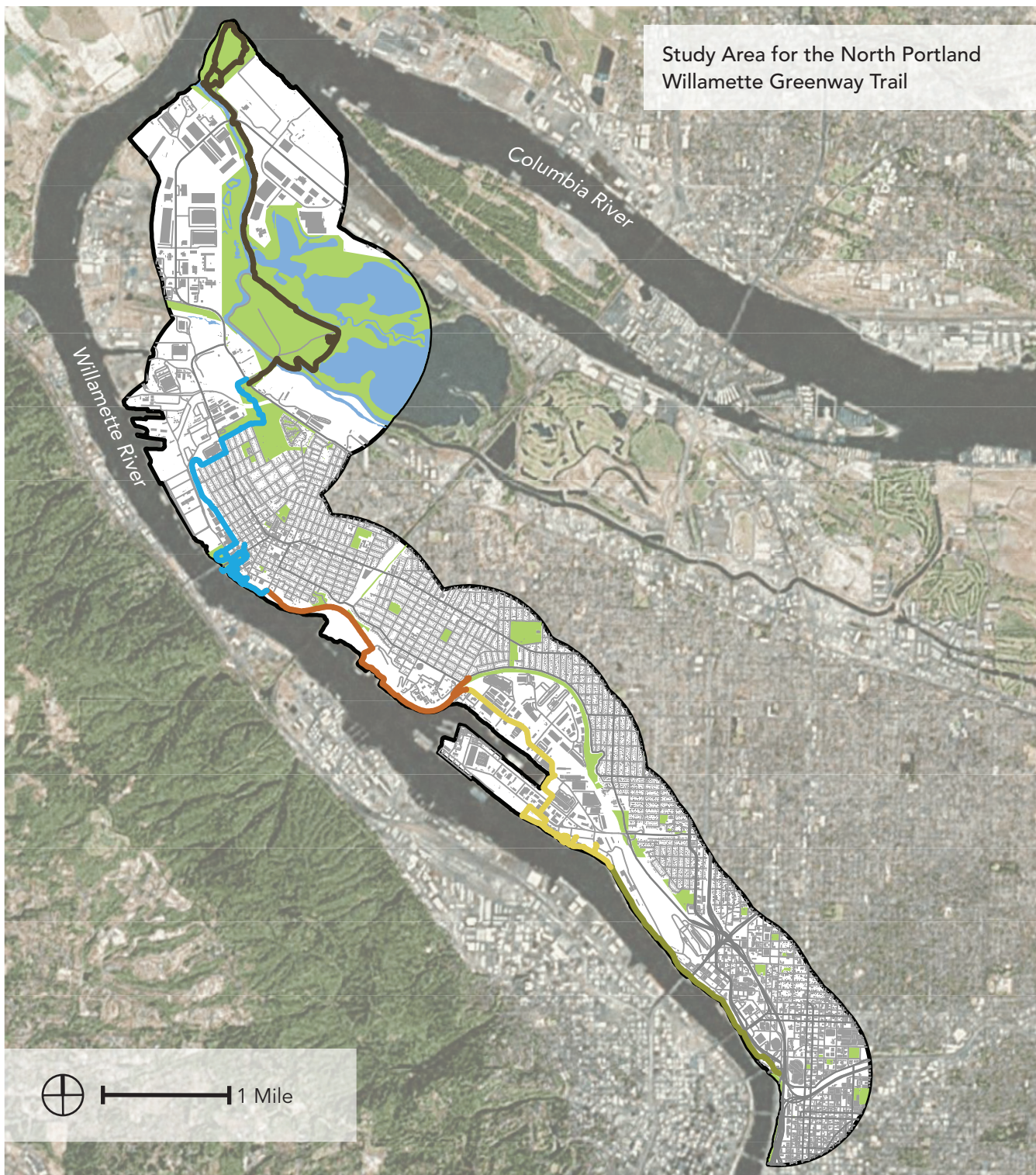


APPENDIX B

SWOC

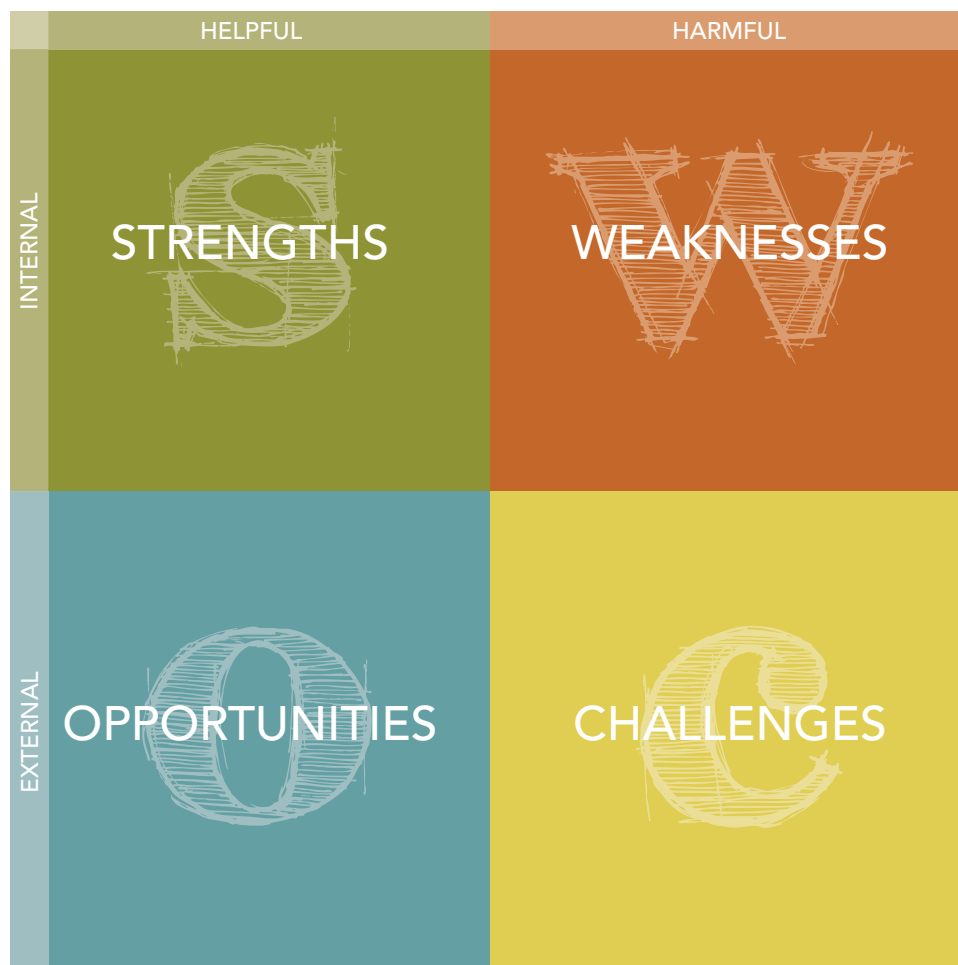
Trail Segment SWOC Analysis

This Appendix provides an analysis of the Strengths, Weaknesses, Opportunities, and Challenges (SWOC) for the North Portland Willamette Greenway Trail, including the five distinct segments that the trail is separated into, for the purpose of implementation by Metro and Portland Parks and Recreation.



This SWOC analysis is intended to help guide and document the process of drafting and refining an implementation and action plan for the North Portland Willamette Greenway Trail, keeping in mind the goals of the Willamette Greenway Plan of connecting the people of North Portland to improved recreational and transportation opportunities.

The primary goal of the SWOC analysis is to catalyze ideas regarding trail implementation opportunities. Themes and lessons can also be learned from the SWOC, which can be applied when strategizing ways to jump start trail development.



Methodology

A SWOC analysis is a standard evaluation tool to assess strengths, weaknesses, opportunities and challenges. In this case, the SWOC analysis approach is being applied to each of the five trail segments of the North Portland Willamette Greenway Trail.

The SWOC analysis includes information on:

- Accessibility/neighborhood connections.
- Alignment/ROW/easement.
- Property/parcel/owner information.
- Public perception.
- Adjacent uses.
- Surrounding transportation infrastructure.
- Slope and topography.



STRENGTHS

The Strengths of a segment are assessed by looking at characteristics widespread (internal) to the trail segment, and that impact how it might be viewed by the public and agencies prioritizing public dollars.



WEAKNESSES

Weaknesses are focused on features of the trail segment that have potential to impact its feasibility, costs, and attractiveness to both public use and government agency prioritized funding. Weaknesses can be categorized as real, perceived, or areas of uncertainty.



OPPORTUNITIES

The opportunities of the trail in the future are approached broadly and strategically. Opportunities are related to the physical elements of the trail alignment, potential surrounding uses, public access, partnerships with politically important institutions, and the real or perceived advantage of the trail alignment.



CHALLENGES

Challenges to the trail can be categorized as real, perceived, or unknown. Understanding the underlying issues and causes of a challenge, as well as minimizing their impacts.

Data Sources

The information included in the SWOC analysis is compiled from a variety of sources, including:

- Planning documents reviewed from local agencies including Metro, Port of Portland, DEQ, PBOT, and Portland Parks and Recreation.
- GIS data gathered and analyzed from various local agencies.
- Interviews with property owners and stakeholders.
