PORT OF PORTLAND

2021 Lower Willamette River Basin Total Maximum Daily Load Progress Report

Prepared for:
Oregon Department of Environmental Quality

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Table of Contents

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1.0 Introduction

This Total Maximum Daily Load (TMDL) annual progress report is submitted to the Oregon Department of Environmental Quality (DEQ) as a requirement of the Willamette Basin TMDL. In September 2006, DEQ issued a TMDL for the entire Willamette River Basin in an effort to protect and restore the beneficial uses of the Willamette River. The Willamette River TMDL is the largest TMDL undertaken by the DEQ thus far, pertaining to all sub-basins. Mercury, bacteria, and temperature are the three main pollutants addressed in the TMDL.

The Port of Portland (Port) owns property within the Lower Willamette River sub-basin of the Willamette River Basin, therefore, the Willamette River TMDL identifies the Port as a Designated Management Agency (DMA) for temperature. The TMDL specifically states that temperature is not considered to be a stormwater issue; therefore, management strategies for temperature are generally not required in municipal or industrial stormwater permits. However, as a DMA, the Port is responsible for developing and implementing a TMDL Implementation Plan (TIP) that describes the management strategies the Port will undertake to control non-point source pollution arising from land use activities under its jurisdiction with respect to temperature.

This 2021 Annual Report presents the Port actions in support of its TIP, which was last updated in 2019. The TIP is focused on the water temperature in the Columbia Slough (See Appendix C, Figure 1) and is required to be revised every 5-years. The Port and the City of Portland collaboratively work with the Columbia Slough Watershed council to identify and implement habitat, water quality, and revegetation projects through the Airport Futures National Resources Enhancement Project. In addition, the Port has worked with the United States Environmental Protection Agency (EPA), DEQ, Metro, the City of Portland, and other third parties to develop restoration sites as part of the Portland Harbor Superfund Site work.

In February 2021, the EPA adopted DEQ's Final Revised Willamette Basin Mercury TMDL and Water Quality Management Plan (WQMP) document. By September 2022, the Port will review its TMDL TIP and update the document as needed. Per the WQMP, as a DMA the Port will need to submit their updated management strategies to improve water quality as an updated TIP.

This TMDL annual progress report provides detail on plan elements addressing temperature through the funding of new natural resources enhancement projects in the Columbia Slough watershed and maintenance of existing mitigation and revegetation areas previously restored by the Port.

2.0 Columbia Slough Enhancement Projects

The Port has engaged in a collaborative planning effort (*Airport Futures*) with the City of Portland and the Portland-Vancouver metropolitan community to create an integrated

development plan for Portland International Airport (PDX). As a result of this public process, the Port has entered an Intergovernmental Agreement (IGA) with the City of Portland committing to completing or funding work that promotes Columbia Slough watershed health, tree canopy goals, and other natural resource enhancements. The Airport Futures Natural Resource Program supports the Willamette River Basin TMDL objectives, the Port's obligations as a DMA, and its goal to maintain public involvement in enhancement projects moving forward. This commitment has resulted in new revegetation, water quality, and habitat enhancement projects near PDX within the Columbia Slough Watershed.

The IGA requires the Port fund $20,000 in urban tree canopy enhancements and an additional $30,000 in Columbia Slough Watershed enhancements per year, with a 3% annual increase, for 25 years, starting in 2012 (in 2021, $26,095 was spent). Slough enhancement projects include efforts that accomplish revegetation on the Columbia Slough, removal of invasive species, improved hydrologic connectivity, or increased summer base flow. Potential projects are reviewed and recommended by the natural resources sub-committee of the Community Advisory Committee (CAC). This sub-committee recommends projects to the CAC for Airport Future funding. The CAC is made up of a diverse regional representation including stakeholders such as the City of Portland and the Columbia Slough Watershed Council. Airport Futures Natural Resources Enhancement projects that provide a temperature reduction benefit are included in the Port's TMDL Implementation Plan reporting. In 2021, the Port funded $65,868 was for canopy enhancement ($26,095) and for slough enhancement ($39,773) through this program.

Project Selection Update

The PDX CAC receives annual updates on canopy and Columbia Slough enhancement projects and votes to select new projects for funding. The Port continues to work with a natural resources sub-committee of the CAC to identify potential projects. The following are the project criteria used to prioritize projects for funding:

1. Contribute to water quality.
2. Contribute to hydrologic improvement.
3. Contribute to habitat enhancement.

Additional consideration is given to a project that also provides:

1. Community impact.
2. Social equity (i.e., underserved youth; minority and women emerging small business participation).
3. Accomplished multiple objectives.
4. Match/leverage other resources and multiple partners.
5. Long-term commitment to maintenance and monitoring.

All projects must also meet the following basic requirements:

1. Consistency with other plans and regulatory requirements.
2. Airport compatibility (Wildlife Hazard Management Plan).
3. Written landownership permission if the project proponent is not the landowner.

2021 Projects

In 2021, the Port contributed to many programs and projects that are described in the following section.

Canopy Enhancement

In partnership with Friends of Trees the Port provided $26,095 in funding for the following projects in 2021 that support the urban tree canopy:

Adult Urban Forestry Training Program
Providing job training & placement in urban forestry & ecological restoration for marginalized communities

The Adult Urban Forestry Training program is a paid ten-week training program focusing on urban forestry and ecological restoration related topics and career placement. This program was created to create more pathways to employment in the environmental sector for marginalized community members. This year the Port:

- Worked with 14 Adult Urban Forestry Interns. Each intern completed 100 hours of fall training via zoom and in person learning, and also completed internships over the course of 4 months. Some interns completed 50 hours and some up to 250 hours with host organizations. In total, over 1,000 internship hours were completed.
- Selected program participants by 5 of the partnering Community Benefit Organizations (CBO): APANO, POIC, Verde, Wisdom of the Elders, and Blueprint Foundation.
- Conducted training on topics such as tree identification, site design, young tree pruning and care, planting and establishment, environmental justice, benefits of trees and green spaces, resume support, interview practice, volunteer management, and others.
- Offered full time positions with the internship host site for two participants.

Host sites included Portland Urban Forestry, Vancouver Urban Forestry, Honl Tree Care, Backyard Habitat Program, and Friends of Trees.

Columbia Children's Arboretum
Continue native re-vegetation work in the Columbia Children's Arboretum.

This site is located at 10040 NE 6th Drive in the East Columbia neighborhood in Northeast Portland and is surrounded by the historically marginalized neighborhoods of Cully, Concordia, Woodlawn, and Vanport. This year the Port:

- Hosted two events
- Engaged 33 volunteers who gave 110 hours

- Engaged 10 Portland Opportunities Industrialization Center Youth Leaders
- Planted 425 trees and native plants
- Moved 8 yards of mulch over approximately 1,000 plants
- Removed ivy, dug out teasel, and removed grass around newly planted trees

Columbia Slough Natural Area:
Continued native re-vegetation work at the Columbia Slough Natural Area.

This 1.93-acre site is located at 11140 NE Simpson Street in the Parkrose neighborhood in Northeast Portland and is surrounded by the historically marginalized neighborhoods of Cully, Argay, and Roseway. This year the Port hosted:

- Hosted two events
- Engaged 35 volunteers who gave 112 hours
- Engaged 10 Portland Opportunities Industrialization Center Youth Leaders
- Planted 600 trees and native plants
- Moved 8 yards of mulch over approximately 1,000 plants
- Removed ivy, dug out teasel, and removed grass around newly planted trees

Both ecologically and in terms of leadership development, the Port's approach is working. The plants are thriving in a variety of conditions[1]. These planting events are building blocks for POIC-Rosemary Anderson High School youth leaders and gives them opportunity to connect with a community project and their peers. Friends of Trees truly appreciates the long-standing partnership with the Port of Portland. This partnership improves the lives of community members in Portland and beyond and has made a great impact in all the areas that have been planted.

Approximately 9,817 trees have been planted in the watershed since the start of this program in 2011.

Watershed Enhancement

In 2021, the Port funded two projects through the Airport Futures Natural Resource Enhancement Program that support the temperature TMDL. The following is a summary of the projects:

- Columbia Slough Watershed Council's Stewardship Enhancement Projects
- Audubon Backyard Habitat Certification Program on the Columbia Slough

Columbia Slough Watershed Council's (CWSC) Stewardship Enhancement Projects (2021 and 2022) ($28,509)

In 2022, this project will continue to maximize prior investments at four existing enhanced sites. The goal is to build resilience by making them more self-sustaining

[1] CCA more understory and wet conditions, CSNA more exposed and dry conditions.

through invasive species removal, native planting, habitat enhancement, reduce erosion and bank stabilization.

The project will work to develop green workforce skills by mentoring and contracting with Multnomah Youth Cooperative (MYC), Mudbone Grown, VoZ, Wisdoms of Elders, and Blueprint Foundation. In addition, the work and will include volunteer engagement with Stewardship Saturday events.

CWSC stewardship enhancement work is occurring on four slough enhancement projects that were previously completed. The CSWC continues to actively manage this work; however, the grant funds have ended. Funding over the next year is allocated to the following projects:

1) Buffalo Slough – The Port is working with Wisdom of the Elders on invasive species removal and plantings. Multnomah Youth Cooperative is scheduled to plant in the Winter of 2022.
2) NE 33rd Ditches – The Port is continuing work on the invasive species removal. Multnomah Youth Cooperative is scheduled to plant in the Winter of 2022.
3) OWEB Site – This site is located at a water bureau pump station near 166th and Airport Way. In 2021, riparian restoration occurred in the Upper Slough. In the Winter of 2021, significant tree canopy was lost from ice and snow storms this winter, and the Port is starting to replace the plants lost. A public volunteer planting event being coordinated for Winter of 2022.
4) 112th in Parkrose – Wisdom of the Elders and Northwest Youth Corps have both been doing invasive management. These group have ordered plants and Winter of 2022 public volunteer planting event is being coordinated.

