. Such a program potentially offers a greater ecological return on investments currently devoted to on-site mitigation and embraces the Partnerships, Leadership and Education River Renaissance theme (Refer to program options 3: G, H, I, J & K in Table 1).

FEEDBACK RECEIVED
It should be emphasized, that regardless of the selection of any one or more of these options, off-site mitigation will only be one component of a comprehensive natural resource program to improve watershed health in the North Reach.

The task group discussed a number of these options with several members mentioning that an in-lieu fee system, if applied fairly and proportionately, is an appropriate program option, has the potential to offer property owners greater flexibility, and would allow mitigation efforts to be strategically directed. Furthermore, these members suggested the City establish an in-lieu fee system while continuing to pursue additional program options informed by a better understanding of market forces: demand, supply and the cost of restoration. However, concern was expressed that fee revenue could be applied to ancillary programs, such as education and outreach, unless the City explicitly required that all fees must be directed toward on the ground restoration and enhancement activities. It was also noted that a fee structure must have transparency with the business community interested in the direct results of their fee payments. Overall, an in-lieu fee system may have several benefits:

- Once the fee schedule is established, the pathway to compliance for a property owner is reduced to a simple transaction.
- Compared to a conservation banking system, a precise match of habitat types and quantity is not required between development and restoration projects.

Determining this match, developing the habitat based transaction currency and the two-to-five year timeline commonly required to permit and establish a conservation bank pose challenges to the implementation of a successful banking program. These challenges were reinforced during task group discussion in which it was pointed out that a successful economic model for banking involving habitat valuation and market exchange of credits has not yet been developed for a riverine system.

Two limitations of an in-lieu fee program are that it is unlikely to raise sufficient revenue to support an acquisition program, and because the pace of restoration and enhancement activities is tied to the pace of development, redevelopment and expansion, there is the potential for in-lieu fee revenue to accumulate too slowly to fund

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9 There are differences of opinion with regard to banking programs requiring this precise match between habitat types and quantity. One view is that conservation banking programs are inherently different based on this requirement, while another view is that this match is only dependent on the structure of the banking program. With this view, as long as there is a public accounting of the credits and debits, an in-lieu fee system operates similarly to a conservation banking system.

10 Timelines for establishing wetland mitigation banks in Oregon may be as short as one year.
significant restoration opportunities if there is insufficient demand for mitigation. Thus, an in-lieu fee system, absent a comprehensive approach to natural resources protection and restoration, including an acquisition program and other public and private restoration efforts, should not be considered sufficient by itself, to improve watershed health along the Willamette River.\textsuperscript{11}

The conservation banking model offers a number of potential benefits, particularly that the cost of acquisition and restoration is financed by private sector investors, seeking to profit by selling habitat credits to those facing mitigation requirements. Banking can be considered a cost effective tool in certain situations for protecting, enhancing and restoring land prior to impacts to natural resources. Mitigation usually occurs after impacts, which causes a temporal loss of resources and ecological function, although there are examples of “advance mitigation”. Vanport Wetland is such an example. However, as with an in-lieu fee program, banking alone, without an acquisition program is not the sole answer to natural resource protection and restoration.

Partnerships offer a number of benefits including the ability to generate greater resources toward acquisition of mitigation sites, and restoration and enhancement efforts. Partnerships may also increase opportunities to leverage political and financial support. In addition to financial benefits, partnering with non-profits offers the potential for programmatic expertise and the support of organizations committed to natural resource protection. Partnering with the business community is important to achieve buy-in with a mitigation program that is part of a larger natural resource protection and economic development strategy. The Sandy River Partnership is an example of a regulatory agency (Bureau of Land Management), industry (Portland General Electric), and a non-profit (Western Rivers Conservancy), working together to create a conservation corridor along the Sandy River. Partnerships have the potential to generate trust and goodwill and to help insure that the costs of natural resource protection, restoration and enhancement are equitably distributed. Finally, partnerships are a vital component of the City’s River Renaissance goals.

The formation of a Lower Willamette Watershed Council, modeled on existing Councils for the Columbia Slough and Johnson Creek, was a suggestion that emerged from the task group. Such an organization could include representatives from a diverse group of interests: property owners, businesses, environmental groups, recreation advocates, and government agencies. The council could play a leading role in educational, stewardship and restoration activities that enhance and revitalize the lands along the river.