- Public input from intercept surveys.

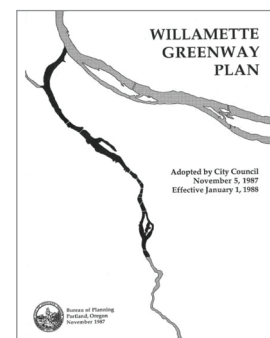
North Portland Willamette Greenway Planning Context

The North Portland Willamette Greenway is an idea that has been the subject of significant planning efforts undertaken to establish a vision for the Greenway trail, a regulatory land use framework, and a feasible, buildable alignment. Overall, the City of Portland, Metro, Portland Parks & Recreation, and the North Portland community have worked together for more than three decades to lay the groundwork and establish the framework that will allow people to once again connect to the Willamette riverfront north of the existing Eastbank Esplanade. Significant progress has been made in recent years resulting in the North Portland Willamette Greenway Trail being identified in the latest Regional Transportation Plan as both a Regional Bicycle and Pedestrian Parkway, lending regulatory weight and priority to its completion.

Plans and Projects

Willamette Greenway Plan

Adopted by the Portland City Council in 1987, the Willamette Greenway Plan established the Willamette Greenway concept, as well as the initial vision for a trail that ran along the length of the Willamette River's banks. Ranging in goals from the restoration of water quality and natural habitat to increasing access to and facilities for recreation, the plan set out a land use framework for completing this broad community vision along with specific design guidelines for the trail including public access points to the river.



North Portland Greenway Trail Alignment Plan

Adopted in 2013, the plan refines the adopted alignment of the North Portland Willamette Greenway through a careful study of the engineering feasibility of various route alternatives. The result is a proposed alignment with the initial 10% design and engineering completed, a preferred route map, and cost estimates. These deliverables allow the trail project to be submitted to the local Transportation Systems Plan and the Statewide Transportation Improvement Program for funding allocation.



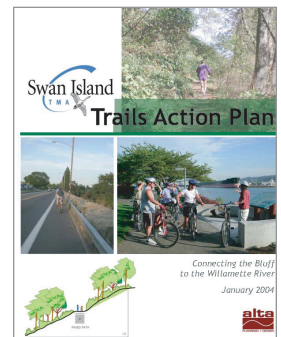
2014 Regional Transportation Plan

Adopted in 2014, the Regional Transportation Plan sets out Metro's vision for transportation policy and spending over the course of the next several decades. The plan includes nine distinct projects placed on the constrained funding list that aim to complete the North Portland Willamette Greenway Trail with the final project estimated to be completed by 2032.



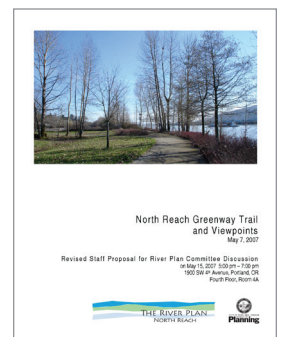
Swan Island Trail Action Plan

Originally published in 2004 and recently updated in 2014, Alta Planning + Design created a list of project proposals and designs for improving bicycle and pedestrian access to Swan Island. The Action Plan sets forth feasible design goals for the Swan Island portion of the NPWGT.