Audubon Backyard Habitat Certification Program on the Columbia Slough (2021) ($11,264)

Portland Audubon provided plants and worked to certify eight raingardens into their program that were installed by their partner Verde. This group is working towards completing their goal of enrolling 15 new participants properties Fall 2021 in the Parkrose, Sumner and Argay Terrace neighborhoods. This group is also connecting back to landowners in Cully, Concordia, and Woodlawn neighborhoods who participated in the pilot program to add more trees to these sites in Fall 2021. The Habitat for Humanity work remains on hold for now until they can meet safely (COVID-19 related) with community members.

2022 Planned Projects

The Port has funded one project for 2022 through a collaboration with the Friends of Trees, Verde, Columbia Slough Watershed Council, and Portland Audubon that supports the temperature TMDL. The following section includes a summary of the project.

Greene Wilkes Project ($67,195)

This project proposes to bring environmental restoration, green infrastructure improvements, and community programing to the Wilkes Creek Headwaters/Natural Area and its surrounding neighborhood. Located in outer East Portland, Wilkes Creek Headwaters contains the springs that feed the only free flowing stream in the City of Portland that flows into the Columbia Slough. While the centerpiece of this proposal is habitat restoration of the headwaters and connected riparian corridor, the project will also branch out along neighborhood streets to adjacent multifamily apartment complexes and individual backyards to connect habitat and community together in the broader watershed.

The project will be co-led by four community based environmental non-profits: Friends of Trees, Verde, Columbia Slough Watershed Council, and Portland Audubon. Each non-profit will each bring their unique expertise and specialized programing to the surrounding community and its interconnected habitats. This will include habitat restoration in the riparian corridor, tree planting and maintenance on adjacent public right of way and private property, raingarden and 'nature scape' installation at a nearby multifamily apartment complex, habitat restoration, and plantings in backyards of the surrounding neighborhood.

While each of these individual pieces provide natural resource improvements that have a direct link to water quality, habitat, and connecting people to the slough, a secondary outcome of this project will be to bring community together. By layering these natural resource improvements on top of each other, connecting participants to each other and the restored space, and building stewardship for continued upkeep of the surrounding environment, the community benefit will be much greater than the sum of each individual piece. Additionally, the project will bring participants from all programs and the broader community together for nature walks, restoration work parties, tree pruning and planting events several times throughout the year. The partners will use a collaborative outreach model to build relationships with, educate, and involve the community in available programs with a focus on continued stewardship and enjoyment of their shared natural resource.

The work will also include collaboration with public agencies like the City of Portland's Park Bureau and Bureau of Environmental Services, other non-profits such as Wisdom of the Elders, Multnomah Youth Cooperative (MYC) and Portland Opportunities Industrialization Center (POIC), as well as private tree care company called Honl Tree Care.

3.0 Revegetation and Mitigation Site Management

The Port has participated in the establishment of many native plant revegetation and mitigation sites along the Columbia Slough. As these projects mature, they will help increase the amount of shade and stormwater infiltration contributing to lower water

temperature in the Columbia Slough during the critical summer months. Invasive plant species are a real threat to the health of these areas. The Port has made a commitment to continued management of these sites through invasive species management and replanting to ensure native plants provide the intended shade and habitat benefits for the Columbia Slough.

Management Activities

The TMDL Implementation Plan detailing the management activities at Port's mitigation and revegetation projects is described in Table 2, Appendix B. The locations of the mitigation sites are included in Figures 1 through 4, Appendix C. The maps also indicate constraints impeding further revegetation (described in the Port's Implementation Plan) and give a brief project description. In 2021, approximately 3 acres were replanted and seeded.

Management activities are focused on providing the most efficient approach to protect the investment made at these sites. Sites are inspected regularly; invasive species removal or other actions are used to ensure the plantings are not impacted. The Port manages these areas based on an integrated pest management approach outlined in the Port of Portland Vegetation Management Plan for Mitigation Natural Areas, last updated in August 2021.

4.0 Portland Harbor Superfund Site Cleanup Program

The Portland Harbor Superfund site is an 11-mile stretch of the Willamette River located between the Broadway Bridge and its confluence with the Columbia River. The Portland Harbor was listed on EPA's National Priorities List (Superfund) in December 2000. Shortly after the initial listing, the Port was listed as a potentially Responsible Party (RP) for the Portland Harbor Superfund Site Cleanup Program. Since that time, the Port has proactively initiated remediation and restoration efforts throughout the Portland Harbor. On January 6, 2017, the Portland Harbor Superfund Site reached a key milestone when the EPA released its Record of Decision (ROD), the final plan for cleanup.[2] The Port is currently working with the EPA, DEQ, RPs and others to implement the ROD.

Through the cleanup program, the Port has enhanced directly or purchased habitat restorations credits for approximately 13,460 linear feet of riparian habitat to date[3]. These habitat enhancement and restoration efforts also directly benefit the temperature TMDL by decreasing temperature and are identified in the Ports TIP as key elements. Project locations are included in Appendix C.

2021 Program Efforts

The Port conducted compliance monitoring for Year 5 (2021) of the Dahl Beach Mitigation Project, which was implemented to provide compensatory mitigation for

[2] www.portofportland.com/superfund
[3] In 2021, no additional linear feet of riparian habitat were enhanced, or credits purchased.

impacts to salmonid critical habitat incurred as a result of shoreline stabilization activities conducted during the Terminal 4 Phase I Removal Action within Wheeler Bay of the lower Willamette River in 2008. The monitoring program is intended to remain in effect for a 5-year period to ensure that the site functions as designed. The Year 5 monitoring results indicate that the site has been successful in providing the function and area of habitat as initially designed.

Two stormwater structural source control measures (SCMs) were constructed at the Port's Terminal 4 marine facility. Both stormwater SCMs are infiltration basins that infiltrate stormwater runoff to help reduce loading of Polycyclic Aromatic Hydrocarbons (PAHs) and other pollutants to the lower Willamette River. The two infiltration basins will reduce and treat runoff from over 27 acres at Terminal 4. Oregon DEQ approved of the design of the SCMs in 2020 and both stormwater SCMs were operational by the end of 2021.

5.0 Progress Report Conclusions

Based on the strategy described in the September 2019 TMDL Implementation Plan, the Port will continue to meet its obligations under the Willamette Basin TMDL for temperature by continuing its investment in Columbia Slough watershed health through the Airport Futures Natural Resources Program. The Port will monitor effectiveness of these projects by documenting the status of plantings three years after the completion date. To protect the progress that has been made on the Columbia Slough, the Port will continue to monitor and maintain the mitigation/revegetation sites on its property. This will allow native canopy growth capable of increasing shade and enhanced groundwater recharge for the Columbia Slough. Overall accomplishments in 2021 include the following:

- Approximately 3 acres of planting and seeding in existing mitigation and restoration areas.
- Columbia Children's Arboretum Trees and Plantings: 425 trees and native plants.
- Columbia Slough Natural Area Trees and Plantings: 600 trees and native plants.
- The Port conducted compliance monitoring for Year 5 (2021) of the Dahl Beach Mitigation Project.
- Two stormwater SCMs were constructed at the Port's Terminal 4 marine facility.
- The Port of Portland Vegetation Management Plan for Mitigation Natural Areas was updated.

6.0 Appendices

Appendix A – TMDL Implementation Plan Tracking Matrix (Table 1)
Appendix B – Mitigation/Revegetation Site Management Activities (Table 2)
Appendix C – Mitigation/Revegetation Site Maps (Figures 1 through 5)

Appendix D – Airport Futures Natural Resource Enhancement Projects (Figures 6 through 7)

Appendix A - TMDL Implementation Plan Tracking Matrix

Table 1 TMDL Implementation Plan Tracking Matrix			**POLLUTANT: Temperature**				
SOURCE What sources of this pollutant are under your jurisdiction?	**STRATEGY** What is being done, or what will you do, to reduce and/or control pollution from this source?	**HOW** Specifically, how will this be done?	**FISCAL ANALYSIS** What is the expected resource need? Are there existing resources budgeted? If not, where will the resources come from?	**MEASURE** How will you quantitatively or qualitatively demonstrate successful implementation or completion of this strategy?	**TIMELINE** When do you expect it to be completed?	**MILESTONE** What intermediate goals do you expect to achieve, and by when, to know progress is being made?	**STATUS** Include summary and date.
1. Land use activities under the Port's jurisdiction.	a. Continued maintenance of Port-owned revegetation and mitigation sites to prevent invasive plants from impacting maturation of native plantings.	Annual inspection and maintenance of these sites.	Existing resources are budgeted annually for this work.	Annual maintenance activities for each site are recorded.	Annually.	Completion of necessary maintenance to minimize impact of invasive plants on project sites annually.	On-going. ***See Appendix B for work completed in 2021. Ongoing work is reported in the Annual Progress Report in Appendix B.**
	b. Fund Airport Futures Natural Resources Enhancement Projects that address temperature in the Columbia Slough. This funding can be used for projects on Port properties and properties not owned by the Port. The implementing agreement is the Airport Futures Natural Resources IGA between the Port and the City of Portland.	The Port is working with a broad stakeholder group to develop and implement a list of potential Columbia Slough watershed projects. Projects are selected by the Community Advisory Committee (CAC) consisting of the Port, City of Portland, Columbia Slough Watershed Council, and other stakeholders. In 2021, $65,868 was used for canopy enhancement ($26,095) and for slough enhancement ($39,773). Funding can be carried over from one year to the next to fund larger projects. Slough enhancement and canopy enhancement funding can be combined in one project if both criteria are met. Potential project completion is dependent on property owner approval and available funding.	Existing resources are budgeted for projects through 2035, with an annual 3% escalation rate.	Document the projects completed during the previous year and provide information on the projects approved for the next year.	Canopy enhancement projects in the watershed will be completed annually. New Columbia Slough enhancement projects will be completed when property owner approval and full funding can be obtained.	Development of a prioritized potential project list. Project completion (based on property owner approval).	The project list was completed in 2012 and is revisited annually to select projects and add any new projects that are identified. Implementation of available projects is on-going. All unconstrained Port revegetation sites on the Columbia Slough were addressed in 2001 and are now managed under item a. above. Future project sites will primarily be located on properties not owned by the Port. **All current and future projects are listed in the Appendix A maps.**

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Appendix B - Table B.1 Port Managed Mitigation, Revegetation and Enhancement