Table 2 lists potential funding sources for acquisition and restoration as part of an off-site mitigation program. Watershed councils qualify as grant recipients for a number of federal, state and non-profit funding sources. For example, in May of 2007, the Oregon Watershed Enhancement Board approved $5 million in funding for over 60 watershed councils.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
<th>Example</th>
<th>Benefits</th>
<th>Challenges</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Banking</td>
<td>City acquires land, establishes a mitigation bank, and sells credits to entities required to offset impacts from development/ expansion. The funds are used for restoration, enhancement, operations, and maintenance &amp; monitoring of the bank.</td>
<td>West Eugene Wetlands Mitigation Bank</td>
<td>Public ownership provides certainty Potential for public access City may use bank to meet City NRDA responsibilities Can be component of habitat protection strategy</td>
</tr>
<tr>
<td>B</td>
<td>In-lieu Fees</td>
<td>A non-profit entity establishes a conservation bank, performs restoration/ enhancement and sells credits to entities required to offset impacts from development/ expansion. The banker provides conservation easement on the property to a third party.</td>
<td>Kimball Island Conservation Bank, CA</td>
<td>No initial public cost Protection, enhancement, restoration prior to impacts Creates incentive to protect and restore natural resources Utilizes efficiency of market Potentially larger preserve size</td>
</tr>
<tr>
<td>C</td>
<td>The City collects in-lieu fees and applies revenue to existing publicly owned (&amp; non-profit?) sites for restoration/ enhancement. A fee schedule is established and applied when off-site mitigation is allowed.</td>
<td>Seattle Shoreline Alternative Mitigation Plan (SAMP)</td>
<td>City directs mitigation to preferred locations Simple transaction once fee structure is established Simple pathway to compliance No match needed between habitat types at development and restoration sites</td>
<td>Enhancement work at existing sites is limited to pace of development Establishing fee structure may be difficult Fee structure must have transparency</td>
</tr>
<tr>
<td>D</td>
<td>The City and/or non-profit purchase conservation easements on private property and the City applies in-lieu fees to support restoration/ enhancement activities on these sites.</td>
<td>Numerous examples involving local and national land trusts.</td>
<td>Simple transaction once fee structure is established City directs resources to preferred locations</td>
<td>Dispersed sites makes access, monitoring and maintenance more difficult Will not result in additional restoration acreage May not optimize opportunities to improve watershed health</td>
</tr>
<tr>
<td>E</td>
<td>The City acquires land as mitigation site(s) and applies in-lieu fees to support restoration/ enhancement activities on these sites.</td>
<td></td>
<td>Public ownership provides certainty City directs resources to preferred locations</td>
<td>Acquisition cost may be expensive Limited land availability, potential willing sellers</td>
</tr>
<tr>
<td>F</td>
<td>The City collects a percentage of on-site development/ expansion project costs. The funds used to support restoration/ enhancement activities at existing publicly owned sites.</td>
<td></td>
<td>May result in greater total funds available for restoration/ enhancement efforts</td>
<td>Equity concerns</td>
</tr>
<tr>
<td>G</td>
<td>Partnerships</td>
<td>For-profit or non-profit, in partnership with industry, acquire land as mitigation site(s). City funds are used to augment the cost of restoration at these sites.</td>
<td>Sandy River Partnership (Western Rivers Conservancy, PGE, BLM)</td>
<td>Low-upfront cost for City Restoration efforts directed by experienced organization</td>
</tr>
<tr>
<td>H</td>
<td>The City partners with non-profit to jointly acquire land as mitigation site(s). The City applies in-lieu and/or other fees to support restoration/ enhancement activities at these sites.</td>
<td>National Fish &amp; Wildlife Foundation projects West Eugene Wetlands Program involves the City, BLM, Non-profit &amp; Private landowners</td>
<td>Lower-upfront cost for City Restoration efforts directed by experienced organization There are a number of non-profits whose work focuses on the Columbia and Willamette Rivers</td>
<td>Potential for future legal dispute over land management Acquisition cost may preclude non-profit interest</td>
</tr>
<tr>
<td>I</td>
<td>The City partners with other public agencies to acquire land as mitigation site(s) and applies in-lieu and/or other fees to support restoration/ enhancement activities at these sites.</td>
<td>BES and Portland Parks for Caelius property</td>
<td>Lower-upfront cost for City Potential for comprehensive regional approach</td>
<td>Coordination may face bureaucratic challenges Finding public monies Acquisition process may be lengthy</td>
</tr>
<tr>
<td>J</td>
<td>Private property owners collaborate to purchase and establish common mitigation site(s). The property owners direct their mitigation responsibilities to the common site(s).</td>
<td></td>
<td>No City acquisition cost Allows coordinated mitigation effort</td>
<td>No incentive until and unless the City imposes mitigation requirements</td>
</tr>
<tr>
<td>K</td>
<td>The City collaborates with property owners to purchase and establish mitigation site(s). The City coordinates restoration/ enhancement efforts at the site(s).</td>
<td></td>
<td>Ends disputes over requirements for individual projects</td>
<td>Establishment may be difficult due to goal conflict</td>
</tr>
</tbody>
</table>
5. DEMAND FOR MITIGATION

Demand for mitigation in the North Reach can influence the viability of various mitigation program mechanisms (e.g., in-lieu fees and mitigation banking). Several factors contribute to existing and potential demand for mitigation. The following discussion outlines factors that could affect demand in the North Reach.

CURRENT FACTORS AFFECTING DEMAND

Existing Development Requirements
Mitigation for impacts to natural resources in the North Reach is currently required in two of the City’s greenway overlay zones and in the City’s environmental overlay zones. These overlays cover approximately 8% of the acreage (including water) in the North Reach, including several areas in public ownership (Kelly Point Park, Cathedral Park, Willamette Cove and Mocks Crest).

Landscaping Requirements
Many North Reach property owners regard the greenway landscaping requirement as a type of mitigation and want the option of complying off-site. While not technically mitigation, landscaping standards prescribe the number and types of plantings required within or riverward of the greenway setback and are generally required when development occurs in the Greenway overlay zones. The large number of properties with river frontage in the North Reach that are subject to landscaping requirements has resulted in a modest amount of vegetated bank in this stretch of the river.

POTENTIAL FACTORS AFFECTING DEMAND

New River Plan Natural Resource Management Program
Adoption of the River Plan will include a natural resource management component to address watershed health in the North Reach and help achieve compliance with relevant state, regional and federal regulations. City policies designed to enhance watershed health and fish and wildlife habitat will guide these efforts. New mitigation requirements are anticipated to be part of the program. These new requirements could potentially increase demand for mitigation in the North Reach.

Additionally, cleanup of numerous contaminated sites along the Willamette River will affect the timing of the demand for mitigation. There are currently 25 sites considered to be vacant brownfields larger than five acres. Redevelopment of contaminated sites has been slowed by cleanup and liability costs and inter-jurisdictional permitting issues. If these challenges can be overcome, the pace of cleanup and redevelopment will increase thereby speeding up the demand for mitigation if there are on-site natural resources that would be impacted.

Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) & Natural Resource Damage Assessment (NRDA)
According to CERCLA and the Oil Pollution Act of 1990 (OPA), parties determined responsible for releases of hazardous substances are liable for the clean-up cost and compensation for injury to natural resources as a result of those releases. The Portland Harbor Natural Resource Trustee Council (Trustees) is authorized to determine the extent of any liability and can negotiate additional compensation measures in addition to the Superfund remedial settlement.