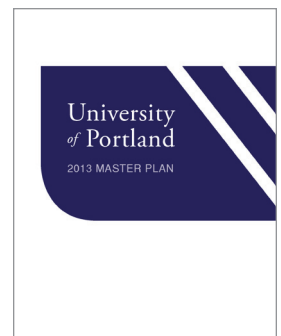
North Reach Greenway Trail and Viewpoints

As a report drafted in the larger effort to update The River Plan, this document published in 2007 includes specific trail design recommendations for the North Portland Willamette Greenway Trail. The document contains an extensive inventory of existing conditions for parcels key to the development of the trail alignment -- along with strategies and recommendations to guide agency staff towards trail implementation.



University of Portland Master Plan

In 2013, the University of Portland published a master plan for the campus including a major investment and expansion of the campus along the riverfront. The expansion onto the Triangle Park and McCormick and Baxtor sites, to create what is now known as the River Campus, still leaves many details to be planned, but sets the groundwork of creating a rejuvenated riverfront with institutional educational, recreation, and open space along the riverfront. The plan also acknowledges and enshrines the North Portland Willamette Greenway within University of Portland's Master Plan allowing the trail to traverse the future campus expansion and create a unique opportunity for place making.



North Portland Willamette Greenway Zoning

The trail crosses a number of zoning designations on its 10 mile meandering route through North Portland. Each of the trail segments consists of a unique character -- thanks in part to the zoning designations of the surrounding urban environment. The changing land use along the alignment provides an opportunity for the trail to capitalize upon the sense of place distinct to each segment of the trail, while also posing challenges to create appropriate design elements sensitive to the existing and planned future land uses. Zoning adjacent to the trail includes: Industrial, Open Space, Residential, and Commercial designations for the majority of the alignment.

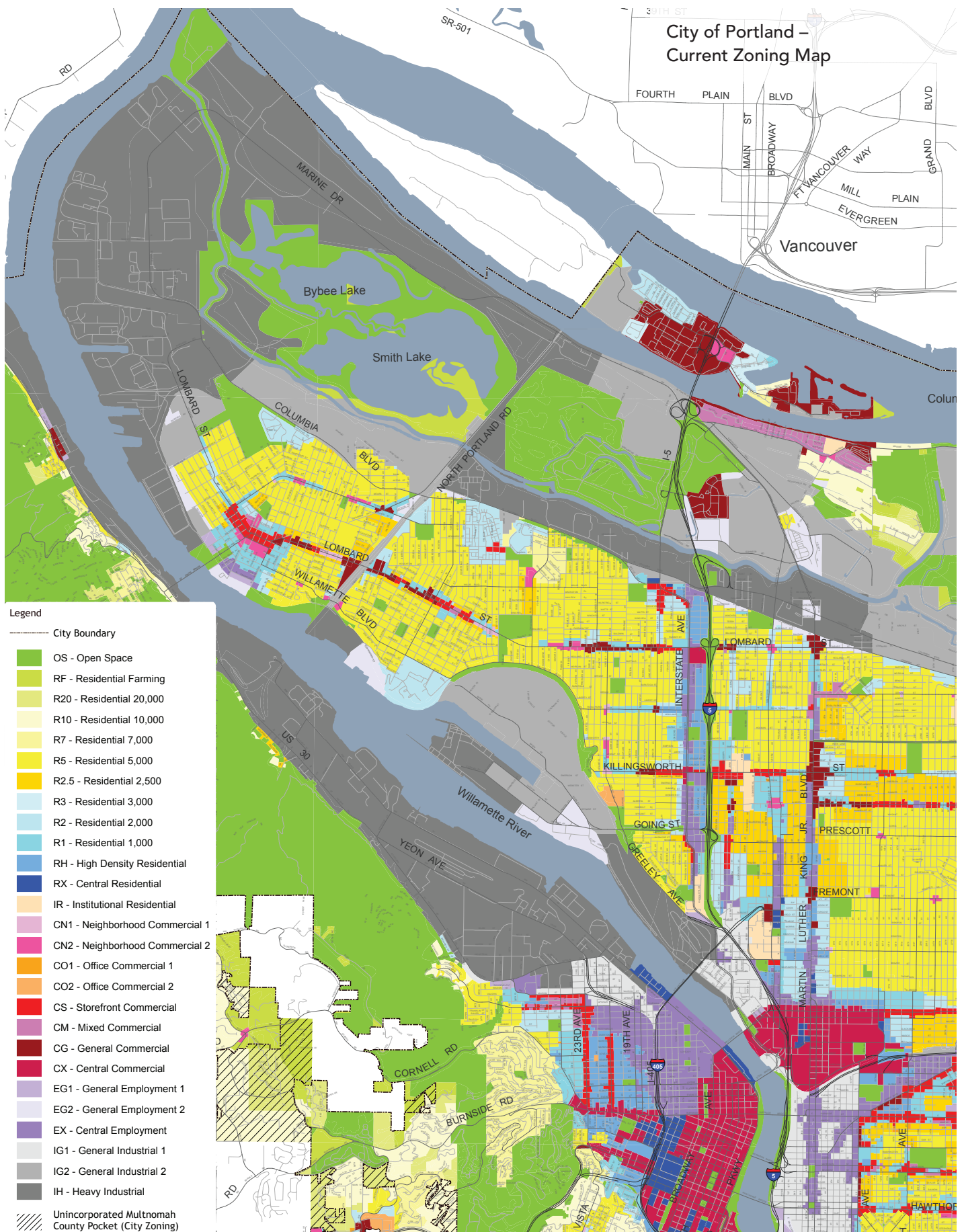
The trail alignment is dominated along much of its length by adjacent industrial lands, which, in spots, include working industrial waterfronts. Much of segment one, four, and five are aligned along industrial lands. These lands provide an abundance and concentration of jobs in the Portland region, but the urban context and uses in these areas mean that any active transportation infrastructure has to be retrofitted onto a landscape never originally planned to accommodate pedestrians and cyclists. The roads, especially within Swan Island, are wide with high speeds and wide turns at intersections to promote the efficient movement of freight.

