

NATURAL RESOURCE INVENTORY: RIPARIAN CORRIDORS AND WILDLIFE HABITAT



Discussion Draft Report June 2007
as amended August 2007

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1. INTRODUCTION

REPORT PURPOSE

The purpose of this inventory report is to provide clear and useful information on the location and the current relative condition of riparian corridors and wildlife habitat located in and along the Willamette River in Portland. The report provides an important historical context for inventory work, and describes how the inventory relates to a number of relevant state, regional and federal regulations. The report also provides an overview of the inventory project approach and basic methodology, followed by an overview of the Willamette River Basin and the portion of the river that flows through Portland.

Following these general informational sections, the report is divided into separate sections pertaining to the North, Central and South reaches of the river. An overview of each reach is provided, followed by descriptions and maps for smaller inventory sites. *At this time the report contains only the North Reach section.* The North reach section was completed first to support the River Plan/North Reach project currently being led by the Bureau of Planning, in consultation with stakeholders and the River Plan Committee. *Sections for the Central and South reaches will be produced at a later date.*

PROJECT PURPOSE AND USES

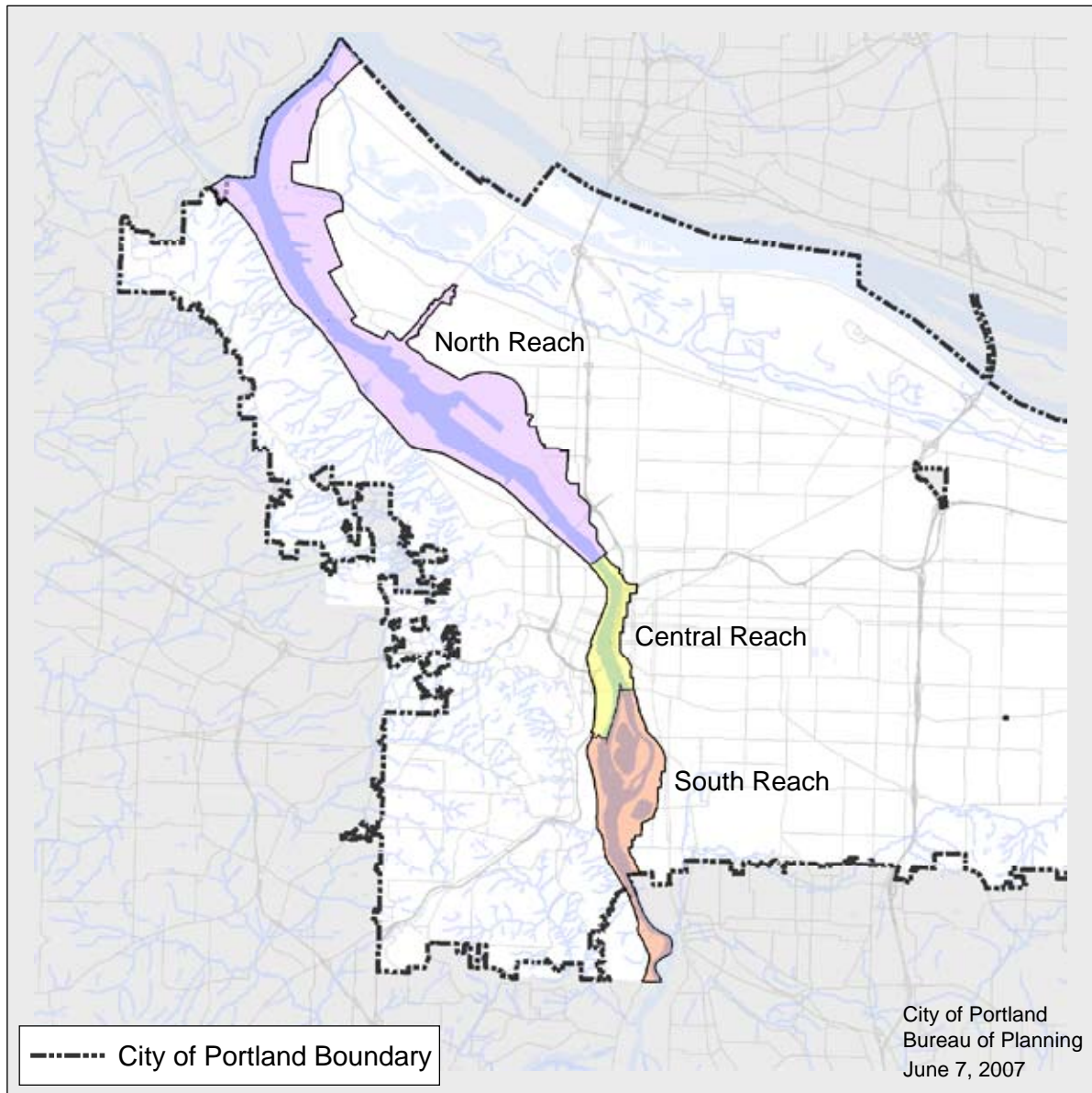
The inventory is intended to provide useful, current, and accessible information to inform and support a broad array of City and community activities affecting the Willamette River corridor in Portland. Such activities include updating existing inventories, implementing and updating programs, identifying priority areas for restoration, enhancement, and public acquisition, designing development and redevelopment projects, and meeting regional, state, and federal regulatory requirements.

The study area for this inventory includes the Willamette River channel as it flows northward through Portland to its confluence with the Columbia River. The inventory also includes lands adjacent to this portion of the river. The boundary of the inventory study area is shown on Map 1. The study area encompasses, and is somewhat larger than, the area currently contained within the City's Willamette Greenway Overlay Zones, and is generally coincident with the boundaries of the River Plan project currently underway.

For the purposes of planning, the Willamette River corridor in Portland is divided into three reaches: North, Central and South Reach.

The North Reach includes 12 miles of the river, extending from the Broadway Bridge to the Columbia River. The North Reach is characterized by heavy industry, river-dependant uses, and significant natural resources set in the regional context of the Lower Columbia River and Tualatin Mountains.

The Central Reach extends from the Ross Island Bridge to the Broadway Bridge and is characterized primarily by commercial/mixed use development on the west side of the Willamette and industrial uses on the east side of the river. The Central Reach also contains downtown Portland, Waterfront Park, the inner eastside industrial area and the East Bank Esplanade.



Map 1. Willamette River Study Area

The South Reach extends from the southern city limits to the Ross Island Bridge and is characterized primarily by residential uses, moorages and parks and open spaces such as Oaks Bottom, Powers Marine Park and Willamette Park. Ross Island provides an important industrial site as well as an important natural resource area.

Over the long term, this inventory can help the City achieve its River Renaissance Vision for a clean and healthy Willamette River, and meet its watershed health goals. The inventory will inform the development of regulatory and non-regulatory tools through the River Plan, an update of the Portland’s Willamette Greenway Program. The City will also submit this inventory to Metro to replace a portion of the regional riparian corridor/wildlife habitat inventory that Metro produced as part of the Nature in Neighborhoods Program.

BACKGROUND

Starting more than 30 years ago, the City began developing natural resource inventories pertaining to portions of the current inventory study area. The first Willamette River inventory was completed in 1975 for the *Lower Willamette River Management Plan*. It was the first of 10 inventories the City completed to meet state land use planning goals. The Willamette inventory provided generalized information about relative wildlife habitat values. The second Willamette River inventory adopted by the City in 1986, provided more detailed information about specific habitat sites along the river, including information about existing conditions and potential restoration options.

The 1986 inventory used a Wildlife Habitat Assessment (WHA) methodology to document and rank existing conditions, and identifies potential opportunities for habitat improvement. The inventory was divided into 24 segments or zones along the Willamette River in Portland. Each zone included anywhere from 2 to 14 habitat sites depending on the complexity of the zone. Highly ranked habitat sites received a high value (numeric) and were identified as Rank I, with lesser value habitat sites identified as Rank II, III, IV, or V. The 1986 inventory correlates directly to the area referred to as the Willamette Greenway, and has been used since 1987 as part of the Willamette Greenway Plan to provide guidance for protection and restoration opportunities along the river.

Both the 1975 and the 1986 Willamette inventories were developed as the basis for the City's emerging Willamette Greenway program. The Greenway program was established primarily to meet requirements of State Land Use Planning Goal 15, Willamette Greenway. The program includes policies, design guidelines, overlay zone maps and regulations to meet multiple objectives along the Willamette River.

Between 1991 and 2002, the City adopted several natural resource inventories that address small portions of the inventory study area addressed in this report. These were the Northwest Hills, Southwest Hills, Balch Creek, East Buttes and Terraces, and Multnomah County Urban Pocket areas – where portions of the study area intersect with the Willamette River. Resource values were determined based on a number of factors, including quality, quantity, diversity, interspersed, and uniqueness, to name a few. These inventories were produced as part of the City's Goal 5 compliance effort. The inventories informed the completion of an Economic, Social, Environmental and Energy Analysis, the establishment of environmental overlay zoning maps and regulations to protect important resource areas identified in the inventories.

The information presented in this report incorporates updated information including new natural resource data, more recent field assessments, and resource evaluations from Portland's new draft citywide natural resource inventory. The citywide inventory is a refinement of Metro's inventory of regionally significant fish and wildlife habitat which was adopted in September 2005 as part of the new regional Nature in Neighborhoods program.

The work presented in this report is consistent with and advances the goals outlined in the *Portland Watershed Management Plan*, and the *Framework for Integrated Watershed Management*, both of which were adopted by the City Council in 2005. The latter two documents establish key ecological principles, restoration priorities, and recommended strategies to protect and restore watershed health. Portland's watershed goals and objectives are provided in Appendix B.

2. RELATIONSHIP TO STATE, REGIONAL AND FEDERAL REGULATIONS

The updated Willamette corridor inventory will inform City strategies to achieve and maintain compliance with specific state, regional, and federal regulatory requirements.

STATE AND REGIONAL REGULATIONS

State Land Use Planning Program

Comprehensive land use planning was mandated by the 1973 Legislature, primarily in response to growth pressures on valuable resource land. Since 1975, cities and counties in Oregon have been required to comply with Statewide Planning Goals. Nineteen goals were developed and cities and counties were directed to comply with the goals by developing or updating their comprehensive plans. Portland adopted its first comprehensive plan in 1981 to satisfy the requirements of the state planning program.

State planning goals that relate most directly to Portland's natural resources are:

- **Goal 5, Natural Resources, Scenic and Historic Areas, and Open Spaces** – Goal 5 addresses many types of resources. It establishes a process in which resources are inventoried and evaluated for significance. If a resource or site is found to be significant, the local government has three policy choices: to preserve the resource, allow proposed uses that conflict with it, or establish a balance between protecting and allowing uses that conflict with the resource.
- **Goal 6, Air, Water, and Land Resources Quality** – This goal requires local comprehensive plans and implementing measures to be consistent with state and federal regulations on matters such as stream quality and groundwater pollution.
- **Goal 7, Areas Subject to Natural Hazards** – Goal 7 deals with development in places subject to natural hazards such as floods or landslides. It requires that jurisdictions apply “appropriate safeguards” (floodplain zoning, for example) when planning for development there.
- **Goal 15, Willamette River Greenway** – Goal 15 sets forth procedures for protecting the diverse qualities of the 300 miles of land along the Willamette River. Multiple uses and functions are to be conserved, enhanced, and maintained, including significant habitat and economic and recreational uses. Cities and counties may choose to meet the requirements of Goal 15 instead of Goal 5 for areas within the Willamette Greenway.

To address Goals 5, 6, and 7, cities and counties must use inventories to inform development of their local compliance programs. Goals 5 and 15 require local jurisdictions to develop their own resource inventories while Goal 7 refers to land hazard inventories developed by federal and state agencies to be used for implementing policy. Goal 6 does not require consistency with adopted state and federal clean water and clean air laws.

Goal 5 requires the following resources to be identified in the city and county inventories:

- Riparian corridors, including water and riparian areas and fish habitat;
- Wetlands;
- Wildlife habitat;
- Federal Wild and Scenic Rivers;

- State Scenic Waterways;
- Groundwater resources;
- Approved Oregon recreation trails;
- Natural areas;
- Wilderness areas;
- Mineral and aggregate resources;
- Energy sources;
- Cultural areas;
- Historic resources;
- Open space; and
- Scenic views and sites.

Goal 15 requires some similar types of resources be inventoried:

- Fish and wildlife habitats;
- Hydrological conditions;
- Ecologically fragile areas;
- Significant natural and scenic areas, and vegetative cover;
- Areas of annual flooding and floodplains;
- All current public recreation sites, including public access point to the river and hunting and fishing areas;
- Recreational needs as set forth in Goal 8;
- Historical and archaeological sites;
- All current aggregate excavation and processing sites, and all known extractable aggregate sources.

Additional resources that are unique to Goal 15 also need to be inventoried:

- Land currently committed to industrial, commercial, and residential uses;
- The ownership of property, including riparian rights;
- Other uses of land and water in or near the Greenway; and
- Acquisition areas which include the identification of areas suitable for protection or preservation through public acquisition of lands or an interest in land.

Although there is some overlap between the types of resources required for Goal 5 and Goal 15 inventories, each goal uses the inventory in a different way:

The Goal 5 Administrative Rule requires local governments to follow a three-step planning process, and the inventory is the first step. The inventory includes an analysis of the location, quantity, quality, and significance of the resources identified. If a resource is not important, it may be excluded from further consideration. The remaining resources are then subject to a “conflicting use” analysis, with the final step being development of a protection program for significant resources.

The Goal 15 Greenway inventory is used to determine which lands are suitable or necessary for inclusion within the greenway boundary, and to develop the greenway management plan and acquisition program. There is no discussion of excluding any resources, and no conflicting use analysis. However, within the Goal 15 program all resources are important and jurisdictions are instructed to include consideration of competing or conflicting uses when determining the best use of a public resource (e.g., the Willamette River).

The City of Portland addressed these inventory requirements while developing the Willamette Greenway and Environmental Overlay Zoning programs that now apply to some portions of the inventory study area. The inventory presented in this report focuses on riparian corridors and wildlife habitat areas, and therefore could be used to update only those parts of the City's Goal 5 program. This inventory also addresses the first five bullets listed above under Goal 15 (with the exception of significant scenic areas). This inventory also contains general information pertaining to water quality and natural hazards in the study area, including landslide and wildfire hazard areas, and flood areas. Thus, this inventory may be used to inform and support future updates to the City's programs relating to Goals 5, 6, 7, and 15.

METRO'S URBAN GROWTH MANAGEMENT FUNCTIONAL PLAN AND TITLES 3 AND 13

The 1973 Legislature also granted expanded powers for the Columbia Region Association of Governments (now called Metro), to "coordinate regional planning in metropolitan areas" and to "establish a representative regional planning agency to prepare and administer a regional plan." During the 1990s, Metro worked with local jurisdictions to develop Regional Urban Growth Goals and Objectives (RUGGOs) and the *Urban Growth Management Functional Plan*.

The *Urban Growth Management Functional Plan* provides a regional approach to growth management by tailoring several key state planning goals to meet regional population growth expectations. This approach recognizes the interrelationship between housing, employment, clean air and water, natural resource protection, and transportation networks across jurisdictional boundaries. Metro developed the plan with input from the 24 cities and 3 counties within the Urban Growth Boundary.

Metro's *Urban Growth Management Functional Plan* has been acknowledged by the Oregon Department of Land Conservation and Development and become law. Metro area cities and counties achieve compliance by updating comprehensive plans and land use ordinances to meet regional requirements. Cities and counties within the Metro Urban Growth Boundary must have comprehensive plans and ordinances that also comply with remaining state goals not covered by the *Urban Growth Management Functional Plan*.

Nine titles in the *Urban Growth Management Functional Plan* are derived from or relate to State Planning Goals and the rest are procedural. Title 3 and Title 13 pertain most directly to natural resources and the inventory information contained in this report.

Title 3 is derived from portions of State Goals 6 and 7, and establishes regional requirements relating to water quality, erosion control, and flood hazard management. In September 2002, the City completed a detailed report titled the *Title 3 Water Quality Compliance Report*. The report explains how the City complies with Title 3 requirements through the existing environmental overlay zoning program and newer regulations established by the *Willamette River Title 3 Water Quality Compliance Project* (adopted by City Council in August 2002). Metro found the City in substantial compliance with Title 3 in December 2002.

Title 13, adopted by the Metro Council in September 2005, establishes the Nature in Neighborhoods program. The purpose of the program is to protect, conserve, and restore important riparian corridors and wildlife habitat areas in the region. Title 13 establishes provisions intended to prevent impacts or ensure mitigation of unavoidable impacts on identified habitat conservation areas within the region. Habitat conservation areas are comprised of high-value riparian corridors identified in Metro's inventory of regionally significant riparian corridors and wildlife habitat. In January 2007, the Oregon Department of Land Conservation and Development acknowledged the new Title 13 program, finding it in compliance with Goals

5 and 6. This acknowledgement establishes new Goal 5 and 6 requirements for cities and counties in the Metro area local jurisdiction. Metro area cities and counties have until January 2009 to show that their local programs meet the requirements of the regional program.

Many of the natural resource areas addressed in this inventory were also identified by Metro as providing important water quality, riparian and wildlife habitat functions during development of Titles 3 and 13. As noted above, this inventory is intended to replace a portion of the regional inventory that Metro produced to inform the Nature in Neighborhoods Program. This inventory is expected to inform any future updates to existing City programs that were, or will be established, in part, to comply with these Metro titles.

FEDERAL REGULATIONS

Clean Water Act

The Water Pollution Control Act Amendments of 1972 and subsequent amendments, now known as the Clean Water Act (CWA), regulate discharges of pollutants to waters of the United States. The CWA calls for restoration and maintenance of the quality of the nation's water, where attainable, to promote a range of beneficial uses.

Section 303 of the CWA establishes water quality standards and total maximum daily loads that limit the amount of pollutants that a particular body of water is allowed to receive from all sources. States are required to develop lists of water bodies that are "water quality limited" because they do not meet certain water quality standards. In Portland, major rivers and streams are water quality limited with the exception of Balch Creek. Most of Portland's waterways, including the Willamette River, do not meet water quality standards for temperature and bacteria. The Willamette mainstem also violates standards for dioxin and mercury. Some of the City's waterways do not meet standards for parameters such as biological oxygen demand, nutrients, pH, and pesticides.

In the next couple of years, the City will be required to develop Local Implementation Plans to meet TMDL requirements for the Willamette River and its tributaries in Portland. This inventory can be used to help identify priorities for resource protection, restoration, and ecologically-friendly development approaches.

Endangered Species Act

In 1998, NOAA Fisheries, or National Marine Fisheries Service (NMFS), proposed listing a number of Pacific Northwest salmonid species under the Endangered Species Act (ESA). Portland's Willamette and Columbia rivers, Columbia Slough, Johnson, Tryon and Fanno creeks, and several smaller tributary streams are used by several of these species (i.e., Columbia River steelhead trout, Columbia River Chinook salmon, and Pacific lamprey).

After the 1998 listing of steelhead trout in the Lower Columbia ESU (Evolutionary Significant Unit), the City of Portland began developing a comprehensive, coordinated citywide response for City Council adoption (Resolution No. 35715). The City's response is intended to avoid "take" of a listed species (i.e., harming individuals or populations or their habitat), and to assist with recovery of listed salmonids. The City has since taken actions such as identifying and prioritizing City programs that could affect listed species, providing technical support to bureaus, providing oversight for activities involving federal permitting or funding, and developing a watershed plan to help guide city actions.

This inventory can help inform City activities intended to address threatened and endangered species and meet City goals to prevent harm and promote recovery. For example, the information in this report can support efforts to prioritize areas and actions to protect and restore salmonid habitat conditions in the study area.

Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or Superfund)

In 2000, a six-mile stretch of the Lower Willamette River – the Portland Harbor – became a designated federal Superfund site due to the discovery of contaminated sediments. Elevated levels of polychlorinated biphenyls (PCBs), heavy metals, polycyclic aromatic hydrocarbons (PAHs), pesticides such as DDT and other contaminants are present in some sediments from Swan Island to the southern tip of Sauvie Island.

In September 2001 an agreement was established between the Oregon Department of Environmental Quality (DEQ) and a coalition of businesses and public agencies – including the City of Portland to participate in investigation and cleanup of the site. The DEQ is working on the cleanup of approximately 70 upland sites along the banks of the Willamette River. Federal, state and tribal governments serve as the Natural Resource Trustees. The Trustees are conducting a natural resources damage assessment to determine how the release of hazardous substances have harmed natural resources such as fish and wildlife since 1980, the date that CERCLA was established. The trustees can recover damages from parties who have caused injury, and can mandate restoration and mitigation actions.

The new inventory information may help inform the remediation of contaminated sites and inform the selection of actions to mitigate for natural resource damages as part of the CERCLA process.

3. PROJECT APPROACH AND METHODOLOGY OVERVIEW

The inventory presented in this report was produced by integrating information from several sources. Some of the information presented later in this report was taken directly from Portland's new (draft) citywide inventory of riparian corridors and wildlife habitat. Other key information was produced specifically for the Willamette River inventory study area, including the delineation of inventory sites, completion of wildlife habitat assessments for portions of the study area, and observations from additional field visits. The following section describes the key information pieces that make up this inventory, and how the information was developed.

CITYWIDE INVENTORY OF RIPARIAN CORRIDORS AND WILDLIFE HABITAT

Background – Relationship to Metro's regional inventory

The Bureau of Planning has recently produced substantial new inventory information for riparian corridors and wildlife habitat in Portland. Products include new GIS data, GIS models, maps, and a report documenting the project approach.



The Bureau used Metro's inventory of regionally significant riparian corridors and wildlife habitat as a starting point for citywide inventory development. By basing the new City inventory development on Metro's approach, the Bureau was able to incorporate and build on the extensive research, analysis, technical review, and public scrutiny that went into the development of Metro's regional inventory. Metro's inventory was reviewed by the Independent Multidisciplinary Science Team (a group of leading scientists in the Pacific Northwest), and other local experts. Public workshops were held and a public hearing was conducted before the Metro Council. The Metro Council endorsed the regional natural resources inventory in December 2001. The Council directed Metro staff to develop a regional program to protect, conserve, and restore regionally significant riparian corridors and wildlife habitat. The inventory was adopted as part of the Title 13 Nature in Neighborhoods program in September 2005.

The Nature in Neighborhoods Program establishes new regional requirements that Metro area cities and counties must meet to achieve compliance with State Planning Goals 5 & 6. The development of Metro's inventory is documented in the *Technical Report for Fish and Wildlife (Metro 2005)*, *Metro's Riparian Corridor and Wildlife Habitat Inventories (Metro 2005)* and *Addendum and Update to Metro's Riparian Corridor and Wildlife Habitat Inventories (Metro 2005)*.

Scientific Foundation

The City and Metro inventories reflect fundamental information from Metro's extensive review of scientific literature pertaining to riparian corridors and wildlife habitat. Key information upon which both inventories are based can be summarized as follows:

Riparian corridors are comprised of rivers and streams, riparian vegetation, and off-channel areas, including wetlands, side channels, and floodplains. Riparian areas usually contain a complex mix of vegetation consisting of trees or woody vegetation, shrubs and herbaceous plants. Riparian corridors also include areas that provide

the transition between the stream banks and upland areas. Intact riparian corridors provide the following critical watershed functions:

- Microclimate and shade
- Bank stabilization and control of sediments, nutrients and pollutants
- Streamflow moderation and flood storage
- Organic inputs and food web
- Large wood and channel dynamics
- Wildlife habitat/corridors

Wildlife habitats provide food, cover, and roosting and nesting sites for a broad array of birds, mammals, reptiles and amphibians. The terrestrial habitat features that provide these important functions include forests, woodland, shrubland, grassland and meadows, rocky slopes and uplands, buttes, and other topographic features. The following wildlife habitat attributes are indicators of habitat function and habitat fragmentation due to urbanization:

- Habitat patch size
- Habitat interior area (edge effect (interior))
- Connectivity between habitat patches (including distance and age effect)
- Connectivity/proximity to water

City Natural Resources Inventory Update – Building Blocks

Relying on this information, and using Metro's general methodology, the Bureau of Planning completed the following steps to produce a new citywide inventory of riparian corridors and wildlife habitat in Portland:

1. **Compiling GIS Data and mapping key natural resource features, including rivers, streams, wetlands, flood areas, vegetation and topography.** For this step the Bureau invested in substantially improving the existing GIS data sets, including:

- Remapping more than 160 miles of stream centerlines; adding 70 stream miles to the maps
- Mapping smaller vegetation units (1/2 acre minimum), and classifying forest, woodland, shrubland and herbaceous vegetation over a wider area (using the National Vegetation Classification System)
- Updating the City's flood area data for use in the inventory, including incorporation of the 2004 FEMA 100-year floodplain

2. **Developing criteria and GIS models to rank and map the relative value of existing natural resources**

Like Metro, the City's has produced criteria and GIS models to map and rank the relative value of natural resource features based on the specific riparian functions and wildlife habitat attributes listed above. The City's inventory models apply the same sets of mapping criteria that Metro developed. However, the Bureau adjusted some of the regional criteria to reflect additional detail and local information. The City's mapping/ranking criteria are provided in Appendix A.

The riparian corridor model assigns primary and secondary scores to natural resources for each individual riparian function. Scores reflect the types of landscape features present, and the proximity of those features to a water body or wetland. Primary scores are applied to features that provide the most direct and substantial contribution to a particular riparian function. Secondary scores are assigned to features that provide lesser, but

still important, riparian functions. In some cases natural resources contribute to riparian functions up to several hundred feet from a water body. The predominance of riparian functions occurs within 30 to 100 meters (approximately 100 to 300 feet) of a water body, but some functions, such as microclimate, occur further away. The primary and secondary scores are combined to produce overall relative riparian corridor rankings of high, medium or low.

The wildlife habitat model assigns relative rankings of high, medium, or low to mapped habitat patches based on their size, shape, and connectivity to other patches or water bodies. These rankings were combined to produce an overall relative ranking of high, medium or low for all the wildlife habitat patches in the inventory.

3. Designating Special Habitat Areas and Updating the Regional Species Lists

The Bureau of Planning worked with the Bureaus of Environmental Services and Parks and Recreation to update Metro's designation, documentation and mapping of Habitats of Concern in the regional inventory. Habitats of Concern include areas with sensitive/threatened fish or wildlife species, sensitive/unique plant populations, wetlands, native oak, bottomland hardwood forests, riverine islands, river delta, migratory stopover habitat, connectivity corridors, upland meadow, and other unique natural or built structures or resources (such as bridges that provide habitat for Peregrine falcons.)

Habitat of Concern are referred to as Special Habitat Areas (SHAs) in the new citywide inventory. Like the Habitats of Concern, SHAs are mapped more generally than the landscape features used in the riparian and wildlife models. The SHA boundaries correspond to broader areas, therefore the edges may extend beyond the specific landscape features.

The City has designated a new SHA class for beaches along the Willamette River. This was based on a four-year study conducted by the Oregon Department of Fish and Wildlife to record the behavior of listed salmonids in the river, and to develop correlations between fish and aquatic macroinvertebrates and different bank or near-shore environments. The City has also designated several structures as Special Habitat Areas including chimney roosting sites for Vaux's Swifts and several bridges on the Willamette and Columbia rivers that provide nesting sites for Peregrine Falcons.

In addition, the citywide inventory includes up-to-date species lists. Metro's regional vertebrate species lists have been culled to include only those species that would be found in Portland.

4. Producing resource ranking maps based on GIS model results and information on Special Habitat Areas.

The City developed formulae to generate overall riparian corridor and wildlife habitat rankings. These rankings reflect both the GIS model results and information about Special Habitat Areas. The formulae are very similar to those Metro used for the regional inventory. The City has produced inventory maps of the relative rankings for riparian functions and wildlife habitat. All Special Habitat Areas receive a high relative ranking. The SHA ranks are incorporated into the wildlife habitat model results. The riparian function and wildlife habitat inventory ranks are combined to produce overall relative rankings. Where mapped riparian corridors and wildlife habitat overlap, the higher of the two relative rankings is retained on the combined inventory map.

5. Ensuring that City refinements to the regional inventory are appropriate.

The Bureau of Planning worked closely with Metro and the Bureau of Environmental Services to ensure that the refinements would be consistent with Metro's work and would support the City's watershed health goals. The Bureau also convened a group of technical experts to review the proposed refinements for scientific

viability and applicability to Portland conditions. The technical reviewers included representatives from U.S. Fish and Wildlife Services, Oregon Department of Fish and Wildlife, Oregon Department of Environmental Quality, Metro, Multnomah County Drainage District, Audubon Society of Portland, Port of Portland, Portland State University, and consulting companies in environmental science and planning related fields. The reviewers provided valuable critique, support, and suggestions that were used to improve the refinement proposal. Details on the refinement proposal and review process are documented in reports entitled *City of Portland Natural Resource Inventory Update: Project Report – Discussion Draft August 2007*.

WORK CONDUCTED SPECIFICALLY FOR THE WILLAMETTE RIVER INVENTORY STUDY AREA

The Willamette River Inventory presented in this report reflects both the citywide inventory work described above, and additional work conducted specifically for the inventory study area, as described below.

Delineation of Inventory Sites

The Bureau of Planning has delineated 13 new inventory sites for the Willamette Inventory. To be consistent with most of more recent inventories the City has produced, the Willamette sites are contiguous to each other and include not only significant natural resources but also the surrounding land uses as well.

Specifically, the Willamette inventory site boundaries are intended to:

- Capture similar and contiguous landscape features (natural and human-made) in the same inventory site.
- Abut one another – i.e., no gaps between inventory sites in the Willamette River study area, or between Willamette River inventory sites and inventory sites established for other inventories, such as the West Hills Inventory. Some Willamette River inventory sites overlap with other sites. In these situations, updated natural resources data and evaluation will be included in this report with appropriate cross-referencing to other inventory reports to prevent confusion.
- Address areas included in Metro's inventory of regionally significant riparian corridors and wildlife habitat.

To delineate the boundaries between inventory sites, a number of landscape features were considered:

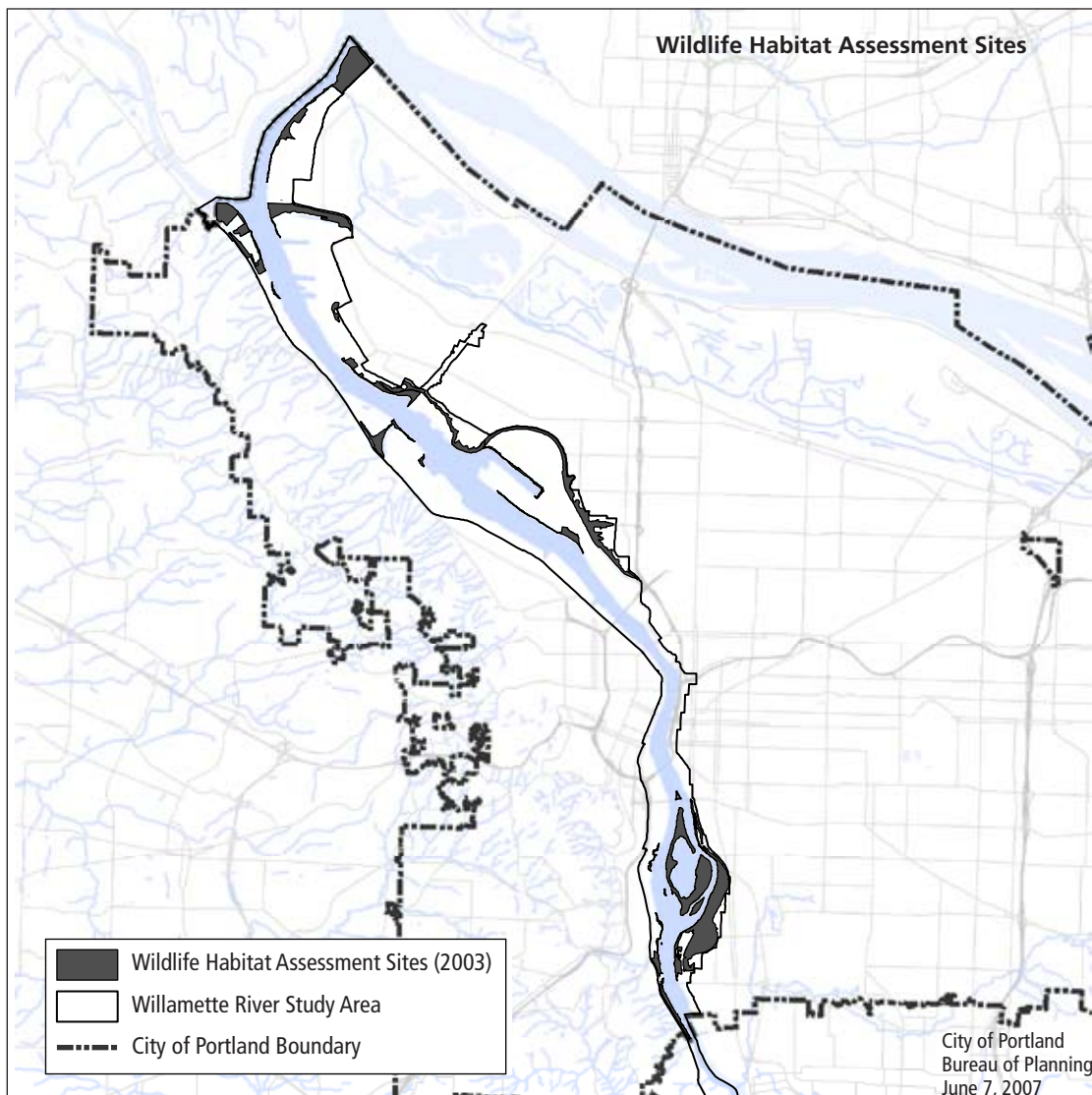
- Streets, bridges, railroad tracks or other transportation facilities – The intent is to set boundaries coincident with facilities that are likely to remain in the same location for many years. When a transportation facility is used, the resource boundary will include the entire right-of-way within the inventory site. If the transportation facility is located between two inventory sites, the entire right-of-way will be included in one of the sites depending on development, property ownership, vegetation or other characteristics.
- Property boundaries and ownership – The intent is to avoid either bisecting a single property or bisecting multiple and adjacent properties that are under a single ownership.
- Contiguous undeveloped areas – The intent is to include contiguous, undeveloped areas in the same inventory site were possible.
- Topography – The intent is to use topography as a boundary where it forms a natural break between inventory sites, such as relatively flat riparian areas and more steeply sloping uplands or bluffs.
- Vegetation – The intent is to include contiguous vegetation in the same inventory site, except when the vegetation type is significantly different or other landscape features such as steep slope indicate a distinction between habitat types.

- Willamette River Centerline – The intent is to include the near-shore habitat and river bank within the same inventory site as the riparian corridor.

The term “inventory site” or “site” is being used, rather than the terms “resource site” or “habitat site” which are used in other City inventories, including the 1986 inventory produced for the Willamette Greenway. This is primarily because many of the Willamette inventory sites are predominantly developed and contain only pockets of natural resources.

Incorporating information from the draft *Lower Willamette Inventory: Natural Resources* (Adolfson Associates, Inc. 2000, updated by City staff, 2003)

The Bureau of Planning contracted with Adolfson Associates, Inc. to produce new habitat inventory information for an area that is slightly larger than the City of Portland’s existing Willamette River Greenway overlay zone. An initial draft Willamette River Inventory: Natural Resources report was produced in 2000.



Map 2. 2000 Wildlife Habitat Assessment Sites

The study identified 24 “habitat sites” throughout the study area – fifteen terrestrial sites and nine aquatic habitat sites. Site boundaries were generally concurrent with the natural resources themselves and did not encompass surrounding developed areas.

The study involved extensive field visits conducted on land and by boat on the Willamette River itself. Wildlife Habitat Assessments (WHAs) were performed for each site. These assessments involved evaluating the presence and availability of water, food, and cover for wildlife. Observations regarding water quality, riparian vegetation, wildlife use and habitat connectivity were recorded. Disturbance impacts, and connection with other natural areas. Unique or rare occurrences of plant and animals were also noted. A Riverine Habitat Assessment methodology, adapted from the WHA, was developed to assess the riverine habitat of the Willamette River. Habitat sites received a numeric score, which provided a relative rank as compared to other sites within the Willamette River Inventory study area.

The *Lower Willamette Inventory: Natural Resources* report contained habitat descriptions, including observational data collected using the WHA, and the numeric score for each site.

In 2003, the *Lower Willamette Inventory: Natural Resources* report was updated by the Bureau of Planning to reflect input from other bureaus and key stakeholders, including information about recent development that altered the presence and condition of natural resources. Site boundaries were modified slightly, but the habitat descriptions and WHA scores were not updated.

The data and information from the updated *Lower Willamette Inventory: Natural Resources (2003)* has been incorporated into the inventory site habitat descriptions presented later in this report. The numeric scores were not used to develop the relative rankings because they were not developed for all identified resources in the inventory. The numeric WHA scores can be found in Appendix D.

Supplemental Site Visits

As noted above, the area addressed in this inventory report is larger and more inclusive than was addressed in the *Willamette River Inventory: Natural Resources* report. The inventory sites contain additional area and landscape features, including smaller and more intermittent vegetation along the riverbank, and developed area inside and outside the floodplain.

In the fall of 2005 and the spring of 2006, City staff teams from the Bureaus of Planning and Environmental Services conducted site visits to address areas that were not addressed in the Adolfson study, and to revisit some areas Adolfson had addressed. Site assessment forms, similar to the WHA forms, were produced to record natural resources and functions including water quality, presence, type and diversity of vegetation, wildlife use and limiting factors. Like the information from the Adolfson work, the natural resource information recorded during the supplemental site visits has been included in the natural resource descriptions provided for each inventory site. The completed site visit forms are found in Appendix E.

4. THE WILLAMETTE RIVER

This section introduces the Willamette River basin and the portion of the Willamette River that flows through Portland. The following discussion is meant to provide a general landscape context for the more specific inventory information that follows.

THE WILLAMETTE RIVER BASIN

Regionally situated in the Lower Columbia River Basin, the Willamette River Basin is an 11,500 square mile watershed located between the Cascade Mountains to the east, and the Coast Range to the west. The 187-mile long Willamette River flows north through 128 jurisdictions including Eugene, Corvallis, Salem and Portland as well as eight counties: Lane, Linn, Benton, Marion, Polk, Yamhill, Clackamas and Multnomah. Nearly 70% of Oregon's population lives in the Willamette River Basin. The mix of land use ranges greatly from forestry and agriculture to urban residential, commercial and industrial.

The basin occupies roughly 12% of Oregon's land and plays an important role in the ecology of the region. The basin extends from mountains approximately 10,000 feet in elevation to the Columbia River just 10 feet above sea level. The Willamette Basin is also made up of 12 tributary subbasins that are diverse in terms of elevation, hydrology, and landscape character. The Willamette basin helps to disperse aquatic and avian species among rivers and streams, upland forests, valleys, floodplains, and to and from the Columbia River and the Pacific Ocean. It is part of the Pacific Flyway for migratory birds, and is a key component of the extensive network of spawning streams for anadromous salmon and steelhead.



Map 3. The Willamette River Basin

THE WILLAMETTE RIVER IN PORTLAND

The 27 miles of river between Willamette Falls and the Columbia River is often referred to as the Lower Willamette River. This portion of the basin connects directly with the regional ecosystem that includes Sauvie Island, Ridgefield and Shilapoo Wildlife Areas, Vancouver Lake, Tualatin Mountains (Forest Park), Burlington and Oak Bottom, the Smith and Bybee Lakes preserve, Sandy River, and floodplain islands in the Columbia River.

The northernmost 17 miles of the Lower Willamette River flows through the City of Portland. The major tributaries to the Willamette in Portland are the Columbia Slough, Johnson Creek, and Tryon Creek. Smaller tributaries originate in the Tualatin Mountains and Forest Park, such as Saltzman, Doane and Balch Creek. Additional tributaries such as Stephens Creek originate in Portland's Southwest Hills area. Many tributaries have been put underground and piped as the city developed.

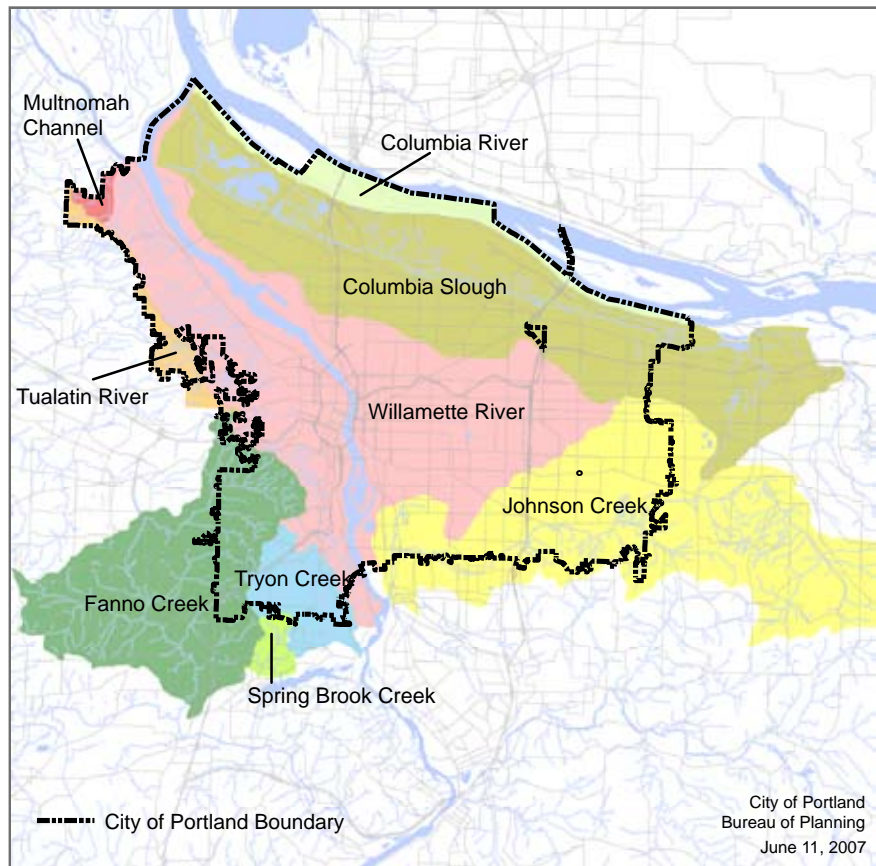
The Willamette River within Portland has a generally wide channel, although in the southern portions of the city the river is constrained by historic basalt flows. Flow levels are managed through the operation of dams in the upper basin. River levels are also subject to tidal influences. The river has many uses, including shipping, industry and commercial enterprises, floating homes, recreation, and fish and wildlife migratory corridor.

The Willamette River has been substantially altered in Portland. The river bottom is dredged to improve navigation and allow large barges and ships to access Portland terminals.

Substantial portions of the river banks have been hardened with riprap, seawalls and docks. Pilings, piers and other human-made structures extend out into the river. Where the river flows through downtown Portland, the floodplain has been mostly filled and the west bank is characterized by the seawall.

The historic floodplain and lowlands of the Willamette River in Portland are located between Forest Park and the Southwest Hills on the west and the remnant oak bluffs on the east.

Over the years, many flood areas, bottomland forests and wetlands have been filled and developed, leaving some larger natural resource areas, but primarily small strips and isolated pockets or narrow corridors of riparian forest, wetlands, and upland vegetation. The banks of the Willamette, throughout most of Portland, have been filled and hardened to minimize flooding and erosion. The remaining floodplain is narrow and contains both undeveloped and developed areas.



Map 4. City of Portland Watershed



Tributary stream in North Reach industrial area – Forest Park in background.

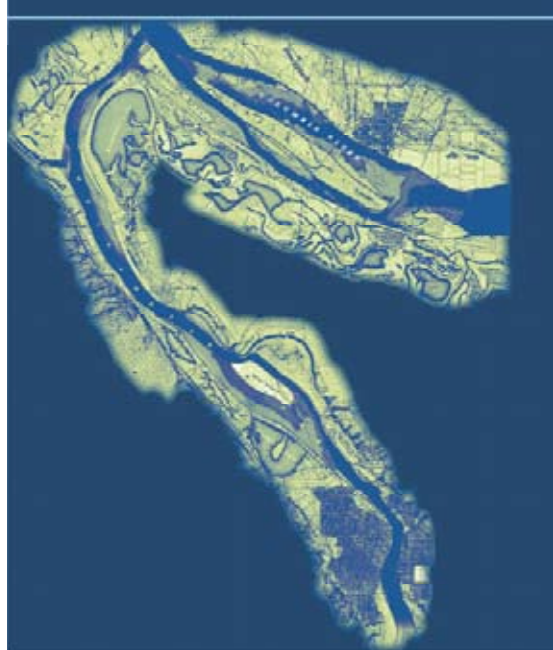
Even with the physical changes and development, the Willamette River and nearby resources continue to provide important watershed functions. The remaining floodplain provides flood storage during large storm events. Remnant wetlands, trees and vegetation provide water storage, filter pollutants from stormwater, cycle nutrients, and create localized microclimate and shading of riverbanks and tributary streams. These areas also provide wildlife habitat areas and connectivity corridors along the river and tributary streams.

The main channel of the river is used by anadromous salmonids as a migration corridor. The river, nearshore mudflats and islands, and adjacent lands also provide wildlife habitat to and birds and terrestrial wildlife, special-status species (or species that have been listed as 'at-risk' by one or more agencies or wildlife organizations). Significant riparian and wildlife habitat resources exist at Kelley Point Park, Harborton Wetlands, South Rivergate Corridor, Ross Island, and the Oaks Bottom Wildlife Refuge. These areas provide flood storage, water cooling and sediment filtering, and fish and wildlife habitat. These areas also provide important wildlife connectivity corridors along the river and to other significant resources within Portland and the region.

The Lower Willamette River does not meet water quality standards for bacteria, mercury, dioxin, and temperature. Cool water is one of the necessities of anadromous salmonids and aquatic macroinvertebrates. Tributary streams can influence the water temperature of the Willamette by providing cool water. However, many tributaries of the river, including the Columbia Slough, do not meet standards for temperature and other pollutants, such as sediment and heavy metals.

The confluences of the Willamette River and its tributaries provide important fish and wildlife habitat. The relatively sandy substrate, vegetation and large woody debris provide refugia habitat for salmonids and feeding areas for shorebirds and other wildlife. These areas also provide connectivity corridors between the river and tributaries.

Nine bridges cross the Willamette River in Portland. The Sellwood, Ross Island, Hawthorne, Morrison, Steel, Broadway, Fremont, Railroad, and St. Johns bridges are designed to accommodate automobile and truck traffic. Some also accommodate light rail and/or bicycles. Just south of the St. Johns Bridge a railroad bridge cross the Willamette. Several of the bridges provide habitat as well. For example, the St. Johns, Railroad, and Fremont bridges



Map 5. Portland Wetlands and Waterbodies 1888



Map 6. Portland Wetlands and Waterbodies 2007

provide nesting opportunities for Peregrine falcons.

The Lower Willamette River basin also connects to and contains important upland resource areas. For instance, the river connects directly to Forest Park and westward to the Tualatin Mountains and Coast Range. These large forested areas provide a major wildlife migration corridor and are a source of species recruitment. The escarpment that runs along the east side of the river also provides important native oak habitat and connectivity. Local neighborhoods contain tree canopy and vegetation that help manage stormwater by intercepting rain and filtering pollutants from overland flow. Neighborhood vegetation can also provide important wildlife habitat areas and corridors.



Oaks Bottom Wildlife Refuge/Ross Island



Waud Bluff/Mocks Crest

SUMMARY OF INVENTORY RESULTS FOR THE INVENTORY STUDY AREA

The Willamette River Inventory study area is 8,990 acres in size, of which the Willamette River is approximately 3,215 acres. The study area contains approximately 12 miles of Willamette river and 5.2 miles of tributary stream channels. Wetlands comprise an additional 340 acres. There are 1,310 acres of flood area. This includes 580 acres of vegetated flood area and 730 acres that are not vegetated, much of which is developed in industrial or other land uses.

Also within the study area are 1,520 acres of vegetated patches greater than one-half acre in size. These include 520 acres of forest or tree canopy, 290 acres of woodland, 270 acres of shrubland and 440 acres of herbaceous cover. Vegetated area covers roughly 17% of the Willamette River inventory study area.

Resource Evaluation

The natural resources located within the Willamette River inventory sites have been evaluated for relative riparian and wildlife habitat quality. Relative quality is presented in the form of relative value ranks for riparian function, wildlife habitat and riparian/wildlife habitat areas combined. (See Table 1) The relative ranks are produced using GIS models and information on Special Habitat Areas. 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 the *City of Portland Natural Resource Inventory Update Project Report, 2007*. Areas ranking for

Table 1: Summary of Ranked Resource in the Willamette River Inventory Study Area

Total Inventory Study Area = 8,992 acres					
Terrestrial* = 5,777 acres					
Willamette River = 3,215 acres					
		High	Medium	Low	Total
Riparian Resources **					
acres		3,887	326	867	5,080
percent total inventory study area		43%	4%	10%	57%
Special Habitat Area **					
acres		4,220			
percent total inventory study area		47%			
Wildlife Habitat **					
acres		4,137	80	71	4,288
percent total inventory study area		46%	1%	1%	48%
Combined Total ***					
acres		4,340	248	698	5,286
percent total inventory study area		48%	3%	8%	59%
Combined Terrestrial (excludes Willamette River)					
acres		1,125	248	698	2,071
percent total inventory study area		13%	3%	8%	23%
* Terrestrial includes the land, tributary streams, drainageways and wetlands.					
** High-ranked riparian resources, Special Habit Areas, and wildlife habitat includes the Willamette River.					
*** Because riparian resources, Special Habitat Areas, and wildlife habitat overlap, the results cannot be added together to determine the combined results.					

riparian function, wildlife habitat and Special Habitat Area (SHA) can, and do in many instances, overlap. SHAs are incorporated into the wildlife habitat results. All SHAs receive a high relative rank and that rank supersedes lower rankings generated by the wildlife habitat GIS model. 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.

All of the ranked resource areas provide at least some important riparian and habitat value, recognizing that current condition and function levels vary considerably. The relative ranks can help inform planning programs, design of develop or redevelopment projects, mitigation and restoration activities. Below is a table that summarizes the results.

5. NORTH REACH OVERVIEW

The North Reach of the Willamette River Inventory study area is 6,490 acres in size and extends approximately 12 miles from the Broadway Bridge to its confluence with the Columbia River. The North Reach is the longest reach of the Willamette River within the City of Portland. The landscape within the North Reach is comprised of industrial lands, river-dependent uses, a few residential areas, and several parks and natural areas.



The North Reach is located within a dynamic junction of ecosystems linking the northernmost portions of the Willamette River Basin with the Columbia River Gorge and Sandy River Basin, the forests and emergent wetlands of the Ridgefield Wildlife Refuge and Vancouver Lake Lowlands, Sauvie Island, Tualatin Mountains, and the Columbia River Estuary and Pacific Ocean.

Because of these connections, the North Reach serves as a migration corridor for salmonids moving between the ocean and spawning areas upstream, as well as a connectivity corridor for mammals and birds.

Given its location along two major river systems, the North Reach also plays a critical role in the region's economy. Portland originated as a seaport for timber and grain exports. Railroads and major highways were constructed connecting Portland to Seattle, San Francisco, Los Angeles and eastward.

To facilitate the industrial development and use of the river for shipping, the landscape has been altered significantly. Large portions of flood plain wetlands, such as Doane and Guilds lakes, have been filled. Swan Island and portions of the river channel were altered. Numerous small streams originating in Forest Park have been piped. The banks of the Willamette have also been filled,



Railyard



Port of Portland Terminal 5



Cathedral Park

steepened and armored, wharves and piers are built out into the river and the channel is dredged to improve navigation for large ships and barges. Today, the Portland Harbor is a major distribution point for many goods. Three industrial districts are located in the North Reach: Rivergate, Swan Island and Northwest Industrial. Of the jobs provided by Portland's industrial districts, 36% are located within these three districts. Between one-half and three-quarters of the developed, occupied land in the North Reach is in heavy industrial use, primarily freight distribution – rail yards, marine terminals and truck terminals (Industrial Lands Atlas, 2004).

The two residential communities of Linnton and St. Johns are located mostly outside of the North Reach planning area, but extend inward. Both areas represent a transition between river-dependent industrial uses and residential/commercial uses. Also located in the North Reach are four parks, including Kelley Point Park and Cathedral Park, four Port of Portland Terminals, and numerous industrial developments.

Along with the wealth of industrial uses in the North Reach, the area also contains important natural resources including remnant bottomland hardwood forests, upland forests and oak escarpments, wetlands, streams, river bank, and the river itself.

Larger natural resource areas still remain at Kelley Point Park, the Harborton Wetlands, South Rivergate corridor, Willamette Cove and Doane Lake. These areas provide important connections with natural resources to the east including Smith and Bybee Wetlands and the Columbia Slough as well as to the north and west including the Multnomah Channel, Sauvie Island and Tualatin Mountains (Forest Park).



Beach along the Willamette at Harborton Wetlands

Remnant bottomland hardwood forests, associated wetlands, and intermittent river bank vegetation are found in small pockets along the river. These resources provide an array of watershed functions including bank stabilization and sediment control, localized microclimate and shading, organic inputs, filtering pollutants from overland flow, and wintering and breeding habitat for waterfowl and shorebirds. Riparian areas and river banks also provide wildlife important corridors along the river. Upland tree canopy and vegetated cliffs offer additional hydrologic, water quality and habitat benefits, including stopover areas for neotropical avian migrants.

Bald eagle, blue heron, osprey and other raptor species depend on the bottomland forests and emergent wetlands and upland forests for food and nesting. These habitats are also important for terrestrial species such as deer, coyote, fox, and an occasional bear, which make use of the proximity of shelter in the uplands and forage along the river. Reptiles, such as turtles and snakes, and amphibians also move between the upland

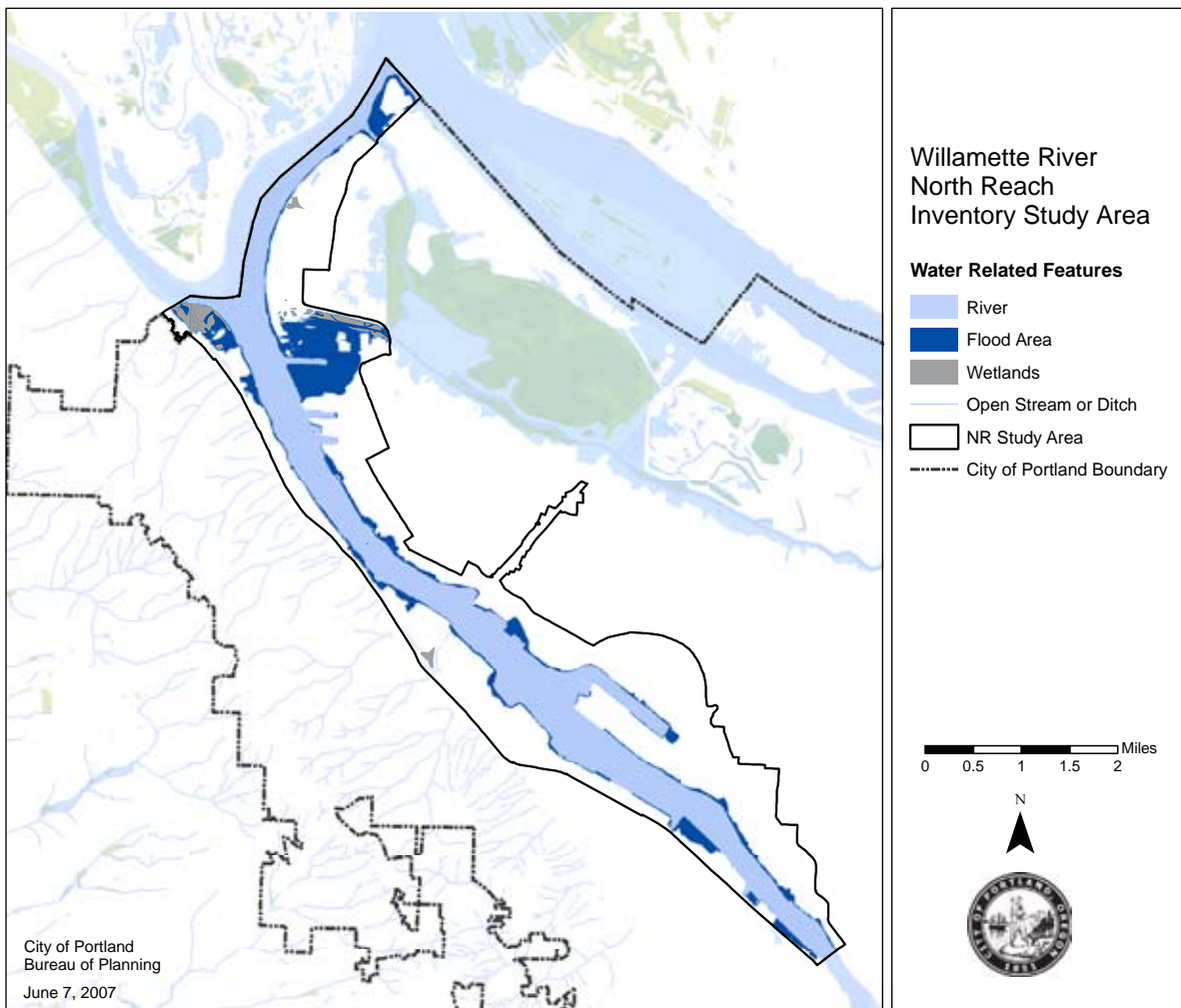
and riparian habitats. Red-legged frogs, for example, breed in Doane Lake and migrate into Forest Park during their terrestrial phase. Moving from the upland areas to the lowland forests and river is relatively easy for avian species, but is difficult for terrestrial species which must cross roads, such as Highway 30, and private properties.



Turtle

The Willamette River banks in the North reach are generally steep and largely filled and armored. However, some areas along the river shore contain substantial stands of cottonwood and other woody and low structure vegetation. In some places, vegetation has been mixed with riprap to stabilize the bank. This vegetation provides many functions, including nutrient cycling, microclimate and habitat. Shallow-water areas such as Willamette Cove, and remnant beaches that accumulate large wood, are used by anadromous salmonids, shad and sturgeon for migration and rearing. River confluences with the Columbia Slough and Multnomah Channel provide important refugia habitat for salmonids.

SUMMARY OF INVENTORY RESULTS FOR THE NORTH REACH

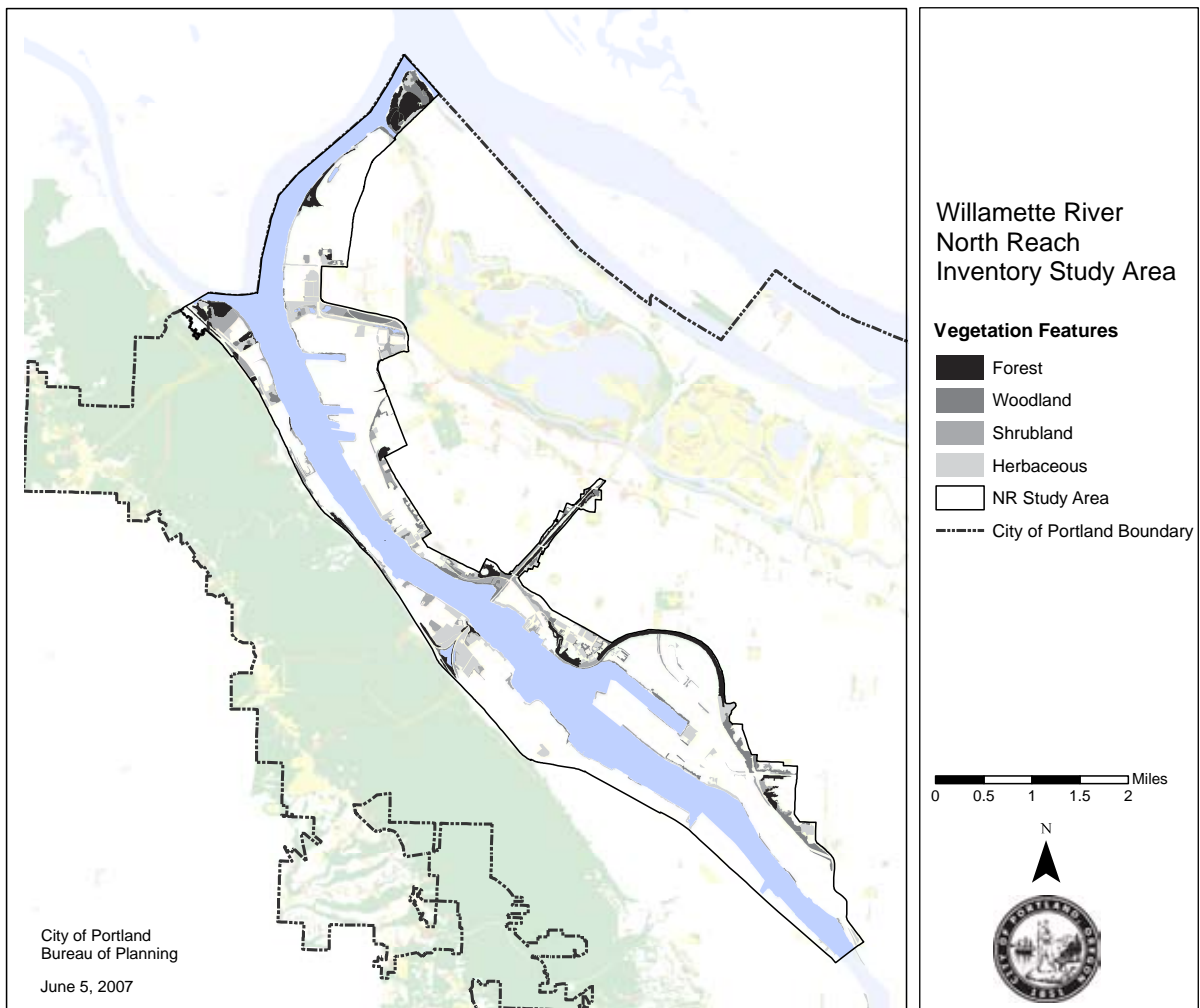


Map 7. North Reach Water Resources

The Willamette River North Reach is 6,490 acres in size, including approximately 2,170 acres of the Willamette River channel. Impervious surfaces cover 2,620 acres (40%) of the site, including 95 miles of road. A summary of results from the evaluation can be found in Table 2.

The North Reach contains 12 miles of the river and 5 miles stream channels. There are 770 acres of flood area within the North Reach. This includes 290 acres which are vegetated. The remaining flood area is developed with industrial or other land uses. Wetlands comprise an additional 86 acres in the North Reach.

Within the North Reach are roughly 1,000 acres of vegetated patches greater than one-half acre in size. These include 260 acres of forest or tree canopy, 180 acres of woodland, 230 acres of shrubland and 330 acres of herbaceous cover. This vegetated area covers approximately 15% of the North Reach study area.



Map 8. North Reach Vegetation

RESOURCE EVALUATION

The natural resources located within the North Reach of the Willamette River have been evaluated for relative riparian and wildlife habitat quality. Relative quality is presented in the form of relative value ranks for riparian function, wildlife habitat and riparian/wildlife habitat areas combined. The relative ranks are produced using GIS models and information on Special Habitat Areas. The approach used to generate the relative ranks is summarized in the Methodology Overview section of this report and in the following introduction to the North Reach sites. Additional detail is provided in the *City of Portland Natural Resource Inventory Update Project Report, 2007*.

Areas ranking for riparian function, wildlife habitat and Special Habitat Area (SHA) in many instances, overlap. All SHAs receive a high relative rank and that rank supersedes lower rankings generated by the wildlife habitat GIS model. 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. Designated Special Habitat areas in the North Reach are shown in Table 2.

Special Habitat Areas and Attributes

Table 2: Special Habitat Area in North Reach Study Area

Watershed /Site ID	Site Name	P	W	O	B	I	D	M	C	S	E	G	WB	U
Columbia Slough														
CS	Lower Columbia Slough	--	✓	--	✓	--	--	✓	✓	✓	--	--	--	✓
CS1	Kelley Point Park	--	--	--	✓	--	--	✓	✓	--	--	--	✓	--
CS3	West Wye/ I-5 Powerline Mitigation Site	--	✓	--	✓	--	--	✓	✓	✓	--	--	✓	--
Willamette River														
BR1	Railroad Bridge Nests	--	--	--	--	--	--	--	--	✓	--	--	--	✓
BR2	St. Johns Bridge Nests	--	--	--	--	--	--	--	--	✓	--	--	--	✓
BR3	Fremont Bridge Nests	--	--	--	--	--	--	--	--	✓	--	--	--	✓
W	Willamette Mainstem ESA Critical Habitat	--	--	--	--	--	--	--	✓	✓	--	--	--	--
WB	Willamette Beach - multiple sites	--	--	--	--	--	--	--	✓	✓	--	--	✓	--
W1	NW Willamette River Forested Wetland	--	✓	--	✓	--	--	--	✓	--	--	--	✓	--
W2	Harborton Forest & Wetlands Complex	--	✓	--	✓	--	--	✓	✓	✓	--	--	✓	--
W3.A	Willamette Bluff Complex - Roberts/ Railroad Bluff	--	--	✓	--	--	--	--	✓	--	--	--	--	--
W3.B	Willamette Bluff Complex - Weyerhauser Ave Woodlands	--	--	✓	--	--	--	--	✓	--	--	--	--	--
W3.C	Willamette Bluff Complex - Edison Street Woodlands	--	--	✓	--	--	--	--	✓	--	--	--	--	--
W3.D	Willamette Bluff Complex - Decatur Bluff	--	--	✓	--	--	--	--	✓	--	--	--	--	--
W3.E	Willamette Bluff Complex - Willamette Bluff	--	--	✓	--	--	--	--	✓	--	--	--	--	--
W3.F	Willamette Bluff Complex - Riverwood Woodland	--	--	✓	--	--	--	--	✓	--	--	--	--	--
W4	Willamette Cove Bottomland	--	--	✓	✓	--	--	--	✓	--	--	v	--	--
W5	Edgewater Street Forest and Ravine	--	--	✓	--	--	--	--	✓	--	--	--	--	--
W6	Forest Park	--	--	✓	✓	--	--	✓	✓	✓	✓	--	--	--
W7	Doane Lake and Wetlands	--	✓	--	✓	--	--	✓	✓	✓	--	--	--	--

- P - Area contains sensitive or rare plant populations
- W - Wetlands and associated seeps, springs and streams that are part of the wetland complex
- O - Native oak
- B - Bottomland hardwood forest
- I - Riverine island

- D - River delta
- M - Migratory stopover habitat
- C - Corridor between patches or habitats
- S - Area critical to sensitive species life history, on more than an incidental basis; critical habitats as designated by NOAA

- E - Elk migratory corridor
- G - Upland meadow, prairie or grassy area important to migrants and grassland-associated species
- WB - Willamette beach
- U - Resource or structure that provides critical or unique habitat function in natural or built environments (such as bridges or street trees)

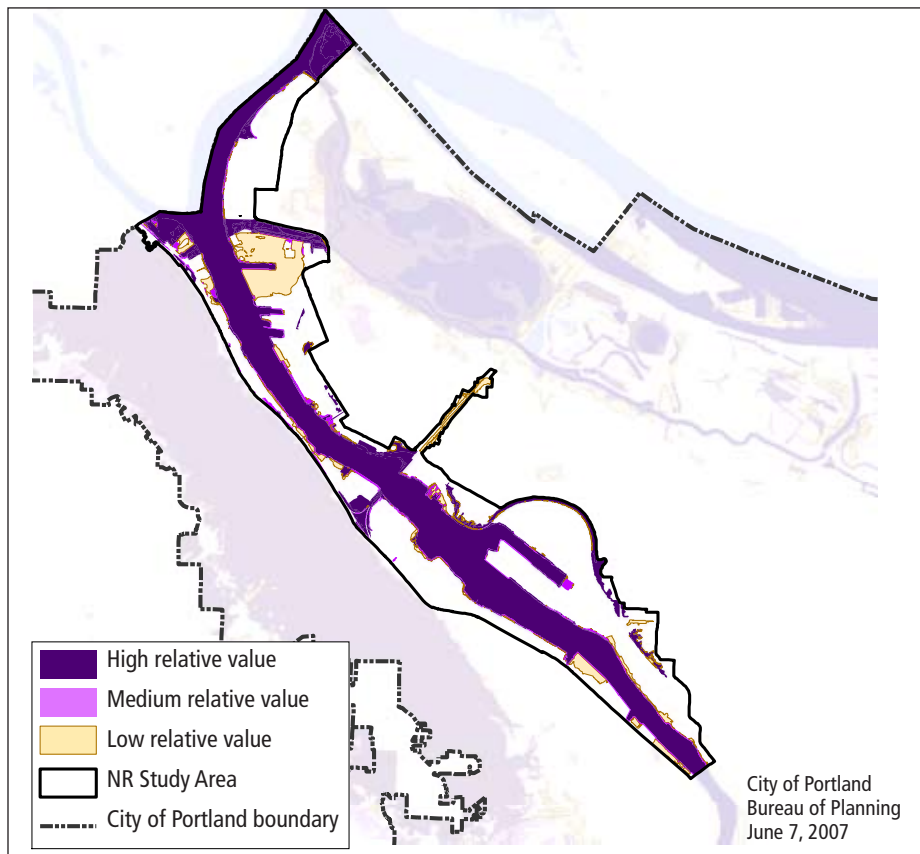
All of the ranked resource areas provide at least some important riparian and habitat value, recognizing that current condition and function levels may vary considerably. The relative ranks can help inform planning programs, design of development or redevelopment projects, mitigation and restoration activities. The table below summarizes the results.

Table 3: Summary of Ranked Resource in the North Reach Study Area

Total Study Area = 6,492 acres
 Terrestrial* = 4,339 acres
 Willamette River = 2,153 acres

	High	Medium	Low	Total
Riparian Resources **				
acres	2,473	203	581	3,257
percent total inventory study area	38%	3%	9%	50%
Special Habitat Area **				
acres	2,678			
percent total inventory study area	41%			
Wildlife Habitat **				
acres	2,682	22	44	2,747
percent total inventory study area	41%	<1%	1%	42%
Combined Total ***				
acres	2,805	151	481	3,437
percent total inventory study area	43%	2%	8%	53%
Combined Terrestrial (excludes Willamette River)				
acres	652	151	481	2,283
percent total inventory study area	10%	2%	8%	20%

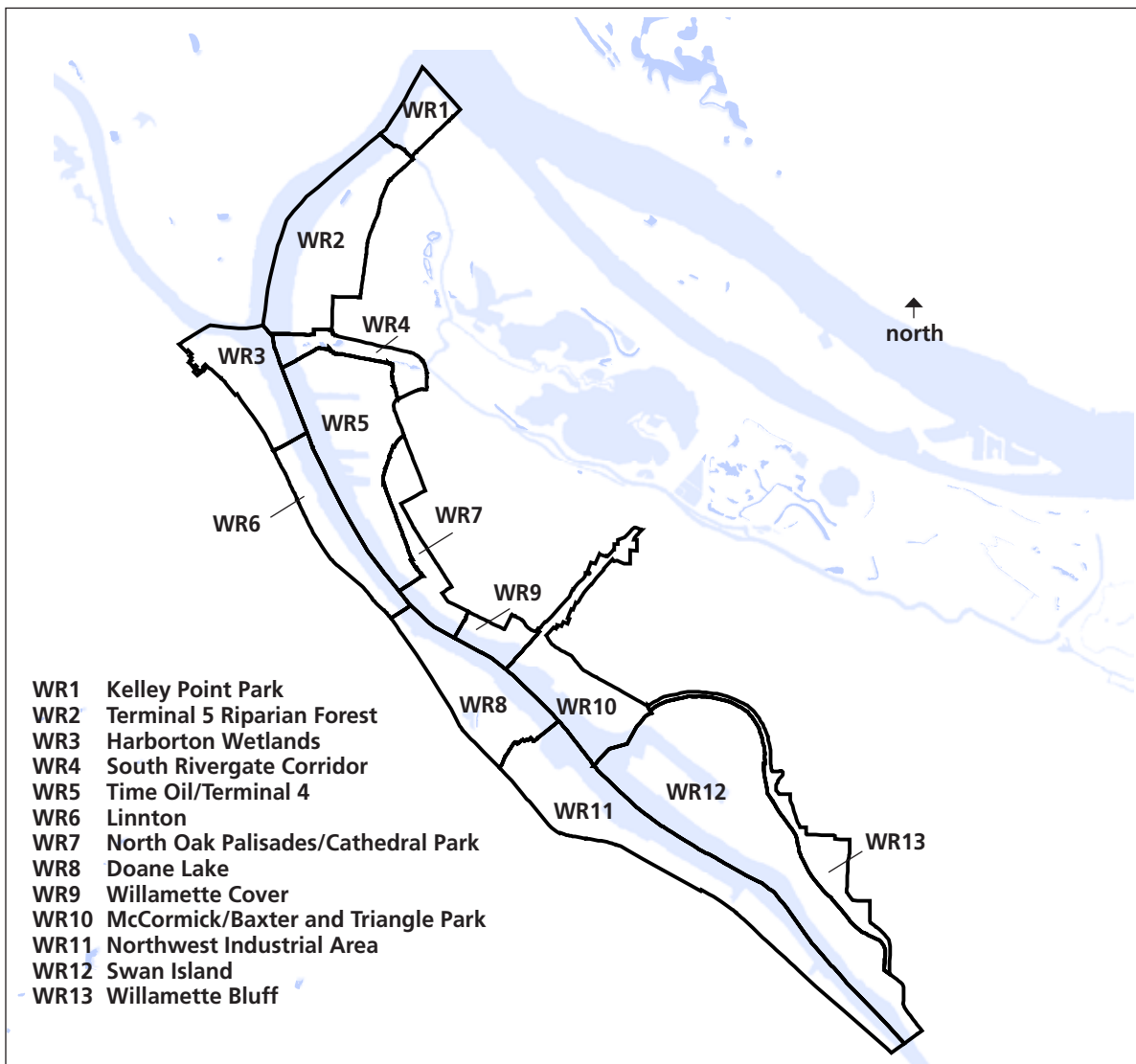
* Terrestrial includes the land, tributary streams, drainageways and wetlands.
 ** High-ranked riparian resources, Special Habit Areas, and wildlife habitat includes the Willamette River.
 *** Because riparian resources, Special Habitat Areas, and wildlife habitat overlap, the results cannot be added together to determine the combined results.



Map 9. Combined Riparian Corridor and Wildlife Habitat Ranks for the North Reach Study Area

6. WILLAMETTE RIVER NORTH REACH INVENTORY SITES

There are thirteen inventory sites in the North Reach of the Willamette River Inventory study area, ranging in size from approximately 119 acres to 1450 acres including land and portions of the Willamette River. The inventory sites support a variety of uses, primarily industrial, parks and natural area, and river recreation and commerce.



Map 10. Willamette River North Reach Inventory Sites

The following report sections provide information for each inventory site. Each site section starts with a summary of site characteristics. Table 4 explains each of these characteristics.

Table 4: Explanation of Inventory Site Summary Information

Characteristic	Explanation
Watershed	The name of the watershed(s) within which the resource site is located
Neighborhood	The name of the neighborhood(s) within which the resource site is located
Legal Description	USGS quadrangle maps, and quarter section maps
River Mile	Beginning at the mouth of the Willamette River, mile 0 is where the centerline of the Willamette meets the centerline of the Columbia River. This is also coincident with the northwest corner of the City of Portland boundary.
Site Size	Size estimates include land features, streams and drainageways, wetlands, and portions of the Willamette River to the centerline of the channel (for sites on the river)
Previous Inventory	City-adopted natural resource inventories in which the site or portions of the site were addressed.
Zoning	Zone designations within the site, including overlays (e.g. airport, design, open space, scenic, greenway and environmental)
Existing Land Use	Primary land uses currently on the site.
General Resource Description	Brief description of the site, its geographic location, natural resources and other key features.
Resource Features	Specific natural resource features found on the site (e.g., stream, wetland, flood area, vegetation, beach, steep slopes, open water). Features may be in relatively good or poor/ degraded condition.
Resource Functions	Riparian and wildlife habitat resource functions relate directly to the resource features found on a site. They are functions that may be performed by the resources present.
Special Habitat Area	Special Habitat Areas (SHAs) are designated where natural resources have been documented to provide particularly important or unusual functions.
Special Status Species	Special status species are wildlife (including fish) or plant species known or reasonably expected to occur within or use the site, and that have been assigned a status of concern by Oregon Department of Fish and Wildlife; Oregon Natural Heritage Information Center, the US Fish and Wildlife Service, or NOAA National Marine Fisheries Service. Special status species lists for Portland can be found in Appendix F.
Hazards	Indicates whether any portion of the site is within City-designated Wildfire Hazard Zone, Landslide Hazard Zone, or the Flood Area (FEMA 100-year floodplain and/or adjusted 1996 flood inundation area).

Following the site summary are the following sections.

SITE DESCRIPTION

The site description is a brief, general description of site boundaries, current and historic land uses, development characteristics, natural resource features, and other issues such as known contamination, mitigation sites, revegetation projects and natural hazards, if applicable. This section is intended to provide important context for the following descriptions and evaluations of the natural resources on the site.

NATURAL RESOURCE DESCRIPTION

The general site description is followed by an account of the types and condition of natural resources present on the site. The description also provides information on plant and wildlife species and habitat types found on the site. Natural resource functions and limiting factors are also addressed. Limiting factors are those elements which impede the functionality of the natural resources present on the site.

These descriptions are based in part on research and field assessments completed by City staff and Adolfsen Associates between 2000 and 2003. Other information sources used to develop these descriptions include: the four-year Oregon Department of Fish and Wildlife study on the life cycles and behaviors of listed salmonids in the lower Willamette River, Department of Environmental Quality information on contaminated sites, and existing City data on natural resources and landslide and wildfire hazard areas. City staff also conducted field visits to many of the sites in 2005 and 2006. Field observation and Wildlife Habitat Assessment forms are provided in Appendix D.

NATURAL RESOURCE EVALUATION

This section presents and describes the relative quality of the natural resources that currently exist in each inventory site. The existing condition or quality of the natural resources is expressed as relative rankings of “high,” “medium,” or “low.” The resource evaluations are presented in three sub-sections – riparian areas, wildlife habitat, and combined riparian and wildlife habitat areas. The methodology used to produce the relative rankings is summarized in the previous report section. A more detailed description is found in the *Natural Resource Inventory Project Report, 2007*.

The basic steps to produce the relative resource rankings are:

1. **Map key resource features associated with riparian corridors and wildlife habitat.** Develop current GIS data layers and maps for rivers, streams/drainageways, wetlands, flood area, slope and vegetation.
2. **Apply science-based criteria and generate initial relative quality ranks for natural resource features in the site.** GIS models assign initial relative ranks by comparing the natural resource features with criteria relating to specific riparian functions and wildlife habitat attributes. Riparian functions include: microclimate and shade; streamflow moderation and flood storage; organic inputs and food web; large wood and channel dynamics; bank stabilization and control of sediments, nutrients and pollutants, and wildlife movement corridor. Wildlife habitat attributes include habitat patch size, interior habitat area, connectivity between habitat patches, and proximity to water. Relative rankings of high, medium, or low, reflect the presence, type, size, extent, and character of features present. Natural resource features that do not meet the minimum criteria are not assigned a rank by the GIS models.
3. **Incorporate Special Habitat Areas.** Special Habitat Areas are designated where natural resources have been documented to provide particularly important or unusual functions. Examples include rare or declining habitats (e.g., native oaks); areas that provide critical habitats for species at risk (Willamette beaches, migratory bird stopovers), and important habitat corridors or connectors. Special Habitat Areas have been adapted from the Habitats of Concern identified in Metro’s inventory of regionally significant riparian corridors and wildlife habitat. Special Habitat Areas receive a high relative functional rank which would supersede a low or medium rank if generated by GIS models.

4. **Combined Relative Functional Rankings.** A combined relative ranking is produced for natural resources within the site. Where riparian resources and wildlife habitat or Special Habitat Area patches overlap, and if the two relative ranks differ, the higher of the two ranks becomes the overall combined rank for that resource area.

It is important to emphasize that the relative rankings denote the existing conditions and relative quality of natural resources in a given site. The relative quality of existing natural resources in the Willamette corridor ranges from relatively functional to highly degraded. This information is intended to inform (but not dictate) how these areas could be managed. For example, understanding the relative quality of existing resources can inform planning efforts, design of development projects, and priority-setting for natural resource protection or restoration. It should also be noted that all ranked resources provide important watershed values and functions that should be taken into consideration when making management decisions to protect, restore, or disturb these areas.

REFERENCES

Adolfson Associates, Inc. 2000. *Lower Willamette Inventory: Natural Resources, Public Review Draft* (updated by City of Portland staff to reflect public comments, 2003).

City of Portland Bureau of Environmental Services. December 2005. *Portland Watershed Management Plan*.

City of Portland Bureau of Environmental Services. December 2005. *Framework for Integrated Watershed Management*.

City of Portland Bureau of Planning, March 1986. *Lower Willamette River Habitat Inventory*.

City of Portland, Bureau of Planning. September 3, 2002. *Metro Title 3 Water Quality Compliance Report* – Submitted by the City of Portland, Oregon.

City of Portland, Bureau of Planning. August 7, 2002. *Willamette River Title 3 Water Quality Compliance Project, City Council Adopted Report - Ordinance Number 176784*.

City of Portland Bureau of Planning. 2004. *Industrial Districts Atlas*.

City of Portland Bureau of Planning. June 2007. *City of Portland Natural Resource Inventory Update: Project Report –Draft*.

Oregon Department of Environmental Quality. n/d. Environmental Cleanup Site Information (ECSI). Website: <http://www.deq.state.or.us/lq/ecsi/ecsi.htm>.

Oregon State Land Board, Division of State Lands. 1992. *Lower Willamette River Management Plan*.

Metro. *Urban Growth Management Functional Plan*. Section 3.07 of the Metro Code.

Metro. April 2005. *Metro's Technical Report for Fish and Wildlife Habitat*.

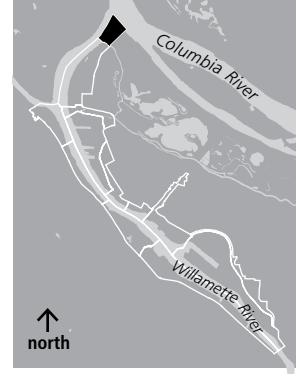
Metro. August 2005. *Metro's Riparian Corridor and Wildlife Habitat Inventories*.

Metro. August 2005. *Addendum and Update to Metro's Riparian Corridor and Wildlife Habitat Inventories*.

State of Oregon, Water Resources Department. 1992. *Willamette Basin Report*. Salem, Oregon.

Willamette River Basin Task Force. December 1997. Recommendations to Governor John Kitzhaber.

INVENTORY SITE WR1: KELLEY POINT PARK



SUMMARY INFORMATION

Watershed:	Columbia Slough, Willamette River and Columbia River watersheds
Neighborhood:	St. Johns
USGS quadrangle and quarter section maps:	2N1W13, 2N1W14, 2N1W23, 2N1W24 and 1220, 1320-21, 1420
River Mile:	0-0.6 (beginning at the mouth of the Willamette River, at the junction of the Willamette River and Columbia River centerlines.
Site Size:	161 acres (land and water)
Previous Inventory:	Lower Willamette River Wildlife Habitat Inventory, March 1986; Columbia Corridor Industrial and Environmental Mapping Project, January 1989.
Zoning:	Open Space (OS) Aircraft Landing overlay (h) River Water Quality overlay (q) River Recreational overlay (r)
Existing Land Use:	Natural Area
General Description:	The site includes Kelley Point Park, the confluence of the Willamette and Columbia rivers, the south bank of the Columbia River near Kelley Point Park, the east bank of the Willamette River between the northwest and southwest corners of Kelley Point Park, and the confluence of the Columbia Slough with the Willamette River. The site extends as far as the City of Portland boundary to the west, and north of Kelley Point Park. The landscape features within the site connect the habitat provided by the rivers, the Lower Columbia Slough, and Smith and Bybee Lakes.
Resource Features:	Bottomland forest, vegetated flood area, beach, grassland, open water.
Functional Values:	Microclimate and shade; stream flow moderation and water storage; bank stability, and sediment, pollution and nutrient control; large wood and channel dynamics; organic inputs, food web and nutrient cycling; wildlife habitat; habitat connectivity/movement corridor; migratory bird stopover.
Special Habitat Area:	Yes
Special Status Species:	Wildlife: Bald eagle. Fish: Lower Columbia River Chinook salmon; Lower Columbia Coho salmon; Lower Columbia River Steelhead trout, Pacific lamprey.
Natural Hazards:	Wildfire, flood area

SITE DESCRIPTION

The Kelley Point Park inventory site is 161 acres in size. The terrestrial portion of this site is approximately 103 acres and includes Kelley Point Park, a multi-use park located in North Portland at the confluence of the Willamette and Columbia Rivers, and the mouth of the Columbia Slough. Kelley Point Park was originally created by the Port of Portland, which filled the flood-prone peninsula with dredge material from the river. WR1 Map 1 shows an aerial view of the Kelley Point Park inventory site.

Roughly 60 acres of the site is comprised of Willamette River and Columbia Rivers, to the river centerlines, and the Columbia Slough channel and banks. The site has approximately 3,100 linear feet of frontage on the Willamette River, 1,790 linear feet of Columbia River frontage, and 900 linear feet of Columbia Slough frontage.



The site is largely vegetated, primarily with trees. Accounting for vegetated areas at least ½ acre in size, forest and tree canopy make up approximately 57 acres of the site, or 35%. Another 23 acres are covered with woodland and shrubland vegetation, while herbaceous cover is found on approximately 12 acres. The 48 acre flood area with the site is almost entirely vegetated, except where beaches exist. The site contains 6.5 acres (4.0%) impervious surface coverage, including 0.9 miles of road.

The City of Portland's Bureau of Environmental Services has one proposed and three active revegetation projects on the site, including one along the southwest bank of the Columbia Slough. The entire site is within the City of Portland Wildfire Hazard Zone (City of Portland, 1998).

NATURAL RESOURCE DESCRIPTION

The Kelley Point site contains both aquatic and terrestrial resources (key resource features are shown in WR1 Maps 2 and 3). The site includes Kelley Point Park and a portion of the adjacent Columbia Slough riparian corridor. The site is located at the junction of the Willamette and Columbia rivers, and is partially within the floodplains of both rivers. The natural resource features in the site provide important watershed functions and connections between major habitat areas in the region (e.g., forests and wetlands in and around Smith and Bybee Lakes, Sauvie Island, Columbia River Gorge islands and the Vancouver Lake (WA) lowlands).

The dominant vegetation is bottomland forest, which is comprised of two primary vegetation associations: black cottonwood/pacific willow, and the drier black cottonwood/snowberry. The black cottonwood/pacific willow assemblage (approximately 25 acres of site) is common within the floodplain areas along the shores of the Willamette River and Columbia Slough. Most of the forest has a complex structure with trees of varying ages, snags, and large wood. Near the mouth of the Slough, the forested area has a noticeably even-aged structure. This could indicate a past flood or human-induced disturbance. The black cottonwood/snowberry assemblage (approximately 50 acres of the site) occurs with greater frequency on the inland and northern portions of the site. Tree canopy cover within the bottomland forest ranges from 40 to 80 percent. Shrubs and herbaceous vegetation cover the ground underneath most of the forests.

The shrub and groundcover layers are primarily comprised of red elderberry and red osier dogwood, and sword fern and stinging nettle in the ground layer. Invasive species, including St. John's wort also exist within the site. The site contains several open meadow habitats. These areas are primarily grass-dominated fields that are mowed and managed for recreational uses. The edges between the forest and grassland habitats are dominated by exotic Himalayan blackberry and Scot's broom. Removal of invasive species and replanting with native species (snowberry, red osier dogwood and blue wild rye) has occurred along the Columbia Slough and along the eastern boundary of the park.

Other vegetation assemblages include two small stands of Pacific madrone, a common component of more xeric communities (e.g., foothill savanna/oak woodland), occurring along the forest edge in the northern part of Kelley Point Park. Apple and cherry trees, vestiges of an abandoned orchard, occur in the southern part of the park.

The Willamette River and Lower Columbia Slough are affected by daily and seasonal tidal fluctuations. This tidal influence creates unique hydrologic conditions in the area. The twice daily tidal influence causes the Columbia Slough and the Willamette River to reverse flow (depending on tide and river flow levels). The water quality conditions of the Willamette can be detected upstream in the Columbia Slough through the site, as evident by slightly differing salinity concentrations.