13 The Portland Harbor Natural Resource Trustee Council is composed of representatives of NOAA Fisheries; US Fish & Wildlife Service; Oregon Department of Fish and Wildlife; Confederated Tribes of the Warm Springs Reservation of Oregon; Confederated Tribes of the Umatilla Indian Reservation; Confederated Tribes of the Grand Ronde Community of Oregon; Confederated Tribes of Siletz Indians of Oregon; Nez Perce Tribe; Confederated Tribes and Bands of the Yakama Nation.
This compensation process may take the form of a natural resource damage assessment (NRDA) in which the Trustees seek a legal claim for damages and request compensation for public trust resources damaged or lost. This compensation must be used to restore, replace or acquire resources equivalent to those lost or damaged. The Trustees have initiated the NRDA process and are currently establishing the injury and assessing potential damages. This process is expected to be completed within the next five to ten years. According to a preliminary report, the Trustees have determined that, “Response actions from Superfund remedial activities carried out or planned do not or will not sufficiently remedy the injury to natural resources without further action”. And furthermore:

“Even at this stage it is evident that the direction of the remedial investigation/ feasibility study is not toward full restoration of likely injuries, and will not address lost services of resources which have been ongoing since the enactment of CERCLA. Thus, additional restoration, replacement, and rehabilitation of natural resources will ultimately be necessary.”

Thus, the Trustees may determine that damages are necessary; however at this time the extent of potential damages is unknown. Determining required compensation is a process that is likely to take several additional years. Though it is uncertain when and if assessments will occur, NRDA is a powerful long-term factor that could drive demand for mitigation in the North Reach. If damages are substantial, a partnership between the Trustees and the City could funnel mitigation dollars into common restoration sites, creating economies of scale.

ANALYSIS
Demand for mitigation is a critical component in determining which mechanism should be recommended as part of an off-site mitigation program. Establishment of mitigation banks in the North Reach, whether owned and/or operated by the City or a third party, will require sufficient demand to guarantee the economic viability and ecological success of the bank. Sufficient demand for mitigation creates a predictable, stable marketplace from a banker’s perspective. Based on this brief analysis, current demand for mitigation in the North Reach is limited and not occurring at a level that would currently support a mitigation bank, but may in the future. Current conditions and the potential for an increase in demand in the short-term and long-term support adoption of an in-lieu fee mechanism for an off-site mitigation program. However, the potential for significant NRDA assessments may create a demand for mitigation to support other program options, including market-based approaches such as conservation banking.

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6. SUPPLY: RECEIVING SITES

Principles of landscape ecology suggest that terrestrial wildlife populations generally benefit from habitat patches sufficiently large and containing interior area to support self-sustaining, diverse populations. Also important are smaller patches in developed areas and connectivity corridors that can act as conduits for wildlife movement are necessary to connect habitat patches and to provide access to water. These principles apply to the North Reach and need to be considered in the selection and design of mitigation sites, along with factors such as land availability and the costs of acquisition and restoration or enhancement. For example, it is important ecologically to maintain or create upland habitat areas and to provide links between Forest Park and Smith and Bybee Lakes.

To help enhance aquatic ecosystems, several fish refugia sites are needed along the Willamette River for salmonids which rear and migrate in the North Reach. Thus, mitigation sites between Oaks Bottom to the south and Kelley Point Park at the confluence with the Columbia River need to be identified, acquired, protected, enhanced, restored and maintained. Tributaries of the Willamette River, such as Miller Creek, also provide opportunities to enhance fish habitat. Restoration opportunities at other locations, such as on Hayden Island or along tributary streams emerging from Forest Park, could provide additional ecological benefit. Characteristics of refugia sites include off-channel habitat, the presence of shallow slow-moving water, sandy substrate, vegetated banks and the presence of large wood and woody debris.

FEEDBACK RECEIVED

It was noted during task group discussion that for salmonids, how large these refugia areas should be, the number of sites needed, and the sites’ proximity to one another to provide the necessary feeding and rearing areas are key unknowns at the present time. What has been documented is that if these refugia sites are created with the desired characteristics, salmonids will frequent them as resting, rearing and habitat areas.

Additional discussion focused on the fact that there are additional species of concern besides salmonids within the North Reach including other trust species, such as sturgeon and lamprey, and avian and other terrestrial wildlife habitat. These species may have different habitat needs from salmonids. Also, although additional values and functions may be impacted due to development (e.g. water quality, water storage and pollutant filtering), habitat enhancement, restoration or creation may act as a proxy and mitigate for the loss of some portion of these functions and values.

With regard to contaminated sites, it was pointed out that certain cleanup actions may limit future restoration opportunities. For example, it was suggested that capping of a contaminated site may preclude the replanting of trees depending on the characteristics of the cap.
COSTS
City acquisition of riverfront property along the Willamette River for use as off-site mitigation areas may be expensive and may require assistance from federal, state, regional and non-profit funding sources. Although industrial land values are often lower than in surrounding residential areas, the availability of uncontaminated land for mitigation sites is limited by competition from industrial firms looking to expand or relocate onto these same properties. For contaminated sites, there may be significant costs associated with cleanup and liability. In addition to land acquisition costs, restoration costs include but are not limited to:

- Removal of fill and debris, impervious surfaces, pilings/dolphins, seawalls/bulkheads, docks/over-water structures, rip-rap and invasive plants
- Earthmoving, bank re-grading, channel re-engineering and stream daylighting
- Placement of large wood and soil amendments and re-vegetation with trees, shrubs and grasses.

There are significant non-capital costs associated with such projects including design, permitting, construction management, disposal of contaminated materials, monitoring, maintenance, repair and taxes. Restoration cost estimates developed for the City of Seattle ranged from $175,000 to $1.5 million/ per acre in a highly developed industrial area depending on the extent of restoration required, not including land acquisition costs.\(^\text{15}\)

Table 2 is adapted from the work of the Watershed Health Task Group\(^\text{16}\) and identifies potential priorities for acquisition and restoration throughout the North Reach. The list does not include all sites where mitigation would be beneficial. The Watershed Health table was developed with multiple watershed health goals in mind, including but not limited to the needs of listed salmonids.