Open Space is the other main zoning designation along much of the trail. Trail segments one, two, and three traverse large proportions of open space and are crucial to connecting the St. John's, Cathedral Park, and University Park neighborhoods with recreational opportunities in these designated open spaces. Open Space lands include the protected natural areas of Columbia Slough and the Smith and Bybee Wetlands as well as developed urban parks such as Chimney Park, Pier Park, and Cathedral Park.

Other major zones along the alignment include Single Family Residential in St. John's and Cathedral Park neighborhoods along segment two and three. A small amount of commercial zones (General Commercial, Central Employment and Central Employment) exist in segments three and five.

Zone	Sq Miles	Percentage
		Total
CG	0.26	2.04%
IH	3.96	30.34%
IL	1.93	14.78%
MFR5	0.43	3.33%
MFR7	0.28	2.19%
MUR10	0.49	3.80%
MUR4	0.08	0.63%
MUR5	0.006	0.05%
MUR7	0.108	0.83%
MUR8	0.024	0.18%
MUR9	0.53	4.13%
POS	2.33	17.86%
SFR1	0.16	1.22%
SFR14	0.12	0.97%
SFR7	2.30	17.66%

Zoning classifications along the alignment of the greenway trail. Approximately 45% of the trail runs through industrial land.

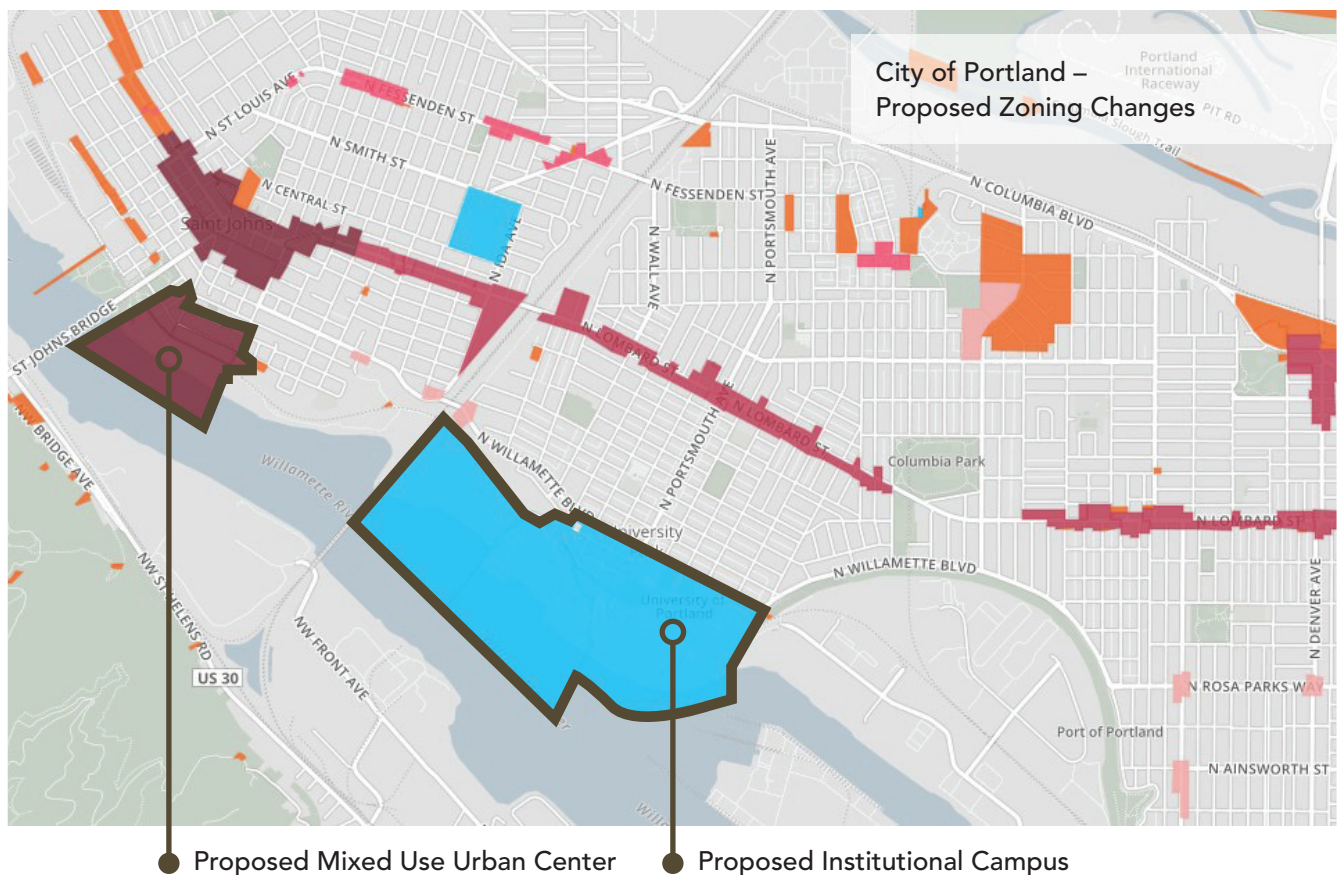


It should be noted that the City of Portland is in the midst of an update to the City's Comprehensive Plan that includes a major overhaul of the zoning code. Two major changes are proposed for sites adjacent to the trail and the Willamette River.

First, several blocks southeast from Cathedral Park, encompassing approximately 16 acres, that include a vacant brownfield are proposed to be designated a Mixed Use Urban Center which will allow a mix of medium density residential as well as a broad range of commercial and employment. This can potentially act as a second center of activity for St. John's and help to extend activity from downtown St. John's to the Willamette riverfront.

The second major change is proposed for two industrial brownfields along the Willamette adjacent to the University of Portland campus. University of Portland would like to expand their campus toward the waterfront. In preparation of the expansion the land is proposed to be designated as an Institutional Campus. The designation is intended for major, regional employment centers where urban public services exist or are planned.

Both of these changes create the potential for major new activity centers positioned right along the trail alignment – bringing new users and destinations into the area that would benefit from being sited next to the trail.