Beaches exist along all three waterways. The near shore environment consists of shallow, shelving areas with primarily sand and silt substrate. Large wood is transported and deposited along the shoreline during high flow periods. The combination of beaches, large wood, and shallow water provide refugia and rearing habitat for migrating juvenile salmonids (ODFW, 2005).

The mosaic of bottomland forest, grassland, river and slough systems creates a diverse mix of forage, nesting, and resting or stopover opportunities for wildlife. The size of the site provides ample space for resident and migratory species that use the site. The combination of forest, open water, and grassland habitats provides conditions necessary for raptors (e.g., bald eagle, osprey), kingfishers, double crested cormorants, and great blue herons that feed on fish and aquatic invertebrates in the open water. The forest provides a variety of year-round seeds, berries, nuts, vegetation, and insects for resident robin, chickadee, wren, thrush, tanager, sparrow, towhee, kinglet, and other passerines. It also provides spring and summer food sources for breeding warblers, flycatchers, and swallows. Beaver, river otter, and mink occasionally forage within the site. During the winter, seeds and worms become scarce.

Downed logs common in the bottomland forest provide long-term cover, resting, and feeding areas for reptiles, birds, and small mammals. Deer swim from Sauvie Island across the Willamette River, and take refuge or forage within the forest.

The grassland areas are more limited in terms of food supply and cover for wildlife. However, Red-tailed hawks and owls use perch sites within the forest to locate and feed on small mammals and ground feeding birds in the grassland. During the summer much of the grassland area is mowed and maintained to accommodate active park uses.

Birds observed or heard during winter 1999/2000 field surveys include bald eagle, red-breasted nuthatch, downy woodpecker, golden crowned kinglet, Oregon junco, spotted towhee, winter wren, black-capped chickadee, American goldfinch, cliff swallow, gulls, double crested cormorants, grebes, and Canada geese. Also noted were black tailed deer tracks and evidence of browsing.

Limiting factors within this site include habitat disturbance from invasive species, lack of forest structural diversity, wake damage along the banks and shoreline, and disturbance caused by park use, including trail and beach use, and vegetation management. Noise, vibration and light from marine traffic can disturb fish and wildlife.

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 value ranks for riparian function, wildlife habitat and riparian/wildlife habitat areas combined (Table 5). The relative ranks are produced using GIS models and information on Special Habitat Areas. All of the ranked resource areas provide at least some important riparian and 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. 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 the *City of Portland Natural Resource Inventory Update Project Report, 2007*.

Riparian Areas

The site contains portions of the Willamette River, Columbia River and Columbia Slough, vegetated and non-vegetated flood area, riparian forest with associated shrub and groundcover, as well as other types of vegetation that contribute to the riparian functions as detailed in the natural resource description. These landscape features provide the following riparian functions:

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

High relative functional ranks are assigned to the Willamette and Columbia Rivers and the Columbia Slough, and to portions of the flood area covered in forest, woodland and shrubland vegetation. Medium relative ranks are assigned to portions of the flood areas covered with herbaceous vegetation and other areas within 50 feet of the Willamette and Columbia River or the Columbia Slough. Low relative ranks are assigned to portions of flood area that are not vegetated, including beaches which extend further than 50 feet from the rivers. Other areas are assigned a high, medium or low relative rank depending on the proximity and extent of vegetation relative to the Willamette or Columbia River, or to the Columbia Slough (WR1 Map 4).

Wildlife Habitat

The site contains vegetated patches and corridors that provide wildlife habitat and connectivity between habitat patches. The large forested area in Kelley Point Park is a remnant of the bottomland forest that used to be common along the lower Willamette River. Bottomland forest provides nesting, breeding and foraging habitats for a diverse range of bird and mammal species, as well as amphibians, reptiles, and invertebrate species.

Based on the wildlife habitat model criteria, a medium relative ranking is assigned to the forest/woodland patch because of its size, interior area and proximity to water and other patches. There are no high or low-ranked habitat areas within this site.

Kelley Point Park and areas of beach along the Willamette River are designated Special Habitat Areas (SHA). The Willamette River and Lower Columbia Slough are designated Special Habitat Areas, reflecting their federal

designations as “Critical Habitat” for salmonids species that are listed as threatened under the Endangered Species Act. The forest at Kelley Point Park provides critical habitat connectivity between the Willamette River, Columbia River, Lower Columbia Slough and Smith and Bybee Lakes. The forest also provides important stopover habitat for migratory birds, as well as nesting habitat for a number of resident songbirds and shorebirds such as caspian terns. The beach and near-shore shallow water area along the Willamette River provides important habitat for salmonids that are listed as threatened species under the Endangered Species Act (ODFW, 2005).

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 Relative Riparian/Wildlife Habitat Ranking

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. Because all of Kelley Point Park, as well as most of the bank, rank high for wildlife habitat, the combined relative rank for the entire site is high (WR1 Map 6).

Table 5: Summary of Ranked Resource in WR1: Kelley Point Park

Total Inventory Site Area = 161 acres
Terrestrial* = 103 acres
Willamette and Columbia Rivers = 58 acres

	High	Medium	Low	Total
Riparian Resources **				
acres	102	6	31	139
percent total inventory site area	63%	4%	19%	86%
Special Habitat Area **				
acres	151			
percent total inventory site area	94%			
Wildlife Habitat **				
acres	151	0	0	151
percent total inventory site area	94%	0%	0%	94%
Combined Total ***				
acres	161	0	0	161
percent total inventory site area	100%	0%	0%	100%
Combined Terrestrial (excludes Willamette River)				
acres	103	0	0	103
percent total inventory site area	64%	0%	0%	64%

* Terrestrial includes the land, tributary streams, drainageways and wetlands.









** High-ranked riparian resources, Special Habit Areas, and wildlife habitat includes the Willamette River.

*** Because riparian resources, Special Habitat Areas, and wildlife habitat overlap, the results cannot be added together to determine the combined results.



Site WR1 - Map 4: Kelley Point Park

Riparian Resources Relative Rankings

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

INFORMATION SOURCES:

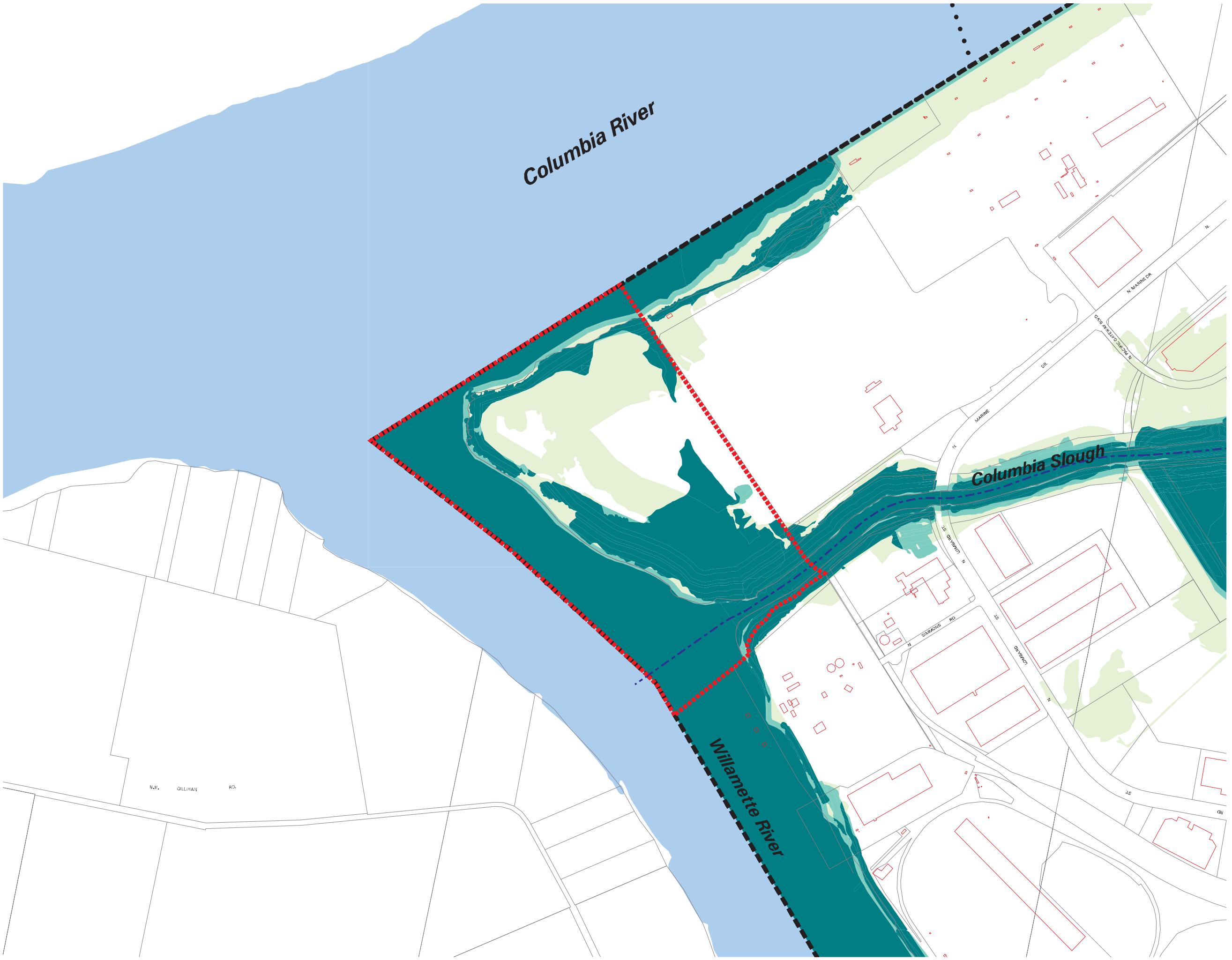
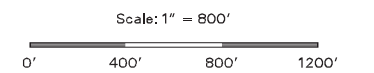
The Natural Resources Inventory Update (NRIU) is a citywide project to revise and update existing natural resource inventories (of trees, streams, wildlife habitat, etc.) in Portland. The update is part of Portland's River Renaissance Initiative to ensure that the Willamette River and its tributary watersheds are clean and healthy.

** SHA ranking supercedes lower relative values.

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






NOTE: Portland's resource inventory is still being evaluated for accuracy and consistency and should be considered preliminary. The inventory has not yet been adopted by the City of Portland.

All data compiled from source materials at different scales. For more detail, please refer to the source materials or City of Portland, Bureau of Planning.



Site WR1 - Map 5: Kelley Point Park

Wildlife Habitat Relative Rankings

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

INFORMATION SOURCES:

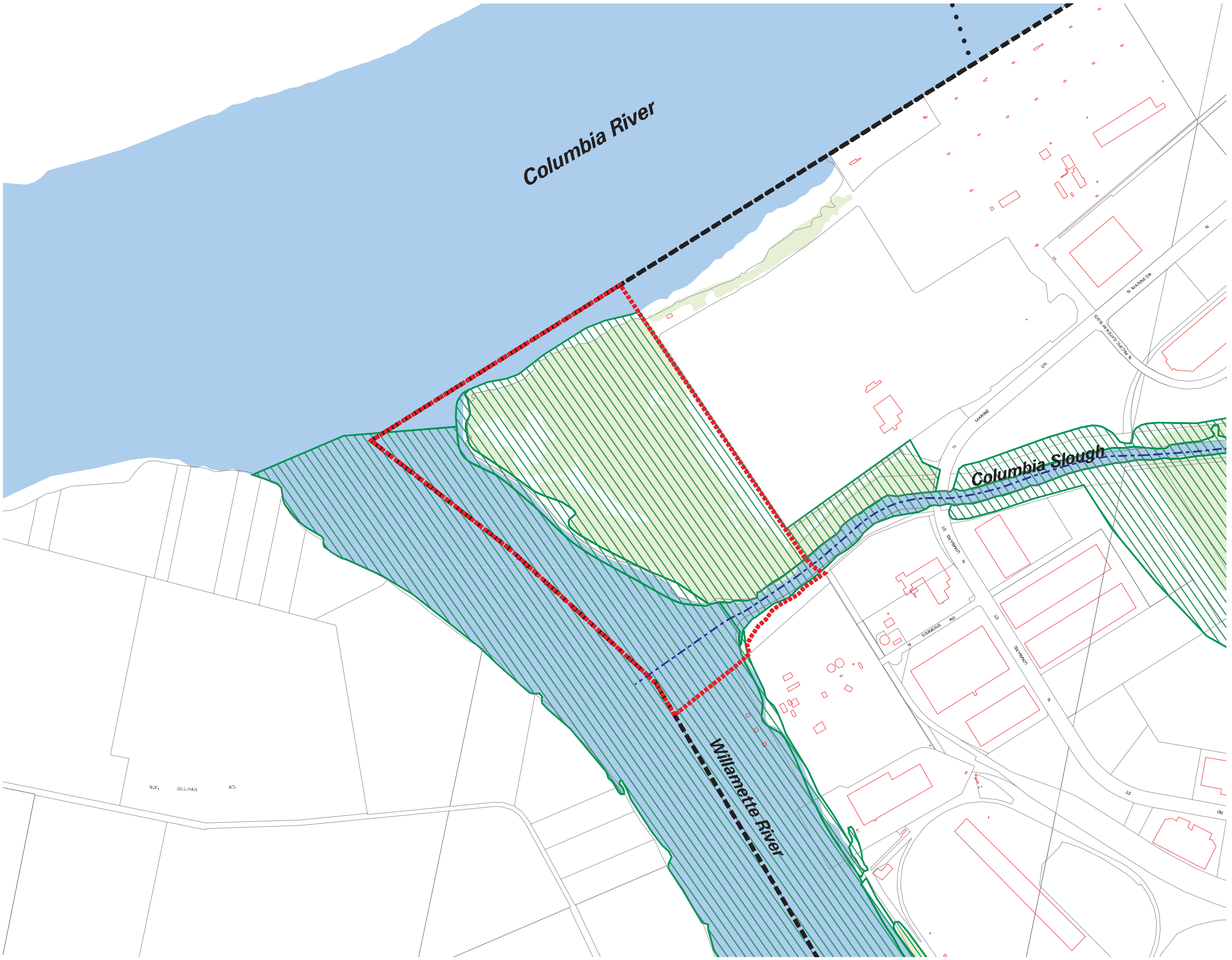
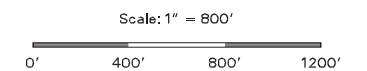
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Site WR1 - Map 6: Kelley Point Park

Combined Riparian / Wildlife Relative Rankings

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

INFORMATION SOURCES:

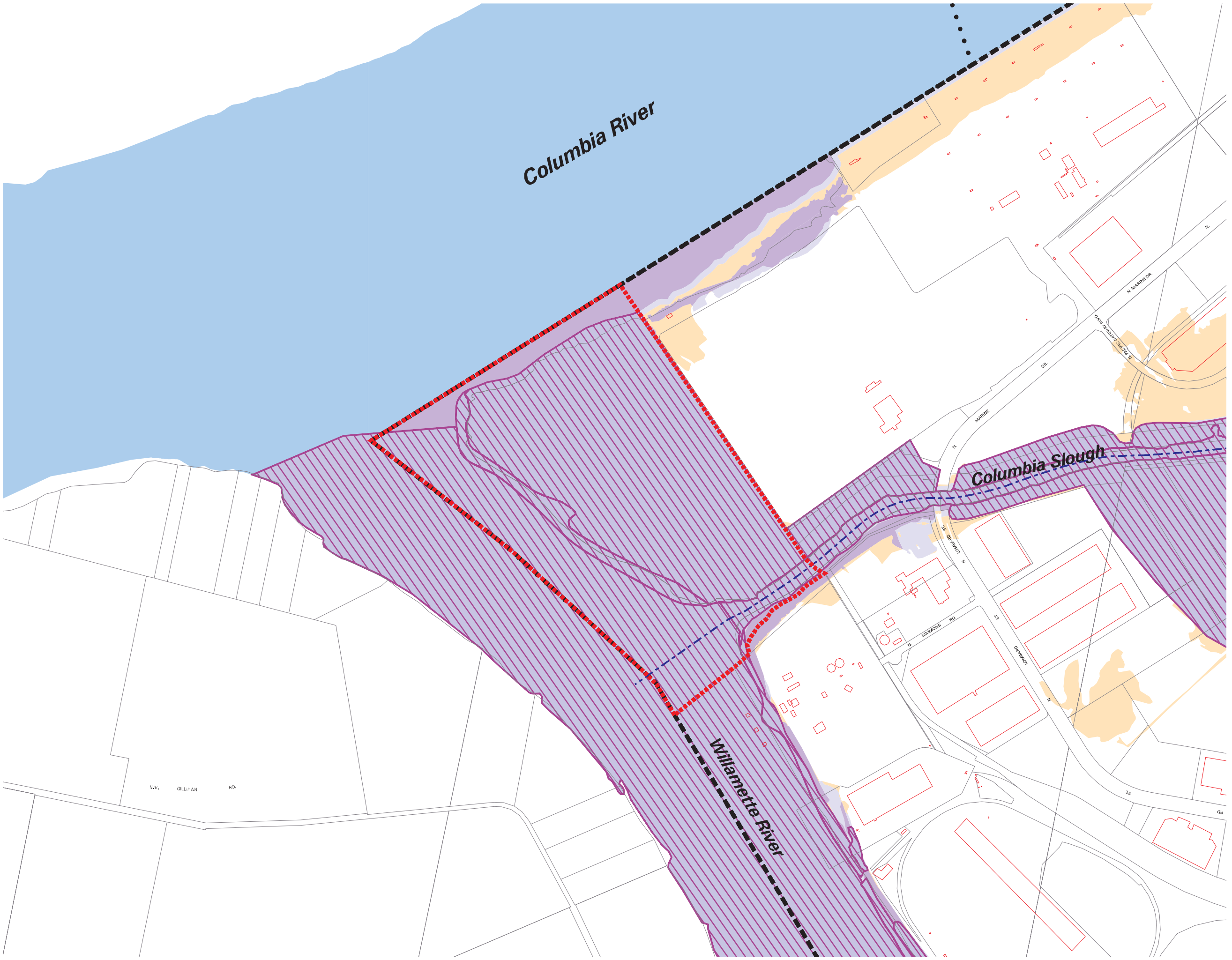
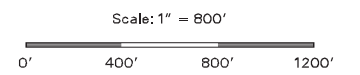
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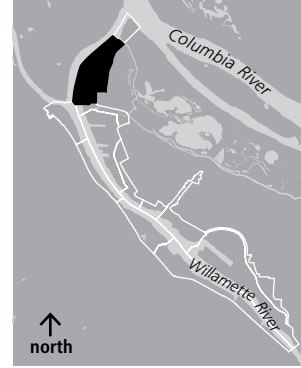
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All data compiled from source materials at different scales. For more detail, please refer to the source materials or City of Portland, Bureau of Planning.



INVENTORY SITE WR2: TERMINAL 5 RIPARIAN FOREST



SUMMARY INFORMATION

Watershed:	Willamette River
Neighborhood:	St. Johns
USGS quadrangle, quarter section maps:	2N1W23, 2N1W26 and 2N1W35 and 1319-20, 1418-20, 1518-20, 1618-20, 1718-19
River Mile:	0.6 – 2.8
Site Size:	703 acres (land and water)
Previous Inventory	Lower Willamette River Wildlife Habitat Inventory, March 1986.
Zoning:	Heavy Industrial (IH) Aircraft Landing overlay (h) River Industrial overlay (i)
Existing Land Use:	Industrial, Port of Portland Terminal 5
General Description:	The site consists of remnant, fragmented riparian forest patches along the bank of the Willamette River and surrounding industrial uses. The south bank of the Columbia Slough is located along the north boundary of the site.
Resource Types:	Bottomland forest, woodland, shrubland and herbaceous riparian vegetation; a wetland; flood area; open water; beach habitat
Functional Values:	Microclimate and shade; stream flow moderation and water storage; bank stability, and sediment, pollution and nutrient control; large wood and channel dynamics; organic inputs, food web and nutrient cycling; riparian wildlife movement corridor; wildlife habitat; connectivity
Special Status Species:	Fish: Lower Columbia River Chinook salmon; Lower Columbia River steelhead trout; Pacific Lamprey
Special Habitat Area:	Yes
Natural Hazards:	Flood area

SITE DESCRIPTION

This 703-acre inventory site is located along the east bank of the Willamette River between the confluence of the Columbia Slough to the north and the South Rivergate Corridor (WR3), containing the Portland General Electric power line, to the south. The eastern site boundary runs to the east of the Union Pacific railroad tracks. WR2 Map 1 shows an aerial view of the Terminal 5 Riparian Forest inventory site.



This site consists primarily of industrial uses. The Port of Portland Terminal 5 is located within this site. The site has approximately 2 miles (10,400 linear feet) of Willamette River frontage and 910 linear feet of frontage along the south bank of the Columbia Slough. The Willamette River makes up 223 acres of the entire site. The flood area of the Willamette includes 19 acres, of which 13 acres are vegetated and the other 6 are unvegetated bank and impervious surfaces. The site contains 28 acres (40.1%) impervious surface coverage,

including 6.9 miles of road. Along the banks of the Willamette, vegetated areas at least $\frac{1}{2}$ acre in size include approximately 21 acres of forest or tree canopy, 10 acres of woodland and 10 acres of shrubland vegetation, as well as a 6-acre wetland located about midway within the site. Herbaceous vegetation, equaling roughly 32 acres, dominates the southern half of the site along the bank. At the northeast end of this site the City's Bureau of Environmental Services has conducted a revegetation project, along the banks of the Columbia Slough. There is also a mitigation wetland, located along the Willamette shore, just south of the southern T-5 pier.

There are several contamination areas within this site, identified by Department of Environmental Quality (DEQ), the most significant being on the Oregon Steel Mills property where there is soil, sediment and groundwater contamination.

NATURAL RESOURCE DESCRIPTION

This site contains both aquatic and terrestrial resources (key resource features are shown in WR2 Maps 2 and 3). Most of the bank is beach, with some sections of vegetated and unvegetated riprap, unclassified fill, and rock. The river banks are all within the flood area. The nearshore conditions are fairly shallow with primarily sand and silt substrate, which provides habitat for juvenile salmonids (ODFW, 2005). Three freestanding pile dock structures serve as shipping berths and extend 150 to 200 feet into the river.

The site contains small patches of remnant bottomland forest interspersed with industrial development and nearshore docks. The dominant tree species is black cottonwood indicating remnants of the black cottonwood/Pacific willow community common along the Columbia Slough and at Kelley Point Park. Also, isolated stands of cottonwood are scattered along the banks between shrub-dominated areas containing Himalayan blackberry, Scot's broom, and red osier dogwood.

Native trees and shrubs planted by the Port of Portland are present on the riverbank in the vicinity of Berths 502 and 503. Upstream of the Terminal 5 berths, the vegetated corridor widens from about 100 to 200 feet, and reaches a width of 700 feet at the middle of the site. Forest tree species include cottonwood, Pacific willow, and Oregon ash. Both snowberry and elderberry are dominant components of the shrub layer in this part of the site, with elderberry more common east of the fence that traverses the site north to south. Other shrub species include red osier

dogwood, Nootka rose, and Himalayan blackberry. Tree canopy cover within the forested area ranges from 45 to 70 percent. Shrub and herbaceous vegetation cover the majority of the area underneath the tree canopy. The age of the forest vegetation ranges from less than 10 years to approximately 50 years.

A forested wetland, approximately five acres in size, is located within the cottonwood forest. The wetland contains several willow species, including Sitka, Piper's, and Pacific willow, which are increasingly common towards the eastern end of the wetland. Reed canarygrass and stinging nettle are common throughout the wetland. The wetland is located outside the flood area, separated from the river by a berm. Forested wetlands such as this are rare within the study area, particularly those located on industrial lands.

The remnant forested areas and wetland provide forage, perch, and limited nesting opportunities for wildlife. Raptors, including osprey, nest and forage at the site. Kingfishers, great blue herons, and numerous passerine species also forage at this site. Snags and large wood provide forage opportunities for reptiles, amphibians, birds, and small mammals. Mink, river otter, and beaver occasionally forage at the site. Other wildlife present at the site include crow, robin, kinglet, song sparrow, orange crowned warbler, violet green swallow, red breasted nuthatch, starling, northern flicker, great blue heron, northern shoveller, American widgeon, and American coot. Recent beaver activity was evident at the site. Woodpecker borings in snags occur at the site.

A stormwater treatment pond built in the late 1980s is located inside the rail tracks of the Terminal 5 bulk facility. The pond consists of an open stormwater settlement basin approximately 2.5 acres in size and approximately 70 feet deep. A willow scrub/shrub wetland is present on the banks bordering the pond.

The resources in the site are limited by the extent of development. River dependent uses are the main land use and contribute to a fragmented riparian corridor, especially in the southern half of the site. Disturbed banks are dominated by invasive species, particularly Himalayan blackberry and Scot's broom that limit growth of riparian forest species. The Terminal 5 security fence running north-south through the forest limits access for large and mid-sized mammals. Noise from port activities can also disturb fish and wildlife. Another limiting factor is that the vegetation community lacks diversity in terms of species composition and forest structure. No significant upland habitat exists within the site.

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 value ranks for riparian function, wildlife habitat and riparian/wildlife habitat areas combined (See Table 6). The relative ranks are produced using GIS models and information on Special Habitat Areas. All of the ranked resource areas provide at least some important riparian and 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. 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 the *City of Portland Natural Resource Inventory Update Project Report, 2007*.

Riparian Areas

The site contains riparian vegetation, vegetated and non-vegetated flood area, a forested wetland, and portions of the Willamette River, 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 stability, and sediment, pollution and nutrient control
- Large wood and channel dynamics
- Organic inputs, food web and nutrient cycling
- Riparian wildlife movement corridor

High relative ranks are assigned to the Willamette River, the forested wetland, and forest, woodland, and shrubland within the flood area. Medium relative ranks are assigned to herbaceous portions of the flood areas. Low relative ranks are assigned to remaining portions of flood area with no vegetation. Other vegetated areas are assigned a high, medium, or low relative rank depending on the proximity and extent of the vegetation relative to the Willamette River or the wetland (WR2 Map 4).

Wildlife Habitat

The site contains a forested wetland patch that contributes to wildlife habitat function. This area serves as nesting, breeding, and foraging habitats for a diverse range of bird, mammal, amphibian, reptile, and invertebrate species. Further, the patch is located in close proximity to the river providing connectivity between the two habitats (WR2 Map 5.)

Based on the wildlife habitat model criteria, a medium relative rank is assigned to the forested/woodland/wetland patch because of its size and proximity to the river. However, the forested wetland and beaches along the Willamette River within this site are designated Special Habitat Areas (SHAs). The forested wetland provides connectivity along the bank between Kelley Point Park and the South Rivergate Corridor, and the beach areas provide important habitat for juvenile salmonids. The Willamette River is a designated Special Habitat Area, reflecting its federal designation as "Critical Habitat" for salmonids species that are listed as threatened under the Endangered Species Act. The SHAs contain unique features and provide critical wildlife habitat and therefore receive a high relative rank for wildlife habitat. The SHA rank supersedes lower ranks generated by the GIS model. Therefore, all SHAs within the site rank high for wildlife habitat.

Combined Relative Riparian/Wildlife Habitat Ranking

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 are those that rank high for riparian functions or wildlife habitat, including Special Habitat areas (WR2 Map 6.)

Table 6: Summary of Ranked Resource in WR2: Terminal 5 Riparian Forest

Total Inventory Site Area = 703 acres
 Terrestrial* = 470 acres
 Willamette River = 233 acres

	High	Medium	Low	Total
Riparian Resources **				
acres	257	13	6	276
percent total inventory site area	37%	2%	1%	40%
Special Habitat Area **				
acres	256			
percent total inventory site area	36%			
Wildlife Habitat **				
acres	256	2	0	258
percent total inventory site area	36%	<1%	0%	37%
Combined Total ***				
acres	265	7	4	276
percent total inventory site area	38%	1%	1%	40%
Combined Terrestrial (excludes Willamette River)				
acres	32	7	4	43
percent total inventory site area	5%	1%	1%	7%






* Terrestrial includes the land, tributary streams, drainageways and wetlands.

** High-ranked riparian resources, Special Habit Areas, and wildlife habitat includes the Willamette River.

*** Because riparian resources, Special Habitat Areas, and wildlife habitat overlap, the results cannot be added together to determine the combined results.

Site WR2 - Map 1: Terminal 5 Riparian Forest

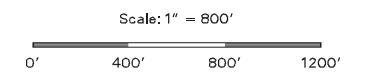
2005 Aerial Photography

-  Stream/Drainageway
-  Culvert or Piped
-  Site Boundary
-  City Boundary
-  Urban Services Boundary

INFORMATION SOURCES:

Aerial Orthophotographs:
Digital Orthophotography from flight in July 2005.
Photography has been rectified to adjust for curvature
of the earth. Not registered to taxlot base map.

All data compiled from source materials at different scales.
For more detail, please refer to the source materials or
City of Portland, Bureau of Planning.

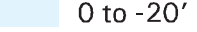
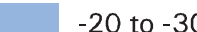






Site WR2 - Map 2: Terminal 5 Riparian Forest

Water-Related Features







Water Bodies

River Depths

-  0 to -20'
-  -20 to -30'
-  -30 to -40'
-  deeper than 40'

-  Stream/Drainageway
-  Culvert or Piped

Other Features

-  Flood Area
-  Wetlands
-  Beach
-  Site Boundary
-  City Boundary
-  Urban Services Boundary

INFORMATION SOURCES:

Water Bodies:
Rivers, lakes and other water features. Originally digitized by Metro (1994). Data collection scale: 1:100' - 1:400'. City of Portland and Multnomah County pockets updated by City of Portland, Bureau of Planning, to refine waterbody geometry, remove erroneously mapped waterbodies, and add missing waterbodies. Aerial photos were the primary data source used as reference for re-mapping waterbodies. This is an interim dataset reflecting all work completed to date.










All data compiled from source materials at different scales. For more detail, please refer to the source materials or City of Portland, Bureau of Planning.

Scale: 1" = 800'



Site WR2 - Map 3: Terminal 5 Riparian Forest Vegetation Features

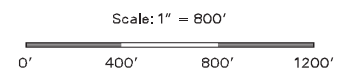
Vegetation Types

-  Forest
-  Woodland
-  Shrubland
-  Herbaceous
-  Stream/Drainageway
-  Culvert or Piped
-  Site Boundary
-  City Boundary
-  Urban Services Boundary









INFORMATION SOURCES:

Vegetation patches:
Vegetation patches larger than 1/2 acre mapped by the City of Portland, Bureau of Planning. Based on information from reference data sources including aerial photos, Parks and Recreation natural area assessments, and vegetation surveys along the banks of the Willamette and Columbia rivers. Vegetation patches are classified as forest, woodland, shrubland, or herbaceous. The mapping area includes all land within the City of Portland and the unincorporated parts of Multnomah County that are administered by the City of Portland. Updated through summer of 2004.

All data compiled from source materials at different scales. For more detail, please refer to the source materials or City of Portland, Bureau of Planning.



Site WR2 - Map 4: Terminal 5 Riparian Forest Riparian Resources Relative Rankings

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

INFORMATION SOURCES:

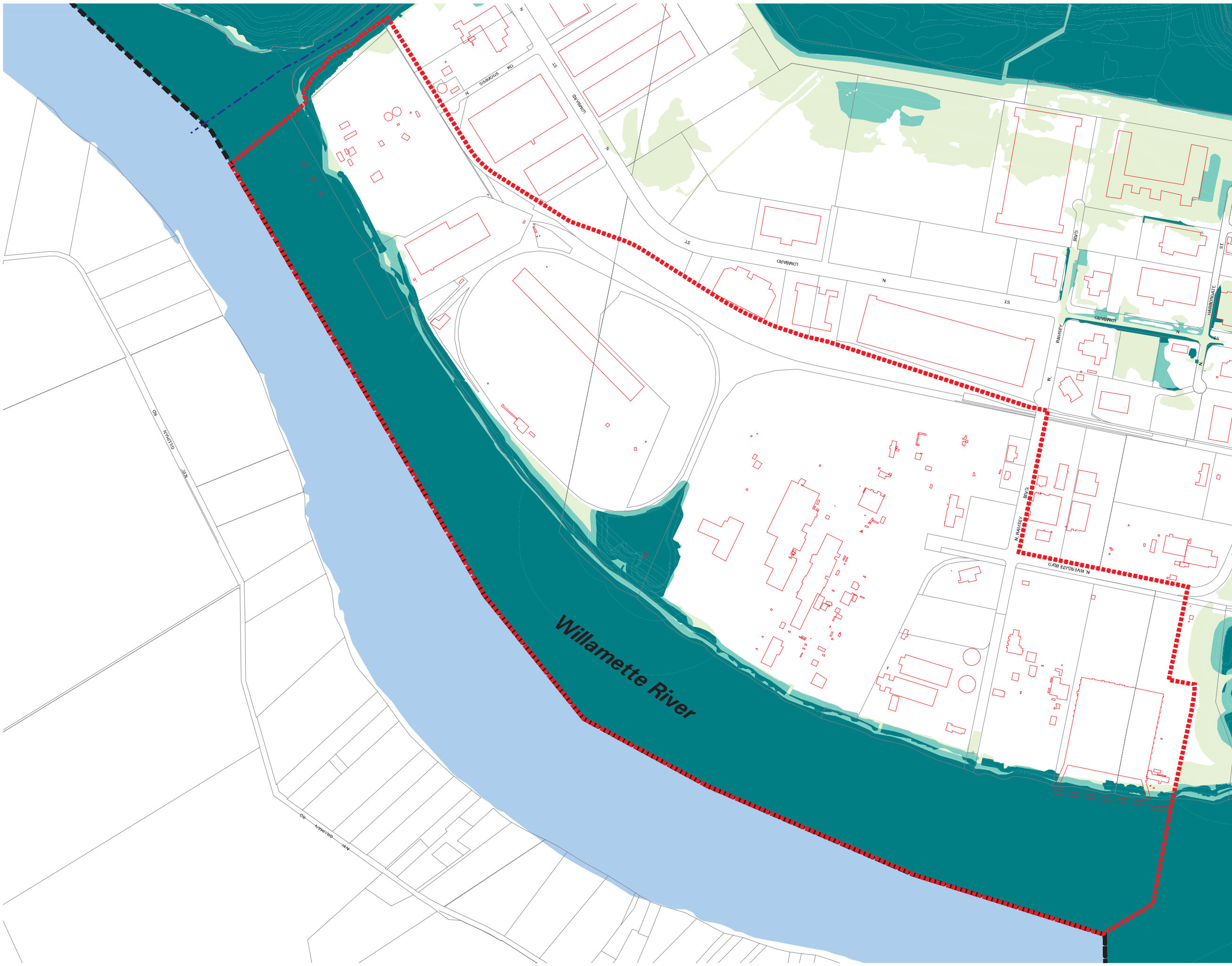
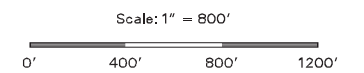
The Natural Resources Inventory Update (NRIU) is a citywide project to revise and update existing natural resource inventories (of trees, streams, wildlife habitat, etc.) in Portland. The update is part of Portland's River Renaissance Initiative to ensure that the Willamette River and its tributary watersheds are clean and healthy.

** SHA ranking supercedes lower relative values.










For more information, please visit our website:
<http://www.portlandonline.com/planning/index.cfm?c=40437>

NOTE: Portland's resource inventory is still being evaluated for accuracy and consistency and should be considered preliminary. The inventory has not yet been adopted by the City of Portland.

All data compiled from source materials at different scales. For more detail, please refer to the source materials or City of Portland, Bureau of Planning.



Site WR2 - Map 5: Terminal 5 Riparian Forest Wildlife Habitat Relative Rankings

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

INFORMATION SOURCES:

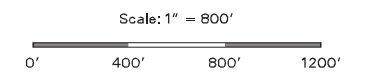
The Natural Resources Inventory Update (NRIU) is a citywide project to revise and update existing natural resource inventories (of trees, streams, wildlife habitat, etc.) in Portland. The update is part of Portland's River Renaissance Initiative to ensure that the Willamette River and its tributary watersheds are clean and healthy.

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Site WR2 - Map 6: Terminal 5 Riparian Forest Combined Riparian / Wildlife Relative Rankings

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

INFORMATION SOURCES:

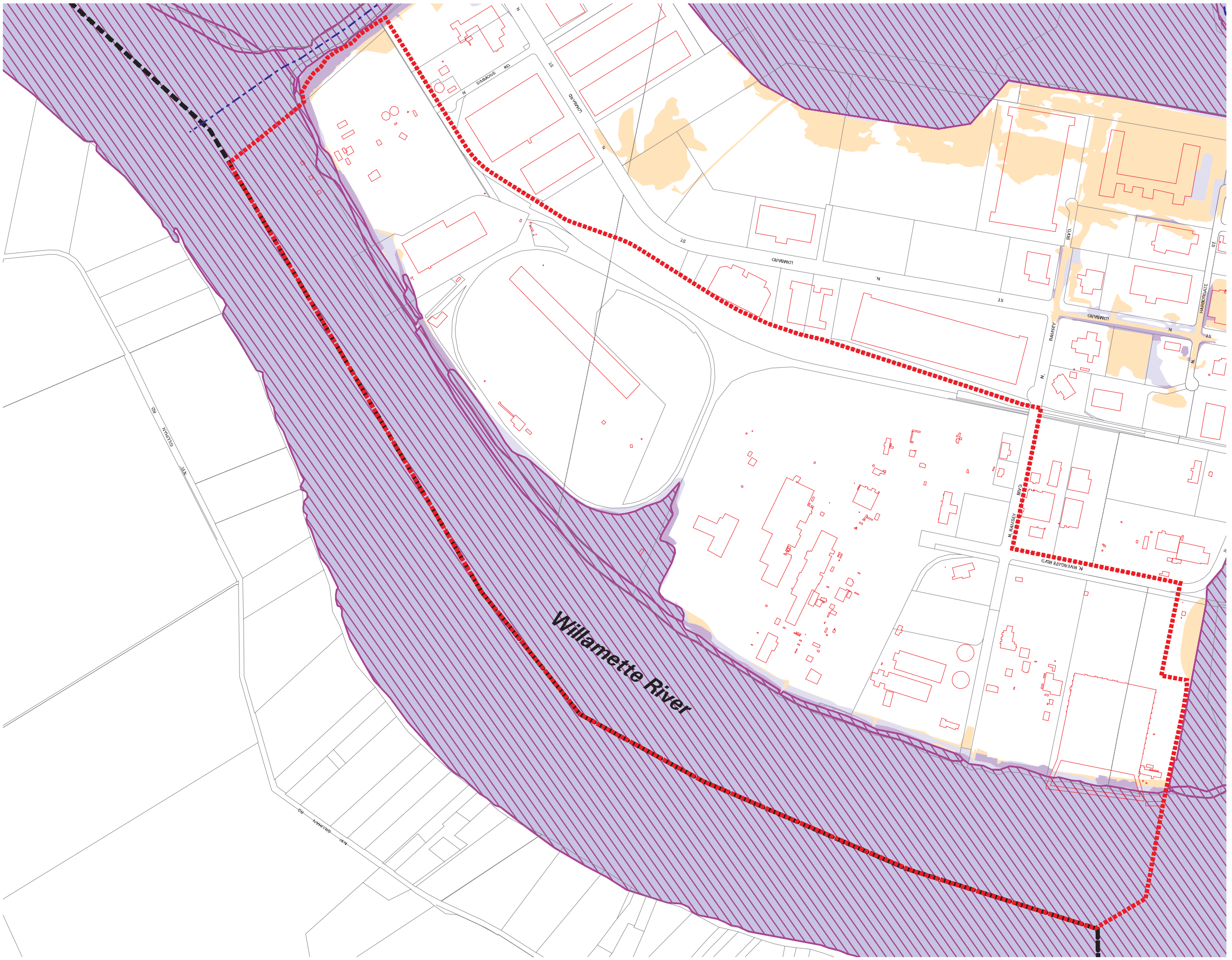
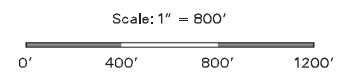
The Natural Resources Inventory Update (NRIU) is a citywide project to revise and update existing natural resource inventories (of trees, streams, wildlife habitat, etc.) in Portland. The update is part of Portland's River Renaissance Initiative to ensure that the Willamette River and its tributary watersheds are clean and healthy.

** SHA ranking supercedes lower relative values.

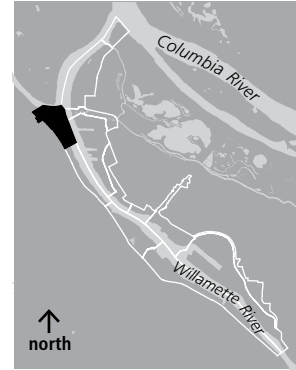
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<http://www.portlandonline.com/planning/index.cfm?c=40437>

NOTE: Portland's resource inventory is still being evaluated for accuracy and consistency and should be considered preliminary. The inventory has not yet been adopted by the City of Portland.

All data compiled from source materials at different scales. For more detail, please refer to the source materials or City of Portland, Bureau of Planning.



INVENTORY SITE WR3: HARBORTON WETLANDS



SUMMARY INFORMATION

Watershed:	The inventory site is located primarily within the Willamette River Watershed, although the northern portion is in the Multnomah Channel Watershed.
Neighborhood:	Linnton
USGS quadrangle, quarter section maps:	2N1W33, 2N1W34, 2N1W35, 1N1W03, and 1716-18, 1817-19, 1918
River Mile:	2.7 – 3.7
Site Size:	358 acres (land and water)
Previous Inventory:	Lower Willamette River Wildlife Habitat Inventory, March 1986; Northwest Hills Natural Areas Protection Plan, July 1991. Inventory of Natural, Scenic and Open Space Resources for Multnomah County Unincorporated Urban Areas, 2002.
Zoning:	Heavy Industrial (IH) General Employment (EG) Residential 10,000 (R10) Residential 5,000 (R5) Residential Farm/Forest (RF) Open Space (OS) Conservation overlay (c) Protection overlay (p) River Water Quality overlay (q) River Natural overlay (n) River General overlay (g) River Industrial overlay (i)
Existing Land Use:	Residential; marine; industrial; open space; railroad highway
General Description:	Set at the base of the West Hills, the northern portion of the site consists of deciduous forests on flat Willamette River bottomlands and upland coniferous forests on steep, east-facing slopes. The slopes flatten out to form the Willamette River flood area where deciduous riparian forests and forested wetlands make up the majority of the bottomland. The southern portion is developed with industrial uses. There is beach and vegetated riparian area along the entire site.
Resource Types:	Upland forest, bottomland forest, upland scrub/shrub, herbaceous vegetation; wetland; streams; floodplain; beach; open water

Functional Values: Microclimate and shade; stream flow moderation and water storage; bank stability, and sediment, pollution and nutrient control; large wood and channel dynamics; organic inputs, food web and nutrient cycling; riparian wildlife movement corridor; wildlife habitat; migratory stopover habitat; connectivity

Special Status Species: **Wildlife:** Red-legged frogs. **Fish:** Lower Columbia River Chinook salmon; Lower Columbia River steelhead trout, Pacific lamprey.

Special Habitat Area: Yes

Natural Hazards: Wildfire; flood area

SITE DESCRIPTION

This 358-acre site is located on the west bank of the Willamette River at the confluence of Multnomah Channel. The western boundary is generally formed by St. Helens Road between the southern property line of Owens Corning Roofing and Asphalt and the Portland City boundary. The site includes areas within the City limits and the Multnomah County urban service area boundary. The majority of the site is zoned for heavy industrial use. WR3 Map 1 shows the aerial view of the Harborton Wetlands inventory site.



The site has approximately 5,100 linear feet of frontage along the Willamette River and 2,500 linear feet on the Multnomah Channel. The site includes roughly 148 acres of open water within the Willamette River and Multnomah Channel. Roughly 1.2 miles of small tributaries flow through the site including Miller Creek, a tributary of Multnomah Channel.

Two forested wetlands, total approximately 47 acres, and a small drainageway are located in the northern half of the site. The bank of these wetlands is primarily beach with vegetation on the edges. Both forested wetlands are within the flood area, as is a significant portion of the industrial development, including the PGE Powerline Corridor, found between and south of the wetlands.

The southern half of the site is almost completely developed, except along the railroad corridor to the west, and at the southern end of the site where there is a pocket of woodland and herbaceous vegetation. The site contains 70.8 acres (19.8%) impervious surface coverage, including 2.5 miles of road.

Of the vegetated areas at least ½ acre in size, there are roughly 42 acres of forest or tree canopy, 8 acres of woodland, 40 acres of shrubland and 18 acres of herbaceous vegetation. Approximately 78 acres of the flood area are vegetated. The remaining 28 acres of flood area are developed with industrial uses.

Areas of soil, sediment, and groundwater contamination are linked to historic industrial uses and use of parts of the site as a City of Portland fire training ground. Large portions of the site are within the City of Portland Wildfire Hazard Zone (City of Portland, 1998) and the flood area (City of Portland 2007).

NATURAL RESOURCES DESCRIPTION

Located at the junction of the Willamette River and Multnomah Channel, this site contains both aquatic and terrestrial resources (key resource features are shown in WR3 Maps 2 and 3) and provides important habitat linkages along the Willamette River, to Forest Park and Sauvie Island, and across the Willamette to the South Rivergate Corridor. The site contains forested wetland complexes near the junction of the Willamette River and Multnomah Channel. A tributary stream to Miller Creek also flows through the site. Another unnamed open channel flows through the southern portion of the complex. The mosaic of bottomland forest, shrub, wetland, river, and streams, combined with proximity to the large tracts of nearby forest and wetland make this site one of the highest quality wildlife areas in the North Reach. The Harborton Wetlands is also a functioning floodplain, which serves as a potential off-channel rearing site for juvenile salmon.

Most of this site contains natural riverbanks with beach; one section of riprap bank occurs immediately south of the powerlines. The northernmost beach segment is approximately 2,000 feet long while the southernmost segment is approximately 1,000 feet long. Reed canarygrass and willows occur along the high water fringe of the beach areas. Large wood accumulates along the beaches and near-shore shallow water areas provide important rearing habitat for anadromous salmonids (ODFW 2005).

The Harborton Wetlands site provides the largest example of remnant black cottonwood-ash bottomland forest within the North Reach. This is one of the last ash bottomland forest remnants along the Willamette River within Portland. Pacific willow is common along the riverbanks, and other trees found in this association are red alder, big-leaf maple, black hawthorn, and western red cedar (rare). The shrub layer is relatively sparse, containing red osier dogwood, Sitka and Scouler's willow in wetter areas, and red elderberry, Indian plum, snowberry, and Himalayan blackberry on the drier uplands. The herbaceous layer contains reed canarygrass, water-starwort, bittercress, sword and licorice ferns and some bracken fern, and stinging nettle. Tree canopy cover within the bottomland forest ranges from patchy cover (20 percent canopy closure) to relatively dense cover (80 percent closure). The structural diversity of the forest is relatively high. Trees vary in age from approximately 40 to 60 years. Snags and large wood are common, particularly along the riverbank and beach. Certain segments of the riverbank show signs of scour and erosion.

Miller Creek, a free-flowing, year-round stream with documented use by salmon and steelhead, is also located in the northernmost portion of the site. Recent replacement of the culvert under Highway 30 improved fish passage. The Miller Creek basin is approximately 770 acres and supports a diverse mix of wildlife including a substantial red-legged frog population. Other streams originating in Forest Park pass through or are adjacent to this site, and provide cool, clean water that feeds the wetlands within the site.

Immediately south of the PGE Powerline corridor is another small forested wetland and drainageway. This remnant forest is interspersed with a blackberry and Scot's broom shrub association. This association is similar to that found across the river at the South Rivergate Corridor site, and includes some native red osier dogwood and willows. The Bureau of Environmental Services (BES) has conducted the Willamette Floodplain revegetation project at Harborton Wetlands and the wetland/drainageway on the PGE property

Extending south from Harborton Wetlands along the bank, in front of the PGE Powerline easement, is a narrow strip of vegetation comprised predominantly of a cottonwood/ Himalayan blackberry association that connects the two wetland areas. Along the upland side of the PGE Powerline corridor is a railroad spur parallel to the western boundary of the site. Although heavily impacted and devoid of significant natural resources, this strip of undeveloped land provides wildlife habitat connectivity. In the spring of 2006 deer were observed using the railroad right-of-way and the driveway to the industrial site to access both wetland habitat locations.

¹Sea-run cutthroat trout, Lower Columbia River Coho salmon, and Lower Columbia River steelhead have been documented in the creek below the culvert (City of Portland, 1991).

Adjacent large tracts of forest (Forest Park) and wetlands along Multnomah Channel and on Sauvie Island strongly influence wildlife use of this site. Bald eagles travel from their nests on Sauvie Island and forage at this site. Eagles, osprey, kingfishers, cormorants, and great blue herons perch in the large trees and snags near the river, feeding on fish and aquatic invertebrates in the Multnomah Channel and Willamette River. More than 110 different species of birds and 50 species of mammals have been documented in Forest Park, located directly west of the Harborton site. Many Forest Park species venture into the Willamette lowlands. Wrens, sparrows, towhees, kinglets, and other passerines can be found foraging at this site. The site provides spring and summer food sources for breeding warblers, flycatchers, and swallows. Snags and tree cavities serve as foraging, roosting, and nesting sites for a wide range of species, including bats, voles, weasels, raccoons, and cavity-nesting birds such as black-capped chickadees and downy woodpeckers. Amphibians and reptiles, including western red-backed salamanders, Pacific giant salamanders, red-legged frogs, and garter snakes inhabit the site. Deer, coyote, bobcat, beaver, river otter, and mink occasionally forage at the site. Birds observed or heard during 2000 winter/spring field surveys at this site include double-crested cormorant, Canadian goose, bank swallow, killdeer, golden-crowned kinglet, white-crowned sparrow, and song sparrow.

Most of the southern half of the site is developed with industrial lands uses. A north-south corridor of woodland, shrubland and herbaceous vegetation exists along the highway near the railroad. This portion of the site has been highly disturbed by development. At the southern end of the site is another vegetated corridor that provides connectivity between Forest Park and the Willamette River. Although there is little structural diversity, the vegetation does contain some large black cottonwood and Oregon Ash trees, as well as turf grass.

Riverbanks in the southern half of the site are dominated by invasive species, particularly Himalayan blackberry that limit growth of riparian forest species. Fill, vegetation clearing, and debris dumping have degraded certain sections of the riverbank.

St. Helens Road and a rail line pose a major obstacle to wildlife traveling between this site and Forest Park. Wildlife road kills in this part of Linnton are relatively common. Road and rail activity create noise which can also disturb wildlife. Streams flowing through this site originate in Forest Park; however, they flow through culverts under St. Helens Road and in some instances remain piped until they discharge into the Willamette River. As a result, with the exception of Miller Creek to the north, these stream corridors are generally not accessible to wildlife. That said, bobcat have been observed foraging on the beach at the far south end of this site, near the central part of the Linnton community. The bobcat is believed to have traveled from Forest Park, crossing several roads including St. Helens Road along its path. River otter (burrows in the riverbank) have also been noted at this site.

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 value ranks for riparian function, wildlife habitat and riparian/wildlife habitat areas combined (Table 7). The relative ranks are produced using GIS models and information on Special Habitat Areas. All of the ranked resource areas provide at least some important riparian and 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. The approach used to generate the relative rankings is summarized in the introduction to the North Reach sites. Additional detail is provided in the Methodology Overview section of this report and the *City of Portland Natural Resource Inventory Update Project Report, 2007*.

Riparian Areas

The site contains portions of the Willamette River, Multnomah Channel, vegetated and non-vegetated flood area, and forested wetlands that contribute to the riparian functions detailed in the Natural Resource Description section above. These landscape features provide the following riparian functions:

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

High relative functional are assigned to Willamette River, wetlands, and forest, woodland, and shrubland within the flood area. Medium relative ranks are assigned to portions of the flood areas with herbaceous vegetation and other areas within 50 feet of the Willamette River and Multnomah Channel. Low relative ranks are assigned to non-vegetated flood area. Other vegetated areas were assigned a high, medium, or low relative rank depending on the proximity and extent of the vegetation relative to the Willamette River and the wetlands (WR3 Map 4).

Wildlife Habitat

The site contains vegetated patches and wetlands that provide wildlife habitat. The wildlife habitat model assigns a medium relative rank to the forested wetlands and flood areas. The medium rank reflects the size, interior area and proximity to water and other patches. Another narrow forest/woodland patch is assigned a medium relative rank due to its proximity to water. No high- or low-ranking habitat areas occur within the site.

Four portions of the site are designated Special Habitat Areas (SHAs): Harborton Forested Wetland and two Willamette beaches. The Harborton Forested Wetland SHA is a significant bottomland forest and wetland complex at the confluence of the Multnomah Channel and Willamette River. The combination of native vegetation, including large trees, wetland and open drainageways, provides important habitat for birds and terrestrial species. Miller Creek and a tributary to Miller Creek both run through the SHA and discharge to the Multnomah Channel. The Harborton Forest and Wetland SHA provides important connectivity between the upland habitat for Forest Park and the Willamette River, and across to the South Rivergate Corridor.

The two Willamette Beach SHAs consist of accumulated large wood and vegetation; both beaches provide habitat for juvenile salmonids (ODFW, 2005). In addition, The Willamette River is a designated Special Habitat Area, reflecting its federal designation as "Critical Habitat" for salmonids species that are listed as threatened under the Endangered Species Act.

The SHAs described above contain unique features and provide critical wildlife. 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 (WR3 Map 5).

Combined Relative Riparian/Wildlife Habitat Ranking Provide

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 (WR3 Map 6).

Table 7: Summary of Ranked Resource in WR3: Harborton Wetlands






Total Inventory Site Area = 358 acres
Terrestrial* = 210 acres
Willamette River = 148 acres

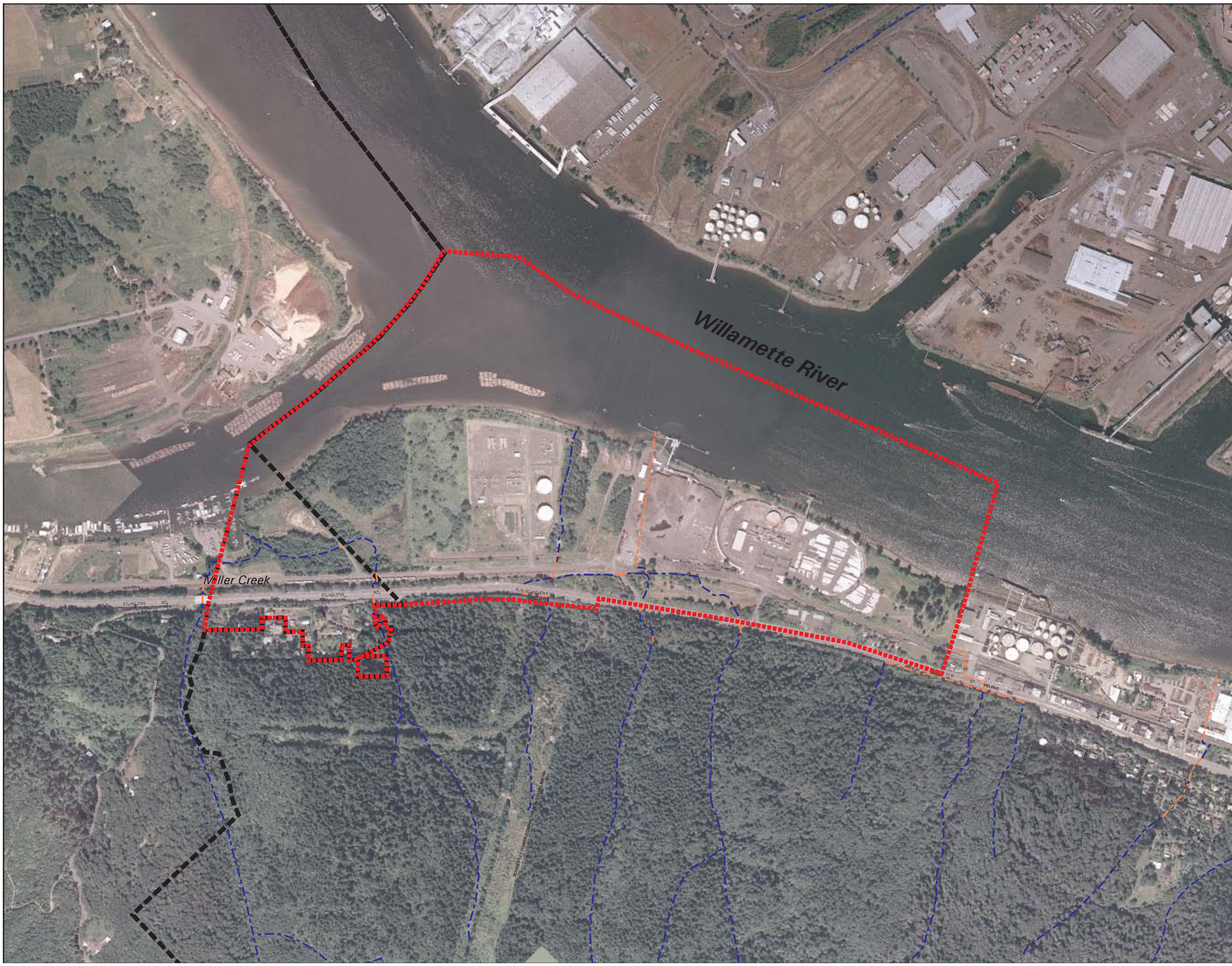
	High	Medium	Low	Total
Riparian Resources **				
acres	230	21	35	286
percent total inventory site area	64%	6%	10%	80%
Special Habitat Area **				
acres	213			
percent total inventory site area	59%			
Wildlife Habitat **				
acres	216	9	0	225
percent total inventory site area	60%	3%	0%	63%
Combined Total ***				
acres	239	16	31	286
percent total inventory site area	67%	4%	9%	80%
Combined Terrestrial (excludes Willamette River)				
acres	91	16	31	138
percent total inventory site area	25%	4%	9%	38%

* Terrestrial includes the land, tributary streams, drainageways and wetlands.
 ** High-ranked riparian resources, Special Habit Areas, and wildlife habitat includes the Willamette River.
 *** Because riparian resources, Special Habitat Areas, and wildlife habitat overlap, the results cannot be added together to determine the combined results.

Site WR3 - Map 1: Harborton Wetlands

2005 Aerial Photography

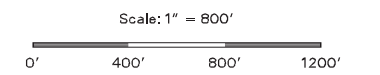
-  Stream/Drainageway
-  Culvert or Piped
-  Site Boundary
-  City Boundary
-  Urban Services Boundary



INFORMATION SOURCES:

Aerial Orthophotographs:
Digital Orthophotography from flight in July 2005.
Photography has been rectified to adjust for curvature
of the earth. Not registered to taxlot base map.

All data compiled from source materials at different scales.
For more detail, please refer to the source materials or
City of Portland, Bureau of Planning.

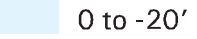
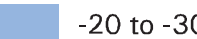






Site WR3 - Map 2: Harborton Wetlands

Water-Related Features







Water Bodies

River Depths

-  0 to -20'
-  -20 to -30'
-  -30 to -40'
-  deeper than 40'

-  Stream/Drainageway
-  Culvert or Piped

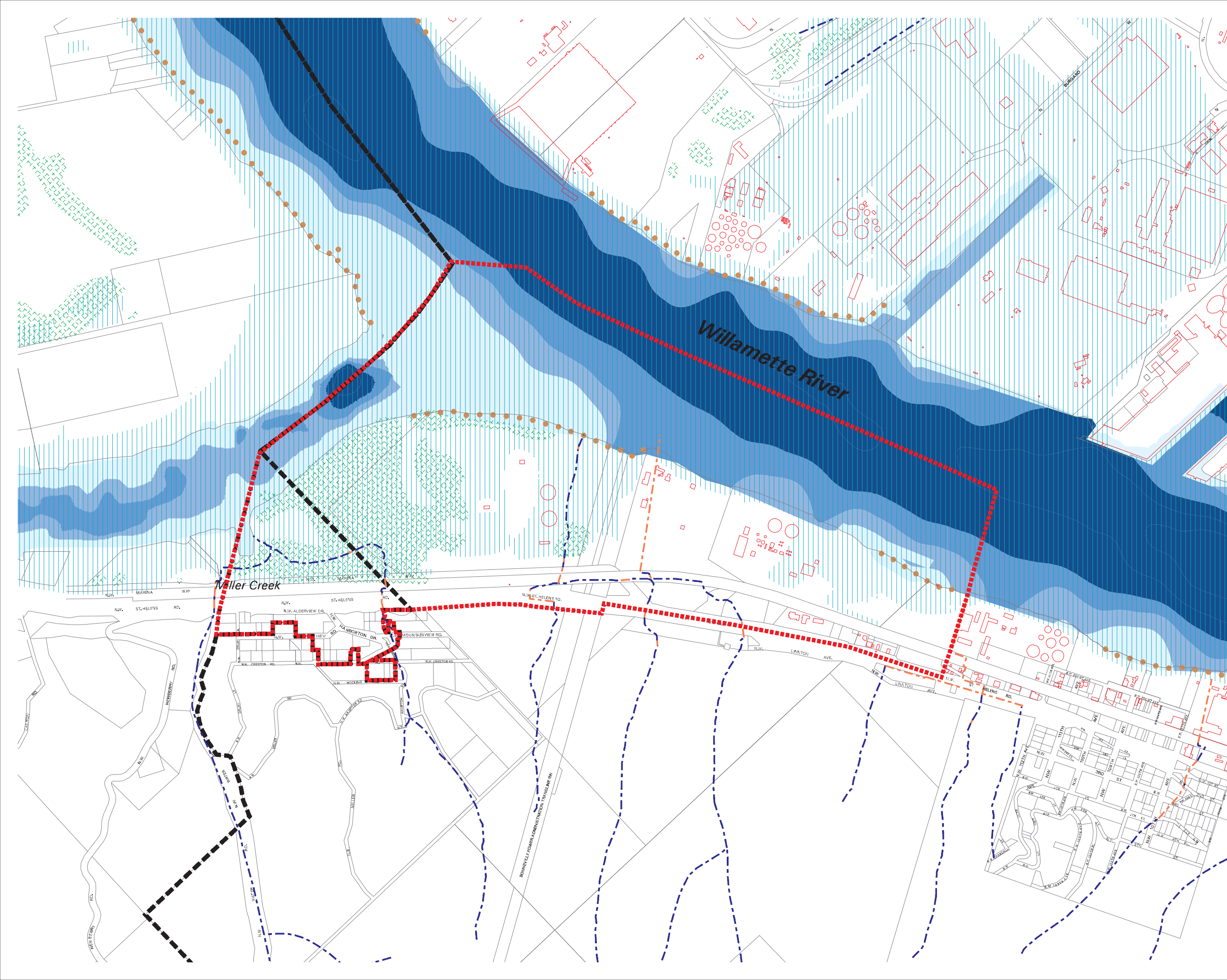
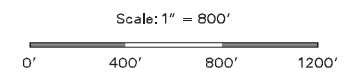
Other Features

-  Flood Area
-  Wetlands
-  Beach
-  Site Boundary
-  City Boundary
-  Urban Services Boundary

INFORMATION SOURCES:

Water Bodies:
Rivers, lakes and other water features. Originally digitized by Metro (1994). Data collection scale: 1:100' - 1:400'. City of Portland and Multnomah County pockets updated by City of Portland, Bureau of Planning, to refine waterbody geometry, remove erroneously mapped waterbodies, and add missing waterbodies. Aerial photos were the primary data source used as reference for re-mapping waterbodies. This is an interim dataset reflecting all work completed to date.


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Site WR3 - Map 3: Harborton Wetlands

Vegetation Features

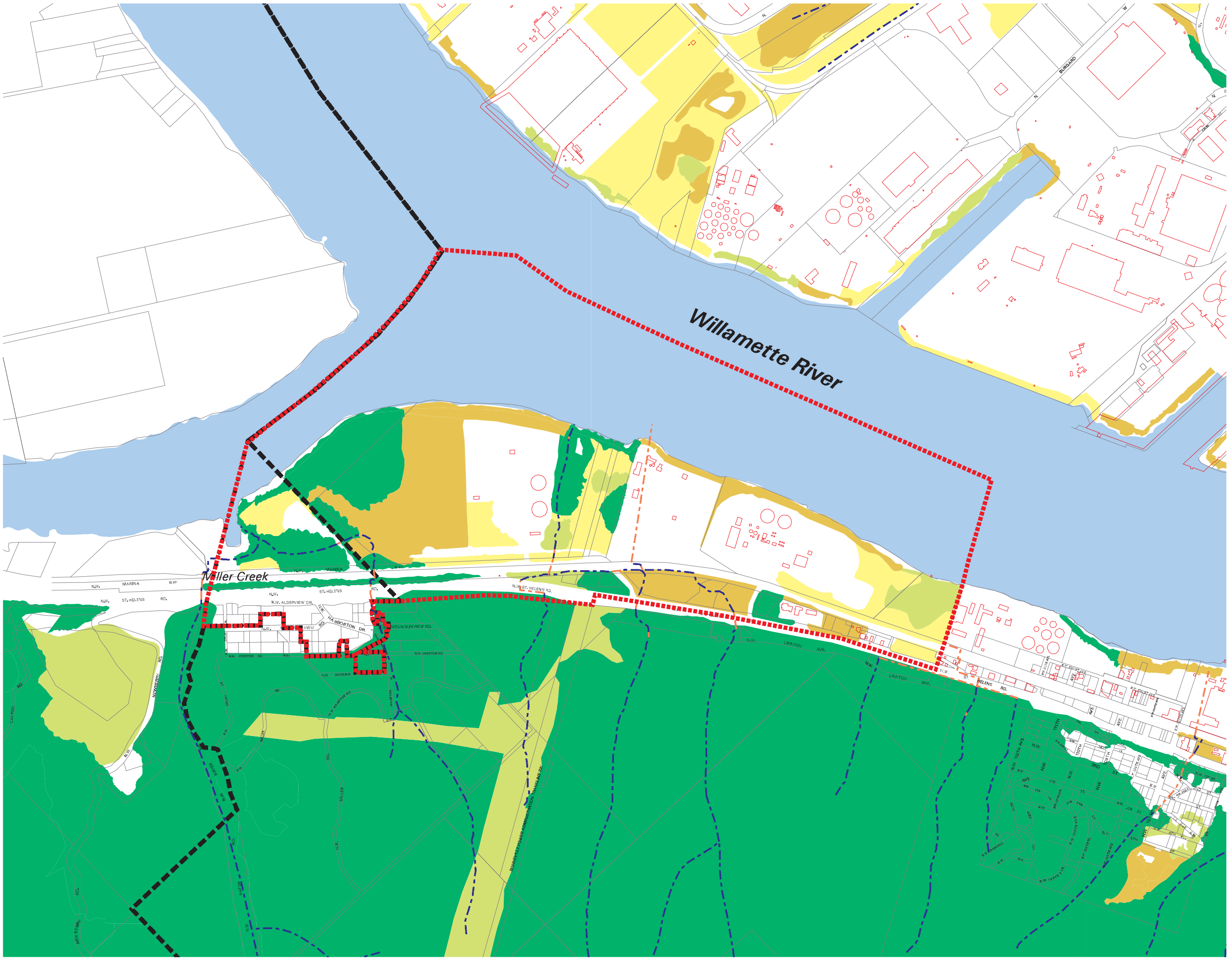
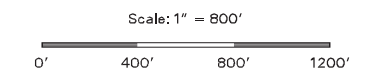
Vegetation Types

-  Forest
-  Woodland
-  Shrubland
-  Herbaceous
-  Stream/Drainageway
-  Culvert or Piped
-  Site Boundary
-  City Boundary
-  Urban Services Boundary

INFORMATION SOURCES:









Vegetation patches:
Vegetation patches larger than 1/2 acre mapped by the City of Portland, Bureau of Planning. Based on information from reference data sources including aerial photos, Parks and Recreation natural area assessments, and vegetation surveys along the banks of the Willamette and Columbia rivers. Vegetation patches are classified as forest, woodland, shrubland, or herbaceous. The mapping area includes all land within the City of Portland and the unincorporated parts of Multnomah County that are administered by the City of Portland. Updated through summer of 2004.

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Site WR3 - Map 4: Harborton Wetlands

Riparian Resources Relative Rankings

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

INFORMATION SOURCES:

The Natural Resources Inventory Update (NRIU) is a citywide project to revise and update existing natural resource inventories (of trees, streams, wildlife habitat, etc.) in Portland. The update is part of Portland's River Renaissance Initiative to ensure that the Willamette River and its tributary watersheds are clean and healthy.

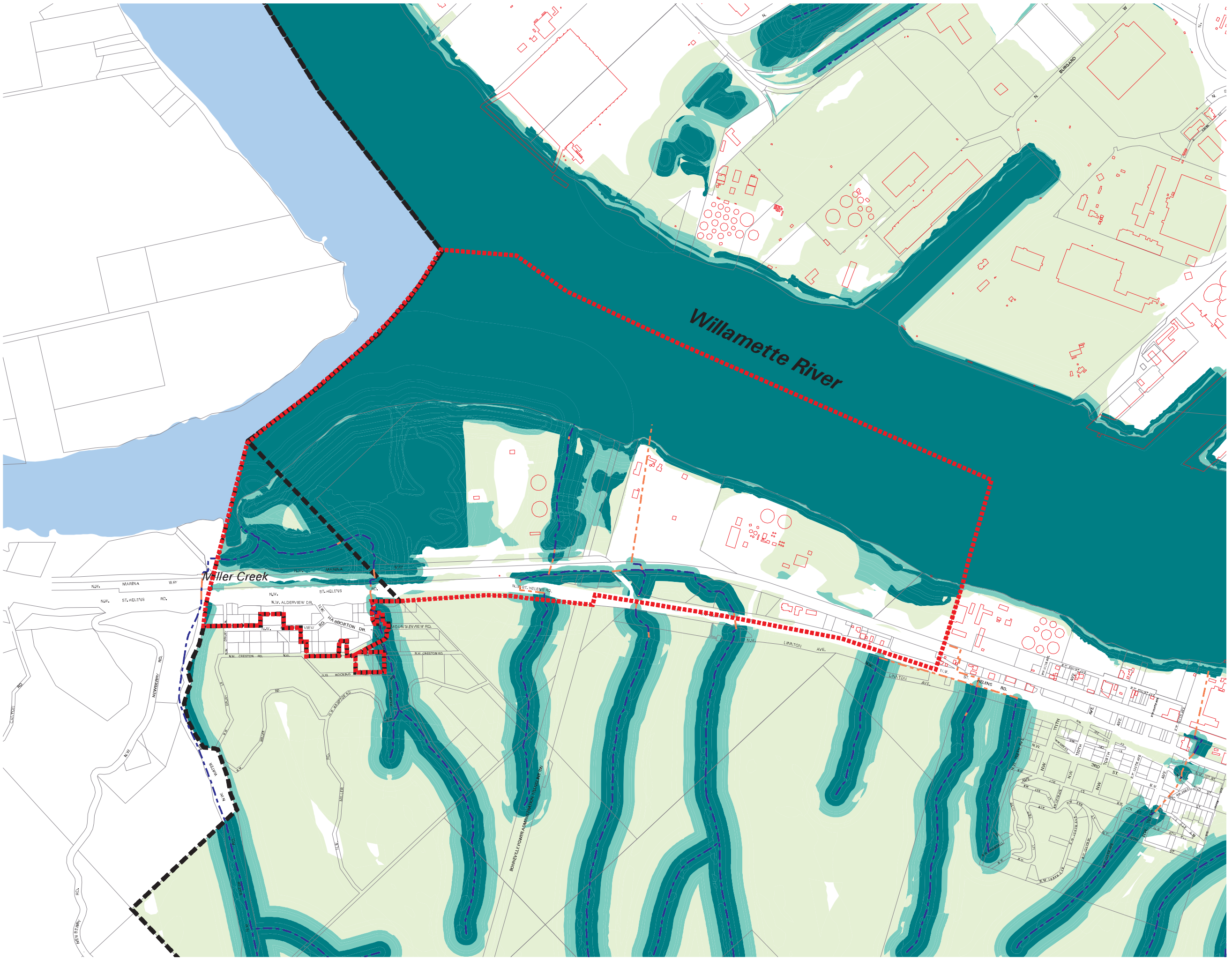
** SHA ranking supercedes lower relative values.

For more information, please visit our website:
<http://www.portlandonline.com/planning/index.cfm?c=40437>

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Scale: 1" = 800'
0' 400' 800' 1200'












DRAFT

June 07, 2007

Site WR3 - Map 5: Harborton Wetlands

Wildlife Habitat Relative Rankings

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

INFORMATION SOURCES:

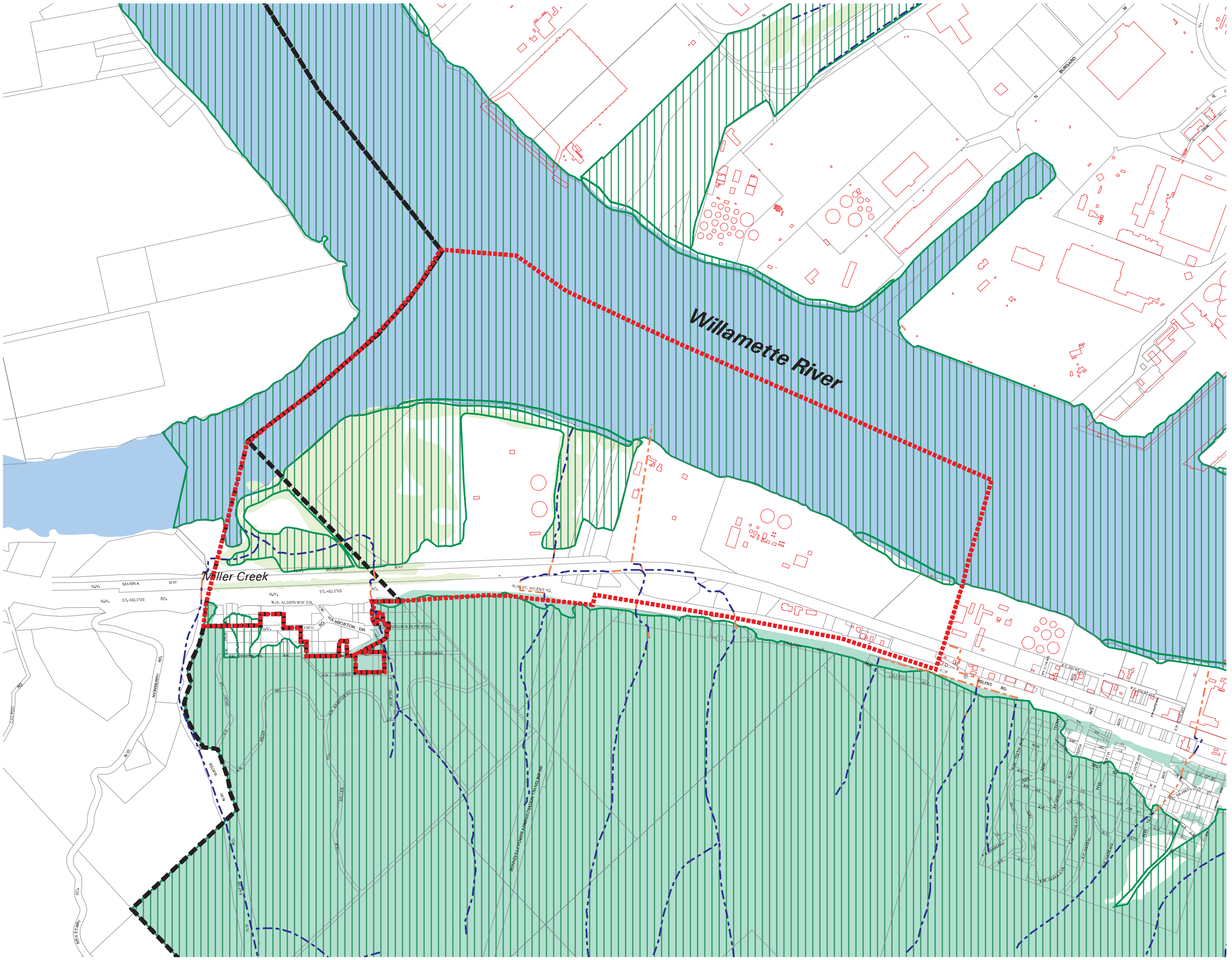
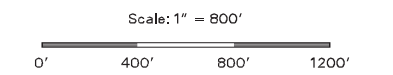
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Site WR3 - Map 6: Harborton Wetlands

Combined Riparian / Wildlife Relative Rankings

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

INFORMATION SOURCES:

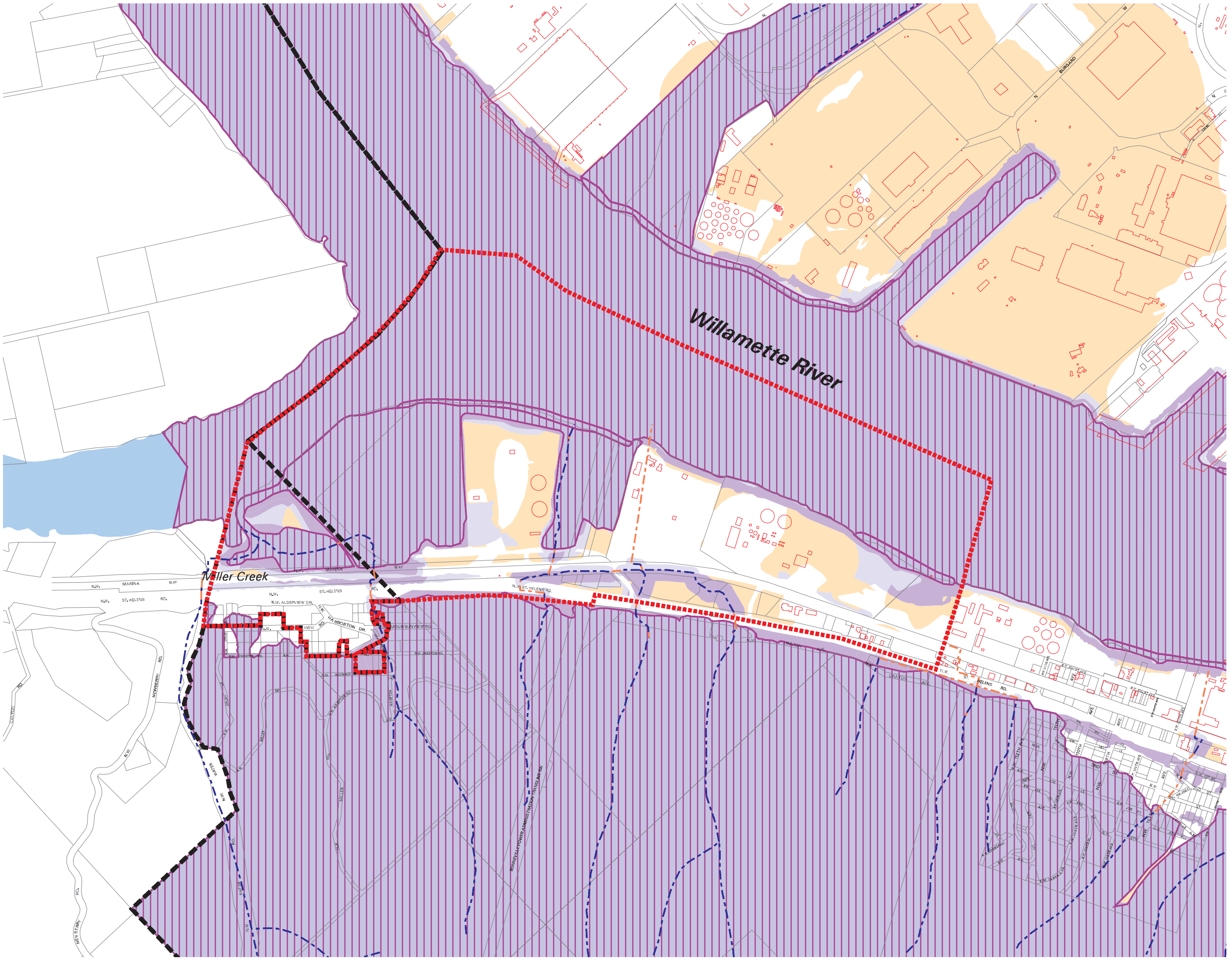
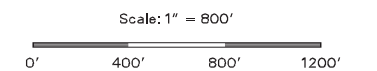
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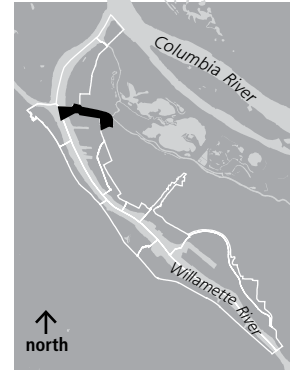
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INVENTORY SITE WR4: SOUTH RIVERGATE CORRIDOR



SUMMARY INFORMATION

Watershed:	Approximately half of the site, to the west of N Time Oil Road, is within the Willamette River Watershed. The eastern half of the site is within the Columbia Slough Watershed.
Neighborhood:	St. Johns
USGS quadrangle maps, quarter section maps:	2N1W34, 2N1W35, 2N1W36, and 1718-21,1820 -21
River Mile:	2.8 – 3.1
Site Size:	176 acres (land and water)
Previous Inventory:	Lower Willamette River Wildlife Habitat Inventory, March 1986.
Zoning:	Heavy Industrial (IH) River Industrial overlay (i) Environmental Conservation overlay (c)
Existing Land Use:	Industrial
General Description:	The site contains a vegetation corridor and several ponds, and includes the Portland General Electric (PGE) power line corridor. This site provides a natural resource and wildlife habitat connectivity between the Willamette River, the Multnomah Channel, Forest Park, the Lower Columbia Slough, and Smith and Bybee Lakes.
Resource Features:	Bottomland forest, upland scrub/shrub, emergent forested wetland, perennial and ephemeral ponds, scrub/shrub wetland, vegetated flood plain, beach, open water.
Resource Functions:	Microclimate and shade; stream flow moderation and water storage; bank stability, and sediment, pollution and nutrient control; large wood and channel dynamics; organic inputs, food web and nutrient cycling; wildlife habitat; habitat connectivity/movement corridor; migratory bird stopover habitat
Special Status Species:	Wildlife: Western painted turtle, bald eagle, American Peregrine falcon. Fish: Lower Columbia River Chinook salmon; Lower Columbia River steelhead trout; Pacific lamprey.
Special Habitat Area:	Yes
Natural Hazards:	Flood area

SITE DESCRIPTION

The South Rivergate inventory site is 176 acres in size. The site consists of an east-west corridor, approximately one mile long and averaging 1900 feet wide, that follows a Portland General Electric (PGE) Powerline easement. The site is located between the Willamette River and N. Lombard Avenue. Rivergate Boulevard borders the site to the north.



Time Oil Road travels parallel to the site to the south, then crosses through the site towards the west end. At the southeast the site is bordered by N Burgard Road. This site is traversed by Union Pacific Railroad tracks in several locations. WR4 Map 1 shows the aerial view of the South Rivergate Corridor inventory site.

The east/southeast section of the site is developed with power station facilities. Several ponds and emergent wetlands, totaling about 26 acres, provide habitat for a variety of wildlife. Within and surrounding the wetlands and drainageways includes approximately 1 acre of forest and woodland, 33 acres of shrubland and 51 acres of herbaceous vegetation, these being vegetated areas at least ½ acre in size.

Roughly 28 acres of the Willamette River are included in this site, from the shore to the river centerline. The bank is almost entirely beach and accumulated large wood. Of the 90 acres of flood area on the site, 47 acres include wetlands and vegetation. The remaining portion of the flood area is developed with roads, railroad tracks and rights-of-way. The site contains 45.0 acres (25.5%)

impervious surface coverage, including 2.6 miles of road.

One of the ponds in the southeast section of this site has been contaminated by both household and industrial waste. The City of Portland's Bureau of Environmental Service (BES) has two active revegetation projects on this site, one at the Rivergate Pump Station in the western section of the site, and the other at Bonneville Pond, at the eastern end of the site.

NATURAL RESOURCES DESCRIPTION

The site contains both aquatic and terrestrial resources (key resource features are shown in WR4 Maps 2 and 3). The site includes emergent and open water wetlands and drainageways with surrounding vegetation. West of N Time Oil Road there are four ponds ranging in size from 0.2 acre to 1.3 acres. These ponds were created by the Port of Portland in the mid-1990s as mitigation for development on other sites.

There are three other wetlands and associated drainageways east of N Time Oil Road. The drainageways provide a hydrologic connection between the wetlands and the Columbia Slough. The associated drainageways are piped under N Lombard Avenue to the Slough. Active flood area associated with the Willamette River and the Lower Columbia Slough extends into the site.

Most of seven wetlands develop an aquatic vegetation mat during the summer months, so that the ratio of open water to submergent/emergent wetland vegetation varies through the course of the year. This mat is typically comprised of South American waterweed, curly-leaved pondweed, leafy pondweed, Canadian waterweed, and lesser duckweed. Emergent vegetation along the margins of the ponds includes broad-leaved cattail, reed canarygrass, common rush, jointed rush, bulrush, nut sedge, water-plantain, wapato, and sedge species.

Bordering the wetlands are grassland and meadow areas typically comprised of invasive herbaceous growth including teasel, Canadian thistle, bird's-foot trefoil, purple loosestrife, and reed canarygrass. Upland shrub communities consist of Himalayan blackberry, willows (Hooker's, Pacific, Scouler's, and Sitka), red osier dogwood, and Douglas spirea.

The area between the wetlands is dominated by Pacific willow, but includes other willow species such as Hooker's, Scouler's, and Sitka. Young black cottonwood, red elderberry, Himalayan blackberry, and reed canarygrass are also fairly common species in this community. This area, and portions of the western section are selectively managed by PGE to control the growth of tree species so that they do not interfere with the overhead powerlines.

Remnant patches of bottomland forest are located near the river. Black cottonwood and Himalayan blackberry are the dominant tree and shrub species, respectively. Willows, Douglas spirea, and red osier dogwood are also found in the forested areas. Scattered cottonwoods and willows occur along the riverbank. There is evidence of mass failure, scour, and erosion along the riverbank, which may in part be exacerbated by the transmission tower footings located directly on the beach and banks.



The presence of multiple seasonal and year-round wetlands, is unique within the Willamette River study area. The mosaic of aquatic and terrestrial habitat types and the connection between the Willamette River, Lower Columbia Slough, St. Johns Landfill and Smith and Bybee wetlands complex creates important forage, nesting, and resting or stopover opportunities for birds, reptiles, amphibians, and mammals. While such linkages occur at the Kelley Point site, the South Rivergate Corridor is positioned directly across the river from the Multnomah Channel, Harborton wetlands, Forest Park, and Tualatin Mountain wildlife habitats.

The bank of the Willamette River is beach with woodland and herbaceous vegetation on the slopes. The beach area is located along the entire site and extends south into Site WR#: Time Oil/Terminal 4. The beach, which accumulates large woody debris, provides habitat for migrating anadromous salmonids (ODFW, 2005).

Wildlife observed or heard at the site during the 1999/2000 field surveys include birds, reptiles, amphibians and mammals. Water birds observed at the site include double-crested cormorant, great blue heron, herring gull, mallard, hooded and common mergansers, and gadwall. Raptors detected include northern harrier, merlin, red-tailed hawk, bald eagle, and American peregrine falcon. A wide variety of songbirds use the site, including black-capped chickadee, bushtit, Bewick's and winter wrens, American robin, starling, Hutton's vireo, song sparrow, dark-eyed junco, purple finch, golden-crowned kinglet, and various other sparrows (i.e., house, white-crowned, golden-crowned, and fox sparrows). Other birds identified include downy woodpecker, northern flicker, mourning dove and rock dove (domestic pigeon), western scrub-jay, and American crow. Mammal species noted include mink, river otter, and raccoon.

The site contains one of the largest Western painted turtle populations in the Willamette Valley. The estimated size of the adult population is 70 turtles. Also identified during field surveys were northwestern garter snake, common garter snake, long toed salamander, Pacific chorus (tree) frog, and bull frog. Turtles migrate between the ponds east and west of Time Oil Road, particularly during two seasonal intervals, before nesting and before overwintering.

The railroad lines and roads that fragment the site pose a considerable threat to turtles and other wildlife that move between the various habitats. Several turtle road kills have been documented on Time Oil Road. Lombard Avenue may pose a similar risk for turtles crossing between the site's eastern pond and the Columbia Slough. Noise from nearby road and rail activity can also disturb wildlife. Habitat disturbance caused by Himalayan blackberry and other invasive species is a limiting factor at this site. The nature and extent of vegetation management along the PGE power line easement and at the transmission towers may also be a limiting factor for wildlife.

