FINAL DRAFT

Smith and Bybee Wetlands Natural Area Trail Feasibility Study

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METRO

PORTLAND PARKS & RECREATION
Healthy Parks, Healthy Portland

Smith and Bybee Wetlands Natural Area
Trail Feasibility Study
Portland, Oregon

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I. EXECUTIVE SUMMARY

Purpose

The Metro Council is being asked to select a trail alignment, in order to complete a missing link in the 40-Mile Loop and regional trail system in the vicinity of the Smith and Bybee Wetlands Natural Area (Natural Area). The four alternative alignments presented in this report were developed after many months of effort by a number of interested stakeholders. Key stakeholders that participated on a Technical Working Group for this study include: Metro Regional Parks and Greenspaces Department; Metro Solid Waste and Recycling Department; Portland Parks and Recreation; Smith and Bybee Wetlands Management Committee; the 40-Mile Loop Land Trust; the Friends of Smith and Bybee Lakes; and the St. Johns Neighborhood Association.

Years of previous effort have failed to produce a consensus on a single alignment. Conflicts between the desire for a user experience that interacts with a natural landscape and the desire to protect wildlife and habitat from further human encroachment have not been reconciled. However, there is agreement among key stakeholders who have engaged in this effort that the four alternative alignments under consideration represent an appropriate range of options, and that the facts and conclusions of this analysis are correct.

Overview

Each of the four alternatives has distinct advantages and disadvantages. Each has supporters and opponents. Any alignment selected for development would require further assurances prior to implementation (i.e. funding identified, property and ROW negotiations, permit approvals).

All four alternative alignments provide some level of aesthetic benefits, and make important connections between the Smith and Bybee Wetlands Natural Area and nearby parks, neighborhoods, and regional trails. Impacts to habitat vary from low to very high potential depending on the alignment. Railroad and Slough crossings contribute significantly to the cost of some of the alignments. The key variables for

Metro Council consideration are:

1. The trail user experience. Much research supports the intuitive assumption that people prefer to visit trails within or with views of natural scenery, including water, trees, wetlands, and green vegetation. This is not merely a matter of visual delight. Research shows that recreation and views of natural landscapes lower stress and blood pressure, and help urban residents lead more physically and psychologically healthy lives.
2. Impacts to fish/wildlife and their habitat. Research also supports the intuition that trails located within natural areas have demonstrated negative impacts and risks to wildlife. Nests may be abandoned, foraging disrupted, and habitat lost as a consequence of trail construction and regular use. These outcomes are not certain, but there is risk of one or more of them occurring with certain trail alignments.
3. Trail construction cost. The four options range from $4 to $7 million dollars to develop, exclusive of land acquisition.
4. Public sentiment. There is no clear consensus alternative alignment available. Those advocating one alignment or another have very good and sensible arguments in their favor based on their core values.

Elements Common to All Alternative Alignments

Each of the four alternative alignments links the east end of the Port of Portland Trail[1] through the Natural Area to neighborhoods, parks, and other regional trails. Each alignment has the potential to provide access for multiple trail users, including hikers, cyclists, and those with disabilities, although trail surface (hard vs. soft) has not been determined for some portions of some alignments. Each alignment includes

Water control structure between Bybee Lake and North Slough

North Portland Road bridge over Columbia Slough

[1] The Port of Portland Trail (also known as the Rivergate Trail) refers to a 1.3-mile segment of the Columbia Slough Trail built by the Port of Portland in 2002.

Wapato Wetland along the south side of the Columbia Slough

View of the Columbia Slough from the south shore of Smith Lake

traveling the east side of the St. Johns landfill, and connecting the landfill to the St. Johns neighborhood through Chimney and Pier Parks.

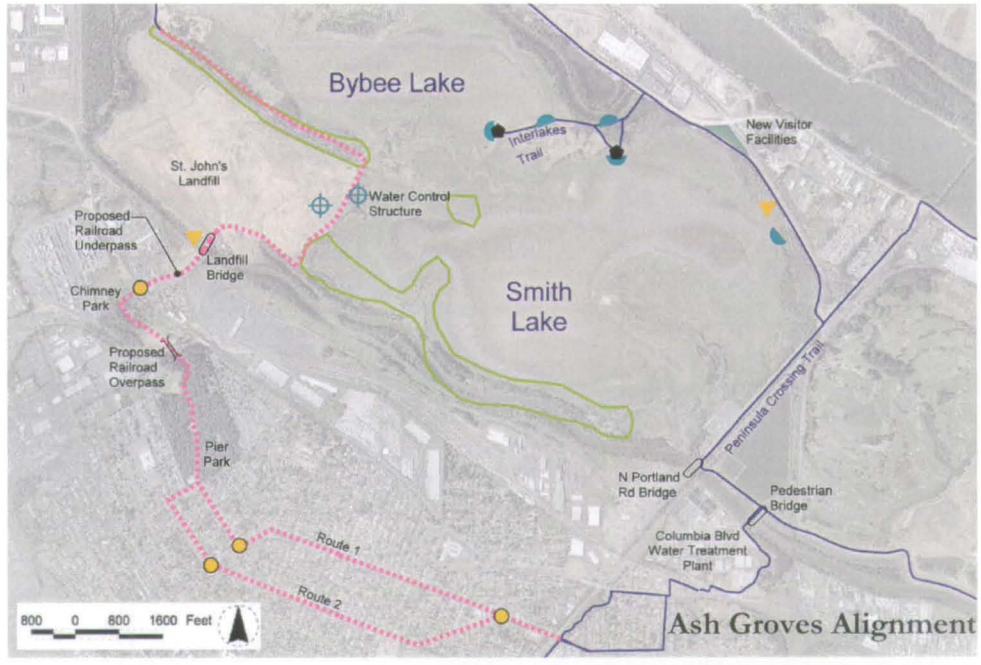
SUMMARY OF ALTERNATIVE TRAIL ALIGNMENTS

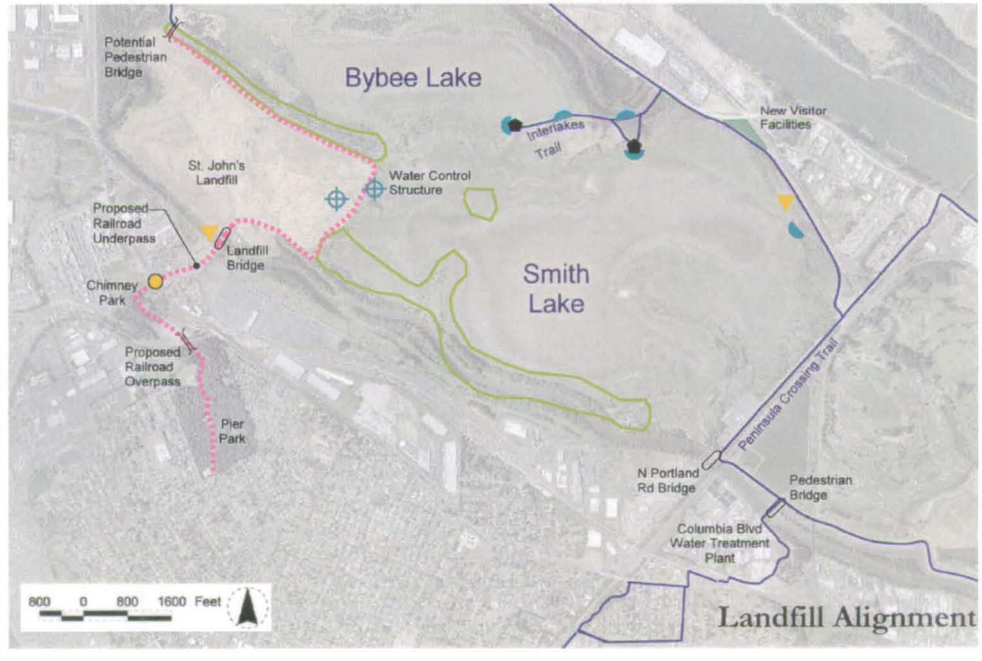
Ash Groves Alignment $4.6 million

- Sensitive wildlife habitat will be impacted.
- No new bridge needed to cross Columbia Slough.
- High quality user experience through ash groves woodland.
- Crosses through western painted turtle nesting area yet avoids impacts to heron and Bald Eagles.
- Provides improved route through neighborhood to Peninsula Crossing Trail.
- May require crossing wetlands.
- Careful route selection can reduce impacts to old growth ash trees.
- Does not provide direct link to 40-Mile Loop trails along Columbia Slough east of the Natural Area.
- No land acquisition needed to complete.

Landfill Alignment $6.2 million

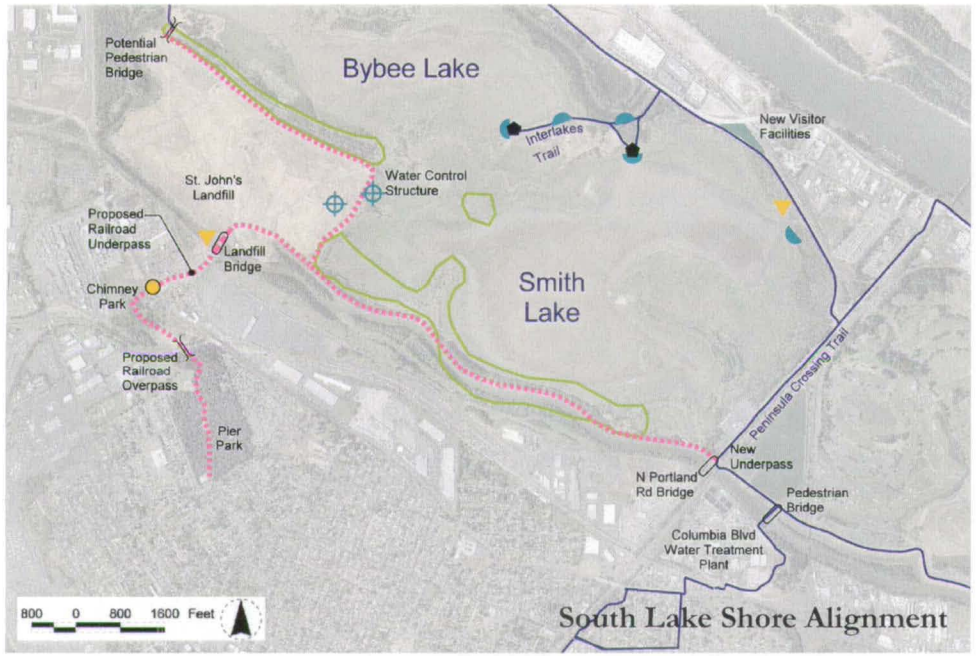
- Requires new bridge to cross Columbia Slough, bridge engineering studies required.
- ESA listed fish in Columbia Slough.
- Lowest environmental impact.
- User experience not as high as Ash Groves or South Lake Shore alignments.
- Does not provide direct link to 40-Mile Loop trails along Columbia Slough east of the Natural Area.
- No land acquisition needed to complete.

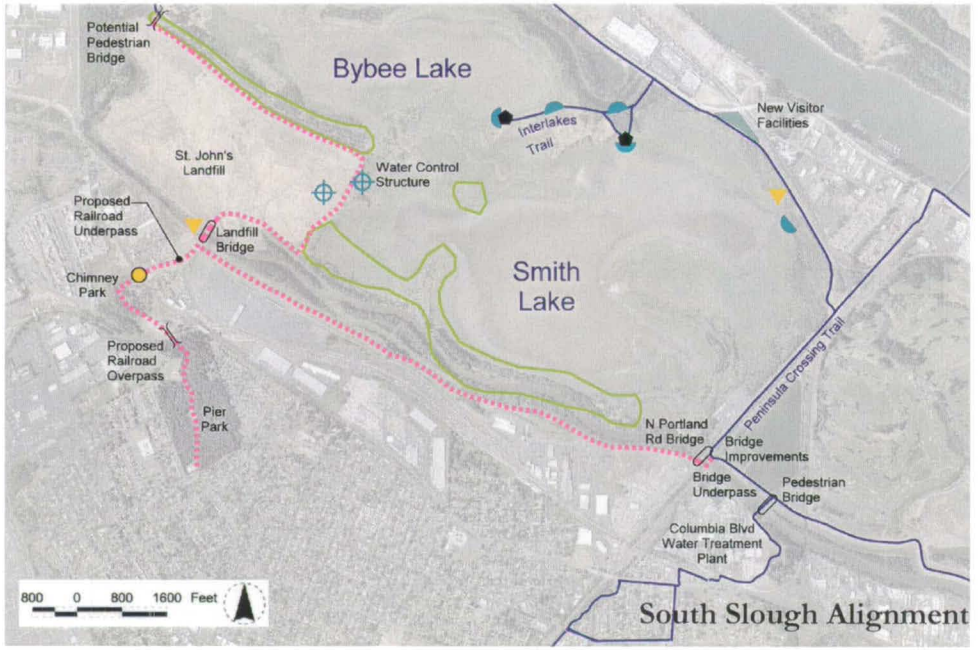




Legend for Alignment Maps

- Proposed Alignment
- Existing Regional/ 40 Mile Loop Trails
- Proposed Bridge
- Existing Bridges
- Proposed Intersection Improvements
- Potential Viewpoints
- Existing Viewpoints
- Canoe Launch
- Existing Wildlife Viewing Structure
- Sensitive Habitat





South Lake Shore Alignment $7.1 million

- Trail would run close to a 70 nest heron rookery and four Bald Eagle (ESA listed species) nesting sites.
- Wetlands may be impacted.
- Requires new bridge to cross Columbia Slough, bridge engineering studies required.
- ESA listed fish found in Slough.
- Trail route used as a wildlife crossing between Slough and Smith Lake.
- High quality user experience.
- Provides a direct link to the 40-Mile Loop trails east of Natural Area.
- Route crosses two small parcels in private ownership – acquisition or purchase required.
- This alignment shown in 1990 Management Plan adopted by the City of Portland.

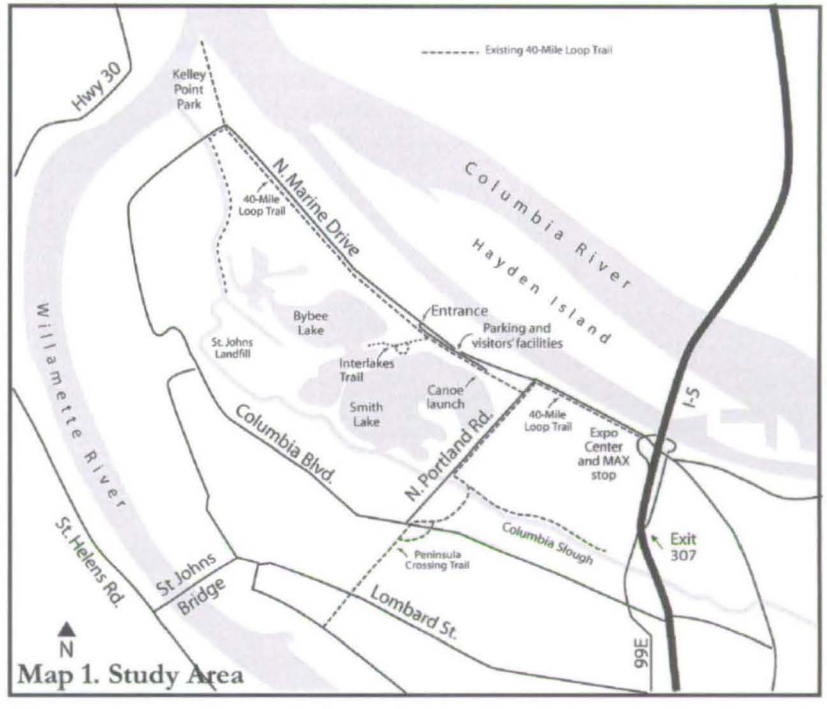
South Slough Alignment $7.6 million

- Requires new bridge to cross Columbia Slough, bridge engineering studies required.
- Need major improvements to North Portland Road bridge to accommodate widened sidewalk.
- Provides direct link to 40-Mile Loop trails east of Natural Area.
- Wetlands may be impacted.
- User experience lower than South Lake Shore and Ash Groves, yet 'Wapato Wetland' provides high quality wildlife viewing opportunities.
- Most of the South Slough segment of trail in private or other agency ownership. Easements or acquisition required.

II. BACKGROUND

Study Area

This project involves examining alternative trail alignments on the North Portland Peninsula, generally in the southern portion of the Smith and Bybee Wetlands Natural Area, including the St. Johns landfill (landfill).



Map 1. Study Area

The project study area is bounded by the Columbia Slough to the west, the St. Johns neighborhood to the south, North Portland Road to the east and the Smith and Bybee wetlands to the north (Map 1). Nearby neighborhoods include St. Johns, Kenton and Portsmouth.

Project Purpose

The purpose of this study is to provide an objective and factual analysis of potential trail alignments to connect the Smith and Bybee Wetlands Natural Area with nearby neighborhoods, parks, and local and

regional trails. A number of options for completing this missing link in the 40-Mile Loop and Regional Trail System have been discussed over the years without reaching a consensus among the various trail, neighborhood, and Natural Area advocates.

Project Partners

Metro's Regional Parks and Greenspaces Department managed this feasibility study in collaboration with Portland Parks and Recreation and Metro's Solid Waste and Recycling Department. An Intergovernmental Agreement (IGA) was signed by both agencies to work together to hire a consulting team to resolve the long-standing issues surrounding the siting of this important section of trail. The IGA also mandated that a technical working group be established to insure that the process was unbiased and provide the technical expertise necessary to insure that all pertinent information was included and considered.

Technical Working Group

A seven-member Technical Working Group comprised of representatives of major stakeholder groups met at project milestones to provide feedback and approval of evaluation criteria, criteria measurements, trail segment analysis, and alternative trail alignments. This advisory group also attended the public workshop to assist in presenting the study process and recommendations. Notes from each Technical Working Group meeting are included in Appendix A. The Technical Working Group includes the individuals listed below including the group they represent:

- Joe Adamski–St. Johns Neighborhood Association
- Pam Arden–40-Mile Loop Land Trust
- Troy Clark–Smith and Bybee Wetlands Management Committee
- Deborah Lev–City of Portland Parks and Recreation
- Emily Roth–Friends of Smith and Bybee Lakes
- Elaine Stewart–Metro Regional Parks and Greenspaces Department
- Paul Vandenberg–Metro Solid Waste and Recycling Department

Project Goals

Goals for this study were developed by the project partners through the review of previous planning efforts and documents relating to the siting of trails at Smith and Bybee Wetlands Natural Area.

The *Natural Resource Management Plan for Smith and Bybee Lakes (NRMP)*, adopted by Metro and the City of Portland in 1990, currently guides site management and development within the Natural Area. The goal of the *NRMP* is:

> . . . to protect and manage the Smith and Bybee Lake area as an environmental and recreational resource for the Portland region. The lakes will be preserved as historical remnants of the Columbia River riparian and wetlands system. They will be maintained and enhanced, to the extent possible, in a manner that is faithful to their original natural condition. Only those recreational uses that are compatible with environmental objectives of the Management Plan will be encouraged. Smith Lake and adjacent uplands will be the principal location for recreational activities. Bybee Lakes will be less accessible. Its primary use will be as an environmental preserve.

The *NRMP* identified a trail alignment within the Natural Area. Since the *NRMP* was adopted there is new information and greater understanding of natural resources; many changes have occurred within the Natural Area and along the identified alignment. This feasibility study looks at a larger context beyond the Smith and Bybee Wetlands Natural Areas to include nearby parks, industrial properties and neighborhoods.

Project goals for the Trail Feasibility Study include:

- Re-evaluate the *NRMP* alignment in light of new information and changes that have occurred within the Natural Area.

- Achieve consensus among project partners on the criteria used to evaluate trail segments, and on the factual results of the evaluation of alternative alignments.
- If possible, find a consensus alignment to recommend for development.
- Provide the Metro Council with enough information to assist them in making an informed decision on a trail alignment.
- Make this study and analysis transparent, inclusive, and open to input from project stakeholders and the wider public.

Trail Goals

The goals listed below were developed by the project partners with input from the Technical Working Group. The trail goals are as follows:

- Connect nearby neighborhoods, parks, and existing local and regional trails with the Natural Area.
- Close gaps in the 40-Mile Loop and regional trail system.
- Protect sensitive wildlife habitat and species.
- Maintain public safety and security of trail users.
- Protect the infrastructure of the landfill.
- Provide a positive trail user experience.
- Design trails to avoid/minimize/mitigate negative impacts to sensitive wildlife habitat wherever possible.

III. SITE CONTEXT

Project Site

Smith and Bybee Lakes and their associated sloughs and wetlands are remnants of formerly extensive river bottomlands located near the confluence of the Willamette and Columbia rivers. Part of the Columbia Slough watershed, these large shallow lakes and wetlands are part of the 1,928-acre Smith and Bybee Wetlands Natural Area. The Natural Area also includes the St. Johns landfill, a 238-acre closed landfill. The Natural Area is managed primarily for wildlife habitat protection and enhancement while providing passive recreational opportunities for the Portland metropolitan area. As a regionally significant urban natural resource area, Smith and Bybee Wetlands Natural Area provides productive habitat for large and small mammals, waterfowl, birds of prey and numerous other species.

Adjacent industrial land uses include the Union Pacific auto distribution center, Port of Portland storage facilities, Columbia Steel Casting facilities, and numerous automobile-wrecking yards.

During the last fifteen years several portions of the 40-Mile Loop and the regional trail system have been completed adjacent to and near the Natural Area. These routes are found along North Marine Drive to the north, the Port of Portland Trail providing connections to Marine Drive and Kelley Point Park to the west, the Peninsula Crossing and Columbia Slough Trails to the east and an on-street route through the St. Johns neighborhood connecting to the St. Johns Bridge to the south.

Recreational facilities available at the Natural Area include a canoe launch, ADA-accessible paved trails with viewing platforms, interpretive art and signage, picnic shelter, restrooms, and parking. All of these facilities are accessible off of North Marine Drive.

Project History

This site, tucked away in North Portland, has been studied and altered for decades. Early settlers from Native Americans to farmers benefited

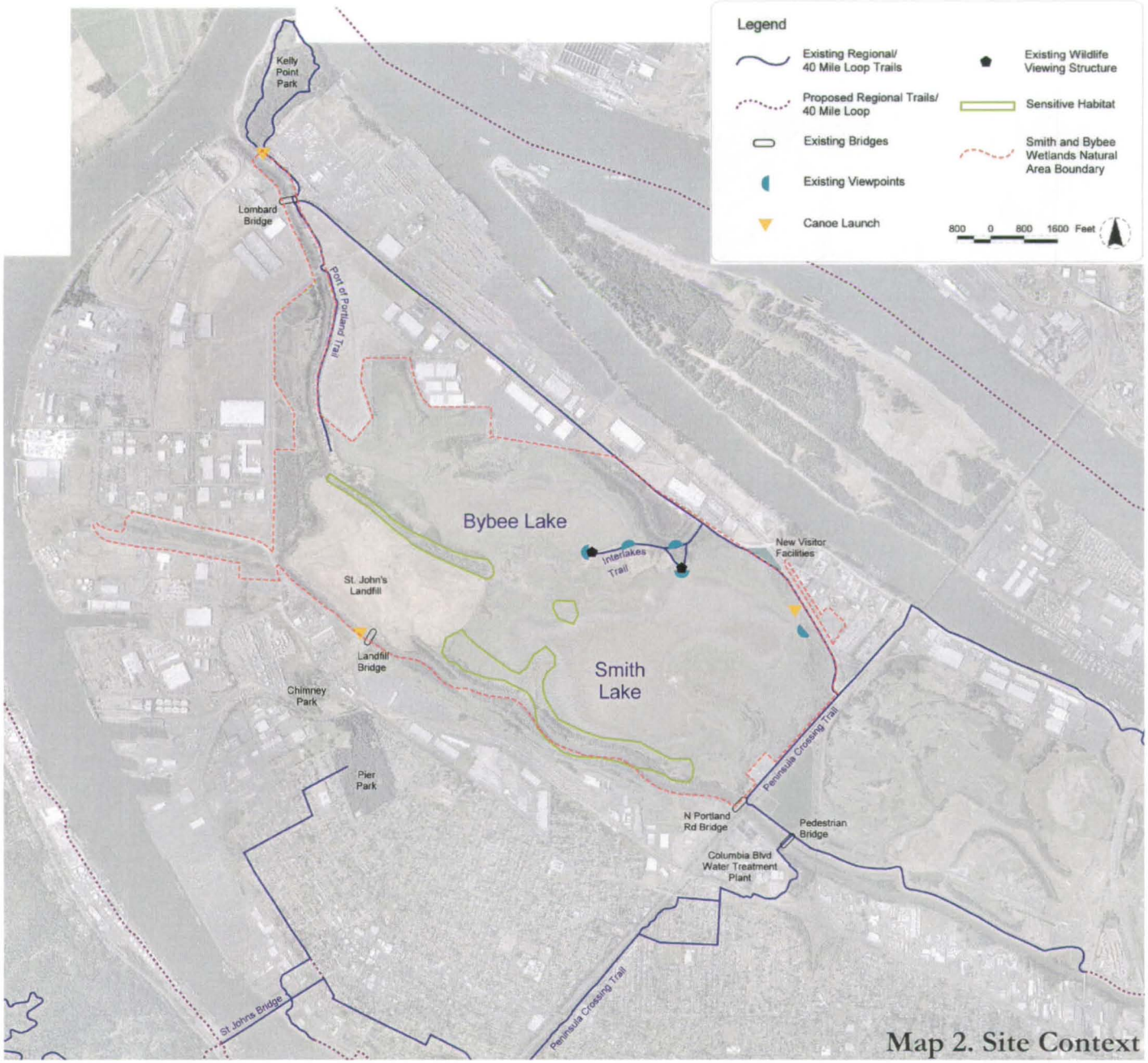
from the rich diversity of plant and animal life. Physical changes to the waterways include dredging, diking, filling and land clearing since the 1800s. Garbage was deposited at the St. Johns landfill from 1932 until 1991, when it was closed to waste disposal. Landfill closure activities are regulated pursuant to a 10-year closure permit renewed by DEQ in 2003.

Numerous natural resource and recreational planning documents were also prepared for this site (see Table 1). The 1972 *North Portland Peninsula Plan* was an early look at balancing preservation with development. In 1983, the *40-Mile Loop Master Plan* showed the potential layout of trails in North Portland. Setting the tone for future development, preservation and restoration in the Natural Area, the 1990 *NRMP* was completed by the City of Portland and the Port of Portland. This plan, adopted by the Portland City Council and Metro Council, continues to direct management and guide projects in the Natural Area. The establishment of the Smith and Bybee Wetlands Management Committee (Management Committee) was a requirement of the *NRMP*. Subsequently, the *1999 Recreation Facilities Plan* was completed which created the concept for the newly improved visitor facilities accessed from North Marine Drive.

In 2003, following considerable discussion and work, the Management Committee recommended an alignment along the landfill's southwest perimeter road and a feasibility study to explore alignments between the landfill and the Peninsula Crossing Trail. The Management Committee's recommendation is documented in a letter included in Appendix B.

Table 1. Related Planning Documents

1972	*North Portland Peninsula Plan*
1983	*40-Mile Loop Master Plan*
1987	*Smith and Bybee Lakes Environmental Studies*
1990	*Natural Resource Management Plan for Smith and Bybee Lakes (NRMP)*
1999	*Smith and Bybee Lakes Recreation Facilities Plan*
1999	North Portland Trails Summit
1999	*Recreation Facilities Plan*
2003	Smith and Bybee Lakes Management Committee Recommends Trail Feasibility Study
2005	*Smith and Bybee Wetlands Natural Area Trail Feasibility Study*



Map 2. Site Context

IV. EVALUATION CRITERIA

The consultant team recommended, and the Technical Working Group accepted, a number of evaluation criteria to be applied to nine possible trail segments. Eight categories of criteria were developed, with more specific items within each category. Listed below are all of the evaluation criteria and a brief explanation. More detailed explanations are included in Appendix B. Each evaluation criterion also received a measurement – a means for evaluating and measuring that criterion. Measurements for each criterion are also found in Appendix B.

Safety:

- Number of collector or arterial road crossings.
- Number of railroad crossings
- Proximity to landfill facilities that are vulnerable to vandalism, such as standing pipes, valves, monitoring stations.
- On-road distance, where trail is located adjacent to roadways with no separation between trail users and motor vehicles.

Environmental:

- Habitat fragmentation, including the need to cut through and divide important natural habitats.
- Loss of riparian area, including estimated direct loss of native riparian vegetation.
- Proximity to known Bald Eagle nesting sites and associated risk of abandonment.
- Proximity to known great blue heron rookery, and risk of abandonment.
- Proximity to known western painted turtles basking or nesting areas and risk of abandonment or damage due to disturbance.
- Impacts to wetlands.

Cost Considerations:

- Number of new bridges and/or improvements to existing bridges over the Columbia Slough.
- Amount of fencing need to protect facilities or users.

- Amount of grading required to meet accessibility requirements.
- Acquisition needs for private land easement or purchase.
- Need for new pedestrian road crossings.
- Number of new railroad crossings – underpass and/or overpass.
- Estimated cost of maintaining trail.
- Eligibility of route for grants and other funding.
- Costs associated with mitigation required for permits.

Multi-Use Potential:

- Opportunity for locating an 8' wide paved multi-use path – dependent on size of area, topography.

User Experience:

- Naturalness of foreground views (within 1/8 mile).
- Opportunities for distant views, including Portland, west hills, Cascade mountains.
- Sounds, including positive (birdsong) and negative (highway, industry).
- Extent that trail user shares space with automobiles and trucks.
- Potential for trail closures due to landfill activities.
- Opportunities for wildlife viewing.
- Opportunities for interpretive signage.
- Potential for trail closures due to flooding, including areas expected to be under water for part of most years.

Permitting:

- ODOT: permits needed for railroad crossings or for underpass beneath Portland Road bridge.
- Union Pacific Railroad: permit required for crossing tracks.
- DEQ: permits required for changes to use of St. Johns landfill.
- NOAA Fisheries and USFWS: Consultation required for potential impacts to species protected under the Endangered Species Act (e.g. salmonids, Bald Eagle).
- Oregon Department of State Lands (DSL): State of Oregon law strictly limits fills within Smith and Bybee Lakes, also regulates fill in wetlands. DSL does not allow more than 50 cubic yards of fill to be placed below 11 feet mean sea level within Smith Lake and Bybee Lake. The text of this regulation is found in Appendix B.
- US Army Corps of Engineers (ACOE): regulates fills in wetlands.
- City of Portland: Environmental zone permitting (E-Zone) applies in many areas, also Portland Department of Transportation (PDOT) approval needed for pedestrian improvements to roadways. Enforces Natural Resource Management Plan policy and development activities.