Table B.1 Port Managed Mitigation, Revegetation and Enhancement Projects - 2021			
Location Number	***Project Name***	***Year completed***	***Maintenance Activities***
1	**Columbia Grain Revegetation Project**	2000	Maintenance did not occur at this site in 2021.
2	**Kelley Point Park Revegetation Project**	2000	Port managed until 2005 when City Parks took over management.
3	**82nd Avenue to 92nd Avenue Revegetation Project**	2000	Maintenance did not occur at this site in 2021.
4	**92nd Avenue to I-205 Revegetation Project**	2000	Maintenance did not occur at this site in 2021. More than 200 trees will be caged along the trail to prevent beaver damage in winter 2021-22.
5	**Cornfoot Road West of 47th Avenue to AMC Building Revegetation Project**	2000	Maintenance did not occur at this site in 2021.
6	**PDX Port Maintenance Building Revegetation Project (Meyers Marx)**	2000	Maintenance did not occur at this site in 2021.
7	**Cornfoot Road - NE 63rd to NE 55th Avenue Revegetation Project**	2000	Maintenance did not occur at this site in 2020.
8	**North Marine Drive Overpass Revegetation Project**	2000	Maintenance did not occur at this site in 2021.
9	**Buffalo Street Revegetation Project**	2000	Spot treatment (backpack) of planted area. Species treated: field mustard (Brassica rapa), Fuller's teasel (Dipsacus fullonum), Himalayan blackberry (Rubus armeniacus), meadow foxtail (Alopecurus pratensis), common mullein (Verbascum thapsus), poison hemlock (Conium maculatum), prickly lettuce (Lactuca serriola), bull thistle (Cirsium vulgare) and Canada thistle (Cirsium arvense) (April). Hand cut (brush) open field areas for: American pokeweed (Phytolacca americana), chicory (Cichorium intybus), field mustard (Brassica rapa), Fuller's teasel (Dipsacus fullonum), Himalayan blackberry (Rubus armeniacus), meadow foxtail (Alopecurus pratensis), mullein, common (Verbascum thapsus), mullein, moth (Verbascum blattaria), poison hemlock (Conium maculatum), prickly lettuce (Lactuca serriola), Queen Anne’s lace (Daucus carota), tansy, common (Tanacetum vulgare), tansy ragwort (Senecio jacobaea), thistle, bull (Cirsium vulgare) and thistle, Canada (Cirsium arvense) (August). Sprayed through planted field for: sowthistle (Sonchus asper), thistle, bull (Cirsium vulgare) and thistle, Canada (Cirsium arvense) (October).

Table B.1 Port Managed Mitigation, Revegetation and Enhancement Projects - 2021			
Location Number	***Project Name***	***Year completed***	***Maintenance Activities***
10	**Elrod Road Revegetation Project**	2000	Maintenance did not occur at this site in 2021.
11	**Alderwood Slough Revegetation Project**	2000	Maintenance did not occur at this site in 2021.
12	**Alderwood Corner Revegetation Project**	2000	Cut and stem herbicide treatment of Himalayan blackberry (Rubus armeniacus) and Sign installation/repair (August).
13	**Rail Bridge to North Slough Revegetation Project**	2001	Maintenance did not occur at this site in 2021.
14	**Trail South of Railroad Bridge Revegetation Project**	2002	Maintenance did not occur at this site in 2021.
15	**Rivergate Bridges Banks Revegetation Project**	2002	Maintenance did not occur at this site in 2021.
16	**Bonneville Pond Revegetation Project**	2006	This site is no longer actively inspected or maintained.
17	**92nd Avenue to I-205 Bank Stabilization/ Revegetation Project**	2003	Maintenance did not occur at this site in 2021. More than 200 trees will be caged along the trail to prevent beaver damage in winter 2021-22.
18	**Buffalo Street Mitigation Site**	1994 & 2003	Spot treatment (backpack) of planted area. Species treated: field mustard (Brassica rapa), Fuller's teasel (Dipsacus fullonum), Himalayan blackberry (Rubus armeniacus), meadow foxtail (Alopecurus pratensis), common mullein (Verbascum thapsus), poison hemlock (Conium maculatum), prickly lettuce (Lactuca serriola), bull thistle (Cirsium vulgare) and Canada thistle (Cirsium arvense) (April). Hand cut (brush) open field areas for: American pokeweed (Phytolacca americana), chicory (Cichorium intybus), field mustard (Brassica rapa), Fuller's teasel (Dipsacus fullonum), Himalayan blackberry (Rubus armeniacus), meadow foxtail (Alopecurus pratensis), common mullein (Verbascum thapsus), moth mullein (Verbascum blattaria), poison hemlock (Conium maculatum), prickly lettuce (Lactuca serriola), Queen Anne’s lace (Daucus carota), common tansy (Tanacetum vulgare), tansy ragwort (Senecio jacobaea), bull thistle (Cirsium vulgare) and Canada thistle (Cirsium arvense) (August). Sprayed through planted field for: sowthistle (Sonchus asper), bull thistle (Cirsium vulgare) and Canada thistle (Cirsium arvense) (October).
19	**PDX Economy Lot E-zone Conversion Project**	Ongoing	Brushcut around plantings. Species cut: Himalayan blackberry (Rubus armeniacus), poison hemlock (Conium maculatum), tall oatgrass (Arrhenatherum elatius), common tansy (Tanacetum vulgare), bull thistle (Cirsium vulgare), Canada thistle (Cirsium arvense) and velvet grass (Holcus lanatus) (August). Stump cutting small diameter cottonwood, cherry and holly trees (November).

Table B.1 Port Managed Mitigation, Revegetation and Enhancement Projects - 2021			
Location Number	***Project Name***	***Year completed***	***Maintenance Activities***
20	**Elrod Road Mitigation Site**	1994	Maintenance did not occur at this site in 2021.
21	**Terminal 5 Powerline and West Wye Mitigation Sites**	1995-2001	T5 Powerline: Treated weeds through dried up Turtle Pond - mainly reed canary grass. Other species treated included: Fuller's teasel (Dipsacus fullonum), Himalayan blackberry (Rubus armeniacus), mullein, common (Verbascum thapsus) and reed canarygrass (Phalaris arundinacea) (June). West Wye: Cut reed canary grass on the eastern field (June). Stump cut blackberry on the western side. Treated the eastern field with triclopyr for broadleaves (mainly blackberry and thistle). Stump cut blackberry out of the southern tree/shrub line. Treated with grass specific herbicide for reed canary grass in the eastern field (July). Sprayed through eastern field with Transline and Vastlan. Dead headed and treated purple loosestrife through cattails in ponds. Other species treated included: bird's-foot trefoil (Lotus corniculatus), Fuller's teasel (Dipsacus fullonum), Himalayan blackberry (Rubus armeniacus), nightshade, climbing (Solanum dulcamara), pennyroyal (Mentha pulegium), poison hemlock (Conium maculatum), purple loosestrife (Lythrum salicaria), thistle, bull (Cirsium vulgare) and thistle, Canada (Cirsium arvense) (August).
22	**Swan Island Boat Ramp Mitigation Project**	1999	The City of Portland maintains this site.
23	**Vanport Wetlands Mitigation Site**	2000-06	Fence repair (January). Began planting the north field and replanted the western edge of the wetland (March) Species planted: 100 Acer macrophylum, 200 Crataegus douglasii, 300 Fraxinus latifolia, 300 Lonicera involucrata, 100 Mahonia aquifolium, 300 Oemleria cerasiformis, 300 Oemleria cerasiformis, 400 Physocarpus capitatus, 200 Rhamnus purshiana, 100 Rosa pisocarpa, 100 Rubus parviflorus, 300 Rubus spectabilis, 100 Salix fluviatilis, 100 Salix lasiandra, 100 Salix sitchensis, 200 Sambucus cerulea, 200 Sambucus racemosa and 400 Symphoricarpos albus (March). Cut poison hemlock stalks to prevent seeding. Spot treated throughout planting area. Other species treated included: Fuller's teasel (Dipsacus fullonum), nightshade, black (Solanum nigrum), thistle, bull (Cirsium vulgare) and thistle, Canada (Cirsium arvense). Cut flowering stems of poison hemlock to prevent seeding (mostly occurs along forested edges), Treated all non-native species of broadleaf and grasses. Used Vastlan, Transline and glyphosate where appropriate in planting area. Species treated included: American pokeweed (Phytolacca americana), Fuller's teasel (Dipsacus fullonum), Himalayan blackberry (Rubus armeniacus), meadow foxtail (Alopecurus pratensis), mullein, common (Verbascum thapsus), mullein, moth (Verbascum blattaria), nightshade, climbing (Solanum dulcamara), oxeye daisy (Leucanthemum vulgare), prickly lettuce (Lactuca serriola), reed canarygrass (Phalaris arundinacea), thistle, bull (Cirsium vulgare), thistle, Canada (Cirsium arvense) and velvet grass (Holcus lanatus). Treated teasel and thistle along slough and forest edges with ATV mounted spray gun (June). Removed trash, hand cut Himalayan blackberry (Rubus armeniacus) and reed canarygrass (Phalaris arundinacea) in the SE corner and cut thistle and canary grass along the western wetland edge (July). Light touch up spray through planting area with Transline and Vastlan. Sprayed through cut areas for thistles and canary grass in the northern wetland areas. Other species treated included: Fuller's teasel (Dipsacus fullonum), mullein, common (Verbascum thapsus), poison hemlock (Conium maculatum), reed canarygrass (Phalaris arundinacea), thistle, bull (Cirsium vulgare) and thistle, Canada (Cirsium arvense). Sprayed heavily infested reed canary grass and thistle in SE corner. Spot sprayed teasel and spray out areas of heavy infestations of reed canary grass, velvet grass, blackberries and thistles in the SE corner. Sprayed out reed canary grass and thistle through the western wetland edge (September). Treated Himalayan blackberry (Rubus armeniacus) and poison hemlock (Conium maculatum) along the northern ditch (October).