The largest pond, located at the east end of the site, is highly degraded by household garbage and industrial waste that has been dumped there over the course of many years. An outfall pipe discharges unidentified (visible and odorous) contaminants into the pond. Though both turtles and fish are present in the pond, contamination and degraded water quality threaten their continued survival.

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 value ranks for riparian function, wildlife habitat and riparian/wildlife habitat areas combined (Table 8). The relative ranks are produced using GIS models and information on Special Habitat Areas. All of the ranked resource areas provide at least some important riparian and 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. 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 the *City of Portland Natural Resource Inventory Update Project Report, 2007*.

Riparian Areas

The site contains a portion of the Willamette River, vegetated and non-vegetated flood area, and wetlands that contribute to the riparian functions detailed in the natural resource description for the site. These landscape features provide the following riparian functions:

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

High relative functional ranks are assigned to the Willamette River, vegetated wetlands, and flood areas with woodland, and shrubland vegetation. Medium relative ranks are assigned to portions of the flood areas with herbaceous vegetation and other areas within 50 feet of the Willamette River. Low relative ranks are assigned to remaining portions of flood area that are not vegetated (WR4 Map 4).

Wildlife Habitat

Based on the wildlife habitat attributes mentioned in the previous section (size, interior area, connectivity/proximity to other patches and water), the wildlife habitat model assigned no relative functional rank to potential wildlife habitat resources in this site.

This site contains three Special Habitat Areas (SHAs): the West Wye/T-5 Powerline Mitigation Site (West Wye) and Willamette Beach. The West Wye SHA is within the PGE power line corridor easement. This area provides a critical wildlife habitat connector between the Willamette River, Lower Columbia Slough and the Smith and Bybee Lakes wetland complex. It contains wetlands, drainageways, and vegetation that are important for sensitive species such as the painted turtle, which uses the area extensively. The Willamette Beach SHA spans the entire bank within this site and extends south into site Y Time Oil Road Developed Flood Area for 2,000 feet. This beach area accumulates large wood and provides habitat for juvenile salmonids (ODFW, 2005). The Willamette River is a designated Special Habitat Area, reflecting its federal designation as "Critical Habitat" for salmonids species that are listed as threatened under the Endangered Species Act.

The Special Habitat Areas contain unique features and provide critical wildlife habitat as described in the natural resources description for Site WR1. 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.

Combined Relative Riparian/Wildlife Habitat Ranking

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

Table 8: Summary of Ranked Resource in WR4: South Rivergate Corridor

Total Inventory Site Area = 176 acres
Terrestrial* = 148 acres
Willamette River = 28 acres

	High	Medium	Low	Total
Riparian Resources **				
acres	78	24	24	126
percent total inventory site area	44%	13%	13%	74%
Special Habitat Area **				
acres	122			
percent total inventory site area	69%			
Wildlife Habitat **				
acres	122	<1	0	122
percent total inventory site area	69%	<1%	0%	69%
Combined Total ***				
acres	122	4	5	131
percent total inventory site area	66%	2%	3%	74%
Combined Terrestrial (excludes Willamette River)				
acres	95	4	5	104
percent total inventory site area	54%	2%	3%	59%

* Terrestrial includes the land, tributary streams, drainageways and wetlands.






** High-ranked riparian resources, Special Habit Areas, and wildlife habitat includes the Willamette River.

*** Because riparian resources, Special Habitat Areas, and wildlife habitat overlap, the results cannot be added together to determine the combined results.

June 07, 2007

Site WR4 - Map 1: South Rivergate Corridor

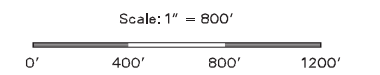
2005 Aerial Photography

-  Stream/Drainageway
-  Culvert or Piped
-  Site Boundary
-  City Boundary
-  Urban Services Boundary

INFORMATION SOURCES:

Aerial Orthophotographs:
Digital Orthophotography from flight in July 2005.
Photography has been rectified to adjust for curvature
of the earth. Not registered to taxlot base map.



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Site WR4 - Map 3: South Rivergate Corridor

Vegetation Features

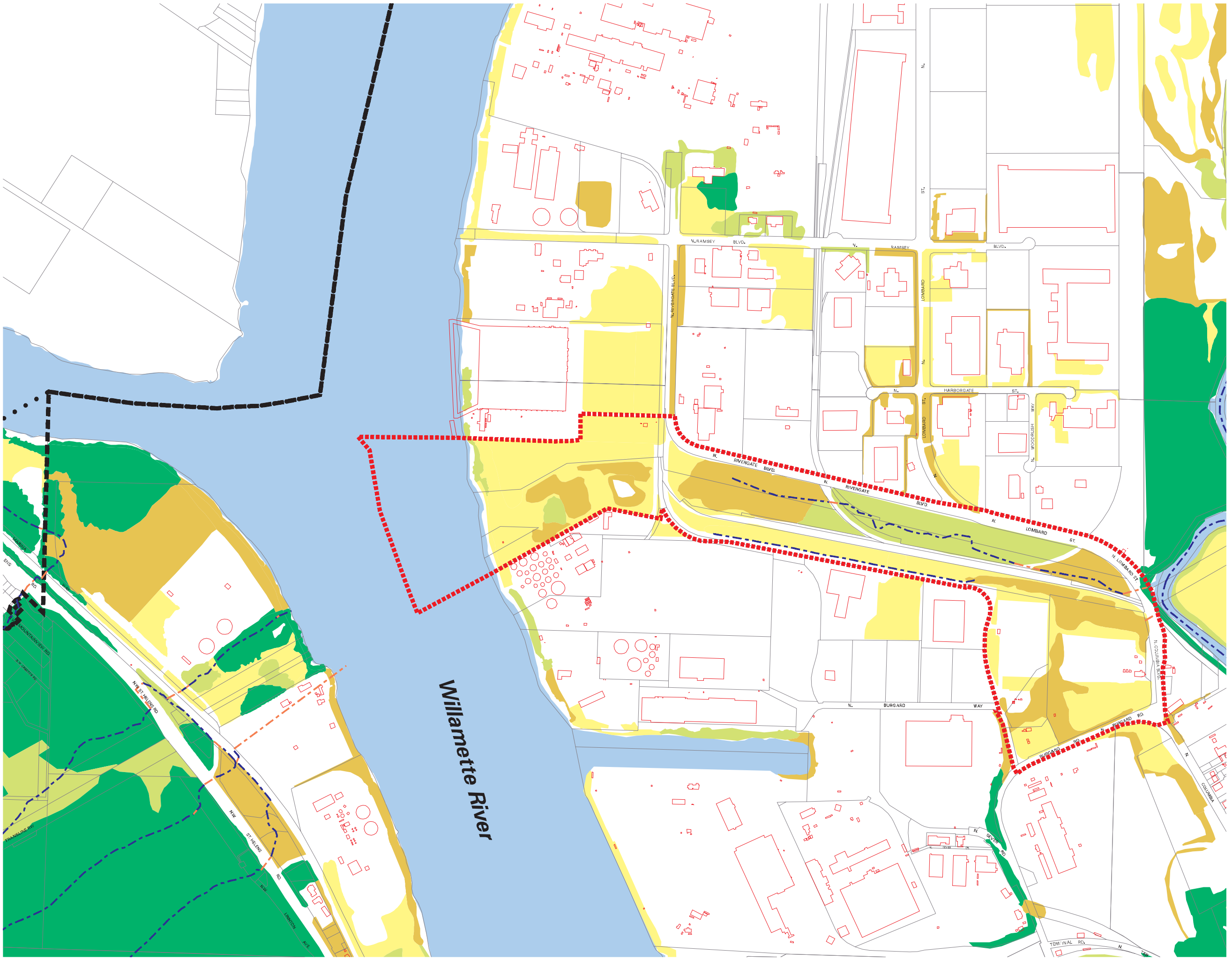
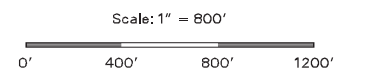
Vegetation Types

-  Forest
-  Woodland
-  Shrubland
-  Herbaceous
-  Stream/Drainageway
-  Culvert or Piped
-  Site Boundary
-  City Boundary
-  Urban Services Boundary

INFORMATION SOURCES:









Vegetation patches:
Vegetation patches larger than 1/2 acre mapped by the City of Portland, Bureau of Planning. Based on information from reference data sources including aerial photos, Parks and Recreation natural area assessments, and vegetation surveys along the banks of the Willamette and Columbia rivers. Vegetation patches are classified as forest, woodland, shrubland, or herbaceous. The mapping area includes all land within the City of Portland and the unincorporated parts of Multnomah County that are administered by the City of Portland. Updated through summer of 2004.

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Site WR4 - Map 4: South Rivergate Corridor

Riparian Resources Relative Rankings

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

INFORMATION SOURCES:

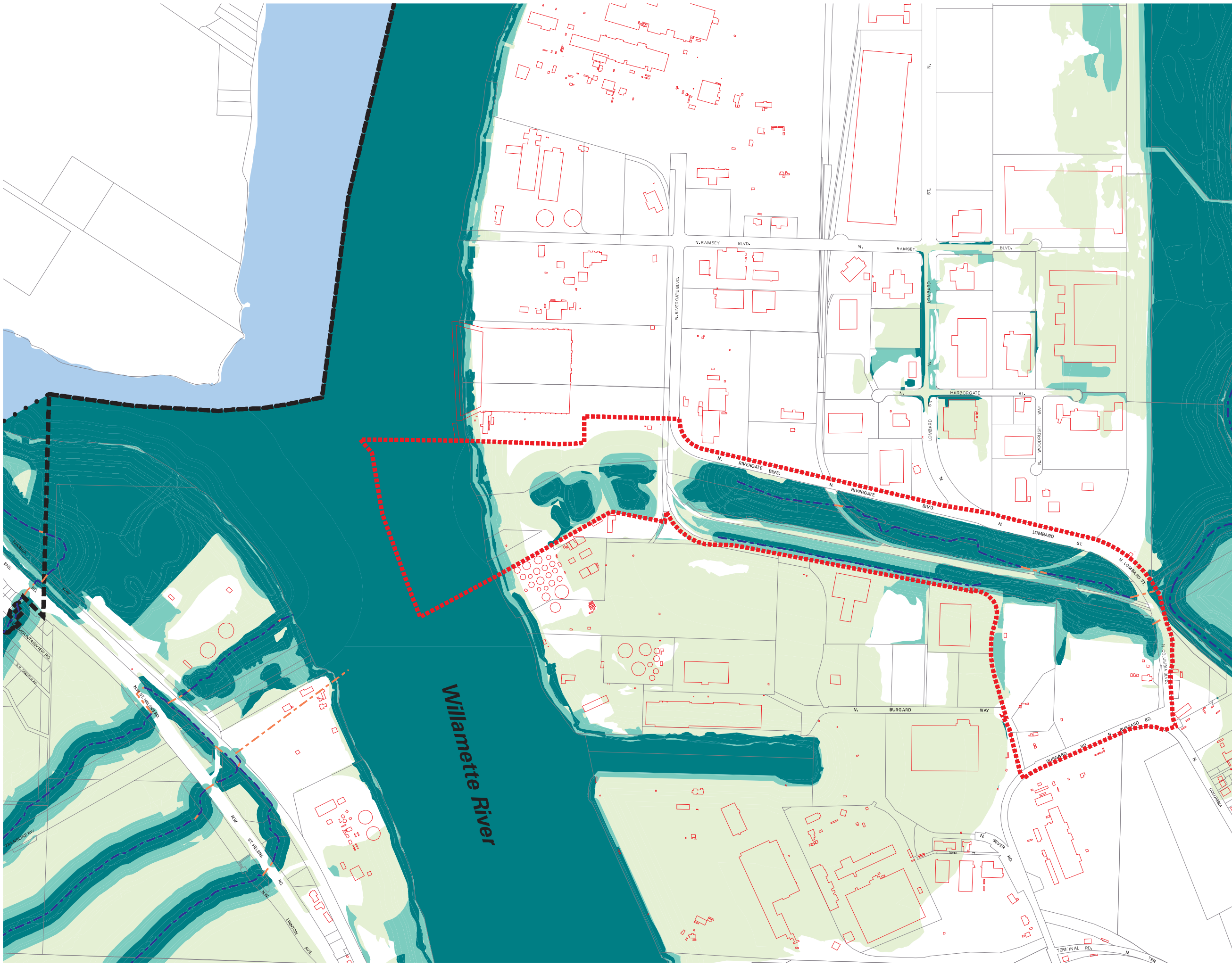
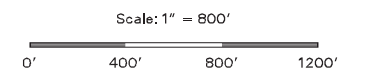
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






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Site WR4 - Map 5: South Rivergate Corridor

Wildlife Habitat Relative Rankings

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

INFORMATION SOURCES:

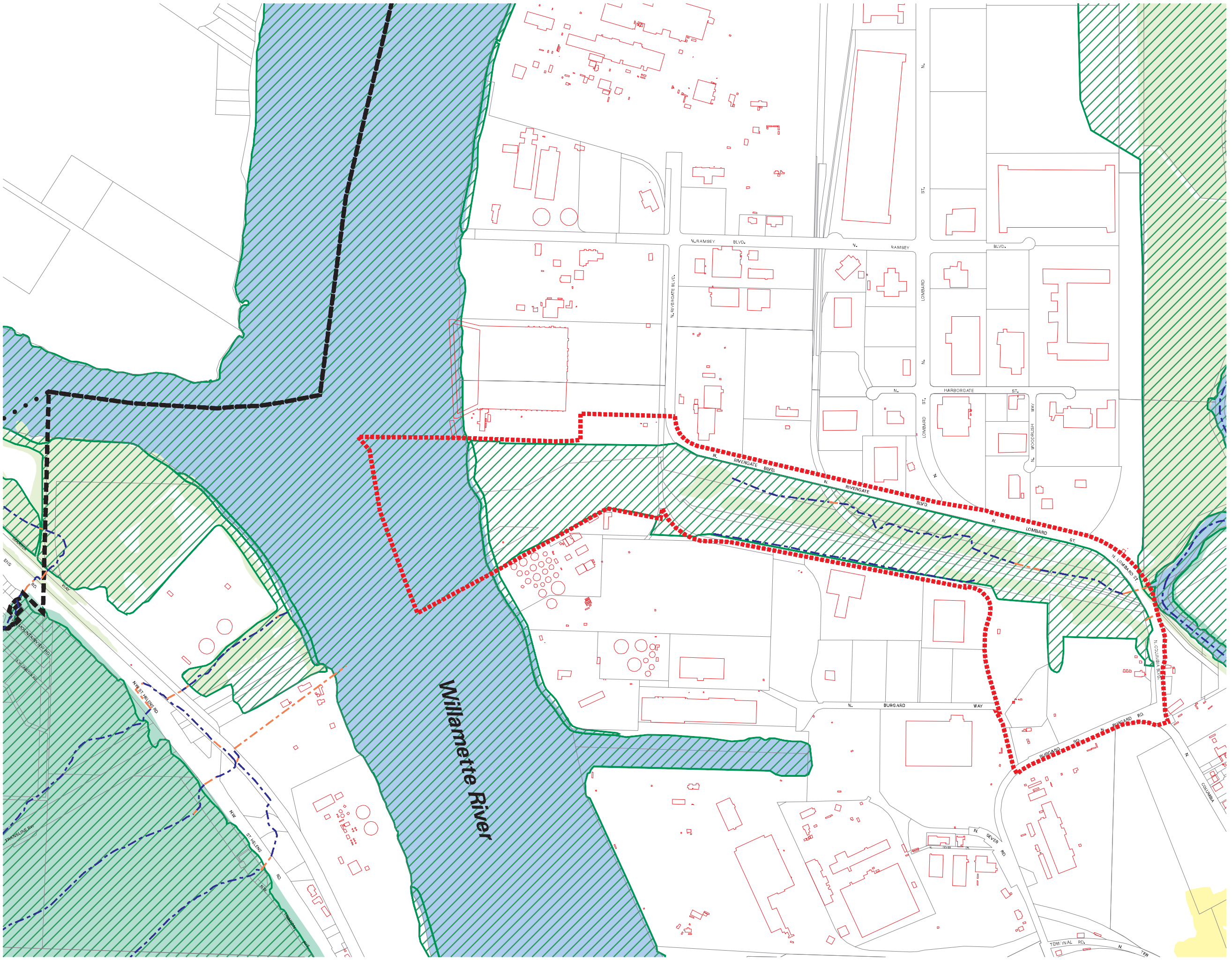
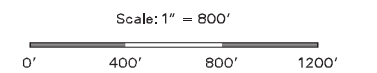
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Site WR4 - Map 6: South Rivergate Corridor

Combined Riparian / Wildlife Relative Rankings

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

INFORMATION SOURCES:

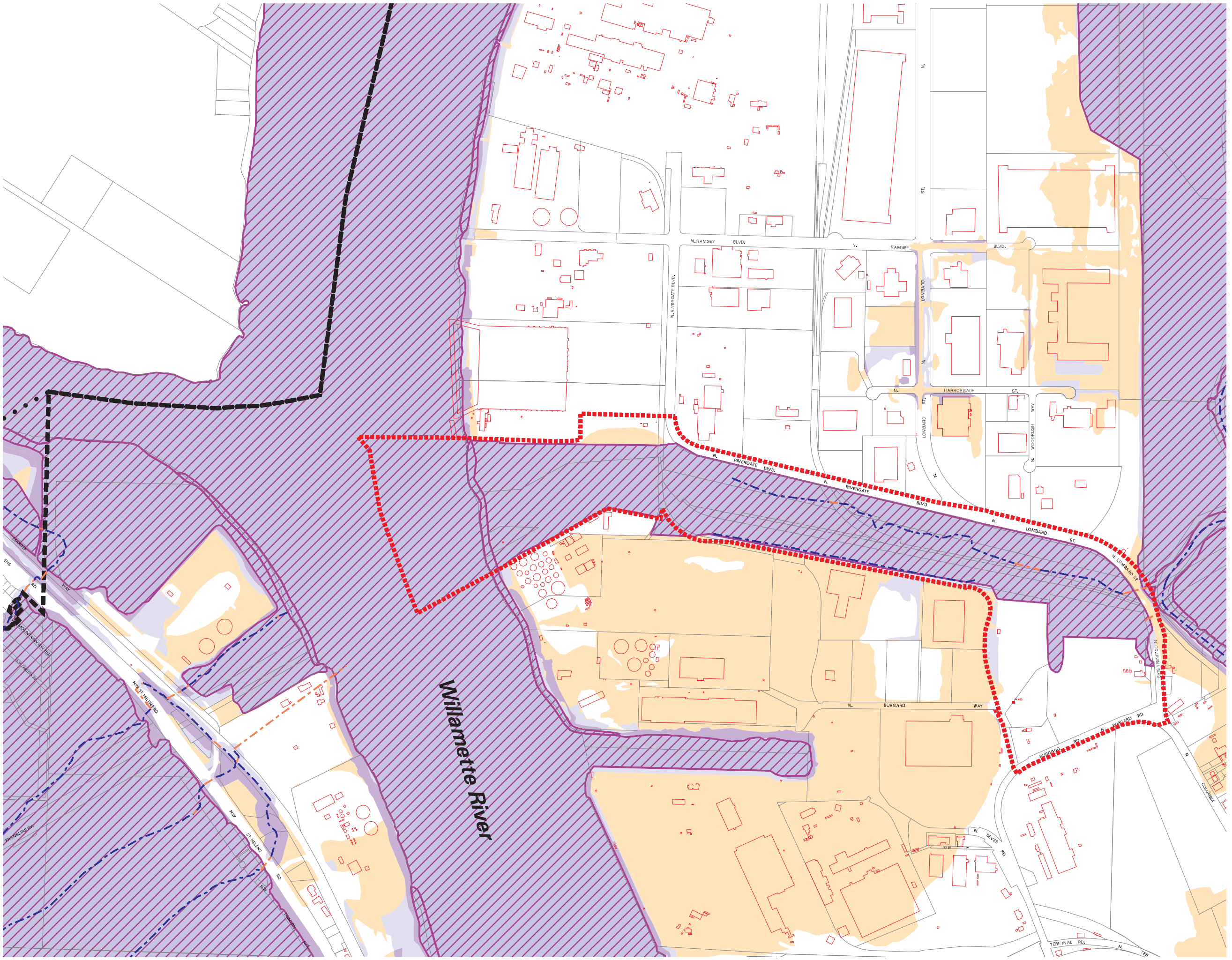
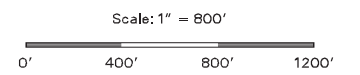
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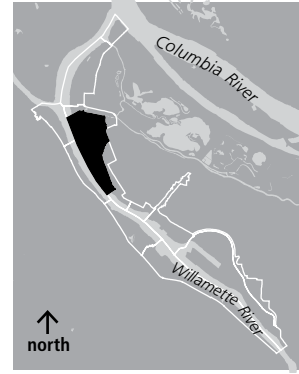
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<http://www.portlandonline.com/planning/index.cfm?c=40437>

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All data compiled from source materials at different scales. For more detail, please refer to the source materials or City of Portland, Bureau of Planning.



INVENTORY SITE WR5: TIME OIL RD/TERMINAL 4



SUMMARY INFORMATION

Watershed:	The majority of the site is within the Willamette River Watershed. A small portion of the site, along the northern edge, is within the Columbia Slough Watershed.
Neighborhood:	The northern two-thirds of the site are in the St. Johns neighborhood and the southern one-third is in the Cathedral Park neighborhood.
USGS quadrangle and quarter section maps:	2N1W35, 1N1W02, 1N1W11, 1N1W12 and 1718-20, 1818-20, 1919-20, 2019-20, 2120-21
River Mile:	3.1 – 5.4
Site Size:	766 acres (land and water)
Previous Inventory:	Lower Willamette River Wildlife Habitat Inventory, March 1986
Zoning:	Heavy Industrial (IH) River Industrial overlay (i)
Existing Land Use:	Industrial
General Description:	Industrial uses cover most of the site, including the Port of Portland Terminal 4. There is undeveloped land along the northern portion of the site. The eastern boundary is made up of remnant oak bluffs that separate the site from the St. John's neighborhood.
Resource Features:	Bottomland forest, foothill savannah, upland shrub/scrub, herbaceous vegetation; developed flood area; beach, open water
Functional Values:	Microclimate and shade; stream flow moderation and water storage; bank stability, and sediment, pollution and nutrient control; large wood and channel dynamics; organic inputs, food web and nutrient cycling; wildlife habitat; wildlife movement corridor and connectivity
Special Status Species:	Fish: Lower Columbia River Chinook salmon; Lower Columbia Coho salmon; Lower Columbia River steelhead trout, Pacific lamprey.
Special Habitat Area:	Yes
Natural Hazards:	Landslide; flood area

SITE DESCRIPTION

This 766-acre site is located between Time Oil Rd to the north and Cathedral Park to the south. The eastern site boundary follows Bradford Street. The terrestrial portion of this site is approximately 530 acres in size and contains more than 21,000 linear feet of bank along the Willamette. WR5 Map 1 shows the aerial view of the Time Oil Developed Flood Area inventory site.



This site is characterized by shoreline development associated with intensive marine and industrial use. The site contains 412.7 acres (53.9%) impervious surface coverage, including 13.2 miles of road. Marine cargo activities are common in this reach, with large vessels docking or passing through to upstream berths. The banks of the Willamette River in this site are highly disturbed. Vegetation is associated primarily with the river bank, although a small strip of forest vegetation exists in the upland portion of the site. Vegetated areas at least ½ acre in size include 3 acres of forest or tree canopy, 3 acres of woodland, 7 acres of shrubland and 24 acres of herbaceous vegetation within the site. Although the vegetated banks reflect disturbance associated with development, they provide a connectivity corridor between Site WR4: South Rivergate Corridor to the north and Cathedral Park to the south.

There are 270 acres of flood area within the site. Of this, approximately 250 acres is developed with industrial uses. The remaining 20 acres are vegetated and generally include the banks of the Willamette.

There are several areas of soil, sediment and groundwater contamination on this site, resulting from historic and present industrial uses. The steep slopes below Bradford St. are in the Potential Landslide Hazard area (City of Portland, 2002), and a majority of the site is within the flood area (City of Portland 2007).

NATURAL RESOURCES DESCRIPTION

Although this site contains a highly developed portion of the Willamette River bank, it does contain both aquatic and terrestrial resources (key resource features are shown in WR5 Maps 2 and 3). The vegetation on the site consists of bottomland forest, foothill savannah, upland shrubland, herbaceous vegetation; developed flood area; beach and open water. The vegetation that exists along the Willamette River bank provides connectivity along the Willamette River between the wetlands in the South Rivergate Corridor to the north and Cathedral Park in the south.

There is a small area of bottomland forest located along NE Lombard Road, between N Burgard Rd and N Bradford St. The forested area is located on a steep slope extend south from the South Rivergate Corridor and is dominated by black cottonwood trees.

A significant portion of the northern half of the site is designated flood area, much of which is developed. The near shore habitats within the flood area consist of a few shallow areas and a deeper area towards the southern end of the site, near the Toyota shipyards. The substrate of these near shore areas is primarily sand and silt.

There are three beach areas within this site. The beach in the northern portion of the site extends north into the South Rivergate Corridor inventory site, and is approximately 2,000 feet long. A segment of beach in the north/central portion of the site is approximately 800 feet long. The beach located in the southern portion of the site is approximately 1,200 feet long. The beaches accumulate large wood that provides habitat for juvenile salmonids. The open water at the shore provides feeding areas for wildlife such as ducks, cormorants, gulls, kingfishers, herons, river otter, mink, and other species that feed on small fish and aquatic insects. Insectivores such as swallows and bats also forage over the water. The river channel provides a migration corridor for fish, birds, and mammals. In addition, a wildlife migration corridor crosses the river in this reach providing a connection for birds between Forest Park to the west and Smith and Bybee Lakes to the east.

Between the beaches are varying bank treatments, including riprap (vegetated and non-vegetated), pilings, seawalls and unclassified fill. These portions of the bank are characterized by steep slopes and Himalayan Blackberry. In 2001 the Port of Portland planted native vegetation along 1700 feet of riverbank at Terminal 4, to improve stability and wildlife habitat. The Port also installed bioswales to help manage and clean stormwater before it enters the river.

Embayments associated with Terminal 4 reduce the velocity of flows in the river. These areas may provide refugia for aquatic species; however, the habitat value of these terminal embayments is likely limited by the presence of wharves and headwalls. These areas may be more conducive to non-indigenous warmwater species than indigenous salmonid species.

The level of human disturbance and continued dredging in and around the site somewhat limit the function of existing fish and wildlife habitat resources. Dredging has produced a deep, uniform channel throughout this site lowering channel complexity, removing in-stream habitat features, and reducing the quantity and quality of shallow-water environments. Diking and upland development limit the ability of the river to maintain an active meander critical to the habitat forming process. In addition, although water quality is generally improving within the basin, this area is downstream of a large and heavily affected watershed and part of the Portland Harbor Superfund site. As a result, water quality and contaminated sediments are expected to have an adverse affect on fish and wildlife use.

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 value ranks for riparian function, wildlife habitat and riparian/wildlife habitat areas combined (Table 9). The relative ranks are produced using GIS models and information on Special Habitat Areas. All of the ranked resource areas provide at least some important riparian and 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. 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 the *City of Portland Natural Resource Inventory Update Project Report, 2007*.

Riparian Areas

The site contains the Willamette River and vegetated and developed flood areas that contribute to the riparian functions detailed in the natural resource description. These landscape features provide the following riparian functions:

- Microclimate and shade
- Stream flow moderation and water storage
- Bank stability, and sediment, pollution and nutrient control

- Large wood and channel dynamics
- Organic inputs, food web and nutrient cycling
- Riparian wildlife movement corridor

High relative ranks are assigned to the Willamette River and portions of the flood area with woodland or shrubland vegetation. Medium relative ranks are assigned to portions of the flood area with herbaceous vegetation and other areas within 50 feet of the Willamette River. Low relative ranks are assigned to non-vegetated and developed flood area (Map 4).

Wildlife Habitat

Based on the wildlife habitat attributes mentioned in the previous section (size, interior area, connectivity/proximity to other patches and water), the wildlife habitat model assigns no relative functional rank to potential wildlife habitat resources in this site.

The three beaches are designated Special Habitat Areas (SHAs). These beaches accumulate large wood and provide habitat for juvenile salmonids (ODFW, 2005). In addition, the Willamette River is a designated Special Habitat Area, reflecting its federal designation as “Critical Habitat” for salmonids species that are listed as threatened under the Endangered Species Act.

The SHAs contain unique features and provide critical wildlife. SHAs receive a high relative rank for wildlife habitat. The SHA ranking supersedes lower rankings generated by the GIS model. Therefore, the Willamette Beach SHAs within the site rank high for wildlife habitat (WR5 Map 5).






Combined Relative Riparian/Wildlife Habitat Ranking

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 low for riparian function and high for wildlife habitat, such as the Willamette Beach SHAs, will receive a high combined relative rank (WR5 Map 6).

Table 9: Summary of Ranked Resource in WR5: Time Oil Rd/ Terminal 4					
Total Inventory Site Area = 766 acres					
Terrestrial* = 525 acres					
Willamette River = 241 acres					
		High	Medium	Low	Total
Riparian Resources **					
acres		257	24	246	527
percent total inventory site area		34%	3%	32%	69%
Special Habitat Area **					
acres		244			
percent total inventory site area		32%			
Wildlife Habitat **					
acres		244	0	0	244
percent total inventory site area		32%	0%	0%	32%
Combined Total ***					
acres		259	22	246	527
percent total inventory site area		34%	2%	32%	69%
Combined Terrestrial (excludes Willamette River)					
acres		18	22	246	286
percent total inventory site area		2%	3%	32%	37%
* Terrestrial includes the land, tributary streams, drainageways and wetlands. ** High-ranked riparian resources, Special Habit Areas, and wildlife habitat includes the Willamette River. *** Because riparian resources, Special Habitat Areas, and wildlife habitat overlap, the results cannot be added together to determine the combined results.					

Site WR5 - Map 1: Time Oil/Terminal 4

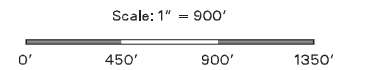
2005 Aerial Photography

-  Stream/Drainageway
-  Culvert or Piped
-  Site Boundary
-  City Boundary
-  Urban Services Boundary

INFORMATION SOURCES:

Aerial Orthophotographs:
Digital Orthophotography from flight in July 2005.
Photography has been rectified to adjust for curvature
of the earth. Not registered to taxlot base map.

All data compiled from source materials at different scales.
For more detail, please refer to the source materials or
City of Portland, Bureau of Planning.









Site WR5 - Map 2: Time Oil/Terminal 4

Water-Related Features







Water Bodies

River Depths

-  0 to -20'
-  -20 to -30'
-  -30 to -40'
-  deeper than 40'

-  Stream/Drainageway
-  Culvert or Piped

Other Features

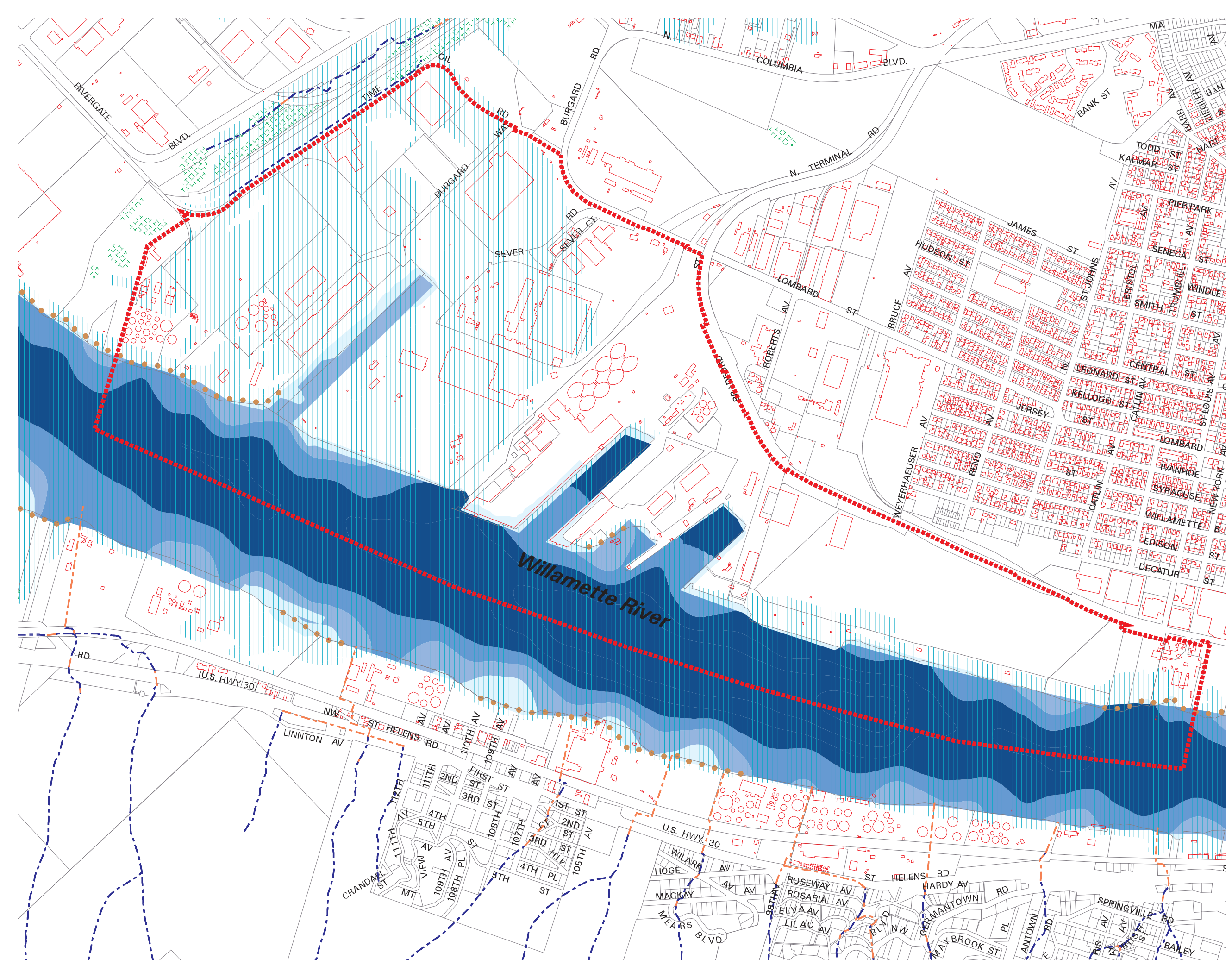
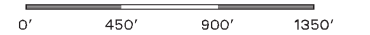
-  Flood Area
-  Wetlands
-  Beach
-  Site Boundary
-  City Boundary
-  Urban Services Boundary

INFORMATION SOURCES:

Water Bodies:
Rivers, lakes and other water features. Originally digitized by Metro (1994). Data collection scale: 1:100' - 1:400'. City of Portland and Multnomah County pockets updated by City of Portland, Bureau of Planning, to refine waterbody geometry, remove erroneously mapped waterbodies, and add missing waterbodies. Aerial photos were the primary data source used as reference for re-mapping waterbodies. This is an interim dataset reflecting all work completed to date.

All data compiled from source materials at different scales. For more detail, please refer to the source materials or City of Portland, Bureau of Planning.







Scale: 1" = 900'



Site WR5 - Map 3: Time Oil/Terminal 4

Vegetation Features

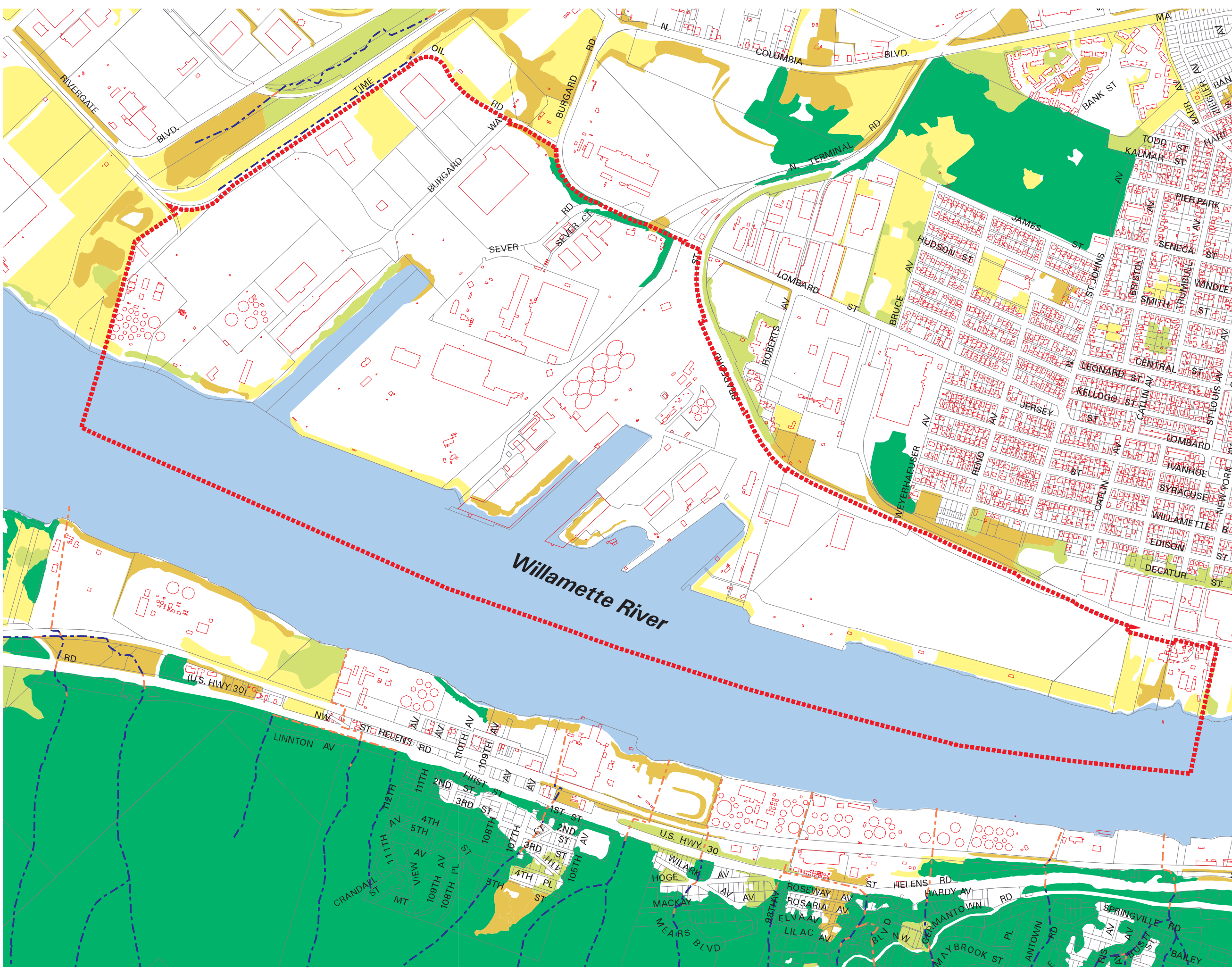
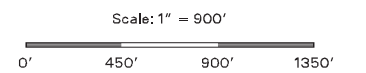
Vegetation Types

-  Forest
-  Woodland
-  Shrubland
-  Herbaceous
-  Stream/Drainageway
-  Culvert or Piped
-  Site Boundary
-  City Boundary
-  Urban Services Boundary

INFORMATION SOURCES:

Vegetation patches:
Vegetation patches larger than 1/2 acre mapped by the City of Portland, Bureau of Planning. Based on information from reference data sources including aerial photos, Parks and Recreation natural area assessments, and vegetation surveys along the banks of the Willamette and Columbia rivers. Vegetation patches are classified as forest, woodland, shrubland, or herbaceous. The mapping area includes all land within the City of Portland and the unincorporated parts of Multnomah County that are administered by the City of Portland. Updated through summer of 2004.

All data compiled from source materials at different scales. For more detail, please refer to the source materials or City of Portland, Bureau of Planning.



Site WR5 - Map 4: Time Oil/Terminal 4

Riparian Resources Relative Rankings

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

INFORMATION SOURCES:

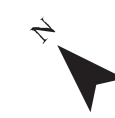
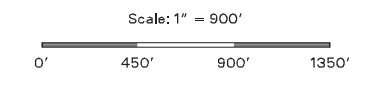
The Natural Resources Inventory Update (NRIU) is a citywide project to revise and update existing natural resource inventories (of trees, streams, wildlife habitat, etc.) in Portland. The update is part of Portland's River Renaissance Initiative to ensure that the Willamette River and its tributary watersheds are clean and healthy.

** SHA ranking supercedes lower relative values.

For more information, please visit our website:
<http://www.portlandonline.com/planning/index.cfm?c=40437>










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Site WR5 - Map 5: Time Oil/Terminal 4

Wildlife Habitat Relative Rankings

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

INFORMATION SOURCES:

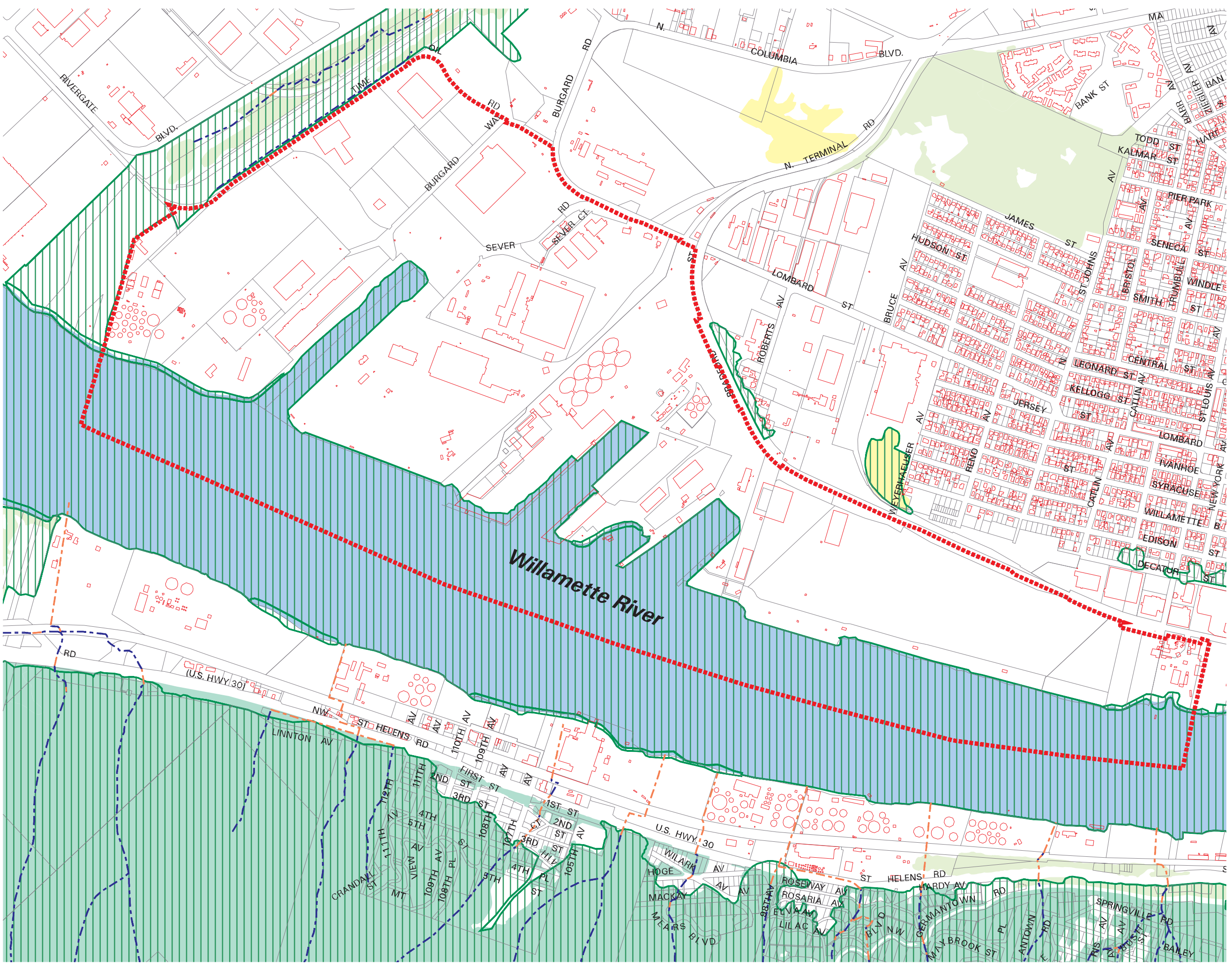
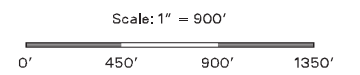
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** SHA ranking supercedes lower relative values.

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Site WR5 - Map 6: Time Oil/Terminal 4

Combined Riparian / Wildlife Relative Rankings

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

INFORMATION SOURCES:

The Natural Resources Inventory Update (NRIU) is a citywide project to revise and update existing natural resource inventories (of trees, streams, wildlife habitat, etc.) in Portland. The update is part of Portland's River Renaissance Initiative to ensure that the Willamette River and its tributary watersheds are clean and healthy.

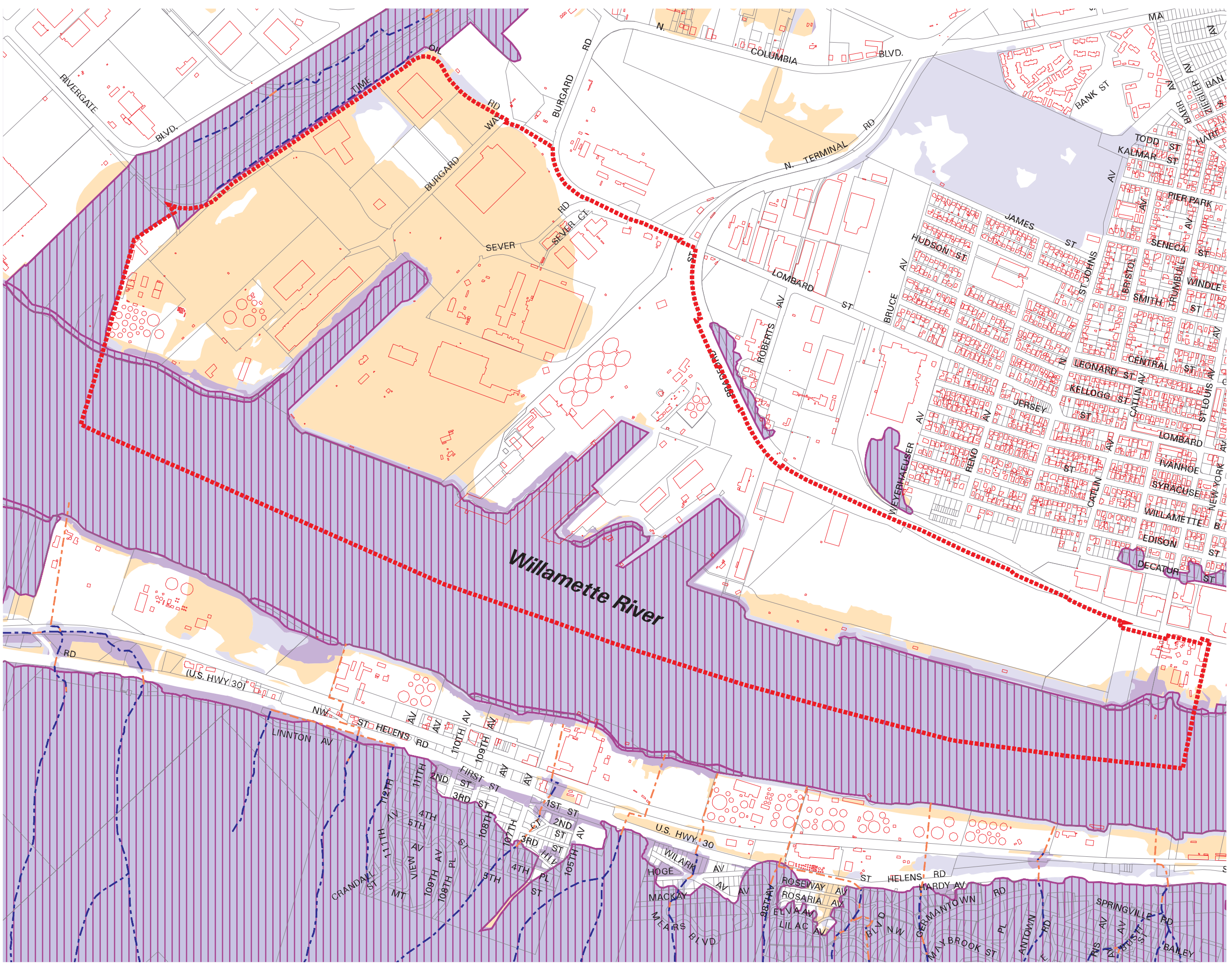
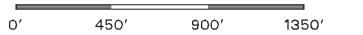
** SHA ranking supercedes lower relative values.

For more information, please visit our website:
<http://www.portlandonline.com/planning/index.cfm?c=40437>

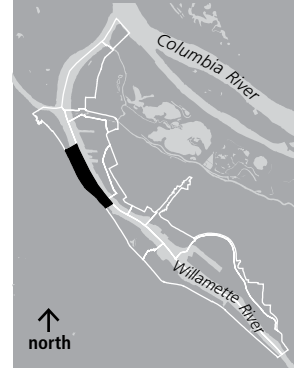
NOTE: Portland's resource inventory is still being evaluated for accuracy and consistency and should be considered preliminary. The inventory has not yet been adopted by the City of Portland.

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Scale: 1" = 900'



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:	325 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 Types:	Forest, woodland, shrubland and herbaceous vegetation; flood area; beach
Functional Values:	Stream flow moderation and water storage; bank stability, and sediment, pollution and nutrient control; large wood and channel dynamics; organic inputs, food web and nutrient cycling; wildlife movement corridor; wildlife habitat
Special Status Species:	Fish: Lower Columbia River Chinook salmon; Lower Columbia Coho salmon; Lower Columbia River Steelhead trout, Pacific lamprey.
Special Habitat Area:	Yes
Natural Hazards:	Landslide, flood area, wildfire

SITE DESCRIPTION

This 325-acre inventory site is located between Highway 30 and the Willamette River, south of site 2.1 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 325-acres within the site, Willamette River accounts for 170 acres. The site contains approximately 9,200 linear feet of river frontage and there is a mix of bank types including beach, vegetation, riprap, rock and seawall.

The site contains 101.6 acres (31.3%) impervious surface coverage, including 4.1 miles of road. Vegetated areas, at least ½ acre in size, include approximately 8 acres of forest or tree canopy, 4 acres of woodland and 11 acres of shrubland vegetation, and 1 acre of herbaceous within this site.

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



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 non-vegetated and vegetated rip rap. In the southern half of this site is a seawall and non-vegetated and vegetated rip rap on steep slopes. There is a section of beach approximately 2,900 feet long near the middle of the shoreline within the site. Beaches and associated near-shore sandy substrate provide habitat for juvenile salmonids (ODFW, 2005).

There are two vegetated patches that extend upland (west) from the bank. The first is located approximately in the middle of the resource site and contains woodland and shrubland vegetation. The woodland area is dominated by cottonwood, alder and maple trees. The dominant ground cover is sword fern and English ivy. The shrubland area is dominated by blackberries 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, blackberries and Scot's broom, and sword fern ground cover. The second vegetated area contains steep slopes.

There are five streams that are piped through the inventory site and two stream channels that are open in the upland vegetation areas. The northern open channel is approximately 200 feet long. The southern open 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.

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 value ranks for riparian function, wildlife habitat and riparian/wildlife habitat areas combined (Table 10). The relative ranks are produced using GIS models and information on Special Habitat Areas. All of the ranked resource areas provide at least some important riparian and 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. 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 the *City of Portland Natural Resource Inventory Update Project Report, 2007*.

Riparian Areas

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 stability, and sediment, pollution and nutrient control
- Large wood and channel dynamics
- Organic inputs, food web and nutrient cycling
- Riparian wildlife movement corridor

High relative ranks to the Willamette River and forest, woodland, and shrubland within the flood area or adjacent to streams. Medium relative functional ranks are assigned to land within 50 feet of the river or a stream. Low relative ranks are assigned to portions of flood area with no vegetation. 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

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

The areas of beach along the Willamette River within this site are designated Special Habitat Areas (SHAs) because they critical wildlife habitat they provide for juvenile salmonids. The Willamette River is a designated Special Habitat Area, reflecting its federal designation as “Critical Habitat” for salmonids species that are 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. 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 (WR6 Map 5).

Combined Relative Riparian/Wildlife Habitat Ranking Provide

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 10: Summary of Ranked Resource in WR6: Linnton

Total Inventory Site Area = 325 acres
Terrestrial* = 155 acres
Willamette River = 170 acres

	High	Medium	Low	Total
Riparian Resources **				
acres	176	11	21	208
percent total inventory site area	54%	3%	7%	64%
Special Habitat Area **				
acres	172			
percent total inventory site area	53%			
Wildlife Habitat **				
acres	172	7	0	179
percent total inventory site area	53%	2%	0%	55%
Combined Total ***				
acres	177	16	15	208
percent total inventory site area	55%	5%	4%	64%
Combined Terrestrial (excludes Willamette River)				
acres	7	16	14	37
percent total inventory site area	2%	5%	4%	11%






* Terrestrial includes the land, tributary streams, drainageways and wetlands.
 ** High-ranked riparian resources, Special Habit Areas, and wildlife habitat includes the Willamette River.
 *** Because riparian resources, Special Habitat Areas, and wildlife habitat overlap, the results cannot be added together to determine the combined results.

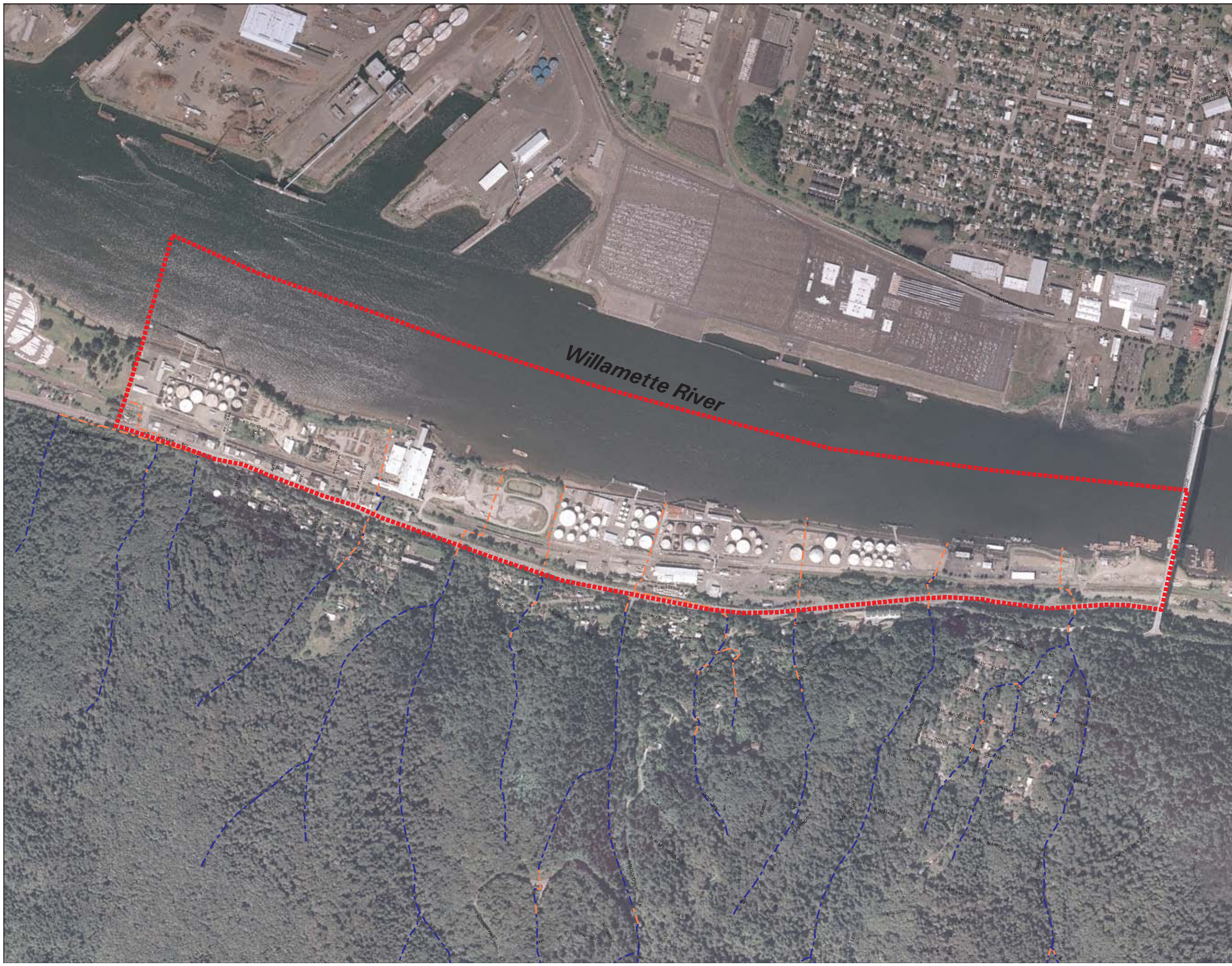
DRAFT

June 07, 2007

Site WR6 - Map 1: Linnton

2005 Aerial Photography

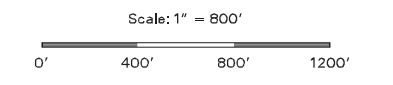
-  Stream/Drainageway
-  Culvert or Piped
-  Site Boundary
-  City Boundary
-  Urban Services Boundary



INFORMATION SOURCES:

Aerial Orthophotographs:
Digital Orthophotography from flight in July 2005.
Photography has been rectified to adjust for curvature of the earth. Not registered to taxlot base map.

All data compiled from source materials at different scales.
For more detail, please refer to the source materials or
City of Portland, Bureau of Planning.

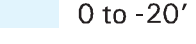
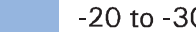
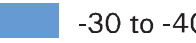





Site WR6 - Map 2: Linnton

Water-Related Features







Water Bodies

River Depths

-  0 to -20'
-  -20 to -30'
-  -30 to -40'
-  deeper than 40'

-  Stream/Drainageway
-  Culvert or Piped

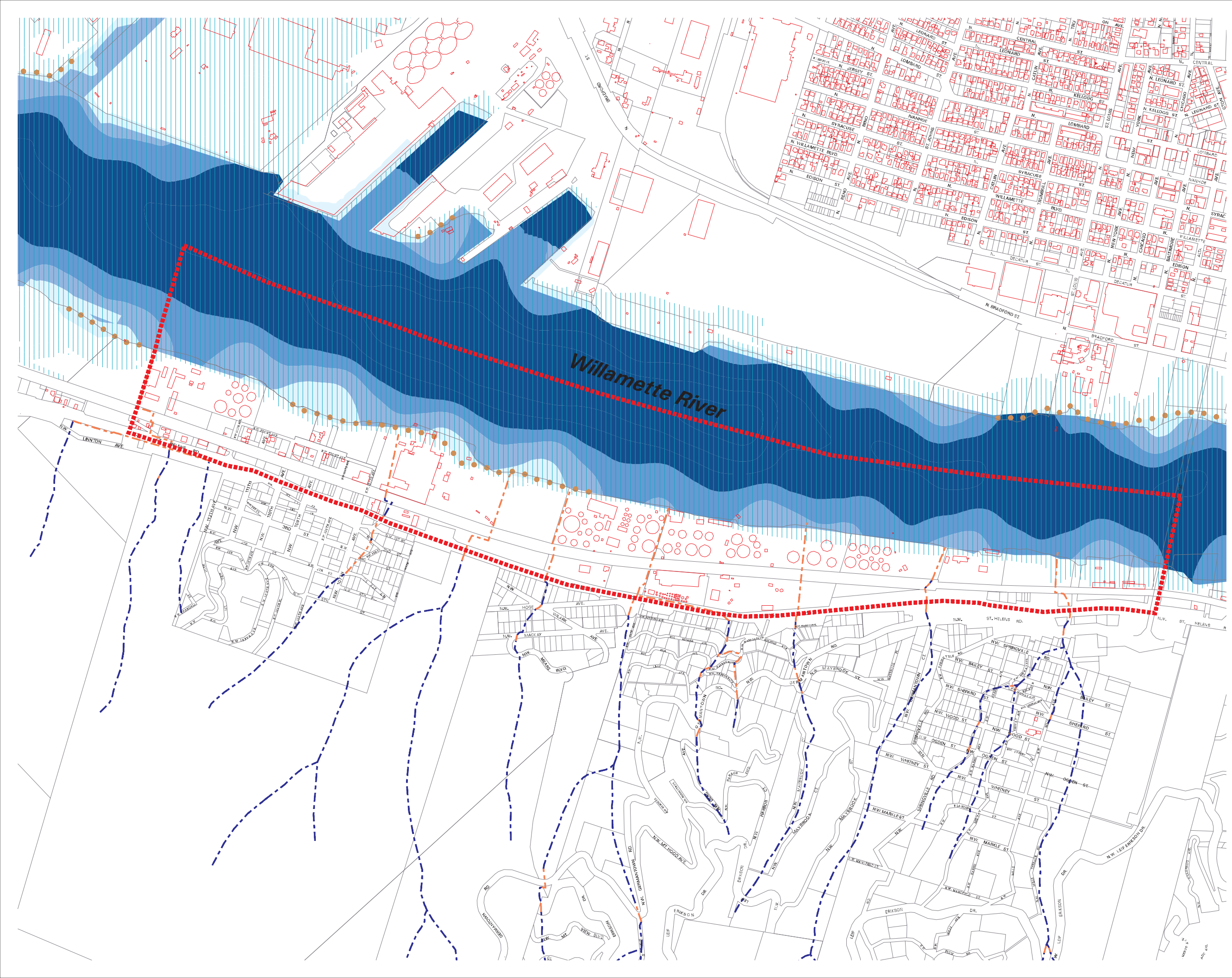
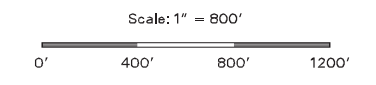
Other Features

-  Flood Area
-  Wetlands
-  Beach
-  Site Boundary
-  City Boundary
-  Urban Services Boundary

INFORMATION SOURCES:

Water Bodies:
Rivers, lakes and other water features. Originally digitized by Metro (1994). Data collection scale: 1:100' - 1:400'. City of Portland and Multnomah County pockets updated by City of Portland, Bureau of Planning, to refine waterbody geometry, remove erroneously mapped waterbodies, and add missing waterbodies. Aerial photos were the primary data source used as reference for re-mapping waterbodies. This is an interim dataset reflecting all work completed to date.







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Site WR6 - Map 3: Linnton

Vegetation Features

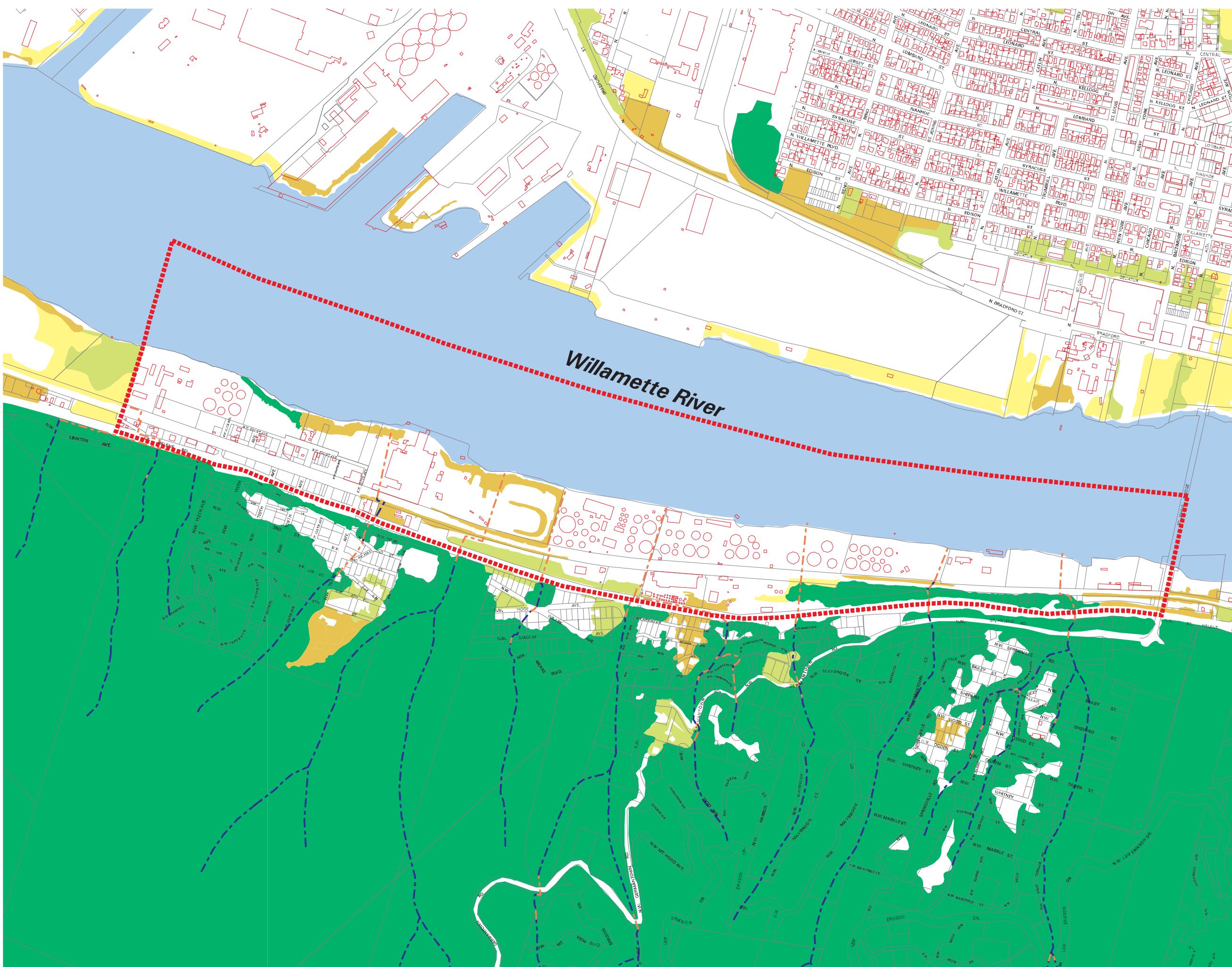
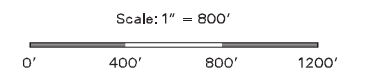
Vegetation Types

-  Forest
-  Woodland
-  Shrubland
-  Herbaceous
-  Stream/Drainageway
-  Culvert or Piped
-  Site Boundary
-  City Boundary
-  Urban Services Boundary

INFORMATION SOURCES:









Vegetation patches:
Vegetation patches larger than 1/2 acre mapped by the City of Portland, Bureau of Planning. Based on information from reference data sources including aerial photos, Parks and Recreation natural area assessments, and vegetation surveys along the banks of the Willamette and Columbia rivers. Vegetation patches are classified as forest, woodland, shrubland, or herbaceous. The mapping area includes all land within the City of Portland and the unincorporated parts of Multnomah County that are administered by the City of Portland. Updated through summer of 2004.

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Site WR6 - Map 4: Linnton

Riparian Resources Relative Rankings

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

INFORMATION SOURCES:

The Natural Resources Inventory Update (NRIU) is a citywide project to revise and update existing natural resource inventories (of trees, streams, wildlife habitat, etc.) in Portland. The update is part of Portland's River Renaissance Initiative to ensure that the Willamette River and its tributary watersheds are clean and healthy.

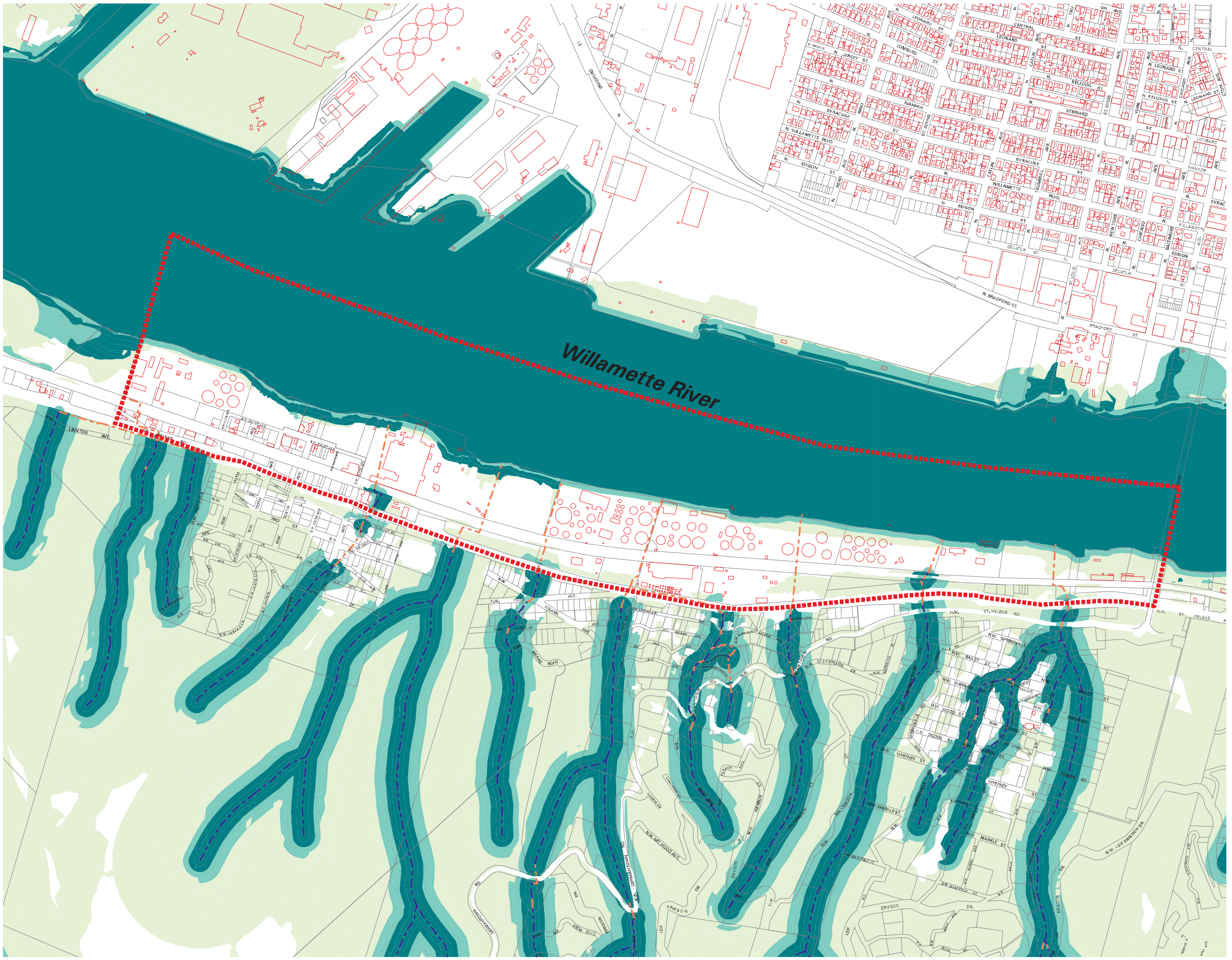
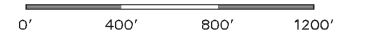
** SHA ranking supercedes lower relative values.

For more information, please visit our website:
<http://www.portlandonline.com/planning/index.cfm?c=40437>

NOTE: Portland's resource inventory is still being evaluated for accuracy and consistency and should be considered preliminary. The inventory has not yet been adopted by the City of Portland.










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Scale: 1" = 800'



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/Drainageway
-  Culvert or Piped
-  Site Boundary
-  City Boundary
-  Urban Services Boundary

INFORMATION SOURCES:

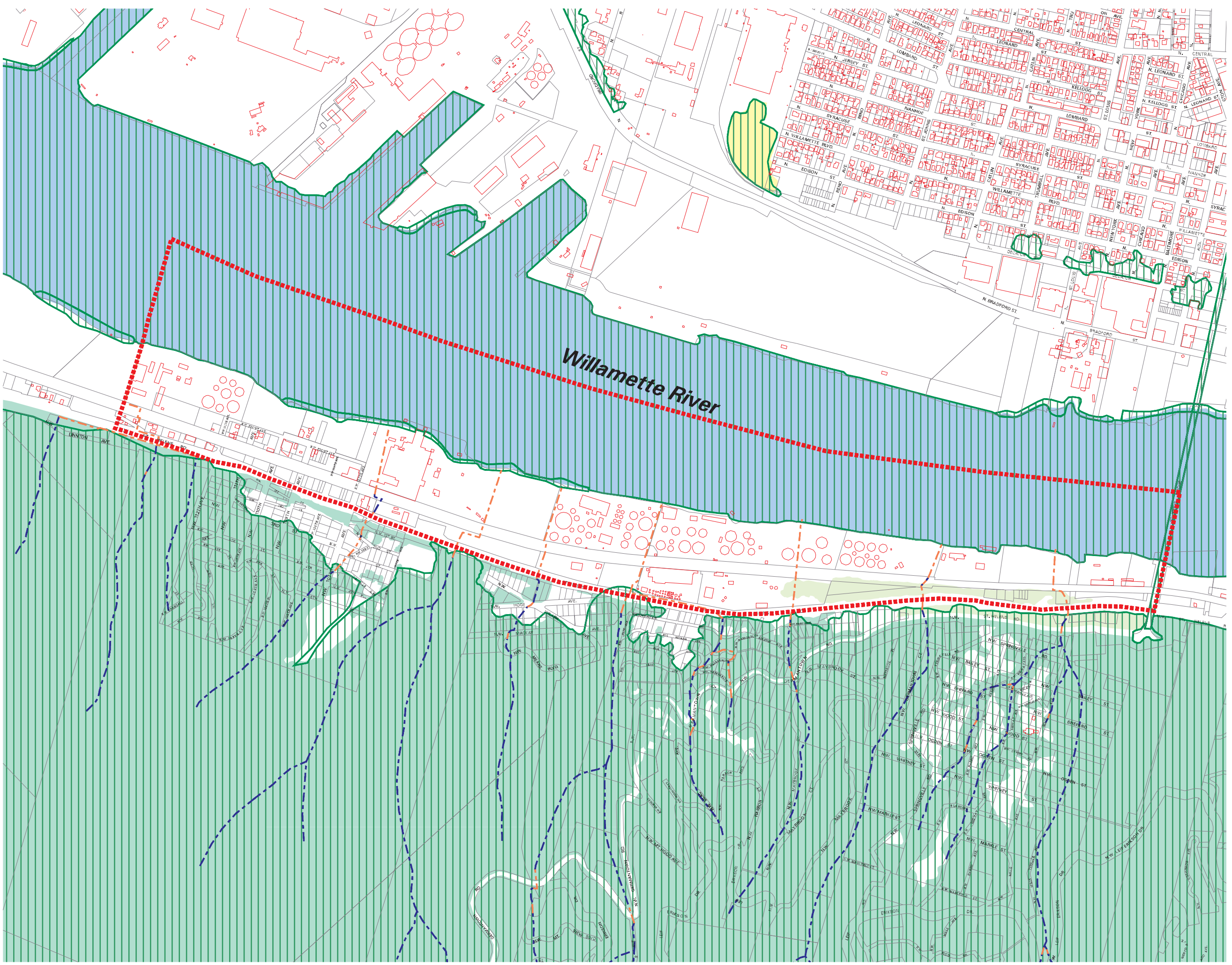
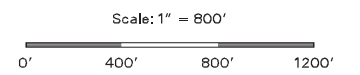
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Site WR6 - Map 6: Linnton

Combined Riparian / Wildlife Relative Rankings

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

INFORMATION SOURCES:

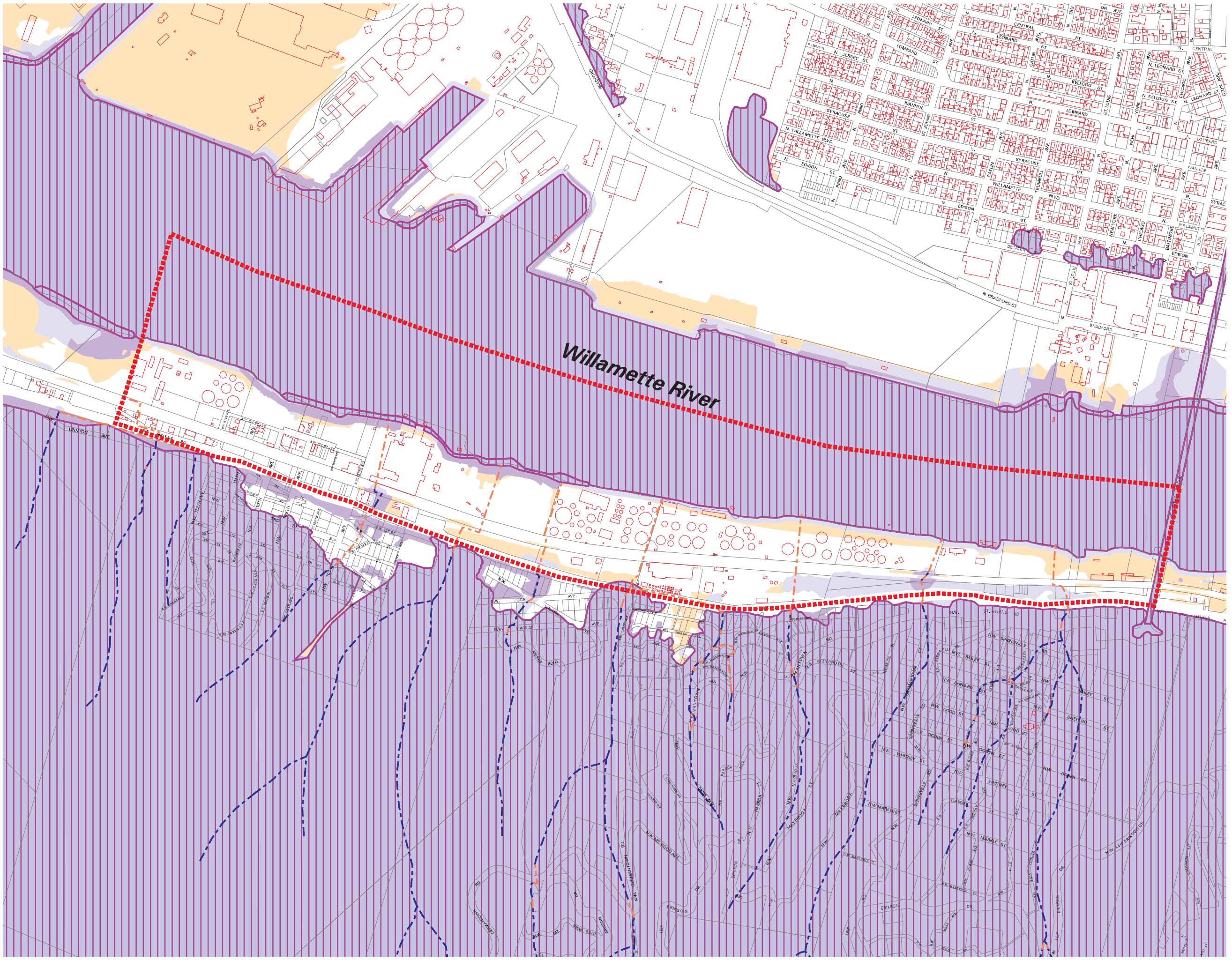
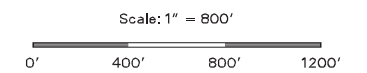
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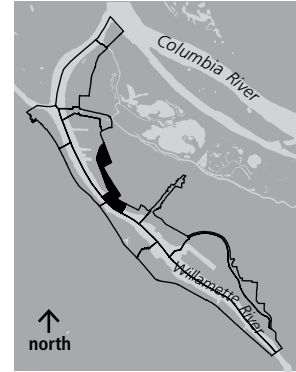
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INVENTORY SITE WR7: NORTH OAK PALISADES



SUMMARY INFORMATION

Watershed:	Willamette River Watershed
Neighborhood:	St. Johns and Cathedral Park Neighborhoods
USGS quadrangle and quarter section maps:	1N1W01, 1N1W02, 1N1W11, 1N1W12, 2N1W35, and 1820, 1920-21, 2020-21, 2120-21, 2221
River Mile:	5.4 – 6.0
Site Size:	250 acres (land and water)
Previous Inventory:	Lower Willamette River Wildlife Habitat Inventory, March 1986.
Zoning:	General Industrial (IG2) Heavy Industrial (IH) General Employment (EG1, EG2) Residential (R1, R2 and R5) Open Space (OS) River General overlay (g) River Water Quality overlay (q) River Recreational overlay (r) Scenic overlay (s)
Existing Land Use:	Industrial; commercial; residential; natural area
General Description:	The site includes bluffs containing remnant native Oregon white oak stands that connect Chimney and Pier Parks to Cathedral Park and Willamette Cove. The site provides connectivity from upland habitat to the Willamette River and along the river to Willamette Cove.
Resource Features:	Foothill savanna/oak woodland; upland forest; woodland and shrubland vegetation; riparian area; herbaceous vegetation; vegetated flood area; beach; open water.
Functional Values:	Microclimate and shade; stream flow moderation and water storage; bank stability, and sediment, pollution and nutrient control; large wood and channel dynamics; organic inputs, food web and nutrient cycling; wildlife habitat; habitat connectivity/movement corridor; migratory stopover habitat.
Special Status Species:	Wildlife: American Peregrine falcon. Fish: Lower Columbia River Chinook salmon; Lower Columbia River steelhead trout; Pacific lamprey.
Special Habitat Area:	Yes
Natural Hazards:	Landslide

SITE DESCRIPTION

The North Oak Palisades inventory site is 250 acres in size. The terrestrial part of this site is approximately 201 acres and connects Pier and Chimney Parks to Cathedral Park and the western portion of Willamette Cove. The northwest and western site boundaries follow N Bradford St from Lombard Ave to Cathedral Park. Lombard Ave, Weyerhauser Ave and Edison St. generally form the northeast boundary from the intersection of N Bradford St and Lombard Ave to Cathedral Park. WR7 Map 1 shows the aerial view of the North Oaks Palisades inventory site.



A roughly 49-acre section of the Willamette River, extending from the shore to the river centerline, is part of this site. The flood area includes 12 acres of vegetated area and 5 acres of unvegetated area. There are no wetlands within the site.

Vegetated areas at least ½ acre include approximately 6 acres of forest and tree canopy, 20 acres of woodland, 16 acres of shrubland and 16 acres of herbaceous cover. Several remnant oak woodlands exist along the bluff. The woodlands are surrounded by residential and commercial property, and the trees within the woodlands provide a buffer between the industrial and residential development.

Industrial, commercial and residential development exist within the site. The site contains 119.7 acres (47.8%) impervious surface coverage, including 5.4 miles of road. The site includes Cathedral Park and the bluffs overlooking Port of Portland Terminal 4, where the Toyota auto receiving shipyard is located. The St. Johns Bridge is part of the site, as is the City of Portland Bureau of Environmental Services (BES) Water Pollution Control Lab to the southeast of the bridge.

This site contains steep slopes, and the area above Bradford St, from St. Johns Bridge to the northwest site boundary, is within the Potential Landslide Hazard area (City of Portland, 2002). A small part of the site adjacent to the river is in the flood area (City of Portland 2007).

The Oregon Department of Environmental Quality has documented three areas of soil or sediment contamination within this site, in addition to contaminated sediments in the Willamette River. BES manages three active revegetation projects on the Cathedral Park property.

NATURAL RESOURCES DESCRIPTION

This site contains both aquatic and terrestrial resources and is an important connectivity corridor (key resource features are shown in WR7 Maps 2 and 3). Four remnant native oak woodland patches exist along Roberts Railroad Bluff, Weyerhauser, Edison and Decatur Streets. These woodlands provide habitat connectivity between Pier and Chimney Parks to the north-northeast of the Roberts Railroad Bluff and the Willamette River via Cathedral Park, and further south to the Willamette Cove inventory site.

Roberts Railroad Bluff is connected to Pier and Chimney Parks by shrubland and woodland vegetation along a railroad corridor. Portions of the railroad corridor are steeply sloped and the corridor is heavily disturbed, and there is a distinct break in connective vegetation for approximately 600 feet before reaching the Edison Street Woodland.

The four woodland areas that dominate the bluff in this resource site contain large native white oak trees, characteristic of the foothill savanna/oak woodland community type. The trees are approximately 95 to 120 years of age. A mixture of medium aged Douglas fir, bigleaf maple, black cottonwood, and Scouler willow also occur at the site. The woodland canopy is fairly open, with canopy closure from 30 to 45 percent. Bigleaf maple, black cottonwood, and Douglas fir dominate the northern section of the woodland. The open canopy has allowed an invasive and disturbance-based shrub and herbaceous understory to develop on the moderately dry and exposed ridge. The shrub understory of the woodland is largely composed of Himalayan blackberry, young holly, cultivated apple trees, Scot's broom, and trailing blackberry. The herbaceous understory contains a non-native-dominated mixture of reed canarygrass, fowl mannagrass, western sword fern, tansy ragwort, clematis, English ivy, vetch, Canada thistle, and bedstraw.

The understory throughout the woodland contains large areas of disturbance, including many intersecting areas of severely compacted and eroding dirt trails, debris piles, and small excavated pits which contained surface water at the time of the surveys. A few snags are located within the woodland, and the majority of large mature white oak trees are within 100 feet of the edge of the bluff. The edge of the bluff is densely carpeted with English ivy that is suppressing most other vegetation on this west-facing exposed shelf.

Several large and fairly mature white oak trees are located along the western perimeter of the site. These trees are an unusual and rare vegetative component within the area. These woodlands are one of the only sources of local cover for bird or small mammal species that use the area. Acorns and oak galls, as well as insects found on trees, are a good food source, while tree cavities in the oak provide nesting habitat for birds such as swallows, wrens, and great horned owls. The oak woodlands and bluffs are connected to the Willamette River through Cathedral Park and to Willamette Cove via a nearly continuous stretch of natural and semi-natural banks and beach.

Steep slopes along Decatur Street separate the residential from industrial development. The industrial development below the steep slopes consists of a very large paved area that reduces habitat connections to the Willamette River, except at Cathedral Park. The large area of pavement can also form an island of reflected heat, which can scorch vegetation and prevent many species from utilizing surrounding habitat areas. Noise from terminal activities can also disturb wildlife.

To the south of the industrial area, Cathedral Park contains large trees and managed herbaceous vegetation. Although maintained as an active park, this is a unique connectivity corridor. The natural beach at Cathedral Park contains some riprap and driftwood, and grades into a planted lawn. The near shore substrate is silt with some sand and clay and provides some shallow water habitat. The bank consists of rocks with driftwood and small amounts of debris.

South of Cathedral Park, native plantings of Pacific willow and black cottonwoods line a primarily sand beach and rock bank, with driftwood and small amounts of debris. To the south the beach becomes heavily littered with debris and rubble juxtaposed with well-established groupings of Pacific willow, and grades into a relatively steep bank vegetated with reed canarygrass, Himalayan blackberry, and English ivy.

A narrow corridor of mixed bottomland forest exists south of the BES lab. The debris becomes sparse and the beach becomes narrower near Willamette Cove, where more riprap and a narrow shoulder of sandy beach grade into the steep bank cut. The forest continues south to the north end of Willamette Cove. The forest is dominated by young black cottonwood trees and contains some non-native tree species, including Lombardy poplar, catalpa and holly. Cherry and birch also occur, although infrequently. Himalayan blackberry and clematis dominate the understory and

are suppressing most other plant species other than sword fern. Exotic English ivy is also carpeting the understory and topping the crowns of many trees.

Wildlife use within this site is limited, due to the relatively small size of the woodlands and the disturbed nature of the understory. Bird species observed included dark-eyed junco, song and house sparrows, starlings, American robin, and golden-crowned kinglet. Several raccoon tracks and mole holes were also found on the site. It is likely that raptors such as red-tailed hawks may hunt this site while utilizing the updrafts of warm air that form along the bluff face. In addition, the man-made structure of St. Johns Bridge provides a unique nesting habitat for American Peregrine Falcon which is listed as an endangered species in Oregon and is a priority wildlife species in the city of Portland.