Management:

- Potential for disruptions to landfill staff.
- Amount of time required for staff to patrol trails.
- Ability of emergency services to reach trail users.

Trail Connectivity:

- Linkage of Natural Area directly to neighborhoods and parks.
- Linkage to existing local and regional trails in the vicinity.

V. TRAIL SEGMENTS

The evaluation criteria were used as a means to review trail segments. These segments are logical sections of trail that were part of larger trail alignments identified in previous documents such as the *Natural Resource Management Plan* and by the Smith and Bybee Wetlands Management Committee or the consulting team.

The criteria were applied to each of the following nine trail segments, and a qualitative rating was given for each. The detailed scoring of the segments by criteria is shown in Appendix B.

The segments are shown in Map 3 and their locations are described below:

Ash Groves: located near the north bank of the North Slough following for much of the route along an existing social trail used infrequently by maintenance vehicles that travels through an old-growth Oregon ash forest. This segment also crosses the water control structure. Some grading would be required to maintain ADA accessibility as the trail travels up the hill from the water control structure to the landfill segments.

Southwest Landfill: travels along the landfill perimeter road between the northwest corner of the landfill and the south side of the existing landfill bridge. This segment would require a new bridge over the North Slough.

North Landfill: follows landfill perimeter road on the north side of the landfill, connecting to the East Landfill segment. This segment would require a new bridge to cross the North Slough.

East Landfill: travels along the east side of the landfill along the existing perimeter road. This segment terminates at the south side of the existing landfill bridge crossing the Slough.

South Lake Shore: heads down a steep bank from the East Landfill segment, past the south edge of wetlands bordering Smith Lake, and continues on top of an existing social trail used infrequently by maintenance vehicles along the bank of the Columbia Slough. The route

then travels beneath the North Portland Road bridge to connect with the Peninsula Crossing Trail.

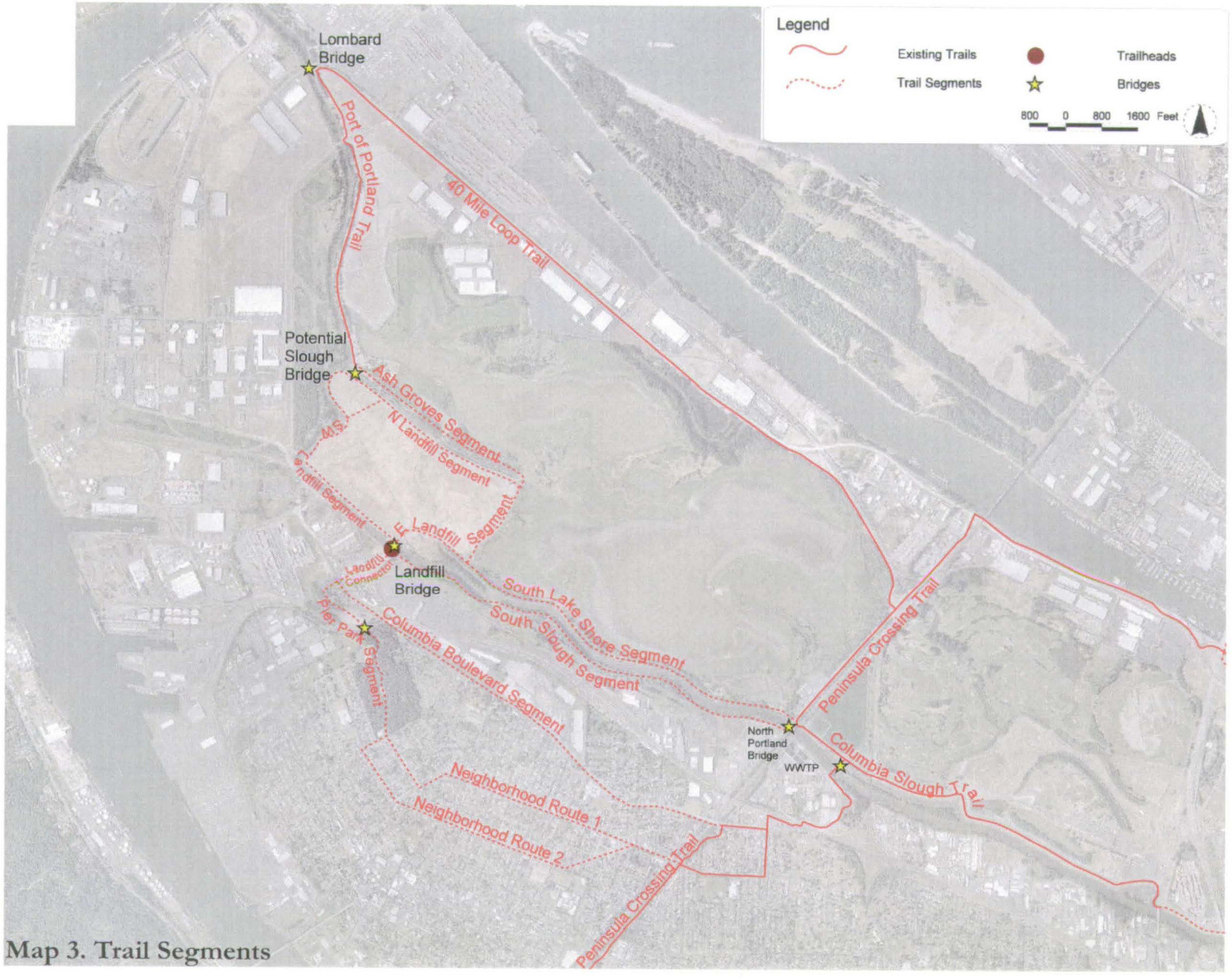
Landfill Connector: after crossing the existing landfill bridge over the Columbia Slough this route travels on the north and west sides of the landfill offices and then underneath the Union Pacific tracks in a proposed new pedestrian underpass. At Columbia Boulevard, this segment would cross the roadway with an at-grade crossing with median and a standard pedestrian crossing signing. User-activated flashing beacons mounted on a pole would mark this crossing.

South Slough: veers east from the end of the existing landfill bridge, and loosely parallels the Slough through industrial lands owned by the Union Pacific Railroad, Columbia Steel and the City of Portland Columbia Slough Waste Water Treatment Plant. This segment would require major improvements to the North Portland Road bridge to provide for safe pedestrian and bicycle travel.

Pier Park: from Columbia Boulevard, this route travels through Chimney Park, skirting the dog park. A new pedestrian bridge is needed to cross the Union Pacific railroad tracks that divide Chimney and Pier Parks. The route then follows existing trails in Pier Park. From the south end of Pier Park, two neighborhood alternative routes are possible utilizing existing bike lanes and sidewalks along either North Fessenden or North Smith Streets. Minor arterial improvements would be needed to create safer crossings for bicyclists.

Columbia Boulevard: this segment travels along the south side of Columbia Boulevard between Chimney Park and North Portsmouth Avenue at the intersection with the Peninsula Crossing Trail.

Following the segment analysis the Technical Working Group dropped the Columbia Boulevard and Southwest Landfill segments from further study. The Columbia Boulevard segment was eliminated due to high safety risks due to volume of truck traffic and insufficient right-of-way for bike lanes or an off-street path. The Southwest Landfill segment scored low on the user experience and would be difficult to meet ADA standards due to steep grade in one narrow area adjacent to the Slough and the existing landfill bridge.



Map 3. Trail Segments

VI. ALTERNATIVE ALIGNMENTS

Four draft trail alternative alignments were developed by the consulting team and were presented to the Technical Working Group for review and comment. These draft trail alignments represent a range of options of experience and impacts to habitat. These four draft alignments were discussed, some changes were made, and the Technical Working Group recommended the final four alternative alignments that would be forwarded for further analysis and presentation to the public. Table 2 shows the segments that are included in each of the four alternative alignments.

The following section includes a detailed description of each of the four trail alternatives studied. Appendix C contains detailed cost estimates for all of the trail segments studied. A map and photos accompany each alternative alignment.

Table 2. Alternative Trail Alignments

	Segment							
Alignment	Ash Groves	North Landfill	East Landfill	South Lake Shore	South Slough	Landfill Connector	Pier Park	
							with NR	without NR
Ash Groves	X		X			X	X	
Landfill		X	X			X		X
South Lake Shore		X	X	X		X		X
South Slough		X	X		X	X		X

NR= Neighborhood Routes

Elements Common to All Trail Alternative Alignments

There are many issues and costs that are found in all of the alignments. These commonalties are summarized below.

Safety

- A safety concern to all routes is the at-grade crossing of Columbia Boulevard. The crossing will be designed to meet all traffic standards but the fact remains that this is a very busy truck route.

Environmental

- The East Landfill segment is common to all alignments. Fencing along the landfill side of the East Landfill perimeter road will keep trail users off of the landfill but there is some risk that trail users may wander off the perimeter road and into the wetland area east of the road.

Capital Costs

- East Landfill segment $493,737
- Landfill Connector segment $2,333,555
- Pier Park segment (excludes neighborhood routes) $1,413,836
- Total Common costs shared by all routes $4,241,128

The cost of the East Landfill segment includes grading, surfacing of trails, and fencing. The cost of Landfill Connector segment includes minor improvements to the existing landfill bridge, grading and surfacing of the trail, a proposed pedestrian/bicycle railroad underpass, and a proposed at-grade crossing of Columbia Boulevard into Chimney Park. The cost of the Pier Park segment includes a proposed pedestrian/bicycle bridge over the Union Pacific railroad tracks that currently separate Pier Park from Chimney Park.

Multi-Use Potential

- All routes have the potential to provide access to multiple trail uses, including hikers, cyclists, and those with disabilities, although trail surface (hard versus soft) has not been determined for some portions of some routes.
- Trail design will consider many variables in determining the appropriate trail width for a particular route, but it is expected that the trail widths may range between 8´ to 12´ given the specific location and setting. Settings range from landfill roads to sensitive wildlife habitat to local park trails to neighborhood bike lanes and sidewalks.

User Experience

- Two proposed viewpoints are recommended near the northeast corner of the landfill. One would be located on the slope of the landfill that would offer 360-degree spectacular views of Forest Park to the south and west and Bybee and Smith Lakes and the Cascade Mountains to the north and east. The landfill viewpoint would be part of a later phase of development, when landfill closure activities no longer occur in that area. The other viewpoint would be on the east side of the landfill road, providing a view of Smith Lake.
- There can be seasonal flooding of parts of the Port of Portland trail and the four alternative routes, all of which will require periodic closures. During flooding episodes, access to the alignments would only be available from the landfill side, since the Port of Portland trail is at a lower elevation and floods first.
- There are existing trail heads and public parking provided in the vicinity of the Natural Area at the following locations:
  - Kelley Point Park
  - Smith and Bybee Wetlands Natural Area on the north side of Smith Lake off of Marine Drive
  - Chimney Park
  - Pier Park
  - Columbia Slough Waste Water Treatment Plant
  - There is also the potential for a small trailhead at the existing canoe launch on the south side of the Slough near the landfill offices. This potential trailhead needs to be further explored in future phases of this project.

Permitting

- Right-of-way easements will be required from the Union Pacific for the proposed railroad underpass and overpass needed to link the landfill to the neighborhood.

Management

- Management issues are alignment specific and described in detail beneath each alignment subheading later in this chapter.

Trail Connectivity

- All routes connect to the southern end of the Port of Portland Trail near the northwest corner of the landfill.
- All routes connect to Peninsula Crossing trail.
- All routes provide a connection between the landfill and the St. Johns Neighborhood via the Landfill Connector segment.

Alternative 1: Ash Groves Alignment

The Ash Groves alignment begins at the end of the Port of Portland trail in the west, and extends east between Bybee Lake and the North Slough. The trail then crosses the water control structure, and heads south along the east side of the St. Johns landfill on an existing landfill access road. It crosses the existing landfill bridge, goes through a proposed pedestrian underpass under the Union Pacific railroad tracks, and crosses Columbia Boulevard with an at-grade crossing before entering Chimney Park. A proposed pedestrian overpass would take trail users across the railroad tracks between Chimney and Pier Parks. This is the only alignment that includes improvements to existing bike lanes, intersections and sidewalks between Pier Park and the Peninsula Crossing trail along either North Fessenden Street or North Smith Street.

Safety

The route through the Ash Groves and landfill is safe from vehicular traffic although trail users may occasionally encounter a landfill maintenance vehicle on the landfill road. The Ash Groves portion of this alignment is isolated with little visibility and patrols will be important to monitor unauthorized uses. Proposed on-street improvements through the neighborhood will improve safety for trail users. The risk to the landfill infrastructure is the least of any alternatives, as this alignment minimizes the distance traveled on or around the landfill.

Environmental

This trail poses high potential impacts to habitat and wildlife. The Ash Groves contains the only remnant stands of Oregon ash in the Natural Area, many of which are 200 years old. There are very few of these stands left in the region, and their gnarled bark provides rare habitat for wildlife such as songbirds and bats. Existing groundcovers are, for the most part, non-native grasses and forbs with limited habitat value. There are direct habitat connections between Bybee Lake, the associated wetlands, and the North Slough through this area. Several turtle basking sites are found in the vicinity. There are wetlands throughout the area and while the trail may encroach upon wetlands in a few areas, a route that avoids crossing wetlands directly is feasible. Constructing the trail would likely not require removal of any of the mature ash trees, though there may be a few willows that would need removal. Trail design, mitigation and management can play a role in keeping trail users from leaving the trail in this sensitive area.

Capital Costs

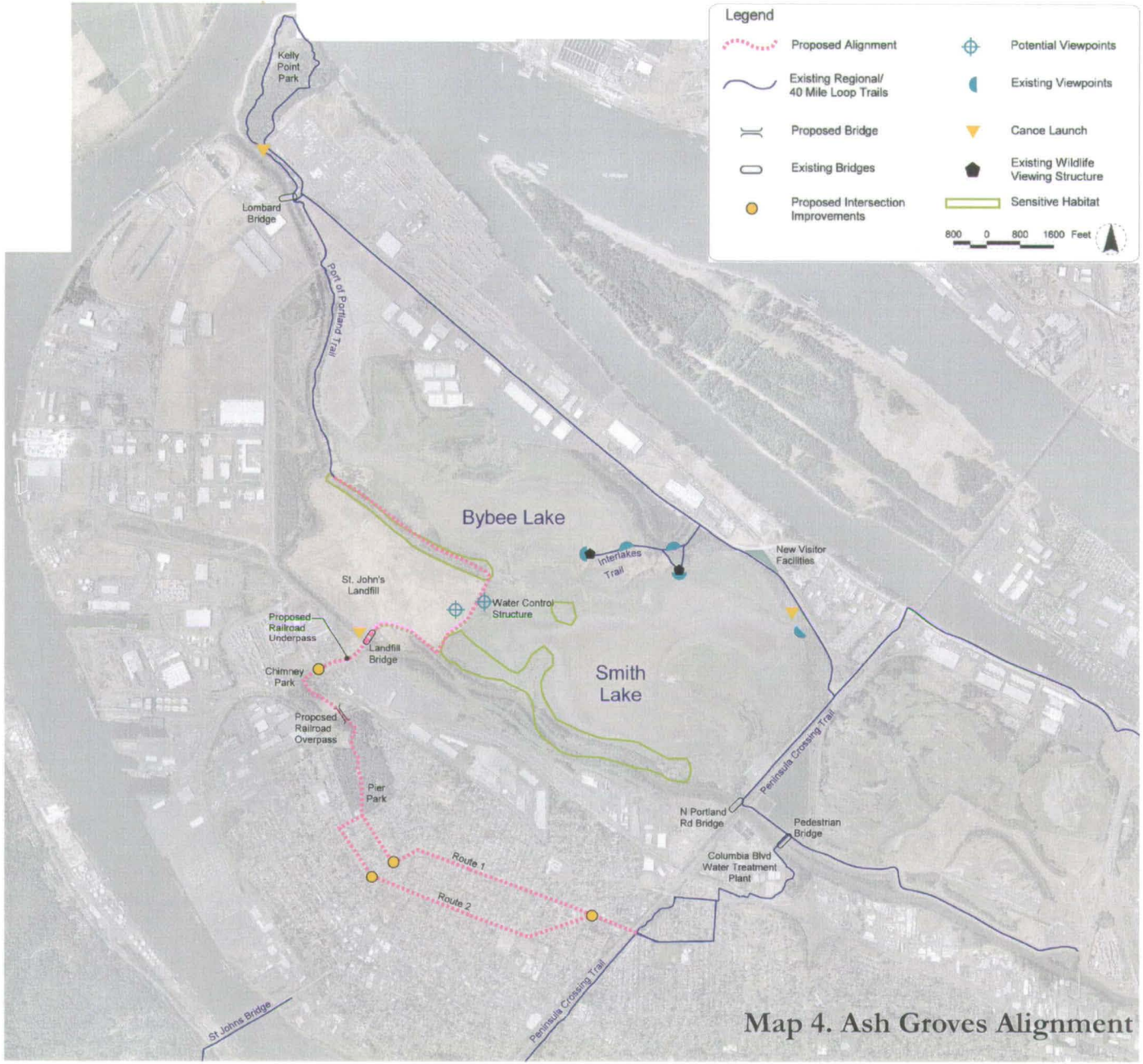
This alignment is the lowest cost of the four alternatives. By going through the Ash Groves and using the existing water control structure, the expense of a new pedestrian bridge over the North Slough is avoided. Grading or rerouting will be required to connect the trail to the landfill perimeter road from the water control structure to meet accessibility standards.

Multi-Use Potential

This route has good multi-use potential between the southern end of the Port of Portland trail and south side of Pier Park. From this point to the Peninsula Crossing Trail, trail users would use multi-modal on-street bike lanes and sidewalks along either North Fessenden Street or North Smith Street. Further study will be necessary to determine which of these streets should be improved for trail users.

User Experience

This alignment ties with the South Lake Shore alignment for highest-ranked user experience. The route in the Ash Grove travels through an attractive woodland. There are several opportunities for capturing views of the North Slough and Bybee Lake. Over time some of these views will be obscured by plant growth from revegetation projects. The Ash Grove area is far from highway and industrial noise. A trail here opens an area up to use that is presently remote and seldom visited. Interpretive and environmental education opportunities are good – especially surrounding the ash forest.



Map 4. Ash Groves Alignment

Permitting

Multiple permits would be required for this and all route alternatives. The permits specific to this route could be related to wetland encroachment, and concerns from NOAA Fisheries due to the trail's proximity to salmonid habitat in the North Slough. There is enough higher ground through the Ash Groves segment to meet the DSL regulation on fill below 11 feet elevation.

Management

As this alignment has the shortest distance of travel on the landfill, it thus would impact daily operations at the landfill the least. Vehicular access for the Ash Groves segment is available from the Port of Portland trail or landfill side. Patrolling and maintaining the isolated Ash Groves segment will require more time than the other segments in this alignment.

Trail Connectivity

The route through the Ash Groves links the Port of Portland trail to the water control structure. From there the route crosses the east end of the landfill and connects to the St. Johns neighborhood, but does not offer a direct connection to the Peninsula Crossing or Columbia Slough Trails near the North Portland Road bridge. Users would traverse improved neighborhood sidewalks and bike lanes to complete the connection.

Advantages:

- The route through the Ash Groves and along the east side of the landfill is very scenic, quiet, and opens new environmental interpretation opportunities.
- Crossing the North Slough at the existing water control structure avoids environmental impacts and the expense associated with building a new pedestrian bridge.
- There are no expected expenses associated with new land acquisition.
- This is the least costly alternative.
- By going through the neighborhood, potential impacts to Bald Eagle nests, the heron rookery, and other sensitive wildlife areas along the south shore of Smith Lake are avoided.
- Improved on-street bike lanes, intersections, and sidewalks between Pier Park and Peninsula Crossing Trail will result in a safer and more enjoyable experience for trail users.

Disadvantages:

- Building a new trail through the undeveloped Ash Groves may disturb wildlife in this area, including western painted turtles and nesting songbirds (e.g. willow flycatcher) and river otter, and may negatively impact the roots of ash trees.
- There could be encroachment and impacts to wetlands in the Ash Groves.
- There is the potential for vandalism at the water control structure.
- This alternative fails to provide a direct link to the Peninsula Crossing Trail or Columbia Slough Trail near the North Portland Road bridge. It relies instead on existing sidewalk and street improvements through the neighborhood.

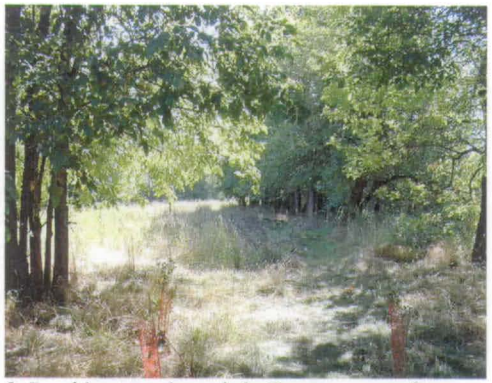
Cost Estimate*

Ash Groves segment	$357,500
East Landfill segment	493,737
Landfill Connector segment	2,333,555
Pier Park segment	1,475,539**
Total Cost Estimate:	$4.6 million

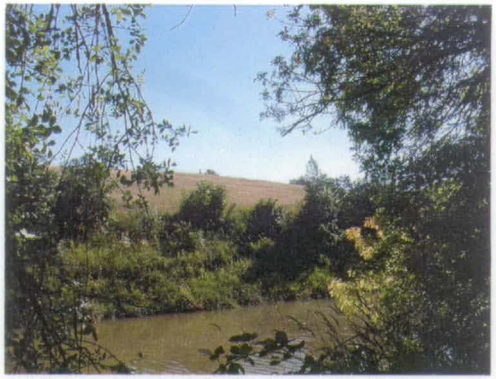
*Cost estimate for 8´ wide asphalt trail with 2´ gravel shoulders.

**Includes Neighborhood Route 2 providing improvements to existing on-street bike lanes, sidewalks and intersections from Pier Park to Peninsula Crossing Trail.

1. Southern end of Port of Portland Trail where Ash Groves trail would begin.



2. Looking east into Ash Groves route from southern end of Port of Portland trail.



3. View across north slough to landfill.

4. View of Smith Lake from viewpoint along east perimeter road on landfill.

5. Heading west toward landfill entrance on southern perimeter landfill road.

6. Looking south towards Forest Park from north side of landfill bridge.

7. Looking south towards Chimney Park near landfill office.

8. Columbia Blvd. crossing location at Chimney Park driveway.

9. Columbia Blvd.

10. In Chimney Park looking across railroad tracks to Pier Park.


11. Pier Park entry at N. Seneca Street.


12. Existing bike lanes on N. Smith Street.


13. Existing bike lanes on N. Fessenden Street.


14. Connection to Peninsula Crossing trail at N. Fessenden Street

Alternative 2: Landfill Alignment

The Landfill trail alignment begins at the end of the Port of Portland Trail, and immediately crosses over the North Slough to the St. Johns landfill on a proposed pedestrian bridge. It then follows an existing maintenance road along the south bank of the North Slough, heading east. It loops around the east end of the landfill, in the same alignment as described in the text for Alternative 1 - Ash Groves. It crosses the existing landfill bridge and makes its way to through Chimney and Pier Parks. The trail continues through the St. Johns neighborhood along existing (unimproved) bike lanes and sidewalks on either North Fessenden or North Smith Streets to Peninsula Crossing Trail.

Two significant differences between the Landfill and Ash Groves trail alignments are the construction of a new pedestrian bridge across the North Slough (to avoid impacts to habitat and wildlife in the Ash Groves area) and no improvements to neighborhood streets between Pier Park and the Peninsula Crossing Trail.

Safety

The route using landfill roads is felt to be quite safe from vehicles. Occasional use of these roads by Metro staff may interfere with trail users, but does not pose much risk. Additional time spent on the landfill could expose trail users to more hazards associated with landfill operations.

Environmental

This trail poses the least risks of impact to habitat and wildlife. However, placement of the bridge over the North Slough will need to take an existing turtle basking site into consideration and may have impacts to fish in the crossing area. There will be soil disturbance and loss of riparian vegetation at the points where the bridge footings are built. In addition, constructing footings in this location could alter groundwater flow and movement of potential contaminants in the groundwater in this vicinity.

Capital Costs

This alignment is the second lowest cost of the four alternatives. The estimated cost of this alternative is greater than the Ash Groves alignment largely due to the proposed North Slough bridge. Other expenses are in paving the surface of the existing gravel landfill perimeter roads, and fencing to protect landfill infrastructure from vandalism.

Multi-Use Potential

Good multi-use potential from the end of Port of Portland trail through Pier Park. Existing bike lanes and sidewalks provide for multiple uses between Pier Park and Peninsula Crossing trail.

User Experience

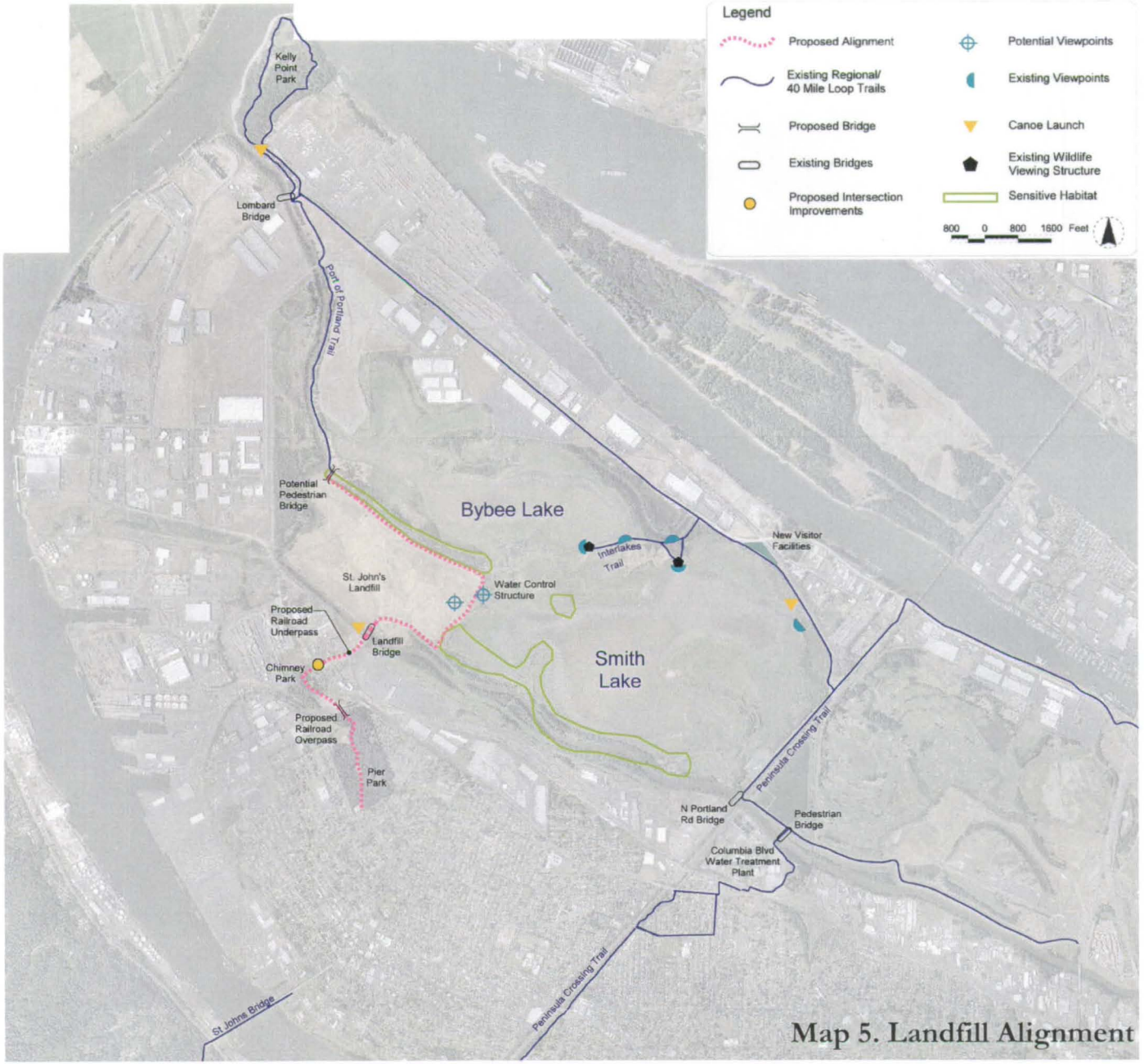
The North Slough bridge will offer exceptional views and interpretive opportunities. The route across the landfill is fairly attractive, with views of water and the Natural Area to the north and east. On the negative side, the trail user would have a fence and landfill infrastructure on one side, with natural landscapes on the other. Overall, this alternative ranks lowest of the four with regard to user experience.

Permitting

Multiple permits would be required for this and the other two routes that include the North Landfill segment. The main issues for permitting agencies will be related to the North Slough bridge design and construction. National Marine Fisheries Service consultation is likely due to the presence of federally listed juvenile salmonids in the North Slough.

Management

The main management concerns are the greater length of trail on the landfill, as compared with the Ash Groves alternative. This raises the risk of vandalism to landfill infrastructure, a risk common to Alternatives 3 and 4 as well. This trail could be easily maintained, as there is easy vehicular access to all segments.



Map 5. Landfill Alignment

Trail Connectivity

This route links the Port of Portland trail to the landfill and on to Pier Park. This alignment does not offer a direct link to the Peninsula Crossing and Columbia Slough trails as Alternatives 3 and 4 do. Users would traverse existing (unimproved) neighborhood sidewalks and bike lanes from Pier Park to complete the connection to the Peninsula Crossing Trail.

Advantages:

- Crossing the North Slough and use of the existing landfill perimeter roads avoids impacts to wildlife and habitat that would occur with development in the Ash Groves and South Lake Shore routes.
- The new bridge could be an attractive feature, and opens new views over the water at the confluence of the North and Columbia Sloughs.
- The north end of the landfill has good views of water and the Natural Area.
- This alternative has the lowest overall impacts to wildlife of the four being considered.