Table B.1 Port Managed Mitigation, Revegetation and Enhancement Projects - 2021			
Location Number	***Project Name***	***Year completed***	***Maintenance Activities***
24	**Rivergate Enhancement - North and South Slough Mitigation Site**	2003	Maintenance did not occur at this site in 2021.
25	**Rivergate Enhancement - Leadbetter Peninsula Mitigation Site**	2003	Broadcast sprayed entire "RCG restoration site". Species treated included: Fuller's teasel (Dipsacus fullonum), Himalayan blackberry (Rubus armeniacus), Ludwigia (Ludwigia peploides), common mullein (Verbascum thapsus), black nightshade (Solanum nigrum), pennyroyal (Mentha pulegium), poison hemlock (Conium maculatum), prickly lettuce (Lactuca serriola), purple loosestrife (Lythrum salicaria), reed canarygrass (Phalaris arundinacea), sowthistle (Sonchus asper), tansy ragwort (Senecio jacobaea), bull thistle (Cirsium vulgare), Canada thistle (Cirsium arvense) and yellowflag iris (Iris pseudacorus) (June). Dead headed, bagged and treated purple loosestrife along the shoreline. Small amounts of spot treatments for thistles and canary grass regrowth in the "RCG restoration site". Treated Ludwigia throughout the site. Very large, dense patches in drier areas. Very little seen in the water itself. Species treated included: bird's-foot trefoil (Lotus corniculatus), Fuller's teasel (Dipsacus fullonum), Ludwigia (Ludwigia peploides), prickly lettuce (Lactuca serriola), reed canarygrass (Phalaris arundinacea) and thistle, Canada (Cirsium arvense). Treated the NW corner for Ludwigia (August).
26a	**Rivergate Enhancement - Ramsey**	2004	Treated Himalayan blackberry (Rubus armeniacus), reed canarygrass (Phalaris arundinacea) on the islands and east edge of the site (February). Planted islands with wetland/riparian species, planted forest openings and edges with upland species. Species planted: 100 Cornus stolonifera, 100 Crataegus douglasii, 100 Fraxinus latifolia, 100 Physocarpus capitatus, 100 Rhamnus purshiana, 100 Rubus parviflorus, 100 Salix hookeriana, 100 Salix scouleriana, 100 Salix sitchensis, 100 Spiraea douglasii and 100 Symphoricarpos albus. Grass specific spray of reed canarygrass (Phalaris arundinacea) around lake margins and through enhancement areas where grass had been cut. Spot treatment of Himalayan blackberry (Rubus armeniacus), meadow foxtail (Alopecurus pratensis), poison hemlock (Conium maculatum), reed canarygrass (Phalaris arundinacea), bull thistle (Cirsium vulgare) and Canada thistle (Cirsium arvense) on the islands (March). Cut all non-native grasses and broadleafs through planted areas to prepare for fall treatments. Species treated included: bird's-foot trefoil (Lotus corniculatus), Fuller's teasel (Dipsacus fullonum), Himalayan blackberry (Rubus armeniacus), mullein, common (Verbascum thapsus), mullein, moth (Verbascum blattaria), pennyroyal (Mentha pulegium), perennial ryegrass (Lolium perenne), poison hemlock (Conium maculatum), prickly lettuce (Lactuca serriola), reed canarygrass (Phalaris arundinacea), sowthistle (Sonchus asper), tansy, common (Tanacetum vulgare), tansy, ragwort (Senecio jacobaea), thistle, bull (Cirsium vulgare), thistle, Canada (Cirsium arvense), velvet grass (Holcus lanatus) and yellow glandweed (Bellardia viscosa). Hand cut bird's-foot trefoil (Lotus corniculatus), Fuller's teasel (Dipsacus fullonum), Himalayan blackberry (Rubus armeniacus), common mullein (Verbascum thapsus), poison hemlock (Conium maculatum), reed canarygrass (Phalaris arundinacea), sowthistle (Sonchus asper), common tansy (Tanacetum vulgare), bull thistle (Cirsium vulgare) and Canada thistle (Cirsium arvense) on islands. Cut bird's-foot trefoil (Lotus corniculatus), Fuller's teasel (Dipsacus fullonum), Himalayan blackberry (Rubus armeniacus), poison hemlock (Conium maculatum), reed canarygrass (Phalaris arundinacea) and thistle, Canada (Cirsium arvense) on the islands. Cut reed canarygrass (Phalaris arundinacea) within the north wetland area and deadheaded purple loosestrife (July). Treated previously cut areas with Transline. Spot treatment (backpack) of islands for: bird's-foot trefoil (Lotus corniculatus), Fuller's teasel (Dipsacus fullonum), poison hemlock (Conium maculatum), purple loosestrife (Lythrum salicaria), sowthistle (Sonchus asper), common tansy (Tanacetum vulgare), bull thistle (Cirsium vulgare), Canada thistle (Cirsium arvense) and white waterlily (Nymphaea odorata) (August).
26b	**Ramsey Lake Mitigation Site**	1988	
27	**Rivergate Enhancement - Culvert Removal and Visual Buffer**	2004	
28	**Rivergate Enhancement - 40-Mile Loop Trail Mitigation Site**	2004	Cleared trail of tree limbs to allow for vehicle access (August).
29	**PIC E Zone Mitigation Site**	2000-02	Spot treated (backpack) Fuller's teasel (Dipsacus fullonum), Himalayan blackberry (Rubus armeniacus), reed canarygrass (Phalaris arundinacea), bull thistle (Cirsium vulgare) and Canada thistle (Cirsium arvense) throughout the site (June).
30	**Terminal 4, Berth 408**	2001-02	Periodically maintained by Port Marine Maintenance.
31	**Terminal 4, Pier 2, Rail Yard Improvements (Willamette Greenway)**	2007	Periodically maintained by Port Marine Maintenance.

Table B.1 Port Managed Mitigation, Revegetation and Enhancement Projects - 2021			
Location Number	***Project Name***	***Year completed***	***Maintenance Activities***
32	**Terminal 4, Toyota Riverbank Restoration Project**	2003	Periodically maintained by Port Marine Maintenance.
33	**Terminal 5, Berth 503 Bank Stabilization/ Revegetation Project**	1997-2001	Periodically maintained by Port Marine Maintenance.
34	**Terminal 4, Berth 401 Riverbank Rehabilitation Project**	2000	Periodically maintained by Port Marine Maintenance.
35	**Terminal 4, Slip 3 Remediation and Revegetation Project**	2004	Periodically maintained by Port Marine Maintenance.
36	**T-5 Greenway Planting Revegetation Project**	2002	Periodically maintained by Port Marine Maintenance.
37	**Force Avenue**	2009	Site was mowed in late summer.
38	**Dahl Beach**	2016	Watered plantings (July and August). Backpack treated invasive species (July).
39	**Swan Island Enhancement Project**	2017	Construction at this site was completed in 2017. This enhancement project was mitigation for the Swan Island Operable Unit 2 Upland Source Control work.
40	**Rinearson Creek/Meldrum Bar Park Restoration Project**	2018	Construction at this site was completed in 2018. This site is part of the suite of restoration sites under the Portland Harbor Superfund Natural Resource Damage Assessment. Port purchased credits at this site in 2019.
41	**Linnton Mitigation Bank**	2019	Construction at this site was completed in 2019. This site is part of the suite of restoration sites under the Portland Harbor Superfund Natural Resource Damage Assessment. Port purchased credits at this site in 2019.
42	**T4 Infiltration**	2020	Stormwater Treatment Facilities constructed for Basin M and Basin K1. Both facilities reduce pollutant loading to the river by infiltrating 90% of the runoff. Annual inspection and maintenance will be ongoing.
43	**Willamette Cove**	2023	DEQ Record of Decision issued in March 2021 for final cleanup. Site is in the remedial design phase. Restoration will commence after cleanup.
44	**82nd Avenue Oak Woodland Planting**	2019/2020	Site mowed in late summer; plantings watered every other week during the summer.

Table B.1 Port Managed Mitigation, Revegetation and Enhancement Projects - 2021			
Location Number	***Project Name***	***Year completed***	***Maintenance Activities***
45	**McBride Slough**	2019/2020	Spot sprayed aggressive weeds through planted areas. Species treated: field mustard (Brassica rapa), Fuller's teasel (Dipsacus fullonum), Himalayan blackberry (Rubus armeniacus), meadow foxtail (Alopecurus pratensis), mullein, common (Verbascum thapsus), nightshade, climbing (Solanum dulcamara), poison hemlock (Conium maculatum), reed canarygrass (Phalaris arundinacea), tansy, common (Tanacetum vulgare), tansy, ragwort (Senecio jacobaea), bull thistle (Cirsium vulgare) and Canada thistle (Cirsium arvense) (May).
46	**Wheeler Bay Bank Stabilization Project**	2008	Periodically maintained by Port Marine Maintenance.
47	**PIC Wetland Enhancement**	2017	Cut field mustard in phase II. Other species treated included: Fuller's teasel (Dipsacus fullonum), Himalayan blackberry (Rubus armeniacus), common mullein (Verbascum thapsus), poison hemlock (Conium maculatum) and reed canarygrass (Phalaris arundinacea) (April). Cut remaining tall and dead herbaceous vegetation in planting areas. Species cut: Fuller's teasel (Dipsacus fullonum), Himalayan blackberry (Rubus armeniacus), meadow foxtail (Alopecurus pratensis), poison hemlock (Conium maculatum), Canada thistle (Cirsium arvense) and velvet grass (Holcus lanatus) (October). Cut field mustard flower heads in phase II. Other species treated included: Fuller's teasel (Dipsacus fullonum), common mullein (Verbascum thapsus), poison hemlock (Conium maculatum), prickly lettuce (Lactuca serriola), reed canarygrass (Phalaris arundinacea), sowthistle (Sonchus asper), bull thistle (Cirsium vulgare) and Canada thistle (Cirsium arvense) (May). Cut area of poison hemlock to prevent going to seed. Transline treatment through Phase I for Fuller's teasel (Dipsacus fullonum), bull thistle (Cirsium vulgare), Canada thistle (Cirsium arvense) and milk thistle (Silybum marianum) (June). Cut all herbaceous vegetation in open areas for fall spray. Cut several small open areas amongst the dense shrubs for fall treatments and potential planting/seeding areas. Species cut: field mustard (Brassica rapa), Fuller's teasel (Dipsacus fullonum), meadow foxtail (Alopecurus pratensis), poison hemlock (Conium maculatum), reed canarygrass (Phalaris arundinacea), common tansy (Tanacetum vulgare) and velvet grass (Holcus lanatus) (August). Sprayed large open areas on west side field for thistles, blackberry and field mustards. Sprayed openings on eastside field for thistles, reed canary grass, velvet grass to open areas for more plantings. Species treated: field mustard (Brassica rapa), Fuller's teasel (Dipsacus fullonum), Himalayan blackberry (Rubus armeniacus), poison hemlock (Conium maculatum), prickly lettuce (Lactuca serriola), bull thistle (Cirsium vulgare), Canada thistle (Cirsium arvense) and velvet grass (Holcus lanatus) (October). Collected: 50 spirea, 150 twinberry, 325 dogwood, 375 willow (no Pacific willow), 28 5' large willow poles to be installed at West Sundial Wetlands (November).