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 value ranks for riparian function, wildlife habitat and riparian/wildlife habitat areas combined (Table 11). The relative ranks are produced using GIS models and information on Special Habitat Areas. All of the ranked resource areas provide at least some important riparian and 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. The approach used to generate the relative rankings is summarized in the introduction to the North Reach sites. Additional detail is provided in the Methodology Overview section of this report and the *City of Portland Natural Resource Inventory Update Project Report, 2007*.

Riparian Areas

The site contains portions of the Willamette River and vegetated flood area that contribute to the riparian functions as detailed in the natural resource description. These landscape features provide the following riparian functions:

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

High relative functional ranks are assigned to the Willamette River and flood area covered with woodland and shrubland vegetation. Medium relative ranks are assigned to portions of the flood areas covered with herbaceous vegetation and other areas within 50 feet of the river. Low relative ranks are assigned to remaining portions of flood area that are not vegetated. Other riparian resource areas in this site are assigned a medium rank (Map 4).

Wildlife Habitat

The primary wildlife habitat feature in this site is remnant white oak woodland. Based on the wildlife habitat attributes mentioned in the previous section (size, interior area, connectivity/proximity to other patches and water), the wildlife habitat model assigns a low relative rank to the forest patch in this site

Due to the presence of native oak stands and other vegetation assemblages that are rare, declining, and/or not commonly found in the area, this inventory site also contains seven Special Habitat Areas (SHAs): Roberts Railroad Bluff, Weyerhauser Avenue Woodlands, Edison Street Woodlands, and Decatur Bluff Woodlands, the east portion of the St. Johns Bridge, Willamette Beach, and a portion of Willamette Cove Bottomland.

The Roberts Railroad Bluff SHA contains a forest comprised of Ponderosa pine, native Oregon white oak and Pacific madrone with poison oak understory. The Weyerhauser Avenue Woodlands SHA contains native oak woodland, and foothill savanna habitats. The Edison Street Woodlands SHA contains native oak woodland, oak palisades and foothill savanna habitats. The woodland provides habitat connectivity between Pier and Chimney Park and Cathedral Park. The Decatur Bluff SHA also contains native oak woodland, oak palisades and foothill savanna habitats. These four SHAs are part of an approximately seven-mile corridor of remnant oak bluffs that extend from Pier and Chimney Park to Cathedral Park, Willamette Cove and Willamette Bluff.

The Willamette Beach SHA accumulates large wood and provides habitat to juvenile salmonids (ODFW, 2005). The Willamette Cove Bottomland SHA within this site contains a narrow riparian forest that extends into the Willamette Cove inventory site. The SHA contains bottomland hardwood forest, native oaks, and meadow habitat.

The St. Johns Bridge SHA provides nesting sites for American Peregrine falcon, which is listed as endangered in Oregon and is a priority wildlife species in the city of Portland. The Willamette River is a designated Special Habitat Area, reflecting its federal designation as "Critical Habitat" for salmonids species that are 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. 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 (WR7 Map 5).






Combined Relative Riparian/Wildlife Habitat Ranking

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 (Map 6.)

Table 11: Summary of Ranked Resource in WR7: North Oak Palisades				
Total Inventory Site Area = 250 acres				
Terrestrial* = 201 acres				
Willamette River = 49 acres				
	High	Medium	Low	Total
Riparian Resources **				
acres	55	8	3	66
percent total inventory site area	22%	3%	1%	26%
Special Habitat Area **				
acres	67			
percent total inventory site area	27%			
Wildlife Habitat **				
acres	67	0	<1	67
percent total inventory site area	27%	0%	<1%	27%
Combined Total ***				
acres	71	6	4	81
percent total inventory site area	29%	2%	2%	33%
Combined Terrestrial (excludes Willamette River)				
acres	22	6	4	32
percent total inventory site area	9%	2%	2%	13%
* Terrestrial includes the land, tributary streams, drainageways and wetlands.				
** High-ranked riparian resources, Special Habit Areas, and wildlife habitat includes the Willamette River.				
*** Because riparian resources, Special Habitat Areas, and wildlife habitat overlap, the results cannot be added together to determine the combined results.				

Site WR7 - Map 1: North Oak Palisades/ Cathedral Park

2005 Aerial Photography

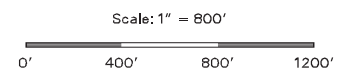
-  Stream/Drainageway
-  Culvert or Piped
-  Site Boundary
-  City Boundary
-  Urban Services Boundary



INFORMATION SOURCES:

Aerial Orthophotographs:
Digital Orthophotography from flight in July 2005.
Photography has been rectified to adjust for curvature
of the earth. Not registered to taxlot base map.





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Site WR7 - Map 2: North Oak Palisades/ Cathedral Park Water-Related Features







Water Bodies

River Depths

-  0 to -20'
-  -20 to -30'
-  -30 to -40'
-  deeper than 40'

-  Stream/Drainageway
-  Culvert or Piped

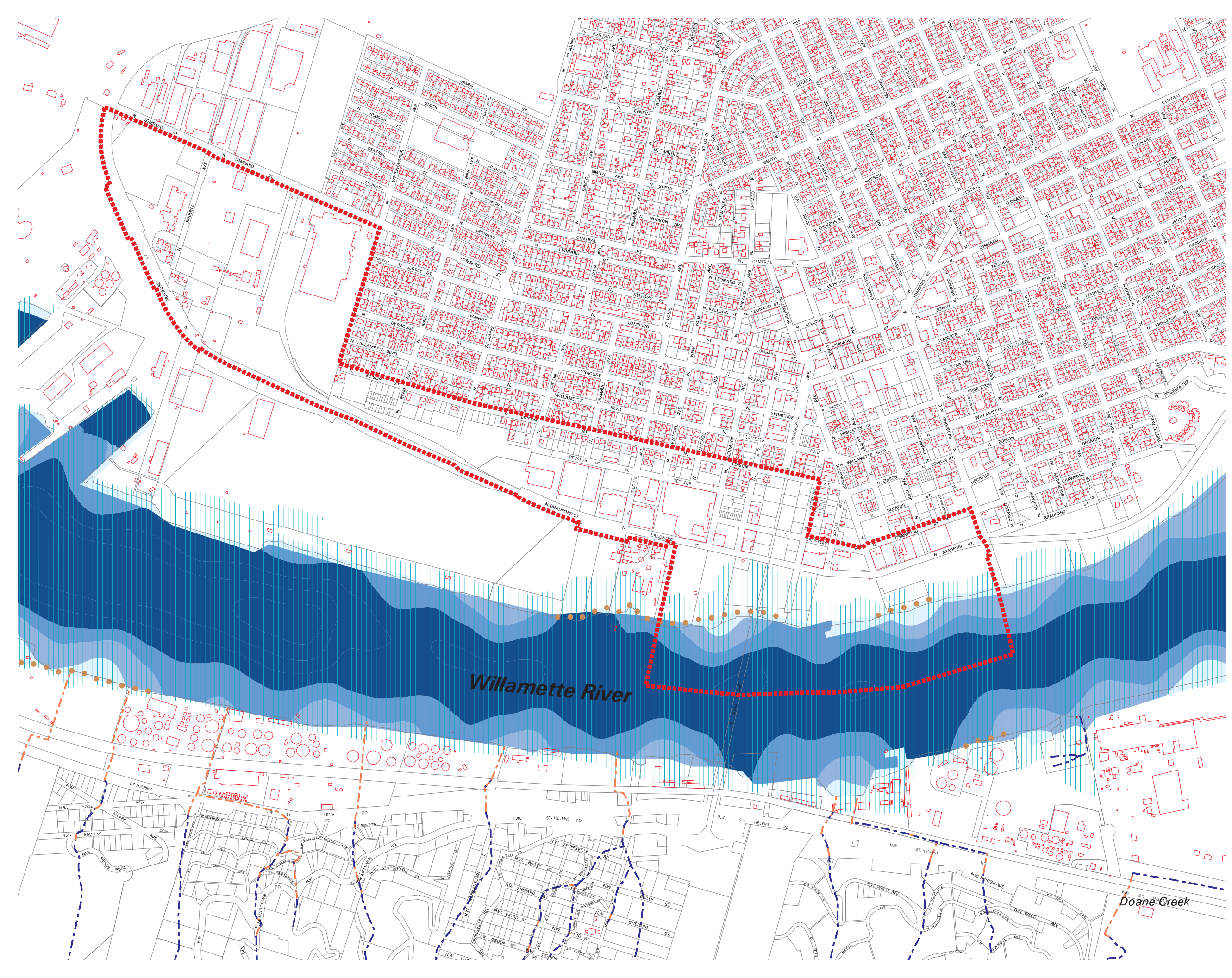
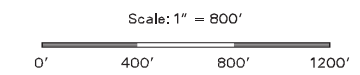
Other Features

-  Flood Area
-  Wetlands
-  Beach
-  Site Boundary
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INFORMATION SOURCES:

Water Bodies:
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DRAFT

June 07, 2007

Site WR7 - Map 3: North Oak Palisades/ Cathedral Park

Vegetation Features

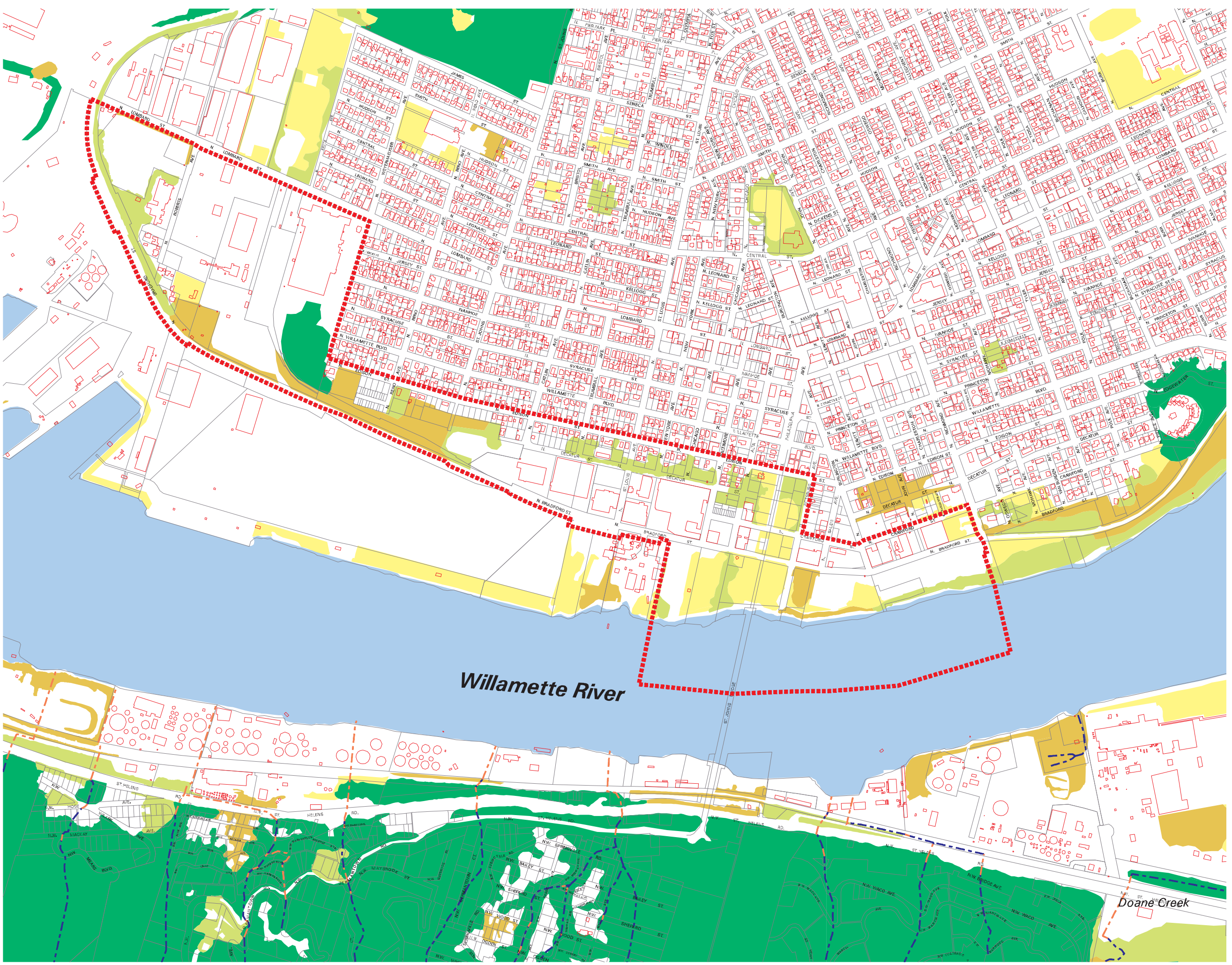
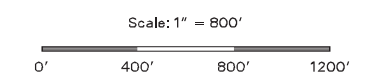
Vegetation Types

-  Forest
-  Woodland
-  Shrubland
-  Herbaceous
-  Stream/Drainageway
-  Culvert or Piped
-  Site Boundary
-  City Boundary
-  Urban Services Boundary

INFORMATION SOURCES:









Vegetation patches:
Vegetation patches larger than 1/2 acre mapped by the City of Portland, Bureau of Planning. Based on information from reference data sources including aerial photos, Parks and Recreation natural area assessments, and vegetation surveys along the banks of the Willamette and Columbia rivers. Vegetation patches are classified as forest, woodland, shrubland, or herbaceous. The mapping area includes all land within the City of Portland and the unincorporated parts of Multnomah County that are administered by the City of Portland. Updated through summer of 2004.

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Site WR7 - Map 4: North Oak Palisades/ Cathedral Park

Riparian Resources Relative Rankings

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

INFORMATION SOURCES:

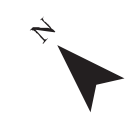
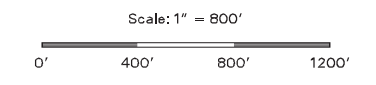
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





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Site WR7 - Map 5: North Oak Palisades/ Cathedral Park

Wildlife Habitat Relative Rankings

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

INFORMATION SOURCES:

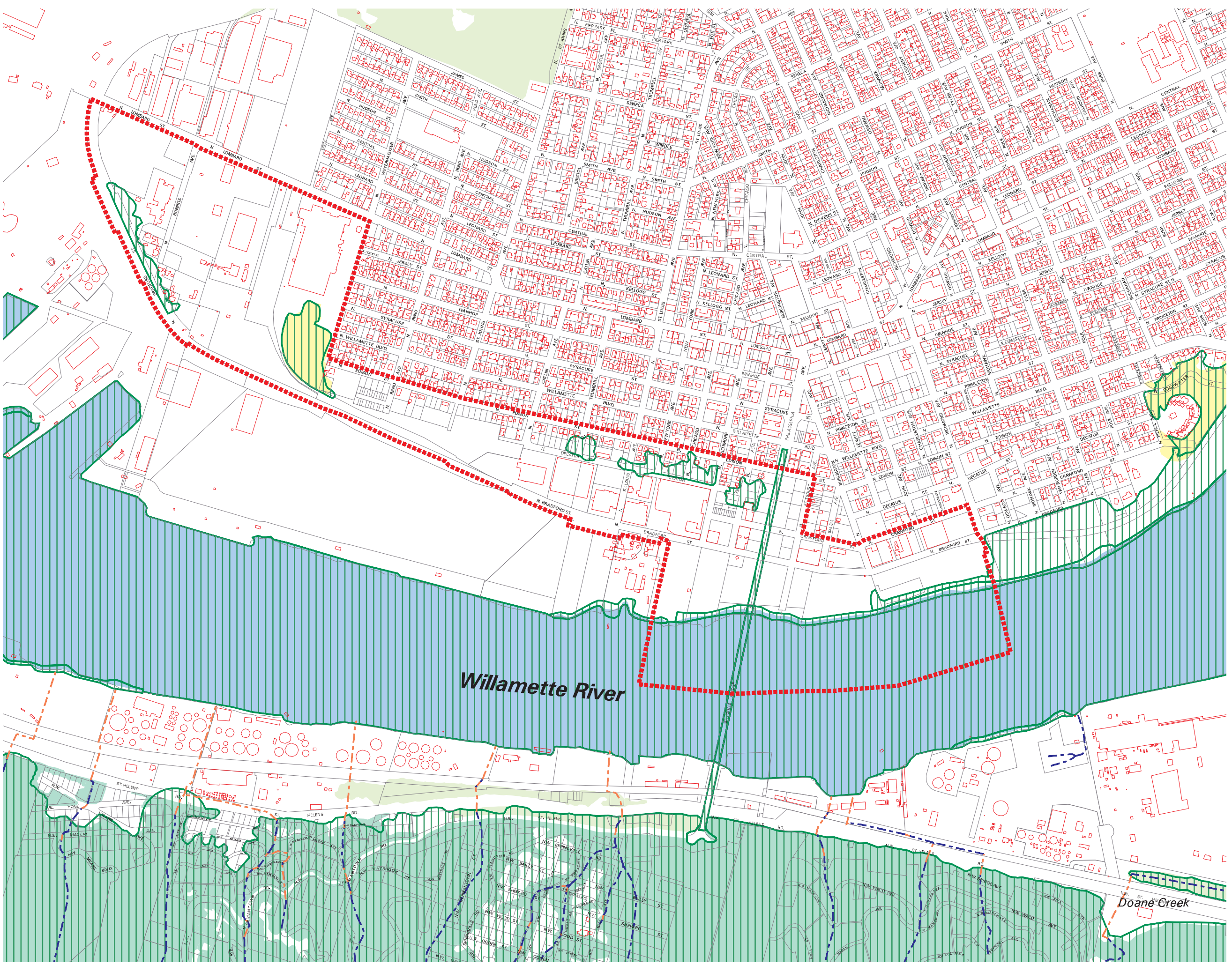
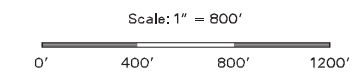
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Site WR7 - Map 6: North Oak Palisades/ Cathedral Park

Combined Riparian / Wildlife Relative Rankings

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

INFORMATION SOURCES:

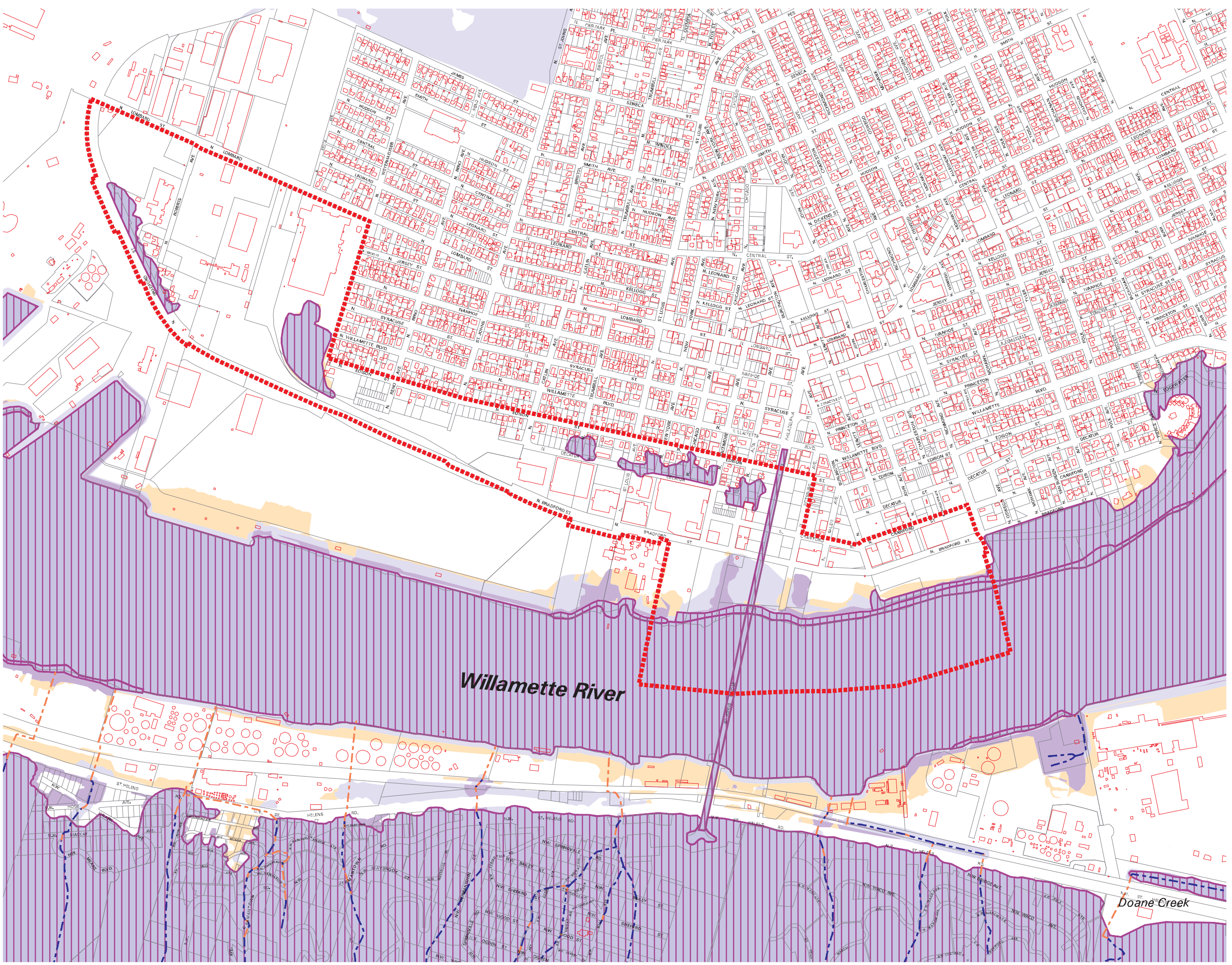
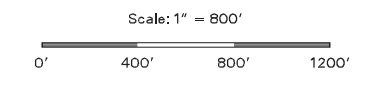
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** SHA ranking supercedes lower relative values.

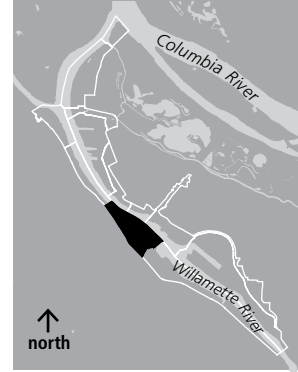
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INVENTORY SITE WR8: DOANE LAKE



SUMMARY INFORMATION

Watershed:	Willamette River Watershed
Neighborhood:	Northwest Industrial Neighborhood
USGS quadrangle, quarter section maps:	1N1W11, 1N1W12, 1N1W13, 1N1W18 and 2120-21, 2220-22, 2321-23, 2421-23
River Mile:	5.5 – 7.1
Site Size:	481 acres (land and water)
Previous Inventory:	Lower Willamette River Wildlife Habitat Inventory, March 1986; Northwest Hills Natural Areas Protection Plan, July 1991
Zoning:	Heavy Industrial (IH). Environmental Protection overlay (p) Environmental Conservation overlay (c) River Industrial overlay (i) River Natural (n) River Water quality (q) Scenic overlay (s)
Existing Land Use:	Industrial; undeveloped area; railroad
Landscape Setting:	The site provides an important connection between Forest Park and the Willamette River. The site contains wetlands and contaminated soils, including within the open channels along Doane Lake.
Resource Types:	Bottomland forest; upland scrub/shrub; wetland scrub/shrub; grassland; emergent wetland; beach; open water.
Functional Values:	Microclimate and shade; stream flow moderation and water storage; bank stability, and sediment, pollution and nutrient control; large wood and channel dynamics; organic inputs, food web and nutrient cycling; wildlife habitat; habitat connectivity/movement corridor; migratory bird stopover habitat
Special Status Species:	Wildlife: Red-legged frogs. Fish: Lower Columbia River Chinook salmon; Lower Columbia Coho salmon; Lower Columbia River steelhead trout, Pacific lamprey.
Special Habitat Area:	Yes
Natural Hazards:	Landslide, flood area

SITE DESCRIPTION

This 481-acre inventory site is located on the west bank of the Willamette River, extending from the St. Johns Bridge at the northwest end to NW 61st Avenue and the southeastern boundary of the Schnitzer property at the southeastern end of the site. The Burlington Northern Railroad Bridge is located approximately in the middle of the site.

The inventory site has approximately 8,600 feet of shoreline along the Willamette, and provides an important link between Forest Park to the west and the river to the east. WR8 Map 1 shows the aerial view of the Doane Lake inventory site.

Most of this site is developed with industrial uses. The site contains 157.4 acres (32.7%) impervious surface coverage, including 3.7 miles of road. The site contains a vegetated area around the Burlington Northern railroad bridge, two open channels coming from Forest Park, and Doane Lake, which is a 7-acre open-water wetland or pond.

Vegetated areas greater than ½ acre in size include 15 acres of forest and tree canopy, 2 acres of woodland, 25 acres of shrubland and 74 acres of herbaceous cover. Roughly 11 acres of the flood area is vegetated, while about 13 acres of flood area is developed with industrial uses.

There are a mix of bank types including beach, vegetated riprap, non-vegetated riprap, seawall and unclassified fill.

This site contains contaminated soils, groundwater and river sediments, resulting from industrial uses. Portions of the site are within the Potential Landslide Hazard area (City of Portland, 2002), and the flood area (City of Portland 2007).



NATURAL RESOURCES DESCRIPTION

Aquatic and terrestrial resources within the site are primarily located along the bank of the Willamette River and in the vicinity of Doane Lake (key resource features are shown in (WR8 Maps 2 and 3). The banks of the Willamette River are within flood area, and are generally vegetated with shrubland or herbaceous cover. Bottomland forest exists around the railroad bridge, and extends approximately 700 feet south of the bridge. The banks are characterized primarily by beach and non-vegetated riprap, as well as vegetated riprap, seawall and unclassified fill.

Doane Lake, Doane Creek, and an unnamed creek are part of the habitat corridor extending down from Forest Park to the Willamette River. Doane Creek flows in two open channel segments north of Doane Lake: a 1,000-foot wetland channel on the west side of the rail line, and a narrow 1600-foot channel on the east side of the rail line. Between these two sections, and east of the second section, Doane Creek is piped.

The Doane Lake area is a low lying wetland complex located due west of the railroad bridge, and is bounded on all sides by 25-foot railroad embankments. Doane Lake is fed by an unnamed seasonal stream which originates in Forest Park and crosses under St. Helens Road in culverts. The complex includes approximately 20 acres of forested, scrub/shrub, and emergent wetland, and open water. Doane Lake was historically much larger (about 80 acres), and the remainder of the lake is located south of the current lake.

The Doane Lake forested wetland is diverse, multi-layered, has a closed canopy of 90 percent, and consists of black cottonwood, Oregon ash, Pacific willow, cherry, red alder, and black hawthorn. Downed wood and snags are abundant. Scrub-shrub wetlands are transitional habitats that often occupy former wet-prairie areas associated with freshwater wetland depressions and alluvial and riparian bottomlands. These willow shrub thickets provide insectivorous species such as warblers, flycatchers and swallows food, cover, and nesting habitat. Small mammals and snakes are commonly found within emergent wetlands, which in turn attract coyotes and raptors such as northern harriers, red tail hawks and owls, which feed upon small mammals and snakes. The wetlands provide breeding habitat for red-legged frogs.

The area between St. Johns Bridge and the railroad bridge is heavily developed. Natural resources here include shrubland and herbaceous vegetation along the bank and remnant forest along Highway 30. There is a small open channel that extends inland from the Willamette River, surrounded by shrubland vegetation. The channel is contaminated from historic industrial land uses. Steep slopes can be found around the railroad tracks as well as along the river.

The vegetation and open channels within the railroad corridor provide important habitat connectivity between Forest Park and the Willamette River. The railroad corridor is approximately 150 feet wide and is separated from the beach area by NW Front Avenue. This corridor is a migration route for large mammals such as deer and bobcats from Forest Park, and is bounded on the south side by a 25-foot berm on which the railroad is located. The berm is vegetated primarily with Bigleaf maples and Himalayan blackberry, and the corridor is bordered by blackberry and Scot's broom. The majority of the corridor is an open grassland area, dominated by invasive grass species including reed canarygrass, timothy, foxtail, witchgrass, and orchard grass. The grassland area appears to be maintained to some degree by the railroad. Approximately 100 yards to the north of Doane Lake, at the west end of the railroad corridor, the perennial Doane Creek passes through a north-south oriented stream channel covered by a gallery of 20 to 30-year old red alder trees. Himalayan blackberry and English ivy dominate the understory.

Three beach areas exist at this site. The first beach is approximately 1,100 feet long. This beach is in the northern half of the site and is located northeast (riverward) of the Northwest Natural Gas Co. The second beach on the site begins at the railroad and extends south approximately 1,400 feet. South of the second beach is the third beach. The third beach extends 1,300 feet to the end of this site and continues into site 2.4 Northwest Industrial for 1,000 feet. The near shore substrate here is primarily sand and there is some shallow habitat (ODFW, 2005). The banks between the two beaches are unclassified fill.

The beach south of the railroad is approximately 125 feet wide at its widest point, and contains an expanse of unvegetated sand that abruptly grades into an early successional disturbance-based herbaceous community above the ordinary high water mark. Vegetation includes annual and perennial herbs and grasses closer to the river, and young to moderately-aged trees and shrubs closer to Front Avenue. The herbaceous species include

reed canarygrass, fowl mannagrass, yarrow, common horsetail, nightshade, ladythumb, creeping bentgrass, western yellowcress, and marsh cudweed. Small amounts of driftwood and pieces of rubble were incorporated into the herbaceous stratum. The tree stratum is limited to a narrow band, primarily on an elevated bankcut. This fragmented forest corridor extends south to the Saltzman Creek outlet. A wide variety of trees are present within a small area, most within 20 to 40 years of age. Tree species included black cottonwood, bigleaf maple, black hawthorn, Oregon ash, red alder, cherry, and Pacific willow. Active beaver sign was recorded on two large cottonwood trees in this area. A dense shrub stratum extends about 20 feet riverward from the trees, and includes Himalayan blackberry, red elderberry, Scot's broom, and Scouler's willow.

Numerous wildlife species were observed within this site during the winter/spring 2000 field investigations, including herons, beaver, and deer. The complex and varied habitats that are present here provide natural habitat and cover for birds and small mammals. A large variety of birds were observed including great blue heron, double-crested cormorant, dark eyed junco, scrub jay, rufous-sided towhee, hooded merganser, American coot, red-winged blackbird, Bewicks wren, Townsend's warbler, white-breasted nuthatch, varied thrush, mourning dove, American goldfinch, fox and song sparrow, and golden-crowned kinglet. Active beaver use was noted in several places within the site, and signs of small mammal use including pocket gopher, raccoon, and nutria were noted. Signs of deer were also noted. An actively breeding population of red-legged frogs occurs in Doane Lake, and it is likely that several other species of reptiles and amphibians occur in the site, including garter snakes and northwestern salamanders, which commonly feed on red-legged frogs at various life stages.

There are relatively few linkages between natural areas within the site. Railroad corridors are very prominent within the site and border most of the natural areas, causing fragmentation and creating difficulties for migrating large and small mammals, as well as producing travel barriers for amphibians and reptiles. The combination of railroad embankments and roads (including NW St. Helens and NW Front) produces a dangerous passage for many terrestrial species inhabiting Forest Park that access Doane Lake and the Willamette River. Additional concerns include the large former Doane Lake area immediately south of the current Doane Lake, which was part of the Gould, Inc. former Superfund site, delisted in 2002. Contamination within the soil may be spreading to the Doane Lake area or the Saltzman Creek area by passive groundwater flow.

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 value ranks for riparian function, wildlife habitat and riparian/wildlife habitat areas combined (Table 12). The relative ranks are produced using GIS models and information on Special Habitat Areas. All of the ranked resource areas provide at least some important riparian and 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. 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 the *City of Portland Natural Resource Inventory Update Project Report, 2007*.

Riparian Areas

The site contains portions of the Willamette River, vegetated flood area, and wetlands and other vegetation that contributes to the riparian functions as detailed in the natural resource description. These landscape features provide the following riparian functions:

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

High relative ranks are assigned to the Willamette River, the vegetated wetlands, and forest, woodland, and shrubland within the flood area. Medium relative ranks are assigned to portions of the flood areas with herbaceous vegetation and other areas within 50 of the Willamette River. Low relative ranks are assigned to remaining portions of flood area that are not vegetated. Other vegetated areas were assigned a high, medium, or low relative rank depending on the proximity and extent of the vegetation relative to the Willamette River, streams, or wetlands (WR8 Map 4).

Wildlife Habitat

The site contains wetland and stream features with surrounding vegetation that contribute to wildlife habitat function. Open water areas, including streams and lakes, provide important and necessary habitat for fish, aquatic invertebrates, reptiles, amphibians and water dependent mammals

Based on the wildlife habitat attributes mentioned in the previous section (size, interior area, connectivity/proximity to other patches and water), the wildlife habitat model assigned medium relative rank to forest/woodland patch including the forested wetland and stream features within the patch.

However, six Special Habitat Areas (SHAs) have been designated within the site: Doane Lake, three beaches, the Burlington Northern railroad bridge and the Willamette River.

The Doane Lake SHA contains approximately eight acres of shallow open-water surrounded by four acres of forested wetland, scrub-shrub wetland, and emergent wetland between railroad berms. The scrub-shrub wetland provides insectivorous species such as warblers, flycatchers and swallows with food, cover, and nesting habitat. Small mammals and snakes are found within emergent wetlands and are a food sources for coyotes and raptors such as northern harriers, red tail hawks and owls. The wetlands provide breeding habitat for red-legged frogs.

Three Willamette Beach SHAs which provide shallow near-shore habitat for salmonids (ODFW, 2005). The Willamette River is a designated Special Habitat Area, reflecting its federal designation as "Critical Habitat" for salmonids species that are listed as threatened under the Endangered Species Act.

The Burlington Northern railroad bridge SHA provides nesting habitat for American Peregrine falcons.

The Doane Lake, Willamette Beach and Burlington Railroad Bridge SHAs contain unique features and provide critical wildlife habitat as described in the natural resources description. 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 (WR8 Map 5).

Combined Relative Riparian/Wildlife Habitat Ranking

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 (WR8 Map 6).

Table 12: Summary of Ranked Resource in WR8: Doane Lake

Total Inventory Site Area = 481 acres
Terrestrial* = 322 acres
Willamette River = 159 acres

	High	Medium	Low	Total
Riparian Resources **				
acres	195	23	44	262
percent total inventory site area	40%	5%	9%	54%
Special Habitat Area **				
acres	210			
percent total inventory site area	44%			
Wildlife Habitat **				
acres	210	3	0	213
percent total inventory site area	44%	<1%	0%	44%
Combined Total ***				
acres	223	18	34	275
percent total inventory site area	46%	4%	7%	57%
Combined Terrestrial (excludes Willamette River)				
acres	63	18	34	115
percent total inventory site area	13%	4%	7%	24%






* Terrestrial includes the land, tributary streams, drainageways and wetlands.
 ** High-ranked riparian resources, Special Habit Areas, and wildlife habitat includes the Willamette River.
 *** Because riparian resources, Special Habitat Areas, and wildlife habitat overlap, the results cannot be added together to determine the combined results.

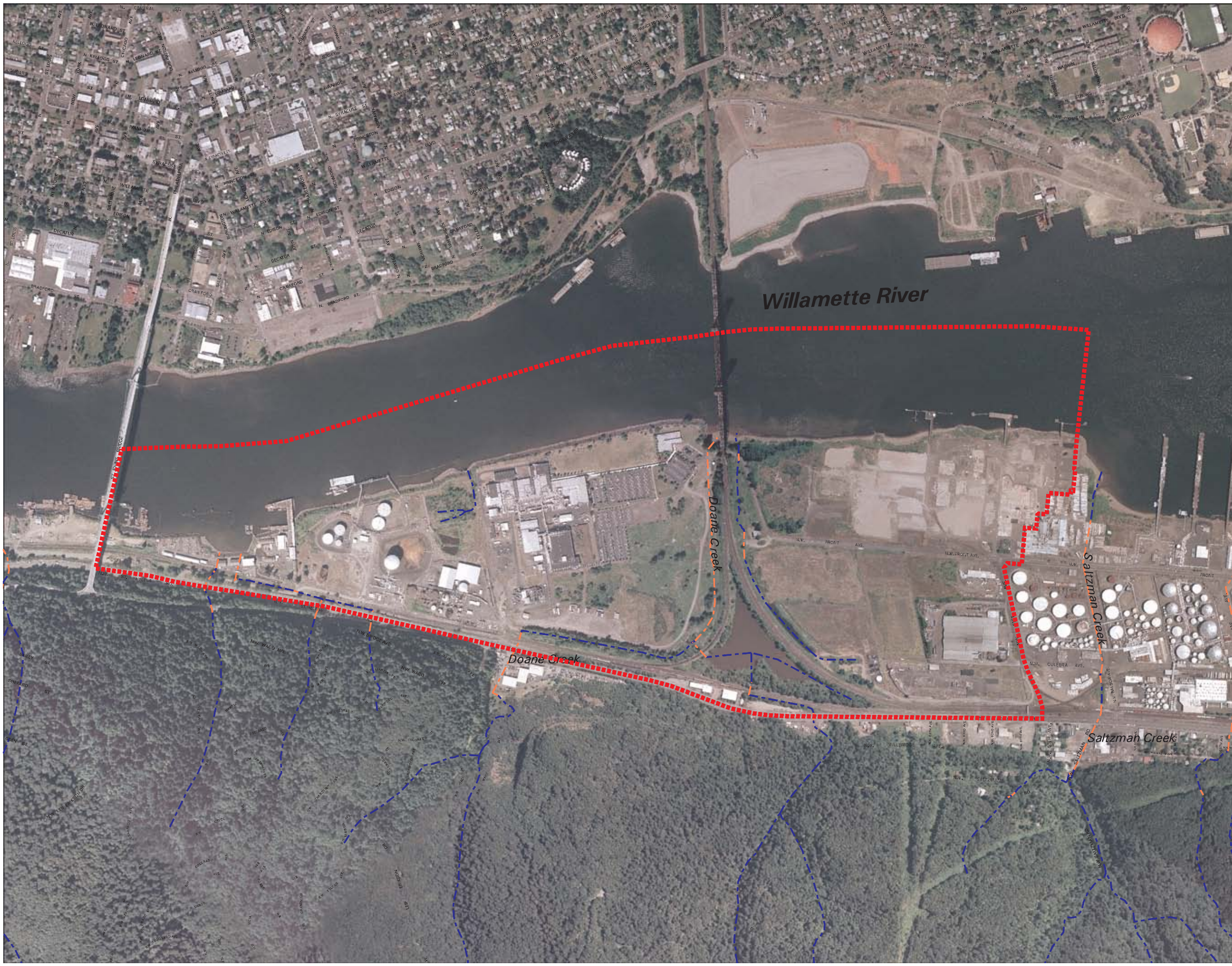
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Site WR8 - Map 1: Doane Lake

2005 Aerial Photography

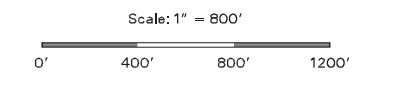
-  Stream/Drainageway
-  Culvert or Piped
-  Site Boundary
-  City Boundary
-  Urban Services Boundary



INFORMATION SOURCES:

Aerial Orthophotographs:
Digital Orthophotography from flight in July 2005.
Photography has been rectified to adjust for curvature
of the earth. Not registered to taxlot base map.

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For more detail, please refer to the source materials or
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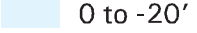
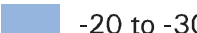

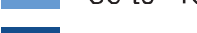




Site WR8 - Map 2: Doane Lake

Water-Related Features







Water Bodies

River Depths

-  0 to -20'
-  -20 to -30'
-  -30 to -40'
-  deeper than 40'

-  Stream/Drainageway
-  Culvert or Piped

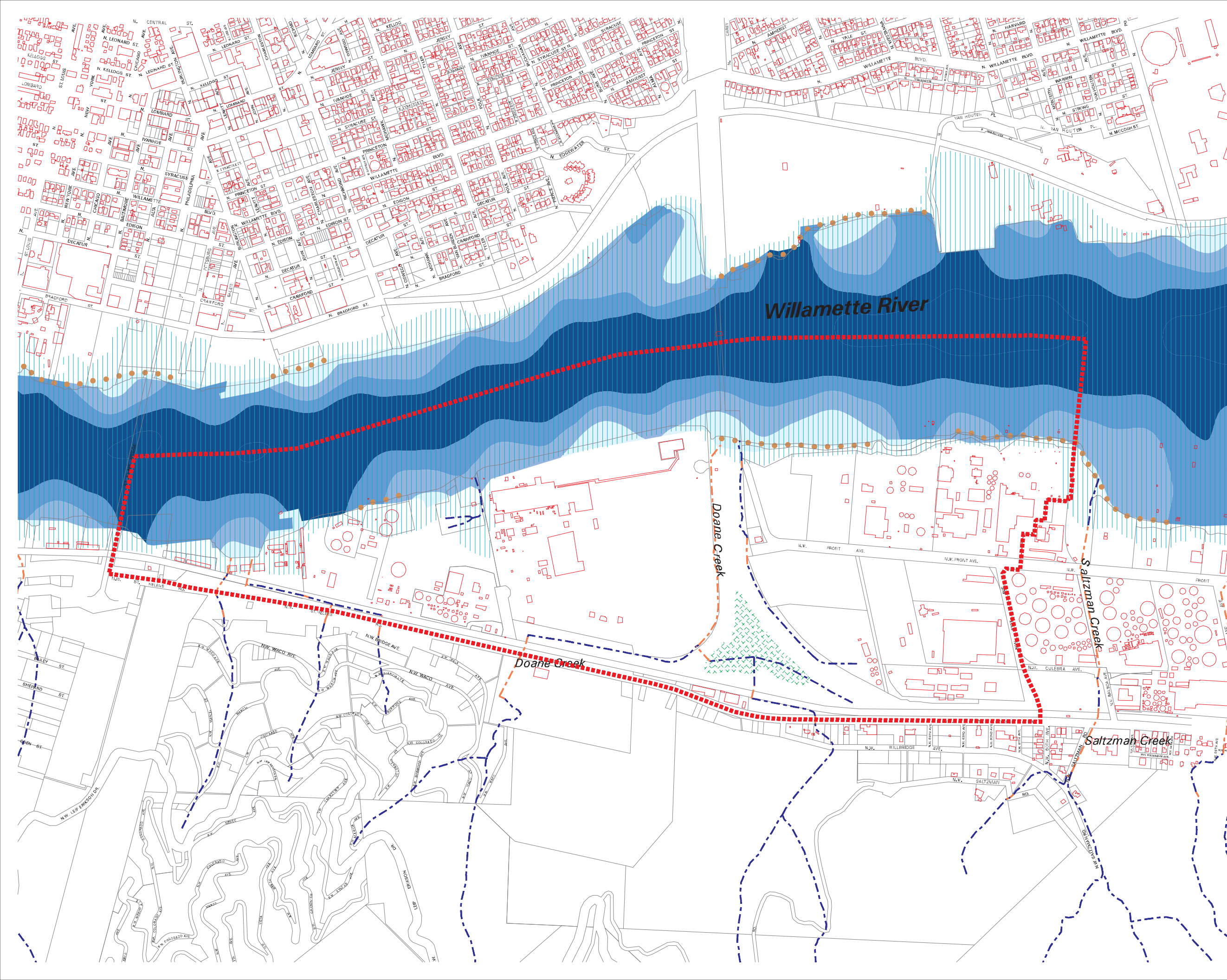
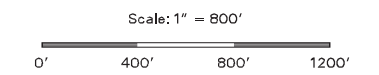
Other Features

-  Flood Area
-  Wetlands
-  Beach
-  Site Boundary
-  City Boundary
-  Urban Services Boundary

INFORMATION SOURCES:

Water Bodies:
Rivers, lakes and other water features. Originally digitized by Metro (1994). Data collection scale: 1:100' - 1:400'. City of Portland and Multnomah County pockets updated by City of Portland, Bureau of Planning, to refine waterbody geometry, remove erroneously mapped waterbodies, and add missing waterbodies. Aerial photos were the primary data source used as reference for re-mapping waterbodies. This is an interim dataset reflecting all work completed to date.

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Site WR8 - Map 3: Doane Lake

Vegetation Features

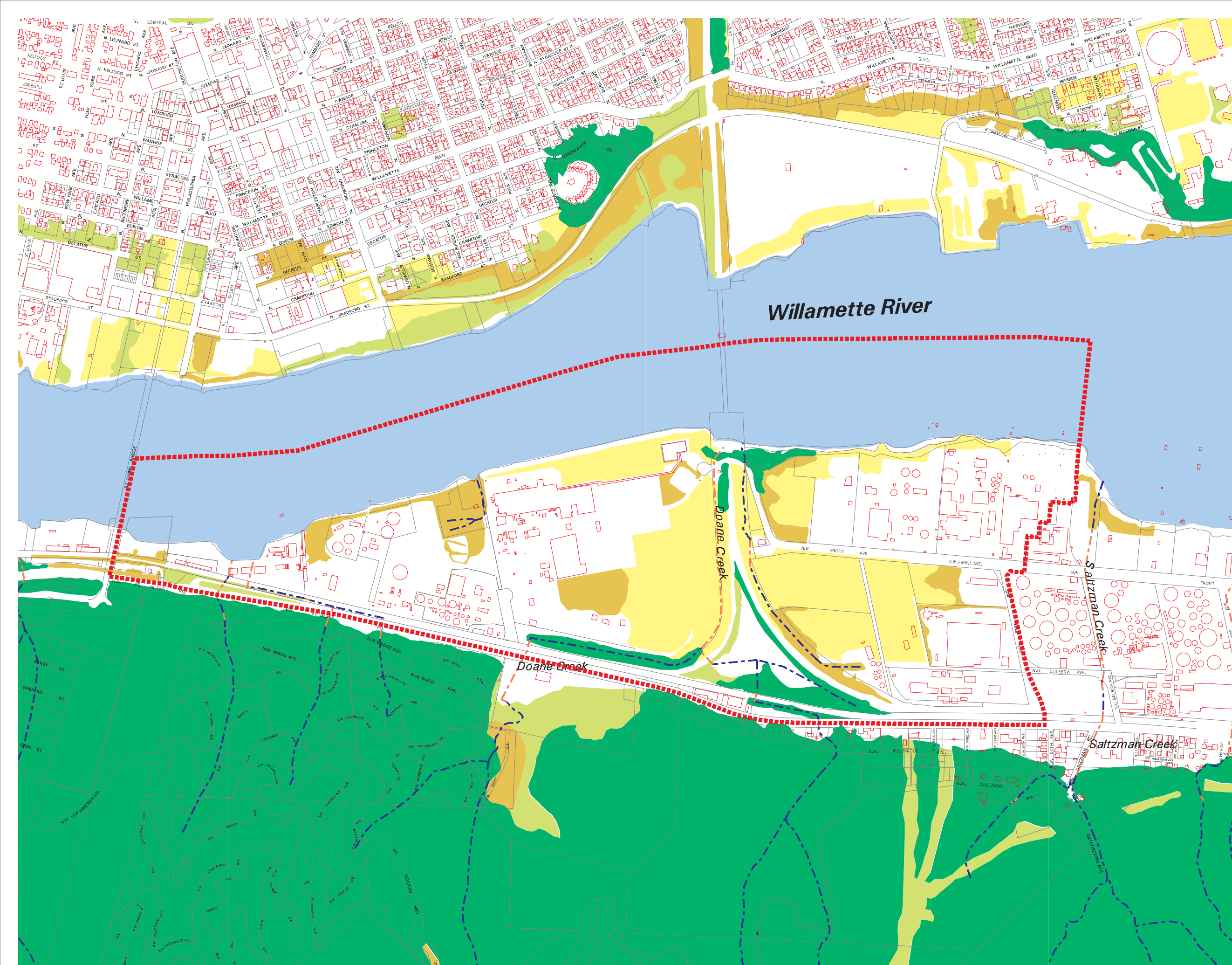
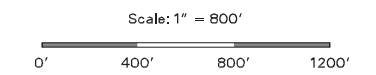
Vegetation Types

-  Forest
-  Woodland
-  Shrubland
-  Herbaceous
-  Stream/Drainageway
-  Culvert or Piped
-  Site Boundary
-  City Boundary
-  Urban Services Boundary

INFORMATION SOURCES:

Vegetation patches:
Vegetation patches larger than 1/2 acre mapped by the City of Portland, Bureau of Planning. Based on information from reference data sources including aerial photos, Parks and Recreation natural area assessments, and vegetation surveys along the banks of the Willamette and Columbia rivers. Vegetation patches are classified as forest, woodland, shrubland, or herbaceous. The mapping area includes all land within the City of Portland and the unincorporated parts of Multnomah County that are administered by the City of Portland. Updated through summer of 2004.

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Site WR8 - Map 4: Doane Lake

Riparian Resources Relative Rankings

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

INFORMATION SOURCES:

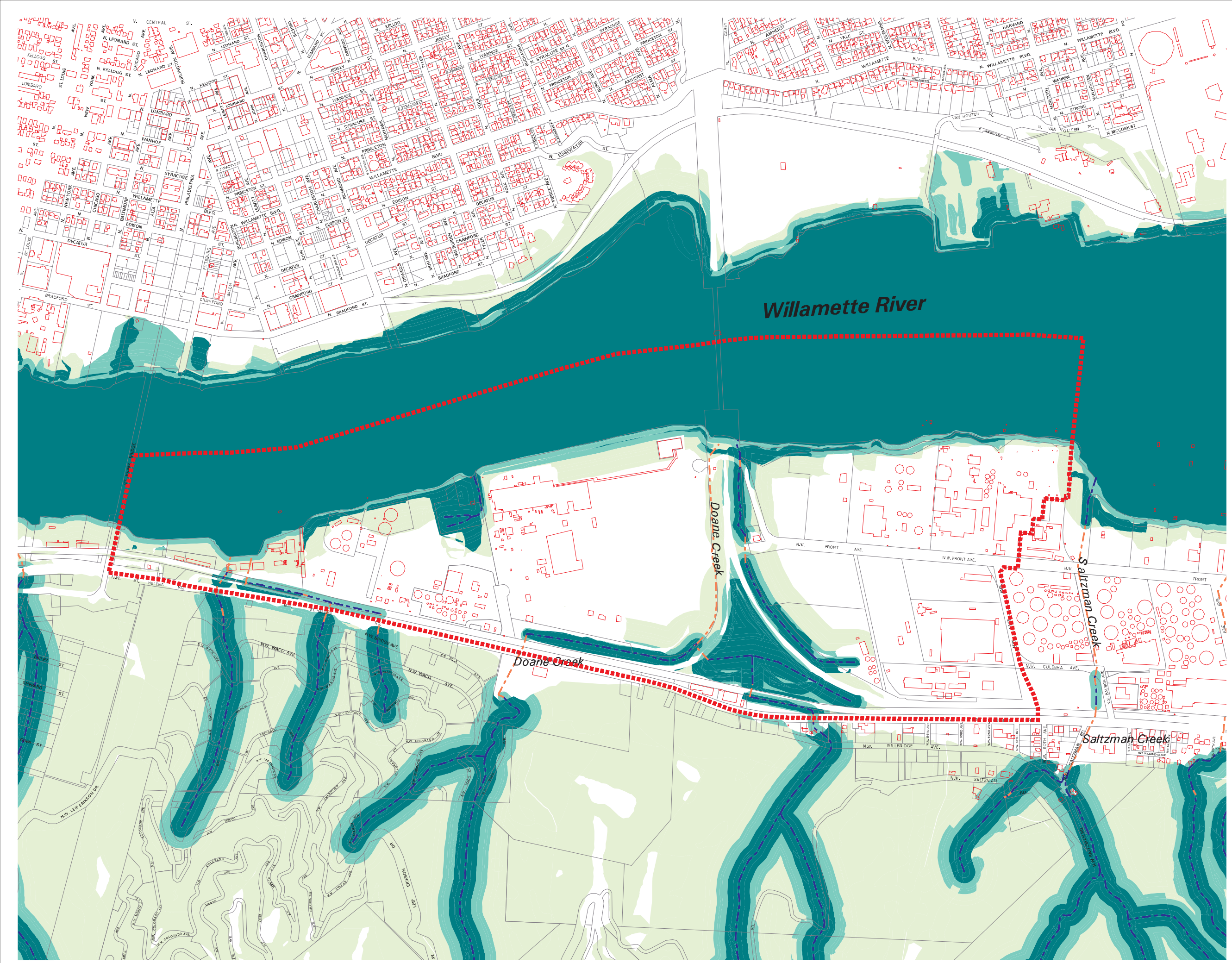
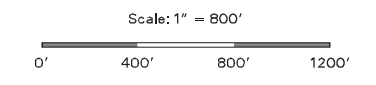
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








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Site WR8 - Map 5: Doane Lake

Wildlife Habitat Relative Rankings

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

INFORMATION SOURCES:

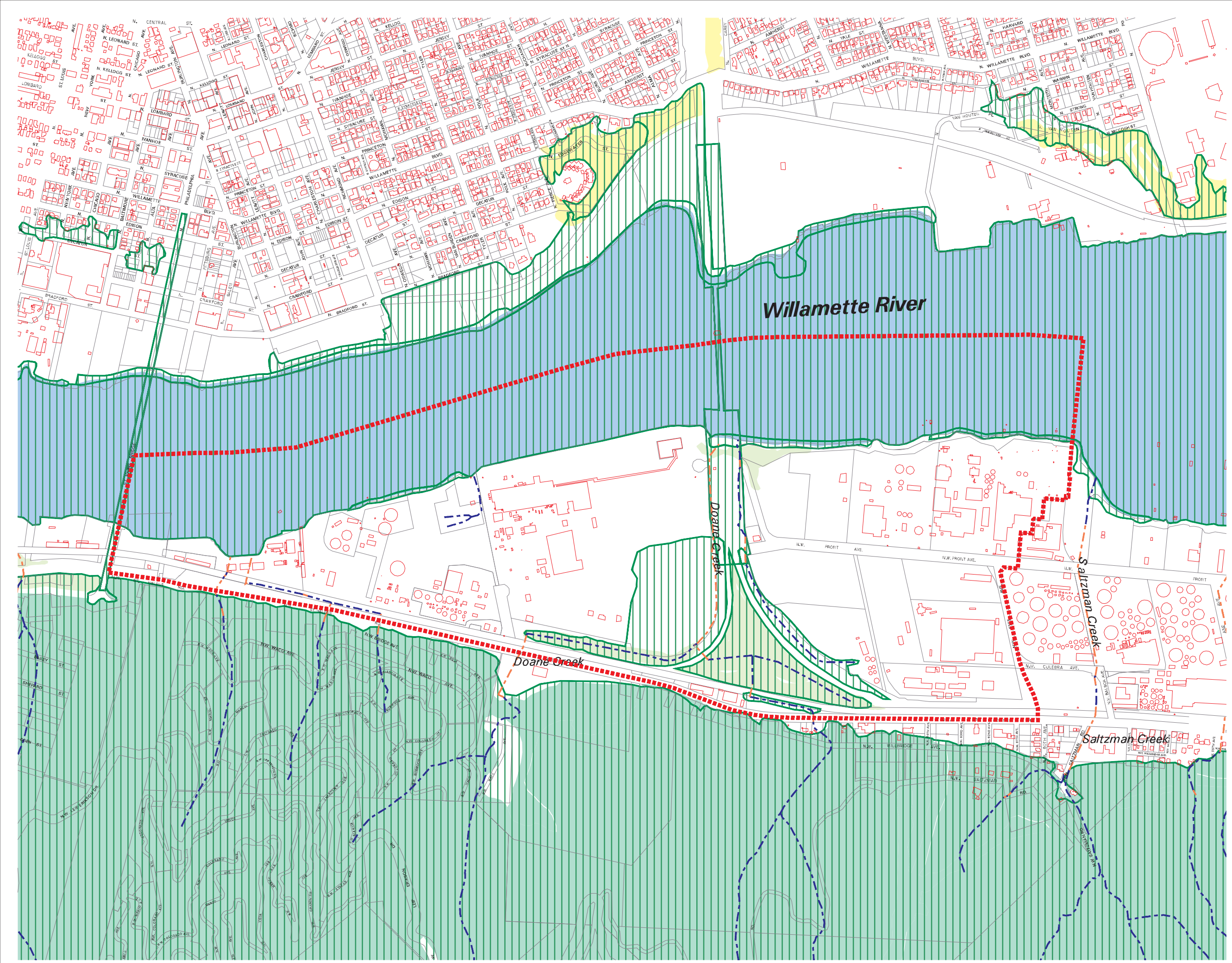
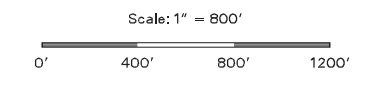
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Site WR8 - Map 6: Doane Lake

Combined Riparian / Wildlife Relative Rankings

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

INFORMATION SOURCES:

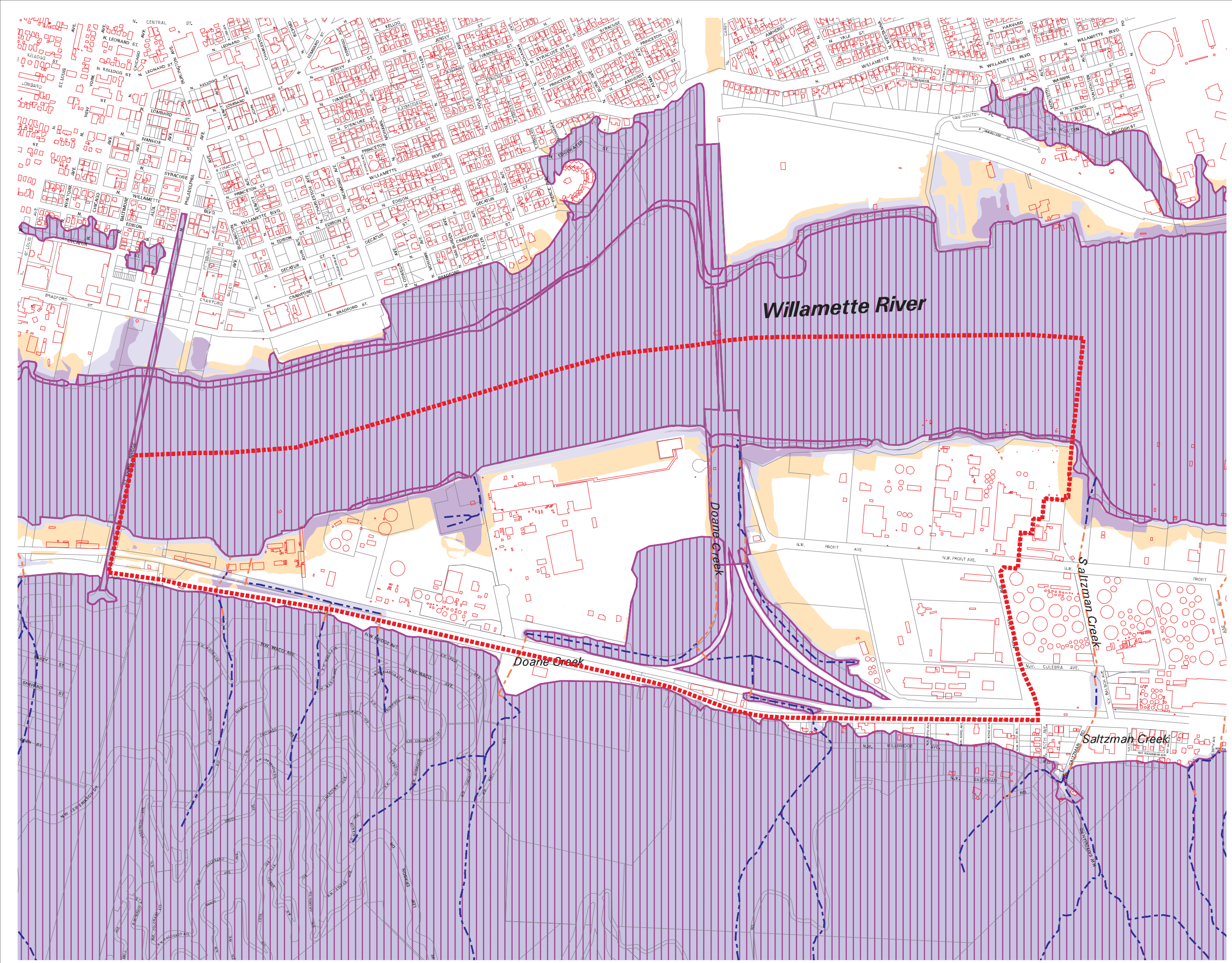
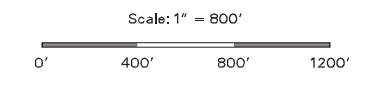
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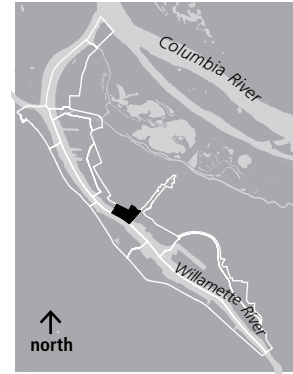
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INVENTORY SITE WR9: WILLAMETTE COVE



SUMMARY INFORMATION

Watershed:	Willamette River Watershed
Neighborhood:	Cathedral Park
USGS quadrangle and quarter section maps:	1N1W12, 1N1E07 and 2121-22, 2221-23
River Mile:	6.0 – 6.5
Site Size:	119 acres (land and water)
Previous Inventory:	Lower Willamette River Wildlife Habitat Inventory, March 1986.
Zoning:	Open Space (OS) Employment (EX) Heavy Industrial (IH) General Industrial (IG) Residential 2,000 (R2) Residential 5,000 (R5) Conservation overlay(c) River Water Quality overlay (q) River Natural overlay (n) River General overlay (g)
Existing Land Use:	Open space, residential and railroad.
General Description:	The site primarily contains river frontage and lowlands, Willamette Cove, and railroad tracks.
Resource Features:	Bottomland forest; upland scrub/shrub, grassland; beach, steep slopes; open water.
Functional Values:	Streamflow moderation and flood storage, water quality, bank stabilization, control of sediments, nutrients and pollutants; large wood and channel dynamics; organic inputs, food web and nutrient cycling, wildlife habitat, wildlife movement corridor and connectivity, migratory bird stopover.
Special Status Species:	Fish: Lower Columbia River Chinook salmon; Lower Columbia River steelhead trout, Pacific lamprey.
Special Habitat Area:	Yes
Natural Hazards:	Landslide; wildfire; flood area

SITE DESCRIPTION

This 119-acre site is located between N Richmond Ave to the northwest and the Burlington Northern railroad bridge to the southeast. The northeastern boundary is formed by N Crawford St and Willamette Blvd. Residential uses exist in the upland portions of the site. The Willamette Cove property was acquired by Metro in 1996. The intended future use of the property is as an urban natural area with passive recreation opportunities. WR9 Map 1 shows the aerial view of the inventory site.



The site has approximately 3500 linear feet of Willamette riverfront. The river makes up roughly 54 acres of the site. The bank type is fill and vegetated riprap.

Vegetated areas at least ½ acre include 9 acres of forest and tree canopy, 18 acres of woodland, 15 acres of shrubland and 4 acres of herbaceous cover. The 8-acre flood area is almost entirely vegetated (7 acres); the remaining flood area includes the Willamette river bank. The site contains 10.8 acres (9%) impervious surface coverage, including 1.0 miles of road.

This site is the former location of Willamette Cove Sawmill, which operated until the 1960s. As a result of the industrial activities on this site, and on the McCormick and Baxter Superfund site to the south, there has been contamination of soils, groundwater, and near-shore sediments in the river, and this site is currently listed as a Brownfield. Portions of the site are within the City of Portland Wildfire Hazard Zone (City of Portland, 1998), the Potential Landslide Hazard area (City of Portland, 2002), and the flood area (City of Portland 2007).

NATURAL RESOURCES DESCRIPTION

Located between the North Oak Palisades and McCormick/Baxter inventory sites, this 65-acre site has both aquatic and terrestrial resources (key resource features are shown in WR9-Maps 2 and 3). This site provides important connectivity between Cathedral Park and the North Oak Palisades site to the west, nearshore riparian habitat at the McCormick/Baxter site to the east, and the upland bluffs. The dominant vegetation type in the site is woodland and shrubland with some associated herbaceous cover. The banks of the river and along the railroad have steep slopes.

The dominant resource feature of the site is the nearly continuous stretch of natural and semi-natural banks and beach from the northwestern boundary of the site to the Railroad Bridge. The beach varies in width throughout the reach from five feet to over forty feet and is bordered by a steep riprap bank. The riverfront contains many vegetative elements due reflecting multiple past and present uses along this reach. The upstream beach is heavily littered with debris and rubble juxtaposed with well-established groupings of Pacific willow, and grades into a relatively steep bank vegetated with reed canarygrass, Himalayan blackberry, and English ivy. The debris becomes sparse and the beach becomes narrower near Willamette Cove, where more riprap and a narrow shoulder of sandy beach grade into the steep bank cut. The cove contains small areas of beach with driftwood and rubble. Towards the northwest end of the site, as the bank becomes less steep, the forest comes closer to the river and the beach decreases in width. The near shore area within the site is shallow water and the prominent substrate is silt with some sand and clay. Beach and near-shore shallow water areas provide habitat for juvenile salmonids (ODFW, 2005).

A narrow corridor of mixed bottomland woodland extends through the entire site. The woodland is dominated by young black cottonwood trees and contains some non-native tree species, including Lombardy poplar, catalpa, and holly. Cherry and birch also occur infrequently. Himalayan blackberry and clematis dominate the understory and are suppressing most other plant species other than sword fern. Exotic English ivy is also carpeting the understory and topping the crowns of many trees. The woodland contains few large trees and snags (most were trees killed by ivy), and is bisected in areas by well-worn and compacted dirt trails. Tree canopy cover within this forest varies from 50 to 70 percent. Within the understory, shrubs cover from 50 to 80 percent, and herbaceous vegetation covers only 15 to 25 percent.

An area of open grassland is located between the woodland corridor and the railroad. The grassland is fairly large (over 3 acres) and is dominated by many invasive grass and herb species, including reed canarygrass, Queen Anne's lace, nightshade, vetch, timothy, witchgrass, common horsetail, water horsetail, common velvetgrass, and crabgrass. Native species including red columbine and fowl mannagrass are present in lower numbers than the invasive plants. The northern area of the grassland contains small puddles of open water and saturated soils characteristic of a seasonal wetland, and these areas were dominated by reed canarygrass. This open grassland grades into a more prominent scrub/shrub complex farther south, which is dominated by Scot's broom, Himalayan blackberry, Indian plum, and native hawthorn. Other scrub/shrub species include trailing blackberry, elderberry, butterfly bush, and sumac. The two vegetative assemblages intermingle, with the scrub/shrub becoming dominant in areas to the south.

The site contains a unique assemblage of vegetative community types within a relatively small area. In conjunction with the river, the variety of plant communities creates a habitat mosaic that supports a diverse group of resident and migratory birds, small mammals, reptiles, amphibians, invertebrates, and fish. The quality of food sources is more likely to be sustained year-round with so many habitat types in proximity to each other, making this an important forage area for most species found here.

The wildlife detected within this reach included a moderately diverse assemblage of birds and small mammals. The complex of habitats in this reach attracts a varied collection of bird species year round. Terrestrial bird species observed include scrub jay, spotted towhee, downy woodpecker, fox and song sparrow, black-capped chickadee, bushtit, flicker, sharp-shinned hawk, red-tailed hawk, and northern harrier. River birds included great blue heron, common merganser, and double-crested cormorant. Small mammals included raccoon, beaver, woodrat, pocket gopher, and field mice. The area does have sufficient forage to attract deer, and the railroad may serve as a migration corridor for them. Deer were documented on the beach located across the river (at site WR8 Doane Lake). Several common species of reptiles and amphibians including garter snakes and Pacific chorus (tree) frogs may be found here.

There are several factors which serve to limit the abundance or quality of habitat and species diversity within this reach, including soil and sediment contamination, an outfall, widespread and uncontrolled exotic plant species invasion, excessive erosion on unprotected trails, and an abundance of debris on beach and banks. The exotic invasion within the understory and canopy of the mixed forest area is having a detrimental effect on the majority of understory plant species, and is limiting the productivity of this forest. The extensive trail system within the southern half of this site has created large areas of compacted, unvegetated soil that is increasing erosion of the substrate within the forest and shrub areas of the site. The debris and rubble on the beach and banks of the river reduces the value of the areas as foraging habitats, and decreases the aesthetic character for this long stretch of otherwise natural beach.

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 value ranks for riparian function, wildlife habitat and riparian/wildlife habitat areas combined (Table 13). The relative ranks are produced using GIS models and information on Special Habitat Areas. All of the ranked resource areas provide at least some important riparian and 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. 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 the *City of Portland Natural Resource Inventory Update Project Report, 2007*.

Riparian Areas

The site contains portions of the Willamette River, vegetated flood area and other vegetation that contributes to the riparian functions as detailed in the natural resource description. These landscape features provide the following riparian functions:

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

High relative functional ranks are assigned to the Willamette River and woodland and shrubland patches within the flood area. Medium relative ranks are assigned to portions of the flood areas with herbaceous vegetation and other areas within 50 feet of the Willamette River. Other vegetated areas are assigned a high, medium or low relative functional rank depending on the proximity, slope and extent of the vegetation relative to the Willamette River. (WR9 Map 4).

Wildlife Habitat

Based on the wildlife habitat attributes mentioned in the previous section (size, interior area, connectivity/proximity to other patches and water), the wildlife habitat model assigns a low relative rank to a section of the forest patch.

This site contains five Special Habitat Areas (SHAs): the Edgewater Street Forest SHA; the Willamette Cove Bottomland SHA; and two sections of Willamette Beach SHA, and the Willamette River.

The Edgewater Street Forest SHA includes bottomland hardwood forest and a small stream draining to Willamette cove. This SHA also provides connectivity between upland and riparian resources. The Willamette Cove Bottomland SHA contains bottomland hardwood forest and three acres of meadow habitat. This is one of the few relatively natural riparian areas on the east side of the Willamette River downstream of Ross Island. The Willamette Beach SHAs accumulate large wood and provide habitat to juvenile salmonids. The Willamette River is a designated Special Habitat Area, reflecting its federal designation as "Critical Habitat" for salmonids species that are 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. SHAs receive a high relative rank for wildlife habitat. The SHA rank supersedes lower ranks generated by the GIS model. Therefore, all SHAs within the site rank high for wildlife habitat (WR9 Map 5).

Combined Relative Riparian/Wildlife Habitat Ranking

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. Given that the four SHAs cover most of the site and overlap with riparian and wildlife resources, the combined relative rank is high for all resources within this site (WR9 Map 6).

Table 13: Summary of Ranked Resource in WR9: Willamette Cove

Total Inventory Site Area = 119 acres
Terrestrial* = 65 acres
Willamette River = 54 acres

	High	Medium	Low	Total
Riparian Resources **				
acres	63	2	18	83
percent total inventory site area	53%	1%	15%	69%
Special Habitat Area **				
acres	98			
percent total inventory site area	82%			
Wildlife Habitat **				
acres	98	0	1	99
percent total inventory site area	82%	0%	1%	83%
Combined Total ***				
acres	98	0	2	100
percent total inventory site area	82%	0%	2%	84%
Combined Terrestrial (excludes Willamette River)				
acres	44	0	2	46
percent total inventory site area	37%	0%	2%	39%

* Terrestrial includes the land, tributary streams, drainageways and wetlands.






** High-ranked riparian resources, Special Habit Areas, and wildlife habitat includes the Willamette River.

*** Because riparian resources, Special Habitat Areas, and wildlife habitat overlap, the results cannot be added together to determine the combined results.



Site WR9 - Map 1: Willamette Cove

2005 Aerial Photography

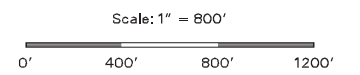
-  Stream/Drainageway
-  Culvert or Piped
-  Site Boundary
-  City Boundary
-  Urban Services Boundary



INFORMATION SOURCES:

Aerial Orthophotographs:
Digital Orthophotography from flight in July 2005.
Photography has been rectified to adjust for curvature
of the earth. Not registered to taxlot base map.

All data compiled from source materials at different scales.
For more detail, please refer to the source materials or
City of Portland, Bureau of Planning.









Site WR9 - Map 2: Willamette Cove

Water-Related Features







Water Bodies

River Depths

-  0 to -20'
-  -20 to -30'
-  -30 to -40'
-  deeper than 40'

-  Stream/Drainageway
-  Culvert or Piped

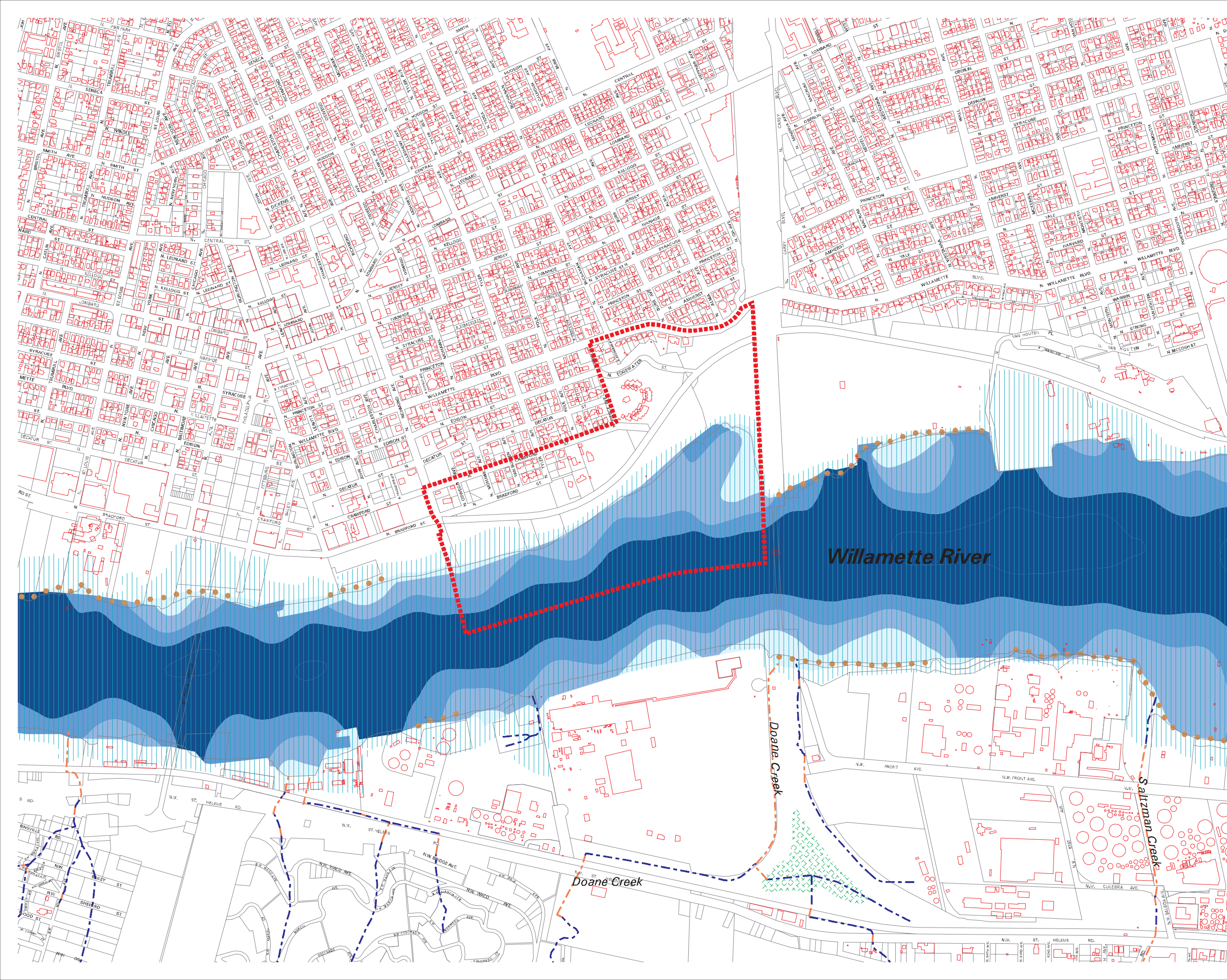
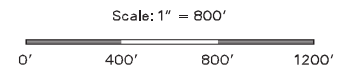
Other Features

-  Flood Area
-  Wetlands
-  Beach
-  Site Boundary
-  City Boundary
-  Urban Services Boundary

INFORMATION SOURCES:

Water Bodies:
Rivers, lakes and other water features. Originally digitized by Metro (1994). Data collection scale: 1:100' - 1:400'. City of Portland and Multnomah County pockets updated by City of Portland, Bureau of Planning, to refine waterbody geometry, remove erroneously mapped waterbodies, and add missing waterbodies. Aerial photos were the primary data source used as reference for re-mapping waterbodies. This is an interim dataset reflecting all work completed to date.

All data compiled from source materials at different scales. For more detail, please refer to the source materials or City of Portland, Bureau of Planning.










DRAFT

June 07, 2007

Site WR9 - Map 3: Willamette Cove

Vegetation Features

Vegetation Types

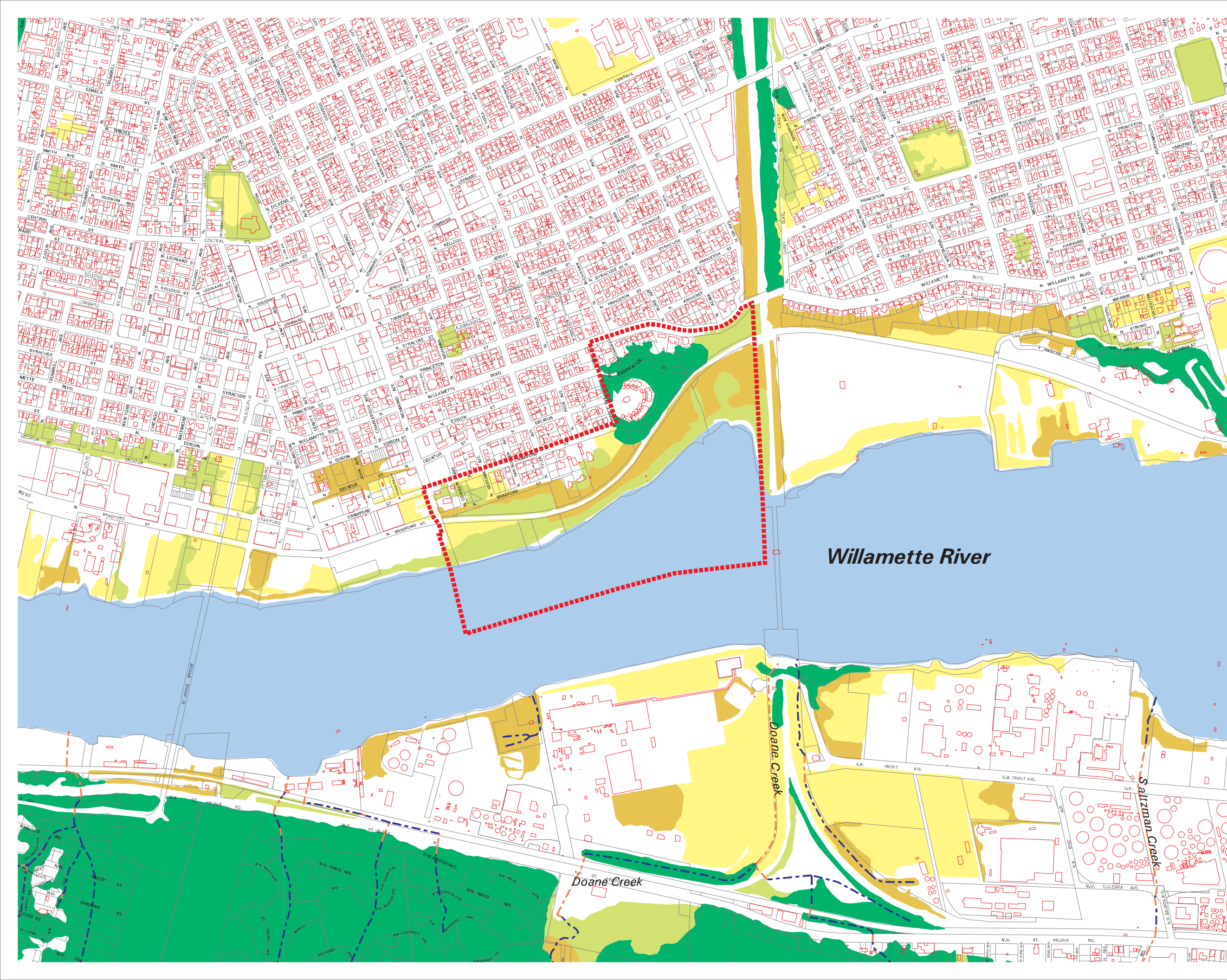
-  Forest
-  Woodland
-  Shrubland
-  Herbaceous
-  Stream/Drainageway
-  Culvert or Piped
-  Site Boundary
-  City Boundary
-  Urban Services Boundary

INFORMATION SOURCES:

Vegetation patches:
Vegetation patches larger than 1/2 acre mapped by the City of Portland, Bureau of Planning. Based on information from reference data sources including aerial photos, Parks and Recreation natural area assessments, and vegetation surveys along the banks of the Willamette and Columbia rivers. Vegetation patches are classified as forest, woodland, shrubland, or herbaceous. The mapping area includes all land within the City of Portland and the unincorporated parts of Multnomah County that are administered by the City of Portland. Updated through summer of 2004.









All data compiled from source materials at different scales. For more detail, please refer to the source materials or City of Portland, Bureau of Planning.

Scale: 1" = 800'
0' 400' 800' 1200'



Site WR9 - Map 4: Willamette Cove

Riparian Resources Relative Rankings

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

INFORMATION SOURCES:

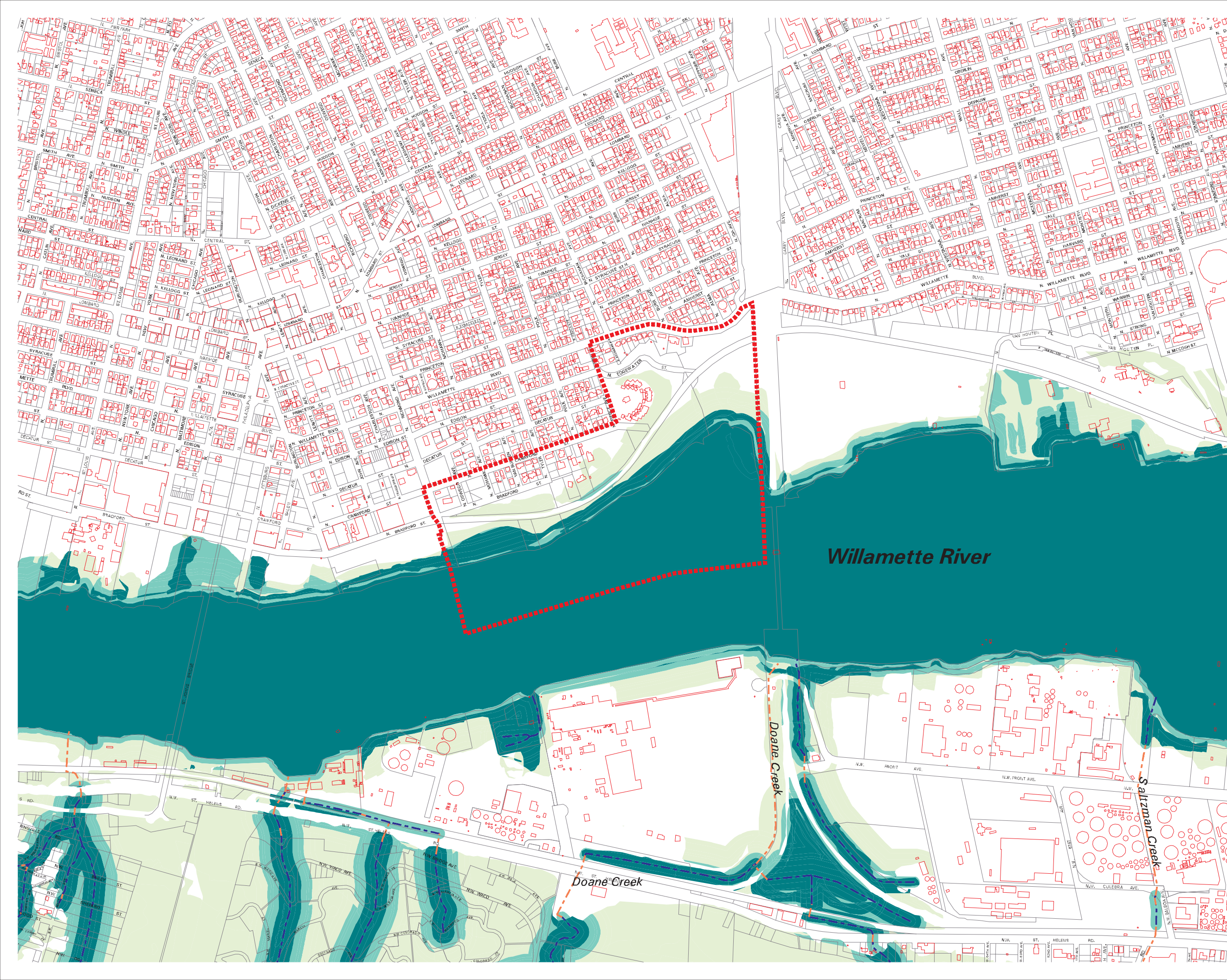
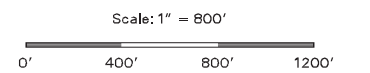
The Natural Resources Inventory Update (NRIU) is a citywide project to revise and update existing natural resource inventories (of trees, streams, wildlife habitat, etc.) in Portland. The update is part of Portland's River Renaissance Initiative to ensure that the Willamette River and its tributary watersheds are clean and healthy.

** SHA ranking supercedes lower relative values.

For more information, please visit our website:
<http://www.portlandonline.com/planning/index.cfm?c=40437>










NOTE: Portland's resource inventory is still being evaluated for accuracy and consistency and should be considered preliminary. The inventory has not yet been adopted by the City of Portland.

All data compiled from source materials at different scales. For more detail, please refer to the source materials or City of Portland, Bureau of Planning.



Site WR9 - Map 5: Willamette Cove

Wildlife Habitat Relative Rankings

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

INFORMATION SOURCES:

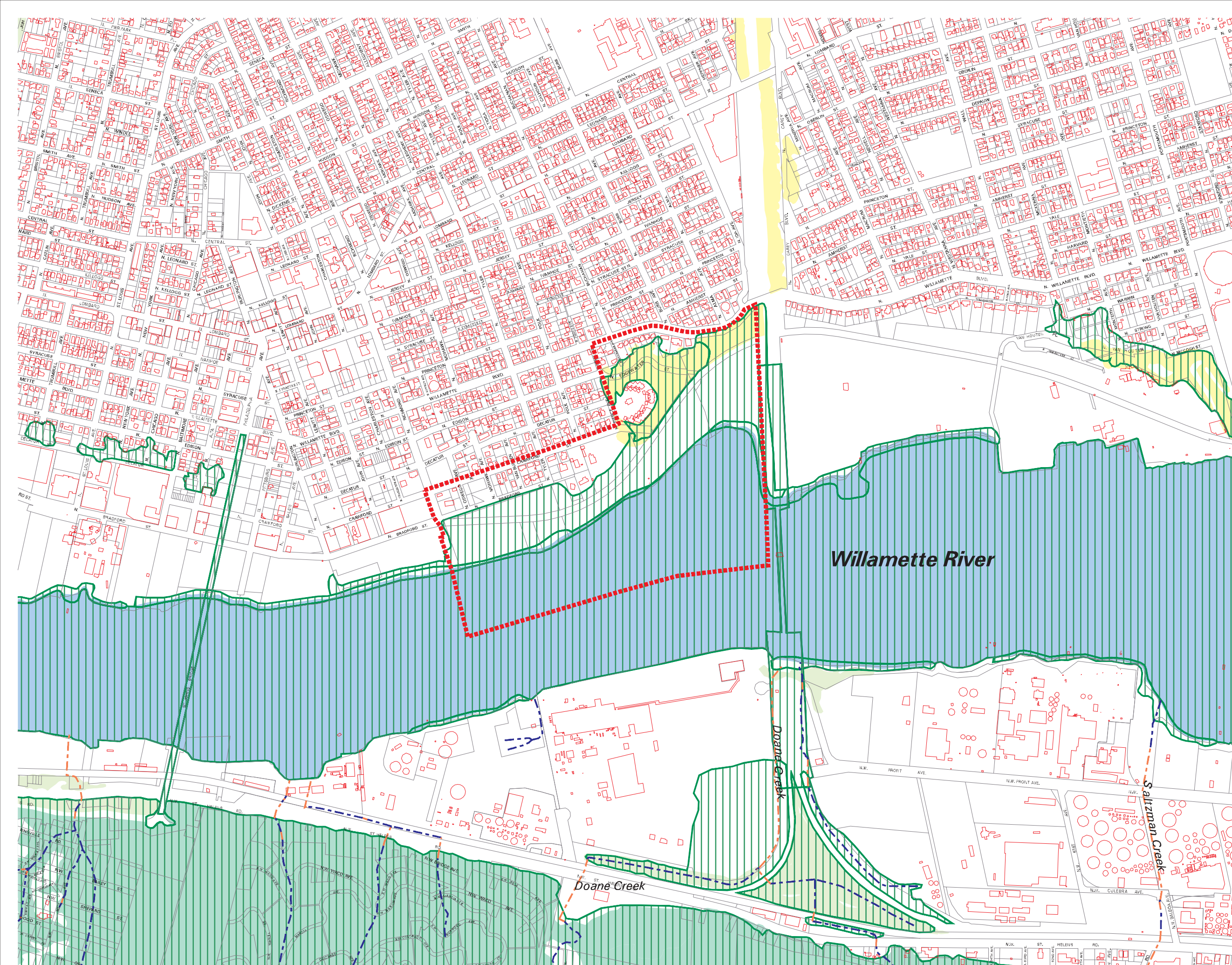
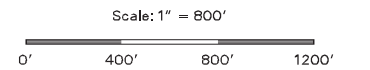
The Natural Resources Inventory Update (NRIU) is a citywide project to revise and update existing natural resource inventories (of trees, streams, wildlife habitat, etc.) in Portland. The update is part of Portland's River Renaissance Initiative to ensure that the Willamette River and its tributary watersheds are clean and healthy.