Disadvantages:

- Trail users will be on the landfill perimeter road versus a more pleasing forested setting provided in other alignments.
- The new bridge over the North Slough adds considerable expense to this alignment. There may be impacts to fish and wildlife in the crossing area, particularly to federally listed juvenile salmonids. Further engineering/hydrological analysis will be required to address the potential for the bridge footings to exacerbate the movement of contaminants in groundwater in the vicinity.
- Periodic trail closures may occur if the landfill bank requires major repair work.
- Additional length of trail on the landfill raises the risk of vandalism and other management problems associated with protecting landfill infrastructure.
- This alignment does not provide a direct link to the Peninsula Crossing or Columbia Slough Trails near the North Portland Road bridge.

Cost Estimate*

North Landfill segment	$1,941,123**
East Landfill segment	493,737
Landfill Connector segment	2,333,555
Pier Park segment	1,413,836***
Total Cost Estimate:	$6.2 million

*Cost estimate for 8´ wide asphalt trail with 2´ gravel shoulders.
**Includes new North Slough bridge.
***Includes crossing Union Pacific rail lines between Chimney and Pier Park, does **not** include neighborhood on-street bike lanes and sidewalks.

1. Looking north from landfill towards southern end of Port of Portland trail.

2. Looking east on north landfill perimeter road.

3. View of north slough from landfill perimeter road.

4. View of Smith Lake from viewpoint along east perimeter road on landfill.

5. Heading west toward landfill entrance on southern perimeter landfill road.

6. Looking south towards Forest Park from north side of landfill bridge.

7. Looking south towards Chimney Park near landfill office.

8. Columbia Blvd. crossing location at Chimney Park driveway.

9. Columbia Blvd.

10. In Chimney Park looking across railroad tracks to Pier Park.

11. Pier Park entry at N. Seneca Street.

Alternative 3: South Lake Shore Alignment

The South Lake Shore alignment crosses the North Slough, and follows the same route as the landfill alignment until it reaches the point where the landfill road curves west towards the bridge. Here there would be a junction, with one leg heading out of the landfill to Pier Park with connection to the Peninsula Crossing trail along unimproved bike lanes and sidewalks on either North Fessenden or Smith Streets. The other leg would head directly east, following the southern edge of Smith Lake before passing under the North Portland Road bridge and connecting with the Peninsula Crossing and Columbia Slough Trails on the other side of the bridge.

The main difference between this and previous routes is the new trail along the south shore of Smith Lake. This trail would require new clearing and ground disturbance. The eastern half of this segment would likely be located on an existing social trail used that serves as maintenance access for power lines.

Safety

The South Lake Shore segment is considered to be quite safe, given its location away from vehicle traffic. There is an easy grade route under the north side of the North Portland Road bridge, and a ready connection to the existing Peninsula Crossing and Columbia Slough Trails on the east side. The route is very isolated, with little visibility. Patrols will be important to monitor unauthorized uses.

Environmental

This trail poses high potential impacts to habitat and wildlife. These impacts relate to the trail passing through riparian woodland that includes a heron rookery, Bald Eagle nesting sites, encroachment on wetlands, and closeness to the Columbia Slough. The degree of risk of rookery and/or nest abandonment is uncertain. Disruption to wildlife that use the area to travel between the wetlands and Slough would be likely. Trail design, mitigation and management can play a vital role in keeping trail users on the pathway and out of sensitive areas.

The eastern half of this new trail would be placed along an existing social trail currently used by maintenance access for transmission lines; the other part of the trail may have portions that skirt the edge of wetlands. Some young trees would likely have to be removed to make way for this trail. This route also includes the impacts related to the new bridge crossing the North Slough as discussed in Alternative 2.

Capital Costs

This alignment is the second highest cost of the four alternatives. This alternative includes the development of new trail south of Smith Lake and an underpass beneath the North Portland Road bridge.

Multi-Use Potential

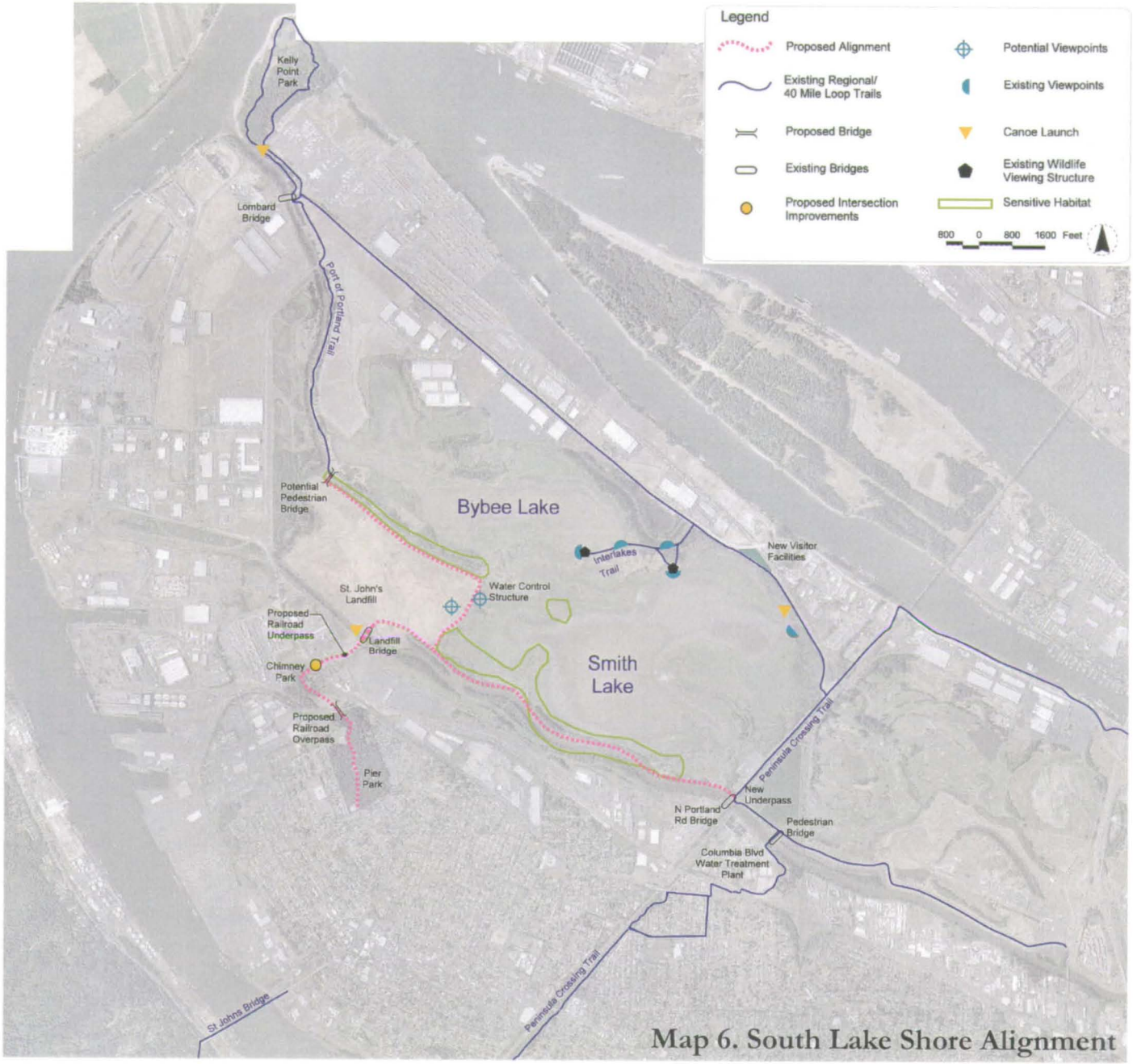
There is good multi-use potential for this trail between the end of the Port of Portland trail and Pier Park. It is not possible to determine trail surface (hard vs. soft) for the south lake shore portion of this alignment until formal consultation with regulatory agencies regarding trail design in the vicinity of nesting eagles. The *NRMP* originally suggested a soft surface pedestrian only trail along the South Lake Shore segment.

User experience

This alignment is primarily natural in character and aesthetically pleasing. It ties with Ash Groves for highest ranking of user experience. Good views of the Columbia Slough and the Natural Area are available the South Lake Shore segment, and a trail here would open a new area not presently accessible to the public. The partial view of the lake is becoming obscured as the forest regenerates and creates a dense woodland. New interpretive and environmental education opportunities are good based on the natural setting and off-road character.

Permitting

Multiple permits would be associated with this route. The biggest issues include wetland encroachment and the close proximity of much



Map 6. South Lake Shore Alignment

of the trail to the Columbia Slough. Consultation with NOAA Fisheries will be needed to address federally listed juvenile salmonids in the Columbia Slough. Consultation with the US Fish and Wildlife Service (USFWS) required under Section 7 of the Endangered Species Act would be needed to address potential impacts to nesting Bald Eagles. There is a high potential that the USFWS will require construction of a trail through this area be at least 1/4-mile from the eagle nests, which may involve a boardwalk over a portion of Smith Lake.

Management

Patrolling and maintaining the isolated segment along the South Lake Shore will be more time consuming than patrolling the portions of the trail on landfill perimeter roads.

Trail Connectivity

Of the four alternatives, this route provides the most direct link between the Port of Portland trail and the Peninsula Crossing and Columbia Slough Trails east of the North Portland Road bridge.

Advantages:

- This route offers the most direct regional connection to the Peninsula Crossing and Columbia Slough Trails east of the North Portland Road bridge.
- It provides a high quality user experience along scenic parts of the landfill, and then through riparian woodlands, with excellent short-range views of the Columbia Slough.
- The route under the north end of the North Portland Road bridge is simple to engineer and connect to the existing Peninsula Crossing and Columbia Slough Trails.
- The replanted and naturally regenerating riparian woodland provides opportunities for mitigating some wildlife impacts by taking advantage of dense vegetation screening between the trail and Smith Lake.
- Half of the route along the south shore of the lake could be located on an existing social trail used infrequently for maintenance of transmission lines.

Disadvantages

- Of the four alternatives, this route has the most federally listed endangered species (eagles and salmonids) at present.
- There is potential that federal agencies will require construction of a trail be at least 1/4-mile from nesting eagles or require seasonal closure of the trail for more than six months (generally between January and August).
- The South Lake Shore route crosses through three small parcels of private ownership, and will require some negotiation and possible expense of land or easement acquisition.
- Much of the trail is in a riparian zone, is very close to the Columbia Slough and could impact wildlife that crosses between the Slough and Smith Lake, as well as Endangered Species Act listed salmonids.
- There are probable encroachments and/or impacts to wetlands in some areas.
- The new bridge over the North Slough adds considerable expense to this alignment. There may be impacts to fish and wildlife in the crossing area, particularly to federally listed juvenile salmonids. Further engineering/hydrological analysis will be required to address the potential for the bridge footings to exacerbate the movement of contaminants in groundwater in the vicinity.
- Periodic trail closures may occur if the landfill bank requires major repair work.

Cost Estimate*

South Lake Shore segment:	$ 987,345**
North Landfill segment	1,941,123***
East Landfill segment	493,737
Landfill Connector segment	2,333,555
Pier Park segment	1,413,836****
Total Cost Estimate:	$7.1 million

*Cost estimate for 8´ wide asphalt trail with 2´ gravel shoulders. Does not include property or easement acquisitions.

**Does not include possible boardwalk to avoid eagle's nest.

***Includes new Slough bridge.

****Includes crossing Union Pacific rail lines between Chimney and Pier Park, does **not** include improvements to existing neighborhood on-street bike lanes, sidewalks and intersections.

1. Looking north from landfill towards southern end of Port of Portland trail.

2. Looking east on north landfill perimeter road.

3. View of north slough from landfill perimeter road.

4. View of Smith Lake from viewpoint along east perimeter road on landfill.

5. Near southeast corner of landfill looking east along south shore of Smith Lake.

6. Looking west toward landfill along cleared area between the lake and the slough.

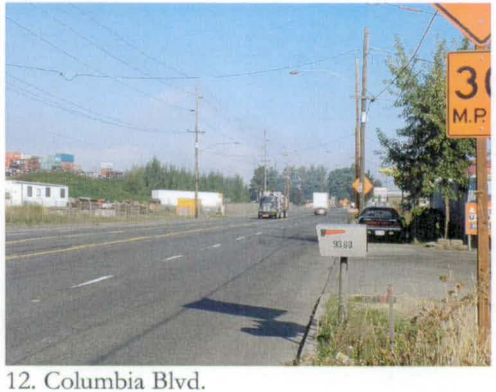
7. View towards Columbia Slough.

8. Heading west toward landfill entrance on southern perimeter landfill road.

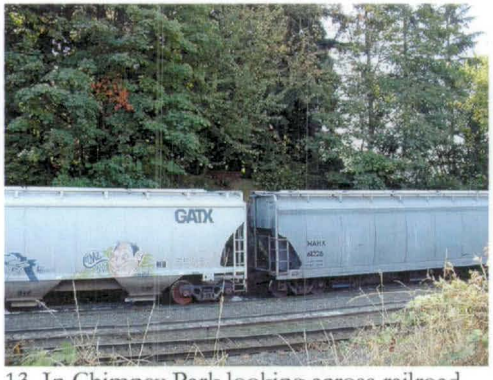
9. Looking south towards Forest Park from north side of landfill bridge.

10. Looking south towards Chimney Park near landfill office.

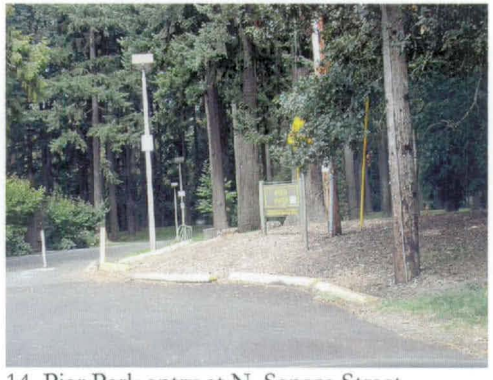
11. Columbia Blvd. crossing location at Chimney Park driveway.



12. Columbia Blvd.



13. In Chimney Park looking across railroad tracks to Pier Park.



14. Pier Park entry at N. Seneca Street.

Alternative 4: South Slough Alignment

The South Slough alignment follows the same route as the Landfill alignment for its first half, or up to the point where it crosses the existing landfill bridge. Once on the south side of the bridge this alignment splits in two directions. One leg travels due east along the south side of the Columbia Slough to the North Portland Road bridge. It crosses under and then over the bridge to tie into the existing Peninsula Crossing and Columbia Slough Trails. The other leg is the same as in Alternatives 2 and 3, traveling south from the landfill bridge, going under the railroad tracks, crossing Columbia Boulevard into Chimney and Pier Parks and through St. Johns neighborhood on unimproved bike lanes, intersections and sidewalks along North Fessenden or North Smith Streets to connect with the Peninsula Crossing Trail.

The distinguishing feature of this alignment is the development of a new trail route along the south side of the Columbia Slough, north of the Union Pacific railroad tracks and the Columbia Steel Castings complex.

Safety

The route along the south side of the Columbia Slough introduces some safety issues due to its close proximity to industrial traffic. Trail design will need to address security concerns of adjacent private property owners should this route be developed. The design of the trail crossing under and over the North Portland Road bridge requires further study and engineering. The narrow bridge sidewalks create a safety issue that may require a new wider sidewalk be added to the existing bridge.

Environmental

This trail poses the second fewest impacts or risks to habitat and wildlife of the four alternatives. These impacts include those associated with the new bridge over the North Slough, discussed in the previous two alternatives. In addition, the trail along the south side of the Columbia Slough may encroach on riparian habitat and the Wapato Wetlands.

Capital Costs

This alignment is the highest cost of the four alternatives. New trail development south of the Columbia Slough will require fencing along adjacent privately and publicly owned industrial properties, and an underpass beneath and a new sidewalk on top of the North Portland Road bridge. Further design and engineering will be needed to determine the structural requirements and associated costs for sidewalk improvements to the bridge. In addition, there are unknown land or easement purchase costs associated with two privately owned parcels that occupy approximately ¾ of the route along the south side of the Columbia Slough.

Multi-Use Potential

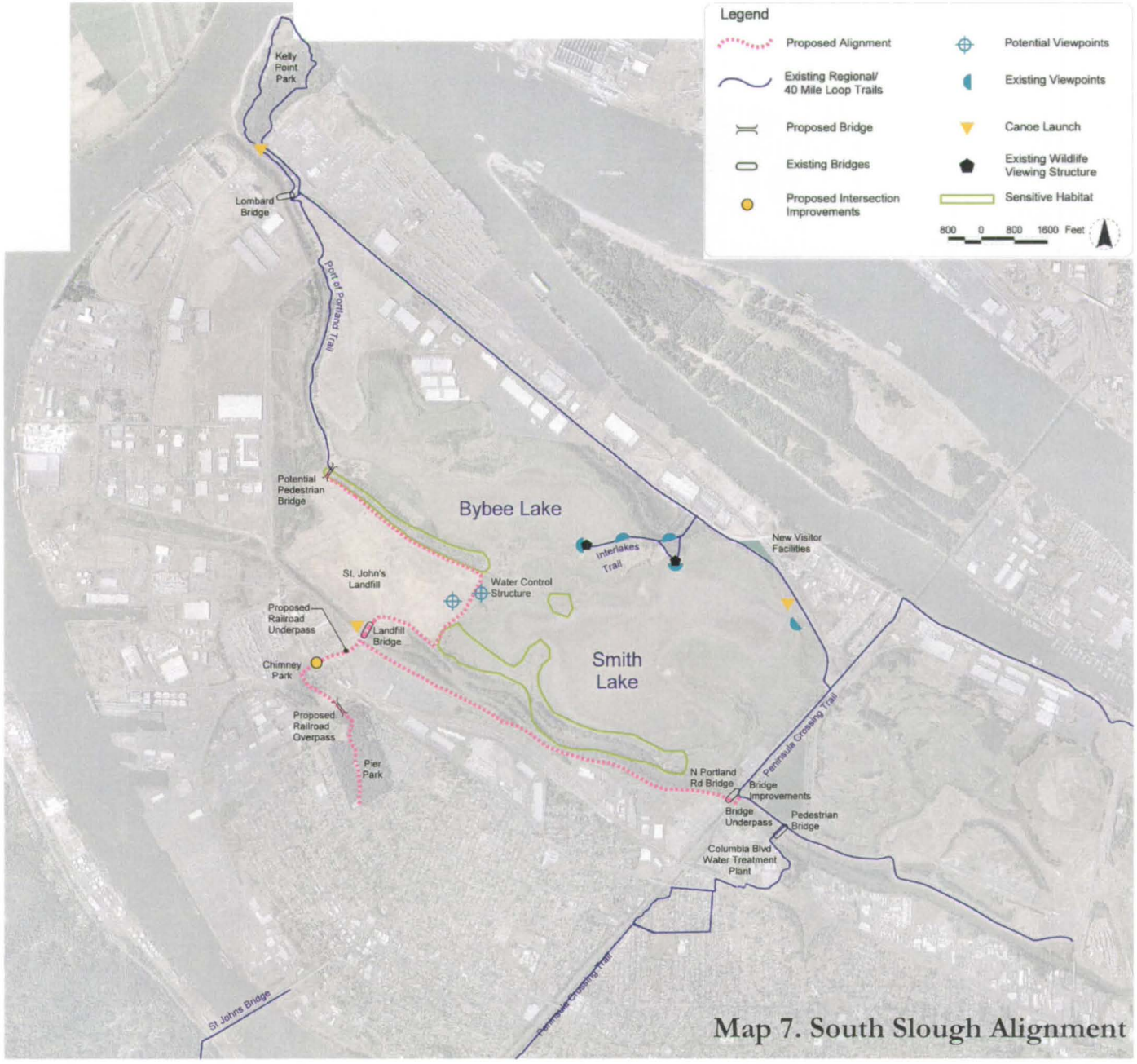
The potential here is very good, with mitigating factors. Improvements are necessary to the North Portland Road bridge to make the bicycle and pedestrian crossing safe.

User Experience

The route along the south of the Columbia Slough is primarily industrial in character. However, it does offer good views of the Slough, the Natural Area, and provides visual connection to the Wapato Wetlands, a unique and attractive feature not presently accessible to the public. New interpretive and environmental education opportunities are also possible, especially at the Wapato Wetlands. The crossing of the North Portland Road bridge, with its extensive truck traffic, may not be a very pleasant experience. Overall, this alternative ranks third of the four with regard to user experience.

Permitting

Multiple permits would be associated with the South Slough route. The biggest challenges are likely to be trail easement or ROW agreements



Map 7. South Slough Alignment

with the Union Pacific Railroad and Columbia Steel Castings. Some US Fish and Wildlife Service consultation is needed as well as NOAA Fisheries.

Management

Patrolling and maintaining the segment along the south bank of the Columbia Slough will be more time consuming than patrolling the portions of the trail on landfill perimeter roads.

Trail Connectivity

This route provides an improved direct link to the Peninsula Crossing and Columbia Slough Trails near the North Portland Road bridge.

Advantages:

- This route has low impacts to wildlife relative to two of the other alternatives. It avoids entering the Natural Area, including the Ash Groves and the south shore of Smith Lake, with its eagle nests and heron rookery, thus avoiding habitat fragmentation in those areas.
- The new South Slough route would provide a direct regional connection to the Peninsula Crossing and Columbia Slough Trails east of the North Portland Road bridge.
- This route, while largely industrial in character, does include views of the North and Columbia Sloughs, the Natural Area, and opens a view and interpretive opportunities at the "Wapato Wetland," one of the most striking wetlands in the region.
- Federal Endangered Species Act permits are not likely to due this route's distance back from the Columbia Slough.
- The City of Portland owns the parcel of land adjacent to the west side of the North Portland Road bridge and are willing partners in the development of a trail.

Disadvantages:

- This is the most expensive of all alternatives, requiring a new bridge to cross the Columbia Slough, land or easement purchases south of the Columbia Slough, and potentially costly improvements to the North Portland Road Slough bridge.
- Engineering the trail under and then over the North Portland Road bridge is challenging and requires additional feasibility analysis.
- The south Slough portion of this alignment crosses two large private industrial properties, and will require negotiations and possible expense of land/easement acquisition.
- The user experience along the south side of the Columbia Slough would be more industrial and less natural than the portions of the South Lake Shore and Ash Groves alternatives through the Natural Area.
- The new bridge over the North Slough adds considerable expense to this alignment. There may be impacts to fish and wildlife in the crossing area, particularly to federally listed juvenile salmonids. Further engineering/hydrological analysis will be required to address the potential for the bridge footings to exacerbate the movement of contaminants in groundwater in the vicinity.
- Periodic trail closures may occur if the landfill bank requires major repair work.

Cost Estimate*

South Slough segment	$1,486,635
North Landfill segment	1,941,123**
East Landfill segment	493,737
Landfill Connector segment	2,333,555
Pier Park segment	1,413,836***
Total Cost Estimate:	$7.6 million

* Cost estimate for 8´ wide asphalt trail with 2´ gravel shoulders. Does not include property or easement acquisitions.

** Includes new Slough bridge

*** Includes crossing Union Pacific rail lines between Chimney and Pier Parks, does **not** include neighborhood on-street bike lanes and sidewalks.

1. Looking north from landfill towards southern end of Port of Portland trail.

2. Looking east on north landfill perimeter road.

3. View of north slough from landfill perimeter road.

4. View of Smith Lake from viewpoint along east perimeter road on landfill.

5. Heading west toward landfill entrance on southern perimeter landfill road.

6. Looking south towards Forest Park from north side of landfill bridge.

7. Looking east from south side of landfill bridge.

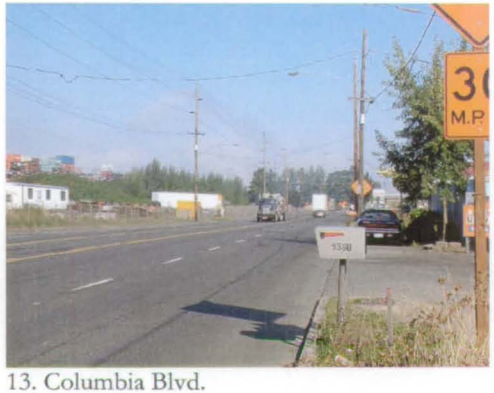
8. Looking east at Wapato Wetland; midway between landfill and N. Portland Road bridge.

9. Approaching end of alignment at N. Portland Road bridge.

10. Looking north from southern end of N. Portland Road Bridge.

11. Looking south towards Chimney Park near landfill office.

12. Columbia Blvd. crossing location at Chimney Park driveway.



13. Columbia Blvd.

14. In Chimney Park looking across railroad tracks to Pier Park.

15. Pier Park entry at N. Seneca Street.

Summary of Alignments

Table 3. summarizes and compares the development considerations unique to each alternative trail alignment. A similar table comparing the same development considerations for each individual segment is found in Appendix B.

Table 3: Alternative Alignment Comparison Table

Alignment	Segments* Included	Major Improvements	Length (miles)	Acquisition/ Easement/ Right-of-Way	Agency Approvals Needed	Capital Cost[1]	
						Hard Surface	Soft Surface
Ash Groves	AG, EL, LC, PP, NR2	Fencing, Modify Landfill Bridge, RR underpass & overpass, Col. Blvd. crossing On-street improvements	4.5	RR Easements PDOT	NOAA DSL/ACOE (if wetland fill) USFWS DEQ City of Portland – PDOT, Planning, Parks	$4.3 million $ .96 million per mile	$3.6 million $.8 million per mile
Landfill	NL, EL, LC, PP	Slough Bridge, Fencing, modify Landfill Bridge, RR underpass & over-pass, Col. Blvd. Crossing	2.8	RR Easements PDOT	DEQ City of Portland – PDOT, Planning	$6.2 million $2.2 million per mile	$5.1 million $1.8 million per mile
South Lake Shore	NL, EL, SL, LC, PP	Slough Bridge, Fencing, Modify Landfill Bridge, RR underpass & over-pass, Col. Blvd. crossing	4.4	RR Easements PDOT SL segment crosses 2 private parcels	NOAA, DSL/ACOE (if wetland fill) USFWS DEQ ODOT City of Portland – PDOT, Planning	$7.1 million $1.6 million per mile	$5.7 million $1.3 million per mile
South Slough	NL, EL, SS, LC, PP	Slough Bridge, Fencing, Modify N. Portland Road Bridge, RR under-pass & overpass, Col. Blvd. crossing	4.8	RR Easements PDOT SS Segment crosses 2 private & 1 public par-cels	NOAA DSL/ACOE (if wetland fill) USFWS DEQ ODOT City of Portland – PDOT, Planning	$7.6 million $1.6 million per mile	$6.1 million $1.3 million per mile

* Segment Abbreviations:

AG = Ash Groves
NL = North Landfill
EL = East Landfill
SL = South Lake Shore
SS = South Slough
LC = Landfill Connector
PP = Pier Park
NR1 = Neighborhood Route 1
NR2 = Neighborhood Route 2

1. Excludes Property Acquisition, Includes Design/Engineering/Permits

VII. TRAIL DESIGN

Factors that are considered in the design and placement of trails include the type of use, the setting and the expected volume of use. The trails in the Smith and Bybee Wetlands Natural Area would be designed to accommodate a typical mix of regional trail users including bicyclists and pedestrians.

To assure a safe and convenient recreational experience there are specific requirements for each user group. In addition, there are design elements that can help minimize impacts of trail development within sensitive areas.

Pedestrian Trail

Narrow soft surface trails are designed primarily for pedestrian use. The advantage of these gravel or earthen trails is that they require less clearing and grading to construct. They can tolerate a greater range of slopes, unless specifically designed for ADA accessibility. Overhead clearance heights of 7 feet mean that fewer low hanging branches need to be cleared. With no shoulder and a narrower width, these trails provide greater flexibility in terms of siting and route selection. Disturbance to the existing terrain is minimized and new planting can hug the pathway. Standard widths for soft-surface pedestrian-only trails range from four to eight feet. Figure 1 illustrates how a 4 foot soft-surface trail would fit into the Natural Area.

Multi-Use Trail

Providing trail access for both pedestrians and bicyclists, multi-use trails are generally wider asphalt paved trails. A variety of specific design requirements due to higher travel speeds, maximum grade limitations and surfacing determine the route options for bicyclists. Longer sight and stopping distances are mandatory for safety. Multi-use trails range in width from 8 to 14 feet wide in the Portland metropolitan region. These trails have a higher clearance of 8 feet overhead and generally have a 2-foot shoulder on either side. The shoulder provides additional space for passing or moving aside, and is especially needed with an 8-foot wide path with two-way travel. The reinforced gravel

shoulder also provides structural support for the edge of the asphalt. Lower grades of 2% to 3% are desired, with grades not exceeding 4% to 5%. Sight distance requirements are longer than in pedestrian trails at a distance of 150' each way. With the broader width and shoulders, and requirement for lower slopes, the clearing and grading needs for constructing a multi-use pathway are far greater than those for building a pedestrian pathway. How a multi-use pathway would fit on the landfill perimeter roads is illustrated in Figures 4 and 5.

Landscape Mitigation

There has been much discussion about how to fit a trail into a sensitive area and avoid, minimize or mitigate any disturbance. There are ways to insert a trail into a landscape and minimize the amount of construction disturbance. Provided below are some specific options for the alternative alignments, as well as best practices for trail design construction and use:

Ash Groves

- Field locate trail to avoid removal of large ash trees, as well as to keep construction from disturbing root zones. This will preserve the trees and habitat they provide for bats and other wildlife.
- Identify turtle nesting areas prior to design phase and maintain recommended buffers.
- Locate trail on or adjacent to existing social trail in Ash Groves segment.
- Elevate trail or provide boardwalks where needed to maintain access to North Slough for turtles and other small wildlife. See Figure 3.
- Provide erosion control measures where needed including where trail connects with water control structure.
- Design trail to keep users on pathway and out of sensitive areas.

Landfill

- Provide a low vegetated barrier along east side of landfill to discourage off-trail wandering into Natural Area.
- Install fencing and gates to keep trail users on landfill perimeter roads and off landfill.

South Lakeshore

- Maintain recommended buffers (per consultation with permitting agencies) for heron and Bald Eagle nest sites.
- Keep trail above wetland zone along lake shore using boardwalks (as required per consultation with permitting agencies).
- Avoid removal of ash trees.
- Locate trail on or adjacent to existing social trail.
- Design trail to keep users on pathway and out of sensitive areas.

South Slough

- Design trail to discourage off-trail travel into Wapato Wetlands.
- Provide spur trail and viewing platform to provide visual access to wetlands.

