Inventory Site WR6: LINNTON

Summary Information

Watershed: Willamette River
Neighborhood: Linnton
USGS quadrangle, quarter section maps: 1N1W02, 1N1W03, 1N1W11, 2N1W35, and 1818-19, 1918-19, 2018-20, 2119-20, 2220
River Mile: 3.7 – 5.5
Site Size: 323 acres (land and water)
Zoning: Heavy Industrial (IH) General Employment (EG1) General Commercial (CG) River Industrial overlay (i) River General overlay (g) River Water Quality overlay (q) Scenic overlay (s)
Existing Land Use: Industrial; commercial; Highway 30; railroad
General Description: The site is a thin area of industrial development located between Highway 30 and the Willamette River, north of the St. Johns Bridge.
Resource Features: Forest, woodland, shrubland and herbaceous vegetation; flood area; beach
Functional Values: Microclimate and shade; stream flow moderation and water storage; bank function, and sediment, pollution and nutrient control; large wood and channel dynamics; organic inputs, food web and nutrient cycling; wildlife habitat; habitat connectivity/movement
Special Habitat Area: Willamette River – Area critical to sensitive species including NOAA designated Critical Habitat (S) and connectivity corridor (C). St. Johns Bridge Nests – Area critical to sensitive species (S) and resource or structure that provides unique habitat function in natural or built environment (U).
Special Status Species: Wildlife: river otter Fish: Lower Columbia River Chinook salmon; Lower Columbia Coho salmon; Lower Columbia River Steelhead trout, Pacific lamprey
Natural Hazards: Landslide, flood area, wildfire
Contamination: Yes
**Site Description**

This 323-acre inventory site is located between Highway 30 and the Willamette River, south of site WR3 Harborton Wetlands, and north of the St. Johns Bridge. The site consists primarily of industrial and commercial development. Map 1 shows an aerial view of the Linnton inventory site.

Of the 323 acres within the site, the Willamette River accounts for 170 acres. The site contains approximately 9,200 linear feet of river frontage. Bank types include vegetated and non-vegetated riprap, rock and seawall, and 2,700 feet of beach. The flood area is 199 acres, including 170 acres of open water. Of the remaining 29 acres, 4 acres are vegetated and the other 25 are non-vegetated bank and impervious surfaces.

The site contains 102 acres (31%) impervious surface coverage, including 4.1 miles of road. Vegetated areas at least ½ acre in size include approximately 8 acres of forest or dense tree canopy, 4 acres of woodland, 9 acres of shrubland and 2 acres of herbaceous vegetation.

Active dredging in the Willamette River has produced a uniform channel with little complexity. Marine cargo activities are common in river, with large vessels passing through to upstream berths in the Portland Harbor. Maintenance dredging of the channel allows for continued access to this reach by large ocean-going ships.

Beaches and associated nearshore shallow-water areas, and the Willamette River/ Columbia Slough confluence provide habitat for migrating salmonids, shorebirds and other wildlife species.

There are several areas of contamination within this site, resulting from former and possibly current (in the case of Arco) industrial uses. The Marine Finance Company property is a brownfield. This site also has flood area along the eastern edge. Both landslide and wildfire hazard areas exist along the western edge of the site (City of Portland GIS data).

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**Linnton Beach**

**Table 22: Summary of Natural Resource Features in WR6: Linnton**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Study Area (325 acres)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Stream (miles)</strong></td>
<td></td>
</tr>
<tr>
<td>Willamette River (miles/ acres)</td>
<td>2/170</td>
</tr>
<tr>
<td>Open Stream Channel (linear feet)</td>
<td>528</td>
</tr>
<tr>
<td>Piped Stream Segments (linear feet)</td>
<td>1.5</td>
</tr>
<tr>
<td><strong>Wetlands (acres)</strong></td>
<td>0</td>
</tr>
<tr>
<td><strong>Flood Area (acres)</strong></td>
<td>199</td>
</tr>
<tr>
<td>Vegetated (acres)</td>
<td>4</td>
</tr>
<tr>
<td>Non-vegetated (acres)</td>
<td>25</td>
</tr>
<tr>
<td>Open Water (acres)</td>
<td>170</td>
</tr>
<tr>
<td><strong>Vegetated Areas &gt;= ½ acre (acres)</strong></td>
<td>23</td>
</tr>
<tr>
<td>Forest (acres)</td>
<td>8</td>
</tr>
<tr>
<td>Woodland (acres)</td>
<td>4</td>
</tr>
<tr>
<td>Shrubland (acres)</td>
<td>9</td>
</tr>
<tr>
<td>Herbaceous (acres)</td>
<td>2</td>
</tr>
<tr>
<td><strong>Impervious Surfaces (acres)</strong></td>
<td>102</td>
</tr>
</tbody>
</table>