<table>
<thead>
<tr>
<th>Site (Ownership: Size)</th>
<th>Action</th>
<th>Habitat Adjacency</th>
<th>Opportunities</th>
<th>Limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Balch Cove (Private: 6 Acres)</td>
<td>R/E</td>
<td>Much of Balch Creek is culverted. Surrounding area is tank farms.</td>
<td>Daylighting of Balch Creek confluence, off-channel habitat creation, bank reconfiguration.</td>
<td>Water quality issues exist at Balch Cove; culverted stream channel runs underneath industrial property.</td>
</tr>
<tr>
<td>BES Beach/ Swan Island Lagoon (City: 34 Acres)</td>
<td>R/E</td>
<td>Large off-channel habitat. Wapato found on-site.</td>
<td>Reconfigure shallow water habitat. Invasive species removal, revegetation.</td>
<td>Surrounded by development. Lagoon is highly contaminated. Land may be more valuable as development site.</td>
</tr>
<tr>
<td>Cathedral Park (City: 20 Acres)</td>
<td>R/E</td>
<td>Connectivity to upland habitat. Adjacent to BES Pollution Control Lab.</td>
<td>Revegetation along the riverbank off-channel habitat creation, floodplain restoration, stormwater management.</td>
<td>Park use will limit restoration opportunities, damage to revegetated areas.</td>
</tr>
<tr>
<td>Harborton Wetlands/ Miller Creek (Private: 74 Acres)</td>
<td>R/E MB CB</td>
<td>Confluence with Miller Creek. Highway 30 blocks connectivity with Forest Park.</td>
<td>Off-channel habitat creation, wetland enhancement, bank reconfiguration, invasive species removal, revegetation.</td>
<td>Owner may hold onto site for future NRDA damage assessment, limiting near-term restoration and prohibiting public ownership.</td>
</tr>
<tr>
<td>Kelley Point Park (City: 100 Acres)</td>
<td>R/E MB</td>
<td>Confluence of Columbia and Willamette Rivers, Columbia Slough. Connectivity to Smith &amp; Bybee Lakes.</td>
<td>Off-channel habitat creation, placement of large wood, revegetation, removal of invasives.</td>
<td>Park use will limit restoration opportunities, damage to revegetated areas.</td>
</tr>
<tr>
<td>Waud Bluff (70 Acres)</td>
<td>R/E</td>
<td>Connectivity to Willamette Cove.</td>
<td>Oregon oak habitat enhancement, of invasive species removal.</td>
<td>Coordination among multiple owners.</td>
</tr>
</tbody>
</table>
FUNDING SOURCES
The costs associated with an off-site program include planning, permitting and design; acquisition, restoration and enhancement; and operations, maintenance and monitoring. The cost of these activities and who should pay which portion of these costs may affect the decision to implement any of the identified program options listed in Table 1. Federal, state, regional and for-profit and non-profit funding sources to support an off-site mitigation program, including acquisition of receiving sites, are identified in Table 3. Given City budgetary constraints a combination of these sources, in addition to the use of in-lieu fees, may need to be utilized.

FEEDBACK RECEIVED
To reduce the cost of habitat conservation, the City could purchase conservation easements to decrease the need for, and expense of, acquiring receiving sites. However, there may be challenges with access for maintenance and monitoring and scattered easements may not provide ecological benefits equivalent to larger contiguous areas of habitat. An additional acquisition mechanism suggested involved the City borrowing funds to acquire mitigation sites and then repaying the loan through the collection of in-lieu fees. The economic feasibility of this approach bears further study to determine if sufficient revenue could be generated through the collection of in-lieu fees. If not, then facilitating private sector interest in a conservation banking program should be pursued in addition to funding opportunities from public sector and non-profit grants.

Along with grant funding, some third-party organizations may also help facilitate conversations with potential willing sellers for site acquisition. The National Fish & Wildlife Foundation (NFWF) is one organization that offers fiscal administration for banking and in-lieu fee programs. In this scenario, entities required to pay an in-lieu fee would direct the funds to NFWF who would then bank and invest the money. Using their programmatic expertise NFWF could provide guidance to the City on how to best utilize the revenues.17