Best Practices for Trails

- Work to avoid and minimize impacts to sensitive areas where practicable.
- Avoid tree removal with careful trail routing.
- Avoid impacts to water bodies, wetlands and seeps; maintain or establish recommended buffers; and use boardwalks or bog bridges (where appropriate) to cross wet areas.
- Modify design to provide wildlife passage at wildlife crossings.
- Prohibit bicycle use in sensitive areas. Enforce this design with gates or other structures to physically restrict their use.
- Keep trails to a minimum and narrower in sensitive areas.
- Site trails along already disturbed areas including social trails

and maintenance vehicle paths.

- Locate thorny plant material or boulders to reinforce trail boundary, close inappropriate social trails and discourage off-trail travel.
- Remove weedy non-native plants within 10 feet on either side of the trail, revegetate with native plants and restore disturbed areas with native plants.
- Plant taller native shrubs to create buffers to screen the trail from sensitive habitat areas.
- Provide spur trails and viewing blinds to provide visual access at specified locations to minimize impacts to wildlife.
- Use appropriate trail construction techniques and materials to minimize impact to habitat.
- Use Metro's Green Trails recommendations for preventing erosion, providing bioswales.

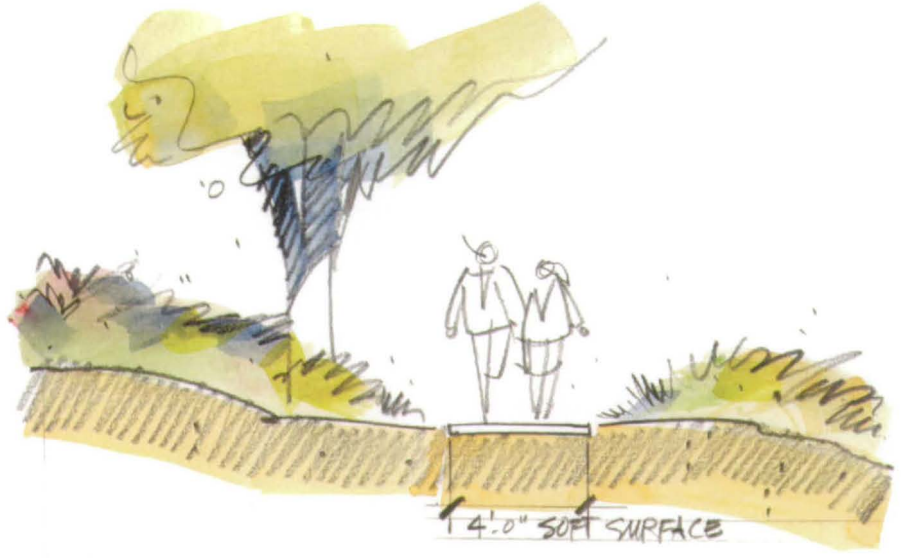


Figure 1. Soft Surface Pedestrian Trail in Natural Area

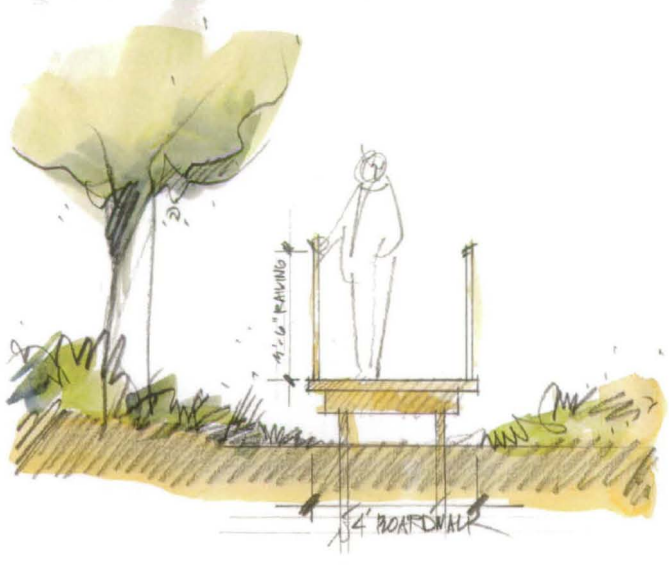


Figure 2. Boardwalk in Wildlife/Sensitive/Wet Areas

Figure 3. Paved Multi-Use Trail in Natural Area

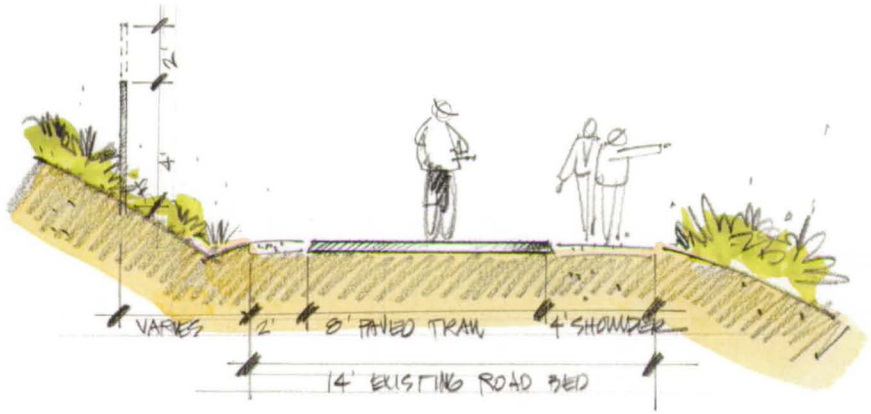


Figure 4. Paved Multi-Use Trail in Landfill on 14´ Road Bed

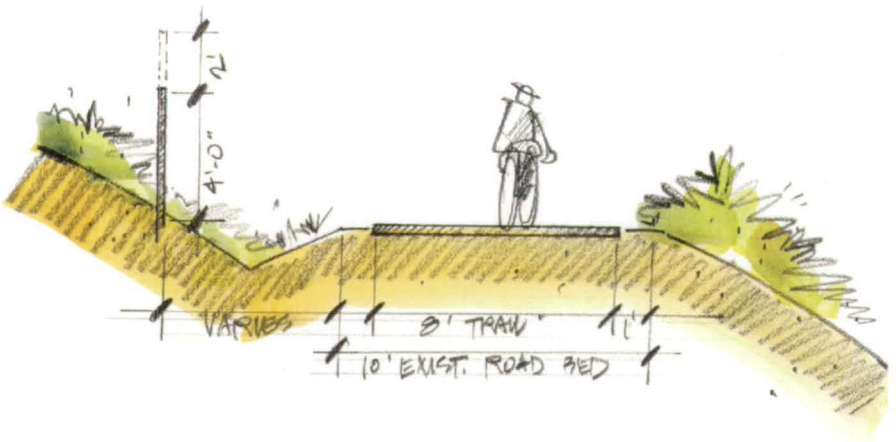


Figure 5. Paved Multi-Use Trail in Landfill on 10´ Road Bed

The existing landfill perimeter rod varies in width between 8´ and 14´—Figures 4 and 5 show the trail set into the road in the widest and narrowest circumstances.

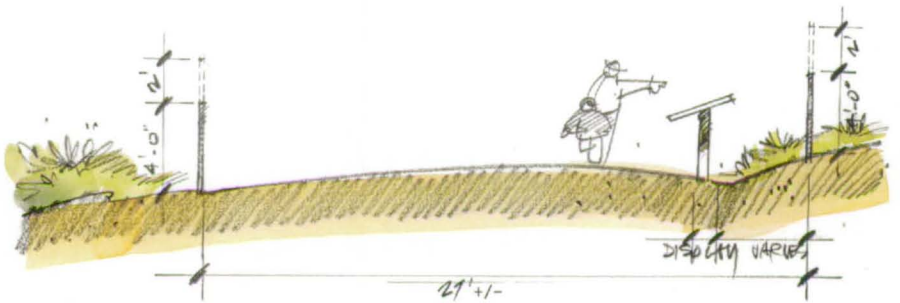


Figure 6. Viewpoint on Landfill Cap

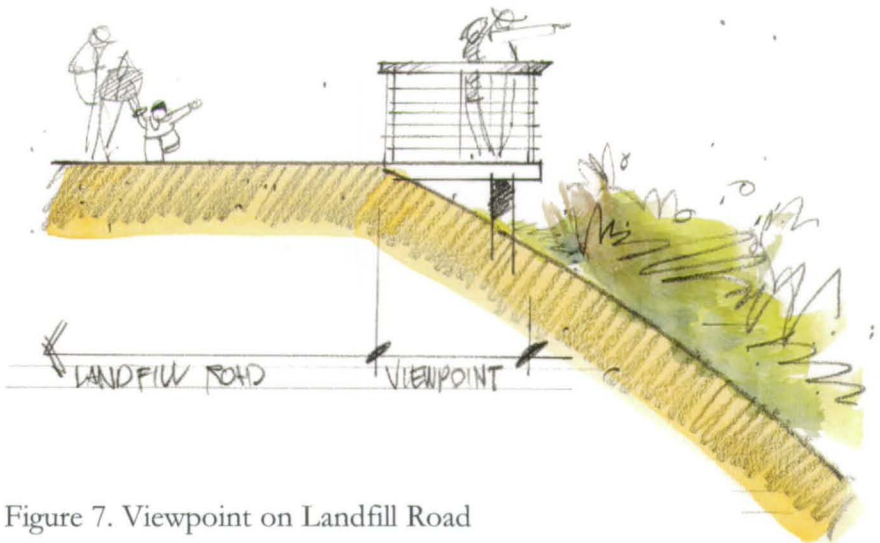


Figure 7. Viewpoint on Landfill Road

VIII. STAKEHOLDER/PUBLIC INPUT

There is a well-documented history of citizen interest and public policy favoring the linkage of nearby neighborhoods, parks and trails with the Smith and Bybee Wetlands Natural Area. While there has been a common interest of trail advocates and trail providers to complete this missing link in the regional trail system, the parties have not been able to reach an agreement on a specific alignment.

An important goal of this trails study has been to achieve consensus among key stakeholder groups on the facts and findings. Metro sought public input throughout the study process by convening a Technical Working Group, conducting a public workshop and tour, meeting with stakeholders and providing a project website. Appendix D contains public involvement materials produced during the project.

Technical Working Group

Representatives from key stakeholder groups were invited to participate on a Technical Working Group. The group included representatives from the St. Johns Neighborhood Association, 40-Mile Loop Land Trust, Smith and Bybee Wetlands Management Committee, Friends of Smith and Bybee Lakes, Portland Parks and Recreation Department, Metro Solid Waste and Recycling Department and Metro Regional Parks and Greenspaces Department. The group met five times over a 12-month period to discuss and seek consensus on project information developed by the project consultants.

Public Workshop and Tour

Approximately 50 citizens attended a public workshop to review alternative alignments and provide their input on the study findings.

Following public release of the feasibility study a public tour was offered to view the proposed alignments.

Stakeholder Meetings

Project staff made presentations on the study findings to the groups and committees listed below:

- Columbia Slough Watershed Council
- North Portland Neighborhood Chairs
- St. John's Neighborhood Association
- Metro Council Work Session
- 40-Mile Loop Land Trust
- Friends of Smith and Bybee Lakes
- Smith and Bybee Wetlands Management Committee

Project Outreach

Metro's web site was an effective tool in engaging citizens in the project as well. Many citizens visited the website to learn about the project and approximately a dozen provided comment for the public record through the project website. Metro also participated in an event for the grand opening of the New Columbia housing development near the Natural Area to inform new residents about the trail options. Approximately 30 citizens stopped by to view the exhibits.

This chapter to be completed when Council makes their final decision.

IX. NEXT STEPS

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Smith and Bybee Wetlands Natural Area
Trail Feasibility Study

Appendices

Final Draft - August 2005

List of Appendices

A. Technical Working Group

- Meeting Agendas and Minutes

B. Technical Memoranda

- Consultant Field Notes for Trail Segments
- Evaluation Criteria Definitions
- Evaluation Criteria Measurements
- Evaluation Criteria Rankings for Trail Segments
- Alternative Trail Alignment Summary
- 1/10/05 Memo from Pacific Habitat Services
- 12/20/04 Topographic Survey – Ash Groves Segment
- 4/8/05 Letter from USFWS
- Background Research – Trail User Experience
- OR Division of State Lands Law Re: Fill in Smith and Bybee Lakes
- 4/11/03 Letter to Metro Council from Smith and Bybee Wetlands Management Committee

C. Cost Estimates

D. Public Involvement

- Public Meeting Notice
- Summary Notes from Public Meeting
- News Articles/Media Releases/Newsletter Articles
- Public Comments on draft Trail Feasibility Study (to be included when available)
- Metro Council Resolution (to be included when available)

APPENDIX A

TECHNICAL WORKING GROUP

Trails Feasibility and Design Study
for the
Smith and Bybee Lakes Wildlife Area

Rapid Feasibility Assessment
July 1, 2004

Introductions	All
Plan for the day	Marianne Zarkin
Project Description	
Study Goals	Jim Desmond
Project Assumptions/Scope	Marianne
Preliminary Schedule	Marianne
Depart for Field Trip	9:30
Walk to N. Portland Blvd	
Port of Portland Trail	
Landfill	
Water Control Structure	
LUNCH!!	Noon
More Field Trip	
Heron Rookery	
Across Columbia Blvd	
Chimney Park to Pier Park	
Pier Park to Fessenden	
Fessenden to Peninsula Crossing Trail	
Debrief: Columbia Wastewater Treatment Plant	3:30
Insights from Field Trip	All
Evaluation Criteria	Dean Apostol
Review December 2003 Memo	
Next Steps	Dean/Marianne
Adjourn	4:30

MEETING NOTES
SMITH AND BYBEE LAKE TRAIL FEASIBILITY
July 1, 2004

Present: Jim Desmond, Metro
Heather Nelson Kent, Metro
Jan Hart, Metro
Paul Vandenberg, Metro
Elaine Stewart, Metro
Janet Bebb, City of Portland
Deborah Lev, City of Portland
Joe Adamski, St. Johns Neighborhood Association
Pam Arden, 40 Mile Loop
Nancy Hendrickson, Smith & Bybee Lakes Management Committee
Emily Roth, Friends of Smith & Bybee Lakes
Dean Apostol, Landscape Architect
John Van Staveren, Pacific Habitat Services
Fred Small, Pacific Habitat Services
Marianne Zarkin, MacLeod Reckord

The purpose of this day long meeting was to discuss project goals, schedule and scope in addition to having an opportunity to visit various sites along different proposed alignments. The following notes are comments, questions and issues that were raised during the meeting.

1. Everyone introduced themselves and the perspective from the groups they represent. The comments are outline below:
   - Joe: access to Smith & Bybee Lakes from the neighborhood important.
   - Nancy: she is the alternate for Troy Clark. The Smith & Bybee Lakes Management Committee are spit about the alignments. Some don't want access to north side of Slough; others support it for loop possibilities.
   - Pam: 40-Mile Loop want trail on north side of the Slough.
   - Janet: Portland Parks want people to be able experience wild areas but they also will work to protect wildlife.
   - Emily: Friends group does not want trails on the north side of the Slough.

2. Jim discussed the goals of the project and the need for all to agree on the facts. Consultant will begin with the preferred alignment found in the 1990 Management Plan.

3. Emily asked how the group would evaluate the impacts of different trail widths and surfacing materials. She also suggested the addition of another goal for the trail: ease of maintenance.

4. The group discussed the need for keeping in mind the user experience. There was some concern expressed about doing the biological work in August.

5. Emily reminded the group that Smith & Bybee Lakes is a regional park, and this is an important perspective to keep in mind.

6. Field Trip notes:
   - Triangle Lake north of Wastewater Treatment Plant: there are plans for restoration plantings around lake.
   - East-west trail (on north side of Slough) that connects to the Slough bridge/Peninsula Crossing runs all the way to N. Denver to the east and to the N. Portland bridge to the west.
   - North Slough trail – Metro has 50% ownership of this property.
   - Current reforestation plantings occurring in south end of Smith Lake will block views of lake. Spur trails with viewing blinds may be a possibility.
   - Current is undercutting North bank of Slough now that Landfill bank has been stabilized.
   - Landfill: grass fires a distinct possibility; fence post by interfere with liner; small pump station a vandalism hazard; monitoring wells along the possible trail alignment are monitored by staff and will require work in future.
   - Viewpoint at top of landfill: concern with it being over the liner; there has been settling and this could cause damage to viewpoint and require maintenance; oldest part of the landfill; could be release of gas, other contaminants.
   - Neighborhood needs to be included if trail to be located within Pier Park.

7. Debrief from field trip:
   - Regulatory issues big for putting trail along north Slough alignment.
   - Concerns with pedestrian activated light at Colombia Boulevard.
   - Enjoyed visiting Pier Park.
   - Are there ways to make Landfill more user friendly – add soil to cover pipes?
   - We need to understand landfill issues better and we need to understand the wildlife issues better.
   - Off-road trails are more desirable, people more likely to travel on off-road trails.
   - Pedestrian bridge from Chimney Park to Pier Park a great image.
   - Underpass underneath N. Portland at the Slough bridge looks feasible.
   - Need to gather data on the different trail experiences for off-road verses on-road trails.
   - This about the bigger context – layer the landscape. What about doing all the trails – not just one or the other but all of the trails?

8. The group began to discuss possible Evaluation Criteria:
   - Habitat
   - User Experience
   - Safety
   - Capital Cost
   - Maintenance
   - Timing/Phasing
   - Connectivity/Linkage
   - Permits
   - Fundability

9. Emily suggested that the design team review the trail principals from Colorado that are listed in the memorandum from the Smith & Bybee Management Committee.

10. The next Technical Working Group meeting is scheduled from August 13 from 9:00 am to noon in room 270.

Trails Feasibility and Design Study
for the
Smith and Bybee Lakes Wildlife Area

Wednesday, August 18, 2004 - 3:30pm - 7:30 pm
Metro, 600 NE Grand Avenue
Room 370 B

Meeting Agenda

3:30pm	**Welcome & Introductions**	Jane Hart
	Review Meeting Objectives	Marianne Zarkin, MacLeod Reckord (MR)
3:40pm	**Review/Discuss Draft Evaluation Criteria**	
	Methodology to Determine Criteria	MR
	Safety	Dana Beckwith, DKS Assoc./MR
	Cost	MR/DKS Assoc.
	Environmental	John van Staveren, Pacific Habitat Services (PHS)
	User Experience	Dean Apostol/MR
	Permitting	MR/PHS
5:30-5:45pm	***Dinner break (self-serve pizza, salad and beverages)***	
5:45-7:15pm	**Multi-Use Potential**	MR
	Management	MR
	Trail Connectivity	MR
7:15pm	**Next Steps**	Jane Hart/MR
7:30pm	**Adjourn**	

SMITH AND BYBEE LAKES WILDLIFE AREA TRAIL FEASIBILITY STUDY

MEETING NOTES - Technical Working Group Meeting – August 18, 2004

Present: Heather Nelson Kent, Metro
Jane Hart, Metro
Paul Vandenberg, Metro
Elaine Stewart, Metro
Deborah Lev, City of Portland
Joe Adamski, St. Johns Neighborhood Association
Pam Arden, 40 Mile Loop
Troy Clark, Smith & Bybee Lakes Management Committee
Emily Roth, Friends of Smith & Bybee Lakes
Dean Apostol, Landscape Architect
John Van Staveren, Pacific Habitat Services
Terry Reckord, MacLeod Reckord
Marianne Zarkin, MacLeod Reckord
Dana Beckwith, DKS Associates

The purpose of this meeting was to discuss/reach consensus on draft evaluation criteria and measures to rank the criteria.

Everyone introduced themselves and stated the group they represented on the committee or their role in the project.

Marianne Zarkin reviewed the methodology used to develop the criteria.

The following notes are comments, questions and issues that were raised during the meeting.

Pam: Will the Criteria be weighted.
Marianne: Not planning on weighting the criteria.

Emily: Suggested that mitigation be added to the cost criteria.
Terry: May add that criteria later, as the analysis progresses.

Deb: Recommended using mitigation in its broadest terms i.e. how to avoid impacts

There was a general consensus on changing the title of the middle measurement column from Neutral to Midpoint

Safety
Railroad Crossings
Elaine: Suggested that RR Crossing criteria also include how close a trail could parallel the railroad and still be safe (for alignments that parallel the railroad).
MacLeod Reckord and DKS to review in the field, determine if an issue. Group discussed including "or parallel to RR" under minus column for this criterion. The group also suggested including the word "pedestrian" under the midpoint and plus columns.

Proximity to Landfill Facilities
Emily: Landfill criteria isn't long term enough. Look at examples of other landfills in the country that have parks on them. Need language in explanations such as 'expect risk to diminish over time'.

Paul Vandenberg: Suggested adding 'proximity to cover' in the explanations. In many areas, people will be passing by and not spending any length of time on any part of the cover.

Flood Potential
Elaine: May be more useful to define elevations as the measures. Don't use the 100 year floodplain as a measure (not a defining criteria, too many alignments would be in it). Maybe look at standard elevations and flood stages for Willamette River and the Slough. Or look at hydrographics and see # of days that a segment would be flooded. Or the # of days a year that a segment is flooded. See Greg Everhart at City of Portland for measures. May want to move this criteria to User Experience category.

On Road Distance
Need to add the assumption to the explanation that sidewalks and bike lanes are assumed. Need to add neighborhood roads to this criteria, and figure out another way to measure this criterion to provide a factual basis.

Commercial Driveway Crossings
Adjust the measure to the number of total crossings per alignment. Field work will provide this information.

Cost
New Slough Bridges
The title of this criterion was changed to become New Slough Trail Bridges. The midpoint and plus measurements were changed to Major alterations and Minor alterations.

Under/Across Existing Bridges
This criterion was clarified to include automobile and train bridges.

The consultant team will revise the evaluation criteria measures matrix and the Explanations document to address these comments.

Fencing
Paul: Revise explanation to qualify that only parts of the landfill may require fencing.
Deb: Be more flexible with height and design of fencing described in the explanations.

Grading Needs
Some question about what this is based on. Grading needs will be based on best professional judgment about amount of grading needed to build trail.

User Experience

On-Road Distance

Terry: Need a measure for how comfortable user feels on trail.
This criterion will measure user comfort on the trail segments. Like its counterpart under Safety, a new measurement scale will be evaluated.

Trail Closure on the Landfill

Now called Trail Closure, this criterion will look at frequency and duration of closure both on the landfill and in areas that may flood.

Permitting/Approvals

The group added the word approvals to the title of this category. Also included on the list of agencies is the US Fish and Wildlife Service.

Management

The time period of study for these measurements and criteria is 10 years.

Marianne: Need to check to see if utilities will need access for maintenance.
Elaine: Need to consider management practicability i.e. how visible the alignment is for patrolling/surveillance by rangers.

The group discussed the addition of two additional criteria – utility access and ranger patrol. MacLeod Reckord will look into the utility corridor issues to determine how it fits, and Metro staff will work on the criteria/explanations/measures on the patrol issue and get back to consultants.

Connectivity

Troy: Need to add a section in the final document that talks about the regional importance of the Smith and Bybee Lakes Wildlife Refuge for wildlife habitat.

The group discussed perhaps having only two criteria under this category – regional and local (or neighborhood) connectivity. We discussed the need to include the 40-Mile Loop in the discussion. The consultant team decided to leave this criteria as is for purposes of ease of measuring in the field.

Next Technical Working Group meeting was scheduled for Thursday, Sept. 30 from 3:30-7:30 pm.

Jane will send the minutes, map of alignments and revised matrix and explanations to the working group.

Acquisition/Easement Needs
Heather: Suggested that separate these two and make them individual criteria. Number of easements would be a good measure for easement needs. The measurements for acquisition criterion were altered to measure expense rather than difficulty.

Funding Opportunities
Marianne: Change the ranking matrix to include Funding Opportunities.

Maintenance
Trail design will affect maintenance, so may not be able to rank till design complete.
This is a good place to add mitigation required by environmental permits.
Elaine: What about comparing the relative cost of each alignment?
Terry: Estimates are made per lineal foot of trail and that probably won't vary much depending on the alignment.
Elaine: But it may differ depending on surface recommended.

The group decided that in the report the different costs per lineal foot of different surfacing materials would be outlined.

Marianne: When ranking use 10-year time frame for most criteria. But in text can discuss the longer term when relevant, i.e. landfill.

Mitigation Costs
Emily recommended the addition of this criterion that will look at the expense of mitigation required to obtain permits.

Environmental
Habitat Fragmentation
The title for this criterion was changed to Habitat Impacts. No changes we made to the measurements.

Loss of Riparian Area
The title for this criterion was changed to Loss of Potential Riparian Area. Later discussions amongst the consultant team resulted in a change to this title again to Loss of Existing and Potential Riparian Area.

Wetlands
Pacific Habitat Services agreed to conduct an overview of the functions any wetlands identified during the field visit. The functional assessment will be based on the Guidebook for Hydrogeomorphic (HGM) based Assessment of Oregon Wetland and Riparian Sites: Statewide Classification and Profiles (Oregon Division of State Lands; 2001).

Trails Feasibility and Design Study
for the
Smith and Bybee Lakes Wildlife Area

Wednesday, October 20, 2004 - 3:30pm - 7:30 pm
Metro, 600 NE Grand Avenue
Room 601

Meeting Agenda

3:30pm	**Welcome & Introductions** **Review Meeting Objectives**	Jane Hart Marianne Zarkin, MacLeod Reckord Dean Apostol
3:40pm	**Review/Discuss** **Trail Segment Analysis**	Marianne Zarkin, Dean Apostol, John Van Staveren, Pacific Habitat Services Dana Beckwith, DKS Assoc.
5:30-5:45pm	***Dinner break (self-serve pizza, salad and beverages)***	
5:45-6:30pm	**Finalize discussion of Trail Segment Analysis, Group Acceptance of Findings**	Marianne, Dean, John, Dana
6:30-7:15pm	**Combining Segments into Alignments**	Marianne/Dean
7:15pm	**Next Steps**	Jane/Marianne
7:30pm	**Adjourn**	

Smith and Bybee Lakes Wildlife Area Trail Feasibility Study

Meeting Notes – Technical Working Group Meeting – October 20, 2004

Present: Joe Adamski (JA), St. Johns Neighborhood
Dean Apostol (DA), Landscape Architect
Pam Arden (PA), 40 Mile Loop
Dana Beckwith (DB), DKS Associates
Troy Clark (TC), Smith & Bybee Lakes Management Committee
Jane Hart (JH), Metro Parks
Heather Nelson Kent (HNK), Metro Parks
Deborah Lev (DL), Portland Parks
Emily Roth (ER), Friends of Smith & Bybee Lakes
John Van Staverên (JVS), Pacific Habitat Services
Elaine Stewart (ES), Metro Parks
Paul Vandenberg (PV), Metro Solid Waste & Recycling
Marianne Zarkin (MZ), MacLeod Reckord Landscape Architects

Marianne Zarkin reviewed the meeting materials sent in advance to the committee members. She also reviewed a graphic of the project sequence (see Process Chart below). Marianne outlined the approach for discussing the trail segment analysis findings; 9 segments to discuss, 20 minutes to discuss each.

Process Chart *(written on tablet)*

1. Evaluation Criteria and Measurements
2. Land Inventory
3. Segment Analysis
4. Agree on Findings
5. Alignment/Trail Design
6. Recommendations

The working group was asked if there were any general questions before the segment discussion began. Responses to questions are in *italics.*

DL: At the August 18th meeting you said there may be field conditions that would cause you to tweak the evaluation criteria and/or the explanations of the evaluation criteria. Do you think the Habitat Impacts criterion is similar enough to the Loss of Riparian Area criteria, such that environmental impacts are double counted for a given segment?
MZ: Probably best to bring this up as we discuss a particular alignment or set it aside to talk about it at the end of the meeting.
ER: Metro staff was going to work on the 'Ease of Patrol' criteria, did that happen?
MZ: Yes, and it will be discussed under the various segments.

ER: What happened to the 'no build option'? It was part of the consultant's proposal. Could it be a recommendation in the final document?
HNK: This is a study to determine feasible alignments and analyzing a no build option is not part of looking at what is feasible. If the study determines that no feasible alignments can be identified, that information would be forwarded to the Metro Council for their consideration.

Ash Groves Segment

DL: Between the Habitat Impacts and Loss of Riparian Area criteria, aren't they both measuring similar things (riparian function) so you end up double counting environmental impacts for this segment?

Wondering if it is appropriate to give a double minus if the trail is within 25', especially if you can mitigate for the loss of riparian, wouldn't that give a less negative ranking?

What about eliminating the Loss of Riparian Area criteria and moving the data collected on 'distance of segment from the waterway' to the permitting criteria, because distance has more to do with getting a permit, right?

JVS: Distance from the Slough is an issue for NOAA Fisheries, because it has to do with loss of riparian function. The double minus ranking for habitat was given because the majority of the segment runs through scrub shrub. The double minus was given for Loss of Riparian Area because the function of the riparian area to protect salmonid habitat would be affected by a trail being within 25' of the waterway.
MZ: In order to accomplish the meeting goals today, perhaps it is best that we table this discussion until the end of the meeting.

DL: Are the environmental impacts based on construction of the trail, or human use of the trail? Is there an assumption about the number of people that will use the trail?
JVS: *It is the presence and use by humans that has a longer term impact to wildlife.*

ER: Loss of Riparian Area is function based. Look at what functions are impaired.

ES: For the Trail Connectivity criteria, why are there blanks for some of the segments?
MZ: This analysis looked at individual segments, and the segments didn't always connect to something, so they weren't ranked. This criterion will be easier to apply once the overall alignments are identified in the next step of the work.

DL: The regional trail criteria looks at getting from the Port of Portland Trail to Penninsula Crossing Trail including using Marine Drive.

TC: Hard surface trails will be used more because they allow bicycles. Did the environmental criteria anticipate volume of use of a hard surface trail in the sensitive habitat areas? Need to remember the volume in hard versus soft trails in the design of the trail.
JVS: Yes, the type of uses a hard surface trail allows compared to a soft trail were considered when ranking this segment. It would actually be less impact to wildlife if people were on bikes, as compared to pedestrian travel. Bikes pass faster than pedestrians do through an area.

PA: Will you look at the cost differences of maintaining soft versus hard trails.
MZ: Yes, I will call trail expert Steve Bricker at the City of Portland for estimates.

Follow up Tasks:
- Check on maintenance costs. Call Steve Bricker at Portland Parks. They have maintenance costs by materials (surfacing).
- Clarify the acquisition and easement issues in the text.
- Call Columbia Boulevard Wastewater Treatment Plant (CBWWTP)to inquire about trail access through the WWTP and about expansion plans on west side of N. Portland Road.
- Grading permit and balance cut and fill will be needed for this segment.