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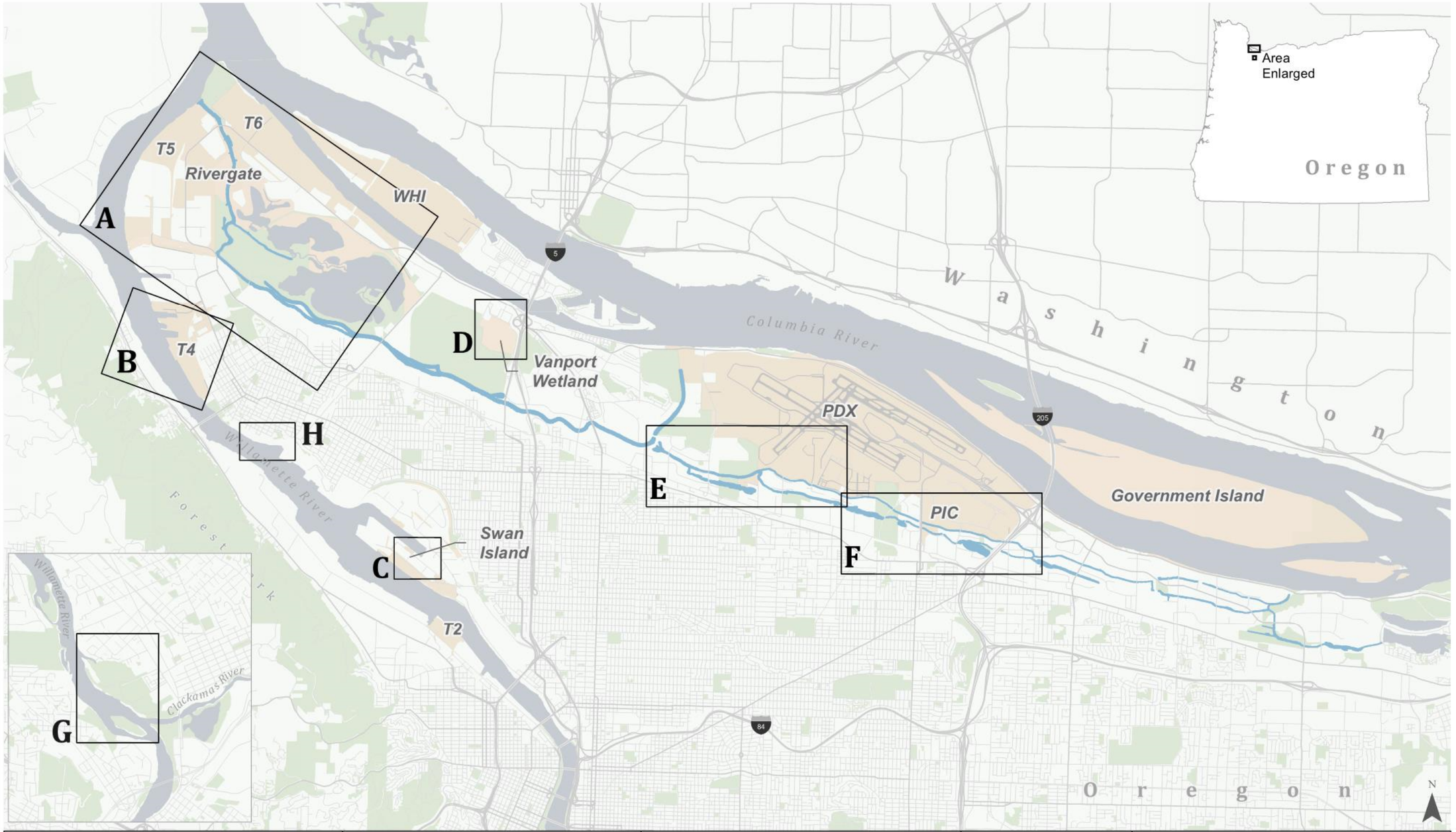
Appendix C - Mitigation/Revegetation Area Overview Map



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Columbia Slough | Port Property | Parks

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Preparer: GIS Program Office
Contact: gis@portofportland.com
Date: January 2021
Geographic Data Standards:
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Map Projection Name: Lambert Conformal Conic
Units: International Feet

MITIGATION & REVEGETATION SITES

Figure 1
Port Mitigation and Revegetation Areas

Map 1 of 7

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1. Columbia Grain Revegetation Project, 2000: Revegetated south bank of the Columbia Slough from the mouth of the Willamette River to the Union Pacific rail line (3 ac, 1,050 LF, 100' wide).

8. N Marine Dr Overpass Reveg Project, 2000: Currently maintains abutment from base of slope to top of bank (0.2 ac).

13. Rail Bridge to North Slough, 2001-02: Revegetated from top of bank landward to the Leadbetter slope on north side of Slough (30 ac). **2002-03:** Revegetated adjacent to the 40 mile loop trail (5,274 LF).

21. Terminal 5, Powerline and West Wye Mitigation Sites, 1995: Restored wetlands in a corridor connecting the Willamette River to Smith and Bybee wetlands (10.5 ac). **2002:** Installed an additional 205 native plants in the Willamette Greenway (1.3 ac).

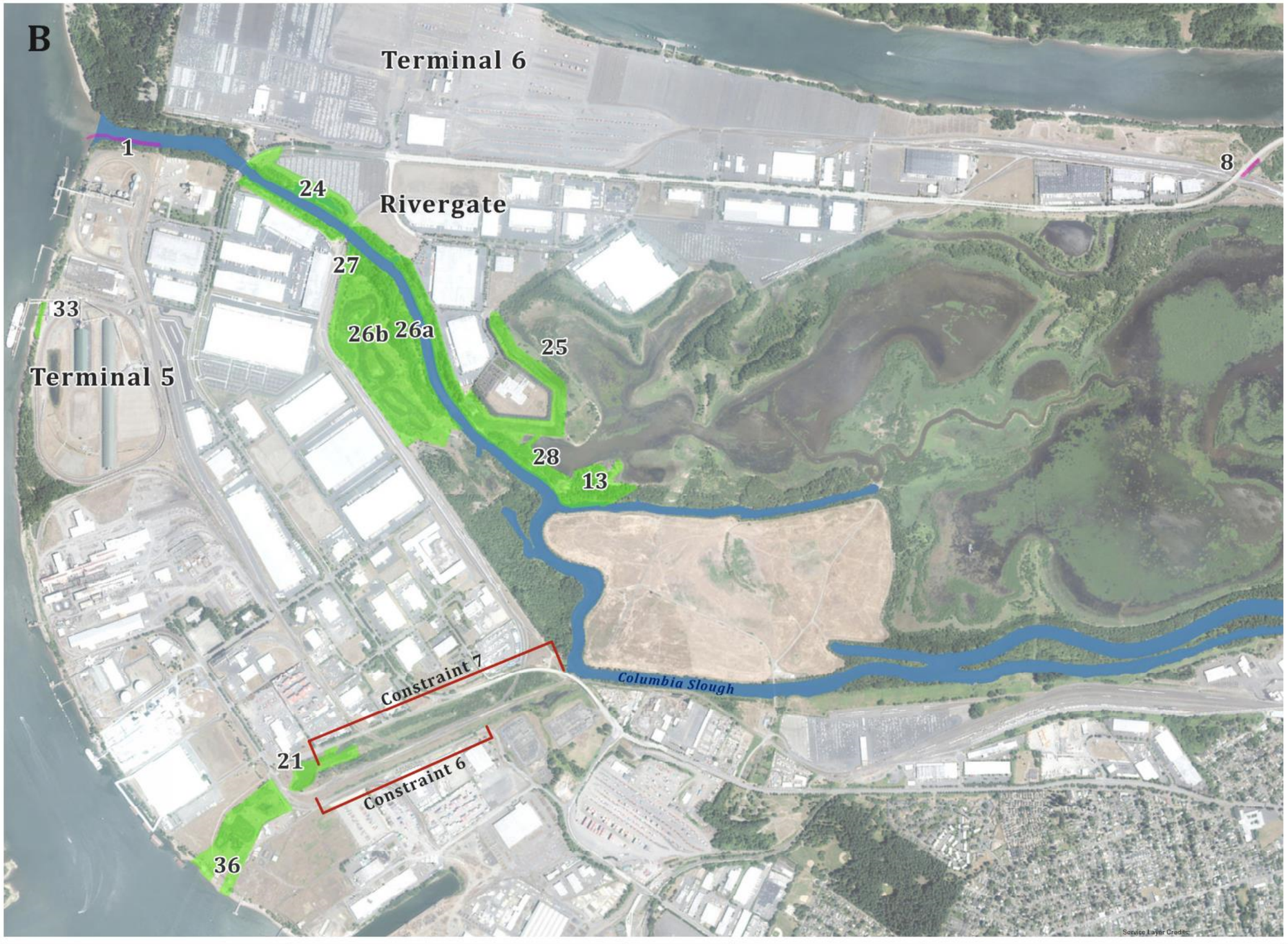
24. Rivergate Enhancement - North and South Slough Mitigation Site 2002-2004: Removed invasive species and revegetated area from top of bank to ordinary high water (4.5 ac). Constructed 800 ft bioswale and established riparian forest (5.21 ac), scrub-shrub (3.56 ac), and emergent habitat (0.53 ac) (3,297 LF).