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17 Phone interview with Krystyna Wolniakowski Northwest Regional Director NWFW, April 27, 2007. Krystyna also suggested that NFWF experiences significantly lower overhead costs, 10% compared to 35-50% for public agencies.
<table>
<thead>
<tr>
<th>Program</th>
<th>Purpose</th>
<th>Recipients</th>
<th>Logistics</th>
<th>Funding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pacific Coast Salmon Recovery Fund National Marine Fisheries Service (NMFS)</td>
<td>Conservation, restoration and sustainability of salmon populations and habitat.</td>
<td>State, local &amp; tribal governments; private landowners; conservation districts; local watershed groups, other recovery-focused organizations</td>
<td>State must submit grant applications to NMFS &amp; select projects</td>
<td>2005-2005: $7.89 million 2000-2005: $92.07 million in state matching funds for habitat protection &amp; restoration.</td>
</tr>
<tr>
<td>Land &amp; Water Conservation Fund Department of the Interior (National Park Service) Grants distributed by Oregon Parks and Recreation Department</td>
<td>To create &amp; maintain recreation areas &amp; facilities; to protect and maintain recreation resources. Land &amp; water acquisition for public access, including new or additions to existing parks, forests, wildlife areas, beaches.</td>
<td>State &amp; local governments</td>
<td>Provides 50% matching grants to state &amp; local governments for the acquisition &amp; development of public outdoor recreation areas &amp; facilities Projects must be consistent with the outdoor recreation goals &amp; objectives stated in the Statewide Comprehensive Outdoor Recreation Plan Will require public access</td>
<td>2006: $85 million Funding is highly variable from year to year.</td>
</tr>
<tr>
<td>NOAA Community Based Restoration Program 3 Year Partnership Grants</td>
<td>Funds national &amp; regional habitat restoration partnerships for up to 3 years for individual grass-roots restoration projects.</td>
<td>Local governments, watershed groups, conservation organizations</td>
<td>Multi-year funding proposals accepted every three years Must be 1:1 match with non-federal funds</td>
<td>2006: $100,000-2 million per proposal</td>
</tr>
<tr>
<td>NOAA Community-based Restoration Program Project Grants</td>
<td>Funds grass-roots marine &amp; coastal habitat restoration projects that will benefit anadromous fish species, commercial &amp; recreational resources, &amp; endangered &amp; threatened species.</td>
<td>Local governments, watershed groups, conservation organizations</td>
<td></td>
<td>2006: $30,000 - $250,000 per proposal</td>
</tr>
<tr>
<td>Bonneville Power Administration (BPA) Integrated Fish &amp; Wildlife Program Administered by Northwest Power &amp; Conservation Council</td>
<td>To protect, mitigate, enhance &amp; recover fish &amp; wildlife populations in the Columbia River Basin affected by the Federal Columbia River Power System.</td>
<td>Local governments, watershed groups, conservation organizations</td>
<td>3 year funding cycle Next authorizations for 2010-2012</td>
<td>$143 million / year $2 million/ year for the Willamette River</td>
</tr>
<tr>
<td>US Fish &amp; Wildlife Service Cooperative Endangered Species Fund</td>
<td>Provides state funding for conservation projects to assist threatened &amp; endangered species.</td>
<td>Watershed groups, conservation organizations</td>
<td>25% State matching requirement</td>
<td>2007: $80 million</td>
</tr>
<tr>
<td>Water Resources Development Act (WRDA) U.S. Army Corps of Engineers Lower Willamette River Ecosystem Restoration Project</td>
<td>Funding for ecosystem restoration and environmental infrastructure assistance. The local project would restore habitat within the Corps’ jurisdiction (aquatic ecosystems and their associated riparian areas) along the Lower Willamette.</td>
<td>Local governments</td>
<td>Potential restoration projects are subject to a cost-benefit analysis and must be coordinated with applicable city programs including River Renaissance. The Corps will contribute up to 50% of the planning and 75% of implementation costs associated with the projects.</td>
<td>Funding is through biennial Congressional appropriations and can be quite variable. Congressional funds have not been appropriated for the Lower Willamette WRDA project.</td>
</tr>
<tr>
<td>US Fish &amp; Wildlife Service Partners for Fish and Wildlife Program; Cooperative Conservation Initiative</td>
<td>To restore natural resources &amp; establish or expand wildlife habitat &amp; restoration of wildlife habitat on private lands.</td>
<td>Federal agencies, Tribes, State &amp; local governments, conservation organizations, academic institutions, businesses &amp; industries, school groups, private individuals</td>
<td>50% matching requirement</td>
<td>$2 million $300,000/ year</td>
</tr>
<tr>
<td>EPA National Watershed Initiative Funded through BPA</td>
<td>Habitat restoration in the Lower Columbia River Estuary.</td>
<td>Local governments, watershed groups, conservation organizations</td>
<td>No matching funds required.</td>
<td></td>
</tr>
</tbody>
</table>
### Table 3. Potential Funding Sources for Acquisition and Restoration

<table>
<thead>
<tr>
<th>Program</th>
<th>Purpose</th>
<th>Recipients</th>
<th>Logistics</th>
<th>Funding</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>State</strong></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Oregon Watershed Enhancement Board Land Acquisition &amp; Restoration Funds; Special Investment Partnership (SIP) Grant Program</td>
<td>Promotes &amp; funds voluntary actions that strive to enhance Oregon’s watersheds.</td>
<td>Local governments, watershed groups, conservation organizations</td>
<td>Administers grant program funded by Oregon Lottery revenue, salmon license plates, federal salmon funds, &amp; ‘funds from purchase of “salmon-friendly power”. Funding for land acquisition, restoration &amp; stewardship; will fund land acquisition for off-site mitigation program. Requires matching funds by receiving entity for land acquisition 25% required prior to disbursement.</td>
<td>2007: $10.7 million</td>
</tr>
<tr>
<td>Oregon Department of State Lands (DSL) Mitigation Revolving Fund (for Wetlands)</td>
<td>Restoration, enhancement &amp; creation of wetlands Acquisition of land or easements in conjunction with wetland restoration.</td>
<td>Local governments, watershed groups, conservation organizations</td>
<td>Funds come from landowner or developer when there are no other wetland mitigation options available. Money is deposited into interest bearing account which supports wetland projects. Projects must permanently protect wetland acres.</td>
<td>Fluctuating balance but at times fund has accumulated over $1 million</td>
</tr>
<tr>
<td>Oregon Governor’s Fund for the Environment Administered by NFWF</td>
<td>To restore the quality of Oregon’s rivers and associated fish, wildlife, and plants.</td>
<td>Local governments, watershed groups, conservation organizations</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Regional</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metro Natural Areas Bond Acquisition Funds</td>
<td>To preserve significant fish &amp; wildlife habitat, enhance wildlife corridors and connect urban areas with nature</td>
<td>Willing sellers</td>
<td>Willamette River Greenway is one of the target areas. Property selection process is underway.</td>
<td>$227.4 million over 10 years</td>
</tr>
<tr>
<td><strong>Non-profit</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>National Fish &amp; Wildlife Foundation (NFWF) General Matching Grants Program; 150+ individual grant programs</td>
<td>Funds projects that address priority actions promoting fish &amp; wildlife conservation &amp; the habitats on which they depend.</td>
<td>Federal, state, &amp; local governments, educational institutions, nonprofit organizations</td>
<td>Chartered by Congress, utilizes federal, non-federal, philanthropic funds &amp; awards from environmental damages. NOAA/ National Fish &amp; Wildlife Foundation Habitat Restoration Partnership.</td>
<td>$140 million total funding</td>
</tr>
<tr>
<td>NFWF Pacific Grassroots Salmon Initiative</td>
<td>Funds projects in Alaska, Oregon &amp; California to protect &amp; restore Chinook &amp; Coho salmon &amp; steelhead stocks</td>
<td>Federal, state, &amp; local governments, educational institutions, nonprofit organizations</td>
<td>Project types include those that improve estuarine habitat, restore riparian habitat, improve fish passage, remove invasive species &amp; restore spawning &amp; rearing habitats. Proposals for restoration projects are encouraged to have a high degree of public/private collaboration, occur in priority watersheds, target key fish populations, &amp; use technically defensible methods.</td>
<td>2006: $25,000 to $250,000 per proposal</td>
</tr>
<tr>
<td>NFWF Keystone Initiative Grants Freshwater Fish Conservation Initiative</td>
<td>To increase fish populations through protection, restoration &amp; enhancement of spawning &amp; rearing habitat.</td>
<td>Federal, state, &amp; local governments, educational institutions, nonprofit organizations</td>
<td>2:1 non-federal matching requirement.</td>
<td>2007: $50,000–$300,000/ proposal</td>
</tr>
<tr>
<td>National and Local non-profit Conservation Organizations: The Nature Conservancy Trust for Public Land Three Rivers Land Trust Western Rivers Conservancy</td>
<td>To protect open space, natural areas, biodiversity and fish and wildlife habitat.</td>
<td>Partner with Federal, state, &amp; local governments, businesses, foundations and other non-profit conservation organizations.</td>
<td>Provide funding for acquisition and restoration; and offer technical, financial, and scientific and land management expertise.</td>
<td>National Organizations have multi-million dollar budgets.</td>
</tr>
<tr>
<td><strong>For-profit Conservation Bankers</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wildlands,Inc.</td>
<td>Purchases land for natural resource benefits. Creates, restores and enhances natural resources. Natural resource benefits are sold in the marketplace as credits to property owners to satisfy the mitigation requirements of their projects.</td>
<td>Private for-profit entity</td>
<td>Banker purchases land and conducts restoration and enhancement prior to impacts. Lengthy permitting process. Conservation easement granted to regulatory authority to protect banked lands in perpetuity.</td>
<td>Private capital dependent on market conditions.</td>
</tr>
<tr>
<td><strong>Property Owners</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Property owners along the Willamette River</td>
<td>Property owners developing, redeveloping or expanding on land within the Greenway.</td>
<td>City though in-lieu or watershed enhancement fees.</td>
<td>Payment of fees as part of current Greenway permitting process.</td>
<td>Variable, dependent on the pace of development, redevelopment and expansion, and the fee structure.</td>
</tr>
</tbody>
</table>
## 7. RECOMMENDATIONS