Southwest Lanfill Segment
DL: For the Loss of Riparian Area criteria, why did it get a double minus ranking since the trail will be on the road? What riparian area is being lost? Are you giving it a double minus just because it is within 25' of the water body, or did you actually determine there would be loss of riparian function?
MZ: Best to discuss this issue at the end of the meeting.

ES: Did you look at the spur trail when you were looking at the impacts?
MZ: During the field work a better location was identified for a spur trail on the eastern portion of the landfill. The spur trail in this segment is mentioned in the field notes, but it did not sway the rankings one way or the other.

ES: Would like to know where fencing would go on this segment.
MZ: Along the landfill side of the trail.

PA: This segment seems rather ordinary and ho-hum. Concerned with the comfort level of trail users if all the fencing is surrounding the landfill.
MZ: The user experience criteria and field notes reflect that this segment is not one of the more aesthetically pleasing.

North Landfill Segment
TC: A ranking was not given to the Proximity to the Landfill Facilities for the Safety Criteria on this segment.
MZ: The ranking should be a double minusand the table will be revised to reflect same.

ES: Noted that most of the flooding of this segment happens over a twoweek period in a year.
MZ: A surveyor will be doing some spot surveying of the Ash Groves segment to answer any elevation questions. Will arrange to have Elaine go along for the survey work.

JA: Noted that hydraulic concerns will need to be addressed in the design of trails near the slough.

South Lake Shore Segment
DL: Expressed discomfort with Ease of patrol criteria determining where to build or not to build a trail. An ATV could be used to patrol in areas with limited access and visibility.

ES: Metro does not currently have or plan on using ATV's in the Wildlife area.

DL: Metro could always consider this as a possibility.

PA: Uncomfortable with all the double negative rankings, would like to talk with other 40 Mile Loop member. Can you consider this segment a road?
JVS: The majority of this segment gets little to no vehicular use (a few times a year for plantings). There are ruts in the ground, it isn't actually a road bed, it is a soft surface. Towards the eastern end of the segment, there is a portion that is a gravel road for access by a few landowners. It is assumed that the trail will follow the road in this portion.

DL: Will you explain the number of properties needed for easements?
MZ: This will be determined and identified in final document.

PV: Many cottonwood trees have been planted along the landfill perimeter road on the slough side and in the future will be part of the riparian habitat.

ER: Do hard surface trails fall into DEQ permit for stormwater?
PV: The landfill has an NPDES permit for stormwater.

Follow Up Tasks:
- In permit section, note that a paved trail would require legislative approval.
- Grading permit and balance cut and fill will be needed for this segment.

South Slough Segment
PA: When thePeninsula Crossing Trail was being built it wasn't allowed to go throughthe CBWWTP due to odor and public safety concerns..
PA: There should be more negatives on this trail segment. It is not a good option if you look at it in the aggregate. Review the gestalt of the entire trail segment – it doesn't make sense.
The improvements to the N. Portland Road bridge will be very expensive.
JVS: There are environmental interpretation opportunities at the mid-point of this segment.

Columbia Boulevard Segment
Important to clarify if purchase of right of way is required.

DB: Not capturing that some of the segment might be along the road. Not room to do off-road pathway. Need to do extensive acquisition and bike lanes are questionable. Getting across Columbia Blvd. is the lesser of the evils of having an alignment along Columbia Blvd.

Follow Up Tasks:
- Flesh out the text about permitting from PDOT.

Pier Park Segment
DL: Regarding the Trail Connectivity criteria (regional subheading), is it double counting to give it a double plus since already ranked double plus for connecting with peninsula crossing?

DL: Should the ranking for 'Other permits' under Permitting/Approvals criteria be midpoint or a minus?

East Landfill Segment
Fencing will be on both sides of the spur trail. Perimeter fencing will be on the landfill side.

PV: It should be noted in the Environmental field notes for this segment that there is trenching activity near the heron rookery and not apparently causing a problem.

Follow Up Tasks:
- Fix location of spur trail on the map.
- Move the grading for trail between water control structure and E. Landfill perimeter road to Ash Groves segment.
- Check the - - for the Heron Rookery. Lots of work happening now – trenching, truck traffic, etc. – that doesn't seem to disturb the birds.
- Change ranking for Other Portland Permits to a minus (for PDOT) and change RR ranking to a minus.

Summary Comments

Loss of Riparian Area Criteria
The group discussed this topic at length and agreed that the critiera measurements would be revised to include the existing conditions of the riparian area (road or no road). Consultant team will revise and include in next mailing to the working group.

MZ: The next step will be to connect segments into alignments and look at the trends of each alignment.

DL: If look at scoring and field notes do we get the trends?

DA: *Yes, think that will happen.*

DL: Will we know what mitigation will be recommended for various locations?
MZ: *Yes.*

Smith and Bybee Lakes Wildlife Area
Technical Working Group Meeting

Wednesday, January 12, 2005 3:30 – 6:30 p.m.
Metro, 600 NE Grand Avenue
Room 501

Meeting Goals

1. Agree on ground rules for discussion
2. Summarize and agree on work done to date
3. Discuss and agree on 3-4 alternative alignments to evaluate
4. Apply already agreed on analysis approach to these
5. Allow each group represented to make case for their preferred alignment
6. Reach agreement on alignments to study further

Meeting Agenda

3 :30 Ground Rules and Goals

3:45 Summarize process and agreements to date

4:00 Review 5 alternatives in packet (Q&A for clarification only)

4:15 Each group has 10 minutes to make case for alignment they prefer based on facts and/or values.

5:15 Eliminate alternatives no one supports, ending up with 3-4 if possible

6:00 Identify points of agreement (i.e. east landfill ok in all alternatives)

6:15 Wrap up meeting / note what we agreed to and not
Discuss Public Workshop
Identify Next Steps

6:30 Adjourn

Smith & Bybee Lakes Wildlife Area Trail Feasibility Study

Meeting Notes – Technical Working Group Meeting – January 12, 2005

Present: Heather Nelson Kent (HK), Metro
Jane Hart ((JH), Metro
Paul Vandenberg (PV), Metro
Elaine Stewart (ES), Metro
Deborah Lev (DL), City of Portland
Joe Adamski (JA), St. Johns Neighborhood Association
Pam Arden (PA), 40 Mile Loop
Troy Clark (TC), Smith and Bybee Lakes Management Committee
Emily Roth (ER), Friends of Smith and Bybee Lakes
Dean Apostol (DA), Landscape Architect
John Van Staveren (JVS), Pacific Habitat Services
Marianne Zarkin (MZ), MacLoed Reckord

Marianne reviewed the ground rules and goals for the meeting. The purpose of the meeting was to discuss potential trail alignments and have each committee member present their group's recommended alignment to carry forward in the study.

The topic of previous project information was discussed. It was noted that the final report will need to discuss the presence of fish in the Columbia Slough. Also, the land acquisition and easement criteria needs to be tweaked, Metro will work on that.

Marianne and Dean reviewed the proposed study alignments and asked if there were any other alignments the group would like to add to the mix. None were added. Each group representative then was asked to present their recommended alignment and the rationale for their choice.

GROUP DISCUSSION
Responses to committee member comments/questions are in *italics.*

ER: Please clarify who are stakeholders; who are partners on committee.

JA: Metro and City of Portland are the project partners since they provided the funds for the study. The members on the working group are considered stakeholders; three stakeholders on the committee are also staff of the partner agencies but that does not 'weight' their recommendation as a stakeholder .

ER: Will Metro present more than one alignment?

JH: Metro staff (Parks and Solid Waste) will present one alignment as the agency's recommended suggestion.

ER:
What is user experience criteria based on? For example was the criteria based on the types of use that would be expected?

JH: This criteria was based on the sights, sounds and esthetic experience that the user could expect, regardless of the way they were using the trail.

ER: Can the existing intersection crossing at Lombard and Columbia Blvd. satisfy the Columbia Boulevard crossing to get from the landfill to Chimney Park?

MZ: No, that crossing is about ¼ mile to the west of the entrance to landfill and would be too far away. A crossing is proposed where the landfill entrance and Chimney Park entrance join Columbia Boulevard. Need to confirm what type of improvements will be recommended here; i.e. signalized or not?

PA: Does South Slough cost estimate include the cost of improvements to the North Portland Road bridge?

MZ: Yes

DL: Will cost estimates and mitigation be done for preferred alignments?

MZ: Yes, these will be provided in the final report.

Smith and Bybee Lakes Management Committee Recommendations- Troy Clark
Recommended alignment: From the Port of Portland trail, cross the North Slough, and follow the western landfill perimeter road, exit the landfill, cross Columbia Boulevard to Chimney Park and into Pier Park.

Do not recommend a trail between east landfill and Peninsula Crossing trail on either side of the Columbia Slough.

In 2003 the management committee wrote letter to Bragdon recommending new slough bridge and an alignment along the west side of landfill and connecting with neighborhood

Important to set the historical planning context to understand why things were recommended the way they were in the Natural Resources Management Plan. Out of NRMP came recreation master plan. If you build it, they will come. Old ideas for past facilities (interpretive center) were good ideas at the time. Not sure what will happen with new canoe launch

Things have changed since the NRMP was approved and now there are sensitive habitat issues- Heron rookery, eagle. So. Lake Shore is sensitive habitat and a trail should not be built there. How will we ever decide what threshold is?

There is adequate access to meet the goals of connectivity, without using South Shore Lake alignment. Can still make connection for loop experience.

Management Committee hasn't formally looked at any other potential alignment but they can probably live with a trail on the South Slough.

Friends of S & B Lakes Recommendation – Emily Roth
Given that there is a wildlife corridor along the South Lake Shore alignment, should not build a trail there, it will fragment the habitat. Also, need to look beyond the project study area for the

trails study when looking at views because there are many other opportunities for views from the north side of the lakes and from the Port of Portland Trail.
It is not the role of this trail to offer great user experiences since great user experiences are already provided in other parts of the wildlife area. For example, can get into canoe and kayak and enjoy the experience of the lakes best that way. The role of this trail is to connect the Port of Portland trail with the Peninsula Crossing Trail.

Recommend a trail that connects to Peninsula Crossing Trial through the neighborhoods. As a compromise would recommend
1) West landfill – Cross the North Slough and follow western landfill perimeter road to southern landfill perimeter road, exit landfill and travel along the south side of the slough to the North Portland Road bridge.
2) North landfill – Cross the North Slough to the north perimeter landfill road, to east perimeter landfill road, over the existing landfill bridge, and travel along the south side of the slough to North Portland Road bridge.

ER: Will bicycles be acceptable on these proposed alignments?

JH. Since these trail alignments are regional trails, it is important that they provide bicycle access, since people using the other regional trails these will connect to will be using bicycles.

ER: There is a problem with dogs and bicycles in the wildlife area now.

ES: Metro intention to have signage for "No Pets". There is an ongoing Internal discussion at Metro to have dogs on leash on Marine Drive.

St. John's Neighborhood Recommendations – Joe Adamski
Has had a lot of discussion with the group's members.
Access from the neighborhood is a big concern. People do not want to pay fees to use the area, and they want to maintain access for bicycles, dogs and fishing.
Neighborhood Assoc. wants multimodal access at:
* Port of Portland
*Landfill and Peninsula Crossing
* Through Pier Park to Chimney Park
* Access across Columbia Blvd.
* Connection near Slough

HK: Bike lanes on Fessenden & Smith Streets exist – does the Neighborhood Assoc. still need something next to the Slough?

JA: The neighborhood thinks that the onstreet bike lanes are already, so they still want something near the south slough.

Recommend alignment: Cross the north slough, north landfill perimeter road, east landfill perimeter road, and along either the north or south side of the slough. Could live with the south side of the slough.

City of Portland Parks Recommendation – Deborah Lev
Putting trail through ash grove is a big environmental impact that is not necessary if have landfill road to use.
Choices are using a wide trail and a narrow trail – wide one would have more permanent impact – 12' vs. 6'
Thru connection needs to be multi-modal and would have to be paved.

Recommended Alignment: Cross North Slough to North Landfill road, to East landfill road, to landfill entrance, cross Columbia Blvd. through Chimney & Pier Park and stop at southern extent of Pier Park. Another leg would begin at the southwest corner of the landfill and travel east along So. Lake Shore. This would be soft surface and narrow. Would need the caveat that it would not be constructed if trail within distance that would be damaging to nests.
Trail closures OK, not gravel, not multi-modal.

Would be willing to see something along the south side of the South Slough and through Pier Park that accommodated multi-modal use.

HK: But if South Slough route could not be secured due to unwilling sellers, the City would like multi-modal route through Chimney & Pier Parks and smaller trail on So. Lake Shore?

DL: Yes, it could possibly be gravel with mountain bikes potentially OK to use.

40-Mile Loop Recommendation – Pam Arden
Recommended Alignment:
1) Scenic Route – From Port of Portland Trail through the Ash Grove, cross water control structure, follow E side landfill, to South Lake Shore alignment.

2) Could live with No. landfill/ E. landfill/South Lake Shore alignment.

40-Mile Loop compiled documents that shows this alignment in many documents and provided it to the consultant earlier in this process. The neighborhood connection has always been important. Need to a thru connection from Port of Portland trail to Peninsula Crossing to Delta Park.
When have multi-modal on either end hard not to have multi-modal in middle

Not everybody will have ability to be on lake so it is important to have various view advantages

ER: 40-Mile Loop goal is loop from here to there right? Is enhanced user experience a goal?

PA: This is a unique experience. Community wants access. Connectivity around lakes is important

DL: Would South Slough not be acceptable? Is it that different of an experience?

Metro Recommendation – Elaine Stewart

Recommended Alignment: From Port of Portland Trail through Ash Grove, cross water control structure, to east landfill road, to Landfill bridge, cross Columbia Blvd. through Chimney and Pier Parks and along either Smith or Fessenden to Penninsula Crossing Trail. This alignment is the only one being considered so far that does not require a bridge over the slough. Good to have that option in the mix. Wanted to see if we could put forth alignment people could come to consensus on.

It was a judgment call – eagle and herons will be displaced if build trail on the South Lake Shore. Think we can build a trail through ash groves that won't damage roots.

Important to have direct access into Smith & Bybee Wildlife Area. Now the only way to see the wildlife area is from Peninsula Crossing Trail or Marine Drive.

ER: Shouldn't look at trade offs. When you ask us what you should trade off, need to look at as a whole. How do we protect area?

DISCUSSION WRAP-UP

The consultants and working group discussed the alignments further and mutually agreed on the following points:

1. Landfill Connector and Pier Park segments are important and included in each alignment.
2. Eliminate Columbia Boulevard segment.
3. Eliminate SW Landfill segment.
4. East Landfill segment in all of the alignments.

The technical working group agreed that the 4 alignments listed below should be considered for further review by the public and Metro Council:

1. **Landfill Trail Alignment:** Crosses the North Slough to North Landfill, East Landfill, Landfill Connector, Pier Park
2. **South Lake Shore Trail Alignment**: Crosses North Slough to North Landfill, East Landfill, South Lake Shore, Landfill Connector, Pier Park
3. **South Slough Trail Alignment:** North Landfill, East Landfill, South Slough, Landfill Connector, Pier Park
4. **Ash Groves Trail Alignment**: Ash Groves, East Landfill, Landfill Connector, Pier Park, through Neighborhood (along Smith or Fessenden) to Penninsula Crossing Trail.

FINAL COMMENTS FROM GROUP ABOUT THEIR PREFERRED ALIGNMENTS:

1. Friends of Smith and Bybee Lakes - Prefer the 'Neighborhood Trail' which avoids a trail on the Columbia Slough. In spirit of compromise could agree to the South Slough alignment. But all bets are off if South Slough were not chosen by the Council.
2. City of Portland - Prefer the South Slough Trail. Would agree to South Lake if South Slough not possible but only as a narrow soft surface trail.
3. 40-Mile Loop - Prefer the Scenic Trail (Ash Groves to East Landfill to South Lake Shore). In spirit of compromise will agree to the South Lake Shore (North landfill to East landfill to South Lake Shore).
4. Smith and Bybee Lakes Management Committee - The official recommendation of the Management Committee is to have a trail on the southwest landfill road to the landfill bridge and through to Pier Park (Neighborhood Trail). In spirit of compromise would agree to South Slough alignment. All bets are off if the Council does not choose the South Slough.
5. Metro - Landfill Trail would eliminate use of Ash Groves and South Lake Shore, and preserve those habitats best.
6. St. John's Neighborhood – Would agree to South Slough. If South Slough were not chosen by Council, would want the South Lake Shore alignment.

NEXT STEPS IN STUDY PROCESS
Time to Get Notice out about Public Meeting

- Metro Web site
- Newsletters
- Monthly, weekly, daily newspapers
- Announce meeting beyond No. Portland newspapers since it is a regional resource

Would like TWG members to attend and help out at the open house.

Consultant Team will prepare a PowerPoint show for the open house to cover topics including:

- Historical context
- Missing Link in 40-Mile Loop / Regional trail system
- Recent discoveries, i.e., eagle
- Theme is changing environment
- Study Segments

Show 4 alignments on separate maps. Mention do not have a no build alignment

Important – Have handout at meeting regarding Metro dogs and bicycles policy

* Jane will send revised schedule with meeting minutes

Trails Feasibility and Design Study
for the
Smith and Bybee Lakes Wildlife Area

Thursday, July 14, 2005
4:00 p.m. – 6:00 p.m.
Metro, 600 NE Grand Avenue
Room 501

Meeting Agenda

4:00 pm	**Welcome & Introductions**	Jane Hart
4:05 pm	**Review Meeting Objectives**	Marianne Zarkin, MacLeod Reckord Dean Apostol
4:15 pm	**Discuss Comments on Draft Feasibility Study**	All
5:30 pm	**Seek Group Consensus on Draft Feasibility Study**	Marianne Zarkin, Dean Apostol
5:40 pm	**Next Steps**	Jane
6:00 pm	**Adjourn**	

Light Refreshments will be provided

Smith & Bybee Lakes Wildlife Area Trail Feasibility Study

Meeting Notes – Technical Working Group Meeting – July 14, 2005

Present: Chris Carlson, Metro
Jane Hart, Metro
Paul Vandenberg, Metro
Elaine Stewart, Metro
Deborah Lev, Portland Parks and Recreation
Joe Adamski, St. Johns Neighborhood Association
Pam Arden, 40 Mile Loop
Troy Clark, Smith and Bybee Wetlands Management Committee
Emily Roth, Friends of Smith and Bybee Lakes
Dean Apostol, Landscape Architect
Marianne Zarkin, MacLeod Reckord

Jane welcomed the Technical Working Group members and introduced Chris Carlson, Metro's new Parks Planning Division Manager. Jane announced that Heather Nelson Kent was the new manager of Community Outreach for the Parks Department and acknowledged Heather for her contribution during the first several months of the trails study project.

Jane also thanked the consultant team for their good work producing a draft report and appendix for the working group to review.

Marianne reviewed the meeting objectives. The purpose of the meeting was to document and discuss and resolve, where possible, the working group members' comments on the draft report. A desired outcome of the meeting was to reach consensus by the group of a statement of support for the feasibility study.

Marianne asked each member to provide their comments about the report.

COMMENTS ON DRAFT FEASIBILITY REPORT

Pam Arden – 40-Mile Loop Land Trust

- The draft report conveys that the South Lake Shore segment is more sensitive habitat, more 'off limits" than the Ash Groves segment, but that is not what she remembers from the previous discussions the group has had. Her recollection is that building trails in either segment would have approximately equal impacts to the habitat. Be sure that the report represents fairly the impacts to each segment.
- User experience should be ranked in all alignment discussions.
- If possible, include a photo in each of the alignment discussions that shows trucks on Columbia Boulevard.
- Need to discuss management issues in the Ash Groves, since it is addressed in the South Lake Shore.
- Need to better represent the challenges of the North Portland Road Bridge as a disadvantage to the South Slough alignment.
- Clarify the terms 'recovery' versus 'restoration' where relevant in the document.

Emily Roth – Friends of Smith and Bybee Lakes

- Would like the statement that none of the alignments is fatally flawed removed from the executive summary. If that statement stays, then need a statement that the South Lake Shore alignment is fatally flawed.
- Move any element that is common to all alternative alignments to the front of that chapter, and avoid redundancy in each alignment discussion. For the alignment discussions, focus on what is different between the alignments.
- Why can't the report recommend specific buffers?
- Just as you are pointing out that further analysis is needed prior to determining if slough bridge is feasible, need to fully disclose what will be involved regarding the presence of bald eagles and what type of review/analysis will be required to propose a trail in vicinity of the eagles, i.e. may need a Habitat Conservation Plan and that is costly. Consultation with USFWS is downplayed.
- Be consistent with the elements that are discussed in each alignment, i.e. each criteria category should be listed, and if a criteria is not applicable to an alignment, then say so.
- The context map and all alignment maps should show that the entire area along the South Lake Shore is sensitive habitat, just as the Ash Groves segment is shown as all sensitive habitat.
- Need to reference the bat study that was done for Ash Groves somewhere in report.
- Avoid editorial statements.
- Document the authors and dates on the technical memoranda in the appendix.

Joe Adamski – St. Johns Neighborhood Association

- Overall the report represents the facts, analysis and findings that were reviewed, discussed and agreed on by the group throughout the alignment study. No specific comments, the report looks good and happy with the result.

Paul Vandenberg – Metro Solid Waste and Recycling

Provided comments in writing to Jane but in summary

- Need to highlight the areas of study needed for a new slough bridge (impacts to groundwater)
- Fencing is needed on two sides of the landfill road between the southeast corner and the landfill bridge due to the fact that that liner is beneath the landfill road in this area.
- Some gate costs need to be added
- Bump contingency to 30% for some components

Troy Clark – Smith and Bybee Wetlands Management Committee

- Believe that the report fairly represents the trail study process that was conducted and the facts and findings the group agreed on about the trails segments and alternatives.
- Not sure the report was able to determine level of feasibility of each alignment to the degree that the Metro Council will have enough data to go on to make a decision.
- There is ambiguity on the Metro Council vis a vis Metro's management policy for the wetlands, i.e. dogs, bikes.
- Would like to have the contingencies to the recommended alignments that were discussed in January 05 working group meeting reflected in the minutes and include them in the appendix.
- Appendix should include the letter that was sent by the Smith and Bybee Wetlands Management Committee to President Bragdon requesting this study.

Deborah Lev – Portland Parks and Recreation

- Clarify that the Port of Portland Trail is part of the Columbia Slough Trail.
- Can you get the redundancy out of the executive summary?
- Mention that the Port of Portland Trail floods before the Ash Groves and landfill segments.

Elaine Stewart – Metro Regional Parks and Greenspaces

- Add the Natural Resource Management Plan (NRMP) Goal somewhere in the report.
- Provide context for the changes that have occurred in the natural area since the NRMP was approved.
- Be sure that the Alignment Summary table includes information on the types of permits and consultation needed for each alignment.
- Add the bird count data into the bibliography.

AGREED UPON CHANGES TO THE DRAFT REPORT

In addition to addressing the comments listed above, the following changes will also be made prior to finalizing the public review draft:

Text Changes:

1. Clarify that on street improvements between Pier Park and Penninsula Crossing Trail through neighborhood are only recommended for the Ash Groves alignment.
2. Mention that trail width could vary between 8'-12' given the variety of locations trails are being considered (landfill roads, sensitive habitat, neighborhood streets, landfill connector).

Format Changes:

1. Revise Executive Summary to omit redundancy with later part of document. Add maps of each alignment to the Executive Summary.
2. Include the appendices as part of the feasibility report, not a separate document.

Map Changes:

1. For site context map and alignment alternative maps, show continuous sensitive habitat area between heron rookery and the furthest east eagles nest along the South Lake Shore alignment.

NEXT STEPS:

Public Tour of Trail Alignments – Thursday, August 11, 2005
Release of Final Trails Feasibility Study for Public Review – Week of August 29, 2005
Metro Council Tour of Alignments – Tuesday, September 6, 2005
Metro Council Work Session – Tuesday, October 4th, 2005
Metro Council Hearing to Consider Feasibility Study – Thursday, October 27th, 2005

FOLLOW UP TO JULY 14, 2005 MEETING

Time ran out during the meeting before the group was able to come to consensus regarding the Feasibility Study. Following the meeting Jane Hart circulated an e-mail to the members which included a statement (similar to one provided by Troy Clark during the meeting) in an effort to achieve the goal of reaching consensus about the draft feasibility study. The statement read "The draft feasibility study fairly represents the trail study process that was conducted and the facts and findings the group agreed on about the trail segments and alignments." The group unanimously supported the statement based on the assumption that the agreed upon changes discussed in the meeting would be reflected in the final document.

APPENDIX B

TECHNICAL MEMORANDA

Notes from the Field and Research on Trail Segments

Contributing authors: Marianne Zarkin, MacLeod Reckord; Dean Apostol; John Van Stavern, Pacific Habitat Services; Dana Beckwith, DKS Associates

Field visits: September 8 – 10 and 15, 2004

Ash Groves Segment – North side of North Slough between Port of Portland Trail Terminus & Water Control Structure

Safety
- No road crossings, RR crossing, etc. No landfill hazard.

Environmental
- Trail can be located without taking out trees, though one area near a small channel to the slough may require the removal of a willow tree
- Though no painted turtles seen, have been documented in area.
- Wetland impacts along most of trail segments.
- Short length of trail near the water control structure may be able to be constructed half in and half out of wetland.
- High habitat value (structurally diverse), lots of bird use – easily startled by our approach (both in the gallery forest and in the Slough).
- Evidence of coyote, rabbit use and beaver activity.
- Large Oregon ash trees (several exceeding 48" dbh)– a rarity in the Metro area for trees to be this old (maybe >200 yrs). Likely provides habitat for bats and cavity nesters.
- Pileated woodpeckers seen using the forested area.

Costs
- Mitigation costs could be high depending on distance from bank and tree removal.

Multi-Use Potential
- Room for trail exists, great variety of views, grades level, and good spatial diversity.

User Experience
- Sounds: planes, birds: killdeer, finch, lesser goldfinch, trains.
- Background views of Port facilities, prison, Forest Park.
- Segment meanders away from Slough edge.
- Areas with big ruts in trail – evidence of water on trail – flooding.
- Foreground view is large trees, widely spaced, open understory.
- Water views include Slough and Bybee Lake.
- High level of landscape diversity.
- Lots of visible charismatic wildlife: egrets, heron, raptors, and vultures.
- Expansive mid-ground views over Bybee Lake.
- High degree of naturalness.
- Data suggests that most of the segment is above 11 feet but still has the potential to flood up to several weeks per year.

Permitting
- Segment must be constructed close to the Slough - may be a problem for NOAA Fisheries to approve.
- Permits required from the Department of State Lands and the Corps of Engineers for trail construction. Will require discussion of alternatives analysis.
- DSL will not approve the trail segment if more than 50 cubic yards (cy) of fill is required below 11 feet mean sea level (per Lori Warner – DSL) No. permit is required by DSL if fill is below 50 cy.

Management
- Homeless camp – neatly kept, no sign of inhabitants.
- Transition to old growth ash trees – grass below trees – is this a fire risk?

- Maintenance vehicle access reasonable from POP Trail or landfill – if segment is paved. A soft surface trail requires staff to walk from either end point – they'd need a second vehicle or would have to double back to their starting point. This soft surface trail may be able to be driven in an ATV for litter collection and other monitoring.
- Three monitoring wells located on platforms along this route – staff visits monthly by driving on existing track.

Connections

- Direct connection from POP Trail and to regional trail at Marine Drive. Paved trails make for better regional and neighborhood linkages as they can be traveled by bicycles. The walking distance from the neighborhood may make it more likely neighbors would park at a trailhead and walk in.

Southwest Landfill Segment – Landfill Perimeter Road between Potential Slough Bridge & Existing Landfill Bridge (includes spur across NW corner of landfill)

Safety

- Landfill facilities – segment passes monitoring wells, pump stations, and collection pipes that are vulnerable to vandalism.
- No major or local road crossings, RR crossing.

Environmental

- Entire lower edge of gravel roadway in this segment is less than 50 feet from Columbia Slough, with as much as 80% of this dropping below 25 feet.

Costs

- This segment includes a pedestrian/bike bridge connection between the end of the POP Trail and the landfill perimeter road. There are several locations that look good in terms of grades and clearings. Bridge location will require future study – need to avoid basking logs, minimize tree removal, and find a the narrowest spot along the Slough.
- Roadway grade change severe between existing landfill bridge and perimeter road – would require fill but may be too close to Slough for fill and very tight on the other side to the slope of the landfill.
- Fencing required to keep trail users out of landfill facilities, gates required at road intersections, pump stations and monitoring wells.

Multi-Use Potential

- Very good, some grade issues near existing landfill bridge.

User Experience

- Views of Forest Park, lakes, Mt. St. Helen's, Mt. Hood from viewpoint on spur trail.
- Landfill staff also suggest an alternative to the spur trail and viewpoint idea – see East Landfill segment.
- According to landfill staff, sections of this segment flood yearly – water can remain for a few weeks.
- Foreground: view on one side is riparian vegetation and Slough, other side is grassy landfill and pipes.
- Few distant views. Forest Park glimpsed in areas. Container yard across Slough, no lake views.
- Sounds: Some industrial and traffic at present. New highway overpass quite close. Will add lots of traffic noise when opened.
- No on-road distance.
- Some environmental education opportunities: Slough, riparian restoration, and landfill.
- Landscape diversity moderate.
- Wildlife viewing: some bird activity along Slough.
- Fencing along landfill could diminish experience.
- Work at landfill could close the segment infrequently but for long periods of time due to repairs.
- Segment has the potential to flood for a few days to a couple of weeks on an average year.

Permitting

- Fill for grades in E-zone
- Segment is close to Columbia Slough; may be a problem for NOAA Fisheries to approve unless segment offset above road.
- Requires modifications to the landfill closure permit from DEQ.
- Storm drainage from asphalt pathway may need to be treated for City of Portland approval.

Management

- Landfill operations are impacted on a daily basis. Staff use the perimeter road daily to monitor groundwater wells and take gas readings. Car can be parked near wells and pump stations for hours at a time.
- Potential in this area of need to construct cut-off walls beneath perimeter road to restrict the flow of leachate and trash into Slough.

Connections

- Straightforward connection from POP Trail through landfill to Landfill Connection segment. Reasonably direct connection for neighborhood and regional connections.