Transportation Access

North Portland sits somewhat separate from the rest of the Portland region, located on the peninsula formed by the confluence of the Willamette and Columbia rivers. Because of this, transportation to North Portland, as a whole, is mildly constrained, especially moving west along the peninsula. Interstate 5 is a major North-South corridor that, while providing regional connectivity, limits both auto and active transportation access points across the freeway to the Northeast quadrant of Portland. Major East-West connectors in North Portland include: Going Ave, which connect I-5 to the employment center of Swan Island; Willamette Blvd, which provides access along the top of Waud Bluff; Lombard, which serves as North Portland's main commercial corridor; and Columbia Blvd, which acts as a major freight route. The street network is largely laid out in a traditional grid fashion, with few interruptions. The BNSF rail line that runs North-South through the middle of the peninsula does limit transportation access, as the trough the rail tracks lay in creates a barrier with only four street bridges crossing the trough to connect the westernmost part of North Portland to the rest of the area.

Pedestrian and bicycle access in the area is provided by a combination of on and off-street facilities. A majority of the street network has existing sidewalks. A series of Neighborhood Greenways, including Central, Houghton, Wabash, Bryant, and Concord, provide a calm biking environment for both families and commuters. While bike lanes exist along Rosa Parks, Willamette Blvd, Fressendent, and Smith, the majority of bicycle facilities in North Portland are bicycle routes with limited installed infrastructure to enhance the riding experience. Several trails on the peninsula enhance access and provide recreation for active modes including a trail adjacent to N. Columbia Blvd, the Waud Bluff trail that connect Swan Island to the residential neighborhoods on top of the bluff, and the Peninsula Crossing Trail that runs along the top of the bluff parallel to the BNSF railroad tracks that bisect North Portland.

Transportation access to many parts of the Willamette riverfront is limited by various factors that include steep slopes along bluffs, rail lines and switching yards, existing riverfront industries, vacant lands, and undeveloped right of way. These are all challenges that must be addressed through both the trail alignment and the trail design itself. There are few access points to the Willamette River with the best and most active access being provided by Cathedral Park just southwest of St. John's downtown. Other access points exist, but are closed off to public access at the moment while environmental reclamation occurs on industrial brownfields. Access to the waterfront, in addition to being limited, is also in many places hindered by a steep slope, such as around the University of Portland campus. Finally, much of the waterfront is hidden behind current industrial uses. The section from the Steel Bridge in the south to Swan Island in the north is almost a continuous series of industrial facilities and rail lines that make accessing the waterfront both complicated and impractical and often time undesirable.

Freight movement is central to the economic vitality of North Portland. The industrial employment centers of Swan Island and Rivergate Industrial District rely on the efficient movement of freight goods in and out of the area on a daily basis. Freight routes place some restrictions on the consideration of bicycle and pedestrian facilities regarding design and allocation of roadway space. A major part of freight movement includes rail transportation, facilitated by the Albina Yards switching station and smaller switch yards along the industrial edges of North Portland. The existing rail facilities limit access to some parts of North Portland and the river as the tracks must be passed through with grade separated infrastructure or limited surface crossings. In the Lower Albina industrial area, surface crossings have been closed, resulting in a single access point for many businesses via an overcrossing at Tillamook Ave.

Overall Trail SWOC

STRENGTHS

- Length/connecting so much of Portland to the Willamette Waterfront.
- Identified as both a Regional Bicycle Parkway and a Regional Pedestrian Parkway.
- Extending the Eastbank Esplanade all the way to the Columbia River.
- Future connections to existing trails network.
- Important part of the 40 Mile Loop Trail concept.
- Connecting people to thousands of jobs in industrial preserve lands and in Central Portland.
- 2013 Alignment plan calls the alignment “buildable in the near term”.
- Wide range of institutional buy-in.
- Metro
- City
- Parks & Rec
- Intertwine
- Long history of planning.
- Willamette Greenway codified in 1972 (House Bill 2497) as a natural corridor.

WEAKNESSES

- Planned through un-scenic portions of Portland.
- Industrial lands pose conflicts with freight and trail users and create access challenges.
- Numerous ROW/easement constraints.
- Steep Grades in many portions.
- High proportion of adjacent industrial lands.
- Limited access points from neighborhoods to the proposed alignment and the river.

OPPORTUNITIES

- Portland Parks and Recreation regional flexible funds.
- Federal/State grants.
- TIGER Grants.
- New race (run/bike) route.
- Added to the Transportation System Plan and Regional Transportation Plan constrained funding list.
- Priority on the City's Bicycle Advisory Committee's project list.
- Priority on Bicycle Transportation Alliance list.

CHALLENGES

- Physical connections to the surrounding neighborhoods.
- Environmental reclamation ongoing for a number of brownfield sites.
- Environmental Protection Agency Superfund Site in the river.
- Americans with Disabilities Act accessibility compliance.
- Security and safety concerns - lighting, keeping the trail safe.
- Many road crossings.
- Transitions from off-street to on-street segments.
- Funding

Conclusions

Steady progress is being made toward achieving the vision of having a completed trail along the Northern reach of the Willamette River. In the last decade a number of studies and planning process have been undertaken to prepare the trail to receive funding. The trail's identification as both a Regional Bicycle Parkway and a Regional Pedestrian Parkway places the trail as a high priority facility meant to form the backbone of the active transportation network connecting important regional centers and green space. With attached funding in Metro's latest Regional Transportation Plan, the trail is set to be built out in the medium term, but many challenges still exist to getting the trail implemented. Funds have been allocated to start design and construction work beginning in 2014, but the final phase of the trail is most likely not to be completed before 2032, an 18 year time span. With such a long time frame, the trail should be completed in phases that aim to have built the least complicated sections first so that continued coordination, negotiations, public engagement, and design work can be completed on the more complicated sections. Additionally, temporary measures should be encouraged to make the trail alignment as usable and accessible as possible while final completion is undertaken.

Many people still do not know about the concept for the NPWGT and the planning work that has already gone into transforming the banks of the Willamette River. Continued outreach, engagement, and promotion of the trail is an important step to inform residents of North Portland of the imminent investment in active transportation and recreational facilities that their neighborhoods will receive soon.

From the perspective of connectivity and economic development, there are opportunities even in the many design and engineering challenges the trail faces. Investment in solving these challenges will meet a currently unmet demand for better and more direct access from North Portland to the central city. Additionally, the blank slate industrial brownfields along the Willamette will benefit from sighting the trail adjacent to future redevelopment. The combination of these two opportunities creates the potential for new centers of urban activity that can not only revitalize vacant brownfields, but bring vibrancy to the Willamette waterfront and the surrounding neighborhoods. Policies can be created to allow temporary uses along the alignment and to encourage new development to be oriented in a way that acknowledges the trail and encourages connections.