The following recommendations were developed from concepts discussed and feedback received throughout the task group process and in consultation with River Plan staff.

<table>
<thead>
<tr>
<th>Recommendations for River Plan Staff</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Include off-site mitigation as a component of any natural resource management plan for the North Reach.</td>
<td>An off-site mitigation program that strategically directs restoration to identified sites while allowing for industrial expansion and re-development will be necessary to help achieve River Renaissance goals and compliance with Metro Title 3 and Title 13.</td>
</tr>
<tr>
<td>Establish an in-lieu fee mechanism.</td>
<td>Establishing a program on the ground in short order is paramount from both a natural resource perspective and a business community standpoint. In-lieu fees have a number of benefits including a simple pathway to compliance and do not require a precise match of habitat types and quantity between development and restoration projects. However, in-lieu fees, absent a comprehensive approach to natural resource protection, including an acquisition program and other public and private efforts, will not be sufficient to improve watershed health along the Willamette River.</td>
</tr>
<tr>
<td>Identify habitat acreage and industrial coverage targets to help guide long-range planning for the North Reach.</td>
<td>Utilizing principles of landscape ecology and information about urban wildlife habitat functions will help inform the location, size and proximity of mitigation sites over a 50-100 year horizon. Economic forecasting will help to better understand the future industrial land use pattern in the working harbor. This information can inform the development of policy to support the vibrancy of this industrial zone. This effort should be updated as necessary to include the best scientific and economic information available.</td>
</tr>
<tr>
<td>Hire a consultant to produce restoration cost estimates and a potential fee structure for an off-site mitigation program.</td>
<td>Restoration costs calculated for application along the North Reach of the Willamette can be used to inform off-site mitigation program options and funding strategies and to help develop of an in-lieu fee schedule.</td>
</tr>
<tr>
<td>Develop a long-term off-site mitigation funding and land acquisition strategy.</td>
<td>Mitigation is only one element in a comprehensive natural resource program to improve and enhance watershed health and fish and wildlife habitat. Acquisition and restoration costs are likely to be expensive. A long-term strategy utilizing private and public sector funding is necessary.</td>
</tr>
<tr>
<td>Work with the Portland Harbor Natural Resources Trustees to identify partnership opportunities.</td>
<td>Identifying and utilizing common mitigation and restoration sites to meet NRDA and Greenway mitigation requirements may optimize restoration efforts and achieve economies of scale.</td>
</tr>
<tr>
<td>Work with community stakeholders, including the business community to identify partnership opportunities including the process to establish a Lower Willamette Watershed Council.</td>
<td>Possibilities include expanding the range of requirements allowed off-site (e.g. parking lot landscaping); sharing in the cost of the mitigation program, perhaps through the use of the BES Revegetation Program; insuring transparency with fee development; and promoting business contributions to River Renaissance goals. A watershed council can receive funding for restoration and provide a forum in which stakeholders work together to achieve mutual goals for the lands along the river.</td>
</tr>
<tr>
<td>Work with BES to develop additional off-site mitigation program options.</td>
<td>As the costs for restoration and the demand for future mitigation are better understood, additional program options such as a City developed mitigation bank, or a for-profit conservation bank may prove feasible and desirable.</td>
</tr>
<tr>
<td>Work with non-profits to acquire funding and programmatic expertise for acquisition and restoration opportunities.</td>
<td>Partnering with organizations committed to natural resource protection can help reduce the cost to City taxpayers and build support in the environmental community for an off-site program component to a natural resource protection strategy.</td>
</tr>
</tbody>
</table>
DISCUSSION
In-lieu Fee Mechanism
There was agreement among the Task Group members that establishing an in-lieu fee mechanism should be accomplished quickly as a necessary first step in developing a more comprehensive off-site mitigation and natural resource protection program. These fees should be collected and directed initially toward restoration and enhancement on existing City owned sites in the North Reach. This approach could provide a cost-efficient way to achieve restoration and enhancement by utilizing the BES Revegetation Program to carry out the work on the ground. Over time, as restoration costs and the demand for mitigation are more clearly understood, and as funding for land acquisition is obtained, the program can be expanded to accommodate additional program options and mechanisms including the banking options and various partnership configurations.