** SHA ranking supercedes lower relative values.

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NOTE: Portland's resource inventory is still being evaluated for accuracy and consistency and should be considered preliminary. The inventory has not yet been adopted by the City of Portland.

All data compiled from source materials at different scales. For more detail, please refer to the source materials or City of Portland, Bureau of Planning.



Site WR9 - Map 6: Willamette Cove

Combined Riparian / Wildlife Relative Rankings

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

INFORMATION SOURCES:

The Natural Resources Inventory Update (NRIU) is a citywide project to revise and update existing natural resource inventories (of trees, streams, wildlife habitat, etc.) in Portland. The update is part of Portland's River Renaissance Initiative to ensure that the Willamette River and its tributary watersheds are clean and healthy.

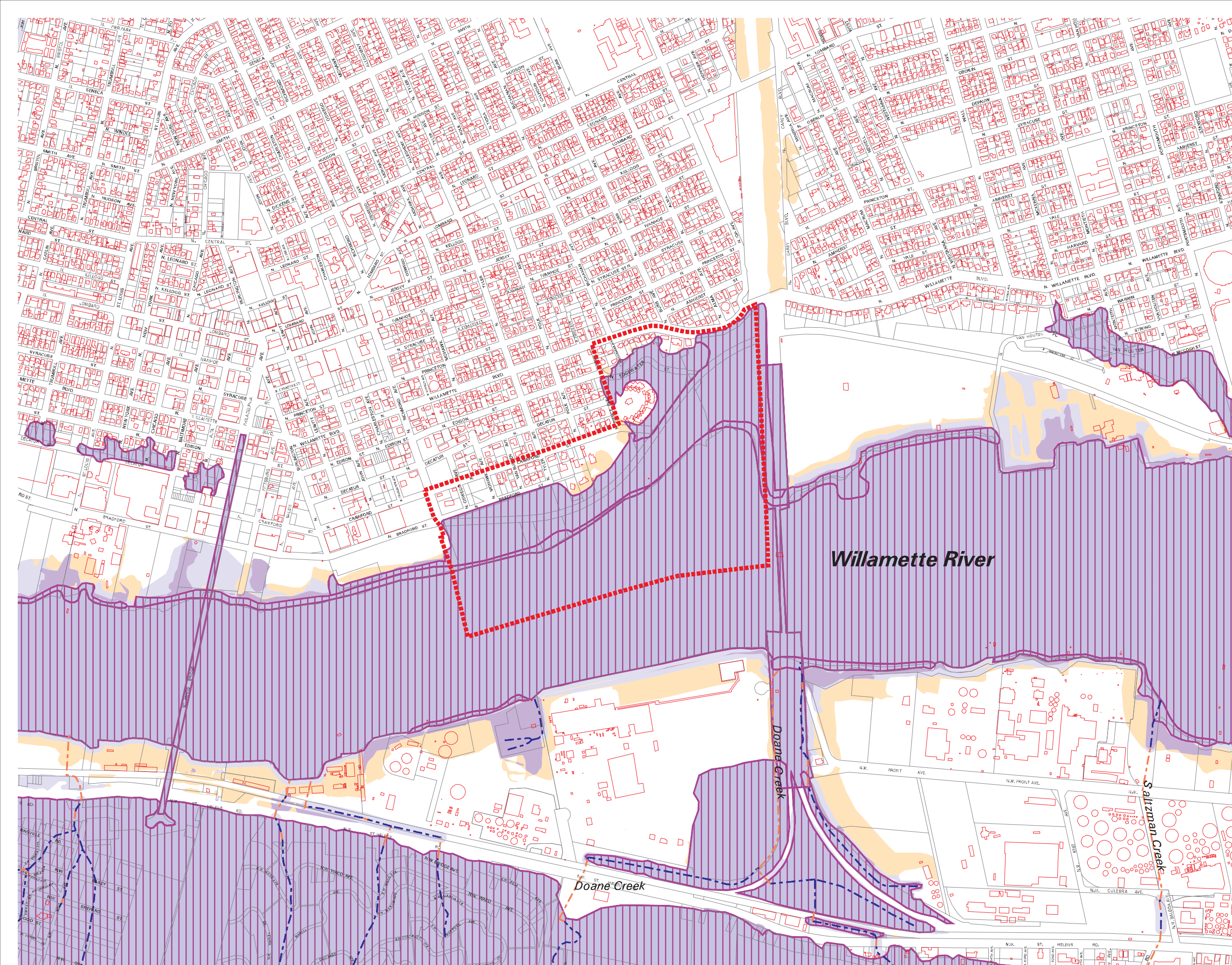
** SHA ranking supercedes lower relative values.

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<http://www.portlandonline.com/planning/index.cfm?c=40437>

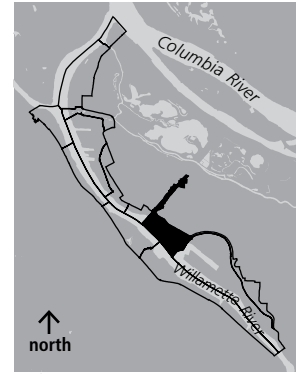
NOTE: Portland's resource inventory is still being evaluated for accuracy and consistency and should be considered preliminary. The inventory has not yet been adopted by the City of Portland.

All data compiled from source materials at different scales. For more detail, please refer to the source materials or City of Portland, Bureau of Planning.

Scale: 1" = 800'



INVENTORY SITE WR10: MCCORMICK/BAXTER AND TRIANGLE PARK



SUMMARY INFORMATION

Watershed:	Willamette River Watershed
Neighborhood:	University Park Neighborhood, St. Johns
USGS quadrangle, quarter section maps:	1N1E06, 1N1E07, 1N1E18, and 2024, 2123-24, 2222-24, 2322-25, 2423-24
River Mile:	6.5 – 7.6
Site Size:	475 acres (land and water)
Previous Inventory:	Lower Willamette River Wildlife Habitat Inventory, March 1986; East Buttes Terraces and Wetlands Conservation Plan, July 1993.
Zoning:	Heavy Industrial (IH) General Industrial (IG) Residential 5,000 (R5) Residential 2,000 (R2) River Industrial overlay (i) River Water Quality overlay (q) River General overlay (g) River natural overlay (n) Conservation overlay (c)
Existing Land Use:	Superfund site; undeveloped; residential; university; railroad track.
General Description:	This site once contained active industrial uses, which contaminated soils, groundwater and near shore sediments. There is riparian vegetation and steep slopes. The site provides connectivity between Willamette Cove and Willamette Bluffs.
Resource Features:	Riparian woodland, foothill savannah/oak woodland; upland scrub/shrub; grassland; emergent wetland; flood area; beach; open water; steep slopes.
Functional Values:	Microclimate and shade; stream flow moderation and water storage; bank stability, and sediment, pollution and nutrient control; large wood and channel dynamics; organic inputs, food web and nutrient cycling; wildlife movement corridor; connectivity
Special Status Species:	Fish: Lower Columbia River Chinook salmon; Lower Columbia River steelhead trout; Pacific lamprey.
Special Habitat Area:	Yes
Natural Hazards:	Landslide; wildfire; flood area

SITE DESCRIPTION

The McCormick/Baxter and Triangle Park site is approximately 475 acres in size and is located on the east bank of the Willamette River between the Burlington Northern railroad bridge and the southeast side of University of Portland, west of Swan Island. The site extends northeast along the Burlington Northern railroad



corridor to the junction of the Burlington Northern railroad track and the Union Pacific railroad track, connecting Smith and Bybee Lakes and the Columbia Slough to the Willamette River. Map WR10 1 shows the aerial view of the McCormick Baxter/ Triangle Park inventory site.

Roughly 150 acres of the Willamette River extending to the river centerline is included in this site. The site includes approximately 7,500 linear feet of river front. Of the approximately 30 acres of flood area on the site, 17 are vegetated and the 13 are non-vegetated. The site contains 105.2 acres (22.2%) impervious surface coverage, including 6.1 miles of road.

There are approximately 150 acres of vegetated areas greater than ½ acres in size. These include 46 acres of forest and tree canopy, 25 acres of woodland, 33 acres of shrubland and 46 acres of herbaceous cover. Steeply sloped bluffs along the southern half of the site are part of a 7-mile corridor of remnant oak escarpment extending north and south of this site.

Northeast of the Union Pacific railroad tracks steep slopes extend through the entire site, from the northwest to the southeast site boundaries. These slopes and the area below the slopes are within the Potential Landslide Hazard area (City of Portland, 2002). The University of Portland campus and sections of the site along the bluffs northwest of the campus are within the City of Portland Wildfire Hazard Zone (City of Portland, 1998), and portions of the site adjacent to the river are in the flood area (City of Portland 2007).

Three areas of contamination are associated with former industrial uses on this site including the McCormick and Baxter Creosoting company that was located here from 1944 to 1991. The site of the former creosote company is now a federal Superfund site.

The City's Bureau of Environmental Services (BES) manages two active revegetation along the Willamette Bluffs within this site. BES has proposed a third revegetation project along the bluffs to the west and south of the University of Portland campus.

NATURAL RESOURCES DESCRIPTION

This site contains both aquatic and terrestrial resources and is an important connectivity corridor between Smith and Bybee Lakes, Willamette Cover, the Willamette Bluffs, and the Willamette River (key resource features are shown in

WR10 Maps 2 and 3). Located between the Willamette Cove and Swan Island inventory sites, this site is dominated by the University of Portland, steep bluffs and a vegetated railroad corridor. The McCormick/Baxter Creosote property, which is the northern property within this inventory site, has contaminated soils that limit the natural resource functions of the site.

Following the shore of the Willamette River, along the western and southern edge of the resource site to the University of Portland, there is a mostly continuous strip of herbaceous and shrubland vegetation. This vegetated strip connects to woodland and forest cover west of the campus, providing connectivity between site WR9 Willamette Cove, the Willamette River, and site WR13, Willamette Bluff.

Northwest of the McCormick-Baxter and Triangle Park properties, the steep bluffs are a continuation of the bluffs in sites WR7 North Oak Palisades and WR9 Willamette Cove. The bluffs are located up to 1000 feet east of the river in the vicinity of the McCormick/Baxter property. At the University of Portland, the bluffs meet the river before abruptly angling eastward again, around the Swan Island area.

The slopes are densely vegetated throughout the majority of the reach, although areas of forest cover are never wider than 500 feet, and average approximately 200 feet in width. A foothill savanna/oak woodland community on the upper slopes and terrace characterizes the vegetation, with elements of the bottomland forest mixed in lower on the slopes. White oak, Pacific madrone, and occasional Ponderosa pine dominate the foothill savanna/oak woodland community. This is a transition zone away from the moister bottomland forest on the floodplain, so bigleaf maple, Douglas fir, western red cedar, and red alder also occur infrequently within this site. On the lower slopes, especially at the University of Portland where the bluffs are closer to the river, black cottonwood, bitter cherry, and Pacific dogwood are found. Tree canopy closure varies but averages between 25 and 35 percent. Downed wood is common in the forest, and trees tend to be younger due in part to occasional windthrow and landslides on these steep, exposed slopes.

The shrub understory within the forested area is dominated by Himalayan blackberry and Scot's broom, but also contains several important native species such as red elderberry, western hazel, snowberry, serviceberry, and oceanspray. The herbaceous understory is largely composed of English ivy, clematis, and Oregon grape. The shrub cover is close to 25 percent, and ground cover exceeds 90 percent.

In 2005, the BES Watershed Revegetation Program developed a Vegetation Management Strategy for the McCormick and Baxter site, including plans for planting, maintenance and monitoring of the site. As part of this plan, the site will receive two feet of loam/sandy loam topsoil, being obtained from a quarry in St. Helens, OR. The sandy loam will provide growing conditions to support native plantings. The general goals of this plan are: protect impermeable cap; reduce erosion forces and protect soil cap; maximize on-site stormwater retention; provide limited wildlife habitat complexity with native plant communities; minimize maintenance requirements and long-term maintenance costs; maximize survival potential for plantings; and provide a native-vegetated landscape that allows for future development of active and passive park recreation. As of November 2006, the site had undergone initial planting and Year 1 monitoring had taken place in October 2006.

The rail corridor extends northeast from the Willamette River to the junction with the Union Pacific railway. The corridor is a narrow cut approximately 300 ft wide and 80 ft deep with railroad tracks on the floor and steep, vegetated banks, with an average slope of 40 degrees. Most of the vegetation and habitat within the site are located on the steep banks of the bluffs and the railroad corridor. The corridor follows a ravine that provides wildlife habitat and connectivity between the Willamette River and Smith/Bybee Lakes and the Columbia Slough. The dominant tree species is the bigleaf maple, approximately 30-40 years in age. Other occasional trees include Douglas fir, apple, cherry and hawthorn. Shrubs include western hazel, snowberry, oceanspray, Oregon grape,

poison oak, thimbleberry, vine maple, Himalayan blackberry, laurel and holly. The herbaceous layer contains sword fern, lady fern, clematis and ivy (East Buttes and Terraces pg. 103-107).

The Triangle Park property, which is the southern property, is within the boundaries of the Portland Harbor federal Superfund site and is currently under a voluntary agreement with the Oregon Department of Environmental Quality (DEQ) to conduct a Remedial Investigation and Feasibility Study under DEQ oversight. Most of the Triangle Park property is within the flood area. Much of the site is comprised of undeveloped compacted soils and herbaceous vegetation. The banks, except at the middle of the inventory site, are steeply sloping.

The bank of the McCormick/Baxter property is beach and has shallow water near-shore, which provide habitat for anadromous salmonids (ODFW, 2005). The bank of the Triangle Park property is unclassified fill and rock. There is some shallow water habitat in the alcove in the middle of Triangle Park.

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 value ranks for riparian function, wildlife habitat and riparian/wildlife habitat areas combined (Table 14). The relative ranks are produced using GIS models and information on Special Habitat Areas. All of the ranked resource areas provide at least some important riparian and 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. 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 the *City of Portland Natural Resource Inventory Update Project Report, 2007*.

Riparian Areas

The site contains portions of the Willamette River, vegetated and non-vegetated flood area, and other areas of vegetation that contribute to riparian functions as detailed in the natural resource description. These landscape features provide the following riparian functions:

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

High relative functional ranks are to the Willamette River and to woodland and shrubland vegetation within the flood area. Medium relative ranks are assigned to portions of the flood areas with herbaceous vegetation. Low relative ranks are assigned to remaining portions of flood area that are not vegetated. Other vegetated areas are assigned a high, medium, or low relative rank depending on the proximity and extent of the vegetation relative to the Willamette River (WR10 Map 4).

Wildlife Habitat

Based on the wildlife habitat attributes mentioned in the previous section (size, interior area, connectivity/proximity to other patches and water), the GIS wildlife habitat model assigns low relative functional ranks to the forest/ woodland patch adjacent to the railroad corridor that connects Smith and Bybee Lakes and the Columbia Slough to the Willamette River. Medium relative functional ranks are assigned to the forest/woodland patches along the bluffs, southwest and west of University of Portland.

The site contains three Special Habitat Areas (SHAs): the Willamette River, an area of beach and a portion of the Willamette Bluff SHA. The Willamette River is a designated Special Habitat Area, reflecting its federal designation as “Critical Habitat” for salmonids species that are listed as threatened under the Endangered Species Act. The Willamette Beach SHA consists of beach and shallow water habitat extending approximately 2,000 feet along the northern portion of the site. The beach accumulates large wood and provide habitat for juvenile salmonids. The Willamette Bluff SHA is that portion of the bluff commonly known as “Waud Bluff,” adjacent to the University of Portland campus. The SHA contains remnant native white oak habitat and provides critical upland connectivity that also connects to the Willamette River at Cathedral Park and Willamette Cove.

The SHA described above contain unique features and provide critical wildlife habitat. SHAs receive a high relative rank for wildlife habitat. The SHA rank supersedes lower rankings generated by the GIS model. Therefore, all SHAs within the site rank high for wildlife habitat (WR10 Map 5).

Combined Relative Riparian/Wildlife Habitat Ranking

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 (WR10 Map 6).

Table 14: Summary of Ranked Resource in WR10: McCormick/Baxter and Triangle Park

Total Inventory Site Area	= 475 acres				
Terrestrial*	= 324 acres				
Willamette River	= 151 acres				
		High	Medium	Low	Total
Riparian Resources **					
acres		162	16	33	211
percent total inventory site area		34%	4%	7%	45%
Special Habitat Area **					
acres		187			
percent total inventory site area		39%			
Wildlife Habitat **					
acres		187	0	32	219
percent total inventory site area		39%	0%	7%	46%
Combined Total ***					
acres		197	10	46	253
percent total inventory site area		42%	2%	10%	54%
Combined Terrestrial (excludes Willamette River)					
acres		46	10	46	102
percent total inventory site area		10%	2%	10%	22%






* Terrestrial includes the land, tributary streams, drainageways and wetlands.

** High-ranked riparian resources, Special Habit Areas, and wildlife habitat includes the Willamette River.

*** Because riparian resources, Special Habitat Areas, and wildlife habitat overlap, the results cannot be added together to determine the combined results.

Site WR10 - Map 1: McCormick/Baxter and Triangle Park

2005 Aerial Photography

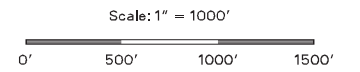
-  Stream/Drainageway
-  Culvert or Piped
-  Site Boundary
-  City Boundary
-  Urban Services Boundary



INFORMATION SOURCES:

Aerial Orthophotographs:
Digital Orthophotography from flight in July 2005.
Photography has been rectified to adjust for curvature of the earth. Not registered to taxlot base map.





All data compiled from source materials at different scales. For more detail, please refer to the source materials or City of Portland, Bureau of Planning.





Site WR10 - Map 2: McCormick/Baxter and Triangle Park Water-Related Features







Water Bodies

River Depths

-  0 to -20'
-  -20 to -30'
-  -30 to -40'
-  deeper than 40'

-  Stream/Drainageway
-  Culvert or Piped

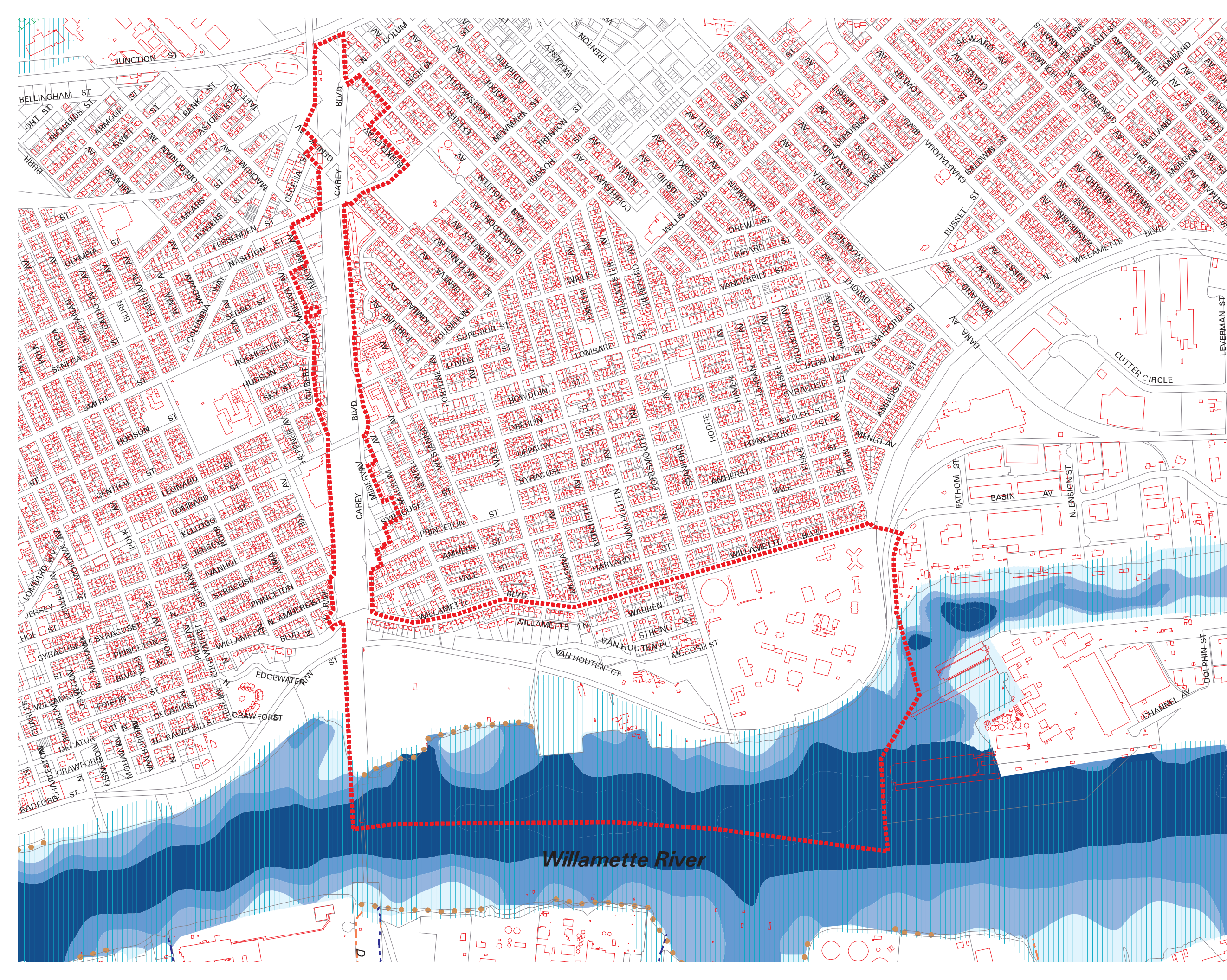
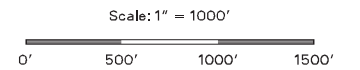
Other Features

-  Flood Area
-  Wetlands
-  Beach
-  Site Boundary
-  City Boundary
-  Urban Services Boundary

INFORMATION SOURCES:

Water Bodies:
Rivers, lakes and other water features. Originally digitized by Metro (1994). Data collection scale: 1:100' - 1:400'. City of Portland and Multnomah County pockets updated by City of Portland, Bureau of Planning, to refine waterbody geometry, remove erroneously mapped waterbodies, and add missing waterbodies. Aerial photos were the primary data source used as reference for re-mapping waterbodies. This is an interim dataset reflecting all work completed to date.

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Site WR10 - Map 3: McCormick/Baxter and Triangle Park Vegetation Features

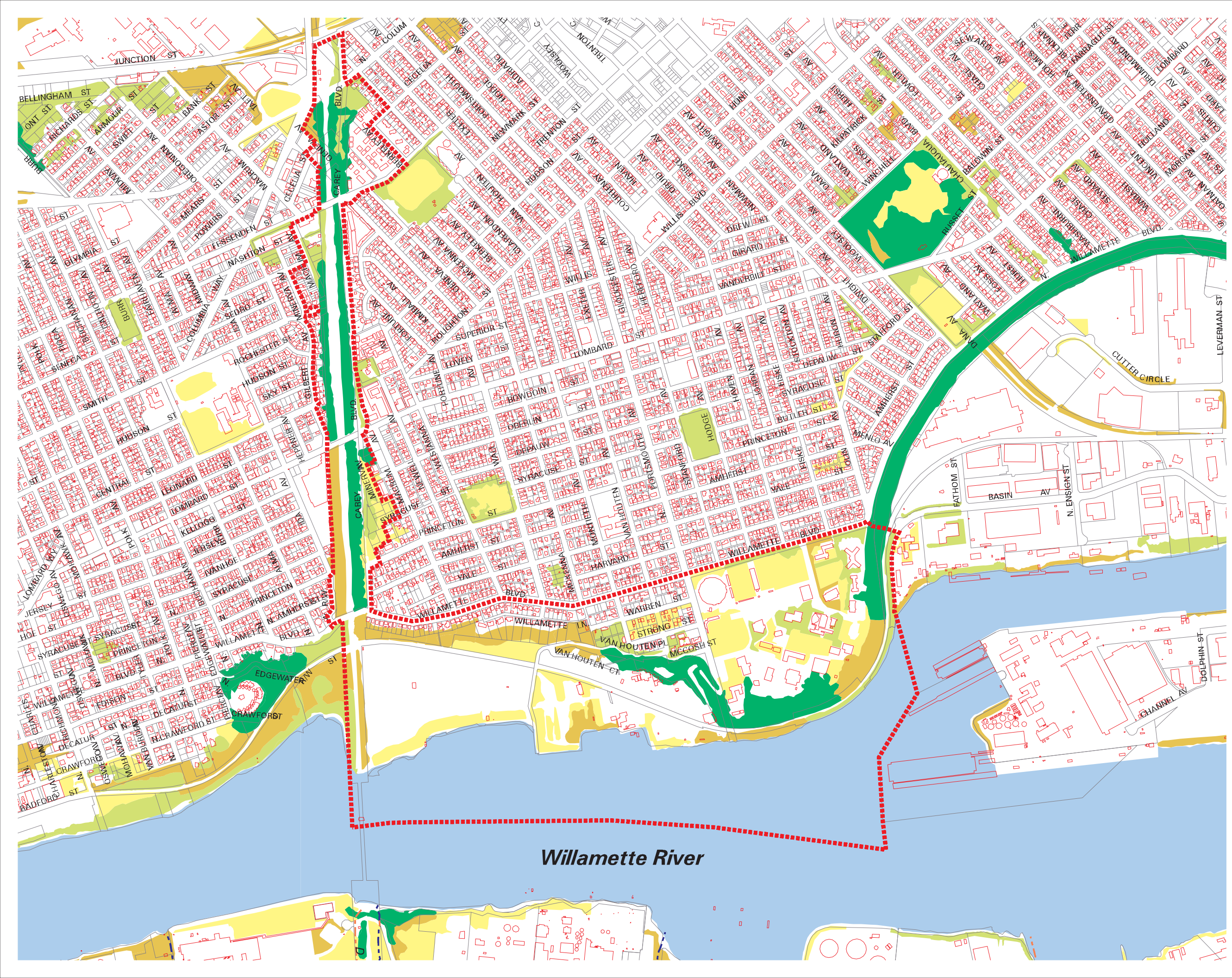
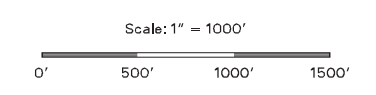
Vegetation Types

-  Forest
-  Woodland
-  Shrubland
-  Herbaceous
-  Stream/Drainageway
-  Culvert or Piped
-  Site Boundary
-  City Boundary
-  Urban Services Boundary

INFORMATION SOURCES:

Vegetation patches:
Vegetation patches larger than 1/2 acre mapped by the City of Portland, Bureau of Planning. Based on information from reference data sources including aerial photos, Parks and Recreation natural area assessments, and vegetation surveys along the banks of the Willamette and Columbia rivers. Vegetation patches are classified as forest, woodland, shrubland, or herbaceous. The mapping area includes all land within the City of Portland and the unincorporated parts of Multnomah County that are administered by the City of Portland. Updated through summer of 2004.









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Willamette River

DRAFT

Site WR10 - Map 4: McCormick/Baxter and Triangle Park Riparian Resources Relative Rankings

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

INFORMATION SOURCES:

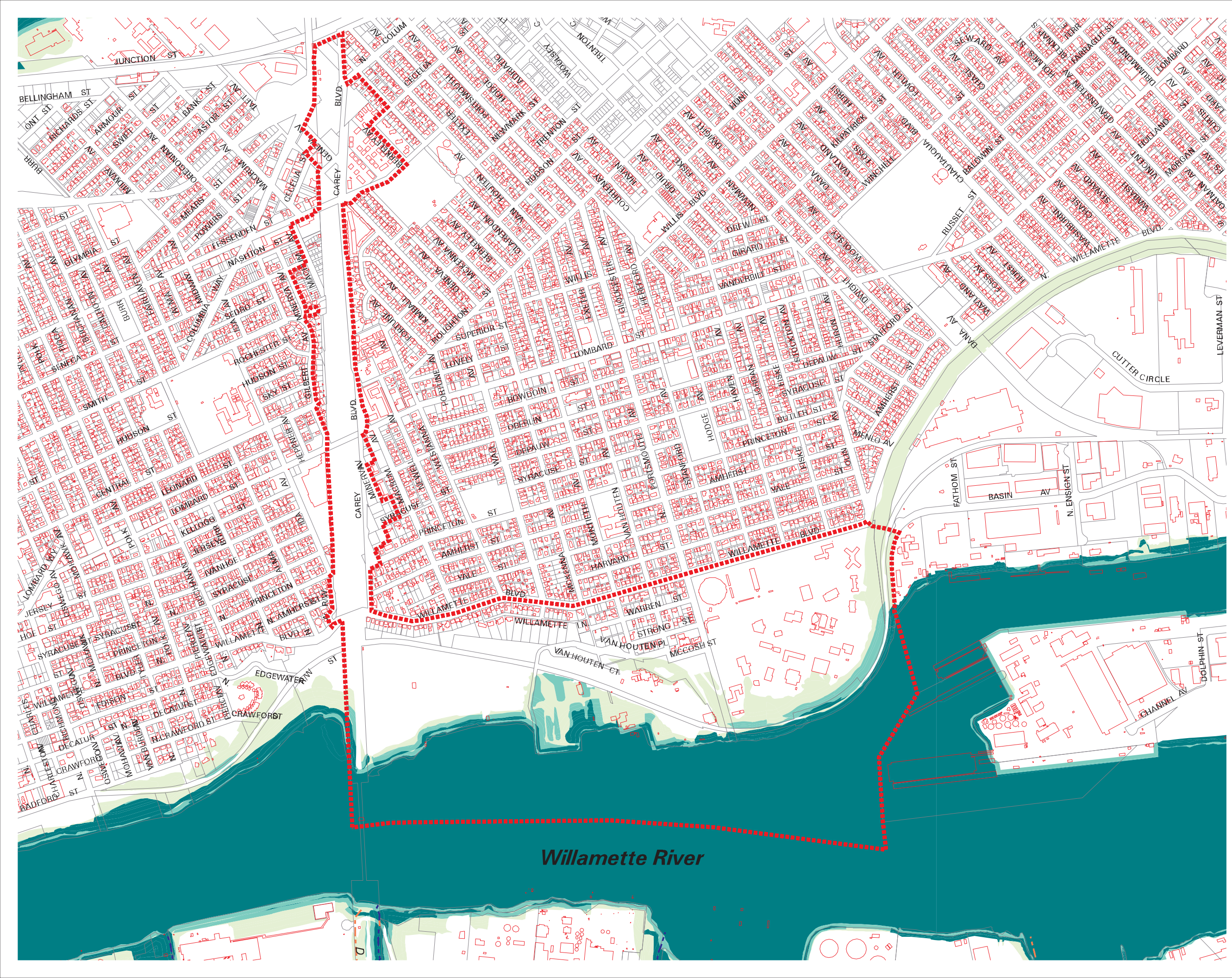
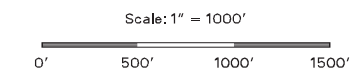
The Natural Resources Inventory Update (NRIU) is a citywide project to revise and update existing natural resource inventories (of trees, streams, wildlife habitat, etc.) in Portland. The update is part of Portland's River Renaissance Initiative to ensure that the Willamette River and its tributary watersheds are clean and healthy.

** SHA ranking supercedes lower relative values.










For more information, please visit our website:
<http://www.portlandonline.com/planning/index.cfm?c=40437>

NOTE: Portland's resource inventory is still being evaluated for accuracy and consistency and should be considered preliminary. The inventory has not yet been adopted by the City of Portland.

All data compiled from source materials at different scales. For more detail, please refer to the source materials or City of Portland, Bureau of Planning.



Site WR10 - Map 5: McCormick/Baxter and Triangle Park Wildlife Habitat Relative Rankings

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

INFORMATION SOURCES:

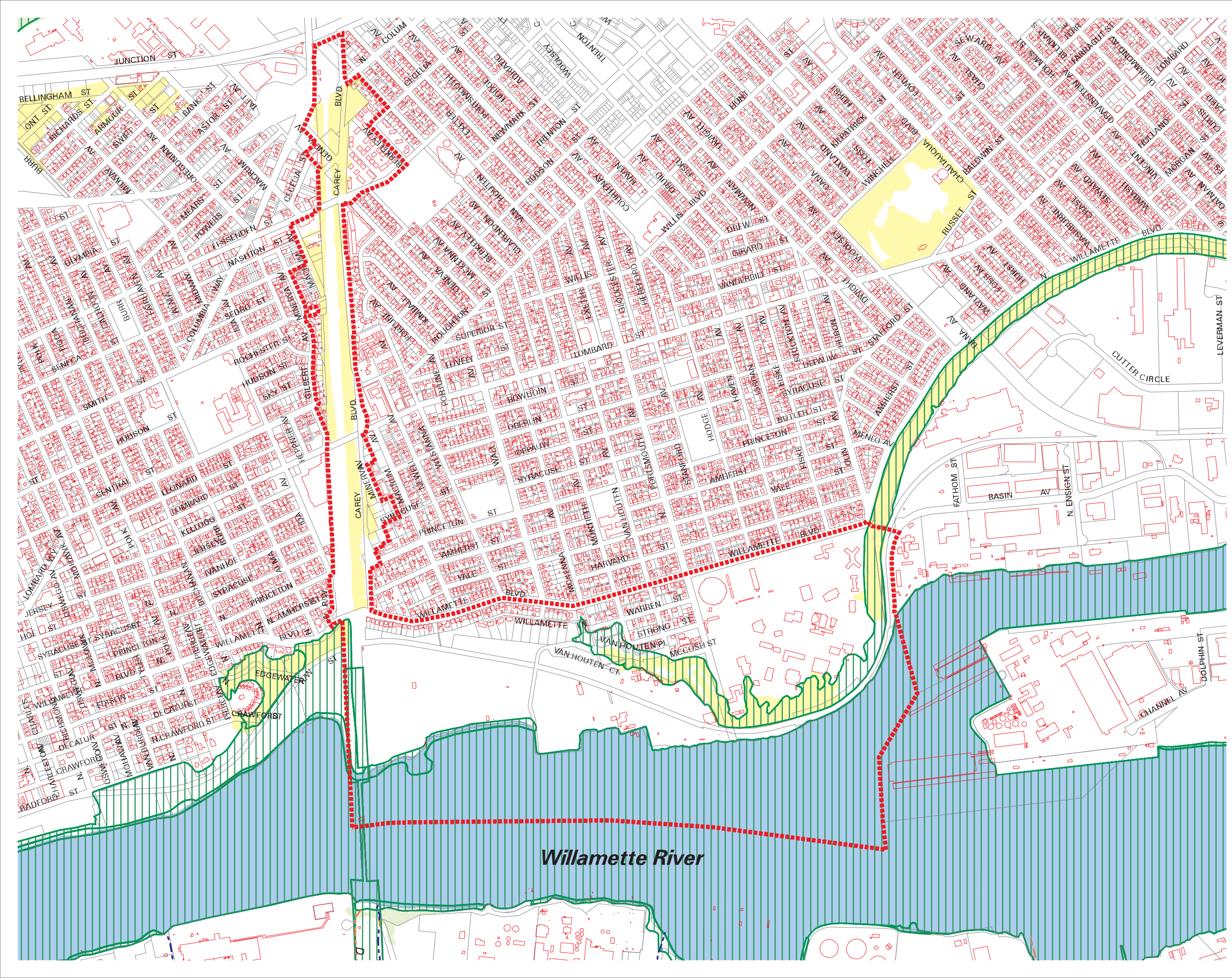
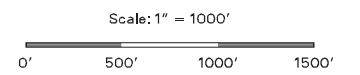
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Willamette River

Site WR10 - Map 6: McCormick/Baxter and Triangle Park

Combined Riparian / Wildlife Relative Rankings

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

INFORMATION SOURCES:

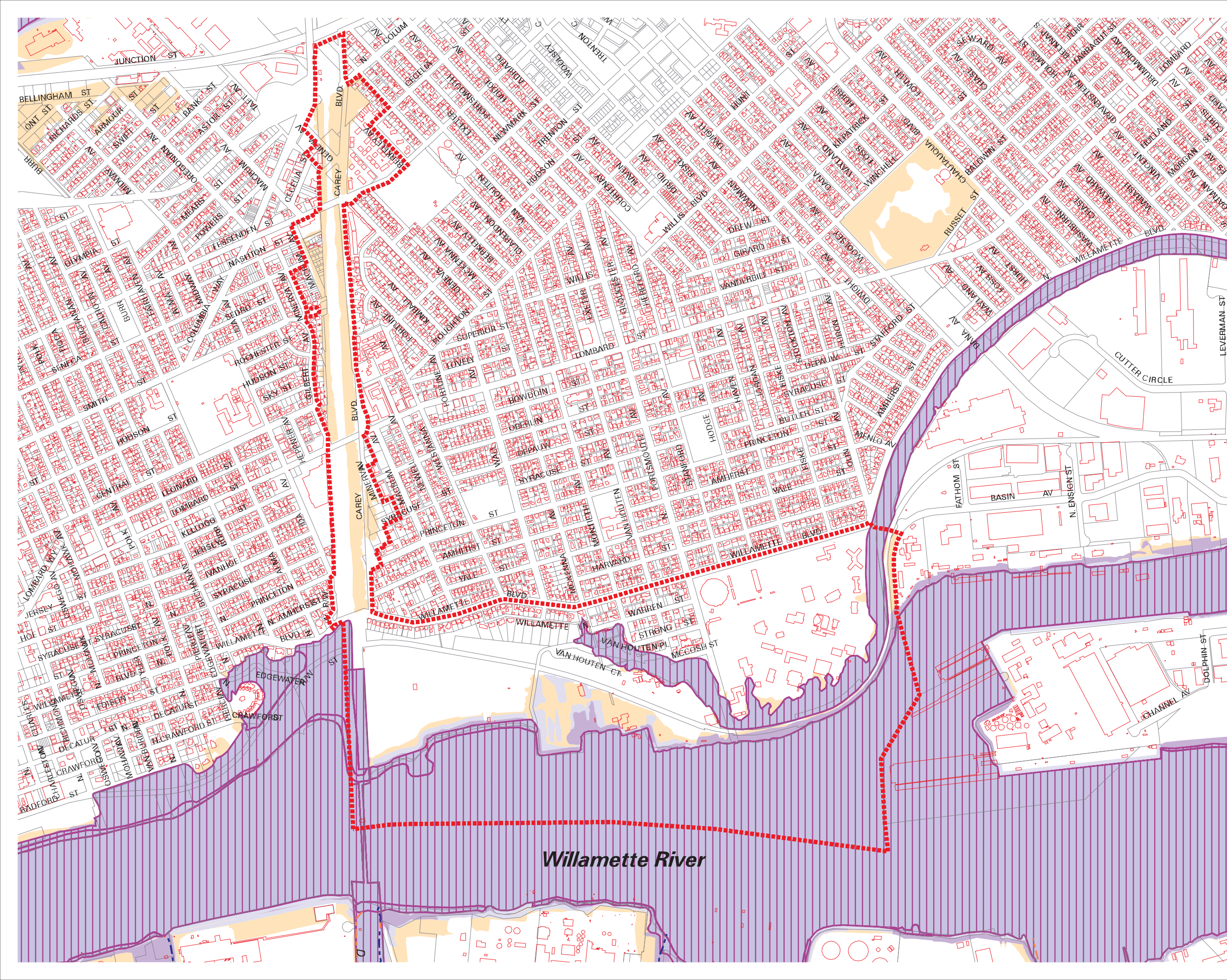
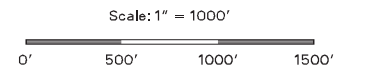
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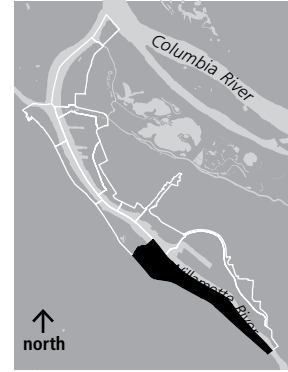
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INVENTORY SITE WR11: NORTHWEST INDUSTRIAL AREA



SUMMARY INFORMATION

Watershed:	Willamette River Watershed
Neighborhood:	The northern three-quarters of the site is in the Northwest Industrial Neighborhood and the remaining southern portion is in the Northwest District Neighborhood
USGS quadrangle, quarter section maps:	1N1W13, 1N1E18, 1N1E19, 1N1E20, 1N1E28, and 2323, 2422-24, 2522-26, 2624-27, 2726-28, 2827-29, 2929
River Mile:	7.1 – 11.2
Site Size:	963 acres (land and water)
Previous Inventory:	Lower Willamette River Wildlife Habitat Inventory, March 1986
Zoning:	Heavy Industrial (IH) Employment (EX) Residential (RX) Open Space (OS) Design overlay (d) Scenic overlay (s) River General overlay (g) River Industrial overlay (i)
Existing Land Use:	Industrial; railroad
Landscape Setting:	The site is located along the west bank of the Willamette River between NW 61st Ave and the Broadway Bridge. The site is almost entirely developed. Saltzman and Balch Creek both have outfalls to the Willamette River within the site.
Resource Features:	Riparian woodland, shrubland and herbaceous vegetation; streams; flood area
Functional Values:	Microclimate and shade; stream flow moderation and water storage; bank stability, and sediment, pollution and nutrient control; large wood and channel dynamics; organic inputs, food web and nutrient cycling; wildlife movement corridor; wildlife habitat
Special Status Species:	Fish: Lower Columbia River Chinook salmon; Lower Columbia Coho salmon; Lower Columbia River Steelhead trout, Pacific lamprey.
Special Habitat Area:	Yes
Natural Hazards:	Flood area

SITE DESCRIPTION

The 963-acre inventory site is located on the west bank of the Willamette River with the northwest boundary formed by the southeast edge of site WR8 Doane Lake and the Broadway Bridge forming the boundary to the southeast. The site consists primarily of industrial uses, including two Port of Portland Terminals¹ and 2. WR11 Map 1 includes an aerial map of the inventory site.



The site has little vegetation. The site contains 461.7 acres (47.9%) impervious surface coverage, including 11.5 miles of road. Vegetated areas at least ½ acre include 15 acres of herbaceous cover and a total of 5 acres of woodland and shrubland cover.

Approximately 423 acres of the site are made up of the Willamette River channel from shore to centerline. The site contains approximately 25,000 linear feet of bank. Sixteen hundred feet of the bank is comprised of non-contiguous beach while the remainder is a mix of vegetated and non-vegetated riprap, pilings, and unclassified fill. The 83-acre flood area along the eastern edge of the site includes 12 acres of vegetated area and 71 acres of developed area and river bank.

There is contamination to soil, groundwater and river sediments from industrial uses on this site.

NATURAL RESOURCES DESCRIPTION

The aquatic resources within this site are primarily developed flood area with some vegetation (resource features are shown in WR11 Maps 2 and 3). The riparian corridor along the bank of the Willamette is fragmented by river dependent uses. No terrestrial wildlife connections exist between upland habitats in Forest Park and the Willamette River. The two streams that discharge to the river are piped through the site and offer little habitat except at the outfalls.

This site contains small patches of shrubland and herbaceous vegetation, vegetated riprap and four sections of beach. Aside from the beach in the northeastern third of the site, the banks of the river are steep and consist of fill and rock to the north, vegetated riprap in the middle, and pilings to the south. The near shore substrate is primarily sand and there are some shallow water areas (ODFW, 2005).

Saltzman and Balch creeks are piped underneath this site, and have outfalls to the Willamette. Saltzman Creek is daylighted for approximately 300-400 feet prior to discharging to the River. Bathymetry shows shallow water areas at the confluence with beach, mudflats and shrubland vegetation dominated by Himalayan blackberry.

Another shallow water area is located at an inlet where an outfall discharges multiple streams, including Balch Creek, to the river. The substrate here primarily consists of sand and is exposed during low tide (ODFW, 2005). The vegetation type surrounding the outfall is herbaceous and the stream is not daylighted.

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 value ranks for riparian function, wildlife habitat and riparian/wildlife habitat areas combined. The relative ranks are produced using GIS models and information on Special Habitat Areas. All of the ranked resource areas provide at least some important riparian and habitat value, recognizing that current condition and function levels may vary considerably. The relative ranks can help inform planning programs, design of develop or redevelopment projects, mitigation and restoration activities. 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 the *City of Portland Natural Resource Inventory Update Project Report, 2007*.

Riparian Areas

The site contains the Willamette River and vegetation in the flood area that contribute to the riparian functions as detailed in the natural resource description. These landscape features provide the following riparian functions:

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

High relative ranks are assigned to the Willamette River, and flood area vegetated with woodland or shrubland. Medium relative ranks are assigned to portions of the flood areas with herbaceous vegetation. Low relative ranks are assigned to remaining portions of flood area that are not vegetated. 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 (WR11 Map 4).

Wildlife Habitat

Based on the wildlife habitat attributes mentioned in the previous section (size, interior area, connectivity/proximity to other patches and water), the wildlife habitat model assigns no relative functional rank to potential wildlife habitat resources in this site

Four Willamette Beach Special Habitat Areas (SHAs) contain unique features and provide critical wildlife habitat as described in the natural resources description. In addition, the Willamette River is a designated Special Habitat Area, reflecting its federal designation as "Critical Habitat" for salmonids species that are listed as threatened under the Endangered Species Act.

SHAs receive a high relative rank for wildlife habitat. The SHA rank supersedes lower rankings generated by the GIS model. Therefore, all SHAs within the site rank high for wildlife habitat (WR11 Map 5).

Combined Relative Riparian/Wildlife Habitat Ranking






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 low for riparian function and high for wildlife habitat, such as the Willamette Beach SHAs, will receive a high combined relative rank (WR11 Map 6.)

Table 15: Summary of Ranked Resource in WR11: Northwest Industrial Area

Total Inventory Site Area = 963 acres Terrestrial* = 539 acres Willamette River = 424 acres					
		High	Medium	Low	Total
Riparian Resources **					
acres		435	25	57	517
percent total inventory site area		45%	3%	6%	54%
Special Habitat Area **					
acres		426			
percent total inventory site area		44%			
Wildlife Habitat **					
acres		426	0	0	426
percent total inventory site area		44%	0%	0%	44%
Combined Total ***					
acres		437	23	57	517
percent total inventory site area		45%	2%	6%	54%
Combined Terrestrial (excludes Willamette River)					
acres		13	23	57	93
percent total inventory site area		2%	2%	6%	10%
<p>* Terrestrial includes the land, tributary streams, drainageways and wetlands. ** High-ranked riparian resources, Special Habit Areas, and wildlife habitat includes the Willamette River. *** Because riparian resources, Special Habitat Areas, and wildlife habitat overlap, the results cannot be added together to determine the combined results.</p>					

Site WR11a - Map 1: Northwest Industrial Area

2005 Aerial Photography

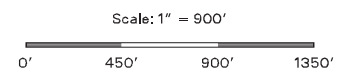
-  Stream/Drainageway
-  Culvert or Piped
-  Site Boundary
-  City Boundary
-  Urban Services Boundary



INFORMATION SOURCES:

Aerial Orthophotographs:
Digital Orthophotography from flight in July 2005.
Photography has been rectified to adjust for curvature
of the earth. Not registered to taxlot base map.

All data compiled from source materials at different scales.
For more detail, please refer to the source materials or
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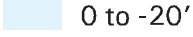
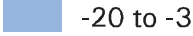
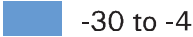





Site WR11a - Map 2: Northwest Industrial Area

Water-Related Features







Water Bodies

River Depths

-  0 to -20'
-  -20 to -30'
-  -30 to -40'
-  deeper than 40'

-  Stream/Drainageway
-  Culvert or Piped

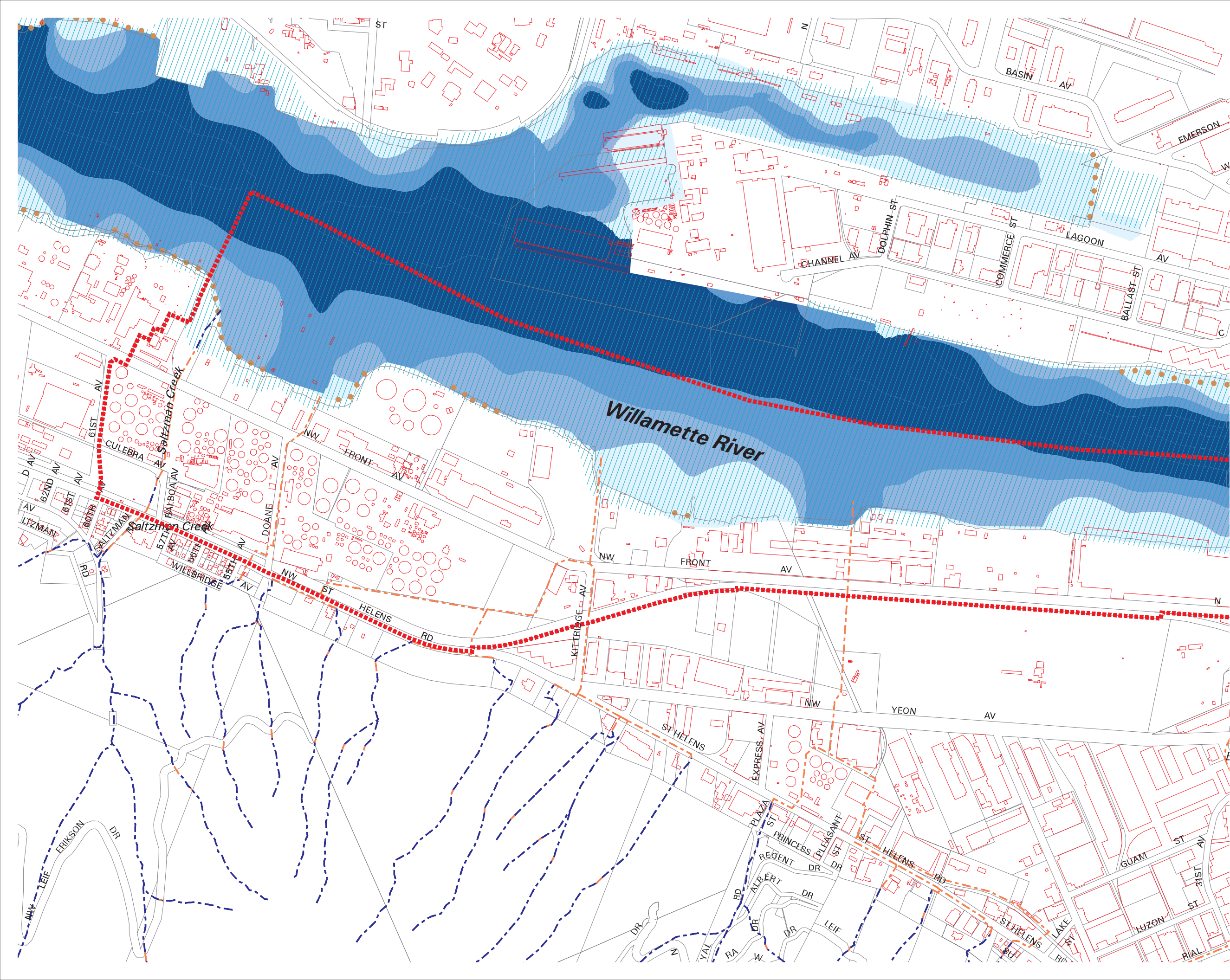
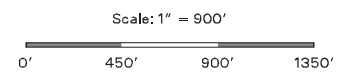
Other Features

-  Flood Area
-  Wetlands
-  Beach
-  Site Boundary
-  City Boundary
-  Urban Services Boundary

INFORMATION SOURCES:

Water Bodies:
Rivers, lakes and other water features. Originally digitized by Metro (1994). Data collection scale: 1:100' - 1:400'. City of Portland and Multnomah County pockets updated by City of Portland, Bureau of Planning, to refine waterbody geometry, remove erroneously mapped waterbodies, and add missing waterbodies. Aerial photos were the primary data source used as reference for re-mapping waterbodies. This is an interim dataset reflecting all work completed to date.





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Site WR11a - Map 3: Northwest Industrial Area

Vegetation Features

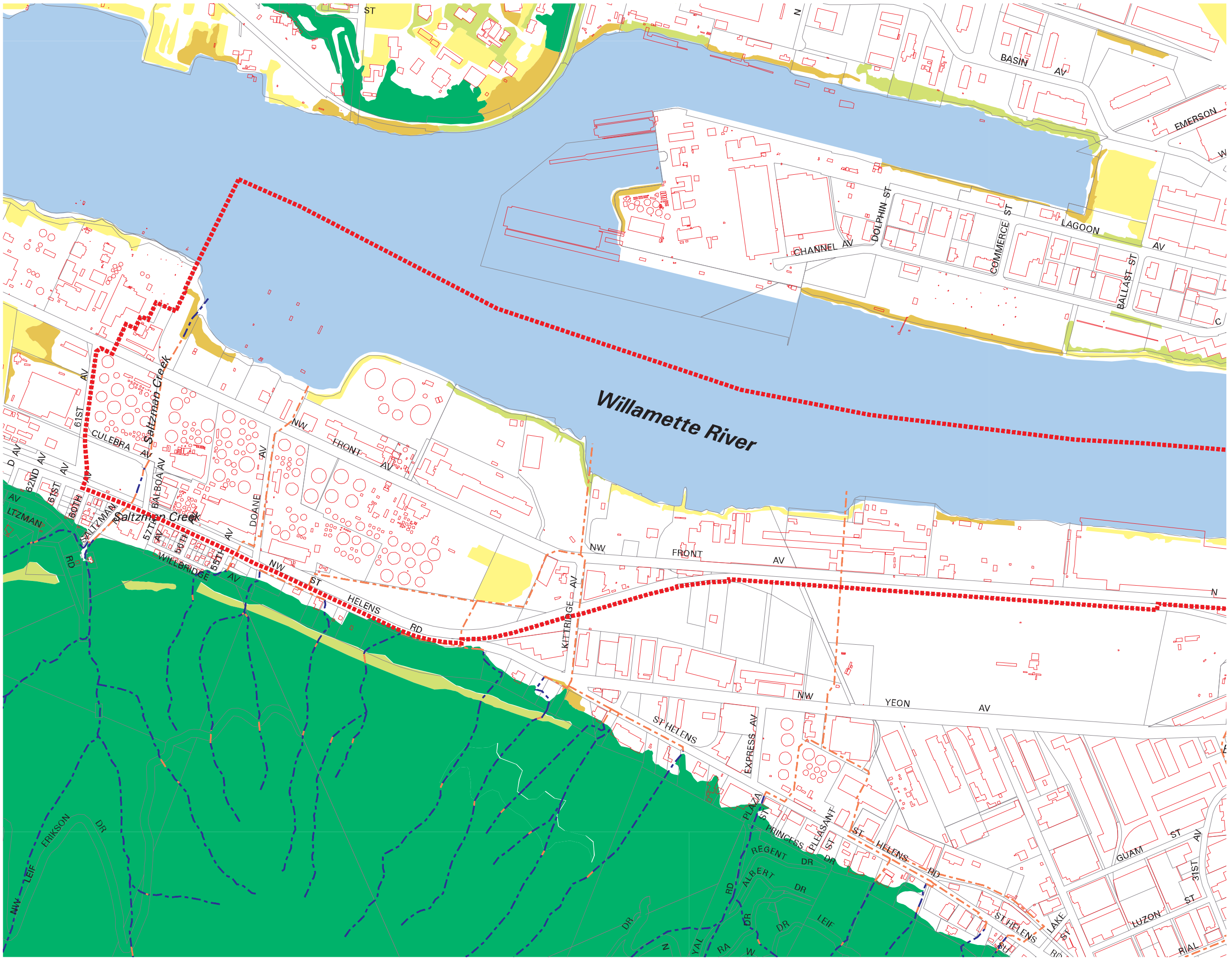
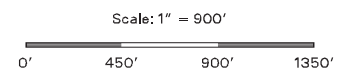
Vegetation Types

-  Forest
-  Woodland
-  Shrubland
-  Herbaceous
-  Stream/Drainageway
-  Culvert or Piped
-  Site Boundary
-  City Boundary
-  Urban Services Boundary

INFORMATION SOURCES:









Vegetation patches:
Vegetation patches larger than 1/2 acre mapped by the City of Portland, Bureau of Planning. Based on information from reference data sources including aerial photos, Parks and Recreation natural area assessments, and vegetation surveys along the banks of the Willamette and Columbia rivers. Vegetation patches are classified as forest, woodland, shrubland, or herbaceous. The mapping area includes all land within the City of Portland and the unincorporated parts of Multnomah County that are administered by the City of Portland. Updated through summer of 2004.

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Site WR11a - Map 4: Northwest Industrial Area

Riparian Resources Relative Rankings

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

INFORMATION SOURCES:

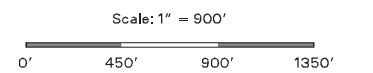
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






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Site WR11a - Map 5: Northwest Industrial Area

Wildlife Habitat Relative Rankings

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

INFORMATION SOURCES:

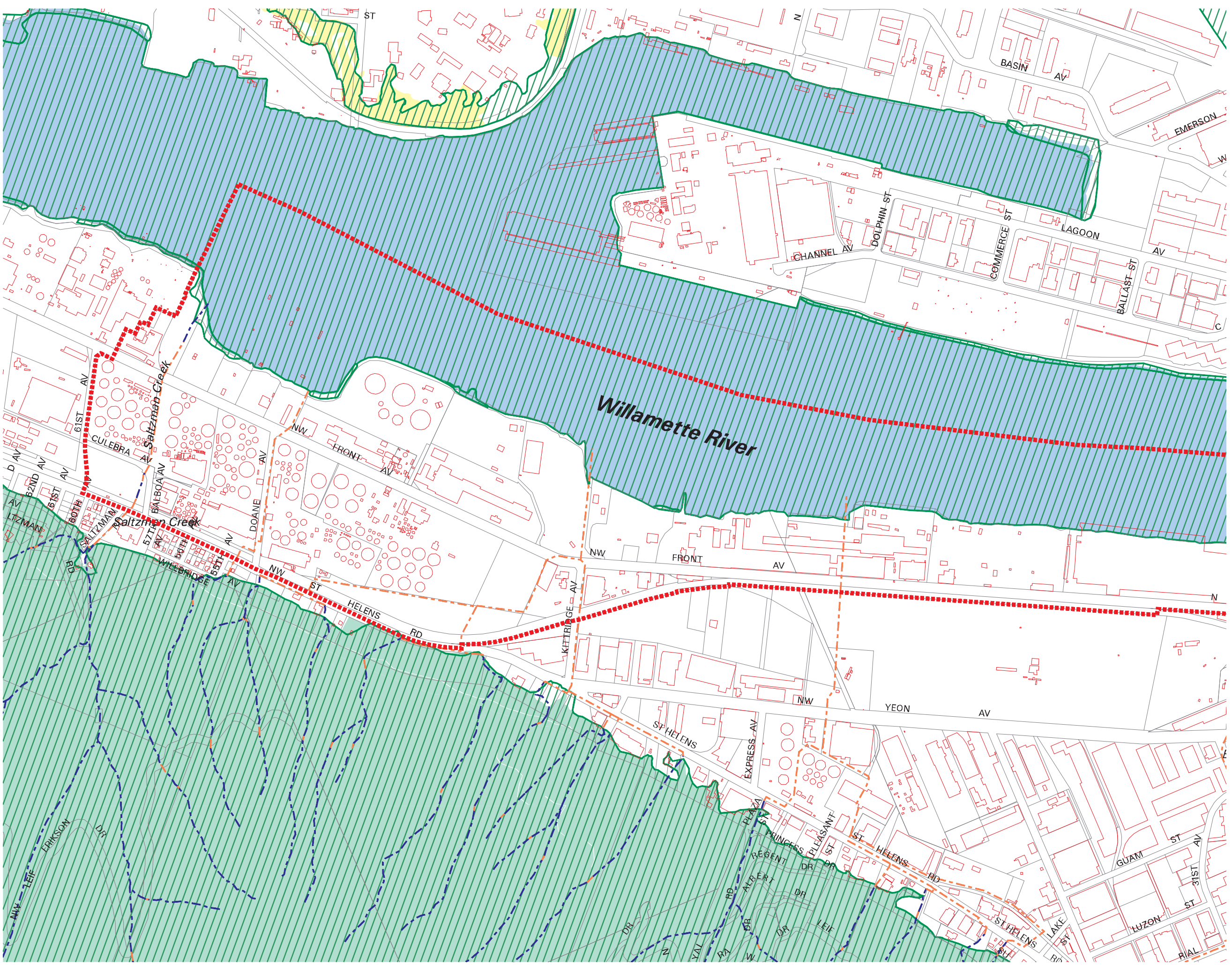
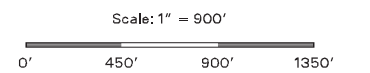
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Site WR11a - Map 6: Northwest Industrial Area

Combined Riparian / Wildlife Relative Rankings

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

INFORMATION SOURCES:

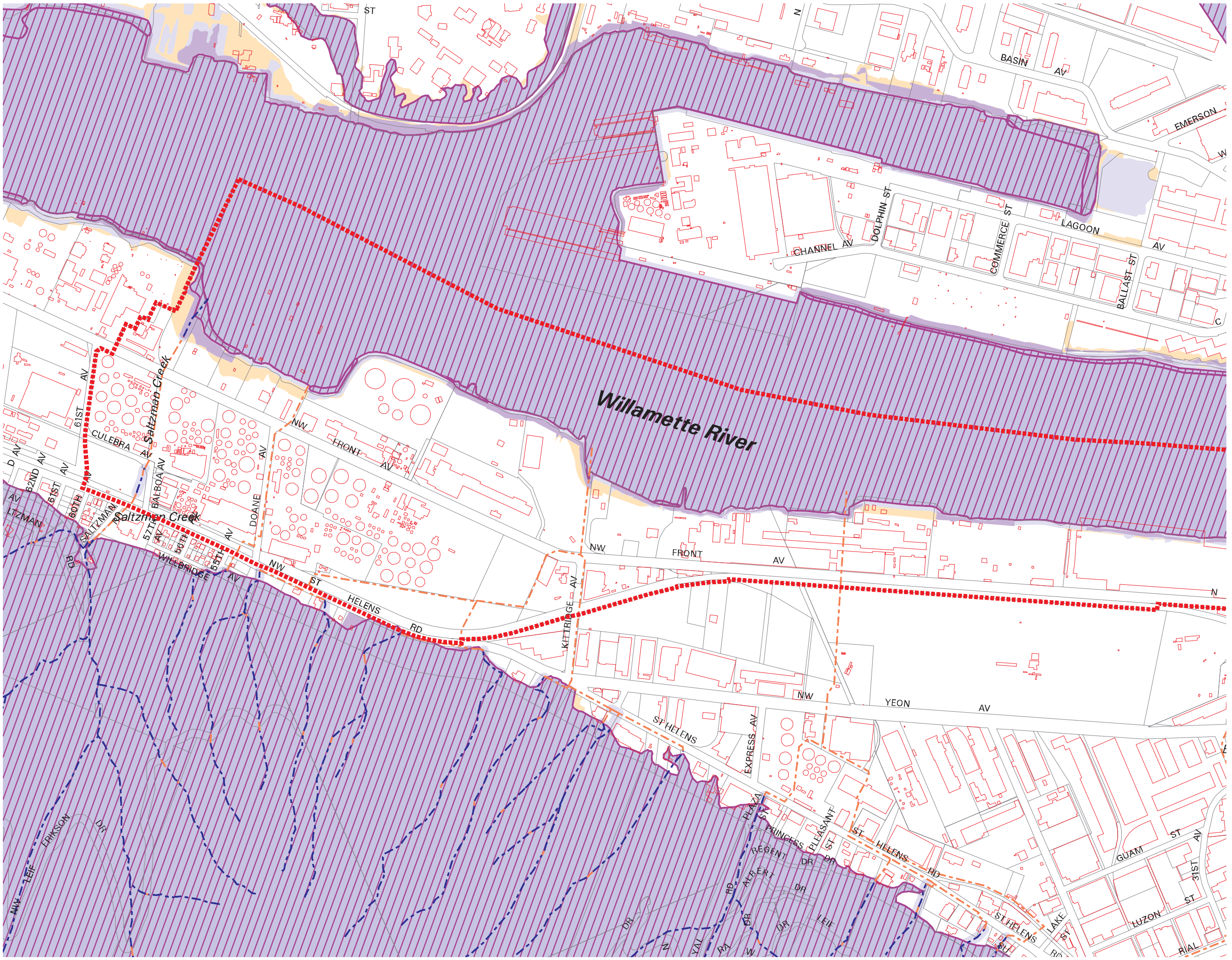
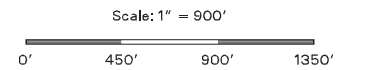
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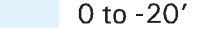
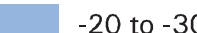






Site WR11b - Map 2: Northwest Industrial Area

Water-Related Features







Water Bodies

River Depths

-  0 to -20'
-  -20 to -30'
-  -30 to -40'
-  deeper than 40'

-  Stream/Drainageway
-  Culvert or Piped

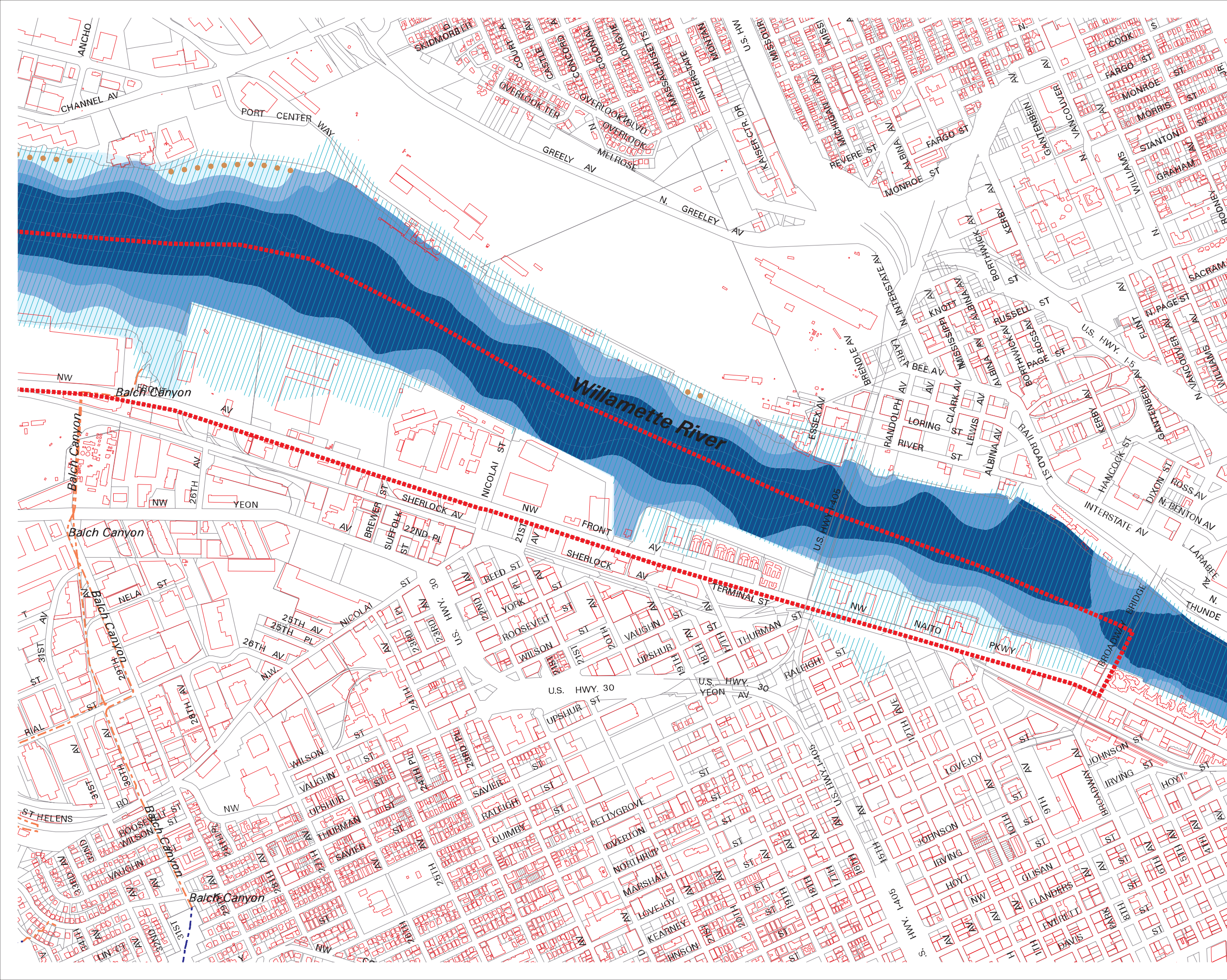
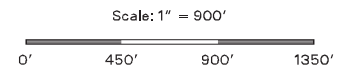
Other Features

-  Flood Area
-  Wetlands
-  Beach
-  Site Boundary
-  City Boundary
-  Urban Services Boundary

INFORMATION SOURCES:

Water Bodies:
Rivers, lakes and other water features. Originally digitized by Metro (1994). Data collection scale: 1:100' - 1:400'. City of Portland and Multnomah County pockets updated by City of Portland, Bureau of Planning, to refine waterbody geometry, remove erroneously mapped waterbodies, and add missing waterbodies. Aerial photos were the primary data source used as reference for re-mapping waterbodies. This is an interim dataset reflecting all work completed to date.

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Site WR11b - Map 3: Northwest Industrial Area

Vegetation Features

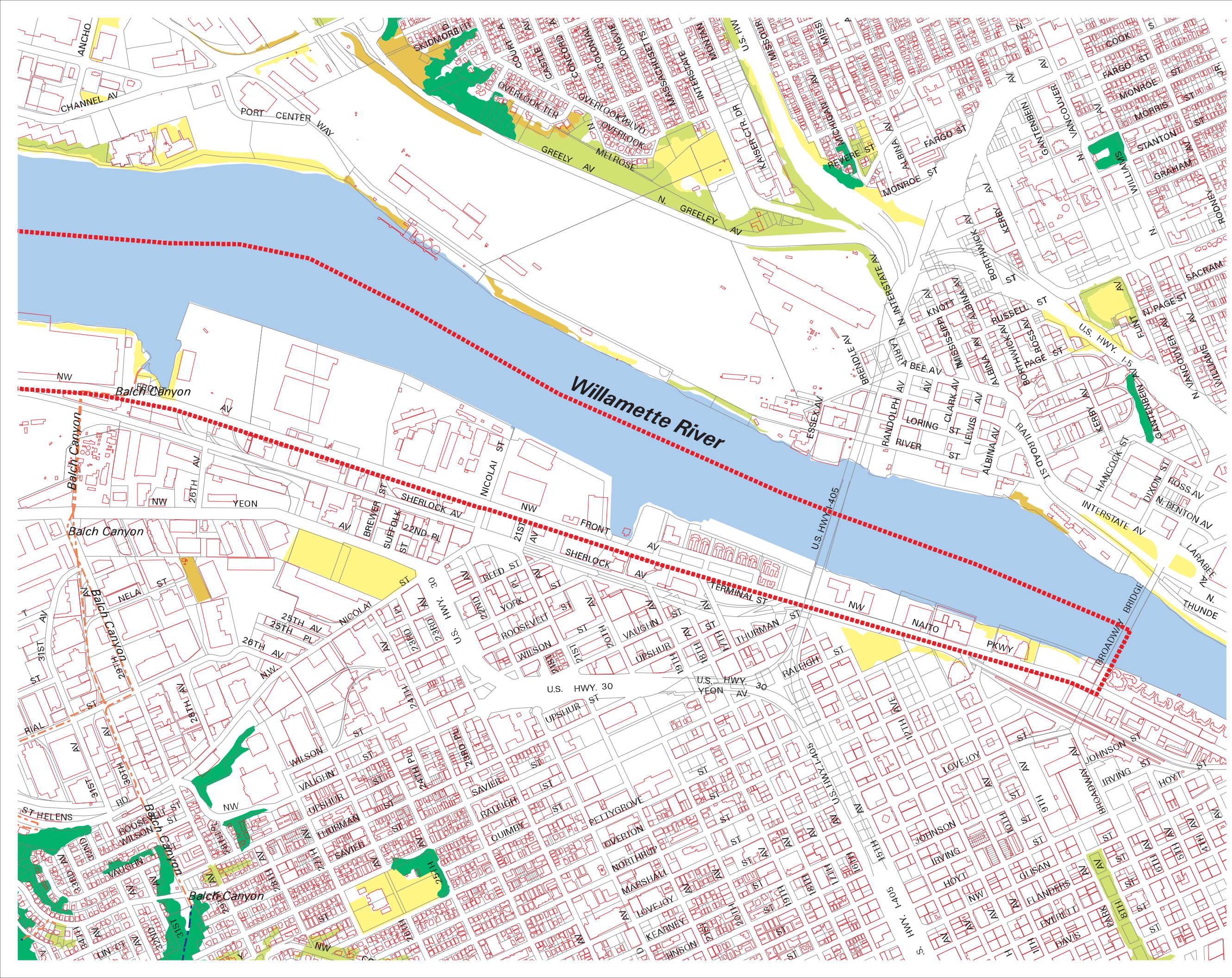
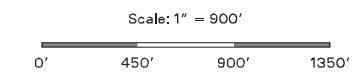
Vegetation Types

-  Forest
-  Woodland
-  Shrubland
-  Herbaceous
-  Stream/Drainageway
-  Culvert or Piped
-  Site Boundary
-  City Boundary
-  Urban Services Boundary

INFORMATION SOURCES:

Vegetation patches:
Vegetation patches larger than 1/2 acre mapped by the City of Portland, Bureau of Planning. Based on information from reference data sources including aerial photos, Parks and Recreation natural area assessments, and vegetation surveys along the banks of the Willamette and Columbia rivers. Vegetation patches are classified as forest, woodland, shrubland, or herbaceous. The mapping area includes all land within the City of Portland and the unincorporated parts of Multnomah County that are administered by the City of Portland. Updated through summer of 2004.









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Site WR11b - Map 4: Northwest Industrial Area

Riparian Resources Relative Rankings

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

INFORMATION SOURCES:

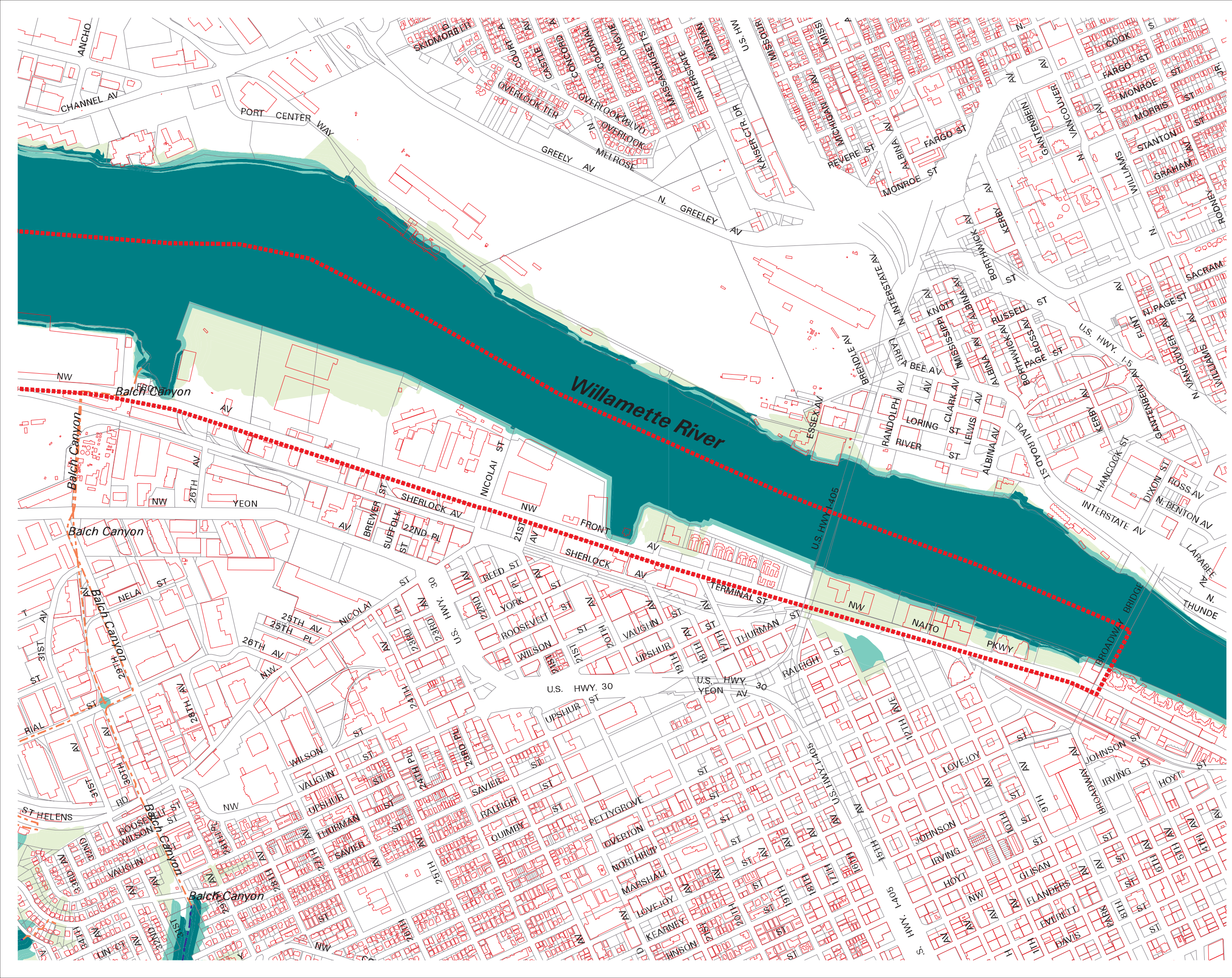
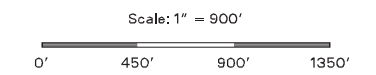
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






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Site WR11b - Map 5: Northwest Industrial Area

Wildlife Habitat Relative Rankings

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

INFORMATION SOURCES:

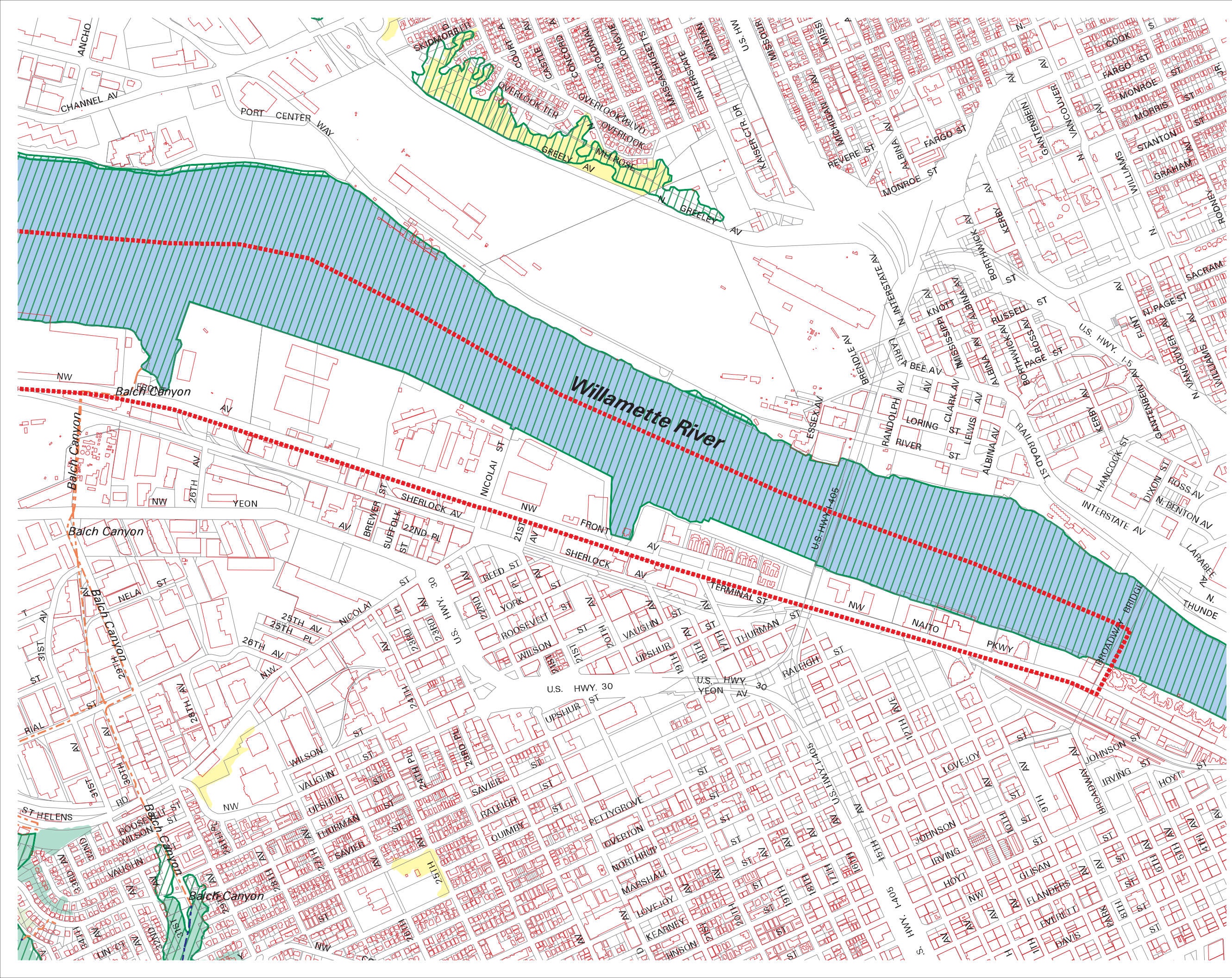
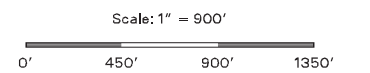
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Site WR11b - Map 6: Northwest Industrial Area

Combined Riparian / Wildlife Relative Rankings

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

INFORMATION SOURCES:

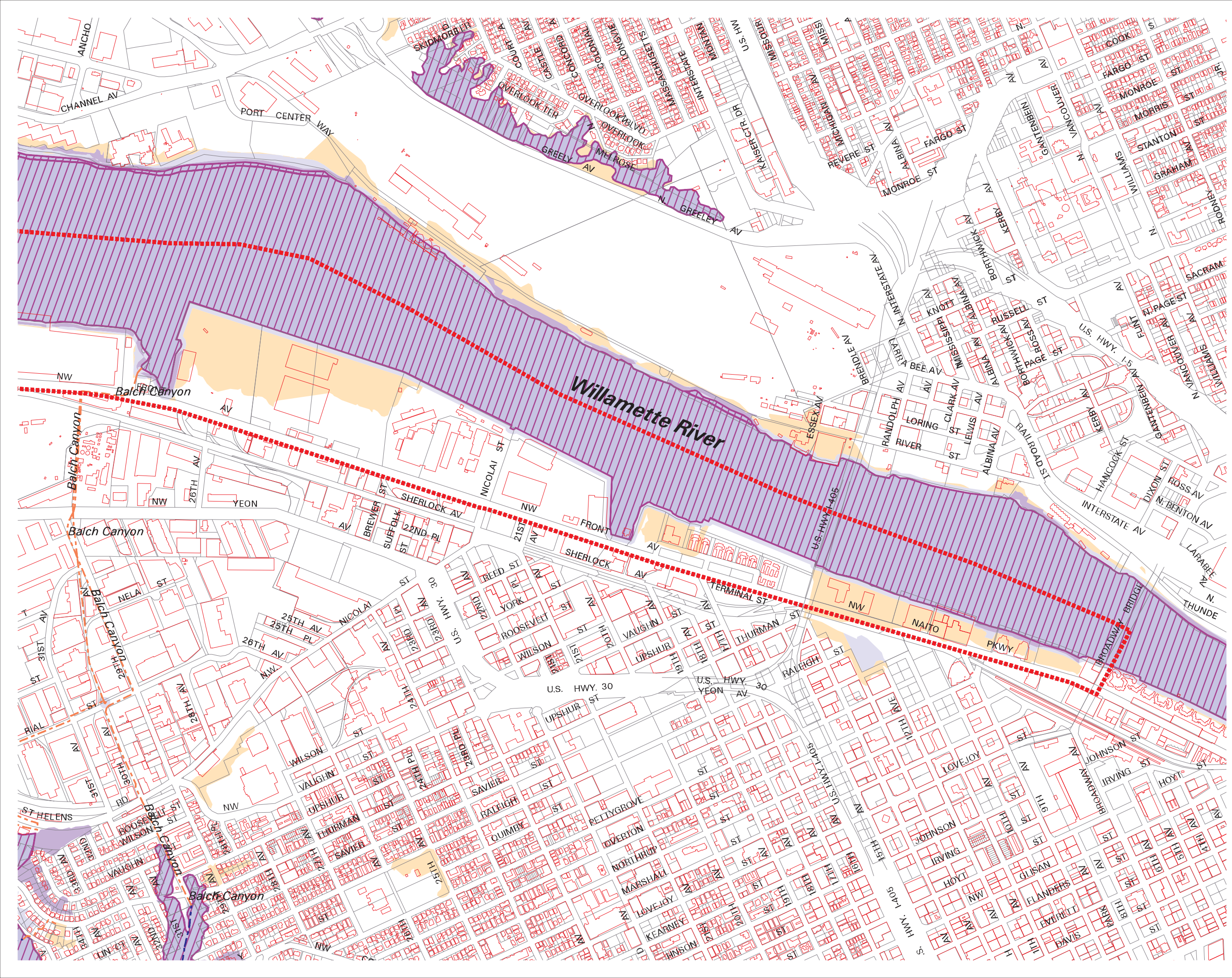
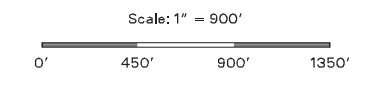
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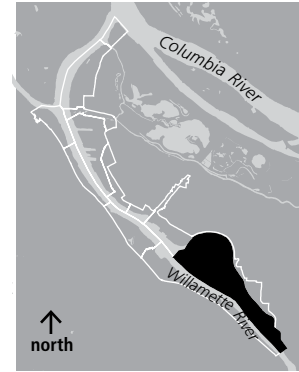
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INVENTORY SITE WR12: SWAN ISLAND



SUMMARY INFORMATION

Watershed:	Willamette River Watershed
Neighborhood:	Overlook Neighborhood
USGS quadrangle, quarter section maps:	1N1E17, 1N1E18, 1N1E20, 1N1E21, 1N1E27, 1N1E28, 1N1E34 and 2324-27, 2424-27, 2524-27, 2626-28, 2727-29, 2828-30, 2929-30
River Mile:	7.6 – 11.3
Site Size:	1,454 acres (land and water)
Previous Inventory:	Lower Willamette River Wildlife Habitat Inventory, March 1986.
Zoning:	Heavy Industrial (IH) General Industrial (IG) General Employment (EG) Open Space (OS) River Industrial overlay (i) River General overlay (g) River Recreational overlay (r) Scenic overlay (s)
Existing Land Use:	Industrial; railroad
General Description:	The site is located below Willamette Bluff and is almost entirely developed with industrial uses.
Resource Features:	Bottomland forest; upland scrub/shrub; grassland; wapato wetland; flood area; beach; open water
Functional Values:	Stream flow moderation and water storage; bank stability, and sediment, pollution and nutrient control; large wood and channel dynamics; organic inputs, food web and nutrient cycling; riparian wildlife movement corridor; connectivity; migratory stopover habitat
Special Status Species:	Plants: Wapato Fish: Lower Columbia River Chinook salmon; Lower Columbia River steelhead trout; Pacific lamprey.
Special Habitat Area:	Yes
Natural Hazards:	Landslide, wildfire, flood area

SITE DESCRIPTION

The Swan Island inventory site is approximately 1,454 acres in size. The site is located below the Willamette Bluff and extends to the Broadway Bridge in the southeast. The northern, northeast and eastern boundary is the bottom of the Willamette Bluff. The centerline of the Willamette River provides the western boundary. WR12 Map 1 shows the aerial view of the Swan Island inventory site.