* The flood area includes the FEMA 100-year floodplain combined with the adjusted 1996 flood inundation area.
+ The vegetation classifications are applied in accordance with the National Vegetation Classification System specifications developed by The Nature Conservancy. The data within the primary study area and within 300 feet of all open water bodies in Portland is draft and is currently being updated based on 2006 aerial photography.
Natural Resources Description

This site has aquatic and terrestrial resources (key resource features are shown in WR6 Maps 2 and 3).

The banks of the Willamette along this site are within the flood area and are largely unvegetated, except for a portion to the north that contains remnant riparian forest, woodland, shrubland and herbaceous vegetation. The northern bank is treated with rip rap. A beach, approximately 2,900 feet long, is located near the middle of the site. Just off-shore there is a shallow shelf. The beach and near-shore shallow water areas provide important habitat for salmonids that are listed as threatened species under the Endangered Species Act, including Lower Columbia River Chinook salmon and Lower Columbia River steelhead trout (ODFW, 2005).

The remainder of the river banks are highly modified with vegetated and non-vegetated rip rap, fill, seawall or other revetments. Several structures related to the marine cargo activities are located on the bank. Large vessels dock or pass through to upstream berths. Maintenance dredging of the channel allows for continued access to this reach by large ocean-going ships, but reduces channel complexity.

The river channel provides a migration corridor for fish, birds, and mammals. Adult salmon and steelhead utilize the Willamette River during migration. Other indigenous fish such as Pacific lamprey and sturgeon may be present although their use of the reach may be limited by dredging. Fish such as sucker and carp may also be abundant in these uniform habitats (ODFW, 2005). The open water habitat also provides feeding areas for birds such as ducks, cormorants, gulls, herons; and mammals such as river otter and mink. Insectivores such as swallows and bats also forage over the water. In addition, a wildlife migration corridor crosses the river in this reach providing a connection between Forest Park and Smith and Bybee Wetlands.

The Willamette River is a designated Special Habitat Area, reflecting its value as a wildlife corridor and as federally designated “Critical Habitat” for salmonids species listed as threatened under the Endangered Species Act. The beach and near-shore shallow water areas along the Willamette River also provide important habitat for ESA-listed salmonids and macroinvertebrates (ODFW, 2005).

The Lower Willamette River does not meet water quality standards for bacteria, mercury, dioxin, and temperature. Oregon Water Quality Index values from 1986 to 1995 for the Lower Willamette Basin in Portland range from fair to very poor. The Lower Willamette River in Portland is also deemed unsafe for swimming.

Two vegetated patches extend upland (west) from the bank. The first is located approximately in the middle of the site and contains woodland and shrub land vegetation. The woodland area is dominated by black cottonwood, alder and maple trees. The dominant ground cover is sword fern and English ivy. The shrubland area is dominated by Himalayan blackberry and a few maples. The second vegetated area is located at the southwestern end of the site and contains forest vegetation dominated by cottonwood and alder trees, Himalayan blackberry and Scot’s broom, and sword fern ground cover. The second vegetated area contains steep slopes.

Five streams are piped through the inventory site. Two stream channel segments remain in the upland vegetated areas. The northern channel is approximately 200 feet long. The southern channel is roughly 30 feet long. The channels are constructed of concrete and metal grates cover the streams. Both flow from upstream under Highway 30 via pipes and culverts, then return to pipes prior to discharging to the Willamette.