The specific options and mechanisms selected may be based on particular site characteristics, given sufficient demand. As an example, for large privately owned parcels along the Sauvie Island shoreline, acquisition by a for-profit conservation banker may make sense. The expense of acquisition combined with the potential for a diversity of functions to be created, restored and enhanced, suggest an opportunity for a conservation banker to purchase the properties, capitalize the restoration and sell natural resource function based credits depending on the particular natural resources created, restored or enhanced. Additionally, given the degraded conditions in the North Reach, allowing out-of-kind mitigation in the North Reach may increase the feasibility of conservation banking by permitting bankers to sell credits for a wider array of resources than under an in-kind mitigation program.

A Landscape Plan
A proposal that emerged from the task group process is the need for a plan that would describe the future North Reach landscape, delineating areas best suited for habitat restoration, and for industrial development and expansion. While not explicitly undertaking this exercise on a parcel by parcel basis, the guiding vision for the North Reach as outlined in the River Concept calls for watershed health actions and economic development to contribute to a vibrant harbor in the North Reach. In addition, as the River Plan: North Reach enters the integration phase with the completion of the task group process, River Plan staff will develop several program alternatives designed to achieve these interrelated goals. This phase will build upon the foundational work of the Mitigation & Conservation Bank Task Group, and others, including Watershed Health and Industrial Zoning as well as the work of River Plan staff.

It was suggested in task group meetings that planning for the North Reach should include measurable habitat goals to guide key decisions in the development of an off-site mitigation program. These decisions could include the selection of an indicator species to determine the type of habitat mitigation efforts should create, restore or enhance, and if mitigation sites should be small, numerous and dispersed or larger, fewer and contiguous. Given their listed status and the City’s commitment to salmon recovery, plus the historical deficits of prime North Reach salmonid habitat, restoring riparian, shallow water and off-channel areas should be a primary focus of an off-site mitigation program. This program should allow out-of-kind mitigation, under certain circumstances, to assist in salmon recovery. Thus, criteria should be developed to determine under which circumstances out-of-kind mitigation is the preferred option. There may also be additional benefits for terrestrial species as a result of emphasizing the needs of salmonids.

Potential NRDA Partnership
NRDA offers a potential partnership opportunity between the Natural Resource Trustees, private property owners and the City in which particular restoration sites could be used to satisfy both NRDA compensation and City mitigation requirements. Such a scheme may allow property owners to use their land as a mitigation site, fulfill their NRDA responsibilities and sell credits for additional restoration and enhancement opportunities to other property owners with City mitigation obligations. However, one limitation to this recommendation is that the city is a PRP (Potentially Responsible Party) in the determination of cleanup liability for the Portland Harbor Superfund site. This status may limit the City’s ability to participate in the management of a mitigation bank associated with NRDA, as bank holders, according to the Natural Resource Trustees, must not have an economic interest in the North Reach.
8. FUTURE WORK

The Workshop Team will present this report to the River Plan Committee at the June 19th meeting. Due to differences in the academic schedule and the City’s River Plan timeline, the June meeting will end the Portland State University team’s involvement in the project.

River Plan staff will reconvene the Mitigation & Conservation Bank Task Group in the late summer or early fall to review and provide feedback on the natural resource and mitigation components of the River Plan. At that time, through the work of River Plan staff and the consultant, there should be a greater understanding of the answers to a number of the key remaining questions:

- What is the likely demand for mitigation? (i.e. who will be required to mitigate?)
- Which impacted resources will require mitigation?
- What are the costs associated with restoration and who should pay which portion of the costs? (e.g. the City, property owners along the Willamette River, and project applicants).

Given this additional knowledge, the task group will be asked to provide suggestions on appropriate off-site mitigation program options and mechanisms. Members of the task group may also be asked to form a working group with members of other River Plan task groups to review cost estimates and program implementation. In addition, task group members will have an opportunity to respond to River Plan Program concepts advanced by River plan staff.
9. APPENDICES

APPENDIX A: SUMMARY OF TASK GROUP MEETINGS

Meeting 1 March 22, 2007
At the introductory meeting, the task group members reviewed the task group purpose, charter and schedule, and discussed the issues associated with mitigation that the Workshop Team had identified in a background issue paper. Additional discussion focused on the identification of potential mitigation sites.

Meeting 2 April 9, 2007
The second meeting included two presentations to help orient the task group members to different off-site mitigation program options, including conservation banking and for the potential benefits of partnering with non-profit organizations. These include grant funding and programmatic expertise. Discussion ensued with questions and comments on the issues and opportunities associated with banking options. It was noted that successful banking models for riverine systems have not yet been developed.

Meeting 3 April 26, 2007
The focus of the third meeting was to further discuss and refine key issues associated with mitigation outlined in: Mitigation: A Summary of Feedback Related to 4 Key Questions, a document prepared by the Workshop Team. The objectives of an off-site mitigation program and associated issues were discussed. The task group provided further feedback and refinement of the criteria for when off-site mitigation should be allowed. Various program options and the benefits and challenges of these were discussed, including in-lieu fees and banking. It was pointed out that understanding the demand for mitigation is an important element to determine the applicability of various off-site program options.