Segment 1: Kelley Point Park to N. Columbia Blvd

Connecting Kelley Point Park along the Columbia Slough, this portion of the trail will offer views of Smith and Bybee Wetlands Natural Area and is perfect for wildlife viewing and bird enthusiasts. A trail already exists along the Columbia Slough connecting to the entrance of Kelley Point Park and the existing Marine Drive bike and pedestrian path. This portion of the trail will have limited connections to the surrounding urban environment, due to the natural areas, and provide limited job access.

Physical Characteristics

Aligned along the Columbia Slough and traversing the old St. John's Landfill, the trail consists of a 2.1 miles section surrounded mostly by natural areas with limited interactions with the urban form. This section of the trail has minimal crossings that design must address. Along Columbia Slough, a portion of the trail already exists that is paved and wide enough to accommodate the recreational use along this section.

Zoning and Land use

Adjacent zoning consists of Open Space designation along the Columbia Slough and the Smith and Bybee Wetlands Natural Area, as well as industrial designations (IH) meant for heavy industrial use. The industrial land use has limited impacts on this section of the trail, as the Open Space designation creates a sufficient buffer to separate the trail from the industrial uses in the area and create a pleasant recreational space.

ROW, Easement, and Ownership

Segment one passes through parcels owned by a number of local public agencies including Metro, Portland Parks and Recreation, City of Portland, BES, and the Port of Portland. The trail crosses Columbia Slough, which is owned by the State of Oregon. Easement agreements will be needed from each of these agencies, but given their general shared interest and public nature of their agency's missions, obtaining easements for additional trail development should be possible.

Strengths

- Interested community group Friends of Smith & Bybee Lakes.
- rail crosses many parcels already owned by government agencies.
- Metro
- State of Oregon
- City of Portland
- Views of natural areas.

Weaknesses

- Lacks real opportunity to connect people to jobs.
- Least economically important in terms of access to jobs.
- Consistent flooding along the slough.
- Perception of safety issues, especially around lighting and possible homeless encampments.

Opportunities

- String of parks/natural areas that the trail would connect through.
- Focus on access to recreation/parks/natural areas.

Challenges

- Private property issues along the slough.
- Need easements from:
 - Bonneville Power Administration
 - Oregon Dept. of State Lands
 - Union Pacific Rail Road

Conclusions

Segment one should take advantage of the natural area habitats that the trail traverses on its way from Columbia Blvd to Kelley Point Park. With limited interruptions or street crossings between Columbia Blvd and Marine Dr, the future completed trail is perfect for joggers, cyclists, and bird watchers wanting to escape the urban environment and have a quiet moment in nature. This strength should be capitalized upon to provide that sense of escape and peacefulness

Segment 2: Chimney Park to Cathedral Park

Connecting Chimney, Pier, and Cathedral Parks through portions of both on and off-street trails, Segment two will provide St. John's and North Portland improved access to recreational opportunities. Portions of the trail through these parks already exist, while connections between the parks is initially proposed to be predominantly using on-street existing right of way with limited separation.

Physical Characteristics

This segment is aligned along both existing public right of way and traverses already built trails in public parks for a total length of 2.1 miles. The existing portions through Chimney and Pier parks give the trail a recreational feel. The on-street portions travel through residential neighborhoods providing a calm neighborhood environment with street trees, front lawns, porches, and landscaping lending to the desired aesthetics of the alignment. On-street portions will have the design and feel of a neighborhood greenway similar to those found elsewhere in the Portland area.

Zoning and Land use

This section of the trail traverses a number of zoning designations. The parks are designated Open Space while the adjacent residential zoning is a mixture of densities including R5, R2, and R1. Industrial uses are also found adjacent to the trail including heavy (IH), light (IL), and general commercial (CG). Five blocks from the trail alignment there is also storefront commercial (CS) designations for the St. John's downtown commercial area.

ROW, Easement, and Ownership

Much of the trail alignment follows existing public right of way, making easement or land acquisition a non-issue for much of this segment.

Strengths

- Many connections to neighborhoods.
- Connection to existing parks and regional attractions, such as the St. John's Bridge.
- A lot of under-used public ROW provides space for design enhancements.
- Recently completed bridge connecting Pier Park and Chimney Park.
- New connection between Lombard and Columbia.
- Lots of Stewards/Groups pushing for projects in this area:
 - Friends of Baltimore Woods
 - Friends of Pier Park
- Easy connections to the downtown St Johns and the surrounding neighborhood.
- Much of the alignment is on existing public ROW.

Weaknesses

- Complications with heavy truck traffic.
- Portion runs parallel/within Lombard ROW.
- Portions of the trail exist but aren't marked clearly as open for public use.
- Perception of safety issues, especially around lighting and possible homeless encampments.
- Litter and trash concerns.

Opportunities

- Organization around Baltimore Woods.
- Many nearby parks/natural areas that the trail would connect through.
- Unused Decatur Street ROW that can connect Cathedral Park to Baltimore Woods (opportunity for shared space design).
- Focus on access to recreation/parks/natural areas.

Challenges

- Alignment along portion of Lombard (between N Bruce and N Weyerhaeuser).
- Wayfinding along on-street segments.
- Creating a sense of place along on-street segments.
- Crossing of N. Columbia Blvd.
- Railroad crossings.
- Proposed Grade separation at crossing of Columbia.
- Adds cost
- Lowers connectivity

Conclusions

Segment two connects three major regional parks. Improving connections between such activity centers through the St. John's neighborhood is a major strength of segment two. Leveraging the public right of way into neighborhood greenways should be a priority while still pushing public agencies to consider an all off-street trail alignment for this segment. The alignment along Decatur St should be given particular attention and thought. The street's unique sighting between residential neighborhoods, light industrial employment, and the adjacent Baltimore Woods creates a corridor that can provide a strong and vibrant trail corridor -- if Decatur is designed with multiple uses in mind.