The St. Johns Bridge is designated a Special Habitat Area (SHA) because is provides nesting sites for American Peregrine falcon, which is listed as endangered in Oregon.
Soil, groundwater and river sediments within the site contain contamination resulting from past and current industrial activities such as bulk-oil storage, gasoline storage, plywood manufacturing, and auto maintenance (see Map 22). Types of pollutants found here include benzene, petroleum, diesel, methyl tertiary butyl ethel (MTBE), polycyclic aromatic hydrocarbons (PAHs), formaldehyde, phenol, metals, xylenes, and others. Potential environmental and health risks include direct contact or ingestion of contaminated sediments or groundwater by humans, aquatic organisms, birds or mammals and consumption of fish or crayfish by recreational anglers. For more information regarding contamination, visit the DEQ website at http://www.deq.state.or.us/lq/ecsi/ecsi.htm.
Natural Resource Evaluation

The natural resources located within this site have been evaluated for relative riparian and wildlife habitat quality. Relative quality is presented in the form of relative functional value ranks for riparian corridors, wildlife habitat, and riparian/wildlife habitat value combined (Table 23). The relative ranks are produced using GIS models and information on Special Habitat Areas. The model criteria are not sensitive to the species of vegetation present or whether vegetation is native or non-native. However, the model criteria do assign different values to cultivated, heavily manicured and managed landscapes and semi-natural and natural vegetation. The approach used to generate the relative ranks is summarized in the introduction to the North Reach sites. Additional detail is provided in the Methodology Overview section of this report and in Appendix E – City of Portland Natural Resource Inventory Update: Project Report - Discussion Draft July 2008.

All of the ranked resource areas provide significant riparian and/or wildlife habitat value, recognizing that current condition and function levels may vary considerably. The relative ranks can help inform planning programs, design of development or redevelopment projects, mitigation and restoration activities.

Riparian Corridors – Relative Ranks

The site contains portions of the Willamette River and vegetated and non-vegetated flood area that contribute to the riparian functions mentioned in the previous section. These landscape features provide the following riparian functions:

- Microclimate and shade
- Stream flow moderation and water storage
- Bank function, and sediment, pollution and nutrient control
- Large wood and channel dynamics
- Organic inputs, food web and nutrient cycling
- Riparian wildlife movement corridor

The Willamette River, and forest, woodland, and shrubland within the flood area or adjacent to streams rank high for overall riparian corridor function. High and medium relative ranks are assigned to beach, vegetated banks and associated land within 50 feet of the river. Medium relative functional ranks are assigned to herbaceous vegetation within the flood area. Low relative ranks are assigned to portions of flood area with no vegetation and to hardened, non-vegetated river banks. Other vegetated areas are assigned a high, medium, or low relative functional rank depending on the proximity and extent of the vegetation relative to the Willamette River (WR6 Map 4).

Wildlife Habitat – Relative Ranks

The site contains a forested patch of bottomland hardwood vegetation in the southwest section of the site. This area is close to the river, and provides connectivity between the Willamette River and Forest Park. Based on the wildlife habitat model criteria (patch size, interior area, and proximity to other patches and water), a medium relative rank is assigned to the forest patch.

The Willamette River is a designated Special Habitat Area, reflecting its value as a wildlife corridor and as federally designated “Critical Habitat” for salmonids species listed as threatened under the Endangered Species Act. The SHAs contain unique features and provide critical wildlife habitat as described in the Natural Resources Description section above. SHAs receive a high relative rank for wildlife habitat. The SHA ranking supersedes lower rankings generated by the GIS model. Therefore, all SHAs within the site rank high for wildlife habitat (WR1 Map 5).
Combined Riparian/Wildlife Habitat Relative Ranks

Where areas mapped as riparian corridors and wildlife habitat overlap, and their relative ranks differ, the combined relative rank will be the higher of the two ranks. For example, an area that ranks medium for riparian function and low for wildlife habitat will receive a medium combined relative rank. Areas that are assigned a high combined relative rank include those that rank high for riparian functions or wildlife habitat, including Special Habitat areas (WR6 Map 6).