25. Rivergate Enhancement - Leadbetter Peninsula Mitigation Site, 2003: Construction of 1,500 ft of 10-foot wide bioswale; establishment of 4.28 acres of riparian forest, 1.46 acres of scrub-shrub community, 8.69 acres of emergent habitat, and incorporated LWD within the emergent community (3,381 LF). **2021:** Planted 50 native plants at the Sedge Meadow site.

26. Ramsey Lake Mitigation Site, 1988: Created three separate ponds totaling 16 acres of surface area. Fringe and upland areas were planted with native vegetation. **2004:** Constructed 2,000 ft of swales connected to the Slough at both ends, established (8.04 ac) riparian forest and (1.3 ac) grassland habitat. Removed culvert and performed associated work to stabilize, replant, and re-establish proper hydrology. **2021:** Planted 1,100 native plants at the Islands and Lake Buffer sites.

28. Rivergate Enhancement - 40-Mile Loop Trail Mitigation Site, 2004: Established forested wetland, removed invasive species.

33. Terminal 5, Berth 503 Bank Stabilization/ Revegetation Project, 1997-2001: Reconstructed and revegetated Willamette River bank, beaver protection installed and supplemental plantings in 2000 and 2002 (476 LF).



Mitigation Sites

Revegetation Sites

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0 1,000 2,000 feet

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MITIGATION & REVEGETATION SITES

Figure 2
Terminal 5, Terminal 6, and Rivergate

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30. Terminal 4, Berth 408, 2001-02: Stabilized and replanted (0.07 ac).

31. Terminal 4, Pier 2 (Terminal 4, Pier 2, Rail Yard Improvements (Willamette Greenway), 2007: Installed two stormwater filter strips (0.71 ac) and planted trees and shrubs in the Willamette Greenway (0.83 ac).

32. Terminal 4, Toyota Riverbank Restoration Project, 2001-04: Revegetated the riverbank with native plants, installed bioswales and irrigation system (11.2 ac, 5,250 LF).

34. Terminal 4, Berth 401 Riverbank Rehabilitation Project, 2000: Stabalized bank to reduce erosion; planted native vegetation (2 ac).

35. Terminal 4, Slip 3 Remediation and Revegetation Project, 2004: Revegetated with native shrubs and trees (0.5 ac).

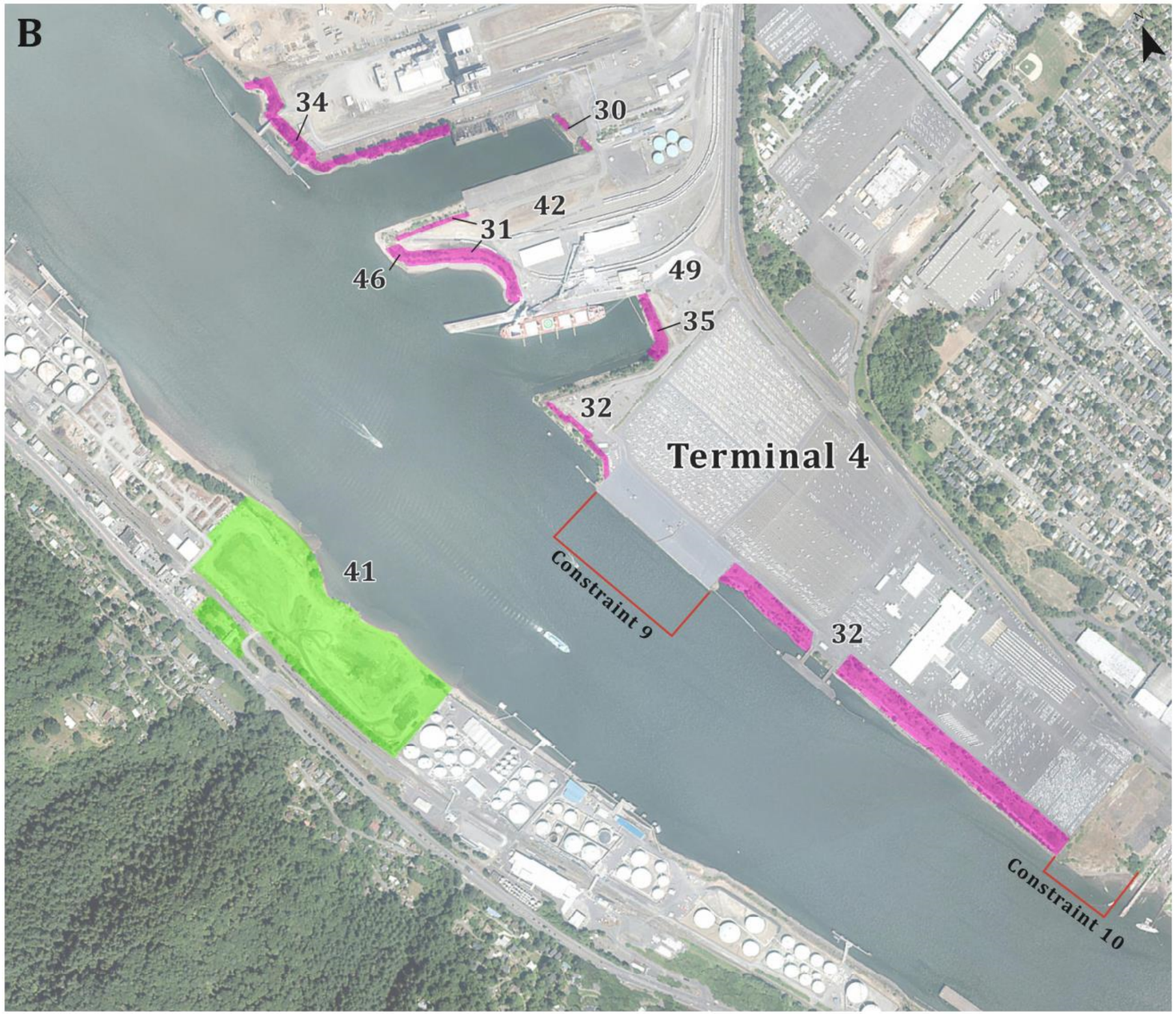
41. Linnton Mitigation Bank, 2019: The project converted 25-acres of industrial riverfront to riparian and upland habitat, created new off-channel habitat with a cold water tributary, restored shallow water and the active channel margin.

42. T4 Infiltration, 2021: Stormwater from 27 acres at Terminal 4 is infiltrated through constructed infiltration basins.

43. Willamette Cove, 2023: Restoration of approximately 27 acres of upland and riparian area. Removal of invasive species, bank grading and planting of native species.

46. Wheeler Bay Bank Stabilization Project, 2008: 800-feet of riverbank enhancement included: Bank grading, removal of concrete debris, vegetation, and miscellaneous debris; Placement of armor stone at the bottom of the shoreline and covered it with sand/gravel and wooded debris; Placed topsoil and planted cottonwood and willow trees, and grasses above the armor; Installed large wood structures within the active channel margin.

49. T4 Infiltration, 2021: Stormwater from approximately 3.6 acres at Terminal 4 is infiltrated through constructed infiltration basins.



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Mitigation Sites

Revegetation Sites

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0 250 500 1,000 Feet

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MITIGATION & REVEGETATION SITES

Figure 3
Terminal 4

Map 3 of 7

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22. Swan Island Boat Ramp Mitigation Project, 1999: Removed invasive species (2 ac) and planted natives (0.7 ac).

23. Vanport Wetland Mitigation Site, 2000-06: Created a 65 acre regionally significant wetland, modified hydrology to reduce invasive species, promote native plants, and minimize flooding. Remaining 25 acres in upland/riparian forest, meadow and scrub-shrub vegetative communities. (7,856 LF). **2021:** Planted 3,500 plants and caged plantings to protect from deer browse.

37. Force Avenue: This is an undeveloped site adjacent to Vanport Wetland. The site is managed for invasive species removal.

38. Dahl Beach, 2016: Project restored 0.5 acres and 506 LF of active channel margin, shallow water, and riparian habitat along the confluence of the Willamette and Clackamas Rivers. Work included converting parking lot areas to habitat by removing asphalt, concrete, and riprap and planting natives. Work also included the removal of an existing failed bulkhead structure, including all riprap and sheet piles, grading the riverbank to be stable, and establishing native vegetation.

39. Swan Island Enhancement Project, 2017: 25-foot-wide Greenway from the top of the riverbank slope to the fence line located along the southwest boundary of the Daimler leasehold. Landscaped along the top of bank, removed invasive species, and revegetated on the riverbank slope, re-graded erosional scarp features and rip rap armoring.

40. Rinearson Creek/ Meldrum Bar Park Restoration Project, 2018: Restored 33-acres of upland, channel, and pond habitat. Project removed a dam, created narrow open water and emergent wetlands, recontoured stream to restore natural meander, removed invasive species and planted natives (6.956 LF).

Mitigation Sites

Revegetation Sites

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MITIGATION & REVEGETATION SITES

Figure 4
Swan Island, Vanport Wetland, and Confluence of Willamette and Clackamas Rivers

Map 4 of 7

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3. 82nd to 92nd Ave Revegetation Project, 2000: Removed invasive species and revegetated Columbia Slough from 92nd Ave, west to 82nd Ave from the waterline to the top of the bank (1.6 ac) and from top of bank to edge of transition zone or edge of tenant landscaping (2,600 LF Total).

4. 92nd Ave to I-205 Revegetation Project 2000-01: Removed invasive species and revegetated Columbia Slough from 92nd Ave to I-205 from the waterline to top of bank (0.78 ac) and from top of bank to edge of 50' transition zone (2.69 ac, 2,850 LF total). **2003-04:** Revegetated along the regraded bank (1.6 ac).

5. Cornfoot Rd West of 47th Ave to AMC Building Revegetation Project, 2000: Removed invasive species and revegetated area from the waterline to top of bank (1.25 ac; 915 LF).

6. PDX Port Maintenance Bldg Revegetation Project (Meyers Marx), 2000: Revegetated area on south side of Slough from 82nd Ave to Port property boundary and on north side of Whitaker Slough from 82nd Ave to Port property boundary; removed invasive species and re-vegetated from the waterline to top of bank and 50' E-zone (3.7 ac; 2,400 LF).