North Landfill Segment – Landfill Perimeter Road between Potential Slough Bridge & north east corner of landfill

Safety
- Landfill facilities – segment passes monitoring wells, pump stations, and collection pipes that are vulnerable to vandalism.
- No major or local road crossings, no RR crossings.

Environmental
- Not habitat impact.

Cost
- Fencing required to keep trail users out of landfill facilities, gates required at road intersections, pump stations and monitoring wells.
- This segment includes a pedestrian/bike bridge connection between the end of the POP Trail and the landfill perimeter road. There are several locations that look good in terms of topography and clearings. Bridge location will require future study – need to avoid basking logs, minimize tree removal, and find the narrowest spot along the Slough.

Multi-Use Potential
- Good opportunity for paved, multi-use pathway.

User Experience
- Foreground: view on one side is riparian vegetation and Slough and lake views, other side is grassy landfill and pipes.
- Distant views: lake views, mountain views.
- Sounds: Quiet area, distant and sheltered from traffic and industry.
- Some environmental education opportunities: Slough, riparian restoration, and landfill.
- Landscape diversity moderate, mostly riparian.
- Wildlife viewing: Bird activity along Slough.
- Fencing along landfill could diminish experience.
- Segment has the potential to flood for a few days to a couple of weeks on an average year.

Permitting
- Requires modifications to the landfill closure permit from DEQ.
- Storm drainage from asphalt pathway may need to be treated for City of Portland approval.

Management
- Landfill operations will be impacted on a daily basis. Staff use the perimeter road daily to monitor groundwater wells and take gas readings. Car can be parked near wells and pump stations for hours at a time.
- Landfill perimeter road in this segment may be obstructed for a long time if a cut-off wall is needed to curb the flow of leachate and trash into Slough. These walls are sited beneath the perimeter road – the last project took 2 years to complete.

Connections
- More out of the way connection to neighborhood than other routes. This segment would require a bridge across the Slough to make connection to POP Trail.
- Not a very direct connection to the Peninsula Crossing Trail or for other regional trail networks.

South Lake Shore Segment (B1) – South Shore of Smith Lake between existing landfill bridge and North Portland Road / Bridge

Safety

- No road crossings – per initial ODOT discussion, can go under N. Portland Bridge and connect to Peninsula Crossing Trail.

Environmental

- Habitat value lower than in Ash Grove area, though still provides good quality habitat for birds – lots of cavities in the trees.
- Predominantly cottonwood stands of various ages. Several large trees adjacent to Slough (>36" dbh).
- Evidence of beaver use (crossing trail), pair of great horned owls roosting in the adjacent trees (spooked by our approach), Pileated woodpeckers also spooked.
- Old bald eagle nest close to the trail, though may be used again. Active second nest within conditioned zone (~1000') may also be used by osprey
- Great blue heron rookery (comprised of several nests) close to west end of segment near landfill
- Segment route possible in higher ground – will need to remove some smaller trees.
- As one nears Portland Boulevard, there is the space to meander the segment through the cottonwoods – not keep it in the present segment.
- No impacts to wetlands except for very small isolated areas – this depends on whether the segment stays to the existing track and whether it stays to the higher ground near the landfill end (which will require some trees removal depending on trail width and treatment [soft/hard])
- Very close (less than 20 feet in places) to the slough edge along eastern end.

Cost

- Big grade change between landfill road and the low terrain in this area – would require fill to get segment in at easy grade. Would require loss of trees.
- Easements and/or acquisitions issues to be resolved – crucial to building this segment.

Multi-Use Potential

- Room available, grading/fill needed to connect to landfill perimeter road.

User Experience

- Sounds: industrial noise from Columbia steel. Highway noise as one nears Portland Blvd. Wildlife sounds from birds: pileated woodpecker; heron; owl.
- Foreground: dense woodland vegetation. Some areas of large trees. Close contact with Slough. Glimpses of industrial buildings.
- Middle/background: Limited by density of foreground vegetation. Some opportunities to provide spur trails to viewing areas over Smith Lake, to Washington Cascades.
- Wildlife viewing: good opportunities along Slough, and if spur trails allow views over Smith Lake.
- Multiple interpretive opportunities: lake/wetlands, riparian, Slough, forest succession.
- Moderate level of landscape diversity.
- Most of the segment above yearly flood elevations. Segment beneath the N. Portland Bridge could flood for a few days each year.

Permitting

- Distance from the Slough, distance from the wetlands on Smith Lake side may be an issue.
- NOAA may have an issue with close distance to the Slough.
- Permits probably not required from DSL (i.e. less than 50 cubic yards) – this is dependant on western end and the segment's location though the trees.
- Army Corps of Engineers may require permit for even small amount of fill, though may consider some smaller individual wetlands to be isolated and not regulated.
- May require consultation with USFWS due to proximity to bald eagle nests.

Management

- A long trail section with no opportunities to cut off onto another trail or road, making maintenance and patrol more difficult. Hard surface will allow for vehicle to enter from landfill or N. Portland Road – turn around opportunities can be provided with small hammerheads.

Connections

- Direct connection to the Peninsula Crossing Trail.

South Slough Segment – South Shore of Columbia Slough between existing landfill bridge and existing Pedestrian Bridge over slough (near Col. Blvd. WWTP)

Safety

- Plenty of room to locate trail between Wapato Wetlands and Union Pacific spur line that runs into the automobile transfer yard. Hazard from tracks minimal due to distance and difference in elevation. Need to check with Union Pacific to see if fencing would be required for a trail (and if they would grant an easement).
- To connect to the Peninsula Crossing Trail from this segment will require the construction of an underpass beneath the existing N. Portland bridge. Modification to the existing N. Portland bridge structure would also be required in order to accommodate pedestrians and bicycles. Since the bridge has no capacity for the addition of bicycle lanes or pedestrian facilities, an option for the bridge crossing would be to utilize a cantilevered pathway along the eastside of the bridge.
- Another option for connecting to the Peninsula Crossing Trail has been proposed – traveling along existing roadways belonging to the Waste Water Treatment Plant (WWTP). An existing road travels from the east side of the N. Portland Bridge along the Slough underneath the RR bridge and through the WWTP. This alignment has not been fully analyzed, and the WWTP has not been officially contacted for an opinion.
- The City of Portland classifies N. Portland Rd. as a Major City Traffic Street. Traffic volumes estimated from historical traffic counts along N. Portland Rd. indicate two-way average daily traffic volumes north of Columbia Blvd. could be within the 10,500 to 12,000 vehicle range.
- Sight distance along N. Portland Rd is not limited within the South Slough Trail segment area. Speed limit along N. Portland Rd. is posted at 35 mph. Higher truck volumes here compared the Pier Park on-road routes.

Environmental

- Much lower habitat value on the upper terrace and slopes near RR tracks than on bottomlands along Slough (uplands mostly blackberry thickets and open weedy areas). Trail could be located in these upland areas near railroad tracks to avoid habitat/wetland impacts.
- Wapato Wetlands along inlet from Columbia Slough – high quality emergent wetland and very rare in the metro area. Trail should stay in upland areas (per above comments) to avoid impacts to the Wapato Wetlands.
- Forested areas are mostly limited to lower terraces along slough; both cottonwood and ash dominated stands of high structural diversity.
- Lower quality, mostly emergent wetlands present along powerline easement in east half of segment, also a mitigation wetland north of Columbia Steel.
- Narrow riparian strip at east end of segment is highly disturbed from past industrial activities
- Green Heron, evidence of raccoons, frogs.

Costs

- Acquisition/easement costs could be extensive since the beginning and end of this segment are in public ownership. Columbia Steel not a willing seller at this time.
- Trail could go under the existing N. Portland Road bridge with a new underpass and either connect up to and cross the bridge – requiring modification to the structure to add a wider sidewalk, or possibly could go on through the Waste Water Treatment Plant on their roadways.

Multi-Use Potential

- Plenty of space for a trail in this area between RR tracks and wetlands. May be smaller wetlands located in this area that may limit trail development

User Experience

- Views not as varied or interesting as Ash Groves– no view of Slough. Foreground mostly industrial, weedy vegetation, some riparian and wetland, fencing, railroad. Limited middle/background views.
- Sounds: train, industrial traffic.
- On-road: No on-road needed if route north of steelworks available.
- Wildlife viewing: limited. Could improve with spur trails to overlook wetlands and Slough.
- Interpretive: Very high if spur trails built to overlook wetlands.
- Landscape diversity: generally low.
- Most of the trail above yearly flood elevations. Trail beneath the N. Portland Bridge could flood for a few days each year.

Permitting

- RR could be an issue depending on distance of trail from tracks.
- No wetland permitting issues as long as segment follows upper slopes near RR tracks and upland margins of industrial areas.
- ODOT needs to approve bridge underpass.
- May require consultation with USFWS due to proximity to bald eagle nest.

Management

- Trail could make utility access easier than current conditions.
- Length of trail and limited opportunities for side connections makes this route tougher to access for emergency vehicles, utility trucks.

Connections

- Could provide good connector to Peninsula Crossing but not many opportunities for intermediate neighborhood connections.

Columbia Boulevard Segment – South side of Columbia Blvd. between entrance to Chimney Park and North Portsmouth Rd.

Safety

- The Columbia Blvd. segment would cross two major roadway facilities. One of these is at the N. Portland Rd. access ramp. The City of Portland classifies N. Portland Rd. as a Major City Traffic Street. N. Portsmouth Ave. is the second major roadway facility that would be crossed and is classified as a Neighborhood Collector Street by the City of Portland.
- Columbia Boulevard crosses the railroad tracks at an existing grade-separated (bridge) railroad crossing just east of Chimney Park.
- Modifications would be required in order to utilize a portion of this bridge as a multi-use facility for bicycles and pedestrians. These modifications may include reducing motor vehicle lane widths, narrowing sidewalks, and adding additional facilities such as cantilevered sidewalks and bikeways.
- The City of Portland classifies Columbia Blvd. as a Regional Traffic Way and Major City Traffic Street. Truck traffic makes up a significant amount of the daily traffic. A recent traffic count (6-26-03) near the intersection of Columbia Boulevard at Burgard St. shows during the PM peak hour, trucks can make up 19.4 % of the total vehicle volumes. Columbia Boulevard can have average daily traffic volumes ranging from 10,600 to 19,000 vehicles depending on location. This is based on historical counts conducted between December 1999 and October 2002 within the study area.
- Existing sidewalk 7' to 8' wide. Too narrow for joint use by bikes and pedestrians.
- There is a sidewalk with a fence along Columbia Boulevard near the George Middle School – narrowing the sidewalk considerably.
- The Columbia Blvd. B3 segment has multiple commercial access points. A majority of these are located along the north side of the roadway.
- This segment has the highest posted speed limit at 40 mph, and truck volumes (observed), of any the proposed segments. Sight distance is generally not limited along the Columbia Boulevard roadway segment.

Environmental

- No habitat impacts.

Costs

- N. Portland Boulevard bridge: would require cantilevered sidewalk separated from traffic. There is not enough room to allow pedestrians and bicycles across the bridge in its current configuration.
- No new major road crossings.
- Large amount of truck and auto traffic – roads collect more debris. May require more frequent sweeping.
- The entire ROW appears to be taken up with roadway and sidewalks. To locate either an off-road trail or bike lanes on either side of the roadway would require either narrowing the travel lanes or purchasing land or easements from private property owners.

Multi-Use Potential

- There is room in some areas for an off-road trail – but only in segments. There is the potential for an offstreet pathway between N. Bliss to approximately ¼ mile before N. Midway Avenue – just west of the George Middle School.

User Experience

- Backdraft from trucks is strong – hard to imagine staying on a bike. Smell of exhaust can be extreme. Approximately one-quarter to one-third of the sidewalk is covered with debris, broken glass, etc.
- Sounds: Noise from these trucks and other traffic can be very loud. Hard to hear human voice at times.
- Foreground: industrial and edge of residential. Middle/background: few views out to distance.
- On-road distance: all on-road
- Wildlife viewing: few to none
- Interpretive: no opportunities
- Diversity: low

Permitting

- There is limited room within the ROW to add a 5' bike lane on each side of the roadway.

Management

- Easy to patrol – great visibility from roadway. Great access for emergency vehicles.

Connections

- Bus 16 travels along Columbia Boulevard. There is a bus stop at entrance to landfill.
- Good neighborhood links. Awkward connection to Peninsula Crossing trail at N. Portsmouth Avenue as bicyclists must use the crosswalk to cross Columbia to gain access to the Peninsula Crossing Trail.

Pier Park Segment – Chimney Park Entrance through Pier Park, through neighborhoods to Penninsula Crossing Trail

Safety

- Two routes stand out as potential options of connecting the trail system between Chimney Park and the Peninsula Crossing Trail. Route 1 travels from Pier Park east on Seneca St., then north on St. Louis Ave. which turns into Fessenden St. and then connects to the Peninsula Crossing Trail. The intersection of St. Louis Ave. and Seneca St. is presents challenges with its wide geometry.
- Route 2 travels from Pier Park south along St. Johns Ave., turns east onto Smith St., north onto Columbia Way, and east onto Fessenden Street and then directly to the Peninsula Crossing Trail. This segment intersects St. Louis Ave. and also requires bicyclists to travel through the intersection of Fessenden St./Columbia Way. Bicyclists traveling westbound along this segment would be required to make a left-hand turn at the Fessenden St./Columbia Way intersection. This can be a difficult movement for a bicyclist. To address this, the eastbound approach could be reconfigured to accommodate a westbound left turn lane and protected phasing to accommodate bicyclists.
- The City of Portland classifies St. Louis Ave., Fessenden St., and Columbia Way as Neighborhood Collector Streets. Smith St. is classified as a Local Service Traffic Street. Traffic counts on Fessenden St. near Oswego Ave. conducted on May 4, 2004 showed a two-way average daily traffic volume of 12,254 vehicles. Traffic counts conducted on Smith St. near the intersection of Tyler Ave. on September 4, 2002 showed a two-way average daily traffic volume of 3,519 vehicles.
- If the Pier Park segment utilizes Fessenden St. there are more than four commercial access points intersecting with the trail. If Smith St. is utilized as part of the route, there are approximately two commercial access points that would be crossed.
- Sight distance is generally not a limitation along either of the two routes. The posted speed along Smith Street is 25 mph and the posted speed along Fessenden St and St Louis is 25 to 35 mph.
- A short-term solution to connect Chimney and Pier parks is to use the Columbia Boulevard bridge. A short segment of the Columbia Boulevard bridege would need to be modified to utilize this route as a multi-use path between parks. These modifications may include widening of the bridge's south side sidewalk with a barrier added for separation from roadway traffic or the addition of a cantilever pathway.

Environmental

- No wetland impacts.
- A few trees may need to be removed in Pier Park to accommodate trail.

Costs

- Crossing RR tracks: Long term – pedestrian/bike bridge over the RR. Short-term – use existing sidewalk on Columbia Boulevard RR overpass. Modifications will be required to sidewalk/bridge to accommodate this use.
- Grading will be required to meet elevation of bridge over railroad tracks from Pier Park and Chimney Park. To locate trail within Chimney Park will require some slight reconfiguration of the off-leash dog area. There would be some cost associated with moving the off-leash area fencing to accommodate the trail.
- If this segment utilizes Smith St. and Columbia Way as part of its route, modifications to the existing traffic signal at the intersection of Fessenden St./Columbia Way will be needed. These improvements consist of adding a left turn lane and a protected left-turn traffic light and would provide for an easier left turn movement for bicyclists.

Multi-Use Potential

- Good opportunities for the Chimney Park and Pier Park portion of this trail segment, once trail leaves Pier Park it is an on-street bike lane/sidewalk situation with no option for an off-road trail.

User Experience

- To avoid traffic noise and exhaust, trail can be located within the park – not paralleling the road.
- Possible to follow existing trails through Pier Park.
- Pedestrian/bike bridge connection between the two parks would be a very positive development for both parks. Will increase use of each park.
- Foreground views: neighborhood, large trees in parks
- On-road experience: there is travel on collector streets. Traffic volumes and speeds lower here than on Columbia. Better, safer feel
- Very few opportunities for interpretation and wildlife viewing.

Permitting

- Need approval from Portland Parks to alter Chimney and Pier Parks.
- No environmental zone issues, but tree removal permits would be required.
- Union Pacific approval required for pedestian/bicycle bridge crossing.

Management

- Access for maintenance easy in some areas – along roadways – more limited within Pier Park due to very limited vehicular access.
- Patrolling within Pier Park more challenging as must be in park to patrol – no sight lines from nearby roads. And no secondary vehicular access available within park

Connections

- Great neighborhood connections – St. Johns neighborhood, parks, George Middle School. Excellent link to Peninsula Crossing Trail.

East Landfill Segment – Landfill Perimeter Road between North East Corner of the Landfill and Existing Landfill Bridge

Safety
- Landfill facilities – trail may go by gas compressing facilities also monitoring wells, pump stations and gas collection pipes. All these facilities are vulnerable to vandalism. This is the shortest segment on landfill.
- No major or local roadway crossings, no RR.
- Fencing required at landfill to protect infrastructure facilities from vandalism.

Environmental
- To ease grade between water control structure and perimeter road may require filling in wetlands. [Note: this would only occur if existing road were built up sufficiently for fill slopes to extend outward to N. Slough on west and/or wetlands to east]
- No setback issues from either Slough except at approach to control structure (North Slough). Using existing road footprint would not impact wetland or waterways.
- Wetlands extending to east from base of fill; no impacts unless trail well offset from perimeter road.
- In proximity to great blue heron rookery along Slough near SE corner of landfill
- Proximity to lake edge may lower riparian setback designation during winter/spring high water periods.
- Anecdotal evidence of turtle nest in vicinity of stormwater detention pond (per Elaine Stewart).

Costs
- Grading needs to make connection to perimeter road ADA accessible.
- Fencing on landfill would be required. If spur trail to view point is included fencing would be required on both sides of the pathway to protect equipment from vandalism.

Multi-Use Potential
- Room for trail, great views, grade from water control structure to perimeter road perhaps 15%. Fill would be needed to get grade down to acceptable grade for ADA (5% to 8.3% depending on length).

User Experience
- Trail focuses towards lakes, expansive view.
- Foreground view: landfill grasses, riparian edge, wetlands
- Middle/background: Smith Lake, wetlands, Cascades, Rocky Butte. 360-degree panorama available with spur trail up hillock. Unique view in Portland.
- Sounds: some industrial and traffic, but fairly quiet overall.
- On-road distance: none.
- Wildlife viewing: Excellent. Pelicans, egrets, eagles, osprey, heron.
- Interpretive: Multiple opportunities include: riparian, wetlands, distant views, landfill operations
- High level of naturalness.
- High level of diversity.
- Fencing along landfill could diminish experience.
- Landfill staff suggested a spur trail to a viewpoint above the perimeter road. Views are outstanding of Smith Lake, distant hills and mountains.
- According to landfill staff, this area of the landfill does not flood annually. Trail in this location could still flood in a 100 year flood event.

Permitting
- Requires modifications to the landfill closure permit from DEQ.
- DSL if fill in wetlands/Slough required depending on how fill for grading accomplished (may be able to fill in existing road area and use retaining walls).
- Storm drainage from asphalt pathway may need to be treated for City of Portland approval.

Management
- Landfill operations will be impacted on a daily basis. Staff use the perimeter road daily to monitor groundwater wells and take gas readings. Car can be parked near wells and pump stations for hours at a time.
- Landfill staff indicated that this is the newest portion of the landfill and thus would not require a cut-off wall as it was built with a leachate collection system. So longer term closure potential lower than other landfill segments.
- Some tasks of trail maintenance would be combined with landfill operational maintenance.

Connections
- This route provides a more direct connection to other routes than the North Landfill segment.

Landfill Connector Segment – Existing Landfill Bridge across Columbia Blvd. to entrance to Chimney Park

Safety

- There was a train parked on the tracks for over an hour – blocking the exit from the landfill and UP Distribution Center.
- Trail users will need to cross Columbia Boulevard near the Old St. Johns Landfill access road. Not enough room for a below grade crossing, above grade crossing undesirable.
- The Landfill Connection segment will require crossing of the Union Pacific railroad tracks. These tracks seem to have a significant amount of train traffic that may or may not be remote controlled. A switch is located just to the east of the existing St. Johns Landfill access road. Trains periodically stop on the tracks for switching and other purposes blocking both the landfill access road and any potential trail crossings in the vicinity of the St. Johns Landfill access road. This type of environment makes an at-grade crossing difficult and can potentially create safety issues for trail users. An option for this area is to route the trail system around the west side of the landfill offices and use a below-grade crossing under the railroad tracks.

Environmental

- No habitat impacts

Costs

- The Slough bridge at the landfill has the space to accommodate a 5' sidewalk and a 5' to 8' bike lane. Most efficient to locate these facilities on the east side of bridge. A pedestrian/bike gate can easily be added to control access to landfill trail segments. This access could be closed during construction/maintenance activities or to close after hours.
- Existing bridge will need a 42" high railing on east edge of bridge.
- The Landfill Connection segment requires the crossing of Columbia Boulevard (classified as a Regional Trafficway by the City of Portland). Columbia Blvd. has a posted speed limit of 40 mph and an estimated two-way average daily traffic above 10,600 vehicles (based on historical count data near the intersection of N. Columbia Blvd./Burgard St. from June 2003). Due to the posted speed limit of 40 mph and estimated traffic volumes, this crossing would require at a minimum an enhanced pedestrian crossing treatment that may possibly consist of overhead flashing beacons, advance signing, in-roadway lighting, median treatments, pedestrian signal, or some combination of these and other treatments.
- The Landfill Connection segment will require a new railroad crossing. The most effective crossing would be a below-grade crossing based on the discussion outlined under the "Safety-Railroad Crossing" Section.
- Trailhead at canoe launch may make this segment more attractive for some grants from state.

Multi-Use Potential

- City of Portland owns the land around the landfill office – appears to be sufficient land to situate separate paved trail away from truck traffic. Good potential for a trailhead at the canoe launch site.

User Experience

- Views range from the Slough to junkyard. Distant views of containers.
- Crossing Columbia could be a bit harrowing even with improvements.

Permitting

- Union Pacific permission required for underpass.
- PDOT approval for crossings.

Management

- Good visibility from landfill office for patrol.

Connections

- Very important connection for neighborhood link to landfill and POP Trail.

Smith and Bybee Lakes Trail Feasibility Study
Evaluation Criteria Explanations

November 2004

Contributing authors: Marianne Zarkin, MacLeod Reckord; Dean Apostol; John Van Staveren, Pacific Habitat Services; Dana Beckwith, DKS Associates.

Safety

Road Crossings

Any time there is an at-grade crossing of a roadway facility, the possibility of conflicts between pedestrians, bicycles, and motorized vehicles increases. Issues such as site distance constraints, crossing visibility, and high vehicle speeds can further increase the possibility of these conflicts. Therefore minimizing the number of times a trail system crosses a roadway facility will minimize the trail and roadway users' exposure to these potential safety concerns.

Grade separated crossings are another crossing consideration. However, these are only recommended as a last resort, as studies have shown that when pedestrians can cross at street level in the same amount of time that they can by using a grade separated crossing, the grade separated crossing may not be used[1]. Topography is key to making a grade separated crossing work. Overpasses should be built without ramp structures (e.g., overpass over a below grade rail line) and underpasses should provide an open and accessible feeling to the user.

For the roadway crossing evaluation criteria, consideration was not given to whether a crossing is new, existing, signalized, or unsignalized. These considerations are addressed under the "Cost Criteria". The following is an explanation of various levels of measurement:

- **No Local or Major Road Crossings** – No trail crossings of any local or major roads (except for bridges). This means that the trail system would need to remain within green areas (outside of neighborhoods, commercial, and industrial areas).
- **No Major Road Crossings** – No major road crossings, except local neighborhood routes can be utilized for trail alignment. Grade separated crossing of major facilities may be an option if there is no other alternative to consider.
- **One Major Road Crossing** – One major at-grade road crossing. All other trail routes would utilize local street routes and green areas. Grade separated crossing of major facilities may be considered.
- **Two Major Road Crossings** – Two major at-grade road crossings. All other trail routes would utilize local street routes and green areas. Grade separated crossings of major facilities may be considered.
- **Three or More Major Road Crossings** – Three or more major at-grade crossings. All other trail routes would utilize local street routes and green areas. Grade separated crossings of major facilities may be considered.

Railroad Crossings

Rail crossings can be points of conflicts between trains, other motorized vehicles, pedestrians, and bicyclists. Trains are slow to start and stop and are confined to their alignment (i.e. they can not swerve to avoid a conflict). Railroad crossings may also have sight distance constraints and high speeds that need to be considered. Here again, limiting the number of times a trail system crosses a rail line can reduce the exposure of trail users to potential safety issues.

[1] Pedestrian Facility Design, www.walkinginfo.org

- **No Ped/Bike Railroad Crossings** – No railroad crossings along the trail alignment.
- **Existing Grade Separated Ped/Bike Crossings Available** – Existing grade separated crossings such as motor vehicle bridges with pedestrian and bicycle facilities are available for crossing the railroad tracks.
- **Existing At-Grade Ped/Bike Crossing Available** - Existing well established at-grade crossings are available for crossing railroad tracks.
- **One or More New Ped/Bike Crossings (Grade Separation)** – One or more new grade separated railroad crossings along the trail alignment for crossing railroad tracks. See the explanation for grade separated crossings under the "Road Crossing" Section above.
- **One or More New Ped/Bike Crossings (No Grade Separation)** – One or more new at-grade crossings are required along the trail alignment for crossing the railroad tracks.

Proximity to Landfill facilities

There are safety issues of locating a public pathway on a landfill. For trail users, there is the potential for exposure to hazardous chemicals and dangerous equipment. Siting a public pathway on a landfill also opens up the landfill equipment to the possibility of vandalism. This criterion measures the rough distance of the proposed alignment in relation to significant landfill facilities such as monitoring wells the landfill cover, and gas collection/control equipment.

On-Road Distance

Although on-road travel distances along major roadways can greatly effect the user experience of the trail, there is also a level of safety awareness necessary for both the trail and roadway users. With a trail system adjacent to and paralleling a roadway with no separation there is a potential for vehicles, bike, and pedestrians conflicts. Trail facilities under this criterion can be bike lanes and sidewalks. Joint use trails with bi-directional travel are not considered here since there is no separation of the bike/pedestrian facility from the roadway (this type of facility encourages contra-flow bike traffic in respect to motor vehicles).

Measurement for "On-Road Distance" is based on the City of Portland's Transportation System Plan 2002, traffic classifications. The various levels of roadway functional classification are generally associated with varying levels of traffic volumes, posted speeds, allowed commercial accesses (access points are covered in the following Safety Criteria). Local Service Streets will have the lowest amount of traffic volumes, posted speeds, and access points associated with them where as Neighborhood Collectors, Major City Traffic Streets, and Regional Trafficway/Major City Traffic Streets will have higher traffic volumes, posted speeds and access points of conflict. Higher traffic volumes mean a higher potential for pedestrian,/bike/vehicle conflicts. Traffic volumes alone do not necessarily determine the desirability of a particular route, but they are important. Other elements that need to be considered include: speed, sight distance, type of facility, number of accesses, pedestrian crossing distance, and truck volumes, all of which where considered in the field review. For example, a roadway could carry relatively high traffic volumes, but might be a desirable trail route if the speeds are low and pedestrian crossing distances are short.

An additional element taken into account under the measurement criteria for On-Road Distance is the presence of major truck traffic along trail routes. Trucks are slow to start and stop when fully loaded and can also limit site distances along single and multi-lane roadway facilities for other roadway users.

There is no distance measurement under this criteria mainly due to travel along different types of roadway facilities may mean different things to different trail users. This would be worth a further study of some of the local trail system users in the Portland and Vancouver Metropolitan Area.

Commercial Driveway Crossings

Commercial driveway crossings are another opportunity for conflicts to arise between motor vehicles, pedestrians, and bicyclists. Minimizing the number of crossings minimizes the potential for these conflicts.

Environmental

Habitat Impacts

This criterion focuses on the types of habitat that could be impacted by trail construction. The greatest habitat impact would be from locating the trail through a Columbia sedge (*Carex aperta*)-dominated community or beneath a forested or scrub shrub riparian area that is known to provide roosting, nesting, and escape cover for birds and habitat for other species of wildlife (e.g. amphibians, mammals). Within the study area, this habitat consists of the Oregon ash, cottonwood and willow-dominated stands along the south side of Smith and Bybee Lakes These communities are the slowest to recover from direct impacts (i.e. most sensitive habitats). The Oregon Natural Heritage Program considers the Columbia sedge marsh community to be critically imperiled because of extreme rarity both globally and within the state. This plant community, however, does not have legal protection.

Impacts to these habitat types can create patches that are too small, too isolated, and too influenced by edge effects to maintain viable populations of some breeding birds. Reed canarygrass dominated communities are used by fewer species (e.g. birds) and are much more resilient to impacts.

Loss of Existing and Potential Riparian Habitat

Impacts to riparian habitat adversely affect the ability to provide a number of functions (e.g. thermal regulation, contribution of large wood, desynchronization of floodflows). Many of these functions are especially important for salmonids, such as steelhead and chinook, which are listed as threatened under the Endangered Species Act. The loss of riparian vegetation closer to the sloughs has a greater detrimental effect than impacts further away. Impacts within 25 feet of a salmonid-bearing waterway will almost certainly have an adverse effect. NOAA Fisheries considers that in general, impacts greater than 200 feet away will not have an adverse effect.

Riparian vegetation along the lake edge has a different role and is not as critical for salmonids as along the Slough (e.g. trees don't provide the thermal regulation role that overhanging vegetation does along a slough or stream, although they could still provide microsites that salmonids could use). If a federal permit (e.g. from the Corps of Engineers) is required for trail construction, NOAA Fisheries may be involved in the permit review. As such, they will dictate how close to the sloughs and the lakes the trail can be placed.

A hard surface trail is assumed to be paved or gravel and at least eight feet wide with 2 foot soft shoulders. A soft surface trail is assumed to be less than 8 feet wide, more like 4-6 feet wide. If a hard or soft surface trail is to be located in an area where no road exists it is assumed that trail development will convert vegetated surface to trail use, precluding establishment of vegetation indefinitely. If a hard or soft surface trail is to be located in an area where a road exists, no potential riparian area will be lost.