Segment 3: Cathedral Park to Swan Island

Connecting Cathedral Park to Swan Island, the majority of this segment runs parallel to the Willamette River and provides the potential for access to future open space at Willamette Cove and the eventual University of Portland's River Campus. Following the Union Pacific rail tracks offers a unique rails-with-trails design opportunity.

Physical Characteristics

The third section of the trail is aligned along the banks of the Willamette River connecting St. John's to the University of Portland and Swan Island along 2.7 miles of trail. None of the proposed trail exists other than a small section between the Willamette River and BES' Water Pollution Lab. The majority of the segment traverses industrial brownfields in various states of reclamation. Finishing cleanup on these parcels represents a great opportunity for the trail to move forward. Around University of Portland the trail follows the Union Pacific railroad along Waud Bluff. This poses a design and engineering challenge as the bench that the railroad sits on top of is only 20 feet wide and cannot simultaneously carry a multi-use trail and the train tracks. To address this issues, a boardwalk structure is proposed for the section along the bluff that would offset the trail away from the bluff and partially above the river.

Zoning and Land use

The surrounding land use designations include Open Space for Cathedral Park and Willamette Cove, General Commercial and Heavy Industrial for the former brownfields, and residential above Waud Bluff and the University of Portland campus. The Portland Comprehensive Plan Update proposes major zoning changes along this segment of the trail, replacing the commercial and industrial designations with mixed use for the Steelhammer property and the Institutional Campus designation for University of Portland and its future riverfront campus expansion.

ROW, Easement, and Ownership

Much of the trail alignment is publicly owned, including parcels owned by Portland Parks and Recreation and Metro. Private property includes parcels owned by the University of Portland, Lampros Steel, and Union Pacific Railroad. Easements will be needed from all of these private entities. The University of Portland already shows the trail following the proposed alignment in the university's 2013 Campus Master Plan.

Strengths

- Planned open space along river (Willamette Cove, McCormick & Baxter, Triangle Park).
- U of Portland's future development plans for the waterfront.
- Already have public ROW access down to the riverfront via N Bluff St and N Van Houten Ct.
- Portions of land are already partially prepared due to previous investment in cleanup.
- The Port of Portland owns the base of the bluff underneath University of Portland.
- Proposed connection to the Peninsula trail.
- Cathedral Park and scenic views of the St. Johns Bridge.
- Potential public access via N Edgewater Ave.
- People already use Willamette Cove as a Park, accessing through N Edgewater Ave.
- Alignment can follow rail track; there is precedents of rails-with-trails design.
- Waud Bluff Trail is already built.

Weaknesses

- Limited current access and ADA accessibility due to steep slopes.
- Lots of remediation/brownfield work still underway - may complicate/push back implementation of this segment.
- Brownfield reclamation may restrict uses allowed in lands adjacent to the trail.
- Perception of safety issues, especially around lighting and possible homeless encampments.

Opportunities

- University of Portland buy-in/funding.
- University of Portland Master Plan - development of Triangle Park and Baxter & McCormick parcels
- Portland Bureau of Environmental Services ownership and restoration work:
- Ownership of bluff connecting to Willamette Blvd.
- Access to bond money for improvements centered around Willamette Cove.
- Planned redevelopment of the Lampros Steel site.
- Development of former brownfields as potential natural/parks areas.
- Possible connection with the Peninsula Trail.

Challenges

- Placement of trail on western side of railroad tracks limits access to surrounding neighborhoods.
- Active rail use creates limited access and safety concerns.
- Trail section around the bluff under University of Portland will require additional expense from cantilever section.
- Brownfield reclamation is a complication adding additional coordinating agencies and extending the timeline for getting portions of the trail built.
- Connection to the Peninsula trail will require expensive solution and cooperation of both railroad companies.
- Several easement complications.
- Willamette Cove:
 - Possible contamination from past industrial uses.
 - Currently has posted signs to keep off, warnings of health hazards.
 - Currently acts as an illegal dumping ground.
 - Homeless camps create a perception of unsafe environment.
- Questions surrounding the McCormick & Baxter site, which is currently undergoing reclamation.

Conclusions

Segment Three is dominated by large, industrial brownfields in various states of reclamation and planned redevelopment. The majority of the trail alignment will be redeveloped with new urban mixed use centers and open space. Redevelopment along this segment means that Segment Three holds the greatest potential for transforming the waterfront and the surrounding neighborhoods. Public ownership along this segment should be leveraged to gain access to funds as well as start a conversation with the public that can help guide redevelopment along Segment Three and how it can enhance the surrounding neighborhood's livability. A mix of uses should be planned for along Segment Three, with uses being oriented towards the trail to enhance access and promote trail use and activity.

Segment 4: Waud Bluff trail to Albina Yards

Connecting through Swan Island, this segment of the proposed trail traverses a major regional employment center and heavily trafficked industrial area. A majority of the trail is on-street and follows public right of way along N. Basin Ave with an additional bluff top alignment along Willamette Blvd.

Physical Characteristics

This 1.9 mile segment of trail consists of mostly on-street sections in the Swan Island Industrial Park. The alignment follows Basin Ave which has an 80 foot wide right of way for most of its length and is currently designed as a four lane arterial with a few center turn lanes, sidewalk coverage along most of its length, and many curb cuts for driveways servicing industrial operations. From Basin Ave, the alignment turns south at the Swan Island boat launch and traverses an undeveloped parcel before following N Ballast St where new crossings and widened sidewalks have been installed. A short section along N Channel Ave connects the trail to the existing multi-use path on the banks of the Willamette from the Daimler Trucks North America office to where the trail ends Southeast at the private Cement Road that runs through Albina Yards.

Zoning and Land use

The surrounding land use is focused on industrial operations that either need access to good freight access for the efficient movement of goods or industrial facilities that require access to the riverfront for their operations such as shipyard and drydock facilities. Thus, the area is zoned for both heavy and light industrial uses as well as general commercial.

ROW, Easement, and Ownership

With the alignment following mostly public right of way, few easements are needed for this section. Coordination with PBOT for redesign of the on-street sections will be required to address the various signage, ADA, moving of utilities and bus shelters, and installation of improved facilities. Where easements are needed, the Port of Portland owns much of the land and has already facilitated the building of trail sections along the riverfront.