7. Cornfoot Rd - NE 63rd to NE 55th Ave Revegetation Project, 2000: Planted trees (4.3 ac; 3,550 LF) and modified planting plan based on factors including steep slope, utility cable at top of bank, subsurface drainage undermining bank, and a waterline on top of bank.

9. Buffalo Street Mitigation Site, 1995, 2003: Installed 100 beaver protection cages around alder and cottonwood trees on the Buffalo street site. **2000:** Removed invasive species and revegetated from waterline to top of bank (2.3 ac; 1,970 LF).

10. Elrod Rd Mitigation Site, 1994: Enhancement of woodland and shrub-scrub habitat adjacent to a Slough tributary (10 ac). **2000:** Revegetated from the waterline to top of bank (1 ac; 1,300 LF).

11. Alderwood Slough Revegetation Project, 2000-01: Revegetated Alderwood Slough between 82nd Ave and Alderwood Rd from water-line to 10' landward of top of bank on north and south sides (1.7 ac).

12. Alderwood Corner Revegetation Project, 2000-01: Revegetated Alderwood Slough at corner of Alderwood Rd and 82nd Ave (1.5 ac).

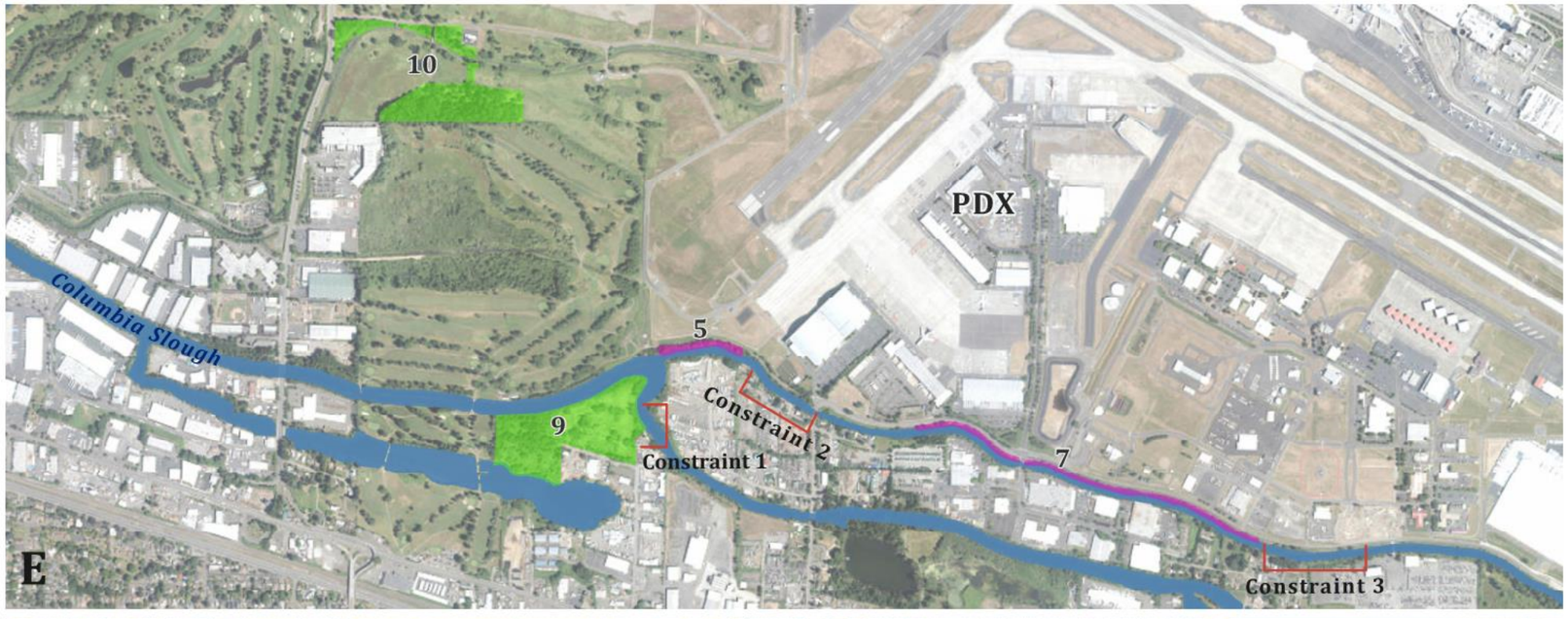
29. PIC E-zone Mitigation Site, 2000-02: Revegetated riparian and upland willow scrub-shrub habitat (2.6 ac). Added an additional 6.8 acres to the Env Protection Zone.

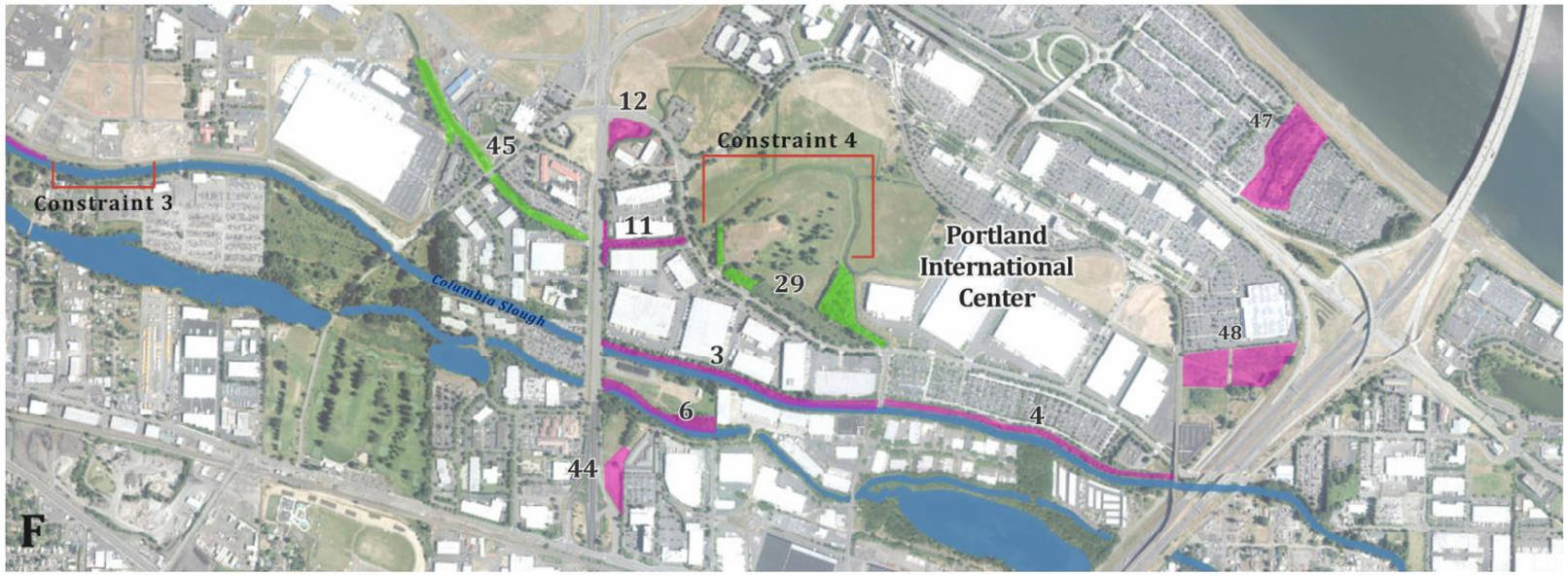
44. 82nd Ave. Oak Woodland Planting, 2019: Planted 2 acres with Oregon white oak and oak woodland understory vegetation.

45. McBride Slough, 2019: Removed invasive species. Replanted trees that were removed for the clean-up to occur (2,369 LF). **2020:** Additional trees and shrubs were planted to enhance the area that was impacted by the project west of NE Alderwood Rd. Removed non-native vegetation east of NE Alderwood Rd (2,060 LF).

47. PDX Economy Lot E-zone Conversion Project, 2019: Removed invasive species (9.0 acres).

48. PIC Wetland Enhancement, 2019: Removed invasive species and planted 800 native shrubs and trees (6.2 acres). **2020:** Planted 2050 native shrubs.





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Mitigation Sites

Revegetation Sites

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0 1,000 2,000 feet

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Contact: gis@portofportland.com
Date: January 2021
Geographic Data Standards:
Projected Coordinate System Name: NAD 1983 HARN State Plane, Oregon North
Map Projection Name: Lambert Conformal Conic
Units: International Feet

MITIGATION & REVEGETATION SITES

Figure 5
PDX and Portland International Center

Map 5 of 7

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Neighborhood Canopy Enhancement Projects:

1. Parkrose Sumner Transit Station Tree Planting
2012: Planted native trees and added stormwater infiltration features.

2. Elrod Slough Tree Planting
*2013:*Planted 70 native trees.

3. Columbia Children's Arboretum Tree Planting
*2014-2015:*Planted 570 native trees and shrubs and removed invasive species.
*2016:*Planted 300 native trees and shrubs and invasive species removal. This project helped revegetate the site increasing infiltration to enhance summer base flows in the lower reach of the Columbia Slough.
*2017:*Planted 330 native trees and shrubs.
*2018:*Planted 400 native trees and shrubs.
*2019:*Planted 1,300 native trees and shrubs.
*2020:*Planted 982 native trees.

4. Argay, Parkrose, Russell, Sumner, Wilkes Tree Planting
2015: Planted 132 native trees for canopy enhancement.
2018: Planted 110 native trees.
2019: Planted 84 native trees.
*2020:*Planted 100 trees.

5. Concordia, Vernon Tree Planting
2015: Planted 142 native trees.
*2016:*Planted 125 native street and yard trees in Concordia and Vernon neighborhoods.
*2017:*Planted 125 street and yard trees.
*2020:*Planted 150 trees.

6. Beaumont-Wilshire, Cully, Roseway Tree Planting
*2015:*Planted 180 native trees for canopy enhancement.
*2018:*Planted 215 trees.
*2019:*Planted 200 trees.