The site includes Swan Island, Swan Island Lagoon, approximately 19,400 feet of shoreline along the Willamette River.

Three beaches existing within the site are fragmented by riprap and fill. Vegetation in the site is associated primarily with the river banks. Vegetated areas at least one half acre in size consist of one half acre of forest or tree canopy, 17 acres of woodland, 23 acres of shrubland and 26 acres of herbaceous cover.

There are 61 acres of flood area on the site, half of which is vegetated. The remaining 29 acres include developed areas and an unvegetated portion of the river bank. The site contains 786.3 acres (54.1%) impervious surface coverage, including 27.6 miles of road.

As a result of historic and current industrial uses, there are numerous areas of soil, surface water, groundwater, and near shore sediment contamination exist within this site. Portions of the site are within the City of Portland Wildfire Hazard Zone (City of Portland, 1998), the Potential Landslide Hazard area (City of Portland, 2002), and the flood area (City of Portland 2007).

NATURAL RESOURCES DESCRIPTION

This site has both aquatic and terrestrial resources and provides connectivity between the Willamette River and Willamette Bluffs (key resource features are shown in WR12 Maps 2 and 3). The majority of the vegetation in this inventory site is found at the edges of the Swan Island Lagoon beach and along the beaches. The rest of the site contains little vegetation, except some herbaceous and shrubland areas and vegetated riprap. The historic course of the river was to the north, flowing along the east side of Swan Island through what is now the Swan Island Lagoon. The historic channel was filled, except for the lagoon, and the river now flows west of the "island."

Much of the river banks are steep. Bank treatments include pilings, vegetated and non-vegetated rip rap, seawall, rock and unclassified fill. One of the three beaches is situated along the former main river channel at Swan Island Lagoon. Two of the beaches are located along the river side of Swan Island

The beach at Swan Island Lagoon is associated with a wetland containing native Wapato vegetation. The lagoon beach begins on the eastern shore near N Ensign Street and continues to the south end of the lagoon. Remnant forest, woodland and shrubland vegetation line the banks of the Swan Island Lagoon beach. At the southeast end of the lagoon is a large vacant parcel with grassland characteristics and some young cottonwoods. The vegetation association is characteristic of more disturbed sites along the river, with Himalayan blackberry and black

cottonwood as dominant species. Riparian cover along the banks is fragmented by active river industrial uses, but the lagoon riverbanks are only partly lined with riprap, and in many places contain well-established stands of black cottonwood. On the southern tip of the lagoon the Port of Portland has removed non-native invasive species and planted native trees and shrubs in order to enhance bank habitat and reduce erosion. The lagoon beach provides shallow water salmonid habitat, primarily composed of silt and sand (ODFW, 2005).

Beaches located along the shore of the Willamette River have accumulated on top of fill where the main channel of the river historically flowed. One of the beach segments is 7,000 feet long and up to 100 feet wide at mean low water. Farther south exists an 800-foot long, somewhat narrower beach. Shallow water areas adjacent to the beaches are primarily composed of silt and sand and provide important habitat for native salmonids (ODFW, 2005). During field investigations in winter 1999/2000, a large salmon was observed jumping in the river offshore from the Swan Island beach.

Vegetated beaches and associated large wood accumulation are uncommon within much of the North Reach. The stretch of beach northwest of the railroad yard (riprap bank notwithstanding) provides a good reference beach condition for other sites that may be constrained by shoreline development. A variety of willow species (e.g., Pacific, Columbia River, and Piper's willow) and black cottonwood saplings have established themselves on the Swan Island beaches. The beach vegetation is in transition from a shrub to a riparian forest community, though this successional process could change quickly in the event of major flooding. The shrubby vegetation serves several functions: it dissipates erosive forces of the river, traps sand and sediment, and is responsible for the large accumulation of driftwood on the beach. Large cobbles and boulders have also been deposited on the beach. The banks of the river are uniformly covered by riprap, but below the banks are scattered stands of cottonwoods and willows. The sandy beach, large wood, boulders, shrubby beach vegetation, and the above bank trees combine to provide valuable forage and cover habitat for birds and small mammals.

The beaches, natural banks, and riparian cover at this site provide limited forage and perch sites for belted kingfishers, great blue herons, and passerines. The lagoon beach provides a bird migration corridor connecting the habitat at the lagoon terminus to the Willamette Bluff area.

River industrial development and riprap banks limit habitat at this site. In the lagoon beach, the sections of bank that are not lined with riprap are dominated by invasive species such as Himalayan blackberry and Scot's broom, which limit growth of native riparian species. Nearby roads and industrial activity create noise that can also disturb wildlife.

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 value ranks for riparian function, wildlife habitat and riparian/wildlife habitat areas combined (Table 16). The relative ranks are produced using GIS models and information on Special Habitat Areas. All of the ranked resource areas provide at least some important riparian and 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. The approach used to generate the relative rankings is summarized in the introduction to the North Reach sites. Additional detail is provided in the Methodology Overview section of this report and the *City of Portland Natural Resource Inventory Update Project Report, 2007*.

Riparian Areas

The site contains portions of the Willamette River and vegetated flood area, which contribute to the riparian functions as detailed in the natural resource description. These landscape features provide the following riparian functions:

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

High relative functional ranks are assigned to the Willamette River and woodland and shrubland patches within the flood area. Medium relative ranks are assigned to portions of the flood areas with herbaceous vegetation. Low relative ranks are assigned to remaining portions of flood area that are not vegetated. Other vegetated areas within this site are assigned a high or medium relative functional rank depending on the proximity and extent of the vegetation relative to the Willamette River (WR12 Map 4).

Wildlife Habitat

Based on the wildlife habitat attributes mentioned in the previous section (size, interior area, connectivity/proximity to other patches and water), the wildlife habitat model assigns no relative functional rank to potential wildlife habitat resources in this site

This site does contain four Special Habitat Areas (SHAs): Swan Island Lagoon Beach and Wapato wetland, as well as two other beach sections along the river side of Swan Island, and the Willamette River itself. The Swan Island Lagoon Beach and Wapato wetland SHA includes a wetland with the rare native Wapato plant. This shallow water beach with a primarily silt and sand substrate provides salmonid habitat (ODFW, 2005). The Willamette River is a designated Special Habitat Area, reflecting its federal designation as "Critical Habitat" for salmonids species that are listed as threatened under the Endangered Species Act.

The other two Willamette Beach SHAs, found along the main channel of the Willamette River, accumulate large woody debris and also provide shallow water habitat for salmonids (ODFW, 2005).

The SHA described above contain unique features and provide critical wildlife habitat. 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 (WR12 Map 5).

Combined Relative Quality Ranking

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 low for riparian function and high for wildlife habitat, such as the Willamette Beach SHAs, will receive a high combined relative rank (WR12 Map 6).

Table 16: Summary of Ranked Resource in WR12: Swan Island

Total Inventory Site Area = 1,454 acres
Terrestrial* = 1,015 acres
Willamette River = 439 acres

	High	Medium	Low	Total
Riparian Resources **				
acres	465	31	28	524
percent total inventory site area	32%	2%	2%	36%
Special Habitat Area **				
acres	447			
percent total inventory site area	31%			
Wildlife Habitat **				
acres	447	0	0	447
percent total inventory site area	31%	0%	0%	31%
Combined Total ***				
acres	470	28	28	526
percent total inventory site area	32%	2%	2%	36%
Combined Terrestrial (excludes Willamette River)				
acres	31	28	28	87
percent total inventory site area	2%	2%	2%	6%

* Terrestrial includes the land, tributary streams, drainageways and wetlands.

** High-ranked riparian resources, Special Habit Areas, and wildlife habitat includes the Willamette River.

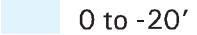
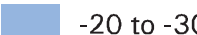
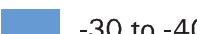

*** Because riparian resources, Special Habitat Areas, and wildlife habitat overlap, the results cannot be added together to determine the combined results.



Site WR12a - Map 2: Swan Island

Water-Related Features







Water Bodies

River Depths

-  0 to -20'
-  -20 to -30'
-  -30 to -40'
-  deeper than 40'

-  Stream/Drainageway
-  Culvert or Piped

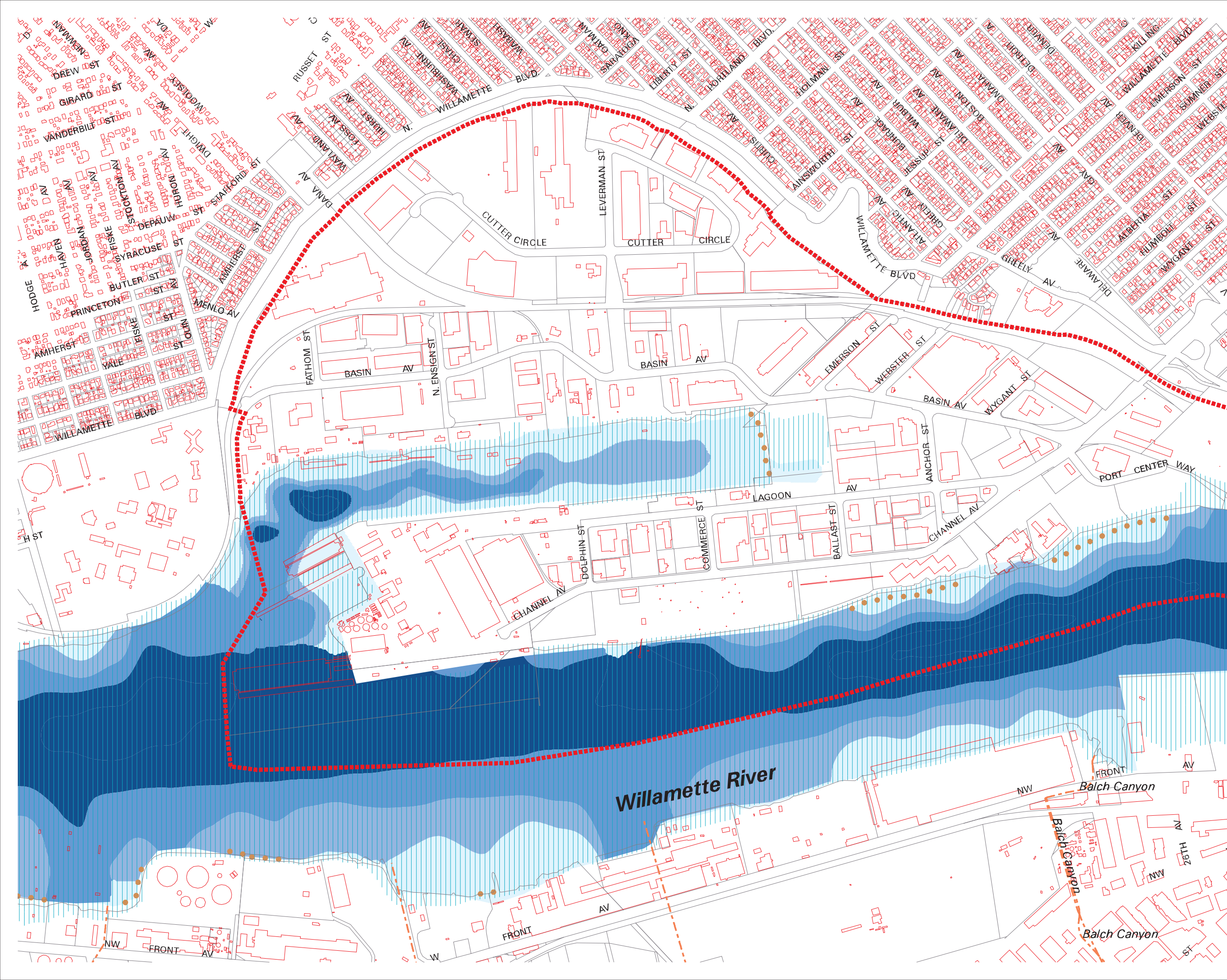
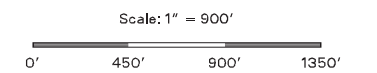
Other Features

-  Flood Area
-  Wetlands
-  Beach
-  Site Boundary
-  City Boundary
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Site WR12a - Map 3: Swan Island

Vegetation Features

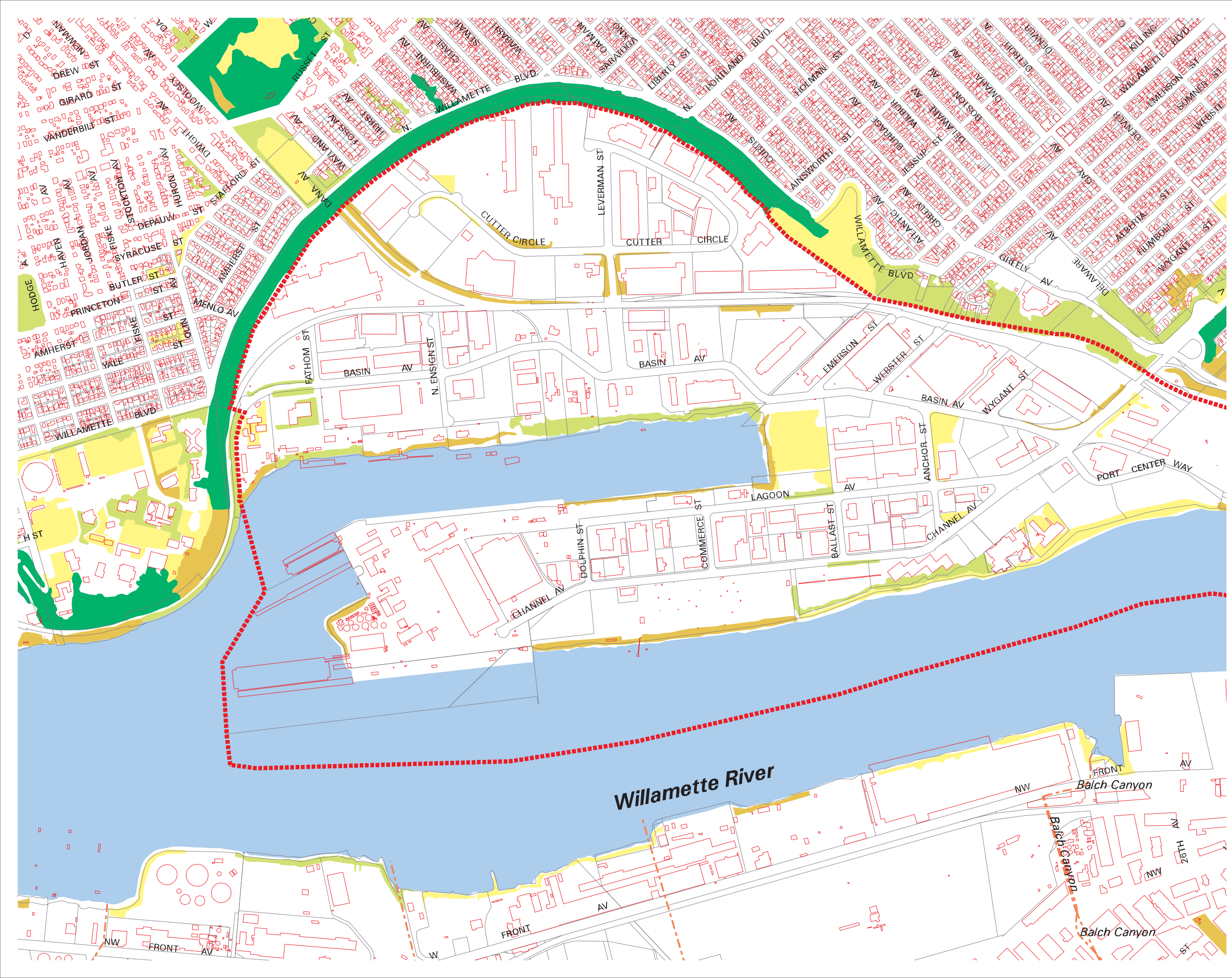
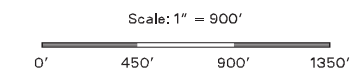
Vegetation Types

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-  Shrubland
-  Herbaceous
-  Stream/Drainageway
-  Culvert or Piped
-  Site Boundary
-  City Boundary
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





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Site WR12a - Map 4: Swan Island

Riparian Resources Relative Rankings

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

INFORMATION SOURCES:

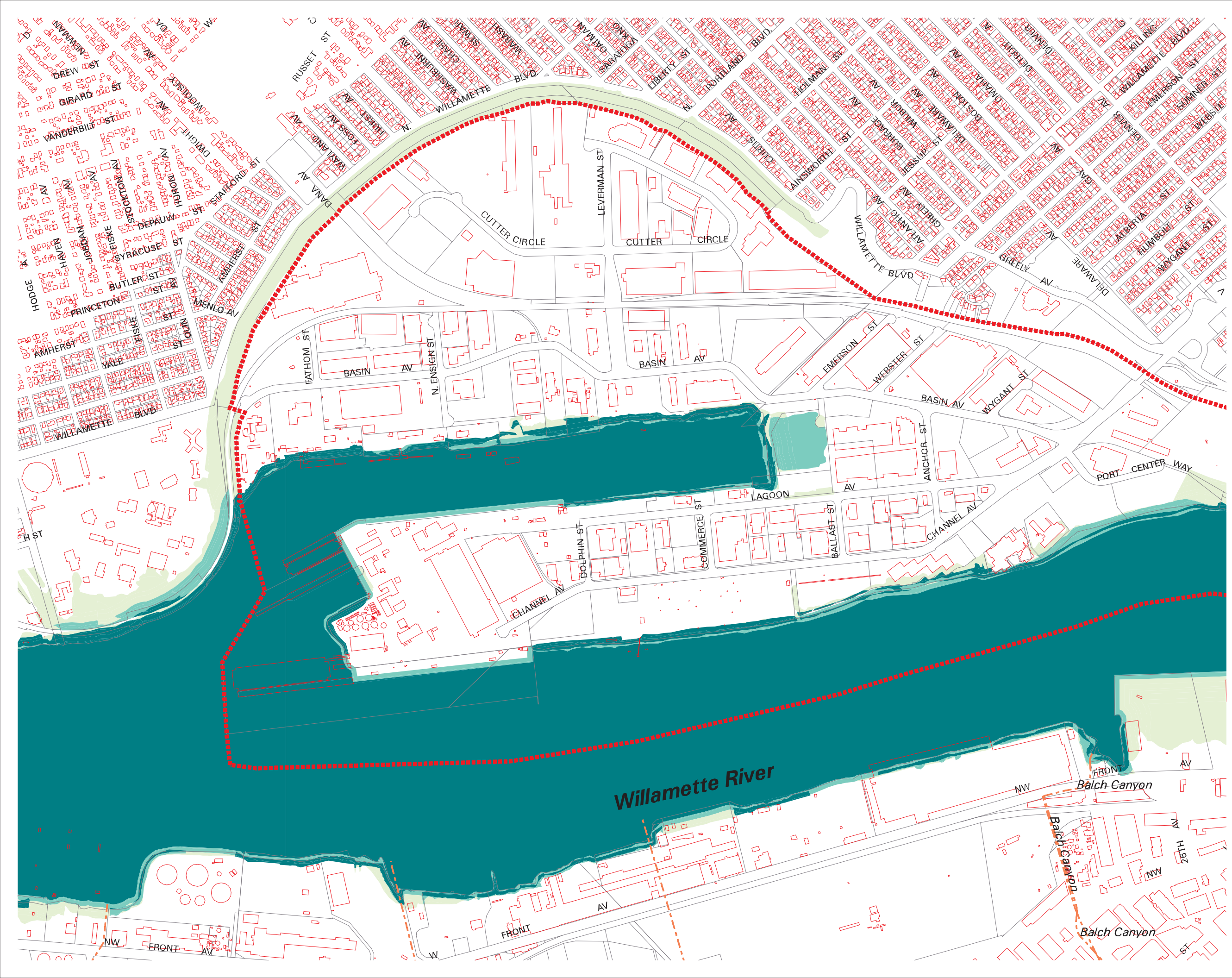
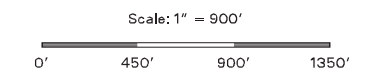
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






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Site WR12a - Map 5: Swan Island

Wildlife Habitat Relative Rankings

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

INFORMATION SOURCES:

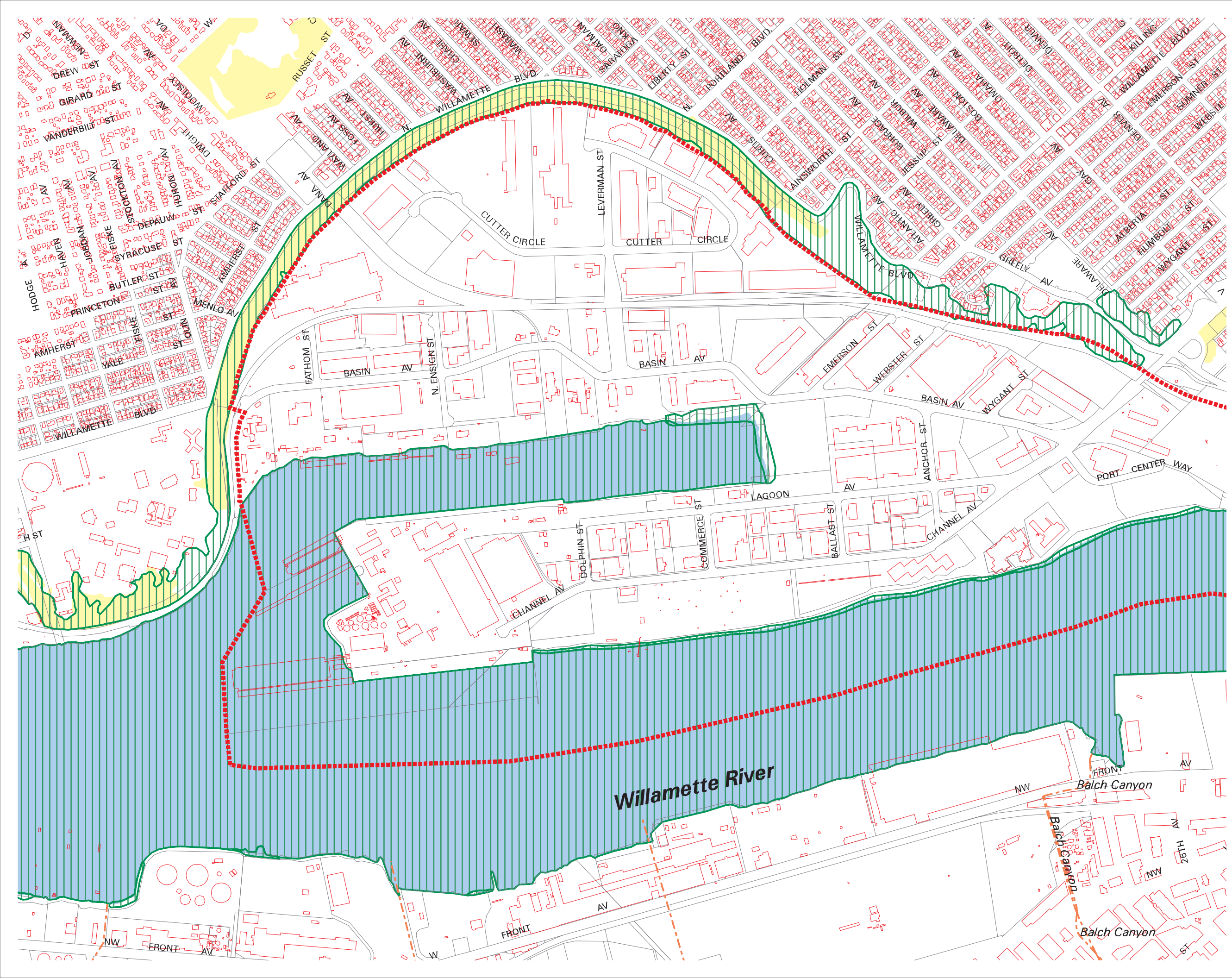
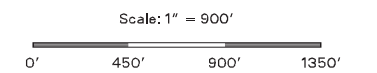
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Site WR12a - Map 6: Swan Island

Combined Riparian / Wildlife Relative Rankings

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

INFORMATION SOURCES:

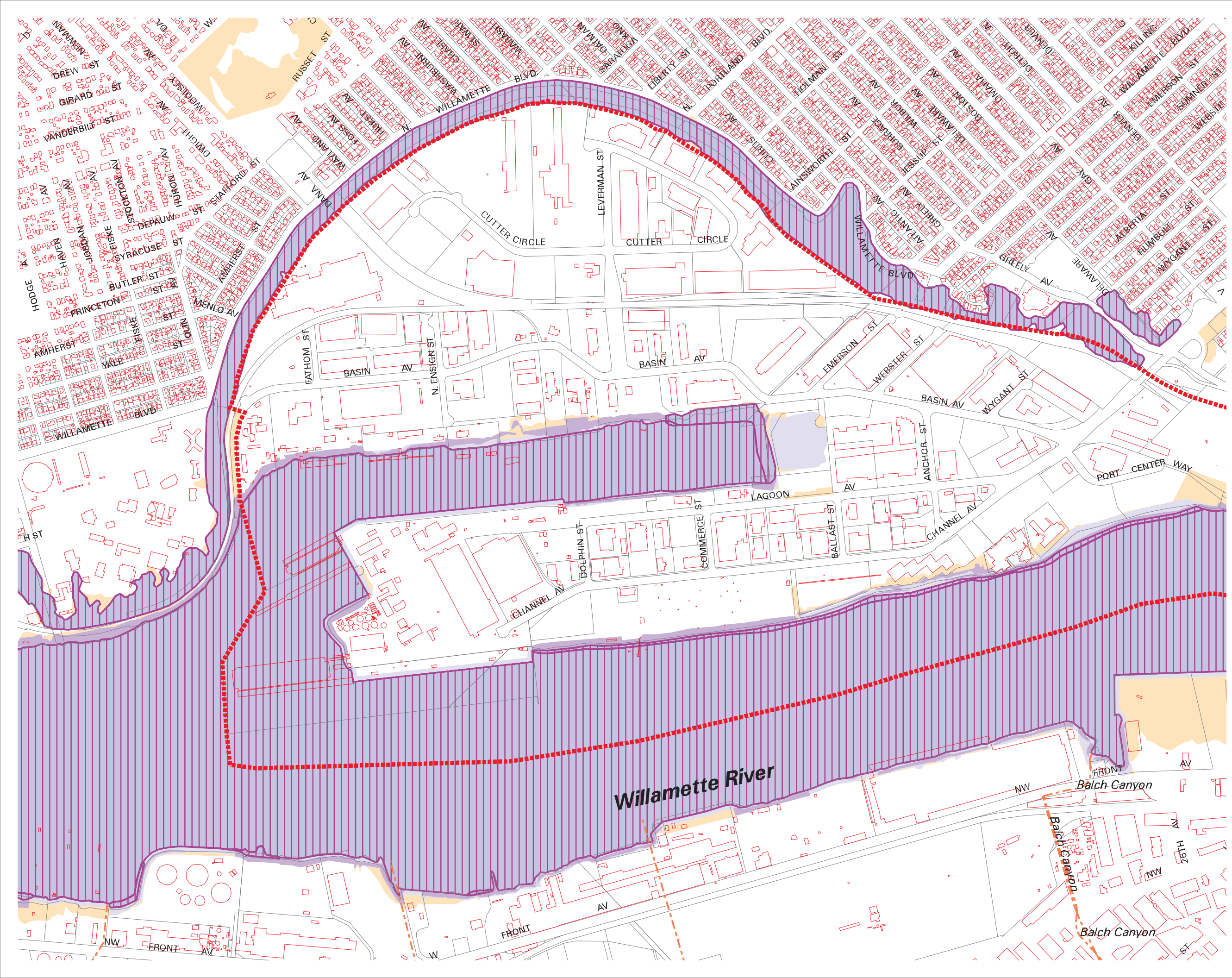
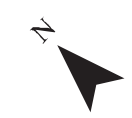
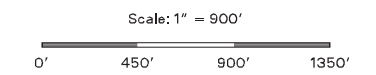
The Natural Resources Inventory Update (NRIU) is a citywide project to revise and update existing natural resource inventories (of trees, streams, wildlife habitat, etc.) in Portland. The update is part of Portland's River Renaissance Initiative to ensure that the Willamette River and its tributary watersheds are clean and healthy.

** SHA ranking supercedes lower relative values.

For more information, please visit our website:
<http://www.portlandonline.com/planning/index.cfm?c=40437>






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All data compiled from source materials at different scales. For more detail, please refer to the source materials or City of Portland, Bureau of Planning.



Site WR12b - Map 1: Swan Island

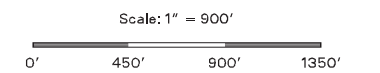
2005 Aerial Photography

-  Stream/Drainageway
-  Culvert or Piped
-  Site Boundary
-  City Boundary
-  Urban Services Boundary

INFORMATION SOURCES:

Aerial Orthophotographs:
Digital Orthophotography from flight in July 2005.
Photography has been rectified to adjust for curvature
of the earth. Not registered to taxlot base map.

All data compiled from source materials at different scales.
For more detail, please refer to the source materials or
City of Portland, Bureau of Planning.

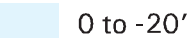
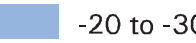
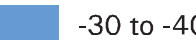





Site WR12b - Map 2: Swan Island

Water-Related Features







Water Bodies

River Depths

-  0 to -20'
-  -20 to -30'
-  -30 to -40'
-  deeper than 40'

-  Stream/Drainageway
-  Culvert or Piped

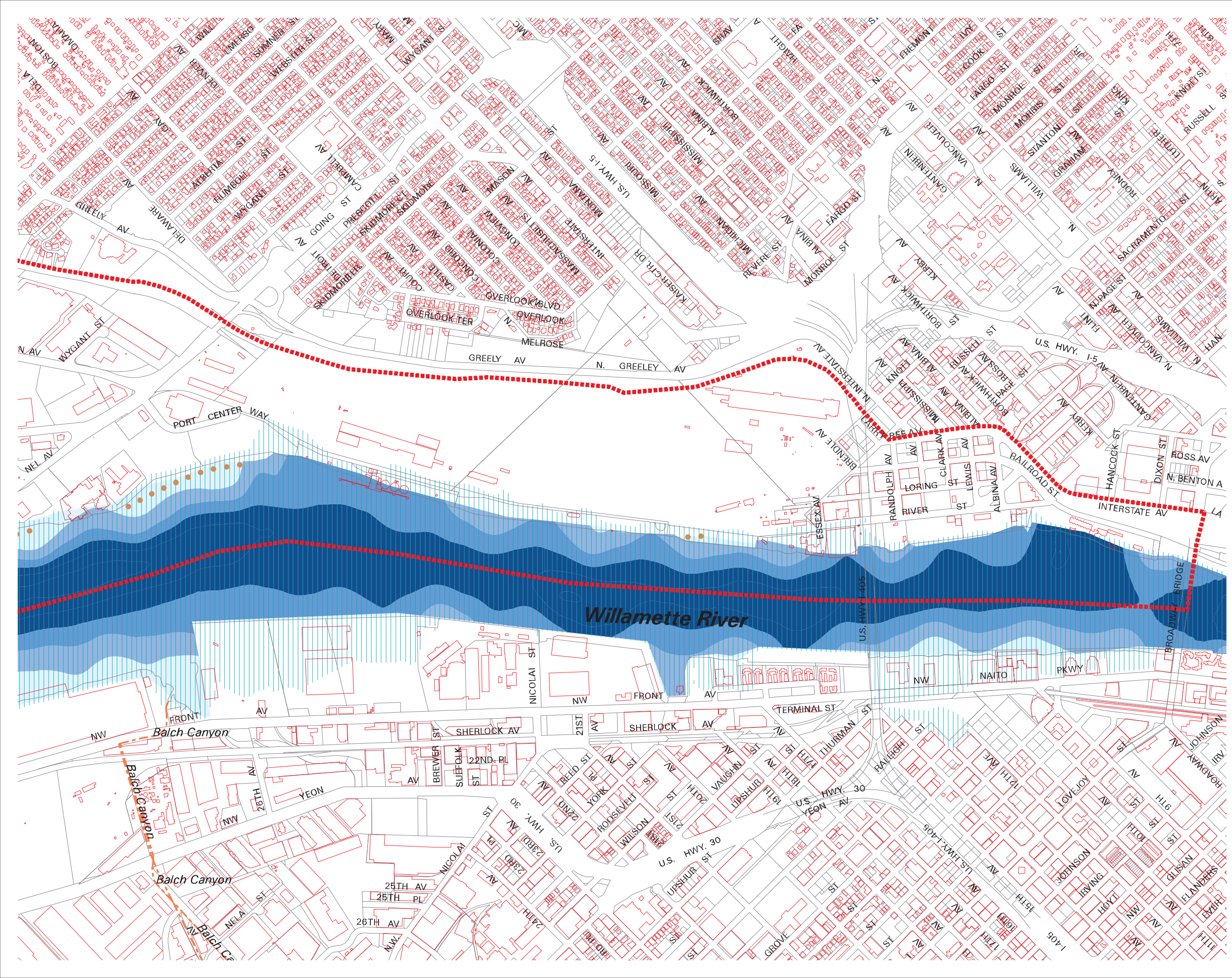
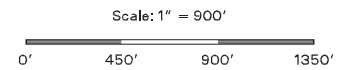
Other Features

-  Flood Area
-  Wetlands
-  Beach
-  Site Boundary
-  City Boundary
-  Urban Services Boundary

INFORMATION SOURCES:

Water Bodies:
Rivers, lakes and other water features. Originally digitized by Metro (1994). Data collection scale: 1:100' - 1:400'. City of Portland and Multnomah County pockets updated by City of Portland, Bureau of Planning, to refine waterbody geometry, remove erroneously mapped waterbodies, and add missing waterbodies. Aerial photos were the primary data source used as reference for re-mapping waterbodies. This is an interim dataset reflecting all work completed to date.

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Site WR12b - Map 3: Swan Island

Vegetation Features

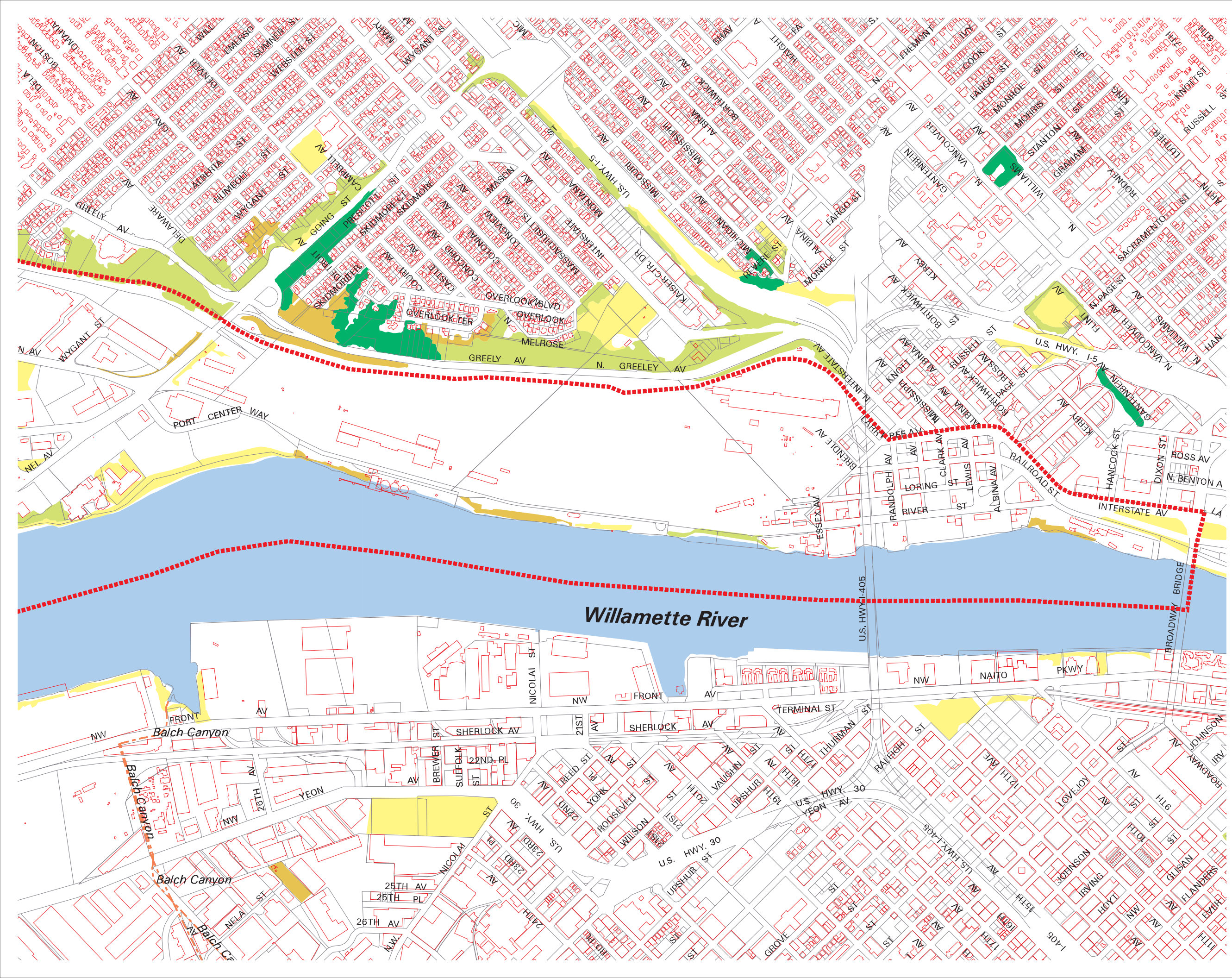
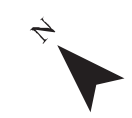
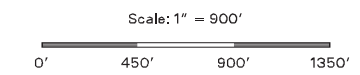
Vegetation Types

-  Forest
-  Woodland
-  Shrubland
-  Herbaceous
-  Stream/Drainageway
-  Culvert or Piped
-  Site Boundary
-  City Boundary
-  Urban Services Boundary

INFORMATION SOURCES:

Vegetation patches:
Vegetation patches larger than 1/2 acre mapped by the City of Portland, Bureau of Planning. Based on information from reference data sources including aerial photos, Parks and Recreation natural area assessments, and vegetation surveys along the banks of the Willamette and Columbia rivers. Vegetation patches are classified as forest, woodland, shrubland, or herbaceous. The mapping area includes all land within the City of Portland and the unincorporated parts of Multnomah County that are administered by the City of Portland. Updated through summer of 2004.

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







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August 09, 2007

Site WR12b - Map 4: Swan Island

Riparian Resources Relative Rankings

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

INFORMATION SOURCES:

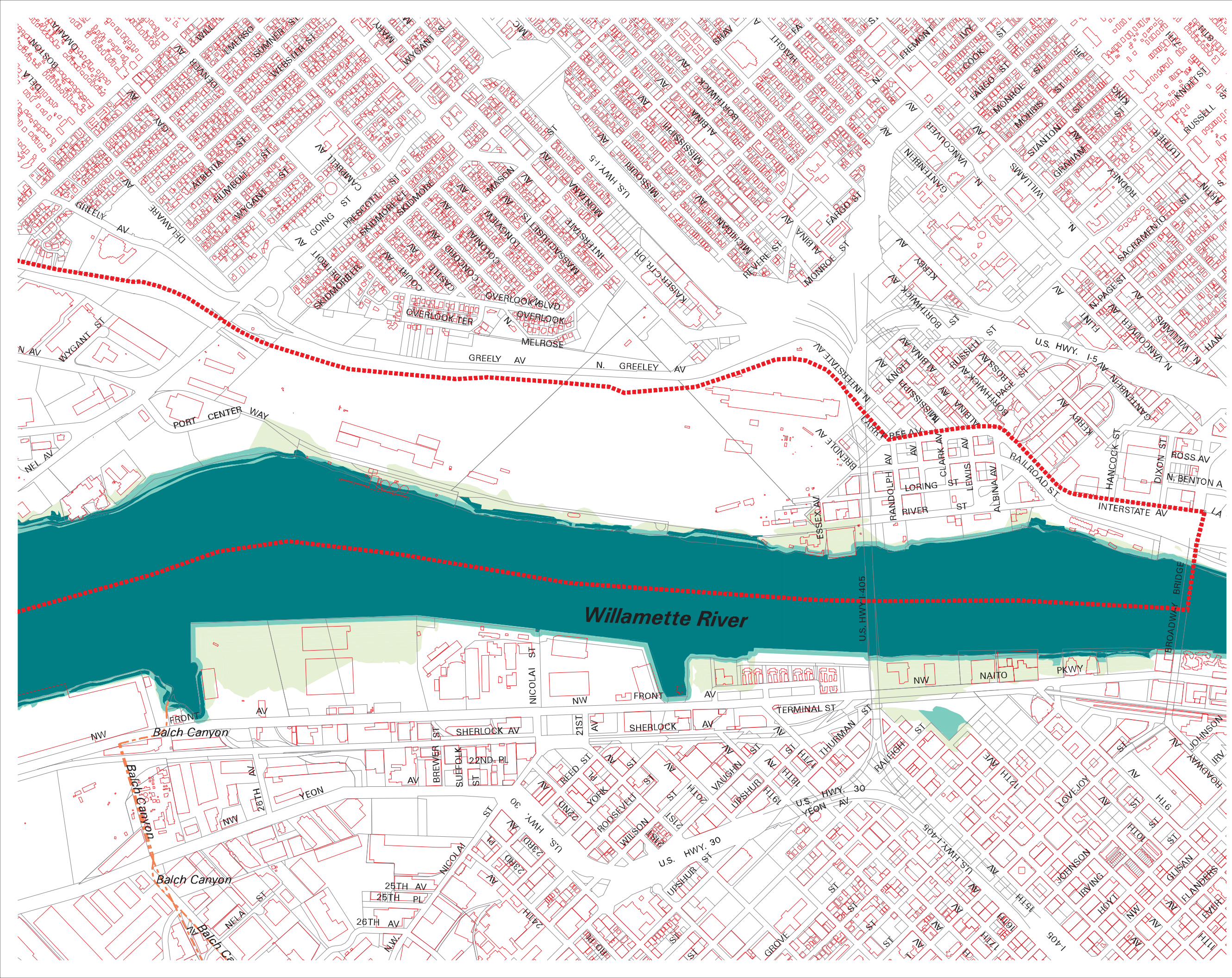
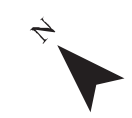
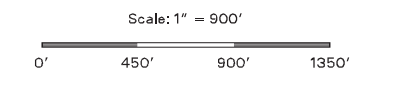
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






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Site WR12b - Map 5: Swan Island

Wildlife Habitat Relative Rankings

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

INFORMATION SOURCES:

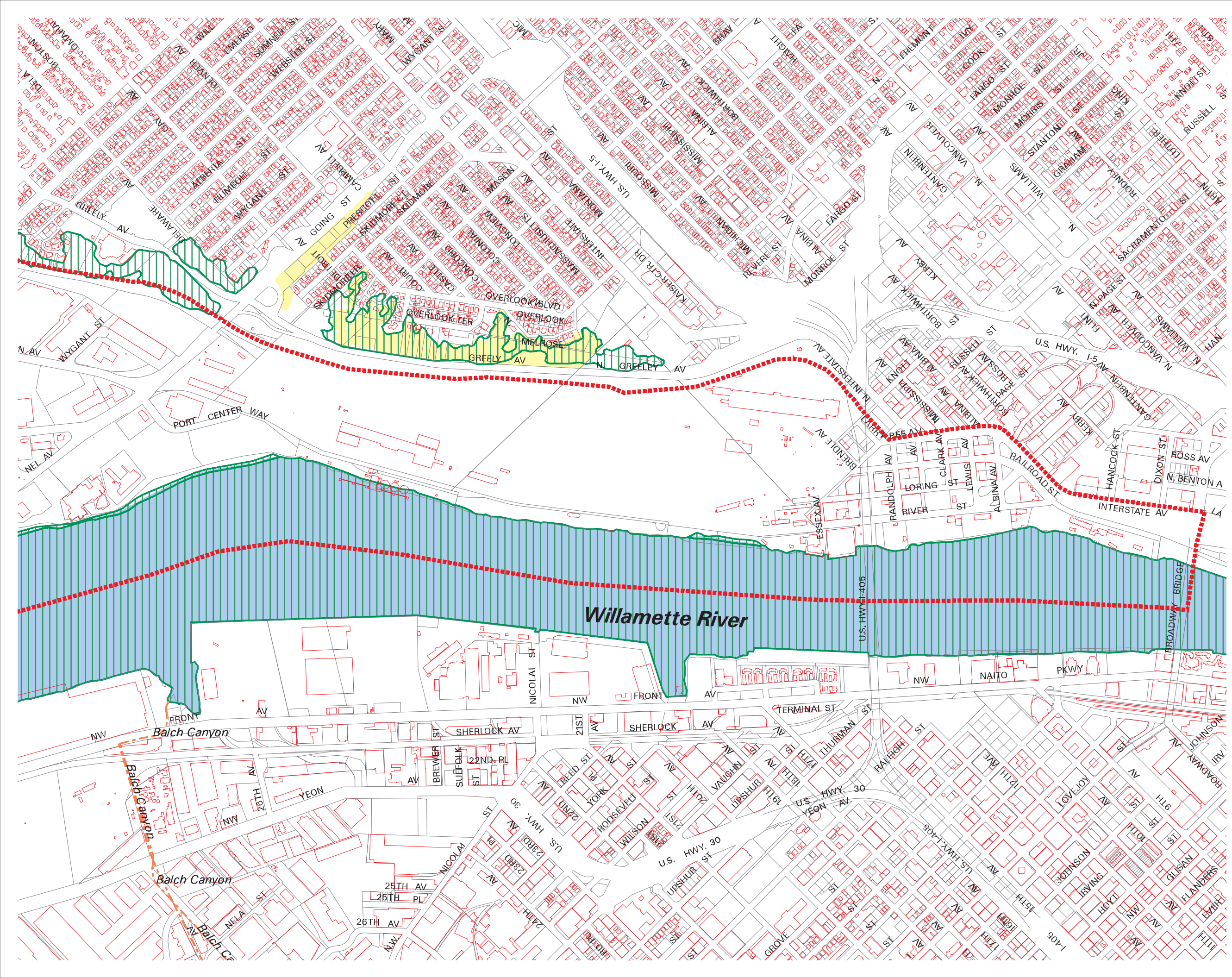
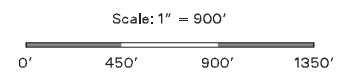
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Site WR12b - Map 6: Swan Island

Combined Riparian / Wildlife Relative Rankings

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

INFORMATION SOURCES:

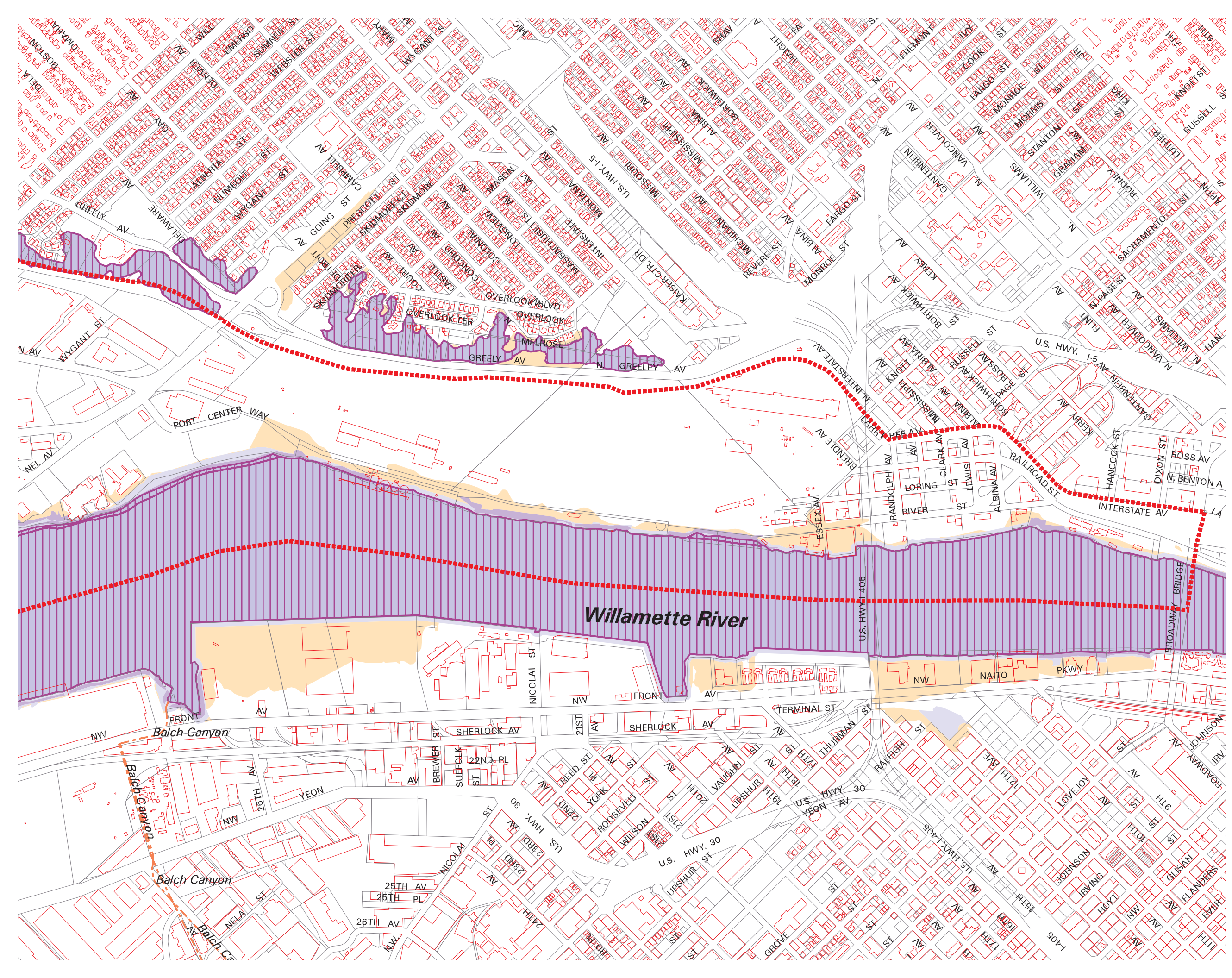
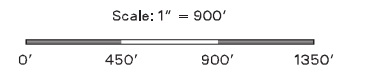
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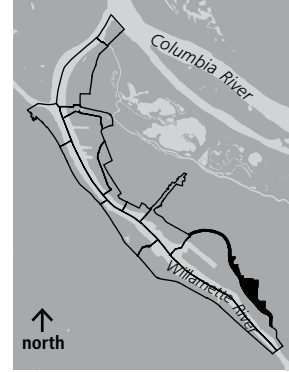
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INVENTORY SITE WR13: WILLAMETTE BLUFF



SUMMARY INFORMATION

Watershed:	Willamette River Watershed
Neighborhood:	University Park, Overlook, and Albina Neighborhoods
USGS quadrangle, quarter section maps:	1N1E16, 1N1E17, 1N1E21, 1N1E27, 1N1E28 and 2325-27, 2427, 2527-28, 2627-29, 2728-29, 2829
River Mile:	7.6 – 10.82
Site Size:	258 acres
Previous Inventory:	Lower Willamette River Wildlife Habitat Inventory, March 1986. East Buttes Terraces and Wetlands Conservation Plan, July 1993.
Zoning:	Residential 5,000 (R5) Residential 2,500 (R2.5) Residential 2,000 (R2) Residential 1,000 (R1) Open Space (OS) Industrial (IH, IR, IG) Employment (EX, EG) Commercial (CO, CN) Environmental Conservation overlay (c) River Industrial overlay (i) River Natural overlay (n)
Existing Land Use:	Residential, park, industrial; railroad
General Description:	The site is located above Swan Island and contains steep bluffs with remnant native oak habitat
Resource Features:	Foothill savannah/ oak woodland; conifer/ hardwood forest; upland scrub/shrub; grassland; steep slopes
Functional Values:	Streamflow moderation; bank stabilization; control of sediments, nutrients and pollutants; wildlife habitat, wildlife movement corridor and connectivity
Special Status Species:	N/A
Special Habitat Area:	Yes
Natural Hazards:	Landslide, wildfire

SITE DESCRIPTION

This 258 acre upland site encompasses a narrow forested bluff along the eastern river terrace, which contains a relatively intact strip of native oak stands and upland vegetation. The bluff generally follows N. Willamette Boulevard and N. Greeley Avenue from the University of Portland at the northwest end of the site to N. Interstate Avenue near the Fremont Bridge, at the southeast end of the site. The site is bordered to the southwest by the Mock's Bottom/Swan Island industrial area and includes Willamette Bluff, from the top of the bluff along N. Willamette Blvd to the bottom of the bluff at Swan Island. WR13 Map 1 shows the aerial view of the Willamette Cove inventory site.



Vegetated areas within the site include 50 acres of forest or tree canopy, 50 acres of woodland, 10 acres of shrubland and 13 acres of herbaceous cover. The remaining area is primarily in residential development. The site contains 63.4 acres (24.6%) impervious surface coverage, including 9.5 miles of road.

Three public parks are located within this site: the Bluff above Swan Island, Madrona Park, and Overlook Park. Also within this site is Mocks Crest Property, which is a small area of public open space. The City's Bureau of Environmental Services manages two active revegetation projects on this site: Mocks Crest Bluff and Mocks Crest Landfill.

An area of contamination exists at the southeast end of the site within the Union Pacific Railroad's Albina Yard. Soil, surface water, groundwater, and nearshore sediments have been contaminated as a result of industrial uses associated with the railroad. The entire site is in a Potential Landslide Hazard area (City of Portland, 2002), and a large portion is also within the City of Portland Wildfire Hazard Zone (City of Portland, 1998).

NATURAL RESOURCES DESCRIPTION

Although narrow and lacking interior habitat, this site contains one of the larger habitats in terms of acreage (258 acres, 3.6 miles in length). This site also connects to the bluffs within the the McCormick-Baxter/Triangle Park and Willamette Cove inventory sites located to the north (key resource features are shown in Maps 2 and 3).

The bluffs within this site are located further from the river than the bluffs in the McCormick/Baxter site. The combination of distance from the river and extensive development in Mocks bottom limits non-avian wildlife movement and access to water.

Vegetation at this site is characterized by a foothill savanna/oak woodland forest community comprised of native white oak, Pacific madrone, and to a lesser extent Ponderosa pine. This bluff contains one of the few remnants of the oak/madrone forest community in Portland. The large stand of Ponderosa pine, most common on the warmer south-facing slopes by the University of Portland, also is rare in the Portland region.

Douglas fir, big-leaf maple, and bitter cherry are interspersed with these species in some areas, and western red cedar, Pacific dogwood, and red alder occur infrequently. Black cottonwood occurs on the lower slopes primarily at the northern and southern ends of the site where the bluff is closest to the Willamette River. The forest understory includes western hazel, red elderberry, vine maple, snowberry, oceanspray, Oregon grape, serviceberry, and cottonwood saplings. The ground layer throughout most of this site is covered by invasive species such as English ivy and clematis; sword fern is present but increasingly uncommon. Forest tree cover ranges from 25 to 40 percent, shrub cover is about 15 percent, and ground cover is 100 percent. The age of the forest vegetation is approximately 30 to 50 years old.

Small shrub and grassland habitats are scattered between the forest patches on the bluff, generally in areas where the trees have been cleared for park uses or to maintain views. The shrub vegetation is dominated by Himalayan blackberry and Scot's broom. Grassland pockets are generally areas of grasses or lawns maintained as local parks. Although many of the dominant plant species in the upland community are exotic invasives, most of the plants found within this habitat type produce fruit, nuts, and seeds that provide high food value for birds and mammals. Voles, pocket mice, snakes, and lizards are common within grassland habitat, making them prime feeding areas for hawks, falcons, owls, and coyotes. Butterflies are commonly found in grassland habitats. Crows, robins, song sparrows, and other common resident ground feeding bird species are also found within this habitat type

The remnant foothill savanna/oak woodland forest provides forage, perch, and limited nesting opportunities for wildlife. Avian fauna, passerines in particular, are the primary foragers at this site. A pair of peregrine falcons nests each year on the Fremont Bridge located just south of this site. Peregrines may forage on the avian prey within this site. Mammals occurring at this site include squirrel, raccoon, and porcupine.

Relatively limited wildlife use was recorded at this site during the Winter 1999/2000 field survey, in part due to the season and cold temperatures. Birds observed include winter wren, American robin, and northern flicker. Evidence of porcupine (quills) was also noted.

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 value ranks for riparian function, wildlife habitat and riparian/wildlife habitat areas combined (Table 17). The relative rankings are produced using GIS models and information on Special Habitat Areas. All of the ranked resource areas provide at least some important riparian and habitat value, recognizing that current condition and function levels may vary considerably. The relative ranks can help inform planning programs, design of develop or redevelopment projects, mitigation and restoration activities. 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 the *City of Portland Natural Resource Inventory Update Project Report, 2007*.

Riparian Areas

The site contains forest vegetation that is contiguous to the Willamette River and on a steep slope. The forest vegetation contributes to bank stability, and sediment, pollution and nutrient control function as detail in the natural resource description. Low relative functional ranks are assigned to the forest vegetation where the slope exceeds 25%. (WR13 Map 4).

Wildlife Habitat

The site contains two forest/woodland patches containing savanna/oak woodland forest community, upland scrub/shrub community, and grassland that contribute to wildlife habitat function

Based on the wildlife habitat attributes mentioned in the previous section (size, interior area, connectivity/proximity to other patches and water), the wildlife habitat model assigns medium and low relative ranks to sections of the upland forested bluffs in the site.

Because of the unique features and critical habitat they contain, two sections of this site are designated as Special Habitat Areas (SHAs): the Willamette Bluff SHA and the Riverwood SHA. The SHAs are the southern portion of the seven mile corridor of bluffs containing remnant native oak habitat, which extends from Pier and Chimney Parks to the southern end of this inventory site. The Willamette Bluff SHA wraps around the hill above Swan Island and continues along the bluff to Going Street. South of Going Street, the Riverwood SHA continues to just north of the Greeley Ave/ I-5 interchange.

The two Willamette Bluff SHAs provide important nesting and foraging habitat for a diverse range of bird and mammal species. Acorns and oak galls, as well as insects found on trees, are a good food source, while tree cavities in the oak provide nesting habitat for birds such as swallows, wrens, and great horned owls. This habitat type is critical for neotropical migratory birds.

The SHAs described above contain unique features and provide critical wildlife habitat. SHAs receive a high relative rank for wildlife habitat. The SHA ranking supersedes lower ranks generated by the GIS model. Therefore, all SHAs within the site rank high for wildlife habitat (WR13 Map 5).

Table 17: Summary of Ranked Resource in WR13: Willamette Bluff

Total Inventory Site Area = 258 acres Terrestrial* = 258 acres Willamette River = 0 acres					
		High	Medium	Low	Total
Riparian Resources **					
acres		0	0	35	35
percent total inventory site area		0%	0%	14%	14%
Special Habitat Area **					
acres		87			
percent total inventory site area		34%			
Wildlife Habitat **					
acres		87	0	10	97
percent total inventory site area		34%	0%	4%	38%
Combined Total ***					
acres		87	0	10	97
percent total inventory site area		34%	0%	4%	38%
Combined Terrestrial (excludes Willamette River)					
acres		87	0	10	97
percent total inventory site area		34%	0%	4%	38%
* Terrestrial includes the land, tributary streams, drainageways and wetlands. ** High-ranked riparian resources, Special Habit Areas, and wildlife habitat includes the Willamette River. *** Because riparian resources, Special Habitat Areas, and wildlife habitat overlap, the results cannot be added together to determine the combined results.					

Site WR13a - Map 2: Willamette Bluff

Water-Related Features

Water Bodies

River Depths

- 0 to -20'
- 20 to -30'
- 30 to -40'
- deeper than 40'

- Stream/Drainageway
- Culvert or Piped

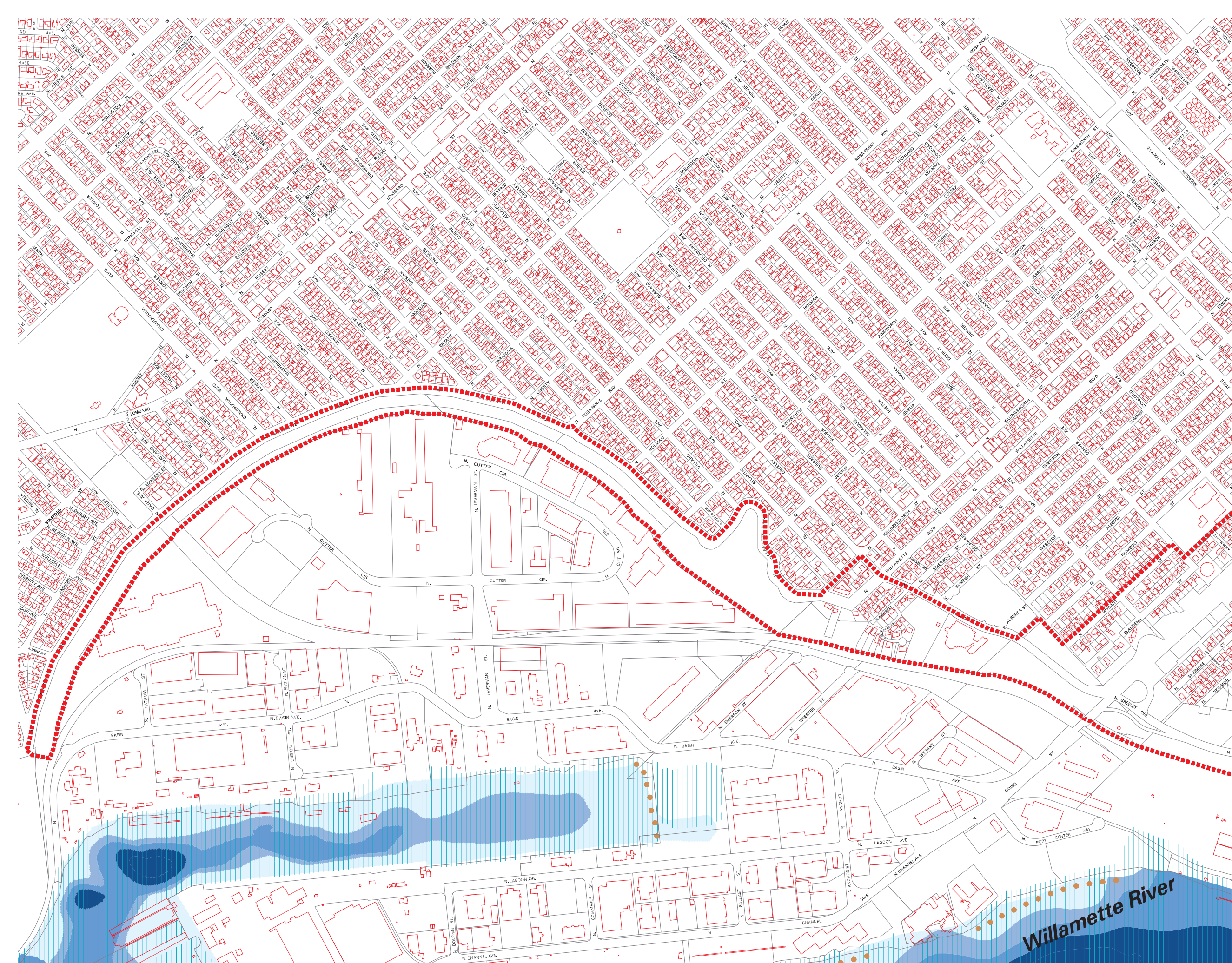
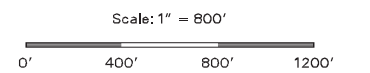
Other Features

- Flood Area
- Wetlands
- Beach
- Site Boundary
- City Boundary
- Urban Services Boundary

INFORMATION SOURCES:

Water Bodies:
Rivers, lakes and other water features. Originally digitized by Metro (1994). Data collection scale: 1:100' - 1:400'. City of Portland and Multnomah County pockets updated by City of Portland, Bureau of Planning, to refine waterbody geometry, remove erroneously mapped waterbodies, and add missing waterbodies. Aerial photos were the primary data source used as reference for re-mapping waterbodies. This is an interim dataset reflecting all work completed to date.









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Site WR13a - Map 3: Willamette Bluff

Vegetation Features

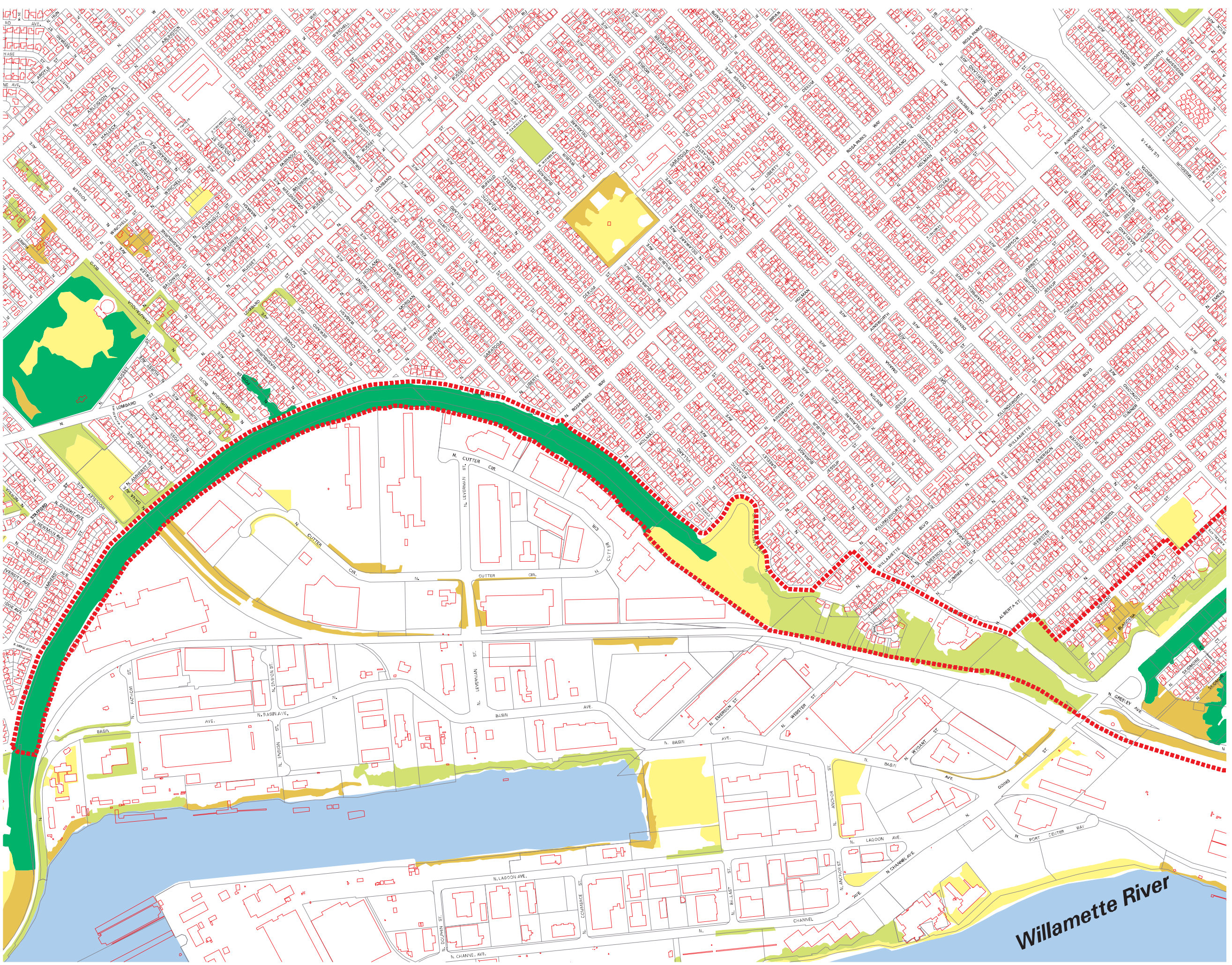
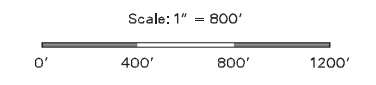
Vegetation Types

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-  Woodland
-  Shrubland
-  Herbaceous
-  Stream/Drainageway
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





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Willamette River

Site WR13a - Map 4: Willamette Bluff

Riparian Resources Relative Rankings

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

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






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Scale: 1" = 800'



Site WR13a - Map 5: Willamette Bluff

Wildlife Habitat Relative Rankings

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

INFORMATION SOURCES:

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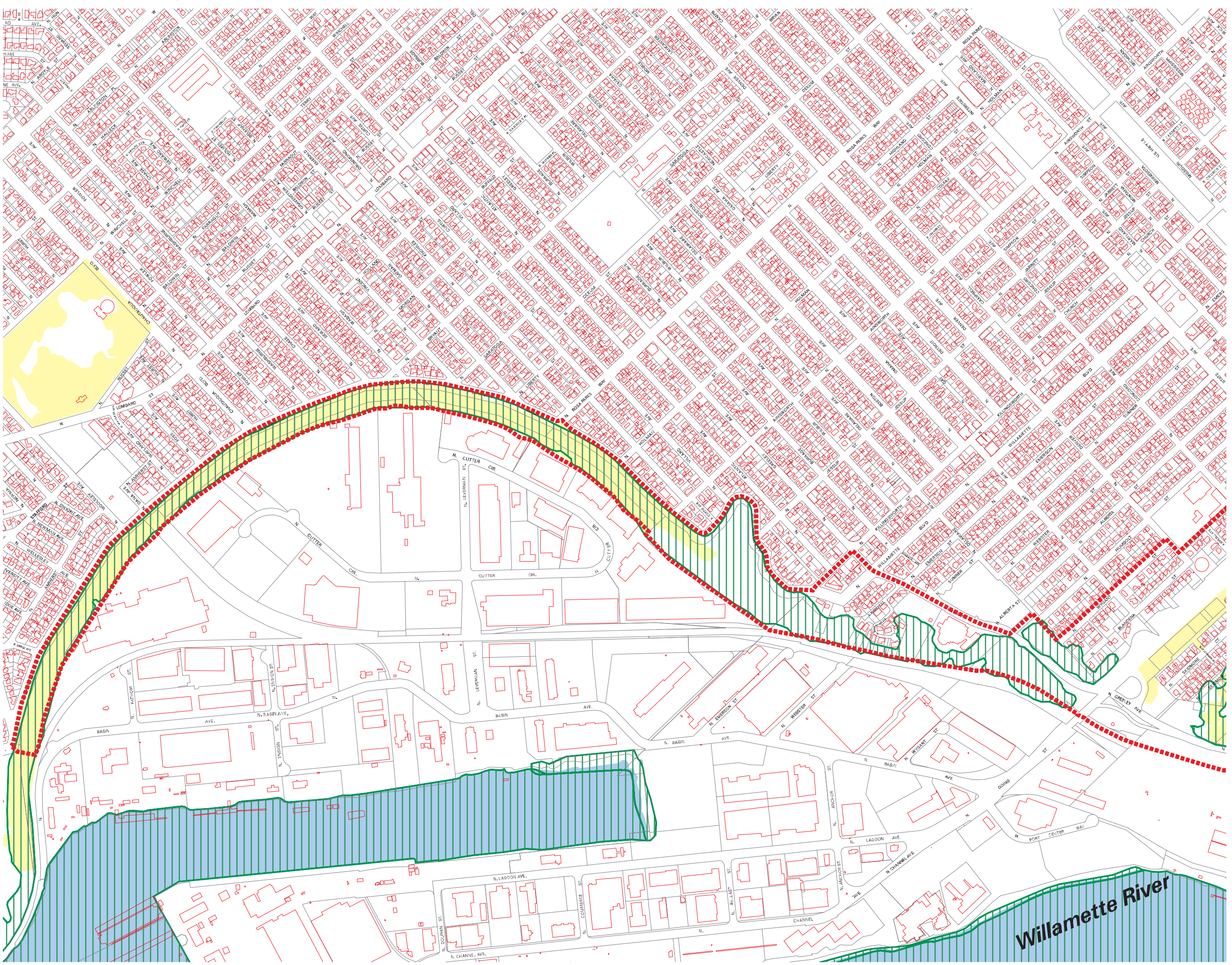
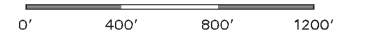
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NOTE: Portland's resource inventory is still being evaluated for accuracy and consistency and should be considered preliminary. The inventory has not yet been adopted by the City of Portland.

All data compiled from source materials at different scales. For more detail, please refer to the source materials or City of Portland, Bureau of Planning.

Scale: 1" = 800'












Willamette River

DRAFT

Site WR13a - Map 6: Willamette Bluff

Combined Riparian / Wildlife Relative Rankings

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

INFORMATION SOURCES:

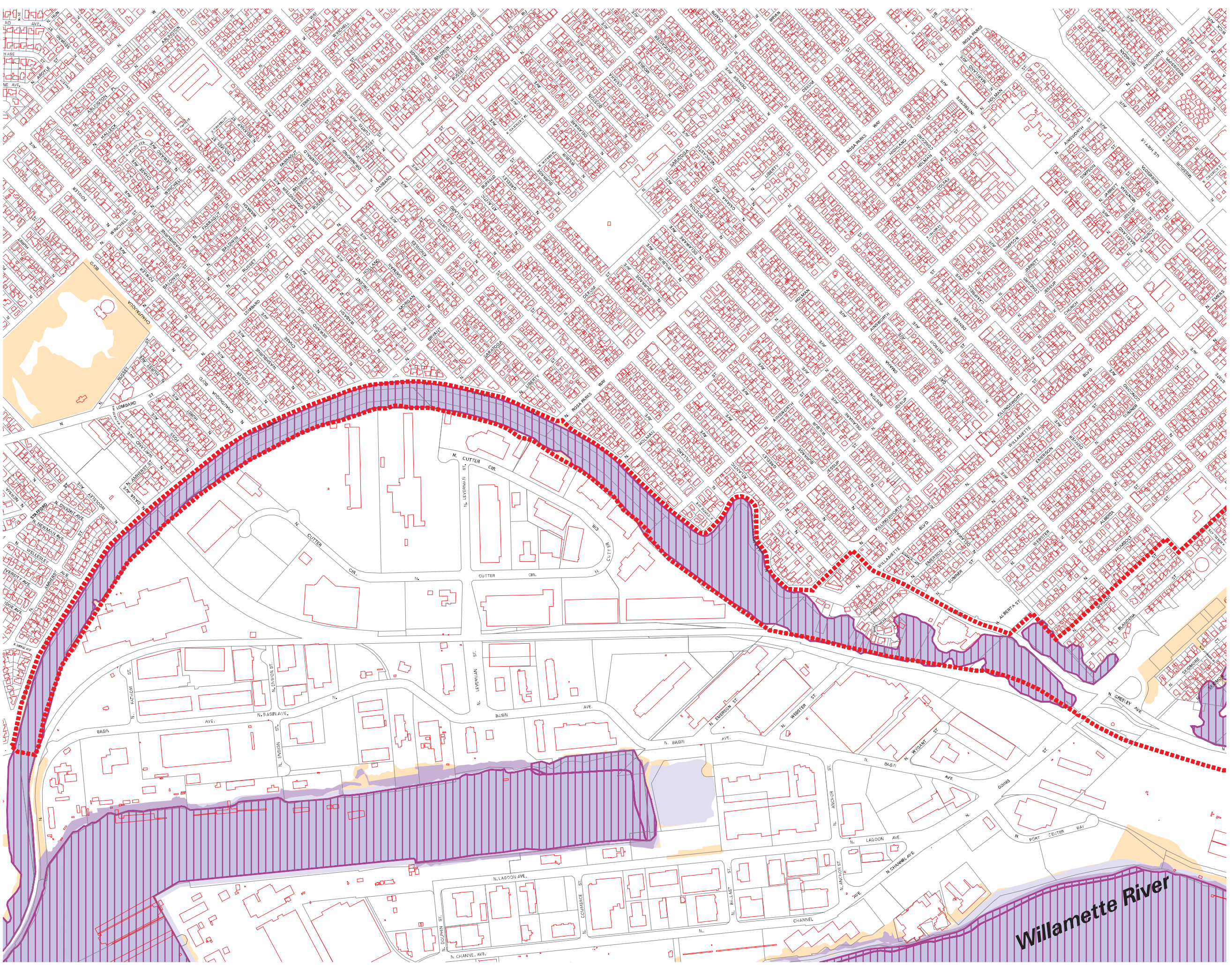
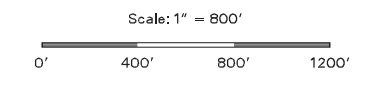
The Natural Resources Inventory Update (NRIU) is a citywide project to revise and update existing natural resource inventories (of trees, streams, wildlife habitat, etc.) in Portland. The update is part of Portland's River Renaissance Initiative to ensure that the Willamette River and its tributary watersheds are clean and healthy.

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DRAFT

June 07, 2007

Site WR13b - Map 1: Willamette Bluff

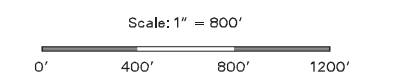
2005 Aerial Photography

-  Stream/Drainageway
-  Culvert or Piped
-  Site Boundary
-  City Boundary
-  Urban Services Boundary

INFORMATION SOURCES:

Aerial Orthophotographs:
Digital Orthophotography from flight in July 2005.
Photography has been rectified to adjust for curvature
of the earth. Not registered to taxlot base map.







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Site WR13b - Map 2: Willamette Bluff

Water-Related Features

Water Bodies

- River Depths
-  0 to -20'
 -  -20 to -30'
 -  -30 to -40'
 -  deeper than 40'
 -  Stream/Drainageway
 -  Culvert or Piped

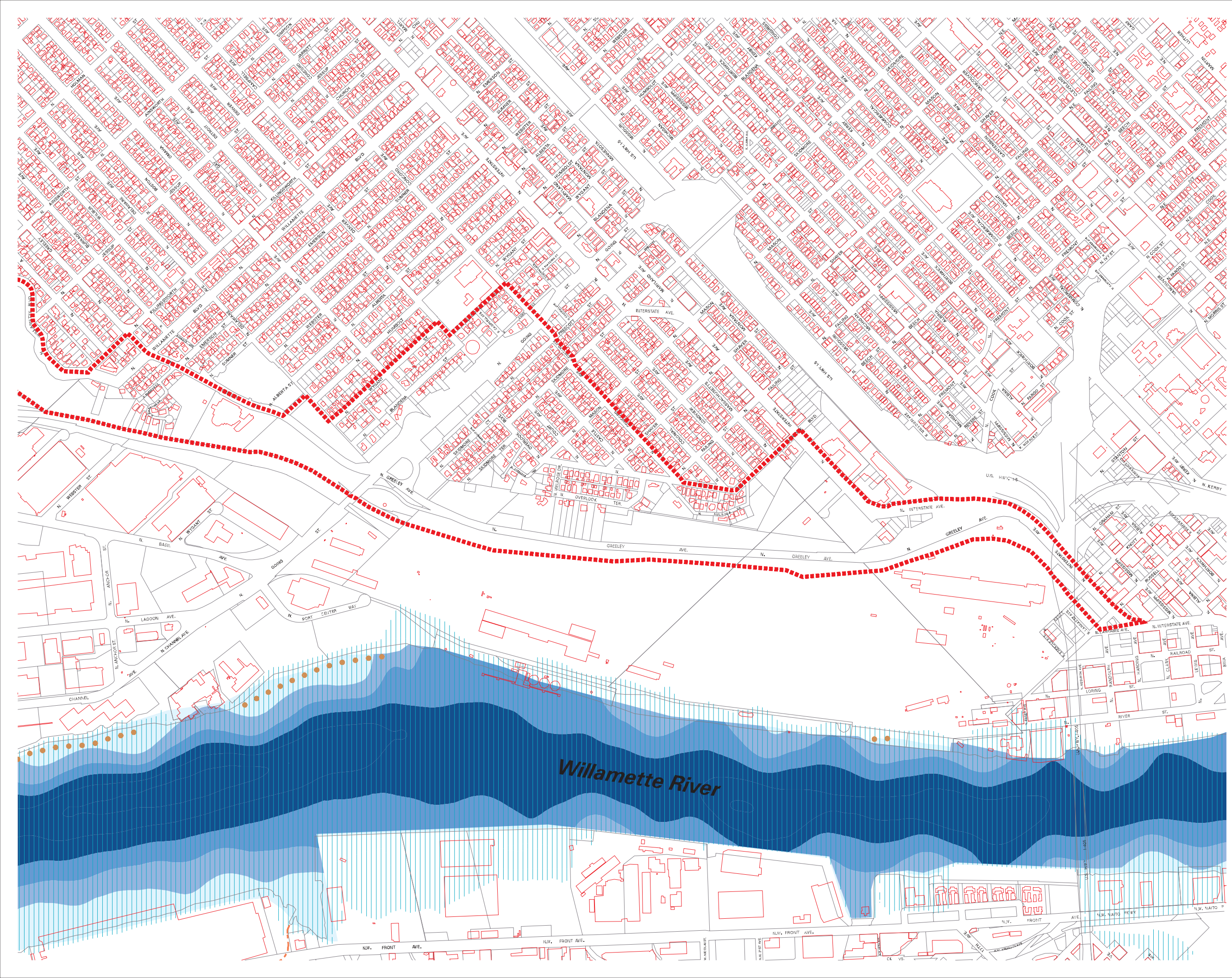
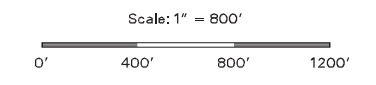
Other Features

-  Flood Area
-  Wetlands
-  Beach
-  Site Boundary
-  City Boundary
-  Urban Services Boundary

INFORMATION SOURCES:

Water Bodies:
Rivers, lakes and other water features. Originally digitized by Metro (1994). Data collection scale: 1:100' - 1:400'. City of Portland and Multnomah County pockets updated by City of Portland, Bureau of Planning, to refine waterbody geometry, remove erroneously mapped waterbodies, and add missing waterbodies. Aerial photos were the primary data source used as reference for re-mapping waterbodies. This is an interim dataset reflecting all work completed to date.


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Site WR13b - Map 3: Willamette Bluff

Vegetation Features

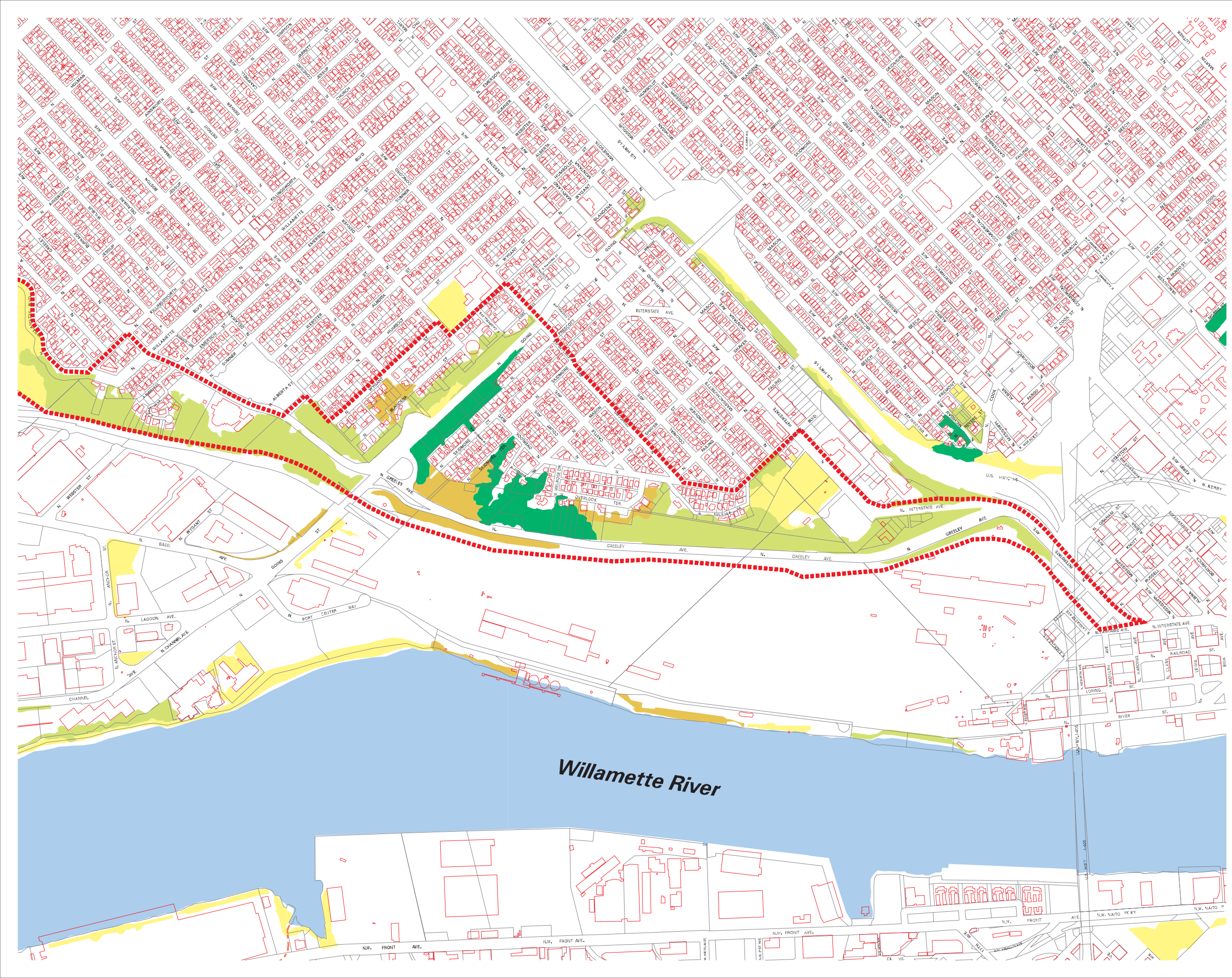
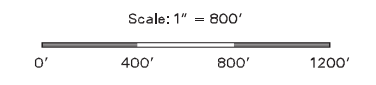
Vegetation Types

-  Forest
-  Woodland
-  Shrubland
-  Herbaceous
-  Stream/Drainageway
-  Culvert or Piped
-  Site Boundary
-  City Boundary
-  Urban Services Boundary

INFORMATION SOURCES:









Vegetation patches:
Vegetation patches larger than 1/2 acre mapped by the City of Portland, Bureau of Planning. Based on information from reference data sources including aerial photos, Parks and Recreation natural area assessments, and vegetation surveys along the banks of the Willamette and Columbia rivers. Vegetation patches are classified as forest, woodland, shrubland, or herbaceous. The mapping area includes all land within the City of Portland and the unincorporated parts of Multnomah County that are administered by the City of Portland. Updated through summer of 2004.