Table 23: Summary of Ranked Resources in WR6: Linnton

<table>
<thead>
<tr>
<th>Total Inventory Site</th>
<th>= 325 acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terrestrial*</td>
<td>= 155 acres</td>
</tr>
<tr>
<td>Willamette River</td>
<td>= 170 acres</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>High</th>
<th>Medium</th>
<th>Low</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Riparian Corridor **</td>
<td>176</td>
<td>8</td>
<td>31</td>
<td>215</td>
</tr>
<tr>
<td>percent total inventory site area</td>
<td>54</td>
<td>2</td>
<td>10</td>
<td>66</td>
</tr>
<tr>
<td>Wildlife Habitat **</td>
<td>0</td>
<td>8</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>percent total inventory site area</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Special Habitat Areas **</td>
<td>171</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>percent total inventory site area</td>
<td>53</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wildlife Habitat- adjusted for Special Habitat Areas ***</td>
<td>171</td>
<td>8</td>
<td>0</td>
<td>179</td>
</tr>
<tr>
<td>percent total inventory site area</td>
<td>53</td>
<td>2</td>
<td>0</td>
<td>55</td>
</tr>
<tr>
<td>Combined Riparian Corridor/Wildlife Habitat *</td>
<td>176</td>
<td>14</td>
<td>24</td>
<td>215</td>
</tr>
<tr>
<td>percent total inventory site area</td>
<td>55</td>
<td>4</td>
<td>7</td>
<td>66</td>
</tr>
<tr>
<td>Combined Riparian Corridor/Wildlife Habitat (excludes Willamette River)</td>
<td>7</td>
<td>13</td>
<td>24</td>
<td>44</td>
</tr>
<tr>
<td>percent total inventory site area</td>
<td>2</td>
<td>4</td>
<td>7</td>
<td>13</td>
</tr>
</tbody>
</table>

* Terrestrial includes the land, tributary streams, drainageways and wetlands
** High-ranked riparian resources, wildlife habitat, and Special Habitat Areas includes the Willamette River
*** Special Habitat Areas rank high for wildlife habitat
+ Because riparian resources, wildlife habitat, and Special Habitat Areas overlap, the results cannot be added together to determine the combined area.
Site WR6 - Map 4: Linnton

Riparian Resources
Relative Rankings

- High relative rank
- Medium relative rank
- Low relative rank
- Stream/Drainage
- Culvert or Piped
- Site Boundary
- City Boundary
- Urban Services Boundary

INFORMATION SOURCES:
The Natural Resource Inventory (NRI) database is a digital database project to collect and curate environmental and natural resource data from various state, regional, and local sources. The map is part of the Portland Water Bureau's Resource Inventory Initiative to assess and manage the Willamette River basin and its riparian resources.

This data is subject to errors, omissions, and updates that may affect the accuracy of the map and NRI database. More information can be found at the Portland Water Bureau's NRI website.

Scale: 1" = 500'
Site WR6 - Map 5: Linnton

Wildlife Habitat
Relative Rankings

- ** High relative value - Special Habitat Areas
- High relative value
- Medium relative value
- Low relative value
- Stream/Drainage
- Culvert or Piped
- Site Boundary
- City Boundary
- Urban Services Boundary

INFORMATION SOURCES:
The Natural Resources Inventory (NRI) is a biological inventory completed and updated biennially to identify and map species sensitive to disturbance. The NRI is an ongoing process and is not intended to be a comprehensive biodiversity assessment of the City of Portland. The NRI dataset is available through the Portland Bureau of Planning and Sustainability.

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NOTE: Portland’s natural resources inventory is developed to enhance and expand Portland’s natural resources. The NRI has been maintained by the City of Portland and is not maintained by the Oregon Department of Environmental Quality.

For more information, please visit:
http://www.portlandoregon.gov/bps/175632/71864521/50127

ATTENTION: All NRI data is confidential and published with the understanding that it will be used in a manner that protects the confidentiality of land owners and developers. It is not intended for use in individual property development decisions or as a basis for land use decisions by any party.

City of Portland Bureau of Planning & Sustainability
Sam Adams, Mayor - Susan Anderson, Director