Proximity to Bald Eagle Nest

The distances used to determine the potential impacts on trail construction and use are based on the Washington Department of Fish and Wildlife's *Priority Habitat and Species Management Recommendations Volume IV: Birds* (Watson and Rodrick, 2001). In this paper, WDFW designated two zones around bald eagle nests. The first zone is the protected zone, which extends up to 400 feet from the nest tree (the most sensitive area) and the conditioned zone, which extends from 330 feet to 800 feet from the edge of the protection zone (i.e. 730 feet to 1200 feet from the nest tree).

Bald eagles are listed by both the federal and state government as a threatened species. The U.S. Fish and Wildlife Service has yet to act upon a petition filed in 2001 to delist the bald eagle. The USFWS will require that any construction activity within 1/4 mile or 1/2-mile line of sight of the eagle nest needs to be conducted outside of the breeding season (January - August). That seasonal restriction will probably also cover Osprey.

Encroachment too close to the nest could cause abandonment of the nesting site or the young.

Proximity to Great Blue Heron Rookery
Great blue heron (*Ardea herodias*) are a priority species in Washington, but are not considered to be sensitive in Oregon. Human disturbance to a nesting colony during the breeding season has been documented to reduce reproductive success (Washington Department of Fish and Wildlife, 1999). WDFW recommends a habitat protection buffer of 300 meters (~1,000 feet).

Painted Turtles
Painted turtles are considered to be "Critical" sensitive species by the State of Oregon. Dr. Marc Hayes in a study conducted for the Port of Portland states "Basking turtles would frequently flee into water from a human observer even if approached from a long distance (i.e. 300 feet [~90m]) in line of sight." Sue Beilke, ODFW, states that turtles can hide when human observers are as close as 200 feet.

Wetlands
The greatest impact from trail construction would be to directly impact habitat for wetland-dependant endangered, threatened or sensitive species. At Smith and Bybee Lakes these species include, but are not limited to the painted turtle and Columbia sedge. Impacts to forested, scrub shrub or predominantly native herbaceous communities would also adversely impact wetland habitats. Impacts to reed canarygrass dominated wetlands are less sensitive. All wetland impacts that require more than 50 cubic yards of fill material require a state permit (assuming it's above 11 feet msl), but any impacts below 50 cubic yards do not require a state permit.

Pacific Habitat Services will conduct an overview of the functions of any wetlands identified during the field visit. The functional assessment will be based on the *Guidebook for Hydrogeomorphic (HGM) Based Assessment of Oregon Wetland and Riparian Sites: Statewide Classification and Profiles (Oregon Division of State Lands; 2001).*

Costs
Bridges
This criterion includes the construction of new pedestrian/bicycle bridges to cross the Slough, as well as alterations to existing bridges to allow safe pedestrian/bicycle passage.
All existing bridges that will carry trail users will require a separated trail section, sidewalk or underpass for safety.

Fencing Needs
Certain area will require fencing to keep trail users on the trail or out of certain areas – such as parts of the Landfill. Where fencing is required, it will be designed to keep people out but to retain foreground and background vistas.

Grading Needs
To fit the trail into the existing landforms may require grading. This item looks at the general amount of cut or fill required to create an ADA accessible pathway.

Acquisition
Some of the alignments travel through property not owned by Metro or the City of Portland. This criterion will include an estimate approximate cost of purchasing these properties in these corridors. The analysis will be based on Metro staff assessment.

Arterial Road Crossing
Based on experience, costs associated with arterial road crossings can range from just installing signing and striping treatments which cost as little as a few thousand dollars to grade separated crossings that can cost upwards of $500,000. Treatments such as traffic signals and enhanced crossing treatments (which may include

such items as overhead flashing beacons and in-roadway lighting) can fall within the $80,000 to $200,000 range.

Railroad Crossing

Railroad crossings utilize flashers, gates, signing, and striping to enhance crossing safety for pedestrians, bicyclists, and motor vehicles. The installation of these safety items can be costly and generally require permitting and coordination through the railroads. Crossing treatments can range from $130,000 for a gated pedestrian/bicycle crossing to $4,000,000 for a grade separated crossing.

Funding Opportunities

An assessment of the eligibility of each alignment for grants and other funds from federal, state and local sources. Sources may include MTIP (federal funds administered by Metro), ODOT, Oregon State Parks, and Land and Water Conservation Funds.

Maintenance

The relative cost of maintaining trail based on the type of landscape it travels through and surfacing material. Maintenance activities could include: surfacing stabilization and repair; vegetation management; litter/trash removal; mowing; and facility (including signs and fencing) upkeep, repair and replacement. Metro staff will provide input from their maintenance experience.

Mitigation Costs

Some trail segments will require mitigation work to be completed in order to obtain necessary federal, state or local permits. Examples include wetland mitigation required by DSL/Corps and Environmental Zone mitigation work required by the City of Portland.

Easements

Based on Metro staff assessment, this criterion will assess the approximate number of easements that are required to construct each segment.

Multi-Use Potential

Area that trail will travel has the capacity for installation of a paved 8' wide trail with 2' gravel shoulders. This includes both width of corridor as well as grade to accommodate ADA accessible pathway designed to AASHTO (American Association of State Highway and Transportation Officials) standards.

User Experience

Landscape Aesthetics Research Related to Trails

Numerous research studies demonstrate that people strongly prefer "natural" landscape scenes to views dominated by human made or shaped ones. What people find attractive in landscapes is for the most part objective, not subjective, meaning that most people are attracted to the same sorts of scenes. This is why we have national parks at Yosemite, Yellowstone, and Mt. Rainier, but not in Cleveland or Detroit. Natural scenes are not just nice to look at, but also have measurable physical and psychological benefits. "Green" scenery lowers blood pressure, reduces stress, and enhances creative thinking. "Restorative" settings provide the chance to be away, or mentally transported from daily concerns.

Some human influenced or even created landscapes are highly valued for their aesthetic qualities. These include well-designed urban settings with good architecture, and historic, pastoral areas.

Beauty, scenery, peacefulness, and contrast to the built environment are important attributes of urban greenways. Water is a key attractor. Seeing water bodies can be sufficient (as opposed to actual access). Views

of wildlife can be as important as views of landscape. Wildlife viewing enhances the experience of the trail user, and can in fact be a prime reason for using a particular trail in the first place.

References

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Kaplan, Rachel, Stephen Kaplan, and Robert L Ryan, *With People in Mind, Design and Management of Everyday Nature,* Island Press, 1998.

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Foreground Views

Standard practice in landscape aesthetics is to define the immediate foreground as what can be seen by the trail user within the nearest 300 feet, while the entire foreground goes out to ½ mile. Foreground scenes are more scrutinized by observers than are scenes as greater distances. The most preferred foreground landscapes have diverse vegetation, and include tall, spaced trees with a fairly open understory that allows the eye to penetrate some distance. Less preferred are areas with dense, undifferentiated vegetation that blocks views and can disorient. Large expanses of undifferentiated land cover ranks low in visual preference. Lawns, open areas, buildings, cars, and wire fences all rank low in visual preference studies of trail users.

Variety generally ranks high. Cultural enclaves within natural areas (i.e. rustic shelters, old barns, meadows, remnant orchards) can enhance recreation experience if well designed. Way finding-landmarks, paths, signs, orientation points, and gateways can all be important contributors to the aesthetic experience of an area. Narrow, curving trail alignments are preferred over straight ones.

Middleground &Background Views

Middleground views are ½ to 4 miles distant. Background views are 4 miles to the horizon. Generally, at these distances viewers focus on shape, form, and scale. Again, naturalness is favored over human modified landscapes. If the view includes high mountains or grand vistas that are very large in scale, the aesthetic quality surpasses the merely attractive, and may reach the "sublime," where one's senses are swamped by the magnitude of the experience. For the purposes of the Smith + Bybee project, we plan to lump middleground and background views together.

Sounds

Sound, or "sonic qualities," interrelate with visual aesthetics and contribute to one's overall experience of a place. As is the case with views, tranquil, peaceful, "nature" sounds are more highly sought out and valued than are "urban" sounds. It is the difference between birdsong and heavy traffic. The former has the ability to lower blood pressure and improve one's sense of well being, while the latter has the opposite effect. "Foreground" sounds of birds or the rustle of leaves can be heard within a background 'matrix" of urban murmur. Sounds can be experienced along continuums from powerful to mild, and crowded to clear.

On-Road Distance

On-road travel distances can greatly affect the user experience of the trail. Travel along roadways with high levels of traffic volumes and speeds can be noisy, diminish the feeling of a safe travel, and reduce desirable views along the route. On-road travel can also diminish the user experience and functionality of the trail by segmenting the trail system between natural and urban environments.

Measurement for "On-Road Distance" is based on the functional classification of the roadway system. The various levels of roadway functional classification are generally associated with varying levels of traffic volumes, posted speeds, access points, and varying sizes of roadway facilities.

Trail Closure at Landfill

Standard maintenance operations or unusual situations such as a tear in the buried cover could require the closure of trails in the landfill site. Landfill work could potentially close the trail segment through the landfill for hours, days or even months. This measurement looks at the particular route each alignment takes through the landfill as it pertains to maintenance operations, as well as amount of trail situated over the cover.

Wildlife Viewing Opportunities

Trails can provide opportunities in an urbanized area to view wildlife in a variety of habitats. Viewing blinds can be incorporated into the design of the trail segments or spurs that would allow visitors to view wildlife with little disruption. Wildlife can often be seen from the trail as well.

InterpretiveEducation Opportunities

Trails also provide an avenue for disseminating environmental, historical and other pertinent information to users. Interpretive signage can explain natural processes, wildlife particulars or the impacts of development, litter or the effects of exotic species (plant and animal) in natural areas. Other interpretive opportunities include the landfill.

Flood Potential

Some areas the trails will travel through have the potential to flood seasonally, which will cause trail closures. This criterion will estimate the amount of time per average season that the trail might be flooded. Data come from the City of Portland and Port of Portland. A double minus indicates a trail that on average floods for over 14 days. This benchmark was employed to match the standards used for the development of the Port of Portland trail.

Permitting and Approvals

US Army Corps of Engineers (Corps)

The US Army Corps of Engineers regulates the discharge of fill material into waters of the United States, including wetlands, under Section 404 of the Clean Water Act. As such, the construction of the trail through a portion of the lakes, the sloughs or in a wetland can only be accomplished if the Corps issues either a Nationwide or an Individual Permit. The permit review will first require an assessment as to why the trail can't avoid all impacts to areas regulated by the Corps. If impacts are unavoidable, compensatory mitigation to offset the impact is almost always required.

NOAA Fisheries and US Fish and Wildlife Service

Section 7 of the Endangered Species Act, 16 U.S.C. Section 1536(a)(2), requires all federal agencies (e.g. Corps of Engineers) to consult with NOAA Fisheries for marine and anadromous species (e.g. Chinook salmon and coho salmon), or the United States Fish and Wildlife Services (USFWS) for fresh-water species and wildlife (e.g. bald eagle), if they are proposing an "action" that may affect listed species or their designated habitat. Action is defined broadly to include funding, permitting and other regulatory actions. The construction of the trail by may require formal consultation with one of these agencies if the Corps believes the project may jeopardize listed species or destroy or adversely modify critical habitat.

Union Pacific Railroad

Crossing through the ROW and tracks of the railroad requires their permission.

Department of Environmental Quality (DEQ)

Section 401 of the Clean Water Act authorizes states to determine whether activities permitted by the federal government meet state water quality standards. In Oregon, this responsibility has been assumed by the Department of Environmental Quality (DEQ). DEQ's review is triggered by an application to impact wetland or waters of the United States. DEQ reviews applications to make sure that prior to discharge, all stormwater is treated to acknowledge standards, such as those required by Clean Water Services or King County.

DEQ also regulates the use of the landfill. In order to use the landfill site for recreational purposes, the current permit Metro holds with DEQ would need to be modified to accommodate the trail use.

Department of State Lands (DSL) and ODFW

The Department of State Lands (DSL) regulates the filling or the removal of material in waters of the State and wetlands through the Removal-Fill Law. In general, a permit is required to impact (fill or remove) more than 50 cubic yards into a wetland or other waters of the state. As with the Corps, an assessment must first be prepared as to why the trail can't avoid all impacts. Impacts must be minimized and compensatory mitigation at specific ratios provided. DSL insures compliance with the unique state law that bans fill in areas below 11 feet mean seal level within Smith and Bybee Lakes management area.
ODFW have an advisory role with the Department of State Lands. As such, the agency comments on habitat and fish issues that arise through the public notice period associated with permit applications to impacts waters of the State. ODFW's mission is to protect and enhance Oregon's fish and wildlife and US Army Corps of Engineers (Corps).

Oregon Department of Transportation (ODOT)

ODOT requires their permission to cross their roads and a permit to build an underpass beneath their bridges.

Environmental Protection Zone

If the trail crosses through area designated a Protection or Conservation zone by the City of Portland, an Environmental Review is required.

Other Portland Permits

More research is required, but this may include permission or permits from the Portland Department of Transportation, tree removal permits, site development permits including erosion control, grading, stormwater, etc.

Management

Disruptions to Landfill Operations

Landfill staff requires easy access to all of the landfill infrastructure and cover for routine and emergency repairs. This criterion evaluates the location of the proposed trail segments with respect to the daily operations at the landfill, and measures the distance of trails along highest use corridors.

Ease of Patrol

This criterion measures the ability to access all areas of the trail whether by foot, bike or with a small vehicle to perform routine site security monitoring. Trail surface, design and setting will determine the mode of travel best suited for monitoring and line of sight.

Ease of patrol assumptions:

- Unpaved areas are walked, not driven, whenever possible. Use of motorized vehicles on unpaved surfaces is avoided. Past experience has shown that driving soft ground leaves deep ruts and compacts soil; this damage is permanent. It is assumed that avoidance of motorized vehicles on soft surfaces will continue.
- Bicycles are not used for patrolling interior and/or unpaved trails because public use of bicycles is prohibited in these areas. If visitors see Metro rangers on bicycles in these areas, it will reduce Metro's credibility in enforcing this rule. It is assumed that Metro staff will not use bicycles for patrolling trails where the public would be prohibited from using them.
- Metro currently does not own ATVs, bicycles or horses for patrolling our sites. This evaluation for patrolling assumes that this will remain the case – i.e., walking and driving pickups are the only methods available for rangers to conduct patrols.

Emergency Services Access

Ability of emergency services (medical and police) to reach and travel on each trail segment. It will also be important to look at where these vehicles will be able to exit or turn around.

Utility Access

Ability of electrical and other utilities to access their equipment through the trail corridor. As with emergency service access, turn around and exiting possibilities will be reviewed. Fieldwork and other research may show that this criterion can be combined with the Emergency Services Access criterion above.

Trail Connectivity

Neighborhood Connections

Efficient direct connection between St. John's neighborhood and Smith and Bybee Lakes. Looks also at providing convenient trail access points and links to neighborhood destinations including parks, schools and open spaces.

POP Trail

Direct efficient connection to the end of the Port of Portland trail, including convenient trail access points.

Peninsula Crossing Trail

Efficient direct link to the Peninsula Crossing trail, including convenient trail access points and links to other neighborhood destinations.

Regional

A look into how well each segment fits into the regional trail plan, including the 40-Mile Loop Master Plan.

SMITH AND BYBEE LAKES FEASIBILITY STUDY

EVALUATION CRITERIA MEASUREMENTS

Contributing Authors: MacLeod Reckord; Dean Apostol; Pacific Habitat Services; DKS Associates

MEASUREMENT

CRITERIA		Double Minus	Minus	Midpoint	Plus	Double Plus
Safety						
Road Crossings*		3 or more major road crossings	2 major road Xing's	1 major road Xing	No major road Xings	No local or major road Xings
RR Crossings		1 or more new ped/bike crossings (no grade separation)	1 or more new ped/bike crossings (grade separation)	Existing at grade bike/ped crossing	Existing pedestrian grade separated crossing available	No RR crossings
Prox. to Landfill Facilities		LF** trail on landfill	LF** trail on landfill	LF** trail on landfill	LF**trail on landfill	No landfill trail
On-Road Distance		Regional Trafficway/Majo	Major City Traffic Street	Neighborhood Collector	Local Service Streets Only	No on-road travel
Commercial Driveway Xings		4 or more driveways	3 driveways	2 driveways	1 driveway	No driveway crossings
Environmental						
Habitat Impacts		Trail runs through any portion of forested, scrub shrub or Columbia sedge plant community	Trail runs through any portion of herbaceous plant community that is not dominated by reed canarygrass	Trail runs through any portion of reed canarygrass dominated plant community	Trail is restricted to unpaved or managed area (e.g. a continually mowed area such as Pier Park), narrow former road bed, or gravel landfill road	Trail is restricted to existing paved area (public roads).
Loss of Existing and Potential Riparian Area	Soft		Trail located less than 25 feet; no existing road	Trail located between 25 and 50 feet; no existing road	Trail located between 50 and 100 feet; no existing road	Trail located greater than 200 feet
Note: All distances measured from lake edge or slough banks	Hard	Trail located less than 25 feet; no existing road	Trail located between 25 and 50 feet; no existing road	Trail located between 50 and 100 feet; no existing road <u>or</u> located less than 25 feet; existing road	Trail located between 100 and 200 feet; no existing road <u>or</u> located between 25 and 100 feet; existing road	Trail located greater than 200 feet <u>or</u> located between 100 and 200 feet; existing road
Proximity to Bald Eagle nest		Trail located less than 200 feet (protected zone) from nest	Trail located between 200 and 400 feet (protected zone) from nest	Trail located between 400 and 730 feet (conditioned zone) from nest	Trail located between 730 and 1200 feet (conditioned zone) from nest	Trail located greater than 1200 feet from nest (beyond the edge of the conditioned zone).

SMITH AND BYBEE LAKES FEASIBILITY STUDY

EVALUATION CRITERIA MEASUREMENTS

Contributing Authors: MacLeod Reckord; Dean Apostol; Pacific Habitat Services; DKS Associates

MEASUREMENT

CRITERIA		Double Minus	Minus	Midpoint	Plus	Double Plus
Proximity to Great Blue Heron rookery		Trail located less than 100 feet from nesting colony (rookery)	Trail located between 100 and 250 feet from nesting colony	Trail located between 250 and 500 feet from nesting colony	Trail located between 500 and 1000 feet from nesting colony	Trail located greater than 1000 feet from nesting colony
Proximity to Painted Turtle habitat		Trail runs through documented nesting area	Trail located less than 200 feet (line of sight) of documented nesting area or basking site	Trail located between 200 feet and 300 feet (line of sight) of basking site or nesting area	Trail located between 200 feet and 300 feet (line of sight) of nesting area or basking site, but hidden by existing site obscuring vegetation	Trail located greater than 300 feet from documented nesting area or basking site.
Wetlands		Fill for trail construction required in wetland that will directly affect habitat for endangered, threatened or sensitive species (plant or animal).	Any portion of trail that runs through forested, scrub shrub or predominantly native herbaceous wetland community.	>50 cubic yards of fill required in reed canarygrass-dominated wetland.	<50 cubic yards of fill in required in reed canarygrass-dominated wetland.	No wetland impacts
Cost Considerations						
Bridges		2 + over slough	1 New bridge	Major modification	Minor alterations	No bridge Xings req'd
Fencing Needs		Extensive fencing	Major fencing	Moderate fencing	Little fencing	No fencing required
Grading Needs		Extensive needs	Requires larger amt.	Moderate amount	Very little	No grading needed
Acquisition Needs		Very $$$ to obtain	$$$ to obtain	$$ to obtain	$ to obtain	No acq./ease. needs
Arterial Road Crossing		Grade separated	Pedestrian signal, traffic signal or other enhanced crossing treatments	Signing/striping with median	Striping/signing Only	No New road Xing
RR Crossings		2 New overpasses	1 New overpass	2 New at-grade Xing	1 New at-grade X-ing	No RR crossing
Funding Opportunities		Not eligible	Few opportunities	Moderate opps.	Many opportunities	Sources readily avail.
Maintenance Cost		Very expensive	Expensive	Moderate	Inexpensive	Very inexpensive
Mitigation Costs		$$$$	$$$	$$	$	No mitigation expense
Easements		#### Needed	### Needed	## Needed	# Easements needed	No easements needed
Multi-Use Potential						
8' Paved Trail Opps.		No space/not allowed		Difficult but doable		Space avail./permit.

SMITH AND BYBEE LAKES FEASIBILITY STUDY

EVALUATION CRITERIA MEASUREMENTS

Contributing Authors: MacLeod Reckord; Dean Apostol; Pacific Habitat Services; DKS Associates

CRITERIA		MEASUREMENT Double Minus	Minus	Midpoint	Plus	Double Plus
User Experience						
Foreground views		Ugly industrial/urban	OK industrial/urban	Mixed urban/wildlife	Mostly green	Open trees and water
Background views		All industrial/urban	Limited views	Mixed urban/wildlife	Mostly green	Mountains, F. Park
Sounds		All road/indust. noise	Mostly car/some wild	Mixed car/wildlife	Limited road noise	All birds, wildlife
On-Road Distance		Major Arterial/Collector with major truck traffic	Major Arterial	Collector	Local Streets Only	No on-road travel
Trail Closure		Frequent/long duration	Frequent/short duration	Infrequent/long	Infrequent/short	No trail closure expected
Wildlife Viewing Opps.		No opportunities	Limited opportunities	Fair opportunities	Good opportunies	Great opportunities
Interpretive Educ. Opps.		No opportunities	Limited opportunities	Fair opportunities	Good opportunies	Great opportunities
Flood Potential		Over 14 days flooded	8 days up to 14 days	4 days to 1 week	3 days or less	No flood potential
Permitting/Approvals						
US Corps of Engineers		Not permitable	Very difficult	Moderate	Easy to obtain	No permits needed
NOAA Fisheries/USFWS		Not permitable	Very difficult	Moderate	Easy to obtain	No permits needed
RR		Not permitable	Very difficult	Moderate	Easy to obtain	No permits needed
DEQ		Not permitable	Very difficult	Moderate	Easy to obtain	No permits needed
DSL (fill limits) & ODFW		Not permitable	Very difficult	Moderate	Easy to obtain	No permits needed
ODOT		Not permitable	Very difficult	Moderate	Easy to obtain	No permits needed
Environmental Zone Review		Not permitable	Very difficult	Moderate	Easy to obtain	No permits needed
Other Portland Permits		Not permitable	Very difficult	Moderate	Easy to obtain	No permits needed
Management						
Disruptions Landfill Ops.		Very frequent	Often	Moderate	Infrequent	None
Ease of Patrol		Walk in/out on soft surface trails	Walk soft surface loop/ drive multi-modal out and back - no loop available	Drive multi-modal loop trail, bad line of sight	Drive multi-modal trail, routine staff presence	Visual access from cross street or adjacent road or vantage point/excellent line of sight
Emergency Services Access		No access	Limited access	Moderate access	Good access	Excellent access
Utility Access		No access	Limited access	Moderate access	Good access	Excellent access

SMITH AND BYBEE LAKES FEASIBILITY STUDY

EVALUATION CRITERIA MEASUREMENTS

Contributing Authors: MacLeod Reckord; Dean Apostol; Pacific Habitat Services; DKS Associates

CRITERIA		MEASUREMENT Double Minus	Minus	Midpoint	Plus	Double Plus
Trail Connectivity						
Neighborhood		No connection	Few connection	Fair connection	Good connection	Direct connection
POP Trail		No connection	Few connection	Fair connection	Good connection	Direct connection
Peninsula Crossing Trail		No connection	Few connection	Fair connection	Good connection	Direct connection
Regional		No connection	Few connection	Fair connection	Good connection	Direct connection

* Major Roadways are classifed as collectors and arterials. ** LF = Lineal Feet

SMITH AND BYBEE LAKES FEASIBILITY STUDY

SEGMENT COMPARISON TABLE **Compiled by: MacLeod Reckord; Dean Apostol; Pacific Habitat Services; DKS Associates**

TRAIL SEGMENTS

CRITERIA	Ash Groves (A1) soft	Ash Groves (A1) hard	SW Landfill (A2)	North Landfill (A3)	S. Lake Shore (B1) soft	S. Lake Shore (B1) hard	South Slough (B2) soft	South Slough (B2) hard	Columbia Boulevard (B3)	Pier Park (B4)	E. Landfill (A1/A3 + A1/A3/B1)	Landfill Connection (B3/B4)
Safety												
Road Crossings*	++		++	++	++		midpt		-	-	++	-
RR Crossings	++		++	++	++		++		+	-	++	-
Proximity to Landfill Facilities	++		- -	- -	++		++		++	++	midpt	midpt
On-Road Distance*	++		++	++	++		-		- -	mid/+	++	+
Commercial Driveway X-ings	++		++	++	++		++		- -	- -/mid	++	+
Environmental												
Habitat Impacts	- -	- -	+	+	- -	- -	+	+	++	+	+	+
Loss of Riparian Area	- -	- -	- -	- -	- -	- -	++	++	++	++	midpt	-
Proximity to Bald Eagle Nest	++	++	++	++	- -	- -	-	-	++	++	++	++
Prox. To Heron Rookery	++	++	++	++	- -	- -	+	+	++	++	- -	++
Prox. to Painted Turtle Nest	-	-	++	-	++	++	++	++	++	++	midpt	++
Wetlands	-	-	++	++	++	++	++	++	++	++	++	++
Cost Considerations												
Bridges	++		-	-	+		midpt		midpt	-	++	+
Fencing Needs	++		- -	- -	+		- -		++	++	- -	+
Grading Needs	-		midpt	++	midpt		+		++	+	+	++
Acquisition Needs	++		++	++	-		-		- -	++	++	++
Arterial Road Crossing*	++		++	++	++		+		++	-	++	-
RR Crossings	++		++	++	++		++		+	-	++	-
Funding Opportunities	mid	+	+	+	mid	+	mid	+	+	+	+	+
Maintenance	mid	-	midpt	midpt	mid	-	mid	-	+	midpt	midpt	+
Mitigation Costs	-	- -	++	++	-	- -	++	++	++	++	++	++
Easements	++		++	++	-		- -		-	midpt	++	midpt
Multi-Use Potential												
8' Paved Trail Opps.	+		++	++	midpt		midpt		- -	midpt	++	+

SMITH AND BYBEE LAKES FEASIBILITY STUDY

SEGMENT COMPARISON TABLE **Compiled by: MacLeod Reckord; Dean Apostol; Pacific Habitat Services; DKS Associates**

TRAIL SEGMENTS

CRITERIA	Ash Groves (A1) soft	Ash Groves (A1) hard	SW Landfill (A2)	North Landfill (A3)	S. Lake Shore (B1) soft	S. Lake Shore (B1) hard	South Slough (B2) soft	South Slough (B2) hard	Columbia Boulevard (B3)	Pier Park (B4)	E. Landfill (A1/A3 + A1/A3/B1)	Landfill Connection (B3/B4)
User Experience												
Foreground Views	++		+	+	+		midpt		- -	-	+	-
Background Views	++		-	mid/-	midpt		midpt		-	-	++	-
Sounds	++		-	++	midpt		-		- -	-	++	- -
On-Road Distance	++		++	++	++		++		- -	mid/+	++	++
Trail Closure	++		midpt	midpt	++		++		++	++	+	+
Wildlife Viewing Opps.	++		+	+	+		midpt		- -	-	++	-
Interpretive Educ. Opps.	++		midpt	midpt	++		midpt		- -	-	++	- -
Flood Potential	-		-	-	+		+		++	++	+	++
Permitting/Approvals												
US Corps of Engineers	midpt	midpt	++	++	++	++	++	++	++	++	++	++
NOAA Fisheries/USFWS	-	-	-	-	-	-	+	+	++	++	++	++
RR	++	++	++	++	++	++	midpt	midpt	midpt	-	++	midpt
DEQ	++	++	midpt	midpt	++	++	++	++	++	++	midpt	midpt
DSL & ODFW	-	-	++	++	++	++	++	++	++	++	++	++
ODOT	++	++	++	++	mid	mid	mid	mid	++	++	++	++
Environmental Zone Review	+	midpt	midpt	midpt	+	mid	mid	mid	++	++	midpt	++
Other Portland Permits	midpt	midpt	midpt	++	mid	mid	+	+	-	-	++	+
Management												
Disruptions to Landfill Ops.	midpt		- -	- -	++		++		++	++	- -	- -
Ease of Patrol	- -	mid	+	++	- -	mid	- -	mid	++	mid	++	++
Emergency Services Access	- -	mid	+	+	- -	mid	- -	mid	++	+	+	++
Trail Connectivity												
Neighborhood Connections	-	+	+	midpt		+		+	++	++	+	++
POP Trail	++	++	++	++		+		+				
Peninsula Crossing Trail	-	+	+	midpt	++	++	+	+	midpt	++		
Regional	+		+	midpt	++		+		midpt	++		

*Collector and Arterial Roadways

Trail Segment Comparison

Trail Segment	Major Improvements	Length (Linear Feet)	Acq./Easement/ Right-of-Way	Agency/Permit	Capital Cost[1]	
					Hard Surface	Soft Surface
Ash Groves		4,800	None required	NOAA – ESA DSL/ACOE (if wetland fill) USFWS – ESA consultation City of Portland – Planning E-Zone	$357,500	$132,944
East Landfill	Fencing	4,500	None required	DEQ City of Portland – Planning	$493,737	$226,398
North Landfill	Slough Bridge, Fencing	4,400	None required	NOAA – ESA DEQ City of Portland – Planning	$1,941,123	$1,648,502
South Lake Shore	Fencing	8,400	Negotiate with two property owners ODOT	NOAA – ESA DSL/ACOE (if wetland fill) USFWS – ESA consultation City of Portland – Planning E-Zone ODOT – N. Portland Rd bridge	$987,345	$549,407
South Slough	N. Portland Rd. Bridge, Fencing	10,800	Negotiate with three property owners ODOT	NOAA – ESA DSL/ACOE (if wetland fill) USFWS – ESA consultation City of Portland – Planning E-Zone ODOT – N. Portland Rd bridge	$1,486,635	$959,318
Landfill Connector	Landfill Bridge Modification, RR underpass, Col. Blvd. Cross	1,700	RR Easement PDOT	City of Portland – Planning, PDOT	$2,333,555	$2,127,477
Pier Park	RR overpass	4,200	RR Easement	City of Portland – Parks, Planning	$1,413,836	$1,182,408
Neighborhood Route 1	Intersections, Signage	7,600 existing bike lane	PDOT	City of Portland – PDOT	$16,641	Not applicable
Route 2	Intersections, Signage	8,900 existing bike lanes	PDOT	City of Portland – PDOT	$61,703	Not applicable

1. Excludes Property Acquisition/Easement, Includes Design/Engineering/Permits

Smith-Bybee Lakes Trail Alternative Alignment Summary

Authored by: MacLeod Reckord; Dean Apostol
January 2005

With 9 defined trail segments there are at least dozens of mathematical combinations of segments that could be pieced together to link the end of the Port of Portland Trail with the 40-Mile Loop at North Portland Road. Rather than explore every possible mathematical combination, the design team chose to establish two logical "bookends" and two in-between options that all make sense as a' starting point for analysis.