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Site WR13b - Map 4: Willamette Bluff

Riparian Resources Relative Rankings

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

INFORMATION SOURCES:

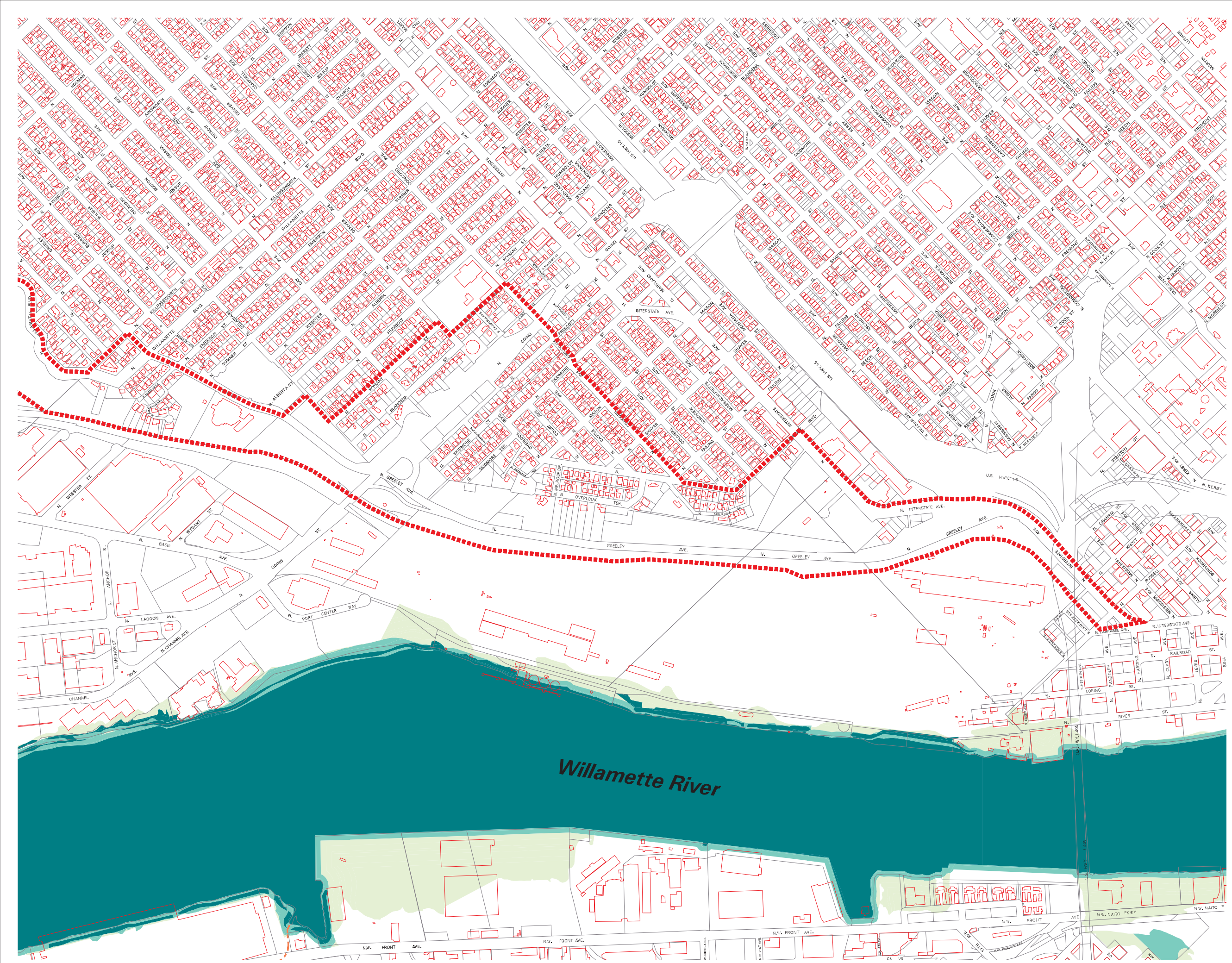
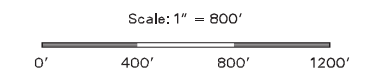
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






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Site WR13b - Map 5: Willamette Bluff

Wildlife Habitat Relative Rankings

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

INFORMATION SOURCES:

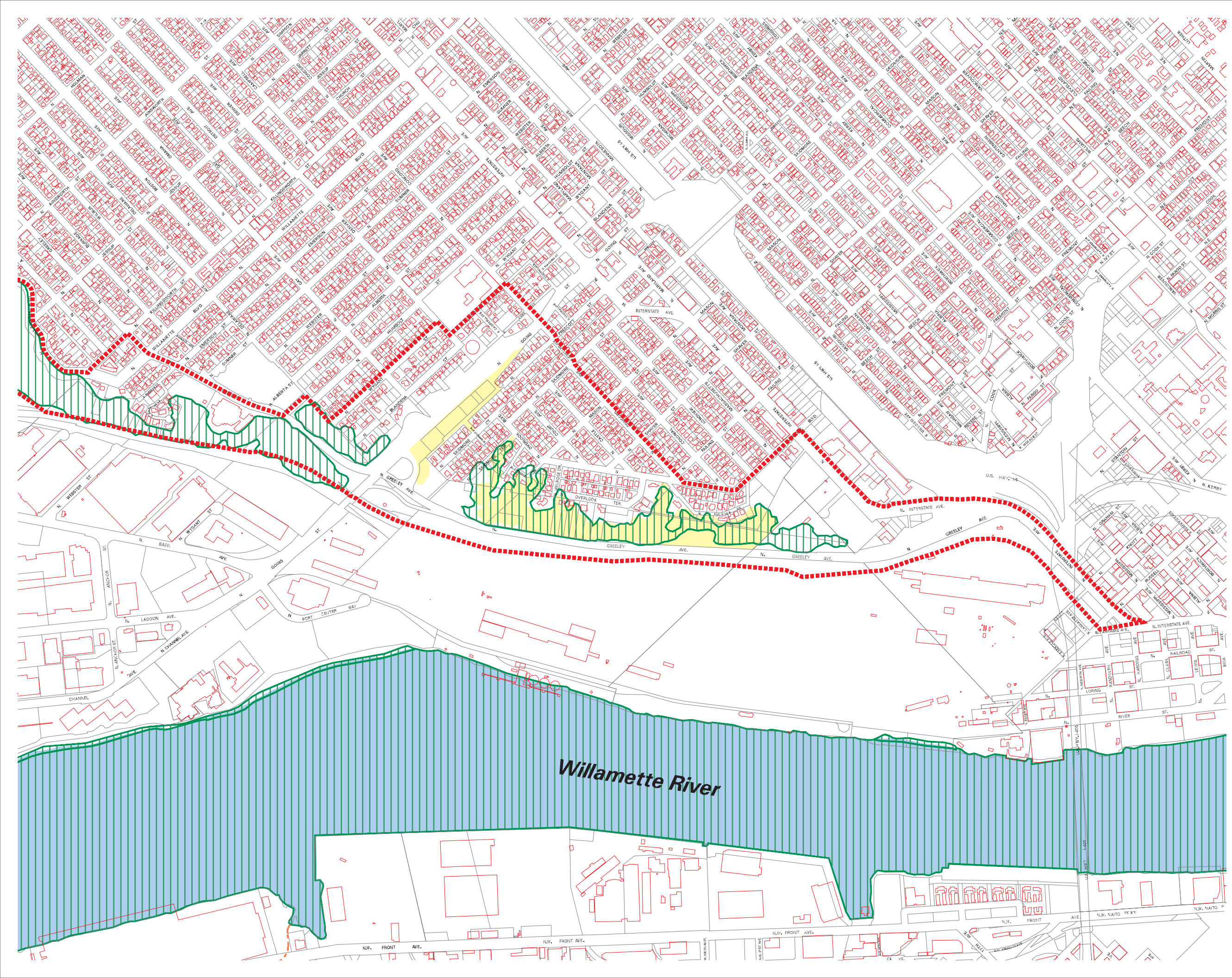
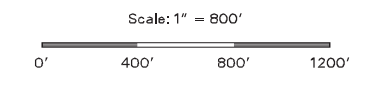
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Site WR13b - Map 6: Willamette Bluff

Combined Riparian / Wildlife Relative Rankings

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

INFORMATION SOURCES:

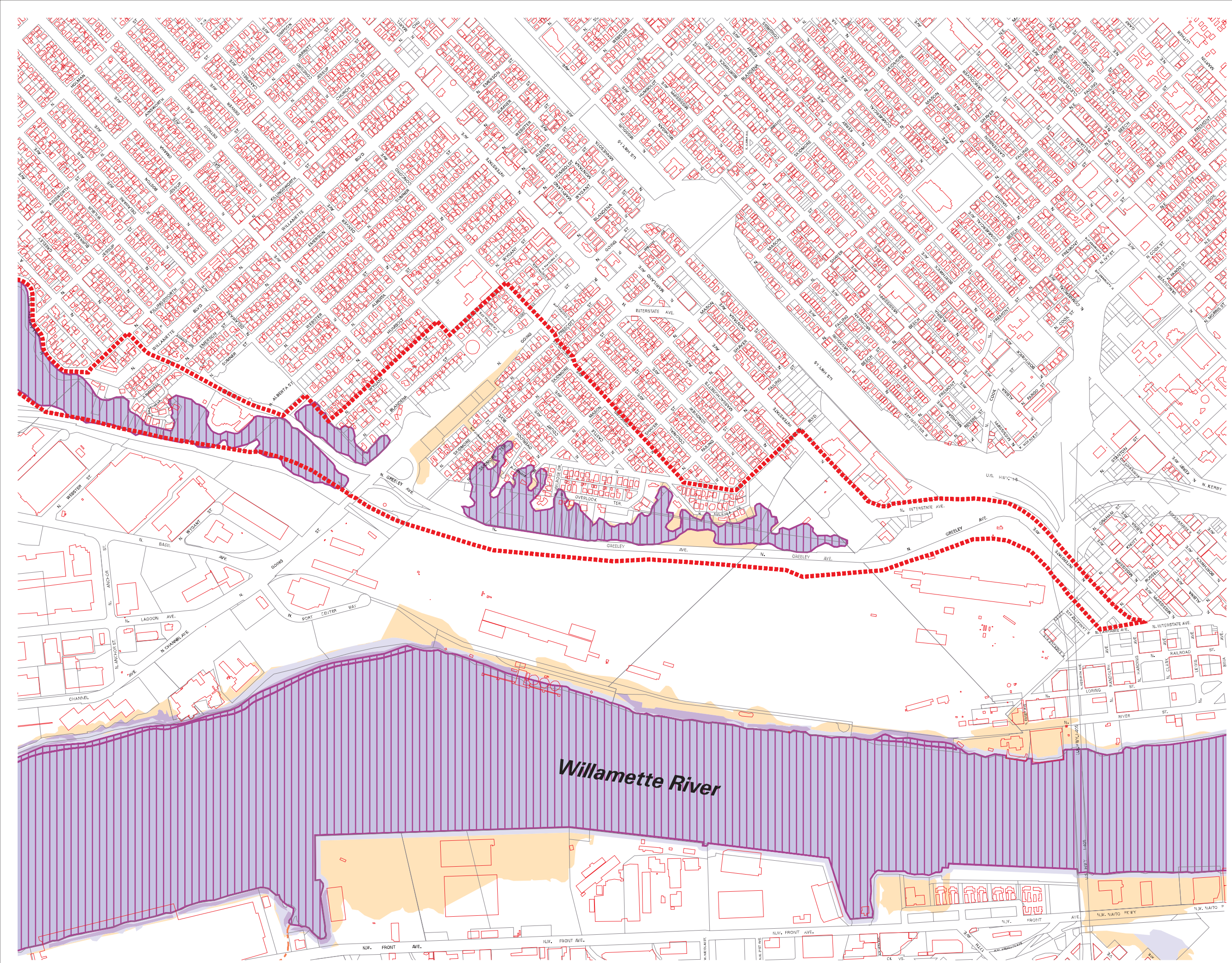
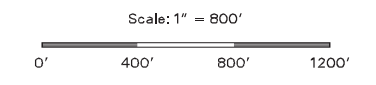
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APPENDIX A:

PORTLAND WATERSHED MANAGEMENT PLAN, CITY-WIDE GOALS AND OBJECTIVES (BUREAU OF ENVIRONMENTAL SERVICES, 2006)

HYDROLOGY GOAL: Move toward normative* stream flow conditions to protect and improve watershed and stream health, channel functions, and public health and safety.

OBJECTIVES:

Stream Flow and Hydrologic Complexity: Protect and increase rainfall interception areas, create infiltration and detention areas to normalize stream hydrographs, reduce stormwater flow to sewer systems, and reduce basement flooding.

Channel and Floodplain Function: Protect and restore the extent, connectivity, and function of streams, other open drainageways, wetlands, riparian areas and floodplains to improve bank stability and natural hydrologic functions and reduce risk to development and human safety.

Stormwater Conveyance: Maintain stormwater collection and conveyance infrastructure capacity.

PHYSICAL HABITAT GOAL: Protect, enhance, and restore aquatic and terrestrial habitat conditions and support key ecological functions and improved productivity, diversity, capacity, and distribution of native fish and wildlife populations and biological communities.

OBJECTIVES:

Aquatic Habitat: Protect and improve aquatic, riparian, and floodplain habitat extent, quality, and connectivity that supports the persistence of native fish and wildlife communities.

Terrestrial Habitat: Protect and improve upland habitat extent, quality, and connectivity that support the persistence of native terrestrial communities and connectivity to aquatic and riparian habitat.

WATER AND SEDIMENT QUALITY GOAL: Protect and improve surface water and groundwater quality to protect public health and support native fish and wildlife populations and biological communities.

OBJECTIVES:

Stream Temperature: Protect and improve stream temperatures, dissolved oxygen, and pH levels that protect ecological health and achieve applicable water quality standards.

Human Pathogens: Maintain and manage sewer infrastructure and stormwater inputs and runoff to limit sewage overflow and the delivery of pathogens to waterways and achieve applicable water quality and sewer design manual standards.

Urban Pollutants: Manage the sources and transport of urban stormwater and industrial pollutants and nutrients to limit surface water, groundwater, soil, and sediment contamination to levels that protect ecological and human health and achieve applicable water quality standards.

BIOLOGICAL COMMUNITIES GOAL: Protect, enhance, manage and restore native aquatic and terrestrial species and biological communities to improve and maintain biodiversity in Portland's watersheds.

OBJECTIVES:

Fish and Other Aquatic Organisms: Implement watershed actions to maximize the persistence of native Willamette and Columbia River fish and other aquatic organisms and assist with species recovery and potential population productivity by protecting and improving hydrology, habitat, and water quality.

Terrestrial Wildlife and Vegetation: Implement watershed actions to restore populations of terrestrial organisms to healthy, self-sustaining levels, protect and restore the composition and structure of native vegetation communities, and reduce populations of non-native plants and organisms to levels that do not compete with native species.

APPENDIX B:

CITY OF PORTLAND MODEL CRITERIA

CITY OF PORTLAND RIPARIAN CORRIDOR MODEL CRITERIA

Microclimate and Shade				
Map Feature	Portland Primary Feature	Footnotes	Portland Secondary Feature	Footnotes
Water Bodies	River, stream/drainageway or wetland	2, 5	----	
Vegetation	Forest or woodland vegetation that is outside the flood area, up to 100 feet from a river, stream/drainageway or wetland	1, 2	Forest or woodland vegetation that is outside the flood area, contiguous with primary vegetation, and more than 100 feet but not more than 780 feet from a river, stream/drainageway or wetland	1, 2
Vegetation	----		Shrubland vegetation up to 50 feet from a river, stream/drainageway or wetland	1, 2
Vegetation	Forest or woodland vegetation within the flood area (except within a drainage district)	3, 4	----	
Stream Flow Moderation And Water Storage				
Map Feature	Portland Primary Feature	Footnotes	Portland Secondary Feature	Footnotes
Water Bodies	River, stream/drainageway or wetland	2, 5	----	
Floodplain	Vegetation within the flood area (except within a drainage district)	3, 4	Non-vegetated land within the flood area (except within a drainage district)	3, 4
Vegetation	----		Contiguous forest, woodland or shrubland vegetation that is outside the flood area and occurs within 300 feet of a river, stream/drainageway, or wetland.	1,2
Vegetation	----		Contiguous forest or woodland vegetation that occurs within 300 feet and extends no further than 780 feet from a river, stream/drainageway or wetland.	1,2
Vegetation	----		Herbaceous vegetation that is outside the flood area, up to 100 feet from a river, stream/drainageway or wetland	1, 2
Vegetation	----		Where the slope is at least 25%: Herbaceous vegetation that is outside the flood area, and is more than 100 feet but not more than 200 feet from a river, stream/drainageway or wetland	1, 2
Bank Stability, and Sediment, Pollution and Nutrient Control				
Map Feature	Portland Primary Feature	Footnotes	Portland Secondary Feature	Footnotes
Water Bodies	River, stream/drainageway or wetland	2, 5	----	
Water Bodies	Non-vegetated land up to 50 feet from river, stream/drainageway or wetland	1, 2		
Vegetation	Forest, woodland, or shrubland vegetation within a flood area (except within a drainage district)	3, 4		
Vegetation	Forest, woodland or shrubland vegetation up to 100 feet from a river, stream/drainageway or wetland	1, 2		
Vegetation	Where the slope is at least 25%: Forest, woodland or shrubland vegetation that is outside the flood area, and is more than 100 feet but not more than 200 feet from a river, stream/drainageway or wetland	1, 2	Where the slope is at least 25%: Forest, woodland or shrubland vegetation that is outside the flood area, contiguous with primary vegetation, and more than 200 feet from a river, stream/drainageway or wetland but does not extend beyond the area with a	1, 2
Vegetation	----		Herbaceous vegetation up to 100 feet from a river, stream/drainageway, or wetland	1, 2
Vegetation	----		Where the slope is at least 25%: Herbaceous vegetation up to 200 feet from a river, stream/drainageway or wetland	1, 2
Large Wood and Channel Dynamics				
Map Feature	Portland Primary Feature	Footnotes	Portland Secondary Feature	Footnotes
Water Bodies	River or stream/drainageway	2, 5	----	

Water Bodies	Non-forested land that is outside the flood area, up to 50 feet from a river or stream/drainageway (except within a drainage district)	1, 3	----
Large Wood and Channel Dynamics, continued			
Map Feature	Portland Primary Feature	Footnotes	Portland Secondary Feature
			Footnotes
Vegetation	Forest vegetation that is outside the flood area, up to 150 ft from a river or stream/drainageway (except within a drainage district)	1, 3	Forest vegetation that is outside the flood area, contiguous with primary forest vegetation, and more than 150 feet but not more than 260 feet from a river or stream/drainageway (except within a drainage district)
Vegetation	----		Forest vegetation up to 150 feet of a river or stream/drainageway that is within a drainage district
Vegetation	Forest vegetation within the flood area (except within a drainage district)	3, 4	Non-forested land within a flood area (except within a drainage district)
Water Bodies	Wetland located completely or partially within the flood area (except within a drainage district)	2, 3	----
Water Bodies	Wetland located completely or partially within 150 feet (primary area) of a river or stream/drainageway (except within a drainage district)	1, 4	----
Vegetation	Forest vegetation up to 150 feet from a wetland, where the wetland is located completely or partially in a flood area or within 150 feet of a river or stream/drainageway (except within a drainage district)	1, 2	Forest vegetation that is contiguous with primary forest vegetation, and is more than 150 feet but not more than 260 feet from a wetland, where the wetland is located completely or partially in a flood area or within 150 feet of a river or stream/drainage
Organic Inputs, Food Web and Nutrient Cycling			
Map Feature	Portland Primary Feature	Footnotes	Portland Secondary Feature
			Footnotes
Water Bodies	River, stream/drainageway or wetland	2, 5	----
Vegetation	Forest, woodland or shrubland vegetation that is outside the flood area, up to 100 feet from a river, stream/drainageway or wetland	1, 2	Forest, woodland or shrubland vegetation that is outside the flood area, contiguous to primary vegetation, and more than 100 feet but not more than 170 feet from a river, stream/drainageway or wetland
Riparian Wildlife Movement Corridor			
Map Feature	Portland Primary Feature	Footnotes	Portland Secondary Feature
			Footnotes
Water Bodies	River, stream/drainageway or wetland	2, 5	----
Vegetation	Vegetation that is contiguous to and no more than 100 feet from a river, stream/drainageway or wetland	1, 2	Vegetation that is contiguous to primary vegetation, and that is more than 100 feet but not more than 300 feet from a river, stream/drainageway or wetland

Footnote

No Footnote

- 1 All search distances are measured from either a) the edge of the mapped water body, or b) the stream/drainageway centerline.
- 2 "Wetland" refers to all mapped regional wetlands fully or partially within 1/4 mile of a river or stream/drainageway, unless otherwise specified.
- 3 "Flood area" is comprised of the combined FEMA 100-year floodplain (2004), the adjusted 1996 flood inundation area, and additional adjustments to reflect more recent permitted activities affecting site elevation.
- 4 Portland-area drainage districts: Peninsula Drainage District #1, Peninsula Drainage District #2, and Multnomah County Drainage District #1
- 5 Rivers, streams/drainageways and wetlands are primary features for riparian functions under evaluation. The model produces functional rankings for such features if open water area has been mapped. Map notations will indicate relative riparian function 1

CITY OF PORTLAND WILDLIFE CORRIDOR MODEL CRITERIA

Habitat Patch Size¹		
High Value (3 points)	Medium Value (2 points)	Low Value (1 point)
Patches of forest vegetation and/or wetland, with adjoining woodland vegetation, where the area in forest vegetation and/or wetland area is 585 acres or larger.	Patches of forest vegetation and/or wetland, with adjoining woodland vegetation, where the area in forest vegetation and/or wetland area is at least 30 acres and smaller than 585 acres	Patches of forest vegetation and/or wetland, with adjoining woodland vegetation, where the area in forest vegetation and/or wetland area is at least 2 acres and smaller than 30 acres
Interior Habitat Area²		
High Value (3 points)	Medium Value (2 points)	Low Value (1 point)
Patches of forest vegetation and/or wetland, with adjoining woodland vegetation, where the interior area of the forest vegetation and/or wetland patch area is 500 acres or larger.	Patches of forest vegetation and/or wetland, with adjoining woodland vegetation, where the interior area of the forest vegetation and/or wetland patch area is at least 15 acres and smaller than 500 acres	Patches of forest vegetation and/or wetland, with adjoining woodland vegetation, where the interior area of the forest vegetation and/or wetland patch area is at least 2 acres and smaller than 15 acres.
Connectivity to Other Patches³		
High Value (3 points)	Medium Value (2 points)	Low Value (1 point)
Patches of forest vegetation and/or wetland, with adjoining woodland vegetation, where the area in forest vegetation and/or wetland area is at least 2 acres, and the patch proximity index value is 100 or more.	Patches of forest vegetation and/or wetland, with adjoining woodland vegetation, where the area in forest vegetation and/or wetland area is at least 2 acres, and the patch proximity index value is at least 30 and less than 100.	Patches of forest vegetation and/or wetland, with adjoining woodland vegetation, where the area in forest vegetation and/or wetland area is at least 2 acres and the patch proximity index value is less than 30.
Connectivity to Water⁴		
High Value (3 points)	Medium Value (2 points)	Low Value (1 point)
Patches of forest vegetation and/or wetland, with adjoining woodland vegetation, where the area in forest vegetation and/or wetland area is at least 2 acres, and where at least 75% of the patch area is within 300 feet of a river, stream/drainageway or wet	Patches of forest vegetation and/or wetland, with adjoining woodland vegetation, where the area in forest vegetation and/or wetland area is at least 2 acres, and where at least 25% and less than 75% of the patch area is within 300 feet of a river, stream/	Patches of forest vegetation and/or wetland, with adjoining woodland vegetation, where the area in forest vegetation and/or wetland area is at least 2 acres, and less than 25% of the patch area is within 300 feet of a river, stream/drainageway or wetland.

Footnote

No Footnote

1	A habitat patch is defined as a patch of contiguous forest and/or wetland area greater than 2 acres in size, plus any woodland vegetation adjacent and contiguous to the core forest/wetland patch.
2	“Interior area” is defined as the area within the forest and/or wetland portion of a habitat patch that is situated at least 200’ from the edge of that portion of the patch. (Same for Metro and Portland)
3	Proximity to other patches is calculated using the Fragstats 3.3 proximity index (PROX). The specified search radius is ¼ mile. The proximity index is a dimensionless measure of the relative size and distance of all patches whose edges are within the specified search radius of each vegetation patch. Refer to http://www.umass.edu/landeco/research/fragstats/fragstats.html for more information on Fragstats and the proximity index.
4	Proximity to water relative value thresholds were determined by identifying “natural breaks” in the distribution of the values using the Jenk’s Natural Breaks method, which determines the best arrangement of values into a specified number of classes by comparing and minimizing the sum of the squared differences of values from the means of potential classes.

APPENDIX C:

SPECIAL HABITAT AREA ELIGIBILITY CRITERIA

The City's eligibility criteria and specifications are outlined below.

Code Special Habitat Area Eligibility Criteria

P	Area contains sensitive or unique plant populations
W	Wetlands and associated seeps, springs and streams that are part of the wetland complex
O	Native oak
B	Bottomland hardwood forest
I	Riverine island
D	River delta
M	Migratory stopover habitat
C	Corridor between patches or habitats
S	Area critical to sensitive species life history, on more than an incidental basis; critical habitats as designated by NOAA
E	Elk migratory corridor
G	Upland meadow, prairie or grassy area important to migrants and grassland-associated species
WB	Willamette beach
U	Resource or structure that provides critical or unique habitat function in natural or built environments (such as bridges or street trees)

P - Area contains sensitive or unique plant species

This criterion applies to areas containing the following plant species:

1. Those listed by USFWS or NOAA Fisheries as Endangered, Threatened, Proposed Endangered, or Proposed Threatened under the Endangered Species Act or by the ODA or ODFW under the Oregon Endangered Species Act; OR
2. Species that receive an Oregon Natural Heritage rank 1, 2 or 3
 - a) 1 = Critically imperiled because of extreme rarity or especially vulnerable to extinction or extirpation
 - b) 2 = Imperiled because of extreme rarity or especially vulnerable to extinction or extirpation
 - c) 3 = Rare, uncommon or threatened, but not immediately imperiled

Not included are plant populations that are listed by USFWS/NOAA or ODA/ODFW as Candidate Taxa or Species of Concern, unless the plant population received an Oregon Natural Heritage rank of 1-3 or is a wetland indicator species. Also not included are those plant populations that received an Oregon Natural Heritage rank of 4 = not rare and apparently secure, but with cause for long-term concern, or 5 = demonstrably widespread and secure.

W – Wetlands and associated seeps, springs and streams that are part of a wetland complex

This criterion applies to selected wetlands, and associated seeps, springs and streams that provide critical watershed functions (i.e., water quality, hydrology, wildlife habitat, etc.) and are increasingly rare within Portland. SHAs include primarily those wetlands that:

1. Are connected to a stream or flood area;
2. Are part of a larger resource area, such as a wetland located within or adjacent to a forest; or
3. Provide connectivity between other high value habitats.

This criterion may incorporate constructed wetlands where the purpose of the wetland includes providing fish and wildlife habitat. Upland wetlands that are very small and are surrounded by development or intense land uses, such as golf courses, and certain water quality facilities are generally not designated as SHAs.

O – Native oak

The native oak criterion applies to areas that contain contiguous Oregon white oak canopy. Other tree species may be present, but the dominant species must be Oregon white oak.

B – Bottomland hardwood forest

This criterion applies to selected areas that contain remnant bottomland hardwood. Not all bottomland hardwood forests in the city are designated as a SHA. To be designated, an area must be considered unique, rare or declining within a particular watershed.

I – Riverine Island

This criterion applies to riverine islands that provide habitat for shorebirds, waterfowl, terns and gulls, Bald Eagles or other wildlife. The area shall contain beaches, mudflats and/or large wood deposits.

D – River delta

This criterion applies to river deltas that provide habitat for shorebirds, waterfowl, terns and gulls, Bald Eagles or other wildlife. The area shall contain beaches, mudflats and/or large wood deposits.

M – Migratory stopover habitat

This criterion incorporates vegetated areas and other landscape features (e.g., buttes) where use by migratory bird species is documented or reasonably expected. The criterion applies to areas that:

1. Provide food and resting opportunities; and
2. Provide sufficient cover to reduce predation.

C – Corridor between patches or habitats

This criterion applies to vegetated areas that:

1. Provide connectivity between high value habitats including other Special Habitat Areas;
2. Provide connectivity between water bodies, riparian areas and upland habitats; or
3. Extend outward from another SHA to provide a wildlife movement corridor.

S – Area critical to sensitive species life history, on more than an incidental basis

This criterion applies to areas with documented use by the following wildlife species (see Appendix E: Special Status Fish and Wildlife Species in Portland):

1. Species listed by USFWS or NOAA Fisheries as Endangered, Threatened, Proposed Endangered, or Proposed Threatened under the Endangered Species Act or by the Oregon Department of Agriculture (ODA) or ODFW under the Oregon Endangered Species Act;
2. Species that received an Oregon Natural Heritage rank or list 1, 2 or 3.
 - a) 1 = Critically imperiled because of extreme rarity or especially vulnerable to extinction or extirpation
 - b) 2 = Imperiled because of extreme rarity or especially vulnerable to extinction or extirpation
 - c) 3 = Rare, uncommon or threatened, but not immediately imperiled;
3. Oregon Watershed Enhancement Board priority species;
4. Partners in Flight focal species; or
5. Species listed in the Framework for Integrated Management of Watershed Health (BES, 2005) as Priority Wildlife Species.

This criterion also applies to areas designated as Critical Habitats by NOAA Fisheries.

E – Elk migratory corridor

This criterion is applied to areas that ODFW has designated as elk migratory corridors.

G – Upland meadow, prairie or grassy area important to migrants and grassland-associated species

This criterion is applied to areas that contain upland meadow, prairie or grassy habitats where use by grassland-associated wildlife species has been documented or could reasonably be expected. This criterion may be applied to meadows, prairies or grassy areas that:

1. Are part of a larger resource area, such as a grassy area located adjacent to a forest;
2. Provide connectivity between other high value habitats; or
3. Extend outward from an SHA to provide a wildlife movement corridor.

WB – Willamette Beaches

This criterion applies to documented natural and semi-natural beaches located along the Willamette River greater than 200 feet in length. The criterion may be applied to beaches that:

1. Are part of a larger resource area, such as a beach adjacent to a wetland complex;
2. Provide connectivity between other high value habitats; or
3. Extend a SHA to provide a habitat corridor.

U – Resource or structure that provides critical or unique habitat function in natural or built environments

This criterion applies to resources or structures that are generally not accounted for by other criteria, and that provide a documented critical or unique habitat function. Examples include: bridges, chimneys, rock outcrops, groundwater upwelling areas, and street trees.

APPENDIX D:

WILDLIFE HABITAT ASSESSMENT FORMS

Kelley Point Park

REACH Confluence		SITE NAME - 1.1.a			SCORE 71	
LOCATION Kelley Point		DATE 12/2/99		OBSERVERS EL, TB, SB, BG		
GENERAL COMMENTS Forested park at the confluence of the Willamette and Columbia Rivers						
COMPONENT		DEGREE			SCORE	COMMENTS
WATER	Quantity and Seasonality	None 0	Seasonal 4	Perennial 8	8	
	Quality	Low 0	Medium 4	High 8	4	
	Streamside Vegetation	None 0	Nearby 4	Adjacent 8	6	
	Diversity <small>Streams, wetlands etc.</small>	Low 0	Med 2	High 6	6	
FOOD	Quantity and Seasonality	None 0	Limited 4	year-round 8	5	
	Variety	Low 0	Medium 4	High 8	4	
	Proximity to cover	None 0	Nearby 3	Adjacent 6	5	
COVER	Structural Diversity	Low 0	Medium 4	High 8	4	
	Variety	Low 0	Medium 4	High 8	3	
	Seasonality	Low 0	Limited 2	Year round 4	3	
	Nesting, Denning, etc.	Low 0	Medium 2	High 4	4	
	Access	Low 0	Medium 2	High 4	4	
Human Disturbance	Physical	Permanent 0	temporary 2	none 4	3	
	Activity	High 0	Medium 2	Low 4	2	
Linkage/Connectivity		Low 0	Medium 4	High 8	6	
UNIQUE FEATURES	Rarity of habitat	Low 0	Medium 2	High 4	4	Large bottomland forest at major confluence
	Flora	Low 0	Medium 2	High 4	0	
	Fauna	Low 0	Medium 2	High 4	0	

Remnant Riparian Forest

REACH Confluence		SITE NAME - 1.1.b			SCORE 60	
LOCATION Remnant Riparian Forest			DATE 12/2/99		OBSERVERS EL, TB, SB, BG	
GENERAL COMMENTS Riparian forest and wetland located at Terminal 5						
COMPONENT		DEGREE			SCORE	COMMENTS
WATER	Quantity and Seasonality	None 0	Seasonal 4	Perennial 8	8	
	Quality	Low 0	Medium 4	High 8	3	
	Streamside Vegetation	None 0	Nearby 4	Adjacent 8	4	
	Diversity <small>Streams, wetlands etc.</small>	Low 0	Med 2	High 6	6	
FOOD	Quantity and Seasonality	None 0	Limited 4	year-round 8	5	
	Variety	Low 0	Medium 4	High 8	4	
	Proximity to cover	None 0	Nearby 3	Adjacent 6	4	
COVER	Structural Diversity	Low 0	Medium 4	High 8	4	
	Variety	Low 0	Medium 4	High 8	4	
	Seasonality	Low 0	Limited 2	Year round 4	2	
	Nesting, Denning, etc.	Low 0	Medium 2	High 4	3	
	Access	Low 0	Medium 2	High 4	2	
Human Disturbance	Physical	Permanent 0	temporary 2	none 4	2	
	Activity	High 0	Medium 2	Low 4	3	
Linkage/Connectivity		Low 0	Medium 4	High 8	4	
UNIQUE FEATURES	Rarity of habitat	Low 0	Medium 2	High 4	2	Forested wetland, riparian gallery
	Flora	Low 0	Medium 2	High 4	0	
	Fauna	Low 0	Medium 2	High 4	0	

South Rivergate Corridor

REACH		Confluence			SITE NAME - 1.1.c			SCORE 71		
LOCATION				South Rivergate Corridor			DATE 12/2/99		OBSERVERS EL, TB, SB, BG	
GENERAL COMMENTS										
Powerline corridor with shrub-scrub wetland bordering and crossed by Time Oil Road										
COMPONENT		DEGREE			SCORE		COMMENTS			
WATER	Quantity and Seasonality	None 0	Seasonal 4	Perennial 8	8					
	Quality	Low 0	Medium 4	High 8	4					
	Streamside Vegetation	None 0	Nearby 4	Adjacent 8	6					
	Diversity Streams, wetlands etc.	Low 0	Med 2	High 6	6					
FOOD	Quantity and Seasonality	None 0	Limited 4	year-round 8	5					
	Variety	Low 0	Medium 4	High 8	4					
	Proximity to cover	None 0	Nearby 3	Adjacent 6	4					
COVER	Structural Diversity	Low 0	Medium 4	High 8	4					
	Variety	Low 0	Medium 4	High 8	4					
	Seasonality	Low 0	Limited 2	Year round 4	3					
	Nesting, Denning, etc.	Low 0	Medium 2	High 4	3					
	Access	Low 0	Medium 2	High 4	2					
Human Disturbance	Physical	Permanent 0	temporary 2	none 4	1					
	Activity	High 0	Medium 2	Low 4	3					
Linkage/Connectivity		Low 0	Medium 4	High 8	6					
UNIQUE FEATURES	Rarity of habitat	Low 0	Medium 2	High 4	4		OW, EM, SS wetland complex			
	Flora	Low 0	Medium 2	High 4	0					
	Fauna	Low 0	Medium 2	High 4	4		Painted turtle			

Confluence to Multnomah Channel

SITE 1.1W		SITE NAME Confluence			SCORE 40	
LOCATION Confluence to Multnomah Channel				DATE 04/09/02		OBSERVERS CB, BG, TW
GENERAL COMMENTS: Reach has a generally natural feel at Kelly Point Park and Sauvie Island. Approximately 1.2 miles of the bank are marine terminal with large T-docks spanning some stretches of narrow beach with large wood. Numerous pilings, docks, outfalls, associated with the marine terminals.						
COMPONENT		DEGREE			SCORE	COMMENTS
WATER	Quality	Low 0	Medium 4	High 8	2	Some vegetation present to filter stormwater, but also at the terminus of a large river so upstream inputs are high.
	Streamside Vegetation	None 0	Nearby 4	Adjacent 8	6	Large patches of riparian forest dominate the north part of the reach and narrow veg margin remains near water along terminals
	Diversity <small>velocity Streams, wetlands etc.</small>	Low 0	Med 2	High 6	4	Confluence and influence of Multnomah Channel and mouth of Columbia Slough create flow diversity
FOOD	Quantity and Seasonality	None 0	Limited 4	year-round 8	4	Large patches riparian vegetation provide source of food.
	Variety	Low 0	Medium 4	High 8	3	Some variety of food source provided by riparian forest and large wood, but channel substrate fine grained and not likely to be very productive
	Proximity to cover	None 0	Nearby 3	Adjacent 6	4	Some deep water refuge, cover available on both shores for most of the reach
STRUCTURE	Diversity	Low 0	Medium 4	High 8	3	Backwater areas, Multnomah Channel , Columbia Slough, large wood, man-made in-water structures
	Quantity	Low 0	Medium 4	High 8	4	structures are present throughout the reach, along both banks
	Temporality <small>Seasonal, diurnal, etc.</small>	None 0	Limited 2	year-round 4	4	
Human Disturbance	Physical	High 0	Medium 4	Low 8	2	Much of bank modified with revetment or fill, dredging in main channel, numerous structures
	Activity	High 0	Medium 2	Low 4	1	Frequent marine traffic, industrial lands create noise and other types disturbance
Linkage/Connectivity		Low 0	Medium 4	High 8	1	Minimal lateral (floodplain) and vertical connections, but throughout reach
UNIQUE FEATURES	Rarity of habitat	Low 0	Medium 2	High 4	1	Extent of riparian gallery unique
	Flora	Low 0	Medium 2	High 4	0	none
	Fauna	Low 0	Medium 2	High 4	1	Endangered salmonids known to be present-migration and rearing habitat

Harborton Forest/Wetlands

REACH		Linnton			SITE NAME – 1.2.a			SCORE 84	
LOCATION				Harborton Forest/wetlands		DATE 12/2/99		OBSERVERS EL, TB, SB, BG	
GENERAL COMMENTS									
Bottomland forest and wetland at the confluence of Miller Creek and Multnomah Channel at northern border of city.									
COMPONENT		DEGREE			SCORE		COMMENTS		
WATER	Quantity and Seasonality	None 0	Seasonal 4	Perennial 8	8				
	Quality	Low 0	Medium 4	High 8	2				
	Streamside Vegetation	None 0	Nearby 4	Adjacent 8	8				
	Diversity Streams, wetlands etc.	Low 0	Med 2	High 6	2				
FOOD	Quantity and Seasonality	None 0	Limited 4	year-round 8	5				
	Variety	Low 0	Medium 4	High 8	5				
	Proximity to cover	None 0	Nearby 3	Adjacent 6	5				
COVER	Structural Diversity	Low 0	Medium 4	High 8	6				
	Variety	Low 0	Medium 4	High 8	5				
	Seasonality	Low 0	Limited 2	Year round 4	3				
	Nesting, Denning, etc.	Low 0	Medium 2	High 4	3				
	Access	Low 0	Medium 2	High 4	4				
Human Disturbance	Physical	Permanent 0	temporary 2	none 4	3				
	Activity	High 0	Medium 2	Low 4	4				
Linkage/Connectivity		Low 0	Medium 4	High 8	7				
UNIQUE FEATURES	Rarity of habitat	Low 0	Medium 2	High 4	2		Bottomland forest and tributary confluence		
	Flora	Low 0	Medium 2	High 4	0				
	Fauna	Low 0	Medium 2	High 4	4		Red legged frog, hinook salmon, steelhead trout, chum salmon		

Edison Street Forest

REACH Linnton		SITE NAME – 1.2.b			SCORE 30	
LOCATION Edison Street Forest			DATE 12/2/99		OBSERVERS EL, TB, SB, BG	
GENERAL COMMENTS Oak woodland on bluff above Terminal 4						
COMPONENT		DEGREE			SCORE	COMMENTS
WATER	Quantity and Seasonality	None 0	Seasonal 4	Perennial 8	2	
	Quality	Low 0	Medium 4	High 8	2	
	Streamside Vegetation	None 0	Nearby 4	Adjacent 8	0	
	Diversity <small>Streams, wetlands etc.</small>	Low 0	Med 2	High 6	2	
FOOD	Quantity and Seasonality	None 0	Limited 4	year-round 8	4	
	Variety	Low 0	Medium 4	High 8	3	
	Proximity to cover	None 0	Nearby 3	Adjacent 6	2	
COVER	Structural Diversity	Low 0	Medium 4	High 8	3	
	Variety	Low 0	Medium 4	High 8	2	
	Seasonality	Low 0	Limited 2	Year round 4	2	
	Nesting, Denning, etc.	Low 0	Medium 2	High 4	2	
	Access	Low 0	Medium 2	High 4	1	
Human Disturbance	Physical	Permanent 0	temporary 2	none 4	0	
	Activity	High 0	Medium 2	Low 4	2	
Linkage/Connectivity		Low 0	Medium 4	High 8	2	
UNIQUE FEATURES	Rarity of habitat	Low 0	Medium 2	High 4	1	Oak woodland
	Flora	Low 0	Medium 2	High 4	0	
	Fauna	Low 0	Medium 2	High 4	0	

Multnomah Channel to St. Johns Bridge

SITE		SITE NAME			SCORE	
1.2W		Linnton			16	
LOCATION				DATE	OBSERVERS	
Multnomah Channel To St. Johns Bridge				11/15/01	CB, BG, TW	
GENERAL COMMENTS:						
Primarily developed shoreline with marine/ industrial activity. Minimal vegetation with small patches present in the northern part of the reach. Some stretches of narrow beach with large wood interspersed with T-docks. Numerous pilings, docks, outfalls, and some embayments associated with the marine terminals.						
COMPONENT		DEGREE			SCORE	COMMENTS
WATER	Quality	Low 0	Medium 4	High 8	1	Contaminated sediments (Superfund), numerous outfalls, increased upstream influences
	Streamside Vegetation	None 0	Nearby 4	Adjacent 8	2	Some, but minimal in the north end of reach near Multnomah Cannel mouth
	Diversity <small>velocity Streams, wetlands etc.</small>	Low 0	Med 2	High 6	1	embayments T-4 and some influence of Multnomah Channel
FOOD	Quantity and Seasonality	None 0	Limited 4	year-round 8	1	Those sources present are limited in size and distribution, but fairly consistent in regards to seasonality.
	Variety	Low 0	Medium 4	High 8	1	Variety of food sources limited, some wood substrate, but channel substrate fine grained and not likely to be very productive
	Proximity to cover	None 0	Nearby 3	Adjacent 6	2	Some deep water refuge and minimal cover along shoreline provided by pilings, docks, and vegetation
STRUCTURE	Diversity	Low 0	Medium 4	High 8	1	Backwater areas, Multnomah Channel, man-made in-water structures
	Quantity	Low 0	Medium 4	High 8	4	Man-made structures are present throughout the reach, along both banks
	Temporality <small>Seasonal, diurnal, etc.</small>	None 0	Limited 2	year-round 4	1	Some floodplain expression but mainly on industrial land
Human Disturbance	Physical	High 0	Medium 4	Low 8	0	Majority of bank modified with revetment or fill,
	Activity	High 0	Medium 2	Low 4	0	Frequent marine traffic, industrial lands create noise and other types disturbance
Linkage/Connectivity		Low 0	Medium 4	High 8	1	Minimal lateral (floodplain) and vertical connections
UNIQUE FEATURES	Rarity of habitat	Low 0	Medium 2	High 4	0	none
	Flora	Low 0	Medium 2	High 4	0	none
	Fauna	Low 0	Medium 2	High 4	1	Endangered salmonids known to be present-migration and rearing habitat

Willamette Cove

REACH Willamette Terrace		SITE NAME – 2.1.a			SCORE 50	
LOCATION Willamette Cove		DATE 12/2/99		OBSERVERS EL, TB, SB, BG		
GENERAL COMMENTS Riparian/upland area between Cathedral Park and BNSF Railroad Bridge						
COMPONENT		DEGREE			SCORE	COMMENTS
WATER	Quantity and Seasonality	None 0	Seasonal 4	Perennial 8	8	
	Quality	Low 0	Medium 4	High 8	2	
	Streamside Vegetation	None 0	Nearby 4	Adjacent 8	6	
	Diversity <small>Streams, wetlands etc.</small>	Low 0	Med 2	High 6	2	
FOOD	Quantity and Seasonality	None 0	Limited 4	year-round 8	4	
	Variety	Low 0	Medium 4	High 8	4	
	Proximity to cover	None 0	Nearby 3	Adjacent 6	4	
COVER	Structural Diversity	Low 0	Medium 4	High 8	3	
	Variety	Low 0	Medium 4	High 8	3	
	Seasonality	Low 0	Limited 2	Year round 4	2	
	Nesting, Denning, etc.	Low 0	Medium 2	High 4	2	
	Access	Low 0	Medium 2	High 4	2	
Human Disturbance	Physical	Permanent 0	temporary 2	none 4	1	
	Activity	High 0	Medium 2	Low 4	1	
Linkage/Connectivity		Low 0	Medium 4	High 8	6	
UNIQUE FEATURES	Rarity of habitat	Low 0	Medium 2	High 4	0	
	Flora	Low 0	Medium 2	High 4	0	
	Fauna	Low 0	Medium 2	High 4	0	

Waud Bluff

REACH Willamette Terrace		SITE NAME – 2.1.b			SCORE 54	
LOCATION Waud Bluff			DATE 12/14/99		OBSERVERS EL, TB, SB, BG	
GENERAL COMMENTS Oak-madrone bluff above Willamette Cove						
COMPONENT		DEGREE			SCORE	COMMENTS
WATER	Quantity and Seasonality	None 0	Seasonal 4	Perennial 8	4	
	Quality	Low 0	Medium 4	High 8	3	
	Streamside Vegetation	None 0	Nearby 4	Adjacent 8	4	
	Diversity <small>Streams, wetlands etc.</small>	Low 0	Med 2	High 6	2	
FOOD	Quantity and Seasonality	None 0	Limited 4	year-round 8	5	
	Variety	Low 0	Medium 4	High 8	4	
	Proximity to cover	None 0	Nearby 3	Adjacent 6	3	
COVER	Structural Diversity	Low 0	Medium 4	High 8	4	
	Variety	Low 0	Medium 4	High 8	4	
	Seasonality	Low 0	Limited 2	Year round 4	3	
	Nesting, Denning, etc.	Low 0	Medium 2	High 4	2	
	Access	Low 0	Medium 2	High 4	3	
Human Disturbance	Physical	Permanent 0	temporary 2	none 4	2	
	Activity	High 0	Medium 2	Low 4	2	
Linkage/Connectivity		Low 0	Medium 4	High 8	5	
UNIQUE FEATURES	Rarity of habitat	Low 0	Medium 2	High 4	2	Oak woodland
	Flora	Low 0	Medium 2	High 4	2	
	Fauna	Low 0	Medium 2	High 4	0	

Railroad Corridor

REACH Willamette Terrace		SITE NAME – 2.1.c			SCORE 68	
LOCATION Railroad Corridor			DATE 3/6/00		OBSERVERS EL, TB, SB	
GENERAL COMMENTS						
Corridor along railroad from river to Doane Lake, extends south to Saltzman Creek						
COMPONENT		DEGREE			SCORE	COMMENTS
WATER	Quantity and Seasonality	None 0	Seasonal 4	Perennial 8	8	
	Quality	Low 0	Medium 4	High 8	2	
	Streamside Vegetation	None 0	Nearby 4	Adjacent 8	6	
	Diversity <small>Streams, wetlands etc.</small>	Low 0	Med 2	High 6	4	
FOOD	Quantity and Seasonality	None 0	Limited 4	year-round 8	6	
	Variety	Low 0	Medium 4	High 8	6	
	Proximity to cover	None 0	Nearby 3	Adjacent 6	5	
COVER	Structural Diversity	Low 0	Medium 4	High 8	5	
	Variety	Low 0	Medium 4	High 8	4	
	Seasonality	Low 0	Limited 2	Year round 4	3	
	Nesting, Denning, etc.	Low 0	Medium 2	High 4	3	
	Access	Low 0	Medium 2	High 4	2	
Human Disturbance	Physical	Permanent 0	temporary 2	none 4	1	
	Activity	High 0	Medium 2	Low 4	1	
Linkage/Connectivity		Low 0	Medium 4	High 8	4	
UNIQUE FEATURES	Rarity of habitat	Low 0	Medium 2	High 4	4	Stillwater habitat, wetland
	Flora	Low 0	Medium 2	High 4	0	
	Fauna	Low 0	Medium 2	High 4	4	Red legged frog breeding site

St. Johns Bridge to University of Portland

SITE 2.1 w	SITE NAME Willamette Terrace	SCORE 18
LOCATION St John's Bridge to University of Portland		DATE 11/15/01
OBSERVERS CP/BG		

GENERAL COMMENTS

Generally industrialized, modified banks with natural area at Willamette Cove with beach extended to St John's Bridge and beach on west side near RR bridge. McCormick and Baxter Superfund site, and other Portland Harbor Superfund clean-up sites located within reach. Tributaries include Saltzman and Doane Creek (piped) and several smaller piped streams

COMPONENT		DEGREE			SCORE	COMMENTS
WATER	Quality	Low 0	Medium 4	High 8	1	Contaminated sediments (Superfund) increased inputs from upstream and outfalls
	Streamside Vegetation	None 0	Nearby 4	Adjacent 8	2	Very limited but some present at Willamette Cove, Cathedral Park, and Saltzman mouth
	Diversity <small>velocity Streams, wetlands etc.</small>	None 0	One 2	Two 6	3	Tributaries and backwater areas
FOOD	Quantity and Seasonality	None 0	Limited 4	year-round 8	2	Variety of food sources are limited to small portions of the reach limiting quantity and seasonality.
	Variety	Low 0	Medium 4	High 8	1	Very limited variety of food sources, some diversity provided by cove at Willamette Cove and wood along beaches north of cove
	Proximity to cover	None 0	Nearby 3	Adjacent 6	1	Some man-made structures provide cover, shallow water and large wood along beaches provide cover opportunities for aquatic species
STRUCTURE	Diversity	Low 0	Medium 4	High 8	2	Wood, beaches, some complexity to shoreline
	Quantity	Low 0	Medium 4	High 8	2	Structure in this reach is primarily provided by areas with pilings and large wood, but quantities are limited
	Temporality <small>Seasonal, diurnal, etc.</small>	None 0	Limited 2	year-round 4	2	Some seasonal structure provided by beach areas
Human Disturbance	Physical	High 0	Medium 4	Low 8	1	Highly altered shoreline, multiple in-water man-made structures, contaminated sediments
	Activity	High 0	Medium 2	Low 4	0	Marine traffic, recreational boats, nearshore activities create noise and light
Linkage/Connectivity		Low 0	Medium 4	High 8	1	Extensive beach areas provide some lateral connectivity and possible hyporheic connections
UNIQUE FEATURES	Rarity of habitat	Low 0	Medium 2	High 4	1	Long reach of beach for Willamette Cove to St John's bridge, and beach on west side
	Flora	Low 0	Medium 2	High 4	0	None noted
	Fauna	Low 0	Medium 2	High 4	1	Endangered salmonids known to use reach for migration and probably rearing

Mock's Crest

REACH Swan Island		SITE NAME – 2.2.a			SCORE 44	
LOCATION Mock's Crest			DATE 3/6/00		OBSERVERS EL, TB, SB, BG	
GENERAL COMMENTS Oak-madrone forest corridor along bluff above Mock's Bottom, extending from University of Portland to Fremont Bridge						
COMPONENT		DEGREE			SCORE	COMMENTS
WATER	Quantity and Seasonality	None 0	Seasonal 4	Perennial 8	3	
	Quality	Low 0	Medium 4	High 8	2	
	Streamside Vegetation	None 0	Nearby 4	Adjacent 8	3	
	Diversity <small>Streams, wetlands etc.</small>	Low 0	Med 2	High 6	2	
FOOD	Quantity and Seasonality	None 0	Limited 4	year-round 8	4	
	Variety	Low 0	Medium 4	High 8	4	
	Proximity to cover	None 0	Nearby 3	Adjacent 6	3	
COVER	Structural Diversity	Low 0	Medium 4	High 8	3	
	Variety	Low 0	Medium 4	High 8	4	
	Seasonality	Low 0	Limited 2	Year round 4	3	
	Nesting, Denning, etc.	Low 0	Medium 2	High 4	1	
	Access	Low 0	Medium 2	High 4	2	
Human Disturbance	Physical	Permanent 0	temporary 2	none 4	2	
	Activity	High 0	Medium 2	Low 4	1	
Linkage/Connectivity		Low 0	Medium 4	High 8	3	
UNIQUE FEATURES	Rarity of habitat	Low 0	Medium 2	High 4	2	
	Flora	Low 0	Medium 2	High 4	2	
	Fauna	Low 0	Medium 2	High 4	0	

Swan Island Beaches

REACH		Swan Island			SITE NAME – 2.2.b		SCORE 36		
LOCATION				Swan Island Beaches		DATE 12/14/99		OBSERVERS EL, TB, SB, BG	
GENERAL COMMENTS									
Riparian and beach located at two sites on Swan Island									
COMPONENT		DEGREE			SCORE		COMMENTS		
WATER	Quantity and Seasonality	None 0	Seasonal 4	Perennial 8	8				
	Quality	Low 0	Medium 4	High 8	2				
	Streamside Vegetation	None 0	Nearby 4	Adjacent 8	4				
	Diversity Streams, wetlands etc.	Low 0	Med 2	High 6	2				
FOOD	Quantity and Seasonality	None 0	Limited 4	year-round 8	3				
	Variety	Low 0	Medium 4	High 8	2				
	Proximity to cover	None 0	Nearby 3	Adjacent 6	2				
COVER	Structural Diversity	Low 0	Medium 4	High 8	2				
	Variety	Low 0	Medium 4	High 8	2				
	Seasonality	Low 0	Limited 2	Year round 4	1				
	Nesting, Denning, etc.	Low 0	Medium 2	High 4	1				
	Access	Low 0	Medium 2	High 4	1				
Human Disturbance	Physical	Permanent 0	temporary 2	none 4	1				
	Activity	High 0	Medium 2	Low 4	1				
Linkage/Connectivity		Low 0	Medium 4	High 8	3				
UNIQUE FEATURES	Rarity of habitat	Low 0	Medium 2	High 4	1		Extensive reaches of beach		
	Flora	Low 0	Medium 2	High 4	0				
	Fauna	Low 0	Medium 2	High 4	0				

University of Portland to Fremont Bridge

SITE 2.2w		SITE NAME Swan Island			SCORE 17	
LOCATION University of Portland to Fremont Bridge				DATE 11/15/01		OBSERVERS CP/BG
GENERAL COMMENTS Generally industrialized /modified banks with some beach areas along Swan Island lagoon and riverfront. West bank is almost entirely covered by docks and other man-made structures. Beach area on east shore of Swan Island peninsula. Small wetland at south end of lagoon. Numerous stormwater outfalls.						
COMPONENT		DEGREE			SCORE	COMMENTS
WATER	Quality	Low 0	Medium 4	High 8	0	Contaminated sediments (Superfund) with increased inputs from upstream and outfalls,
	Streamside Vegetation	None 0	Nearby 4	Adjacent 8	1	Limited to area at the south end and east bank of Swan Island lagoon
	Diversity <small>velocity Streams, wetlands etc.</small>	Low 0	Medium 2	High 6	1	Lagoon provides off-channel area and small wetland, some velocity refuge in lagoon
FOOD	Quantity and Seasonality	None 0	Limited 4	year-round 8	2	Beach areas add to seasonality
	Variety	Low 0	Medium 4	High 8	1	large wood and pilings provide substrate for macroinvertebrates, but other sources are limited
	Proximity to cover	None 0	Nearby 3	Adjacent 6	1	Man-made structures, wood, but limited vegetation
STRUCTURE	Diversity	Low 0	Medium 4	High 8	2	Some wood along beaches, man-made structures, small embayments, and lagoon
	Quantity	Low 0	Medium 4	High 8	2	Limited quantities of habitat forming structure
	Temporality <small>Seasonal, diurnal, etc.</small>	None 0	Limited 2	year-round 4	2	Beaches add to seasonality
Human Disturbance	Physical	High 0	Medium 4	Low 8	0	Highly modified banks, fill, dredging, pilings and docks
	Activity	High 0	Medium 2	Low 4	0	Area of high activity, industrial noise, marine traffic
Linkage/Connectivity		Low 0	Medium 4	High 8	2	Beaches/wetland provide lateral and vertical connectivity. Emergent wetland at south end of lagoon
UNIQUE FEATURES	Rarity of habitat	Low 0	Medium 2	High 4	1	Beaches and wetland
	Flora	Low 0	Medium 2	High 4	1	Wapato thought to be present at wetland
	Fauna	Low 0	Medium 2	High 4	1	Salmonids likely to use shallow and slow water areas for rearing and refuge

Fremont Bridge to Steel Bridge

SITE		SITE NAME			SCORE	
2.3w		River District			10	
LOCATION				DATE	OBSERVERS	
Fremont Bridge to Steel Bridge				04/09/02	CP/BG	
GENERAL COMMENTS						
Fairly straight reach of river characterized by modified banks, bridges, and industrial/commercial shoreline with several cargo loading facilities on the east bank. A deep pool is present north of the Steel Bridge.						
COMPONENT		DEGREE		SCORE	COMMENTS	
WATER	Quality	Low 0	Medium 4	High 8	1	Numerous outfalls, increased upstream influences
	Streamside Vegetation	None 0	Nearby 4	Adjacent 8	1	Some invasive species present-Himalayan blackberry- but very limited
	Diversity <small>velocity Streams, wetlands etc.</small>	Low 0	Med 2	High 6	0	Fairly homogenous velocity, no areas of refuge, no tributaries/confluences/ wetlands
FOOD	Quantity and Seasonality	None 0	Limited 4	year-round 8	1	No vegetation and no variety or quantity of habitat to provide food sources
	Variety	Low 0	Medium 4	High 8	0	Homogenous character of this reach, lack of vegetation and wood indicate high probability of low diversity
	Proximity to cover	None 0	Nearby 3	Adjacent 6	1	Some cover provided by bridges and man-made structure
STRUCTURE	Diversity	Low 0	Medium 4	High 8	1	Man-made structures and small beach
	Quantity	Low 0	Medium 4	High 8	0	Even structure provided by man-made structures is limited
	Temporality <small>Seasonal, diurnal, etc.</small>	None 0	Limited 2	year-round 4	1	The structure does not improve with seasonal change
Human Disturbance	Physical	High 0	Medium 4	Low 8	0	Highly modified riverbanks, in-water structures such as bridges, pilings, docks
	Activity	High 0	Medium 2	Low 4	1	Recreational and marine traffic, noise and light from industrial, residential, and bridge activity
Linkage/Connectivity		Low 0	Medium 4	High 8	1	Connectivity to longitudinal aspect of the river, other dimensions very limited
UNIQUE FEATURES	Rarity of habitat	Low 0	Medium 2	High 4	0	none
	Flora	Low 0	Medium 2	High 4	0	none
	Fauna	Low 0	Medium 2	High 4	2	Endangered salmonids known to be present-migration and rearing habitat, peregrine falcons nest on Fremont Bridge

Steel Bridge to Hawthorne Bridge

SITE 3.1w		SITE NAME Seawall			SCORE 10	
LOCATION Steel Bridge to Hawthorne Bridge				DATE 11/15/01	OBSERVERS CP/BG	
GENERAL COMMENTS Highly modified banks with seawall or revetments along entire bank with multiple structures in and over the water.						
COMPONENT		DEGREE		SCORE	COMMENTS	
WATER	Quality	Low 0	Medium 4	High 8	2	CSO and outfalls
	Streamside Vegetation	None 0	Nearby 4	Adjacent 8	0	Small patch of vegetation associated with bio-engineered riverbank, but not well-connected to the river
	Diversity <small>velocity Streams, wetlands etc.</small>	Low 0	Med 2	High 6	0	Velocity fairly uniform, some backwater characteristics near north end of the floating walkway
FOOD	Quantity and Seasonality	None 0	Limited 4	year-round 8	1	Homogenous character of this reach, lack of vegetation and wood indicate high probability of low diversity
	Variety	Low 0	Medium 4	High 8	1	Variety limited by homogenous nature of reach
	Proximity to cover	None 0	Nearby 3	Adjacent 6	1	Limited areas of cover found only near east bank and bridges
STRUCTURE	Diversity	Low 0	Medium 4	High 8	0	Structural diversity limited to man-made features
	Quantity	Low 0	Medium 4	High 8	1	Man-made structures present throughout reach/
	Temporality <small>Seasonal, diurnal, etc.</small>	None 0	Limited 2	year-round 4	1	Structure not likely to improve with seasonal change
Human Disturbance	Physical	High 0	Medium 4	Low 8	0	Highly modified banks, with seawall, in-water structures, floating walkway, bridges
	Activity	High 0	Medium 2	Low 4	1	Noise, light, human activity on water (floating walkway), recreational boats
Linkage/Connectivity		Low 0	Medium 4	High 8	1	Connectivity to longitudinal aspect of the river, other dimensions
UNIQUE FEATURES	Rarity of habitat	Low 0	Medium 2	High 4	0	none
	Flora	Low 0	Medium 2	High 4	0	none
	Fauna	Low 0	Medium 2	High 4	1	Endangered salmonids known to be present-migration and rearing habitat

Hawthorne Bridge to Ross Island Bridge

SITE		SITE NAME			SCORE	
3.2w		OMSI			11	
LOCATION				DATE	OBSERVERS	
Hawthorne Bridge to Ross Island Bridge				11/15/01	CP/BG	
GENERAL COMMENTS						
Generally modified banks with primarily invasive vegetation species. Small beach area present on west side. Several man-made structures over and in the water.						
COMPONENT		DEGREE		SCORE	COMMENTS	
WATER	Quality	Low 0	Medium 4	High 8	2	CSO and outfalls
	Streamside Vegetation	None 0	Nearby 4	Adjacent 8	1	Patches limited to invasives and small patch of plantings on east bank
	Diversity <small>velocity Streams, wetlands etc.</small>	Low 0	Med 2	High 6	0	Velocity fairly uniform, some slow-water characteristics on wet bank between Hawthorne and Marquam Bridges
FOOD	Quantity and Seasonality	None 0	Limited 4	year-round 8	1	Homogenous character of this reach, lack of vegetation and wood
	Variety	Low 0	Medium 4	High 8	1	Variety limited by homogenous nature of reach
	Proximity to cover	None 0	Nearby 3	Adjacent 6	1	Some cover provided by pilings and man-made structure found near docks and bridges
STRUCTURE	Diversity	Low 0	Medium 4	High 8	0	Structural diversity limited primarily to man-made features
	Quantity	Low 0	Medium 4	High 8	1	Man-made structures present throughout reach
	Temporality <small>Seasonal, diurnal, etc.</small>	None 0	Limited 2	year-round 4	1	Structure not likely to improve with seasonal change
Human Disturbance	Physical	High 0	Medium 4	Low 8	0	Highly modified banks, in-water structures, docks, bridges, pilings
	Activity	High 0	Medium 2	Low 4	1	Noise, light, human activity at docks and bridges, recreational boats and barge traffic
Linkage/ Connectivity		Low 0	Medium 4	High 8	1	Connectivity to longitudinal aspect of the river, other dimensions
UNIQUE FEATURES	Rarity of habitat	Low 0	Medium 2	High 4	0	none
	Flora	Low 0	Medium 2	High 4	0	none
	Fauna	Low 0	Medium 2	High 4	1	Endangered salmonids known to be present-migration and rearing habitat

Ross Island Complex

REACH Ross Island		SITE NAME – 4.1.a			SCORE 90	
LOCATION Ross Island Complex				DATE 3/6/00		OBSERVERS EL, TB, SB, BG
GENERAL COMMENTS Bottomland forest and wetland site on Ross Island Complex (Ross, East, Toe, and Hardtack Islands)						
COMPONENT		DEGREE			SCORE	COMMENTS
WATER	Quantity and Seasonality	None 0	Seasonal 4	Perennial 8	8	
	Quality	Low 0	Medium 4	High 8	4	
	Streamside Vegetation	None 0	Nearby 4	Adjacent 8	8	
	Diversity Streams, wetlands etc.	Low 0	Med 2	High 6	4	
FOOD	Quantity and Seasonality	None 0	Limited 4	year-round 8	7	
	Variety	Low 0	Medium 4	High 8	6	
	Proximity to cover	None 0	Nearby 3	Adjacent 6	6	
COVER	Structural Diversity	Low 0	Medium 4	High 8	7	
	Variety	Low 0	Medium 4	High 8	6	
	Seasonality	Low 0	Limited 2	Year round 4	3	
	Nesting, Denning, etc.	Low 0	Medium 2	High 4	4	
	Access	Low 0	Medium 2	High 4	4	
Human Disturbance	Physical	Permanent 0	temporary 2	none 4	3	
	Activity	High 0	Medium 2	Low 4	4	
Linkage/Connectivity		Low 0	Medium 4	High 8	8	
UNIQUE FEATURES	Rarity of habitat	Low 0	Medium 2	High 4	4	Island habitat
	Flora	Low 0	Medium 2	High 4	0	
	Fauna	Low 0	Medium 2	High 4	4	Nesting bald eagle, heron rookery

Oaks Bottom Complex

REACH Swan Island		SITE NAME – 4.1.b			SCORE 85	
LOCATION Oaks Bottom Complex			DATE 2/28/00		OBSERVERS EL, TB, BG	
GENERAL COMMENTS Riparian/wetland/upland complex between Ross and Sellwood Bridges						
COMPONENT		DEGREE			SCORE	COMMENTS
WATER	Quantity and Seasonality	None 0	Seasonal 4	Perennial 8	8	
	Quality	Low 0	Medium 4	High 8	4	
	Streamside Vegetation	None 0	Nearby 4	Adjacent 8	7	
	Diversity <small>Streams, wetlands etc.</small>	Low 0	Med 2	High 6	6	
FOOD	Quantity and Seasonality	None 0	Limited 4	year-round 8	7	
	Variety	Low 0	Medium 4	High 8	6	
	Proximity to cover	None 0	Nearby 3	Adjacent 6	6	
COVER	Structural Diversity	Low 0	Medium 4	High 8	6	
	Variety	Low 0	Medium 4	High 8	6	
	Seasonality	Low 0	Limited 2	Year round 4	4	
	Nesting, Denning, etc.	Low 0	Medium 2	High 4	4	
	Access	Low 0	Medium 2	High 4	3	
Human Disturbance	Physical	Permanent 0	temporary 2	none 4	2	
	Activity	High 0	Medium 2	Low 4	2	
Linkage/Connectivity		Low 0	Medium 4	High 8	8	
UNIQUE FEATURES	Rarity of habitat	Low 0	Medium 2	High 4	2	
	Flora	Low 0	Medium 2	High 4	2	
	Fauna	Low 0	Medium 2	High 4	2	

Cottonwood Bay

REACH Ross Island		SITE NAME – 4.1.c			SCORE 36	
LOCATION Cottonwood Bay			DATE 2/28/00		OBSERVERS EL, TB, BG	
GENERAL COMMENTS Site along Greenway Trail, cottonwood bay/heron point						
COMPONENT		DEGREE			SCORE	COMMENTS
WATER	Quantity and Seasonality	None 0	Seasonal 4	Perennial 8	8	
	Quality	Low 0	Medium 4	High 8	2	
	Streamside Vegetation	None 0	Nearby 4	Adjacent 8	4	
	Diversity <small>Streams, wetlands etc.</small>	Low 0	Med 2	High 6	4	
FOOD	Quantity and Seasonality	None 0	Limited 4	year-round 8	2	
	Variety	Low 0	Medium 4	High 8	2	
	Proximity to cover	None 0	Nearby 3	Adjacent 6	2	
COVER	Structural Diversity	Low 0	Medium 4	High 8	2	
	Variety	Low 0	Medium 4	High 8	2	
	Seasonality	Low 0	Limited 2	Year round 4	2	
	Nesting, Denning, etc.	Low 0	Medium 2	High 4	1	
	Access	Low 0	Medium 2	High 4	2	
Human Disturbance	Physical	Permanent 0	temporary 2	none 4	0	
	Activity	High 0	Medium 2	Low 4	0	
Linkage/Connectivity		Low 0	Medium 4	High 8	3	
UNIQUE FEATURES	Rarity of habitat	Low 0	Medium 2	High 4	0	
	Flora	Low 0	Medium 2	High 4	0	
	Fauna	Low 0	Medium 2	High 4	0	

Stephens Creek/Willamette Park

REACH Ross Island		SITE NAME – 4.1.d			SCORE 63	
LOCATION Stephens Creek/Willamette Park		DATE 2/28/00		OBSERVERS EL, TB, BG		
GENERAL COMMENTS Forested park at the confluence of the Willamette and Columbia Rivers						
COMPONENT		DEGREE		SCORE	COMMENTS	
WATER	Quantity and Seasonality	None 0	Seasonal 4	Perennial 8	8	
	Quality	Low 0	Medium 4	High 8	3	
	Streamside Vegetation	None 0	Nearby 4	Adjacent 8	4	
	Diversity <small>Streams, wetlands etc.</small>	Low 0	Med 2	High 6	4	
FOOD	Quantity and Seasonality	None 0	Limited 4	year-round 8	6	
	Variety	Low 0	Medium 4	High 8	5	
	Proximity to cover	None 0	Nearby 3	Adjacent 6	4	
COVER	Structural Diversity	Low 0	Medium 4	High 8	6	
	Variety	Low 0	Medium 4	High 8	4	
	Seasonality	Low 0	Limited 2	Year round 4	2	
	Nesting, Denning, etc.	Low 0	Medium 2	High 4	3	
	Access	Low 0	Medium 2	High 4	3	
Human Disturbance	Physical	Permanent 0	temporary 2	none 4	1	
	Activity	High 0	Medium 2	Low 4	1	
Linkage/Connectivity		Low 0	Medium 4	High 8	6	
UNIQUE FEATURES	Rarity of habitat	Low 0	Medium 2	High 4	3	Pacific willow floodplain, wetland
	Flora	Low 0	Medium 2	High 4	0	
	Fauna	Low 0	Medium 2	High 4	0	

Ross Island Bridge to Sellwood Bridge

SITE 4.1w	SITE NAME Ross Island	SCORE 70
LOCATION Ross Island Bridge to Sellwood Bridge		DATE 11/14/01
OBSERVERS CP/ BG		

GENERAL COMMENTS
Reach characterized by large islands, slough, and large areas of natural riverbank and vegetation.

COMPONENT		DEGREE			SCORE	COMMENTS
WATER	Quality	Low 0	Medium 4	High 8	4	Influence of upstream influences and some outfalls within reach
	Streamside Vegetation	None 0	Nearby 4	Adjacent 8	7	Submerged aquatics at Willamette Park, and on islands during high flow. Islands and Oaks Bottom shoreline vegetated
	Diversity <small>velocity Streams, wetlands etc.</small>	Low 0	Med 2	High 6	6	Stephens Creek mouth, slough, backwater areas, nearby wetland
FOOD	Quantity and Seasonality	None 0	Limited 4	year-round 8	7	Food sources-vegetation/wood, etc. in large quantities and available year-round
	Variety	Low 0	Medium 4	High 8	7	Variety of food sources present, vegetation, wood, variety of substrate for invertebrates
	Proximity to cover	None 0	Nearby 3	Adjacent 6	5	Some portions of westbank have limited cover, but islands, and vegetation-submerged and adjacent provide cover for feeding fauna
STRUCTURE	Diversity	Low 0	Medium 4	High 8	7	Sandbars, islands, roughness to shoreline, rock outcrop, some man-made structures such as docks and pilings
	Quantity	Low 0	Medium 4	High 8	5	Limited in quantity by development on westbank
	Temporality <small>Seasonal, diurnal, etc.</small>	None 0	Limited 2	year-round 4	3	In-water structures (man-made and natural) provide seasonal availability
Human Disturbance	Physical	High 0	Medium 4	Low 8	5	Westside banks modified and revetted, in-water structures include pilings, docks, houseboats, Ross Island lagoon altered by mining activity
	Activity	High 0	Medium 2	Low 4	2	Disturbance from industrial(aggregate mining) and recreational activity
Linkage/Connectivity		Low 0	Medium 4	High 8	5	Vertical, longitudinal, and lateral dimensions of river all expressed, but with some limitations from revetted banks
UNIQUE FEATURES	Rarity of habitat	Low 0	Medium 2	High 4	4	Islands, sandbars, secondary channel, rock outcrop, mudflats, and proximity to large wetland-deep and shallow water areas present
	Flora	Low 0	Medium 2	High 4	2	Submerged aquatics
	Fauna	Low 0	Medium 2	High 4	1	Endangered salmonids known to be present-migration and rearing habitat

Powers Marine Park

REACH Sellwood		SITE NAME – 4.2.a			SCORE 51	
LOCATION Powers Marine Park			DATE 2/28/00		OBSERVERS EL, TB, BG	
GENERAL COMMENTS Forested beach site along the west bank of the river, south of Sellwood Bridge						
COMPONENT		DEGREE			SCORE	COMMENTS
WATER	Quantity and Seasonality	None 0	Seasonal 4	Perennial 8	8	
	Quality	Low 0	Medium 4	High 8	4	
	Streamside Vegetation	None 0	Nearby 4	Adjacent 8	5	
	Diversity <small>Streams, wetlands etc.</small>	Low 0	Med 2	High 6	4	
FOOD	Quantity and Seasonality	None 0	Limited 4	year-round 8	4	
	Variety	Low 0	Medium 4	High 8	3	
	Proximity to cover	None 0	Nearby 3	Adjacent 6	3	
COVER	Structural Diversity	Low 0	Medium 4	High 8	3	
	Variety	Low 0	Medium 4	High 8	3	
	Seasonality	Low 0	Limited 2	Year round 4	2	
	Nesting, Denning, etc.	Low 0	Medium 2	High 4	2	
	Access	Low 0	Medium 2	High 4	2	
Human Disturbance	Physical	Permanent 0	temporary 2	none 4	1	
	Activity	High 0	Medium 2	Low 4	0	
Linkage/Connectivity		Low 0	Medium 4	High 8	6	
UNIQUE FEATURES	Rarity of habitat	Low 0	Medium 2	High 4	1	Extensive beach with rock outcrops and small streams
	Flora	Low 0	Medium 2	High 4	0	
	Fauna	Low 0	Medium 2	High 4	0	

Sellwood Bridge to City Limits

SITE 4.2w		SITE NAME Sellwood			SCORE 57	
LOCATION Sellwood Bridge to City limit				DATE 11/14/01		OBSERVERS CP/BG
GENERAL COMMENTS Westbank consists of a primarily natural beach with numerous small stream mouths and limited man-made structures. Eastbank is primarily riprap with most several docks covering the length of the reach.						
COMPONENT		DEGREE			SCORE	COMMENTS
WATER	Quality	Low 0	Medium 4	High 8	4	Upstream influences, and a few outfalls, small streams provide source of cool, clean water
	Streamside Vegetation	None 0	Nearby 4	Adjacent 8	5	West shoreline is well vegetated, but limited in regards to submerged and over-water vegetation
	Diversity <small>velocity Streams, wetlands etc.</small>	Low 0	Med 2	High 6	4	Numerous small tributaries, some wetland, areas of slow water
FOOD	Quantity and Seasonality	None 0	Limited 4	year-round 8	6	Vegetation, wood, rocks provide substrate for invertebrates, leaf litter and other organic inputs from adjacent forest
	Variety	Low 0	Medium 4	High 8	6	Limited on eastbank by development, but high throughout remainder of reach
	Proximity to cover	None 0	Nearby 3	Adjacent 6	4	Both banks, rock outcrops, and deep pools in river provide opportunities for cover
STRUCTURE	Diversity	Low 0	Medium 4	High 8	6	Deep and shallow water habitat, some roughness to shoreline on west side, with limited backwater areas
	Quantity	Low 0	Medium 4	High 8	3	Diversity limited to west bank of the river with man-made structure and revetments dominating east shore
	Temporality <small>Seasonal, diurnal, etc.</small>	None 0	Limited 2	year-round 4	3	Natural beach provides year-round connectivity, but constrained on eastbank
Human Disturbance	Physical	High 0	Medium 4	Low 8	4	Docks, rip rap and in-water structures on eastbank
	Activity	High 0	Medium 2	Low 4	3	Public access to westbank, recreational activities in and adjacent to water
Linkage/Connectivity		Low 0	Medium 4	High 8	5	Though constrained by topography some lateral expression, hyporheic/vertical dimension and longitudinal also connected
UNIQUE FEATURES	Rarity of habitat	Low 0	Medium 2	High 4	3	Deep pools, rock outcrops, shallow water areas, uninterrupted length of beach
	Flora	Low 0	Medium 2	High 4	0	none
	Fauna	Low 0	Medium 2	High 4	1	Endangered salmonids known to be present-migration and rearing habitat

SUPPLEMENTAL SITE VISITS

Willamette River Inventory – North Reach

Kelley Point Park

Sub-Reach Name: Confluence		Site name and ID#: WR1 Kelley Point, Columbia Slough	Resource site observation #
GPS point #'s	location/feature	Photo #'s	location/feature(s)
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
Date <u>January 19, 2006</u> Time <u>9:50-10:20am</u> Wind _____ Temperature <u>45°F</u> Precipitation: none <u>X</u> mist _____ Rain _____ Snow _____ other _____ Percent cloud cover: 0% _____ 33% _____ 66% _____ 100% <u>X</u> Most recent precipitation (date) <u>01/19/06</u>		Location of visit/viewing and viewpoints (e.g., walked SW portion of site from X to Y; viewed SW portion of site from X street - also GPS locate and take photographs) Lower Slough riparian corridor from the Adolfsen resource site boundary to Lombard. Also viewed the vegetation strips along Lombard and determined they were physically separated from the rest of the site, had minimal habitat value, and are highly disturbed (Lombard, parking lots, Port of Portland facility, etc.). Therefore, the strips along Lombard will not be included in the resource site.	
Slope (range) _____ to _____% (Office)		Describe landforms present (e.g., ridgetop, hilltop, hillside, flat, rolling, ravine, terrace, bluff, river or stream bank, etc.): Riparian corridor along Lower Slough. Banks of Slough are steep, especially on the south bank. From top-of-bank back the landscape is rolling.	

Vegetation	Dominant vegetation species by water feature and vegetation classification			
	Forest (> % canopy)	Woodland (> % canopy)	Shrubland	Herbaceous
Approx. percent cover (select from below) trace <1%; 1 – 10%; 10 – 20%; 20 – 50%; 50 – 75%; 75 – 100% <input checked="" type="checkbox"/>				
Dominant canopy species	Cottonwood			
Other canopy species				
Dominant shrub species (< 5 m)	Blackberries			
Other shrub species	Snowberry, Red Osier Dogwood			
Dominant herb species (> 5 m)	Blue wild rye			
Other herb species				
DBH Class (overstory trees only) – Check most representative class	Snag abundance and size – (Circle most representative class)	Sensitive, unique, or rare plant species – describe (presence, extent, dominance):		Disturbance – invasives, human uses, development lights, noise, domestic animals The south bank of the Slough has thick blackberry cover, while the north bank is dominated by blackberries but other shrub cover exists as well. Significant noise from Lombard. Seasonal recreational use may have adverse impacts to the vegetation.
DBH < 0 - 12" _____	DBH < 0 - 12" Absent Low Med High			
DBH 12 – 24" <u>X</u>	DBH 12 – 24" Absent Low Med High			
DBH > 24" _____	DBH > 24" Absent Low Med High			
Vegetation Comments: (existing quality and condition; restoration options):	Some Revegetation sites to remove blackberries and create structural diversity. Past its 5-year maintenance window (see Revegetation and Mitigation).			

Vegetation	Dominant vegetation species by water feature and vegetation classification			
	Forest (> % canopy)	Woodland (> % canopy)	Shrubland	Herbaceous
Approx. percent cover (select from below) trace <1%; 1-10%; 10-20%; 20-50%; 50-75%; 75-100% <input checked="" type="checkbox"/>				
Dominant canopy species	Cottonwood			
Other canopy species				
Dominant shrub species (< 5 m)				
Other shrub species				
Dominant herb species (> 5 m)				
Other herb species				
DBH Class (overstory trees only) – Check most representative class	Snag abundance and size – (Circle most representative class)	Sensitive, unique, or rare plant species – describe (presence, extent, dominance):	Disturbance – invasives, human uses, development lights, noise, domestic animals	
DBH < 0 - 12" _____	DBH < 0 - 12" Absent Low Med High			
DBH 12 - 24" <u> X </u>	DBH 12 - 24" Absent Low Med High			
DBH > 24" _____	DBH > 24" Absent Low Med High			
Vegetation Comments: (existing quality and condition; restoration options):	Unable to walk most of the site could see most of the remnant cottonwood forest and determine with binoculars that little understory exists. West portion of the site is Port mitigation (see Revegetation and Mitigation). Likely a significant edge effect from the Port of Portland operations (automobile shipping).			

Water	Water Feature Type(s) – (check all that apply)	Morphology, complexity, alteration, – describe: (channel stability, erosion, down-cutting)	Shading (circle one): None Partial Full
Indications (circle): Channel Standing/flowing water Silt Drift lines Flood debris Water marks Saturated soils Hydrophilic vegetation	River _____ Stream (perennial) _____ Stream (seasonal/intermittent) _____ Wetland (HGM Class) _____ Pond/Lake _____		Water Appearance: (circle all that apply) Clear Murky Dirty Oil Sheen Other:
Seasonal availability and quantity: Low Medium High 0 2 4 6 8	Diversity: (streams, wetlands, ponds) Low Medium High 0 2 4 6 8	Channel Quality (complexity, morphology): Low Medium High 0 2 4 6 8	Proximity to cover: Low Medium High 0 1 3 5 6
Comments:	Columbia River		

Bank	Bank vegetation (if applicable)		Disturbance: (invasives, human uses, development, lights, noise, domestic animals)
Bank treatment type(s): (circle all that apply) Vegetated Rip rap – vegetated Rip rap – non-vegetated Seawall Beach Mix (describe):	Canopy % Cover: _____ Dominate species:	Open water shading: None _____ Sparse _____ Partial _____ Most _____ Complete _____	
	Shrub % Cover: _____ Dominate species:		
	Herb % Cover: _____ Dominate species:		
Comments:	Unable to view bank because water was too high to walk the bank. From aerial determined that the bank is primarily beach.		

Wildlife habitat and observance				
Food	Variety: Low Medium High <u>0</u> 2 4 6 8	Quantity: Low Medium High <u>0</u> 2 4 6 8	Seasonal Availability: Low Medium High 0 2 4 6 8	Food - comments:
Cover	Structural Diversity: Low Medium High 0 <u>2</u> 4 6 8	Variety and Seasonality: Low Medium High <u>0</u> 2 4 6 8	Nesting and Denning sites: Low Medium High 0 <u>2</u> 4 6 8	Cover - comments: Prime vegetation is cottonwood forest. Unable to determine if denning opportunities exist.
Unique features	Wildlife: Not diverse Somewhat Very <u>0</u> 2 4	Flora: Not unique Somewhat Very 0 2 4	Rarity of Habitat Type: Not rare Somewhat Very 0 2 4	Unique features – comments:
Human Disturbance	Habitat modification, structures, etc.: High Medium Low 0 2 4 6 8	Direct human disturbance (lights, noise, pets, trails): High Medium Low 0 <u>2</u> 4 6 8	Severity; permanence: High Medium Low 0 <u>2</u> 4 6 8	Disturbance – comments: Significant edge effect; lighting, noise; fence around Port facility
Important Habitat Features	Interspersion w/other habitats: Low Medium High 0 1 3 5 6	Downed wood, stumps, snags: Low Medium High 0 2 4 6 8	% non-native herbs 100% 80% 50% 10% 0% 0 1 2 3 4 % non-native shrubs 100% 80% 50% 10% 0% 0 1 2 3 4	% non-native canopy 100% 80% 50% 10% 0% 0 1 2 3 4
Other	Rarity of terrestrial habitat type – describe: (presence/absence, e.g., oak/madrone, native grassland):	Rarity of aquatic habitat type – describe: (presence/absence, e.g., _____)	Linkages/ connectivity – describe: (distance to habitat patches; to water; corridor)	Wildlife species observed AND/OR known to be present – describe: (include signs such as rubs, scapes, tracks, droppings)
Comments (general habitat vitality -- vegetation recruitment, diversity of trees and understory, invasives, disturbance): Observed a crow or Redtail nest				

Revegetation and Mitigation	Location (e.g. 1 acre along NW property line)	Vegetation Types (include canopy, shrub and herbaceous)	Other Features Enhanced (e.g. channel morphology, LWD, etc.)	Effectiveness (circle)
Month\Year: ______ Type (e.g. wetland mitigation): Mitigation	West along park property – there may be more locations			Low Medium High 0 2 4 6 <u>8</u>
Month\Year: ______ Type:				Low Medium High 0 2 4 6 8
Month\Year: ______ Type:				Low Medium High 0 2 4 6 8
Month\Year: ______ Type:				Low Medium High 0 2 4 6 8
Month\Year: ______ Type:				Low Medium High 0 2 4 6 8
Comments (predation, maintenance needs, etc.): Contact Port of Portland, Larry Devory regarding mitigation locations here.				

Revegetation and Mitigation	Location (e.g. 1 acre along NW property line)	Vegetation Types (include canopy, shrub and herbaceous)	Other Features Enhanced (e.g. channel morphology, LWD, etc.)	Effectiveness (circle)
Month\Year: ______ Type (e.g. wetland mitigation): Mitigation	West along park property – there may be more locations			Low Medium High 0 2 4 6 8
Month\Year: ______ Type:				Low Medium High 0 2 4 6 8
Month\Year: ______ Type:				Low Medium High 0 2 4 6 8
Month\Year: ______ Type:				Low Medium High 0 2 4 6 8
Month\Year: ______ Type:				Low Medium High 0 2 4 6 8
Comments (predation, maintenance needs, etc.): Contact Port of Portland, Larry Devory regarding mitigation locations here.				

Vegetation	Dominant vegetation species by water feature and vegetation classification			
	Forest (> % canopy)	Woodland (> % canopy)	Shrubland	Herbaceous
Approx. percent cover (select from below) trace <1%; 1 – 10%; 10– 20%; 20 – 50%; 50 – 75%; 75 - 100% <input checked="" type="checkbox"/>				
Dominant canopy species	Doug Fir, Maple (probably big leaf)			
Other canopy species	Hazelnut, Holly, Cedar			
Dominant shrub species (< 5 m)	Sword fern, snowberry			
Other shrub species				
Dominant herb species (> 5 m)	Unable to tell			Turf grass in dog park
Other herb species	English Ivy			
DBH Class (overstory trees only) – Check most representative class	Snag abundance and size – (Circle most representative class)	Sensitive, unique, or rare plant species – describe (presence, extent, dominance): Unlikely any unique or rare plants	Disturbance – invasives, human uses, development lights, noise, domestic animals Groundcover is dominated by ivy, some trees have ivy but most has been cut back. Trails. Heavily used dog park. Grading in the grass areas. Rock and debris in the center of site (possibly from past landfill activities).	
DBH < 0 - 12" _____	DBH < 0 - 12" Absent Low Med High			
DBH 12 – 24" <u>X</u>	DBH 12 – 24" Absent Low Med High			
DBH > 24" _____	DBH > 24" Absent Low Med High			
Vegetation Comments: (existing quality and condition; restoration options):	Low lying areas are dominated by turf grasses. Forested hills are maintained.			

Water	Water Feature Type(s) – (check all that apply)	Morphology, complexity, alteration, – describe: (channel stability, erosion, down-cutting)	Shading (circle one): None Partial Full
Indications (circle) : Channel Standing/flowing water Silt Drift lines Flood debris Water marks Saturated soils Hydrophilic vegetation	River ____ Stream (perennial) ____ Stream (seasonal/intermittent) ____ Wetland (HGM Class) ____ Pond/Lake ____		Water Appearance: (circle all that apply) Clear Murky Dirty Oil Sheen Other:
Seasonal availability and quantity: Low Medium High 0 2 4 6 8	Diversity: (streams, wetlands, ponds) Low Medium High 0 2 4 6 8	Channel Quality (complexity, morphology): Low Medium High 0 2 4 6 8	Proximity to cover: Low Medium High 0 1 3 5 6
Comments:	No water features on site		

Bank	Bank vegetation (if applicable)		Disturbance: (invasives, human uses, development, lights, noise, domestic animals)
Bank treatment type(s): (circle all that apply) Vegetated Rip rap – vegetated Rip rap – non-vegetated Seawall Beach Mix (describe):	Canopy % Cover: ____ Dominate species:	Open water shading: None ____ Sparse ____ Partial ____ Most ____ Complete ____	
	Shrub % Cover: ____ Dominate species:		
	Herb % Cover: ____ Dominate species:		
Comments:	No water features on site.		