Strengths

- Centralized Business Association and Transportation Management Association that can be an advocate and push for the trail/help implement it.
- SWAN Island Business Assoc. Transportation Management Association.
- Many national employers.
- Already connected to surrounding neighborhoods via Waud Bluff Trail.
- Portions around Daimler already built.
- Port is the major land owner.
- Wide ROW with lots of room to add separated/European style trails to (for example, Basin Ave).
- Swan Island Beach access with views of downtown.

Weaknesses

- Many heavy traffic and complex on-street sections.
- Many transitions between on/off-street.
- Truck traffic: relatively high speeds, exhaust, and noise detract from the trail experience.

Opportunities

- Wide ROW for the trail along roads (example: Basin Ave).
- Separating bike/ped activity from freight traffic.
- Views of a working shipyard creates an attraction.
- The Port of Portland is a potential partner/funder.
- Possible partnership with Adidas (campus nearby).
- Potential for connection to Willamette Blvd via Willamette Bowl.
- Urban Renewal Area funding (Willamette Industrial URA).

Challenges

- Very limited connectivity/street network.
- Creating a pleasing trail experience along freight dominated roads.
- Volume of truck traffic.
- Complications with railroad crossings.

Conclusions

The industrial nature of Segment four through Swan Island acts as both a challenge and an opportunity. On-street trail design should focus on separation of active transportation modes from freight and vehicle traffic within the existing rights of way where possible. Coordination and outreach with existing businesses along the trail alignment through Swan Island will be key to ensure understanding, buy-in, and to hear the concerns and accommodate the needs of industrial businesses. Improved street crossing facilities will be paramount to ensure safety of trail users at the multiple at-grade street crossing. Additionally, connections between Swan Island and the other segments and surrounding neighborhoods are important to provide connectivity and access to employment.

Segment 5: Albina Yards to the Steel Bridge

Connecting Swan Island to Lower Albina, the Rose Quarter, and the Eastbank Esplanade, this section of trail is perhaps the most constrained and complicated section of the Willamette Greenway Trail, but is key in connecting the more northern reaches of the trail with the existing and heavily used Eastbank Esplanade.

Physical Characteristics

2.7 miles of trail would connect the north terminus of the Eastbank Esplanade to Swan Island. This segment would utilize a mix of on and off street sections to route around a number of engineering and design complications related to the bridgeheads of the Steel and Broadway bridges as well as constrained rights of way and rail crossings. Two alignments are possible for this section that take different routes around Albina Yards. The first would route to the Northeast side of Albina Yards, following the north side of Greeley Ave and Interstate Ave. This route takes advantage of existing public right of way but has the disadvantage of several uphill portions and complications with road overpasses, specifically at the intersections of N. Going, N. Interstate, N. Tillamook, and N. Larrabee. The second alignment follows much closer to the river along the western side of Albina Yards. This alignment requires an easement to use the private Cement Road, but faces fewer design challenges at intersections, is closer to the river, and has fewer elevation changes -- providing users with an easier commute experience.

South of Albina Yards, the alignment passes through Lower Albina before entering the Rose Quarter and meeting up with the Northern terminus of the Eastbank Esplanade. The Greeley alignment routes the trail along Interstate Ave and Larrabee Ave for on-street sections before meeting up with the Steel Bridge bridgehead and the Eastbank Esplanade. The Cement Road option routes the alignment along River St through Lower Albina and opts for an off-street section that places the trail between the Union Pacific tracks and Interstate Ave. This option faces major right of way constraints and engineering complications due to the steep elevation change between the railroad tracks and adjacent Interstate Ave.

Zoning and Land use

Adjacent uses include Heavy Industrial designation for Albina Yards, Light Industrial designations for much of Lower Albina, and Central Commercial once the trail enters the Rose Quarter. Lower Albina is undergoing changes as buildings are repurposed for new uses that include service and office space. The riverfront in the area is actively used by several large industrial facilities including Cargill and Glacier Northwest.

ROW, Easement, and Ownership

Much of the alignment follows existing public right of way, however, with certain sections constrained, additional right of way may be needed to make trail development feasible. For the alignment along the Cement Road, an easement from Union Pacific would be needed. Therefore, coordination with Union Pacific is the key to getting a trail aligned along the riverfront for this segment of the NPGT.

Strengths

- Routing bikes off of Interstate.
- Views of downtown.
- Connect people to their industrial jobs.

Weaknesses

- Tillamook overcrossing (making the connection from the trail to the street grid).
- Issues of ROW and/or easements.
- Transitioning between off/on-street trail alignment and design issues.
- Portion is still TBD (Albina Yard - Eastbank Esplanade).
- Greeley alignment with overcrossing is expensive, questionable investment in terms of inducing actual bike/ped usage.
- Fairly limited neighborhood connections.
- Routing the trail around/along the railroad or surface streets and navigating the Cargill grain elevator.
- Connecting route along the Cement Road to Russell St.

Opportunities

- Rose Quarter - Trailblazers/Paul Allen and the potential for redevelopment and active use along trail alignment.
- Recent redevelopment along Interstate/Russell bringing new uses to Lower Albina.
- Railroad recently willing to talk.
- Potential connection up to Broadway Bridge.
- Urban Renewal Area funding:
- Interstate Corridor URA.
- Oregon Convention Center URA.
- Lower Albina is seeing a lot of investment/development.
- Possible future redevelopment of riverfront between Steel and Broadway Bridges.

Challenges

- Crossing many active industrial waterfront uses.
- Connecting back to the urban street grid/neighborhood.
- Connecting back across the rail tracks.
- Crossing under Broadway Bridge (rail tracks complicate the issue).
- Expense of Greeley alignment.
- Easement access to Cement Rd, Union Pacific Rail Road owned property. UPRR has stated that they do not want the public to access Cement Rd.
- Narrow access/row in many areas, possibly requiring cantilevered sections

Conclusions

With two alignments as options for segment five, the mix of issues dictating whether the Cement Road or Greeley alignment are built presents the NPWGT with the most complicated and uncertain future of the five trail segments. As such, Segment five should continue to be studied and talks with the Union Pacific Railroad proceed while progress and construction of other trail segments is undertaken. Both possible alignments have their advantages and disadvantages. Alternative designs and creative solutions to the ROW and design challenges should continue to be investigated rather than settling on the path-of-least-resistance of placing a separated path along N. Greeley.