Meeting 4 May 14, 2007
The meeting included a presentation on the City of Seattle’s off-site mitigation program and the practicality of such a program for Portland. After the ensuing discussion, the task group provided refined feedback for when on-site mitigation should be required and when off-site mitigation should be allowed. Appropriate mechanisms for off-site mitigation for the lands along the Willamette were also discussed. Support was voiced at this meeting for the implementation of an in-lieu fee mechanism.

Meeting 5
Task group members discussed and provided feedback on the Draft Mitigation and Conservation Banks Report & Recommendations.
APPENDIX B: PUBLIC MEETING HANDOUT

Mitigation in the North Reach
The Bureau of Planning is working with citizens, landowners, and others to formulate a strategy to meet watershed health management objectives in the North Reach of the Willamette River. The North Reach, home to valuable wildlife habitat and one of the region’s most important working industrial harbors, will require an innovative strategy to meet both watershed health and economic objectives. As a part of the River Plan, the Mitigation/Conservation Bank Task Group has been discussing where and when off-site mitigation could be allowed as compensation for impacts to natural resources.

How are natural resources currently protected in the North Reach?
Generally, the Greenway Overlay Zones in the North Reach are not focused on watershed health or natural resource protection. The River Water Quality zone is focused on water quality and the River Natural zone focuses on wildlife habitat. However, very little land in the North Reach is currently within either of these zones. There is also a 25’ river setback in certain areas.

What is changing?
The River Plan/North Reach is focusing on how watershed health priorities and actions can be successfully integrated with other North Reach priorities (e.g. industrial and economic development). In addition, Metro’s recently adopted Nature in Neighborhoods programs requires the City to protect, conserve and restore the region’s fish and wildlife habitat. Mitigation will likely be a part of any proposal to address watershed management and natural resource protection. Mitigation is defined as compensation for impacts to natural resources created by development. Mitigation can occur through the restoration, preservation or creation of functional habitat areas. Mitigation can occur either on-site or off-site.

One solution: offsite mitigation
Off-site mitigation has been identified as a strategy that could allow the City to balance natural resource protection goals with other North Reach priorities, including economic development. Off-site mitigation would allow landowners to transfer their mitigation requirements from the site of development to an off-site location. An off-site mitigation program in the North Reach would provide flexibility for landowners and help industry maintain family wage jobs, while concentrating and restoring natural resources and habitat for fish and wildlife.

We want your feedback.
Does off-site mitigation seem like an effective strategy to balance environmental protection and economic development goals in the North Reach? Please give us your comments.

Want to learn more about the River Plan?
The River Plan is one of many projects that comprise the citywide River Renaissance initiative. The River Plan will guide, inspire and facilitate actions along the Willamette River and include an update to the Willamette Greenway Plan, zoning map, zoning code, and design guidelines; development of a working harbor reinvestment strategy for the North Reach; and other implementation strategies.

Have more questions?
Contact Matt Lustig, Bureau of Planning
ph: 503.823.7711
Email: RiverPlan@ci.portland.or.us
http://www.portlandonline.com/planning/index.cfm?c=42540
APPENDIX C: PUBLIC OUTREACH FEEDBACK

Section 1: Public Questions / Comments

St. Johns Neighborhood Association General Meeting May 14, 2007

- Will offsite mitigation projects become the standard in the North Reach?
- Will the offsite mitigation bank stay within the North Reach?
- Will mitigation sites be located on private property or public lands?
- Will the City exercise the powers of eminent domain to acquire mitigation sites?
- What will happen when the City runs out of acres to restore within the North Reach?
- Who will monitor the success of the restoration projects?
- What will guarantee that funds generated for mitigation projects in the North Reach will be used for restoration within the North Reach?

Overlook Neighborhood Association General Meeting May 15, 2007

- Please provide a concrete example of offsite mitigation.
- Where will the mitigation banks be located?
- What will happen when the sites get filled up?
- Have property owners within the North Reach been surveyed to determine the percentage who are planning to expand?
- Who is representing the Audubon Society of Portland in this process?
- Has the City identified potential sites within the North Reach?
- Will the City place a conservation easement on all mitigation sites?
- Will there be public access at the mitigation sites?
- What will prevent the City in the future from selling a mitigation site to a developer?
- How will restoration projects be protected in perpetuity?

Public Concerns

- In-lieu fees collected through an off-site mitigation program in the North Reach should only be used for restoration projects within the North Reach.
- Mechanisms should be put in place to insure that land designated as mitigation sites will be protected in perpetuity and not eventually sold for development
- Skepticism that the business community would collaborate on restoration projects.

Citywide Land Use Group Monthly Meeting May 29, 2007

- Why was Metro not represented on the task group?
- Is there an inventory of potential mitigation sites?
- Has the City defined the percentage of land that should be protected?
- Has the workshop team examined case studies of jurisdictions where off-site mitigation has been successful?
- Who will pay for acquisition of mitigation sites?
- How will Superfund affect a City off-site mitigation program?

Comments from the Land Use Chairs:

- Offsite mitigation should be a last resort, not a first choice.
- Mitigation should be required for long-term impacts.
- Financial considerations should not be the criteria for allowing mitigation offsite.
- There is a need for restoration on both sides of the Willamette River.
- Monitoring of mitigation projects should be mandatory.
- Public money should not be used to support a mitigation program.
- Tree canopy coverage on industrial lands needs to be considered.

Section 2: Angler Interviews
The Workshop Team interviewed local anglers to obtain qualitative information about habitat features at local fishing spots. Questions asked included:

- Where do you fish within the North Reach?
- For which species are you fishing?
- Why are fish attracted to these areas?

Key Findings:
- Although the North Reach is a heavily built out industrial area, important fish and wildlife habitat still exists.
- Salmon were found in water depths of 12 to 15 feet, along narrower spots in the river channel and underneath bridges.
- Specific salmon fishing areas in the North Reach include:
  1. Near the confluence of the Willamette and Columbia Rivers
  2. Near the confluence of the Multnomah Channel with the Willamette
  3. Beneath and between the BNSF Railroad and St. Johns Bridges
  4. Along the banks of Sauvie Island