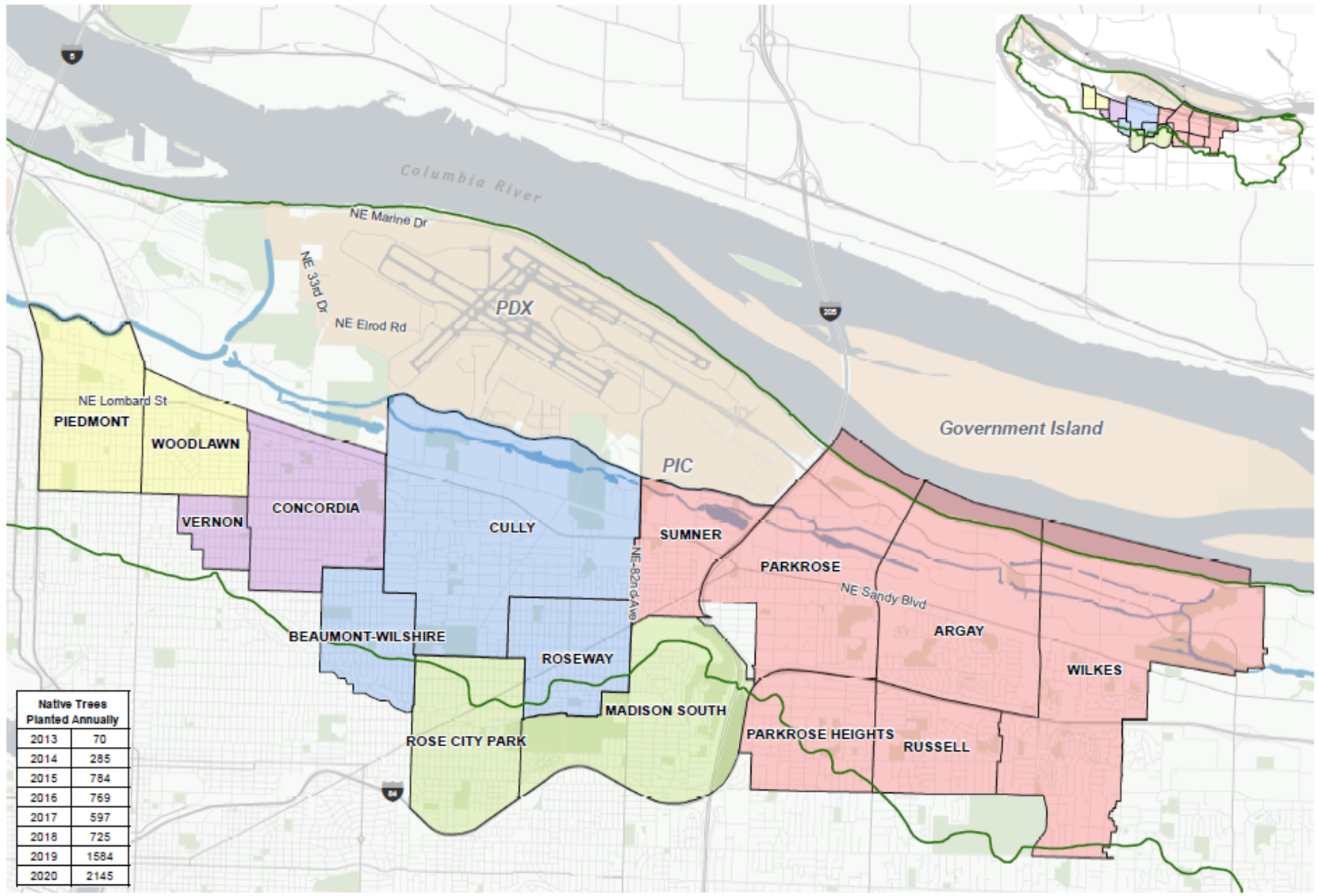
7. I-205 Tree Planting, 2015:
*2015:*Planted 45 native trees for canopy enhancement.

8. I-205 Piedmont, Woodlawn tree Planting
*2016:*Planted 234 native trees for canopy enhancement over the course of two projects.
*2017:*Planted 142 street and yard trees.

9. Madison South, Rose City Park, Sumner
2016: Planted 110 native trees for canopy enhancement.

10. Columbia Slough Natural Area
2016: Planted native trees and shrubs.
*2020:*Planted 746 trees.

11. Gateway Green Park
*2020:*Planted 167 trees.



Native Trees Planted Annually	
2013	70
2014	285
2015	784
2016	769
2017	597
2018	725
2019	1584
2020	2145

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Columbia Slough | Watershed Boundary | Project Area | Port Property | Parks

PORT OF PORTLAND
Portland, Oregon
0 0.5 1 miles

Preparer: GIS Program Office
Contact: gis@portofportland.com
Date: January 2021
Geographic Data Standards:
Projected Coordinate System Name: NAD 1983 HARN State Plane, Oregon North
Map Projection Name: Lambert Conformal Conic
Units: International Feet

AIRPORT FUTURES

Figure 6
Canopy Enhancement Projects

Map 6 of 7

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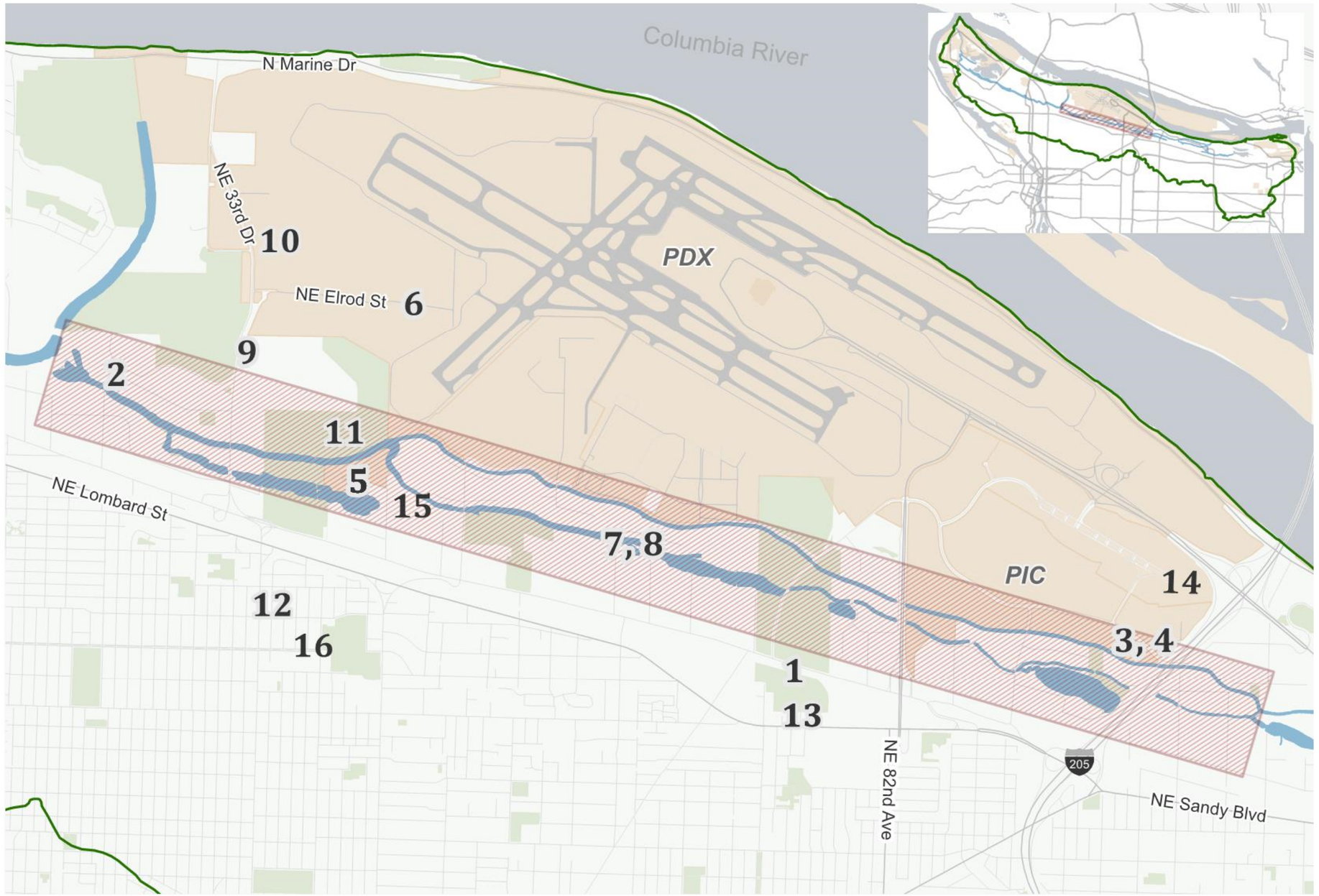
Columbia Slough Enhancement Projects:

1. Cully Park North Slope Restoration, 2012
2. Elrod Slough Restoration, 2013
3. Portland International Center (PIC), Wetland Conversion Project - Phase I, 2013
4. Portland International Center (PIC), Wetland Conversion Project - Phase II, 2014
5. Buffalo Slough Turtle Habitat Enhancement, 2016
6. Elrod Slough Culvert Replacement, completed in 2015
7. Main Channel Benches, 2016
8. Better Beaver Behavior, 2016
9. Vegetation Management, 2016
10. NE 33rd Riparian Corridor, 2018 & 2019
11. Island Canopy Establishment, 2018 & 2019
12. Audubon Backyard Habitat Certification Program (BHCP), 2018
13. North Slope Habitat Restoration, 2018
14. ACME Riparian Restoration, 2019
15. CSWC Engineered Wetland Whitaker Ponds, 2020
16. Verde Cully Community Rain Garden Project, 2020
17. CSWC Stewardship Enhancements, 2021 and 2022 (various locations, not shown on map)
18. Audubon BHCP, 2021 (various locations, not shown on map)



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Columbia Slough | Watershed Boundary | 7 & 8 Project Area | Port Property | Parks

PORT OF PORTLAND
Portland, Oregon

0 0.5 1 miles

Preparer: GIS Program Office
Contact: gis@portofportland.com
Date: September 2019
Geographic Data Standards:
Projected Coordinate System Name: NAD 1983 HARN State Plane, Oregon North
Map Projection Name: Lambert Conformal Conic
Units: International Feet

AIRPORT FUTURES

Columbia Slough Enhancement Projects

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