Wildlife habitat and observance				
Food	Variety: Low Medium High 0 2 4 6 8	Quantity: Low Medium High 0 2 4 6 8	Seasonal Availability: Low Medium High 0 2 4 6 8	Food - comments: Snowberry, cones, hazel nuts, maple seeds
Cover	Structural Diversity: Low Medium High 0 2 4 6 8	Variety and Seasonality: Low Medium High 0 2 4 6 8	Nesting and Denning sites: Low Medium High 0 2 4 6 8	Cover - comments: There are different tree heights
Unique features	Wildlife: Not diverse Somewhat Very 0 1 2 4	Flora: Not unique Somewhat Very 0 2 4	Rarity of Habitat Type: Not rare Somewhat Very 0 2 4	Unique features – comments:
Human Disturbance	Habitat modification, structures, etc.: High Medium Low 0 2 4 6 8	Direct human disturbance (lights, noise, pets, trails): High Medium Low 0 2 4 6 8	Severity; permanence: High Medium Low 0 2 4 6 8	Disturbance – comments: Trails, dog park, old landfill debris, surrounding industrial uses, noise
Important Habitat Features	Interspersion w/other habitats: Low Medium High 0 1 3 5 6	Downed wood, stumps, snags: Low Medium High 0 2 4 6 8	% non-native herbs 100% 80% 50% 10% 0% 0 1 2 3 4 interspersed with natives % non-native shrubs 100% 80% 50% 10% 0% 0 1 2 3 4 with sword fern	% non-native canopy 100% 80% 50% 10% 0% 0 1 2 3 4
Other	Rarity of terrestrial habitat type – describe: (presence/absence, e.g., oak/madrone, native grassland):	Rarity of aquatic habitat type – describe: (presence/absence, e.g., ____):	Linkages/ connectivity – describe: (distance to habitat patches; to water; corridor) Close to St. John’s Landfill and Smith/Bybee Lakes although Columbia Blvd is a significant impediment to wildlife movement	Wildlife species observed AND/OR known to be present – describe: (include signs such as rubs, scapes, tracks, droppings) Kinglets, Winter Wren, Chickadees
Comments (general habitat vitality -- vegetation recruitment, diversity of trees and understory, invasives, disturbance): Need to find out park history				

Vegetation	Dominant vegetation species by water feature and vegetation classification			
	Forest (> % canopy)	Woodland (> % canopy)	Shrubland	Herbaceous
Approx. percent cover (select from below) trace <1%; 1-10%; 10-20%; 20-50%; 50-75%; 75-100% <input checked="" type="checkbox"/>				
Dominant canopy species	Cedar, Doug Fir			
Other canopy species	Redwood, Madrone			
Dominant shrub species (< 5 m)	none			
Other shrub species				
Dominant herb species (> 5 m)	Turf grasses			Turf grass
Other herb species				
DBH Class (overstory trees only) – Check most representative class	Snag abundance and size – (Circle most representative class)	Sensitive, unique, or rare plant species – describe (presence, extent, dominance): Madrone		Disturbance – invasives, human uses, development lights, noise, domestic animals Developed and maintained park. No understorey. Grasses and exposed ground, duff layer. Significant “good weather” use – ball fields, Frisbee fields, picnic tables, play structures, etc.
DBH < 0 - 12” _____	DBH < 0 - 12” Absent Low Med High			
DBH 12 – 24” _____	DBH 12 – 24” Absent Low Med High			
DBH > 24” <u> X </u>	DBH > 24” Absent Low Med High			
Vegetation Comments: (existing quality and condition; restoration options):	Mature, significant canopy with some younger cedar.			

Water	Water Feature Type(s) – (check all that apply)	Morphology, complexity, alteration, – describe: (channel stability, erosion, down-cutting)	Shading (circle one): None Partial Full
Indications (circle): Channel Standing/flowing water Silt Drift lines Flood debris Water marks Saturated soils Hydrophilic vegetation	River _____ Stream (perennial) _____ Stream (seasonal/intermittent) _____ Wetland (HGM Class) _____ Pond/Lake _____		Water Appearance: (circle all that apply) Clear Murky Dirty Oil Sheen Other:
Seasonal availability and quantity: Low Medium High 0 2 4 6 8	Diversity: (streams, wetlands, ponds) Low Medium High 0 2 4 6 8	Channel Quality (complexity, morphology): Low Medium High 0 2 4 6 8	Proximity to cover: Low Medium High 0 1 3 5 6
Comments:	No water features on site		

Bank	Bank vegetation (if applicable)		Disturbance: (invasives, human uses, development, lights, noise, domestic animals)
Bank treatment type(s): (circle all that apply) Vegetated Rip rap – vegetated Rip rap – non-vegetated Seawall Beach Mix (describe):	Canopy % Cover: _____ Dominate species:	Open water shading: None _____ Sparse _____ Partial _____ Most _____ Complete _____	
	Shrub % Cover: _____ Dominate species:		
	Herb % Cover: _____ Dominate species:		
Comments:	No water features on site.		

Wildlife habitat and observance				
Food	Variety: Low Medium High 0 2 4 6 8	Quantity: Low Medium High 0 2 4 6 8	Seasonal Availability: Low Medium High 0 2 4 6 8	Food - comments: No understory food source. Cones
Cover	Structural Diversity: Low Medium High 0 2 4 6 8	Variety and Seasonality: Low Medium High 0 2 4 6 8	Nesting and Denning sites: Low Medium High 0 2 4 6 8	Cover - comments: Potential denning in large tree trunks, Good tree canopy, no understory
Unique features	Wildlife: Not diverse Somewhat Very 0 1 2 4	Flora: Not unique Somewhat Very 0 2 4	Rarity of Habitat Type: Not rare Somewhat Very 0 2 4	Unique features – comments: Madrones. Significant, large mature trees and canopy
Human Disturbance	Habitat modification, structures, etc.: High Medium Low 0 2 4 6 8	Direct human disturbance (lights, noise, pets, trails): High Medium Low 0 2 4 6 8	Severity; permanence: High Medium Low 0 2 4 6 8	Disturbance – comments: Trails, well maintained, significant seasonal (good weather) use – ball fields, play structures
Important Habitat Features	Interspersion w/other habitats: Low Medium High 0 1 3 5 6	Downed wood, stumps, snags: Low Medium High 0 2 4 6 8	% non-native herbs 100% 80% 50% 10% 0% 0 1 2 3 4 % non-native shrubs 100% 80% 50% 10% 0% 0 1 2 3 4	% non-native canopy 100% 80% 50% 10% 0% 0 1 2 3 4
Other	Rarity of terrestrial habitat type – describe: (presence/absence, e.g., oak/madrone, native grassland): Madrone	Rarity of aquatic habitat type – describe: (presence/absence, e.g., _____)	Linkages/ connectivity – describe: (distance to habitat patches; to water; corridor)	Wildlife species observed AND/OR known to be present – describe: (include signs such as rubs, scapes, tracks, droppings) Wintering song birds
Comments (general habitat vitality -- vegetation recruitment, diversity of trees and understory, invasives, disturbance): Groundcover is turf grass, moss, bear ground – non-natives but not invasive species. Park maintenance appears to include removal of any downed wood. The Smith/Bybee Lakes trail will go through the site				

Revegetation and Mitigation	Location (e.g. 1 acre along NW property line)	Vegetation Types (include canopy, shrub and herbaceous)	Other Features Enhanced (e.g. channel morphology, LWD, etc.)	Effectiveness (circle)
Month\Year: ______ Type (e.g. wetland mitigation): Mitigation				Low Medium High 0 2 4 6 8
Month\Year: ______ Type:				Low Medium High 0 2 4 6 8
Month\Year: ______ Type:				Low Medium High 0 2 4 6 8
Month\Year: ______ Type:				Low Medium High 0 2 4 6 8
Month\Year: ______ Type:				Low Medium High 0 2 4 6 8
Comments (predation, maintenance needs, etc.): no revegetation or mitigation on site				

Chimney and Pier Park, east side

Sub-Reach Name: Linton		Site name and ID#: Chimney and Pier Park, east side	Resource site observation #
GPS point #'s	location/feature	Photo #'s	location/feature(s)
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
Date <u>January 31, 2006</u> Time <u>10:15-11:00am</u> Wind _____ Temperature <u>45°F</u> Precipitation: none <u>X</u> mist _____ Rain _____ Snow _____ other _____ Percent cloud cover: 0% _____ 33% _____ 66% _____ 100% <u>X</u> _____ Most recent precipitation (date) <u>01/31/06</u>		Location of visit/viewing and viewpoints (e.g., walked SW portion of site from X to Y; viewed SW portion of site from X street - also GPS locate and take photographs) Parking along James Street near ball fields. Walked north into site then along the northern ball fields.	
Staff name(s)/affiliations: Naomi Tsurumi (BES) Ry Thompson (BES) Andi Gresh (BES) Roberta Jortner (BOP) Deborah Stein (BOP) Mindy Brooks (BOP)			
Slope (range) _____ to _____% (Office)		Describe landforms present (e.g., ridgetop, hilltop, hillside, flat, rolling, ravine, terrace, bluff, river or stream bank, etc.): Rolling but mostly flat, high points along northwest near railroad.	

Vegetation	Dominant vegetation species by water feature and vegetation classification			
	Forest (> % canopy)	Woodland (> % canopy)	Shrubland	Herbaceous
Approx. percent cover (select from below) trace <1%; 1 - 10%; 10- 20% 20 - 50%; 50 - 75% 75 - 100%		20-50%	75-100% blackberry	
Dominant canopy species		Cottonwood, Alder	Apple, Maple	
Other canopy species		Maple		
Dominant shrub species (< 5 m)			blackberry	
Other shrub species				
Dominant herb species (> 5 m)		Sword fern, ivy		
Other herb species				
DBH Class (overstory trees only) – Check most representative class	Snag abundance and size – (Circle most representative class)	Sensitive, unique, or rare plant species – describe (presence, extent, dominance):		Disturbance – invasives, human uses, development lights, noise, domestic animals Heavy truck traffic, louder than southern vegetation patch. Industrial land uses. The woodland patch is steeply sloping up to Highway 30 and ripped. Shrubland are along the train tracks.
DBH < 0 - 12" <u>X</u>	DBH < 0 - 12" Absent Low Med High			
DBH 12 - 24" _____	DBH 12 - 24" Absent Low Med High			
DBH > 24" _____	DBH > 24" Absent Low Med High			
Vegetation Comments: (existing quality and condition; restoration options):	All vegetation patches are isolated. The Woodland patch has OK canopy cover and sword fern ground cover, but is completely isolated from River and Forest Park as well as separate from the shrubland patches.			

Water	Water Feature Type(s) – (check all that apply)	Morphology, complexity, alteration, – describe: (channel stability, erosion, down-cutting)	Shading (circle one): None Partial Full
Indications (circle) : Channel <input checked="" type="checkbox"/> Standing/flowing water <input checked="" type="checkbox"/> Silt Drift lines Flood debris Water marks Saturated soils Hydrophilic vegetation	River _____ Stream (perennial) <u>X</u> Stream (seasonal/intermittent) _____ Wetland (HGM Class) _____ Pond/Lake _____	Three streams are piped under the area. One near the northern portion is daylighted through the woodland.	Water Appearance: (circle all that apply) Clear Murky Dirty Oil Sheen Other:
Seasonal availability and quantity: Low Medium High <u>0</u> 2 4 6 8	Diversity: (streams, wetlands, ponds) Low Medium High <u>0</u> 2 4 6 8	Channel Quality (complexity, morphology): Low Medium High <u>0</u> 1 3 5 6	Proximity to cover: Low Medium High 0 2 4 6 8
Comments: Unable to look at the daylight stream – quality unknown.			

Bank	Bank vegetation (if applicable)	Disturbance: (invasives, human uses, development, lights, noise, domestic animals)
Bank treatment type(s): (circle all that apply) Vegetated Rip rap – vegetated Rip rap – non-vegetated Seawall Beach Mix (describe):	Canopy % Cover: _____ Dominate species: Shrub % Cover: _____ Dominate species: blackberry Herb % Cover: _____ Dominate species:	Open water shading: None _____ Sparse _____ Partial _____ Most _____ Complete _____
Comments:		

Wildlife habitat and observance				
Food	Variety: Low Medium High 0 2 <u>4</u> 6 8	Quantity: Low Medium High 0 <u>2</u> 4 6 8	Seasonal Availability: Low Medium High 0 <u>2</u> 4 6 8	Food - comments: blackberries
Cover	Structural Diversity: Low Medium High 0 <u>2</u> 4 6 8	Variety and Seasonality: Low Medium High 0 <u>2</u> 4 6 8	Nesting and Denning sites: Low Medium High 0 <u>2</u> 4 6 8	Cover - comments: Lacks significant structural diversity
Unique features	Wildlife: Not diverse Somewhat Very <u>0</u> 2 4	Flora: Not unique Somewhat Very <u>0</u> 2 4	Rarity of Habitat Type: Not rare Somewhat Very <u>0</u> 2 4	Unique features – comments:
Human Disturbance	Habitat modification, structures, etc.: High Medium Low <u>0</u> 2 4 6 8	Direct human disturbance (lights, noise, pets, trails): High Medium Low <u>0</u> 2 4 6 8	Severity; permanence: High Medium Low <u>0</u> 2 4 6 8	Disturbance – comments: Heavy truck traffic, train, industrial land uses, Highway 30
Important Habitat Features	Interspersion w/other habitats: Low Medium High <u>0</u> 1 3 5 6	Downed wood, stumps, snags: Low Medium High <u>0</u> 2 4 6 8	% non-native herbs 100% 80% 50% 10% 0% 0 1 <u>2</u> 3 4 % non-native shrubs 100% 80% 50% 10% 0% <u>0</u> 1 2 3 4	% non-native canopy 100% 80% 50% 10% 0% 0 1 2 <u>3</u> 4
Other	Rarity of terrestrial habitat type – describe: (presence/absence, e.g., oak/madrone, native grassland): None	Rarity of aquatic habitat type – describe: (presence/absence, e.g., _____) None	Linkages/ connectivity – describe: (distance to habitat patches; to water; corridor) Close to the River, separated by train tracks. Close to Forest Park, separated by Highway 30	Wildlife species observed AND/OR known to be present – describe: (include signs such as rubs, scapes, tracks, droppings) finch, sparrow
Comments (general habitat vitality -- vegetation recruitment, diversity of trees and understory, invasives, disturbance):				

Revegetation and Mitigation	Location (e.g. 1 acre along NW property line)	Vegetation Types (include canopy, shrub and herbaceous)	Other Features Enhanced (e.g. channel morphology, LWD, etc.)	Effectiveness (circle)
Month\Year: < 2000 Type (e.g. wetland mitigation): Reveg	Multiple – see map	Shrub and herbaceous		Low Medium High 0 2 4 6 8
Month\Year: ________ Type:				Low Medium High 0 2 4 6 8
Month\Year: ________ Type:				Low Medium High 0 2 4 6 8
Month\Year: ________ Type:				Low Medium High 0 2 4 6 8
Month\Year: ________ Type:				Low Medium High 0 2 4 6 8
Comments (predation, maintenance needs, etc.):				

Linnton – Northern Portion

Sub-Reach Name: Confluence		Site name and ID#: WR6 Linnton – Northern Portion		Resource site observation #
GPS point #'s	location/feature	Photo #'s	location/feature(s)	
_____	_____	_____	_____	
_____	_____	_____	_____	
_____	_____	_____	_____	
Date <u>February 15, 2006</u> Time <u>10:15-10:30am</u> Wind _____ Temperature <u>45°F</u> Precipitation: none <u>X</u> mist _____ Rain _____ Snow _____ other _____ Percent cloud cover: 0% _____ <u>X</u> 33% _____ 66% _____ 100% _____ Most recent precipitation (date) <u>02/15/06</u>		Location of visit/viewing and viewpoints (e.g., walked SW portion of site from X to Y; viewed SW portion of site from X street - also GPS locate and take photographs) Took Unnamed Road (souther of 112 th Ave from Highway 30, south and parked along woodland patch.		Staff name(s)/affiliations: Chris Prescott (ESA) Josh Robben (BES) Ry Thompson (BES) Lynn Barlow (BES) Roberta Jortner (BOP) Mindy Brooks (BOP) Kevin Martin (BOP)
Slope (range) _____ to _____% (Office)		Describe landforms present (e.g., ridgetop, hilltop, hillside, flat, rolling, ravine, terrace, bluff, river or stream bank, etc.): Steep slope from industrial land uses up to Highway 30.		

Vegetation	Dominant vegetation species by water feature and vegetation classification			
	Forest (≥ % canopy)	Woodland (≥ % canopy)	Shrubland	Herbaceous
Approx. percent cover (select from below) trace <1%; 1-10%; 10-20% 20-50%; 50-75% 75-100%	75-100% (except in center where it's 20-50%)			
Dominant canopy species	Cottonwood, Alder			
Other canopy species				
Dominant shrub species (< 5 m)	Blackberries			
Other shrub species	Scotch Broom			
Dominant herb species (> 5 m)	Sword fern			
Other herb species				
DBH Class (overstory trees only) – Check most representative class	Snag abundance and size – (Circle most representative class)	Sensitive, unique, or rare plant species – describe (presence, extent, dominance):	Disturbance – invasives, human uses, development lights, noise, domestic animals The forest patch is between Highway 30 and industrial land uses. Heavy truck traffic but not very loud as compared to other industrialized areas.	
DBH < 0 - 12" <u> X </u>	DBH < 0 - 12" Absent Low Med High			
DBH 12 - 24" _____	DBH 12 - 24" Absent Low Med High			
DBH > 24" _____	DBH > 24" Absent Low Med High			
Vegetation Comments: (existing quality and condition; restoration options):	Good canopy that gets sparse in the center of the patch but thickens back up towards the north. Not much structural diversity.			

Water	Water Feature Type(s) – (check all that apply)	Morphology, complexity, alteration, – describe: (channel stability, erosion, down-cutting)	Shading (circle one): None Partial Full
Indications (circle) : Channel <input checked="" type="checkbox"/> Standing/flowing water <input checked="" type="checkbox"/> Silt Drift lines Flood debris Water marks Saturated soils Hydrophilic vegetation	River _____ Stream (perennial) <u> X </u> Stream (seasonal/intermittent) _____ Wetland (HGM Class) _____ Pond/Lake _____	Three streams are piped under the site. One, the center stream, daylight in the forest patch then returns to a pipe to the River. The daylighted portion is in a concrete channel with a grate over the top.	Water Appearance: (circle all that apply) Clear Murky Dirty Oil Sheen Other:
Seasonal availability and quantity: Low Medium High <u> 0 </u> 2 4 6 8	Diversity: (streams, wetlands, ponds) Low Medium High <u> 0 </u> 2 4 6 8	Channel Quality (complexity, morphology): Low Medium High <u> 0 </u> 1 3 5 6	Proximity to cover: Low Medium High <u> 0 </u> 2 4 6 8
Comments:	Because the daylighted portion of the stream is in a concrete channel and grated, it is unavailable to wildlife use.		

Bank	Bank vegetation (if applicable)		Disturbance: (invasives, human uses, development, lights, noise, domestic animals)
Bank treatment type(s): (circle all that apply) Vegetated Rip rap – vegetated Rip rap – non-vegetated Seawall Beach Mix (describe):	Canopy % Cover: _____ Dominate species:	Open water shading: None _____ Sparse _____ Partial _____ Most _____ Complete _____	
	Shrub % Cover: _____ Dominate species: blackberry		
	Herb % Cover: _____ Dominate species:		
Comments:			

Wildlife habitat and observance				
Food	Variety: Low Medium High 0 2 4 6 8	Quantity: Low Medium High 0 2 4 6 8 blackberries	Seasonal Availability: Low Medium High 0 2 4 6 8	Food - comments: Low layer food only; Ash, snowberry, cottonwoods
Cover	Structural Diversity: Low Medium High 0 2 4 6 8	Variety and Seasonality: Low Medium High 0 2 4 6 8	Nesting and Denning sites: Low Medium High 0 2 4 6 8	Cover - comments: Lacks significant structural diversity – high and low cover only
Unique features	Wildlife: Not diverse Somewhat Very 0 2 4	Flora: Not unique Somewhat Very 0 2 4	Rarity of Habitat Type: Not rare Somewhat Very 0 2 4	Unique features – comments:
Human Disturbance	Habitat modification, structures, etc.: High Medium Low 0 2 4 6 8	Direct human disturbance (lights, noise, pets, trails): High Medium Low 0 2 4 6 8	Severity; permanence: High Medium Low 0 2 4 6 8	Disturbance – comments: Narrow corridor; canoe launch; access road to park; edge effect on south side (Port property)
Important Habitat Features	Interspersion w/other habitats: Low Medium High 0 1 3 5 6	Downed wood, stumps, snags: Low Medium High 0 2 4 6 8	% non-native herbs 100% 80% 50% 10% 0% 0 1 2 3 4 % non-native shrubs 100% 80% 50% 10% 0% 0 1 2 3 4	% non-native canopy 100% 80% 50% 10% 0% 0 1 2 3 4
Other	Rarity of terrestrial habitat type – describe: (presence/absence, e.g., oak/madrone, native grassland): None	Rarity of aquatic habitat type – describe: (presence/absence, e.g., _____) Tidal, off-channel habitat	Linkages/ connectivity – describe: (distance to habitat patches; to water; corridor) Connected to Willamette, Columbia River, Smith/Bybee Lakes and the Lower Slough	Wildlife species observed AND/OR known to be present – describe: (include signs such as rubs, scapes, tracks, droppings) Coyote, heron, raptors, nutria
Comments (general habitat vitality – vegetation recruitment, diversity of trees and understory, invasives, disturbance):				

Revegetation and Mitigation	Location (e.g. 1 acre along NW property line)	Vegetation Types (include canopy, shrub and herbaceous)	Other Features Enhanced (e.g. channel morphology, LWD, etc.)	Effectiveness (circle)
Month\Year: < 2000 Type (e.g. wetland mitigation): Reveg	Multiple – see map	Shrub and herbaceous		Low Medium High 0 2 4 6 8
Month\Year: ______ Type:				Low Medium High 0 2 4 6 8
Month\Year: ______ Type:				Low Medium High 0 2 4 6 8
Month\Year: ______ Type:				Low Medium High 0 2 4 6 8
Month\Year: ______ Type:				Low Medium High 0 2 4 6 8
Comments (predation, maintenance needs, etc.): Revegetation (see map) to remove blackberries and jump start an understory/herbaceous layer. Now past the 5-year maintenance window.				

Linnton – Northern Portion

Sub-Reach Name: Confluence		Site name and ID#: WR6 Linnton – Northern Portion		Resource site observation #
GPS point #'s	location/feature	Photo #'s	location/feature(s)	
_____	_____	_____	_____	
_____	_____	_____	_____	
_____	_____	_____	_____	
Date <u>February 15, 2006</u> Time <u>10:15-10:30am</u>		Location of visit/viewing and viewpoints (e.g., walked SW portion of site from X to Y; viewed SW portion of site from X street - also GPS locate and take photographs) Took Unnamed Road (souther of 112 th Ave from Highway 30, south and parked along woodland patch.	Staff name(s)/affiliations: Chris Prescott (ESA) Josh Robben (BES) Ry Thompson (BES) Lynn Barlow (BES) Roberta Jortner (BOP) Mindy Brooks (BOP) Kevin Martin (BOP)	
Wind _____	Temperature <u>45°F</u>			
Precipitation: none <u>X</u> mist _____	Rain _____ Snow _____ other _____			
Percent cloud cover: 0% <u>X</u> 33% _____ 66% _____ 100% _____				
Most recent precipitation (date) <u>02/15/06</u>				
Slope (range) _____ to _____% (Office)		Describe landforms present (e.g., ridgetop, hilltop, hillside, flat, rolling, ravine, terrace, bluff, river or stream bank, etc.): Steep slope from industrial land uses up to Highway 30.		

Vegetation	Dominant vegetation species by water feature and vegetation classification						
	Stream	Wetland	Water body	Forest (> % canopy)	Woodland (> % canopy)	Shrubland	Herbaceous
Approx. percent cover (select from below) trace <1%; 1 – 10%; 10 – 20%; 20 – 50%; 50 – 75%; 75 – 100%						50%	50%
Dominant herb species							
Dominant shrub species (< 5 m)						Himalayan blackberry	Reed canary grass
Dominant canopy species (>5m)							
DBH Class (overstory trees only) – Check most representative class	Snag abundance and size – (Circle most representative class)			Sensitive, unique, or rare plant species – describe (presence, extent, dominance):		Disturbance – invasives, human uses, development lights, noise, domestic animals Clamatis	
DBH < 0 - 12" _____	DBH < 0 - 12" Absent Low Med High						
DBH 12 – 24" _____	DBH 12 – 24" Absent Low Med High						
DBH > 24" _____	DBH > 24" Absent Low Med High						
Vegetation Comments: (existing quality and condition; restoration options):	Highly impacted						

Water	Water Feature Type(s) – (check all that apply)	Morphology, complexity, alteration, – describe: (channel stability, erosion, down-cutting)	Shading (circle one): None <input checked="" type="checkbox"/> Partial Full
Indications (circle) : Channel Standing/flowing water Drift lines Flood debris marks Saturated soils Hydrophilic vegetation	River <u>X</u> Stream (perennial) _____ Stream (seasonal/intermittent) _____ Wetland (HGM Class) _____ Pond/Lake _____	Steepened bank, but not eroding	Water Appearance: (circle all that apply) Clear Murky Dirty Oil Sheen Other:
Seasonality and quantity: Low Medium High 0 4 8	Diversity: (streams, wetlands, ponds) Low Medium High 0 4 8	Channel Quality (complexity, morphology): Low Medium High 0 3 6	Proximity to cover: Low Medium High 0 4 8
Comments:	In-water structures - dock		

Bank	Bank vegetation (if applicable)	Disturbance: (invasives, human uses, development, lights, noise, domestic animals)
Bank treatment type(s): (circle all that apply) Vegetated Rip rap – vegetated Rip rap – non-vegetated Seawall Beach Mix (describe): fill	Canopy % Cover: _____ Dominate species: Shrub % Cover: <u>50</u> _____ Dominate species: Herb % Cover: <u>50</u> _____ Dominate species:	Open water shading: None <u>X</u> Sparse _____ Partial _____ Most _____ Complete _____ Docks and morage
Comments:	Not much riprap – easy to plant into	

Wildlife habitat and observance				
Food	Variety: Low Medium High 0 4 8	Quantity: Low Medium High 0 4 8	Seasonality Low Medium High 0 4 8	Food - comments:
Cover	Structural Diversity: Low Medium High 0 4 8	Variety and Seasonality: Low Medium High 0 4 8	Nesting and Denning sites: Low Medium High 0 4 8	Cover - comments:
Unique features	Wildlife: Not diverse Somewhat Very 0 2 4	Flora: Not unique Somewhat Very 0 2 4	Rarity of Habitat Type: Not rare Somewhat Very 0 2 4	Unique features – comments:
Human Disturbance	Habitat modification, structures, etc.: High Medium Low 0 4 8	Direct human disturbance (lights, noise, pets, trails): High Medium Low 0 4 8	Severity; permanence: High Medium Low 0 4 8	Disturbance – comments:
Important Habitat Features	Interspersion w/other habitats: High Medium Low 0 3 6	Downed wood, stumps, snags: High Medium Low 0 4 8	% non-native herbs 100% 80% 50% 10% 0% 0 1 2 3 4 % non-native shrubs 100% 80% 50% 10% 0% 0 1 2 3 4	% non-native canopy 100% 880% 50% 10% 0% 0 1 2 3 4
Other	Rarity of terrestrial habitat type – describe: (presence/absence, e.g., oak/madrone, native grassland):	Rarity of aquatic habitat type – describe: (presence/absence, e.g., _____)	Linkages/ connectivity – describe: (distance to habitat patches; to water; corridor) to Willamette River and across river	Wildlife species observed AND/OR known to be present – describe: (include signs such as rubs, scapes, tracks, droppings) goose, Great Blue Heron, swallows, (suspect) Osprey, (suspect) fish
Comments (general habitat vitality – vegetation recruitment, diversity of trees and understory, invasives, disturbance):				

Revegetation and Mitigation	Location (e.g. 1 acre along NW property line)	Vegetation Types (include canopy, shrub and herbaceous)	Other Features Enhanced (e.g. channel morphology, LWD, etc.)	Effectiveness (circle)
Month\Year: ______ Type (e.g. wetland mitigation):				Low 0 Medium 4 High 8
Month\Year: ______ Type:				Low 0 Medium 4 High 8
Month\Year: ______ Type:				Low 0 Medium 4 High 8
Month\Year: ______ Type:				Low 0 Medium 4 High 8
Month\Year: ______ Type:				Low 0 Medium 4 High 8
Comments (predation, maintenance needs, etc.):				

Linnton – Southern Portion

Sub-Reach Name: Confluence		Site name and ID#: WR6 Linnton – Southern Portion		Resource site observation #
GPS point #'s	location/feature	Photo #'s	location/feature(s)	
_____	_____	_____	_____	
_____	_____	_____	_____	
_____	_____	_____	_____	
Date <u>February 15, 2006</u> Time <u>10:30-10:45am</u> Wind _____ Temperature <u>45°F</u> Precipitation: none <input checked="" type="checkbox"/> mist _____ Rain _____ Snow _____ other _____ Percent cloud cover: 0% <input checked="" type="checkbox"/> 33% _____ 66% _____ 100% _____ Most recent precipitation (date) <u>02/15/06</u>		Location of visit/viewing and viewpoints (e.g., walked SW portion of site from X to Y; viewed SW portion of site from X street - also GPS locate and take photographs) From NW Ferry Street, drove north along Unnamed Road. Walked along the central portion of the vegetation patch		Staff name(s)/affiliations: Chris Prescott (ESA) Josh Robben (BES) Ry Thompson (BES) Lynn Barlow (BES) Roberta Jortner (BOP) Mindy Brooks (BOP) Kevin Martin (BOP)
Slope (range) ____ to ____% (Office)		Describe landforms present (e.g., ridgetop, hilltop, hillside, flat, rolling, ravine, terrace, bluff, river or stream bank, etc.): Industrial uses along the River. Area of forest vegetation between industrial uses and Highway 30.		

Vegetation	Dominant vegetation species by water feature and vegetation classification						
	Stream	Wetland	Water body	Forest (> % canopy)	Woodland (> % canopy)	Shrubland	Herbaceous
Approx. percent cover (select from below) trace <-1%; 1-10%; 10-20%; 20-50%; 50-75%; 75-100%					35%		100%
Dominant herb species							
Dominant shrub species (< 5 m)							
Dominant canopy species (>5m)					Cottonwood/Doug Fir		grasses
DBH Class (overstory trees only) – Check most representative class	Snag abundance and size – (Circle most representative class)		Sensitive, unique, or rare plant species – describe (presence, extent, dominance):		Disturbance – invasives, human uses, development lights, noise, domestic animals		
DBH < 0 - 12" _____	DBH < 0 - 12" Absent Low <input checked="" type="checkbox"/> Med High		White Oak		Condos, parking, docks		
DBH 12 - 24" _____	DBH 12 - 24" Absent Low Med High						
DBH > 24" ___X___	DBH > 24" Absent Low Med High						
Vegetation Comments: (existing quality and condition; restoration options):	Dwindling bluff – remnant Oak, Cottonwood, Big Leaf Maple, Doug Fir and Oregon Ask						

Water	Water Feature Type(s) – (check all that apply)	Morphology, complexity, alteration, – describe: (channel stability, erosion, down-cutting)	Shading (circle one): None Partial Full
Indications (circle): Channel Standing/flowing water Silt Drift lines Flood debris Water marks Saturated soils Hydrophilic vegetation	River <u>X</u> Stream (perennial) _____ Stream (seasonal/intermittent) _____ Wetland (HGM Class) _____ Pond/Lake _____		Water Appearance: (circle all that apply) Clear Murky Dirty Oil Sheen Other:
Seasonality and quantity: Low Medium High 0 4 8	Diversity: (streams, wetlands, ponds) Low Medium High 0 4 8	Channel Quality (complexity, morphology): Low Medium High 0 3 6	Proximity to cover: Low Medium High 0 4 8
Comments:	Access to river across maintain lawn		

Bank	Bank vegetation (if applicable)		Disturbance: (invasives, human uses, development, lights, noise, domestic animals)
Bank treatment type(s): (circle all that apply) Vegetated Rip rap – vegetated Rip rap – non-vegetated Seawall Beach Mix (describe):	Canopy % Cover: _____ Dominate species: _____	Open water shading: None _____ Sparse _____ Partial _____ Most _____ Complete _____	
	Shrub % Cover: _____ Dominate species: _____		
	Herb % Cover: _____ Dominate species: _____		
Comments:			

Wildlife habitat and observance				
Food	Variety: Low Medium High 0 4 8	Quantity: Low Medium High 0 4 8	Seasonality Low Medium High 0 4 8	Food - comments:
Cover	Structural Diversity: Low Medium High 0 4 8	Variety and Seasonality: Low Medium High 0 4 8	Nesting and Denning sites: Low Medium High 0 4 8	Cover - comments:
Unique features	Wildlife: Not diverse Somewhat Very 0 2 4	Flora: Not unique Somewhat Very 0 2 4	Rarity of Habitat Type: Not rare Somewhat Very 0 2 4	Unique features – comments:
Human Disturbance	Habitat modification, structures, etc.: High Medium Low 0 4 8	Direct human disturbance (lights, noise, pets, trails): High Medium Low 0 4 8	Severity; permanence: High Medium Low 0 4 8	Disturbance – comments: condos, parking, moorage use
Important Habitat Features	Interspersion w/other habitats: High Medium Low 0 3 6	Downed wood, stumps, snags: High Medium Low 0 4 8	% non-native herbs 100% 80% 50% 10% 0% 0 1 2 3 4 % non-native shrubs 100% 80% 50% 10% 0% 0 1 2 3 4	% non-native canopy 100% 880% 50% 10% 0% 0 1 2 3 4
Other	Rarity of terrestrial habitat type – describe: (presence/absence, e.g., oak/madrone, native grassland):	Rarity of aquatic habitat type – describe: (presence/absence, e.g., _____)	Linkages/ connectivity – describe: (distance to habitat patches; to water; corridor)	Wildlife species observed AND/OR known to be present – describe: (include signs such as rubs, scapes, tracks, droppings) Cooper's Hawk
Comments (general habitat vitality -- vegetation recruitment, diversity of trees and understory, invasives, disturbance): Swift, suspect/signs – raccoon, deer				

Revegetation and Mitigation	Location (e.g. 1 acre along NW property line)	Vegetation Types (include canopy, shrub and herbaceous)	Other Features Enhanced (e.g. channel morphology, LWD, etc.)	Effectiveness (circle)
Month\Year: ______ Type (e.g. wetland mitigation):				Low Medium High 0 4 8
Month\Year: ______ Type:				Low Medium High 0 4 8
Month\Year: ______ Type:				Low Medium High 0 4 8
Month\Year: ______ Type:				Low Medium High 0 4 8
Month\Year: ______ Type:				Low Medium High 0 4 8
Comments (predation, maintenance needs, etc.):				

Rowing Club - Banks

Sub-Reach Name: Selwood		Site name and ID#: Rowing Club - banks		Resource site observation #
GPS point #'s	location/feature	Photo #'s	location/feature(s)	
_____	_____	_____	_____	
_____	_____	_____	_____	
_____	_____	_____	_____	
Date <u>5-18-06</u> Time <u>9:30a</u> Wind <u>Y</u> Temperature <u>75</u> Precipitation: none <u>X</u> mist _____ Rain _____ Snow _____ other _____ Percent cloud cover: 0% <u>X</u> 33% _____ 66% _____ 100% _____ Most recent precipitation (date) _____		Location of visit/viewing and viewpoints (e.g., walked SW portion of site from X to Y; viewed SW portion of site from X street - also GPS locate and take photographs) Parking lot at Rowing Club, down walkway to dock		Staff name(s)/affiliations: Chris Prescott (ESA) Naomi Tsurumi (BES) Ry Thompson (BES) Lynn Barlow (BES) Roberta Jortner (BOP) Mindy Brooks (BOP)
Slope (range) _____ to _____% (Office)		Describe landforms present (e.g., ridgetop, hilltop, hillside, flat, rolling, ravine, terrace, bluff, river or stream bank, etc.): Maintained lawn to steep bank with invasive cover		

Vegetation	Dominant vegetation species by water feature and vegetation classification						
	Stream	Wetland	Water body	Forest (> % canopy)	Woodland (> % canopy)	Shrubland	Herbaceous
Approx. percent cover (select from below) trace <1%; 1 - 10%; 10 - 20%; 20 - 50%; 50 - 75%; 75 - 100%							100%
Dominant herb species							turf
Dominant shrub species (<5 m)							
Dominant canopy species (>5m)							
DBH Class (overstory trees only) – Check most representative class DBH < 0 - 12" _____ DBH 12 - 24" _____ DBH > 24" <u>X</u> _____	Snag abundance and size – (Circle most representative class) DBH < 0 - 12" Absent <input checked="" type="checkbox"/> Low Med High DBH 12 - 24" Absent <input checked="" type="checkbox"/> Low Med High DBH > 24" Absent <input checked="" type="checkbox"/> Low Med High	Sensitive, unique, or rare plant species – describe (presence, extent, dominance): Remnant White Oak			Disturbance – invasives, human uses, development lights, noise, domestic animals Park uses, trail		
Vegetation Comments: (existing quality and condition; restoration options):	Remnant White oak, one large cottonwood, Western Red Cedar and landscaped understory/groundcover						

Water	Water Feature Type(s) – (check all that apply)	Morphology, complexity, alteration, – describe: (channel stability, erosion, down-cutting)	Shading (circle one): None Partial Full
Indications (circle) : Channel Standing/flowing water Silt Drift lines Flood debris Water marks Saturated soils Hydrophilic vegetation	River ____ Stream (perennial) ____ Stream (seasonal/intermittent) ____ Wetland (HGM Class) ____ Pond/Lake ____		Water Appearance: (circle all that apply) Clear Murky Dirty Oil Sheen Other:
Seasonality and quantity: Low Medium High 0 4 8	Diversity: (streams, wetlands, ponds) Low Medium High 0 4 8	Channel Quality (complexity, morphology): Low Medium High 0 3 6	Proximity to cover: Low Medium High 0 4 8
Comments:			

Bank	Bank vegetation (if applicable)		Disturbance: (invasives, human uses, development, lights, noise, domestic animals)
Bank treatment type(s): (circle all that apply) Vegetated Rip rap – vegetated Rip rap – non-vegetated Seawall Beach Mix (describe):	Canopy % Cover: ____ Dominate species:	Open water shading: None ____ Sparse ____ Partial ____ Most ____ Complete ____	
	Shrub % Cover: ____ Dominate species:		
	Herb % Cover: ____ Dominate species:		
Comments:			

Wildlife habitat and observance				
Food	Variety: Low Medium High 0 4 8	Quantity: Low Medium High 0 4 8	Seasonality Low Medium High 0 4 8	Food - comments:
Cover	Structural Diversity: Low Medium High 0 4 8	Variety and Seasonality: Low Medium High 0 4 8	Nesting and Denning sites: Low Medium High 0 4 8	Cover - comments:
Unique features	Wildlife: Not diverse Somewhat Very 0 2 4	Flora: Not unique Somewhat Very 0 2 4	Rarity of Habitat Type: Not rare Somewhat Very 0 2 4	Unique features – comments: Remnant White Oak and Cottonwoods
Human Disturbance	Habitat modification, structures, etc.: High Medium Low 0 4 8	Direct human disturbance (lights, noise, pets, trails): High Medium Low 0 4 8	Severity; permanence: High Medium Low 0 4 8	Disturbance – comments:
Important Habitat Features	Interspersion w/ other habitats: High Medium Low 0 3 6	Downed wood, stumps, snags: High Medium Low 0 4 8	% non-native herbs 100% 880% 50% 10% 0% 0 1 2 3 4 % non-native shrubs 100% 880% 50% 10% 0% 0 1 2 3 4	% non-native canopy 100% 880% 50% 10% 0% 0 1 2 3 4
Other	Rarity of terrestrial habitat type – describe: (presence/absence, e.g., oak/madrone, native grassland):	Rarity of aquatic habitat type – describe: (presence/absence, e.g., _____)	Linkages/ connectivity – describe: (distance to habitat patches; to water; corridor)	Wildlife species observed AND/OR known to be present – describe: (include signs such as rubs, scapes, tracks, droppings)
Comments (general habitat vitality -- vegetation recruitment, diversity of trees and understory, invasives, disturbance): squirrels and birds				

Revegetation and Mitigation	Location (e.g. 1 acre along NW property line)	Vegetation Types (include canopy, shrub and herbaceous)	Other Features Enhanced (e.g. channel morphology, LWD, etc.)	Effectiveness (circle)
Month\Year: ______ Type (e.g. wetland mitigation):				Low 0 Medium 4 High 8
Month\Year: ______ Type:				Low 0 Medium 4 High 8
Month\Year: ______ Type:				Low 0 Medium 4 High 8
Month\Year: ______ Type:				Low 0 Medium 4 High 8
Month\Year: ______ Type:				Low 0 Medium 4 High 8
Comments (predation, maintenance needs, etc.):				

Rowing Club- Upland

Sub-Reach Name: Selwood		Site name and ID#: Rowing Club - upland		Resource site observation #
GPS point #'s location/feature		Photo #'s location/feature(s)		
_____		_____		
_____		_____		
_____		_____		
Date 5-18-06 Time 9:30		Location of visit/viewing and viewpoints (e.g., walked SW portion of site from X to Y; viewed SW portion of site from X street - also GPS locate and take photographs)		Staff name(s)/affiliations: Chris Prescott (ESA) Naomi Tsurumi (BES) Ry Thompson (BES) Lynn Barlow (BES) Roberta Jortner (BOP) Mindy Brooks (BOP)
Wind X Temperature 75		Parking lot and down walkway to view upland from bank		
Precipitation: none X mist				
Rain Snow other				
Percent cloud cover: 0% X 33%				
66% 100%				
Most recent precipitation (date)				
Slope (range) _____ to _____% (Office)	Describe landforms present (e.g., ridgetop, hilltop, hillside, flat, rolling, ravine, terrace, bluff, river or stream bank, etc.):			

Vegetation	Dominant vegetation species by water feature and vegetation classification						
	Stream	Wetland	Water body	Forest (> % canopy)	Woodland (> % canopy)	Shrubland	Herbaceous
Approx. percent cover (select from below) trace <1%; 1-10%; 10-20%; 20-50%; 50-75%; 75-100%							100%
Dominant herb species							
Dominant shrub species (< 5 m)							
Dominant canopy species (>5m)							
DBH Class (overstory trees only) – Check most representative class	Snag abundance and size – (Circle most representative class)		Sensitive, unique, or rare plant species – describe (presence, extent, dominance): none		Disturbance – invasives, human uses, development lights, noise, domestic animals High – trail, condos, moorage		
DBH < 0 - 12" _____	DBH < 0 - 12" Absent Low Med High						
DBH 12 - 24" _____	DBH 12 - 24" Absent Low Med High						
DBH > 24" _____	DBH > 24" Absent Low Med High						
Vegetation Comments: (existing quality and condition; restoration options):	No trees on bank						

Water	Water Feature Type(s) – (check all that apply)	Morphology, complexity, alteration, – describe: (channel stability, erosion, down-cutting)	Shading (circle one): None <input checked="" type="checkbox"/> Partial Full
Indications (circle) : Channel Standing/flowing water Silt Drift lines Flood debris Water marks Saturated soils Water Hydrophilic vegetation	River <input checked="" type="checkbox"/> Stream (perennial) _____ Stream (seasonal/intermittent) _____ Wetland (HGM Class) _____ Pond/Lake _____		Water Appearance: (circle all that apply) Clear Murky Dirty Oil Sheen Other:
Seasonality and quantity: Low Medium High 0 4 8	Diversity: (streams, wetlands, ponds) Low Medium High 0 4 8	Channel Quality (complexity, morphology): Low Medium High 0 3 6	Proximity to cover: Low Medium High 0 4 8
Comments:			

Bank	Bank vegetation (if applicable)		Disturbance: (invasives, human uses, development, lights, noise, domestic animals)
Bank treatment type(s): (circle all that apply) Vegetated Rip rap – vegetated <input checked="" type="checkbox"/> Rip rap – non-vegetated Seawall Beach Mix (describe):	Canopy % Cover: 0 _____ Dominate species:	Open water shading: None <input checked="" type="checkbox"/> Sparse _____ Partial _____ Most _____ Complete _____	Riprap, cut cottonwood seedlings
	Shrub % Cover: 0 _____ Dominate species:		
	Herb % Cover: 100 _____ Dominate species:		
Comments:			

Wildlife habitat and observance				
Food	Variety: Low Medium High <u>0</u> 4 8	Quantity: Low Medium High <u>0</u> 4 8	Seasonality Low Medium High <u>0</u> 4 8	Food - comments:
Cover	Structural Diversity: Low Medium High <u>0</u> 4 8	Variety and Seasonality: Low Medium High <u>0</u> 4 8	Nesting and Denning sites: Low Medium High <u>0</u> 4 8	Cover - comments:
Unique features	Wildlife: Not diverse Somewhat Very <u>0</u> 2 4	Flora: Not unique Somewhat Very <u>0</u> 2 4	Rarity of Habitat Type: Not rare Somewhat Very <u>0</u> 2 4	Unique features – comments:
Human Disturbance	Habitat modification, structures, etc.: High Medium Low <u>0</u> 4 8	Direct human disturbance (lights, noise, pets, trails): High Medium Low <u>0</u> 4 8	Severity; permanence: High Medium Low <u>0</u> 4 8	Disturbance – comments:
Important Habitat Features	Interspersion w/other habitats: High Medium Low 0 3 6	Downed wood, stumps, snags: High Medium Low 0 4 8	% non-native herbs 100% 880% 50% 10% 0% <u>0</u> 1 2 3 4 % non-native shrubs 100% 880% 50% 10% 0% <u>0</u> 1 2 3 4	% non-native canopy 100% 880% 50% 10% 0% 0 1 2 3 4
Other	Rarity of terrestrial habitat type – describe: (presence/absence, e.g., oak/madrone, native grassland):	Rarity of aquatic habitat type – describe: (presence/absence, e.g., _____)	Linkages/ connectivity – describe: (distance to habitat patches; to water; corridor)	Wildlife species observed AND/OR known to be present – describe: (include signs such as rubs, scapes, tracks, droppings)

Comments (general habitat vitality -- vegetation recruitment, diversity of trees and understory, invasives, disturbance): swallows, humming birds, sparrows and starlings

Revegetation and Mitigation	Location (e.g. 1 acre along NW property line)	Vegetation Types (include canopy, shrub and herbaceous)	Other Features Enhanced (e.g. channel morphology, LWD, etc.)	Effectiveness (circle)
Month\Year: ______ Type (e.g. wetland mitigation):				Low Medium High 0 4 8
Month\Year: ______ Type:				Low Medium High 0 4 8
Month\Year: ______ Type:				Low Medium High 0 4 8
Month\Year: ______ Type:				Low Medium High 0 4 8
Month\Year: ______ Type:				Low Medium High 0 4 8
Comments (predation, maintenance needs, etc.):				

Powers Marina - Upland

Sub-Reach Name: Selwood		Site name and ID#: Powers Marina - upland		Resource site observation #
GPS point #'s		location/feature		Photo #'s
_____		_____		_____
_____		_____		_____
_____		_____		_____
Date 5-25-06 _____ Time noon _____		Location of visit/viewing and viewpoints (e.g., walked SW portion of site from X to Y; viewed SW portion of site from X street - also GPS locate and take photographs)		Staff name(s)/affiliations: Naomi Tsurumi (BES) Ry Thompson (BES) Lynn Barlow (BES) Roberta Jortner (BOP) Mindy Brooks (BOP)
Wind <u>X</u> _____ Temperature 70 _____				
Precipitation: none <u>X</u> _____ mist _____				
Rain _____ Snow _____ other _____				
Percent cloud cover: 0% _____ 33% _____				
66% _____ 100% <u>X</u> _____				
Most recent precipitation (date) 5-25-06 _____				
Slope (range) _____ to _____% (Office)		Describe landforms present (e.g., ridgetop, hilltop, hillside, flat, rolling, ravine, terrace, bluff, river or stream bank, etc.):		

Vegetation	Dominant vegetation species by water feature and vegetation classification						
	Stream	Wetland	Water body	Forest (> % canopy)	Woodland (> % canopy)	Shrubland	Herbaceous
Approx. percent cover (select from below) trace <-1%; 1-10%; 10-20%; 20-50%; 50-75%; 75-100%							100%
Dominant herb species							turf
Dominant shrub species (< 5 m)							
Dominant canopy species (>5m)							
DBH Class (overstory trees only) – Check most representative class	Snag abundance and size – (Circle most representative class)		Sensitive, unique, or rare plant species – describe (presence, extent, dominance): Remnant White Oak		Disturbance – invasives, human uses, development lights, noise, domestic animals Park uses, trail		
DBH < 0 - 12" _____	DBH < 0 - 12" Absent <input checked="" type="checkbox"/> Low Med High						
DBH 12 - 24" _____	DBH 12 - 24" Absent <input checked="" type="checkbox"/> Low Med High						
DBH > 24" _____ <u>X</u>	DBH > 24" Absent <input checked="" type="checkbox"/> Low Med High						
Vegetation Comments: (existing quality and condition; restoration options):	Remnant White oak, one large cottonwood, Western Red Cedar and landscaped understory/groundcover						

Water	Water Feature Type(s) – (check all that apply)	Morphology, complexity, alteration, – describe: (channel stability, erosion, down-cutting)	Shading (circle one): None Partial Full
Indications (circle) : Channel Standing/flowing water Silt Drift lines Flood debris Water marks Saturated soils Hydrophilic vegetation	River ____ Stream (perennial) ____ Stream (seasonal/intermittent) ____ Wetland (HGM Class) ____ Pond/Lake ____		Water Appearance: (circle all that apply) Clear Murky Dirty Oil Sheen Other:
Seasonality and quantity: Low Medium High 0 4 8	Diversity: (streams, wetlands, ponds) Low Medium High 0 4 8	Channel Quality (complexity, morphology): Low Medium High 0 3 6	Proximity to cover: Low Medium High 0 4 8
Comments:			

Bank	Bank vegetation (if applicable)		Disturbance: (invasives, human uses, development, lights, noise, domestic animals)
Bank treatment type(s): (circle all that apply) Vegetated Rip rap – vegetated Rip rap – non-vegetated Seawall Beach Mix (describe):	Canopy % Cover: ____ Dominate species:	Open water shading: None ____ Sparse ____ Partial ____ Most ____ Complete ____	
	Shrub % Cover: ____ Dominate species:		
	Herb % Cover: ____ Dominate species:		
Comments:			

Wildlife habitat and observance	Food	Cover	Unique features	Human Disturbance	Important Habitat Features	Other
	Variety: Low Medium High 0 4 8	Structural Diversity: Low Medium High 0 4 8	Wildlife: Not diverse Somewhat Very 0 2 4	Habitat modification, structures, etc.: High Medium Low 0 4 8	Interspersion w/other habitats: High Medium Low 0 3 6	Rarity of terrestrial habitat type – describe: (presence/absence, e.g., oak/madrone, native grassland):
	Quantity: Low Medium High 0 4 8	Variety and Seasonality: Low Medium High 0 4 8	Flora: Not unique Somewhat Very 0 2 4	Direct human disturbance (lights, noise, pets, trails): High Medium Low 0 4 8	Downed wood, stumps, snags: High Medium Low 0 4 8	Rarity of aquatic habitat type – describe: (presence/absence, e.g., ____)
	Seasonality Low Medium High 0 4 8	Nesting and Denning sites: Low Medium High 0 4 8	Rarity of Habitat Type: Not rare Somewhat Very 0 2 4	Severity; permanence: High Medium Low 0 4 8	% non-native herbs 100% 880% 50% 10% 0% 0 1 2 3 4	Linkages/ connectivity – describe: (distance to habitat patches; to water; corridor)
	Food - comments:	Cover - comments:	Unique features – comments: Remnant White Oak and Cottonwoods	Disturbance – comments:	% non-native canopy 100% 880% 50% 10% 0% 0 1 2 3 4	Wildlife species observed AND/OR known to be present – describe: (include signs such as rubs, scapes, tracks, droppings)

Comments (general habitat vitality -- vegetation recruitment, diversity of trees and understory, invasives, disturbance): squirrels and birds

Revegetation and Mitigation	Location (e.g. 1 acre along NW property line)	Vegetation Types (include canopy, shrub and herbaceous)	Other Features Enhanced (e.g. channel morphology, LWD, etc.)	Effectiveness (circle)
Month\Year: ______ Type (e.g. wetland mitigation):				Low Medium High 0 4 8
Month\Year: ______ Type:				Low Medium High 0 4 8
Month\Year: ______ Type:				Low Medium High 0 4 8
Month\Year: ______ Type:				Low Medium High 0 4 8
Month\Year: ______ Type:				Low Medium High 0 4 8
Comments (predation, maintenance needs, etc.):				

Cottonwood Bay - South

Sub-Reach Name: Selwood		Site name and ID#: Cottonwood Bay South		Resource site observation #
GPS point #'s	location/feature	Photo #'s	location/feature(s)	
_____	_____	_____	_____	
_____	_____	_____	_____	
_____	_____	_____	_____	
Date <u>5-25-06</u> Time <u>2:30</u>	Location of visit/viewing and viewpoints (e.g., walked SW portion of site from X to Y; viewed SW portion of site from X street - also GPS locate and take photographs)		Staff name(s)/affiliations: Naomi Tsurumi (BES) Ry Thompson (BES) Lynn Barlow (BES) Roberta Jortner (BOP) Mindy Brooks (BOP)	
Wind <u>X</u> Temperature <u>70</u>	Precipitation: none <u>X</u> mist _____ Rain _____ Snow _____ other _____		Percent cloud cover: 0% _____ 33% _____ 66% _____ 100% <u>X</u>	
Most recent precipitation (date) <u>5-25-06</u>				
Slope (range) _____ to _____% (Office)		Describe landforms present (e.g., ridgetop, hilltop, hillside, flat, rolling, ravine, terrace, bluff, river or stream bank, etc.): Bamboo along condos to south		

Vegetation	Dominant vegetation species by water feature and vegetation classification						
	Stream	Wetland	Water body	Forest (> % canopy)	Woodland (> % canopy)	Shrubland	Herbaceous
Approx. percent cover (select from below) trace <1%; 1-10%; 10-20%; 20-50%; 50-75%; 75-100%							100%
Dominant herb species							
Dominant shrub species (< 5 m)							
Dominant canopy species (>5m)							
DBH Class (overstory trees only) – Check most representative class DBH < 0 - 12" _____ DBH 12 – 24" _____ DBH > 24" _____	Snag abundance and size – (Circle most representative class) DBH < 0 - 12" Absent Low Med High DBH 12 – 24" Absent Low Med High DBH > 24" Absent Low Med High	Sensitive, unique, or rare plant species – describe (presence, extent, dominance): none			Disturbance – invasives, human uses, development lights, noise, domestic animals High – trail, condos, moorage		
Vegetation Comments: (existing quality and condition; restoration options):	No trees on bank						

Water	Water Feature Type(s) – (check all that apply)	Morphology, complexity, alteration, – describe: (channel stability, erosion, down-cutting)	Shading (circle one): None <input checked="" type="checkbox"/> Partial Full
Indications (circle) : Channel Standing/flowing water Silt Drift lines Flood debris Water marks Saturated soils Hydrophilic vegetation	River <u>X</u> Stream (perennial) _____ Stream (seasonal/intermittent) _____ Wetland (HGM Class) _____ Pond/Lake _____		Water Appearance: (circle all that apply) Clear Murky Dirty Oil Sheen Other:
Seasonality and quantity: Low Medium High 0 4 8	Diversity: (streams, wetlands, ponds) Low Medium High 0 4 8	Channel Quality (complexity, morphology): Low Medium High 0 3 6	Proximity to cover: Low Medium High 0 4 8
Comments:			

Bank	Bank vegetation (if applicable)		Disturbance: (invasives, human uses, development, lights, noise, domestic animals)
Bank treatment type(s): (circle all that apply) Vegetated Rip rap – vegetated <input checked="" type="checkbox"/> Rip rap – non-vegetated Seawall Beach Mix (describe):	Canopy % Cover: <u>0</u> Dominate species:	Open water shading: None <u>X</u> Sparse _____ Partial _____ Most _____ Complete _____	Riprap, cut cottonwood seedlings
Comments:			

Wildlife habitat and observance				
Food	Variety: Low Medium High <u>0</u> 4 8	Quantity: Low Medium High 0 <u>4</u> 8	Seasonality Low Medium High <u>0</u> 4 8	Food - comments:
Cover	Structural Diversity: Low Medium High <u>0</u> 4 8	Variety and Seasonality: Low Medium High <u>0</u> 4 8	Nesting and Denning sites: Low Medium High <u>0</u> 4 8	Cover - comments:
Unique features	Wildlife: Not diverse Somewhat Very <u>0</u> 2 4	Flora: Not unique Somewhat Very <u>0</u> 2 4	Rarity of Habitat Type: Not rare Somewhat Very <u>0</u> 2 4	Unique features – comments:
Human Disturbance	Habitat modification, structures, etc.: High Medium Low <u>0</u> 4 8	Direct human disturbance (lights, noise, pets, trails): High Medium Low <u>0</u> 4 8	Severity; permanence: High Medium Low <u>0</u> 4 8	Disturbance – comments:
Important Habitat Features	Interspersion w/other habitats: High Medium Low 0 3 6	Downed wood, stumps, snags: High Medium Low 0 4 8	% non-native herbs 100% 880% 50% 10% 0% <u>0</u> 1 2 3 4 % non-native shrubs 100% 880% 50% 10% 0% <u>0</u> 1 2 3 4	% non-native canopy 100% 880% 50% 10% 0% 0 1 2 3 4
Other	Rarity of terrestrial habitat type – describe: (presence/absence, e.g., oak/madrone, native grassland):	Rarity of aquatic habitat type – describe: (presence/absence, e.g., _____)	Linkages/ connectivity – describe: (distance to habitat patches; to water; corridor)	Wildlife species observed AND/OR known to be present – describe: (include signs such as rubs, scapes, tracks, droppings)

Comments (general habitat vitality -- vegetation recruitment, diversity of trees and understory, invasives, disturbance): swallows, humming birds, sparrows and starlings

Revegetation and Mitigation	Location (e.g. 1 acre along NW property line)	Vegetation Types (include canopy, shrub and herbaceous)	Other Features Enhanced (e.g. channel morphology, LWD, etc.)	Effectiveness (circle)
Month\Year: ______ Type (e.g. wetland mitigation):				Low Medium High 0 4 8
Month\Year: ______ Type:				Low Medium High 0 4 8
Month\Year: ______ Type:				Low Medium High 0 4 8
Month\Year: ______ Type:				Low Medium High 0 4 8
Month\Year: ______ Type:				Low Medium High 0 4 8

Comments (predation, maintenance needs, etc.):

APPENDIX E:

SPECIAL STATUS FISH AND WILDLIFE SPECIES IN PORTLAND

Special Status Terrestrial Wildlife Species in City of Portland

Code	Species Name	Scientific Name	USFWS ODFW Species Status		ORNHIC Species Status		Other Conservation Plans Species Status			
A	Cope's Giant Salamander	<i>Dicamptodon copei</i>	USFWS Status ODFW Status	SU	ORNHIC Rank ORNHIC List	G3/S2 2	NPCC Subbasin Focal Sp ODFW Strategy Sp	N N	PIF Focal Sp OWEB Priority Sp	N N
A	Clouded Salamander	<i>Aneides ferreus</i>	USFWS Status ODFW Status	SU	ORNHIC Rank ORNHIC List	G3/S3 3	NPCC Subbasin Focal Sp ODFW Strategy Sp	N N	PIF Focal Sp OWEB Priority Sp	N N
A	Western Toad	<i>Bufo boreas</i>	USFWS Status ODFW Status	SV	ORNHIC Rank ORNHIC List	G4/S4 4	NPCC Subbasin Focal Sp ODFW Strategy Sp	N N	PIF Focal Sp OWEB Priority Sp	N N
A	Northern Red-legged Frog	<i>Rana aurora aurora</i>	USFWS Status ODFW Status	SoC SV	ORNHIC Rank ORNHIC List	G4T4/S3 2	NPCC Subbasin Focal Sp ODFW Strategy Sp	Y Y	PIF Focal Sp OWEB Priority Sp	N Y
R	Western Painted Turtle	<i>Chrysemys picta bellii</i>	USFWS Status ODFW Status	SC	ORNHIC Rank ORNHIC List	G5/S2 2	NPCC Subbasin Focal Sp ODFW Strategy Sp	N Y	PIF Focal Sp OWEB Priority Sp	N Y
R	Northwestern Pond Turtle	<i>Emys marmorata marmorata</i>	USFWS Status ODFW Status	SoC SC	ORNHIC Rank ORNHIC List	G3T3/S2 1	NPCC Subbasin Focal Sp ODFW Strategy Sp	Y Y	PIF Focal Sp OWEB Priority Sp	N Y
B	American Bittern	<i>Botaurus lentiginosus</i>	USFWS Status ODFW Status		ORNHIC Rank ORNHIC List		NPCC Subbasin Focal Sp ODFW Strategy Sp	N N	PIF Focal Sp OWEB Priority Sp	N Y
B	Great Blue Heron	<i>Ardea herodias</i>	USFWS Status ODFW Status		ORNHIC Rank ORNHIC List		NPCC Subbasin Focal Sp ODFW Strategy Sp	N N	PIF Focal Sp OWEB Priority Sp	N Y
B	Green Heron	<i>Butorides virescens</i>	USFWS Status ODFW Status		ORNHIC Rank ORNHIC List		NPCC Subbasin Focal Sp ODFW Strategy Sp	Y N	PIF Focal Sp OWEB Priority Sp	N N
B	Wood Duck	<i>Aix sponsa</i>	USFWS Status ODFW Status		ORNHIC Rank ORNHIC List		NPCC Subbasin Focal Sp ODFW Strategy Sp	Y N	PIF Focal Sp OWEB Priority Sp	N N
B	Bufflehead	<i>Bucephala albeola</i>	USFWS Status ODFW Status	SU	ORNHIC Rank ORNHIC List	G5/S2B,S5 N 4	NPCC Subbasin Focal Sp ODFW Strategy Sp	N N	PIF Focal Sp OWEB Priority Sp	N N
B	Hooded Merganser	<i>Lophodytes cucullatus</i>	USFWS Status ODFW Status		ORNHIC Rank ORNHIC List		NPCC Subbasin Focal Sp ODFW Strategy Sp	N N	PIF Focal Sp OWEB Priority Sp	N Y
B	White-tailed Kite	<i>Elanus leucurus</i>	USFWS Status ODFW Status		ORNHIC Rank ORNHIC List	G5/S1B, S3N 2	NPCC Subbasin Focal Sp ODFW Strategy Sp	N N	PIF Focal Sp OWEB Priority Sp	N N
B	Bald Eagle	<i>Haliaeetus leucocephalus</i>	USFWS Status ODFW Status	LT LT	ORNHIC Rank ORNHIC List	G4/S3B, S4N 2	NPCC Subbasin Focal Sp ODFW Strategy Sp	Y N	PIF Focal Sp OWEB Priority Sp	N N
B	Northern Harrier	<i>Circus cyaneus</i>	USFWS Status ODFW Status		ORNHIC Rank ORNHIC List		NPCC Subbasin Focal Sp ODFW Strategy Sp	Y N	PIF Focal Sp OWEB Priority Sp	Y N
B	American Kestrel	<i>Falco sparverius</i>	USFWS Status ODFW Status		ORNHIC Rank ORNHIC List		NPCC Subbasin Focal Sp ODFW Strategy Sp	Y N	PIF Focal Sp OWEB Priority Sp	Y Y
B	Merlin	<i>Falco columbarius</i>	USFWS Status ODFW Status		ORNHIC Rank ORNHIC List	G5/S1B 2	NPCC Subbasin Focal Sp ODFW Strategy Sp	N N	PIF Focal Sp OWEB Priority Sp	N N
B	Peregrine Falcon	<i>Falco peregrinus</i>	USFWS Status ODFW Status	Cons.Conce rn LE	ORNHIC Rank ORNHIC List	G4T3/S1B 2	NPCC Subbasin Focal Sp ODFW Strategy Sp	N N	PIF Focal Sp OWEB Priority Sp	N N
B	Sora	<i>Porzana carolina</i>	USFWS Status ODFW Status		ORNHIC Rank ORNHIC List		NPCC Subbasin Focal Sp ODFW Strategy Sp	Y N	PIF Focal Sp OWEB Priority Sp	N N
B	Dunlin	<i>Calidris alpina</i>	USFWS Status ODFW Status		ORNHIC Rank ORNHIC List		NPCC Subbasin Focal Sp ODFW Strategy Sp	Y N	PIF Focal Sp OWEB Priority Sp	N Y

Code: A- Amphibian; B- Bird; M-Mammal; R – Reptile

Special Status Terrestrial Wildlife Species in City of Portland

Code	Species Name	Scientific Name	USFWS ODFW Species Status		ORNHIC Species Status		Other Conservation Plans Species Status			
B	Band-tailed Pigeon	<i>Columba fasciata</i>	USFWS Status ODFW Status	SoC	ORNHIC Rank ORNHIC List	G5/S4 4	NPCC Subbasin Focal Sp ODFW Strategy Sp	N N	PIF Focal Sp OWEB Priority Sp	Y Y
B	Short-eared Owl	<i>Asio flammeus</i>	USFWS Status ODFW Status		ORNHIC Rank ORNHIC List		NPCC Subbasin Focal Sp ODFW Strategy Sp	N Y	PIF Focal Sp OWEB Priority Sp	Y Y
B	Common Nighthawk	<i>Chordeiles minor</i>	USFWS Status ODFW Status	SC	ORNHIC Rank ORNHIC List	G5/S5 4	NPCC Subbasin Focal Sp ODFW Strategy Sp	N Y	PIF Focal Sp OWEB Priority Sp	N N
B	Vaux's Swift	<i>Chaetura vauxi</i>	USFWS Status ODFW Status		ORNHIC Rank ORNHIC List		NPCC Subbasin Focal Sp ODFW Strategy Sp	Y N	PIF Focal Sp OWEB Priority Sp	Y N
B	Rufous Hummingbird	<i>Selasphorus rufus</i>	USFWS Status ODFW Status	Cons.Concern	ORNHIC Rank ORNHIC List		NPCC Subbasin Focal Sp ODFW Strategy Sp	N N	PIF Focal Sp OWEB Priority Sp	Y N
B	Downy Woodpecker	<i>Picoides pubescens</i>	USFWS Status ODFW Status		ORNHIC Rank ORNHIC List		NPCC Subbasin Focal Sp ODFW Strategy Sp	N N	PIF Focal Sp OWEB Priority Sp	Y N
B	Pileated Woodpecker	<i>Dryocopus pileatus</i>	USFWS Status ODFW Status	SV SoC; Conc.Concern	ORNHIC Rank ORNHIC List	G5/S4? 4	NPCC Subbasin Focal Sp ODFW Strategy Sp	Y N	PIF Focal Sp OWEB Priority Sp	Y N
B	Olive-sided Flycatcher	<i>Contopus cooperi = borealis</i>	USFWS Status ODFW Status	SV	ORNHIC Rank ORNHIC List	G5/S4 4	NPCC Subbasin Focal Sp ODFW Strategy Sp	Y N	PIF Focal Sp OWEB Priority Sp	Y Y
B	Western Wood-Pewee	<i>Contopus sordidulus</i>	USFWS Status ODFW Status		ORNHIC Rank ORNHIC List		NPCC Subbasin Focal Sp ODFW Strategy Sp	Y N	PIF Focal Sp OWEB Priority Sp	Y N
B	Willow Flycatcher	<i>Empidonax traillii brewsteri</i>	USFWS Status ODFW Status	SV	ORNHIC Rank ORNHIC List	G5TU/S1B 4	NPCC Subbasin Focal Sp ODFW Strategy Sp	Y Y	PIF Focal Sp OWEB Priority Sp	Y Y
B	Hammond's Flycatcher	<i>Empidonax hammondii</i>	USFWS Status ODFW Status		ORNHIC Rank ORNHIC List		NPCC Subbasin Focal Sp ODFW Strategy Sp	N N	PIF Focal Sp OWEB Priority Sp	Y N
B	Pacific-slope Flycatcher	<i>Empidonax difficilis</i>	USFWS Status ODFW Status		ORNHIC Rank ORNHIC List		NPCC Subbasin Focal Sp ODFW Strategy Sp	N N	PIF Focal Sp OWEB Priority Sp	Y Y
B	Hutton's Vireo	<i>Vireo huttoni</i>	USFWS Status ODFW Status		ORNHIC Rank ORNHIC List		NPCC Subbasin Focal Sp ODFW Strategy Sp	N N	PIF Focal Sp OWEB Priority Sp	Y N
B	Red-eyed Vireo	<i>Vireo olivaceus</i>	USFWS Status ODFW Status	SoC; Cons.Concern	ORNHIC Rank ORNHIC List		NPCC Subbasin Focal Sp ODFW Strategy Sp	Y N	PIF Focal Sp OWEB Priority Sp	Y N
B	Streaked Horned Lark	<i>Eremophila alpestris strigata</i>	USFWS Status ODFW Status	SC	ORNHIC Rank ORNHIC List	G5T2/S2? 2	NPCC Subbasin Focal Sp ODFW Strategy Sp	Y Y	PIF Focal Sp OWEB Priority Sp	Y Y
B	Purple Martin	<i>Progne subis</i>	USFWS Status ODFW Status	SoC SC	ORNHIC Rank ORNHIC List	G5/S3B 2	NPCC Subbasin Focal Sp ODFW Strategy Sp	Y Y	PIF Focal Sp OWEB Priority Sp	Y Y
B	Bushtit	<i>Psaltriparus minimus</i>	USFWS Status ODFW Status		ORNHIC Rank ORNHIC List		NPCC Subbasin Focal Sp ODFW Strategy Sp	N N	PIF Focal Sp OWEB Priority Sp	Y N
B	White-breasted Nuthatch	<i>Sitta carolinensis</i>	USFWS Status ODFW Status		ORNHIC Rank ORNHIC List		NPCC Subbasin Focal Sp ODFW Strategy Sp	Y N	PIF Focal Sp OWEB Priority Sp	Y Y
B	Brown Creeper	<i>Certhia americana</i>	USFWS Status ODFW Status		ORNHIC Rank ORNHIC List		NPCC Subbasin Focal Sp ODFW Strategy Sp	N N	PIF Focal Sp OWEB Priority Sp	Y N
B	House Wren	<i>Troglodytes aedon</i>	USFWS Status ODFW Status		ORNHIC Rank ORNHIC List		NPCC Subbasin Focal Sp ODFW Strategy Sp	N N	PIF Focal Sp OWEB Priority Sp	Y N

Code: A- Amphibian; B- Bird; M-Mammal; R – Reptile

Special Status Terrestrial Wildlife Species in City of Portland

Code	Species Name	Scientific Name	USFWS ODFW Species Status	ORNHIC Species Status	Other Conservation Plans Species Status			
B	Winter Wren	<i>Troglodytes troglodytes</i>	USFWS Status ODFW Status	ORNHIC Rank ORNHIC List	NPCC Subbasin Focal Sp ODFW Strategy Sp	N	PIF Focal Sp OWEB Priority Sp	Y N
B	Swainson's Thrush	<i>Catharus ustulatus</i>	USFWS Status ODFW Status	ORNHIC Rank ORNHIC List	NPCC Subbasin Focal Sp ODFW Strategy Sp	N	PIF Focal Sp OWEB Priority Sp	Y N
B	Varied Thrush	<i>Ixoreus naevius</i>	USFWS Status ODFW Status	ORNHIC Rank ORNHIC List	NPCC Subbasin Focal Sp ODFW Strategy Sp	N	PIF Focal Sp OWEB Priority Sp	Y N
B	Orange-crowned Warbler	<i>Vermivora celata</i>	USFWS Status ODFW Status	ORNHIC Rank ORNHIC List	NPCC Subbasin Focal Sp ODFW Strategy Sp	N	PIF Focal Sp OWEB Priority Sp	Y N
B	Nashville Warbler	<i>Vermivora ruficapilla</i>	USFWS Status ODFW Status	ORNHIC Rank ORNHIC List	NPCC Subbasin Focal Sp ODFW Strategy Sp	N	PIF Focal Sp OWEB Priority Sp	Y N
B	Yellow Warbler	<i>Dendroica petechia</i>	USFWS Status ODFW Status	ORNHIC Rank ORNHIC List	NPCC Subbasin Focal Sp ODFW Strategy Sp	Y	PIF Focal Sp OWEB Priority Sp	Y N
B	Black-throated Gray Warbler	<i>Dendroica nigrescens</i>	USFWS Status ODFW Status	ORNHIC Rank ORNHIC List	NPCC Subbasin Focal Sp ODFW Strategy Sp	N	PIF Focal Sp OWEB Priority Sp	Y N
B	Hermit Warbler	<i>Dendroica occidentalis</i>	USFWS Status ODFW Status	ORNHIC Rank ORNHIC List	NPCC Subbasin Focal Sp ODFW Strategy Sp	N	PIF Focal Sp OWEB Priority Sp	Y N
B	Common Yellowthroat	<i>Geothlypis trichas</i>	USFWS Status ODFW Status	ORNHIC Rank ORNHIC List	NPCC Subbasin Focal Sp ODFW Strategy Sp	Y	PIF Focal Sp OWEB Priority Sp	N N
B	Wilson's Warbler	<i>Wilsonia pusilla</i>	USFWS Status ODFW Status	ORNHIC Rank ORNHIC List	NPCC Subbasin Focal Sp ODFW Strategy Sp	N	PIF Focal Sp OWEB Priority Sp	Y N
B	Yellow-breasted Chat	<i>Icteria virens</i>	USFWS Status ODFW Status	SoC SC WV	ORNHIC Rank ORNHIC List	G5/S4? 4	NPCC Subbasin Focal Sp ODFW Strategy Sp	Y N
B	Chipping Sparrow	<i>Spizella passerina</i>	USFWS Status ODFW Status	ORNHIC Rank ORNHIC List	NPCC Subbasin Focal Sp ODFW Strategy Sp	Y	PIF Focal Sp OWEB Priority Sp	Y N
B	Vesper Sparrow	<i>Poocetes gramineus</i>	USFWS Status ODFW Status	SoC; Cons.Concern SC	ORNHIC Rank ORNHIC List	G5T3/S2B, S2N 2	NPCC Subbasin Focal Sp ODFW Strategy Sp	Y Y
B	Tricolored Blackbird	<i>Agelaius tricolor</i>	USFWS Status ODFW Status	SoC; Cons.Concern SP	ORNHIC Rank ORNHIC List	G3/S2B 2	NPCC Subbasin Focal Sp ODFW Strategy Sp	N N
B	Western Meadowlark	<i>Sturnella neglecta</i>	USFWS Status ODFW Status	SC WV	ORNHIC Rank ORNHIC List	G5/S5 4	NPCC Subbasin Focal Sp ODFW Strategy Sp	Y Y
B	Bullock's Oriole	<i>Icterus bullockii</i>	USFWS Status ODFW Status	ORNHIC Rank ORNHIC List	ORNHIC Rank ORNHIC List		NPCC Subbasin Focal Sp ODFW Strategy Sp	N Y
B	Red Crossbill	<i>Loxia curvirostra</i>	USFWS Status ODFW Status	ORNHIC Rank ORNHIC List	ORNHIC Rank ORNHIC List		NPCC Subbasin Focal Sp ODFW Strategy Sp	N N
M	Yuma Myotis	<i>Myotis yumanensis</i>	USFWS Status ODFW Status	SoC	ORNHIC Rank ORNHIC List	G5/S3 4	NPCC Subbasin Focal Sp ODFW Strategy Sp	N N
M	Long-legged Myotis	<i>Myotis volans</i>	USFWS Status ODFW Status	SoC SU	ORNHIC Rank ORNHIC List	G5/S3 4	NPCC Subbasin Focal Sp ODFW Strategy Sp	N N
M	Fringed Myotis	<i>Myotis thysanodes</i>	USFWS Status ODFW Status	SoC SV	ORNHIC Rank ORNHIC List	G4G5/S2? 2	NPCC Subbasin Focal Sp ODFW Strategy Sp	N N

Code: A- Amphibian; B- Bird; M-Mammal; R – Reptile

Special Status Terrestrial Wildlife Species in City of Portland

Code	Species Name	Scientific Name	USFWS ODFW Species Status		ORNHIC Species Status		Other Conservation Plans Species Status			
M	Long-eared Myotis	<i>Myotis evotis</i>	USFWS Status ODFW Status	SoC SU	ORNHIC Rank ORNHIC List	G5/S3 4	NPCC Subbasin Focal Sp ODFW Strategy Sp	N N	PIF Focal Sp OWEB Priority Sp	N N
M	Silver-haired Bat	<i>Lasionycteris noctivagans</i>	USFWS Status ODFW Status	SoC SU	ORNHIC Rank ORNHIC List	G5/S4? 4	NPCC Subbasin Focal Sp ODFW Strategy Sp	N N	PIF Focal Sp OWEB Priority Sp	N N
M	Hoary Bat	<i>Lasiurus cinereus</i>	USFWS Status ODFW Status		ORNHIC Rank ORNHIC List	G5/S4? 4	NPCC Subbasin Focal Sp ODFW Strategy Sp	N N	PIF Focal Sp OWEB Priority Sp	N N
M	Pacific Western Big-eared Bat	<i>Corynorhinus townsendii</i>	USFWS Status ODFW Status	SoC SC	ORNHIC Rank ORNHIC List	G4T3T4/S2 ? 2	NPCC Subbasin Focal Sp ODFW Strategy Sp	Y N	PIF Focal Sp OWEB Priority Sp	N N
M	Western Gray Squirrel	<i>Sciurus griseus</i>	USFWS Status ODFW Status	SU	ORNHIC Rank ORNHIC List	G5/S4? 3	NPCC Subbasin Focal Sp ODFW Strategy Sp	Y N	PIF Focal Sp OWEB Priority Sp	N N
M	Camas Pocket Gopher	<i>Thomomys bulbivorus</i>	USFWS Status ODFW Status	SoC	ORNHIC Rank ORNHIC List	G3G4/S3 S4 3	NPCC Subbasin Focal Sp ODFW Strategy Sp	N N	PIF Focal Sp OWEB Priority Sp	N N
M	American Beaver	<i>Castor canadensis</i>	USFWS Status ODFW Status		ORNHIC Rank ORNHIC List		NPCC Subbasin Focal Sp ODFW Strategy Sp	Y N	PIF Focal Sp OWEB Priority Sp	N N
M	White-footed Vole	<i>Arborimus = Phenacomys albipes</i>	USFWS Status ODFW Status	SoC SU	ORNHIC Rank ORNHIC List	G3G4/S3 4??	NPCC Subbasin Focal Sp ODFW Strategy Sp	N N	PIF Focal Sp OWEB Priority Sp	N N
M	Red Tree Vole	<i>Arborimus = Phenacomys longicaudus</i>	USFWS Status ODFW Status	SoC	ORNHIC Rank ORNHIC List	G3G4/S3S4 3	NPCC Subbasin Focal Sp ODFW Strategy Sp	Y N	PIF Focal Sp OWEB Priority Sp	N N
M	Northern River Otter	<i>Lontra canadensis</i>	USFWS Status ODFW Status		ORNHIC Rank ORNHIC List		NPCC Subbasin Focal Sp ODFW Strategy Sp	Y N	PIF Focal Sp OWEB Priority Sp	N N

Code: A- Amphibian; B- Bird; M-Mammal; R – Reptile

Special Status Fish Species in City of Portland

Code	Species Name	Scientific Name	Migratory Status	USFWS ODFW Species Status	ORNHIC Species Status	
F	River Lamprey	<i>Lampetra ayresi</i>	Anadromous	USFWS Status ODFW Status	SoC ORNHIC Rank ORNHIC List	G4/S4 4
F	Pacific Lamprey (Oregon Chub - extirpated from Metro area)	<i>Lampetra tridentata</i>	Anadromous	USFWS Status ODFW Status	SoC SV ORNHIC Rank ORNHIC List	G5/S3 2
(F)	Coastal Cutthroat Trout, SW WA/Col. R. ESU	<i>Oregonichthys crameri</i>	Resident	USFWS Status ODFW Status	LE SC ORNHIC Rank ORNHIC List	G2/S2 1
F	Coastal Cutthroat Trout, Upper Will. R. ESU	<i>Oncorhynchus clarki clarki</i>	Anadromous	USFWS Status ODFW Status	PT SC ORNHIC Rank ORNHIC List	G4T2Q/S2 2
F	Chum Salmon, Col. R. ESU	<i>Oncorhynchus keta</i>	Anadromous	USFWS Status ODFW Status	LT SC ORNHIC Rank ORNHIC List	G5T2Q/S2 1
F	Coho Salmon, Oregon Coast ESU	<i>Oncorhynchus kisutch</i>	Anadromous	USFWS Status ODFW Status	LT SC ORNHIC Rank ORNHIC List	G4T2Q/S2 1
F	Coho Salmon, Lower Col. R./SW WA ESU	<i>Oncorhynchus kisutch</i>	Anadromous	USFWS Status ODFW Status	C LE ORNHIC Rank ORNHIC List	G4T2Q/S2 1
F	Steelhead, Oregon Coast ESU	<i>Oncorhynchus mykiss</i>	Anadromous	USFWS Status ODFW Status	C SV ORNHIC Rank ORNHIC List	G5T2T3Q/S2S 3 1
F	Steelhead, Lower Col. R. ESU	<i>Oncorhynchus mykiss</i>	Anadromous	USFWS Status ODFW Status	LT SC ORNHIC Rank ORNHIC List	G5T2Q/S2 1
F	Steelhead, Upper Will. R. ESU, winter run	<i>Oncorhynchus mykiss</i>	Anadromous	USFWS Status ODFW Status	LT SC ORNHIC Rank ORNHIC List	G5T2Q/S2 1

Code: F - Fish

US Fish and Wildlife Service (USFWS) status codes: LE – Listed Endangered; LT– Listed Threatened; SoC – Species of Concern; PE – Proposed Endangered; PT– Proposed Threatened; C– Candidate; SC– Special Concern; Conc. Concern – Conservation Concern (Birds)

Oregon Department of Fish and Wildlife (ODFW) status codes: LE – Listed Endangered; LT- Listed Threatened; SC – Sensitive Species Critical; SP – Sensitive Species Peripheral or Naturally Rare; SU – Sensitive Species Unidentified Status; SV – Sensitive Species Vulnerable; WV – Winter Visitor

Special Status Fish Species in City of Portland

Code	Species Name	Scientific Name	Migratory Status	USFWS ODFW Species Status	ORNHC Species Status
F	Steelhead, Middle Col. R. ESU	<i>Oncorhynchus mykiss</i>	Anadromous	USFWS Status ODFW Status	LT SC/SV ORNHC Rank ORNHC List G5T2Q/S2 1
F	Steelhead, Snake R. Basin ESU	<i>Oncorhynchus mykiss</i>	Anadromous	USFWS Status ODFW Status	LT SV ORNHC Rank ORNHC List G5T2T3Q/S2S 3 1
F	Steelhead, Upper Col. R. ESU	<i>Oncorhynchus mykiss</i>	Anadromous	USFWS Status ODFW Status	LE ORNHC Rank ORNHC List G5T2Q/SU
F	Sockeye Salmon, Snake R. ESU	<i>Oncorhynchus nerka</i>	Anadromous	USFWS Status ODFW Status	LE ORNHC Rank ORNHC List G5T1Q/SX 1 - ex
F	Chinook Salmon, Lower Col. R. ESU	<i>Oncorhynchus tshawytscha</i>	Anadromous	USFWS Status ODFW Status	LT SC ORNHC Rank ORNHC List G5T2Q/S2 1
F	Chinook Salmon, Upper Will. R. Spring run	<i>Oncorhynchus tshawytscha</i>	Anadromous	USFWS Status ODFW Status	LT ORNHC Rank ORNHC List G5T2Q/S2 1
F	Chinook Salmon, Snake R. Fall run ESU	<i>Oncorhynchus tshawytscha</i>	Anadromous	USFWS Status ODFW Status	LT LT ORNHC Rank ORNHC List G5T1Q/S1 1
F	Chinook Salmon, Snake R. Spr/Sum. Run	<i>Oncorhynchus tshawytscha</i>	Anadromous	USFWS Status ODFW Status	LT LT ORNHC Rank ORNHC List G5T1Q/S1 1
F	Chinook Salmon, Upper Col. R. Spring run	<i>Oncorhynchus tshawytscha</i>	Anadromous	USFWS Status ODFW Status	LE ORNHC Rank ORNHC List G5T1Q/SU

Code: F - Fish

US Fish and Wildlife Service (USFWS) status codes: LE – Listed Endangered; LT– Listed Threatened; SoC – Species of Concern; PE – Proposed Endangered; PT– Proposed Threatened; C– Candidate; SC– Special Concern; Conc. Concern – Conservation Concern (Birds)

Oregon Department of Fish and Wildlife (ODFW) status codes: LE – Listed Endangered; LT- Listed Threatened; SC – Sensitive Species Critical; SP – Sensitive Species Peripheral or Naturally Rare; SU – Sensitive Species Unidentified Status; SV – Sensitive Species Vulnerable; WV – Winter Visitor

ODFW strategy species: Strategy species (and habitats) in Oregon are those “species (and habitats) of greatest conservation need.” Strategy species were determined using updated information on species distribution and abundance from Oregon State University’s Oregon Natural Heritage Information Center (ORNHC). Also considered were current studies on the habitat and distribution of species. *ODFW Conservation Strategy for Oregon. September 2006. a:34. http://www.dfw.state.or.us/conservationstrategy/document_pdf/c-appendices.pdf*

Oregon Natural Heritage Information Center (ORNHC) Rank: G-global rank; N-national rank; S-subnational rank; 1-critically imperiled; 2-imperiled; 3-vulnerable to extirpation or extinction; 4-apparently secure; 5-demonstrably widespread, abundant, and secure; X-presumed extinct, eliminated throughout range; H-possibly extinct, presumed eliminated; B-breeding ; N-nonbreeding ; M-migrant; G#G#- ; U-unrankable ; NR-unranked ; NA-not applicable; ?-inexact or uncertain numeric rank; Q-questionable taxonomy; C-captive or cultivated only; T#-intraspecific taxon; G#G# (or S#S# or N#N#)-range rank, which is a numeric range rank (e.g., G1G2 or S2S3) used to indicate any range of uncertainty about the status of the species or community.

ORNHC List: Sensitive species are designated to one of four lists depending on their status. List 1-threatened or endangered throughout range; List 2-threatened, endangered or extirpated from Oregon, secure elsewhere); List 3-may be threatened or endangered in Oregon or throughout their range but more information is needed; List 4-very rare but are currently secure, or are declining in numbers or habitat but are still too common to be proposed as threatened or endangered.

Partners in Flight (PIF) focal species: Partners in Flight uses a “focal species” approach to set biological objectives and link priority species with specific conservation recommendations. Focal species are considered most sensitive to or limited by certain ecological processes (e.g. fire or nest predation) or habitat attributes (e.g. patch size or snags). The requirements of a suite of focal species are then used to help guide management activities.” *Partners in Flight website. March 8, 2007. <http://www.partnersinflight.org/>; Conservation Strategy for Landbirds in Lowlands and Valleys of Western Oregon and Washington or Conservation Strategy for Landbirds in Coniferous Forests of Western Oregon and Washington.*

Oregon Watershed Enhancement Board (OWEB) priority species: OWEB uses “priority species” to help prioritize land acquisition projects. To determine priority species, OWEB uses existing Species of Concern lists (from USFWS, ODFW, PIF, etc), which are then honed based on screening criteria in order to produce priority species lists that are most appropriate for prioritizing conservation oriented land acquisition projects.

Northwest Power and Conservation Council (NPCC) focal species: NPCC uses a “focal species” approach to managing and monitoring subbasin activities. NPCC generally defines focal species as being ecologically important by virtue of their role as indicator species or because they are culturally and positively associated with healthy ecosystems. Criteria for designating focal species include listed status as threatened, endangered or candidate for being listed either at the federal or state level; declining within basin or region as indicated by Breeding Bird Survey (BBS) data; regionally endemic; having unique ecological functions.