The bookends define trail alignments with the highest level of user experience and greatest environmental impact, and the opposite, or lowest level of user experience and lowest environmental impacts. Other factors could have been used as bookends, for example lowest and highest cost, or safest versus least safe, but these do not represent the most fundamental conflicts that this project must resolve, which is experience versus habitat impacts.

An *Ash Grove-East Landfill-South Lake Shore* combination combines those segments that score the highest on user experience, but also have the most negatives with respect to impacts on habitats. This is because the more natural the setting, the better the sensory experience. We have titled this trail alignment the **Scenic Trail**. For the purposes of this discussion, the Scenic Trail will be an unpaved trail.

At the other end of the spectrum, a *SW landfill, Landfill Connector, Pier Park* alignment has the lowest level of environmental impacts, yet also provides the lowest satisfaction with respect to user experience. This alignment is titled the **Neighborhood Trail,** and will be used as the other "bookend" for this analysis. This trail would be paved.

Choosing two alignments that lie in between these - that are intermediate in both user experience and environmental impacts - our recommendation is as follows:

Ash Groves- East Landfill- South Slough. This alternative provides a high level of user experience by traversing the Ash Groves and East Landfill, which are the two most scenic segments. It reduces habitat impacts by following the South Slough, thus preserving the South Lake Shore area (heron rookery, bald eagle and riparian habitat). This alignment is known as the **South Slough Trail**, and it would be a paved trail.

North Landfill, East Landfill, South Lake Shore. By avoiding the Ash Groves segment, this route trades the conservation of the Ash Groves, the most unique and least disturbed segment, for development of a trail through the South Lake Shore. The South Lake Shore segment is also scenic and has an existing access track over much if it that could be converted to a trail with fairly low cost and minimal direct impacts. This alignment, titled the **Landfill Trail**, also travels through two landfill segments. This trail would be paved.

There are also several other viable combinations possible. What these four proposed alignments provide is a good range of alternatives, with 8 out of 9 segments represented. The only segment dropped is Columbia Boulevard, which in the judgment of the design team has too many negatives to warrant further consideration (low safety, poor user experience and high cost). The Pier Park option is far better, and achieves the same degree of habitat conservation.

The table below illustrates the 4 alternative alignments described above:

Alignment	Segments	Environmental	Experience	Cost	Safety
Neighborhood	SW, LC, PP	Lowest impact	Poor		**Moderate**
South Slough	AG, EL, SS	Moderate	Good		**Good**
Landfill	NL, EL, SL	Moderate	Very Good		**Good**
Scenic	AG, EL, SL	Highest impact	Excellent		**Excellent**
Other					
Other					
Other					

AG: Ash Grove
SW: SW Landfill
LC: Landfill Connector
PP: Pier Park
EL: East Landfill
NL: North Landfill
SL: South Lake Shore
SS: South Slough

PACIFIC HABITAT SERVICES, INC.
9450 SW Commerce Circle, Suite 180
Wilsonville, Oregon 97070
Telephone number: (503) 570-0800 Fax number: (503) 570-0855

Project Memorandum

Date: January 10, 2005

To: Marianne Zarkin, MacLeod Reckord

From: John van Staveren

Re: US Fish and Wildlife, NOAA Fisheries and Department of State Lands review of the proposed trail alignments

The construction of the trail through the Ash Groves segment and the South Lake Trail segment will likely impact jurisdictional wetlands, require permits from state and federal agencies and will have impacts on a variety of wildlife. This memorandum summarizes our discussions with representatives of NOAA Fisheries, US Fish and Wildlife Service and the Department of State Lands.

Wetlands

As you know, ORS 196.820 is the prohibition against the Department of State Lands (DSL) issuing permits to fill Smith Lake or Bybee Lake below 11 feet above mean sea level as determined by the 1947 adjusted United States Coastal Geodetic Survey Datum. Lori Warner, DSL's Western Region Manager, stated to me last year that this only applies to projects that require greater than 50 cubic yards of fill. The important point is that this applies to the entire trail project. As such, if the construction of the entire trail requires less than 50 cubic yards in wetland, no permit is required by DSL and the project can proceed. However, a permit will be required from the Corps of Engineers (Corps) for any amount fill placed in a non-isolated wetland.

Trail construction along the South Lake Trail segment could potentially avoid wetland. However, this depends on how the trail is aligned at its western end. To avoid the great blue heron rookery it will probably be necessary to align it further to the north and into jurisdictional wetland. From our fieldwork, it will be difficult to avoid wetland completely with the construction of the Ash Groves segment.

US Fish and Wildlife Service (USFWS)

Last year I spoke with several people at USFWS regarding the potential affects of the proposed trail alignments on bald eagles. The USFWS would only be involved in reviewing trail construction if there was a federal nexus. The nexus is usually a federal permit (e.g. a wetland fill permit) or if federal funding is used to build the trail. If a nexus exists and there is potential to adversely affect bald eagles, Metro will enter into formal consultation with USFWS. USFWS will review how the trail is constructed, where it is placed and how it is used. Generally, this results in design changes and measures to avoid or minimize any adverse effects to bald eagles and their habitat.

USFWS recommends the trail be constructed using the guidelines set forth in the "Pacific States Bald Eagle Recovery Plan." These recommendations include: understanding how the eagles use the area (i.e. where the nests are located, where they roost, where they forage) and using this information to design when the trail will be constructed, where it will be located and when/how it will be used.

The USFWS said (this is also stated in Metro's *Green Trails: Guidelines For Environmentally Friendly Trails)* that when nest sites are within a quarter mile of the trail, construction should ideally not occur during the acknowledged nesting period, (January 1st and August 15th) or the wintering period (October 31 through March 31) within 800 meters (in line of sight) and 400 meters (out of line of sight) from eagle use. Also, noise and activity levels should be kept within ambient levels.

The three nests that have been identified at Smith Lake are approximately 2200, 1000, and within 200 feet of the proposed alignment along the South Lake Trail.

The USFWS did not have specific plans to review and could not officially comment on the project. There is a possibility the USFWS will not approve the project if there isn't agreement on ways to minimize impacts. However, it is more likely they will approve the project if Metro implements measures to minimize potentially adverse impacts.

The literature includes information about disturbance and its effects on bald eagle foraging and nesting behavior, but little about trail construction and use. There is agreement that eagles, like other wildlife, will avoid areas used by humans. The table below cites flight or flushing distance for various species. Obviously, the table lists many species that are not at Smith and Bybee Lakes, but it gives a good idea about current findings on wildlife response.

Species	Disturbance Factor	Flight Distance*
Mule deer	Person on foot—In low disturbance area	330 m
	— In medium disturbance	250 m
	— In high disturbance	200 m
	— recommended to avoid most flight	191 m
Mule deer	person afoot in winter	200 m
Elk	person afoot in winter	200 m
	highway vehicles	77 m
Elk	cross country skiers in—high use area	15 m
	— low use area	400 m
Mountain sheep	person afoot in winter	50 m
Golden plovers	people on trail	200 m
Elder ducks	land-based disturbance—with a dog	103 m
	— without a dog	52 m
American Kestrel	winter disturbance of person afoot	75 m
Merlin	winter disturbance of person afoot	125 m
Prairie Falcon	winter disturbance of person afoot	160 m
Rough-legged hawk	winter disturbance of person afoot	210 m
Ferruginous Hawk	winter disturbance of person afoot	140 m
Golden Eagle	winter disturbance of person afoot	300 m
Bald Eagle	land activities near roost on shoreline	250 m
Great Blue Heron	land-based activities	200 m
	water-based activities	100 m

*Note: Flight distance is the measurement from the source of the disturbance to the animal when the animal physically flees to a safer location, not the distance at which the animal first responds or is aware of the disturbance.

Flight Distances for a variety of wildlife. Studies have documented a range of responses by wildlife to various forms of disturbance. (This chart was developed from a review of the published literature by Clinton Miller, City of Boulder Open Space, 1994). While these numbers don't specify how far a trail needs to be from wildlife to avoid disturbance, taken together they illustrate a variability based on the species of wildlife and types of disturbance.

Our observation of bald eagles is that they can build a nest and function normally if they decide to move into an area that already has some level of disturbance. They can be adversely affected when their environment is changed by an increased level of activity moving close to their nesting or foraging location. At Smith and Bybee Lakes, this could mean nest abandonment along the South Lake Trail (especially given the location of the new trail) and foraging/ roosting /perching away from the trail. Potential ways to minimize disturbance can be through vegetative screening, limiting when the trail is used, and building nest platforms away from trails to potentially entice them to move to a new location. We could not find literature discussing the success of mitigation measures.

There is also a possibility that the bald eagle could be de-listed in the future. This means there will be no legal protection and thus, no review by USFWS. However, at this time it is unknown whether this will occur. It is also possible that the USFWS will not be involved in the review if there is a lack of a federal nexus.

I should add that USFWS could still review the project even if there isn't a federal nexus. They could do this if the project could result in "take" of threatened or endangered

species. A habitat conservation plan or "HCP" must accompany an application for an incidental take permit. The purpose of the habitat conservation planning process associated with the permit is to ensure there is adequate minimizing and mitigating of the effects of the authorized incidental take. The purpose of the incidental take permit is to authorize the incidental take of a listed species, not to authorize the activities that result in take.

NOAA Fisheries

I also spoke to Ben Meyer of NOAA Fisheries concerning the proposed segments of trail that border the Columbia Slough. Ben reviewed the Port of Portland trail with regards to its location along the Slough and its potential affect on salmonids (steelhead and chinook, which are listed as threatened under the Endangered Species Act). He stated the final location of the Port's trail was based in part on his recommendation to move the trail as far from the slough as possible to minimize the potential for impacts from stormwater and degradation of the riparian area, which can indirectly affect salmonids. He obviously didn't have any specific plans to review, but said that his agency would recommend Metro construct the trail as far from the slough as possible. He also stated that if the trail was constructed within 50 feet of the slough, he could require mitigation to compensate for potential adversely affects to salmonids. Mitigation could be in the form of improved riparian habitat, creation of salmonid habitat (e.g. removing a culvert) or other measures to benefit salmonids.

As stated in our previous memo, impacts to riparian habitat adversely affects the ability to provide a number of functions (e.g. thermal regulation, contribution of large wood, desynchronization of floodflows). Many of these functions are especially important for salmonids, such as steelhead and chinook. The loss of riparian vegetation closer to the sloughs has a greater detrimental effect than impacts further away. Impacts within 25 feet of a salmonid-bearing waterway will almost certainly have an adverse effect. NOAA Fisheries considers that in general, impacts greater than 200 feet away will not have an adverse effect.

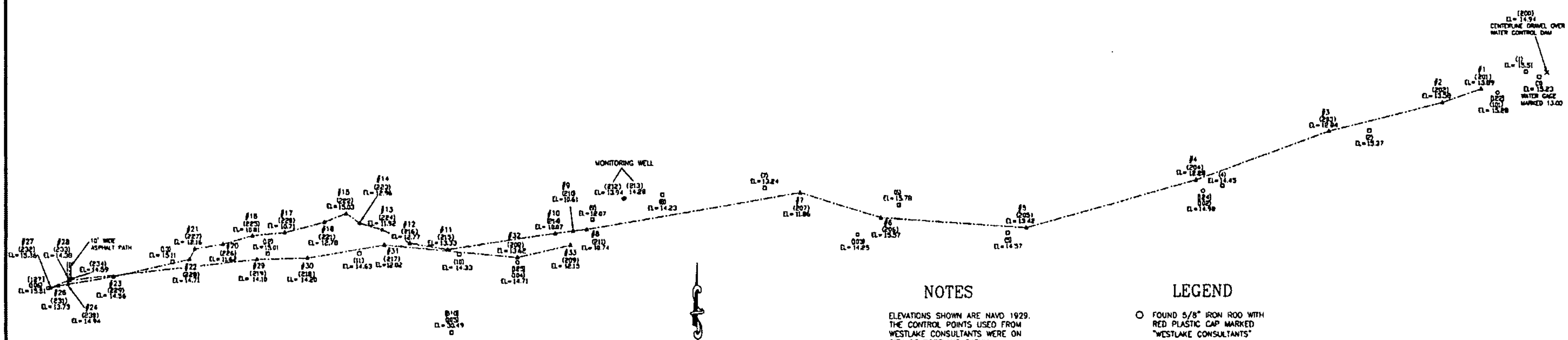
Other Research

Here are a few observations from *The Effects of Recreation on Birds: A Literature Review* (Bennett, K., and E. Zuelke. 1999). The following quotes are germane to the potential affects and construction of the trail through the ash groves or along the south edge of Smith Lake.

The paper's conclusions state: "The existing research clearly demonstrates that disturbances from recreation activities have at least temporary effects on the behavior and movement of birds within a habitat or localized area." They also state "In general, the presence of dogs caused birds to flush." And, "Migrants, including waterfowl, herons and

egrets, and shorebirds, tended to be more sensitive to disturbance than resident birds, but variations existed within and among species and family groups." Another quote is "Once disturbed birds tended to stay farther from the path."

We reviewed numerous articles concerning the affects of trail construction on wildlife use. Unfortunately, the majority cite the paucity of data regarding specific impacts and the need to collect more data. However, all were in agreement that trail construction through sensitive habitats can have a negative effect on wildlife use (nesting, wildlife movement, foraging, and roosting). Often these impacts are temporary and are associated with specific impacts from people using the trail. However, many species tend to stay away from areas where they are continually disturbed.



SCALE: 1" = 150'

JOB NO. 04-346

NOTES

ELEVATIONS SHOWN ARE NAVD 1929.
THE CONTROL POINTS USED FROM WESTLAKE CONSULTANTS WERE ON CITY OF PORTLAND DATUM.
THE CORRECTION USED WAS -1.38'.

CONVERSION TABLE

NGVD 29 + 1.38' = CITY OF PORTLAND DATUM
NGVD 29 + 3.41' = NAVD 88
CITY OF PORTLAND DATUM + 2.03' = NAVD 88

LEGEND

- ○ FOUND 5/8" IRON ROD WITH RED PLASTIC CAP MARKED "WESTLAKE CONSULTANTS"
- ⊡ HUB & TACK
- ⊕ MONITORING WELL
- △ FOUND FLAG
- # FLAG NUMBER
- ELEV ELEVATION
- (201) W.B. WELLS POINT NUMBER
- [122] WESTLAKE CONSULTANTS POINT NUMBER

REVISIONS:

DRAWN BY: PCS | CHECKED BY: RLR
DATE: 12/20/04 | SCALE: 1"=150'
PLOT DATE: 12/30/04 | JOB NO. 04-346
FILE: P:\04-346\04-346.DWG

TOPOGRAPHIC SURVEY
FOR
MACLEOD RECKORD

REGISTERED PROFESSIONAL LAND SURVEYOR
OREGON
JULY 13, 1994
2107
EXPIRES 12-31-06

W.B. WELLS and associates, inc.
ENGINEERS-SURVEYORS-PLANNERS
4230 NE FREMONT STREET
PORTLAND, OREGON 97213
PHONE:(503) 284-5896 FAX:(503) 284-8530
e-mail address: info@wbwells.com

SHEET 1 OF 1

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Oregon Fish and Wildlife Office
2600 SE 98th Avenue, Suite 100
Portland, Oregon 97266
Phone: (503)231-6179 FAX: (503)231-6195

Reply To: 8330. 03412(05)
File Name: Smith and Bybee Wetlands Trails TA.doc
TS Number: 05-1849

APR 0 8 2005

Jane Hart
Environmental Planner
METRO
600 NE Grande Ave.
Portland, Oregon 97232

Subject: Endangered Species Act technical assistance regarding activities near bald eagle nests. (USFWS reference # 1-7-05-TA-0341)

Dear Ms. Hart:

This letter is in response to our March 16, 2005, meeting regarding proposed trail alignments at Smith and Bybee Wetlands Natural Area. At that meeting we discussed several proposed trail alignments and potential impacts to the threatened bald eagle (*Haliaeetus leucocephalus*). Based on information you provided, the proposed South Lakeshore Trail Alignment is located very close to an active bald eagle nest. Further, you asked that the Fish and Wildlife Service (Service) provide you with some guidance. As you know, the bald eagle is protected under the Endangered Species Act of 1973, as amended (ESA), the Bald and Golden Eagle Protection Act (BGEPA) and the Migratory Bird Treaty Act (MBTA). In accordance with these statutes, eagles are protected from "take," which includes "harm" and "harassment" under the ESA, and "molest" and "disturb" under the BGEPA.

The Endangered Species Act

Section 9 of the ESA prohibits the taking of endangered species of fish and wildlife. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct [ESA §3(19)]. **Harm** is further defined by FWS to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering. **Harass** is defined by FWS as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering. [50 CFR §17.3]

The Bald and Golden Eagle Protection Act

The BGEPA (16 U.S.C. 668-668c), of 1940, as amended, prohibits anyone, without a permit issued by the Secretary of the Interior, from "taking" bald eagles, including their parts, nests, or eggs. The BGEPA provides criminal penalties for persons who "take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or any manner, any bald eagle ... [or any golden eagle], alive or dead, or any part, nest, or egg thereof." The BGEPA defines "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb."

The Migratory Bird Treaty Act

The MBTA (16 U.S.C. 703-712), prohibits the taking or possession of any migratory bird or any part, nest, or egg, except as permitted by regulation. The MBTA was enacted in 1918; a 1972 agreement supplementing one of the bilateral treaties underlying the MBTA had the effect of expanding the scope to cover bald eagles and other raptors. Implementing regulations define "take" under the MBTA as "pursue, hunt, shoot, wound, kill, trap, capture, possess, or collect."

Copies of the ESA, BGEPA and the MBTA are available at: http://permits.fws.gov/ltr/ltr.shtml.

Recovery Plan

The Pacific Bald Eagle Recovery Plan (USFWS 1986) (Recovery Plan) guidelines recommend restricting human disturbance at bald eagle use areas by excluding activities that are within 400 meters (approximately 0.25 miles) of nests and roosts during periods of eagle use. Activities that may rise to the level of harassment, under the ESA, include; timber harvest, blasting, firearms use, heavy machinery operation, camping or picnicking, etc. Further, the Recovery Plan recommends that these activities should also be regulated up to 800 meters from nests and roosts where eagles have an open line-of-sight. Critical nesting periods will vary, but generally fall between 1 January and 31 August.

Adverse effects to bald eagles may occur from activities conducted during the breeding/nesting season. Frequent or prolonged exposure to construction related noise and visual harassment may disrupt reproductive activities, potentially leading to nest failure. Literature documenting disturbance to bald eagles points to an ability to habituate to certain types of activity, such as vehicles on a highway, and to a lesser degree, for pedestrian presence or boat use, possibly due to the erratic and discontinuous nature of those particular activities (Grubb and King 1991, Grubb *et. al.* 1992). Neither study (Grubb and King 1991, Grubb *et al.* 1992) correlated reproductive failure to disturbance. Given the long-term nature of your proposed project, and proximity of bald eagles to your project, there is potential for harassment at the current nest site.

The primary measures we have required to minimize the risk of harassment to nesting bald eagles in the past include:

- Maintain a 0.25-mile buffer between noise generating activity and the bald eagle nest, including vehicles;
- Restrict construction activities to time periods outside of the breeding season.

Individual bald eagle tolerance to human activity varies. It should be noted, however, that the bald eagles at the Smith and Bybee Wetlands Natural Area are nesting in the most "remote" region of the Natural Area and the absence of human activity may be a primary reason they selected that site.

Please keep the Service informed as the trails development project continues. If you have any questions, or need more information, please contact Greg Smith at (503) 231-6179.

Sincerely,

for Kemper M. McMaster
State Supervisor

Background Research – Trail User Experience

Dean Apostol
August 2004

From: Gobster, H. Paul, and Lynn Westphal, "*The Human Dimension of Urban Greenways: planning for recreation and related experience,*" North Central Research Station, USDA Forest Service, Landscape and Urban Planning (68), 2004,

Researchers reviewed 6 interdependent variables related to human experience of greenways: cleanliness, naturalness, aesthetics, safety, access, and appropriateness of development.

Key questions:

- What do people focus on when they perceive a place or landscape?
- How are these subjectively evaluated?
- How do these evaluations effect use?

Study looked at Chicago River greenway, how people use it, and how they would improve it. The 6 variables above emerged as core set of values. Included nearby residents, trail users, and experts engaged in trail planning and resource management.

Nuggets:

- River "cleanliness" and water quality was the top rated issue. Residents and users were less aware of how much cleaner the river has gotten than were the experts.
- Image of a clean river is a "mountain stream". Slow moving sloughs, even in natural conditions are never "clear, blue", cold" waters (like in beer commercials).
- Thus people's vision of what a clean river ought to look like may not match the reality of what the managers can deliver.
- "Naturalness' very important to public. Defined as green, trees, and wildlife.
- Often cited as what people liked best about trail stretches.
- Growing body of research shows that nature contributes to aesthetic and recreation experience, and supports psychological and physical health.
- Lower blood pressure, relaxation, stress reduction measured.
- Aesthetics color perceptions on management quality.
- Beauty, scenery, peacefulness, contrast to urban character cited as important attributes of greenway.
- Scenic beauty most often mentioned attribute of trail landscape.
- "A chance to look at the river and not just the factories" sums up perspective.
- Research confirms a strong bias towards natural landscape and away from human made elements.
- 'Safety" includes physical: i.e. getting hit by cars, and "personal," i.e. being attacked by perps.
- Adequate sight lines, relatively open views help safety perception

- More people present increases safety perception
- Physical and/or "visual" access to amenities listed as important.
- Strong demand for physical access to natural areas, *especially those with water bodies.*
- Strong support for "appropriate development" that respects the qualities of the natural environment.
- Concern about over-developing recreation facilities: i.e. path leads to "park facilities".

Other conclusions

- 6 dimensions listed above cut across demographic lines.
- Strong "depth of caring" for the greenway and river environment demonstrated. (Implies that providing access supports larger conservation efforts).

Additional research:

- From Gobster, personal communication: what really mattered was the diversity of changes along a corridor, not just the particular environments per se.

From: Wiberg-Carlson, Dawn, and Herbert Schroeder, *Modeling and Mapping Urban Bicyclists Preferences for trail Environments,* USDA Forest Service Research Paper, NC-303, 1992

- Focus was on the "setting" for trails
- Rated "enjoyment" related to physical features
- Leafy vegetation rated positive
- Negative included: mowed lawn, visible sky, open areas, buildings, roads, cars, signs, wire fences.
- Forest groundcover included "bare ground" and leaf litter (rated positive).
- Suggests that closed canopy forest setting with no or few views of urban development preferred.
- Negatives included large open picnic area with few trees and fenced golf course.
- 'Variety" mentioned as important (e.g. all closed canopy forest might not be best)
- Wooden rail fences rate higher than wire mesh. Wire mesh with veg rated higher.

Kaplan, Rachel, Stephen Kaplan, and Robert L Ryan, *With People in Mind, Design and Management of Everyday Nature,* Island Press, 1998.

Book covers environmental psychology findings with respect to trails, views, human perception of places.

Nuggets:

- Natural areas defined broadly as areas with substantial amount of vegetation. Includes wild areas, parks, open spaces, gardens.
- Environment is a rich source of information

- Humans addicted to information
- Environment suggests things to observer (i.e. forest = habitat, swings = place for kids to play)
- People need to make sense of their world, explore, expand horizons, see what is ahead.
- Large expanses of undifferentiated land covers rank low in visual preference. Suggest "nothing is going on". Exploration unnecessary.
- Dense vegetation that obstructs views ranks low. Lack clear focus. Sense of disorientation.
- Spaced trees and open ground rank high in preference. Can be quite variable.
- *Coherence, legibility, complexity, and mystery* important characteristics of place.
- Restorative setting provide chance to "be away", or transported.
- Visual access, smooth ground, sense of depth, openings
- Way finding-landmarks, paths, signs, orientation points
- Gateways, partitions
- Narrow, curving trails better than wide, straight.
- Views of water preferred
- Points of interest aid experience
- Views and vistas are important resources

From Division of State Land's website: http://www.leg.state.or.us/ors/196.html

Chapter 196 — Columbia River Gorge; Ocean Resource Planning; Wetlands; Removal and Fill

2003 EDITION

196.820 Prohibition against issuance of permits to fill Smith Lake or Bybee Lake; exception. (1) Notwithstanding any provision of ORS 196.600 to 196.905 to the contrary, except as provided in subsection (2) of this section, the Director of the Department of State Lands shall not issue any permit to fill Smith Lake or Bybee Lake, located in Multnomah County, below the contour line which lies 11 feet above mean sea level as determined by the 1947 adjusted United States Coastal Geodetic Survey Datum.

(2) Notwithstanding the provision of subsection (1) of this section, the Director of the Department of State Lands may issue a permit to fill Smith Lake or Bybee Lake, located in Multnomah County, if such fill is to enhance or maintain fish and wildlife habitat at or near Smith Lake or Bybee Lake. A fill shall be considered to be for the purpose of enhancing or maintaining fish and wildlife habitat if the proposed fill is approved by the State Department of Fish and Wildlife. [Formerly 541.622 and then 196.690]

Smith & Bybee Lakes Wildlife Area Management Committee

Coordinated by:

Metro

600 NE Grand Ave.
Portland, OR 97232
(503) 797-1515

April 11, 2003

David Bragdon
President, Metro Council
Metro
600 NE Grand Avenue
Portland, Oregon 97232-2736

Dear President Bragdon,

The Smith and Bybee Lakes Management Committee (SBLMC) has been interested in the issues surrounding public trails and their alignment, construction and management for some time. Metro, the City of Portland, and the Port of Portland have discussed the trail issue for many years without resolution. In order to assist in finding a solution, the SBLMC designated a trail subcommittee, which met four times between October 2002 and February 2003. The subcommittee forwarded its unanimous recommendations to the SBLMC, which adopted them unanimously on February 25, 2003.

The recommendations include:

- A suggested alignment onto and around the St. Johns Landfill, connecting to the community of St. Johns,
- A feasibility study to determine whether a trail segment is necessary between the landfill and North Portland Road, and what alignment it should follow,
- Best management practices and performance standards to be followed in aligning, building and managing trails.

Our recommendations are the result of considerable time, effort and compromise by people on all sides of the trail issue. We hope that these recommendations can provide Metro with a framework within which to find the solution. The SBLMC encourages Metro to work with the City of Portland on the feasibility study as soon as possible – this issue has languished for many years and a resolution is needed.

Please do not hesitate to contact me at (503) 249-0482 if you would like to discuss this further.

Sincerely,

Troy Clark
Vice Chair

Trail Subcommittee
Recommendations to Management Committee
February 25, 2003

Trail subcommittee members (attending at least 1 of 4 meetings):

Pam Arden	40-mile Loop Trust
Troy Clark	Audubon Society of Portland
Nancy Hendrickson	Portland Bureau of Environmental Services
Holly Michael	Oregon Dept. Fish and Wildlife
Emily Roth	The Wetlands Conservancy
Denise Rennis	Port of Portland
Jim Sjulin	Portland Parks and Recreation

1. Alignment – segment from the confluence of North and Columbia sloughs to the landfill bridge

Subcommittee members reached consensus regarding alignment of the trail segment from the confluence of North and Columbia sloughs to the landfill bridge. This segment would pass over the North Slough and along the west side of the St. Johns Landfill, on the landfill perimeter road. A loop or spur could be used to take trail users a short distance onto the landfill dome in the northwest corner, using another existing road on the landfill. This consensus alignment has several important positive points:

- Minimizes habitat fragmentation (leaving most of the landfill untouched)
- Avoids sensitive habitat on the south side of Bybee Lake
- Provides a good view opportunity from the landfill dome
- Provides a good experience for trail users
- Has connectivity to St. Johns and a trail to be routed in that community.

The aerial photo used in the meeting shows the trail alignment around the west side of the landfill, with a zone outlined where the trail could go one of three ways in the northwest corner:

1. Spur trail up onto the dome
2. Main trail up onto the dome
3. Trail stays on perimeter road and does not go up onto the dome.

2. Alignment – segment from the landfill bridge to North Portland Road

The group did not reach consensus regarding this segment, or even the need for it. The discussion began with a question whether this trail segment was necessary. On the "pro" side, it would provide a quality experience for trail users and take them along the slough as it does for much of the rest of the route in the Columbia Slough watershed. On the "con" side, it would cause fragmentation of important riparian habitat, taking trail users right through the riparian zone of the slough.

A route along the south side of the Columbia Slough was discussed, with questions regarding its viability. For example, there are many property owners involved. The group agreed that this route would need more investigation.

The group saw four options for this trail segment:
1. No trail segment in this area
2. Mode split, with the south side of Smith Lake pedestrian-only (bicycles go over the landfill bridge to another alignment)
3. Mode split, pedestrian trail follows south side of Columbia Slough (bicycles go to another alignment)
4. No mode split, pedestrians and bicyclists follow trail on south side of Columbia Slough.

Issues identified for the alignment on the south side of Smith Lake included the grade change from the landfill to the natural area (how to make it ADA-accessible), questions regarding the cooperation of property owners, and potential issues of wetland fill. Other issues included what standards would be appropriate for this segment (width, surface type) and what ADA requirements might be. The group also discussed whether this trail alignment could be different than the route taken by maintenance vehicles, and whether this segment could be open seasonally.

Some of the same issues were identified for siting a trail on the south side of the Columbia Slough, including questions regarding the cooperation of property owners. The bridge at North Portland Road was seen as a potential major obstacle to a trail alignment in this area. The group was unsure whether it would be logistically possible to locate the trail on the south side of the slough. Allowing bicycles on the south side remains an open question also.

The trail subcommittee recommended that additional work be done to evaluate four alternatives:
1. No trail connection from the landfill to North Portland Road (allow another trail alignment through the community of St. Johns to provide connectivity),
2. Trail alignment on the south side of Smith Lake (north side of Columbia Slough),
3. Trail alignment on the south side of the Columbia Slough,
4. Trail alignment along Columbia Boulevard.

The group acknowledged that evaluating the feasibility of these four options is more work than could be done by staff and the subcommittee. They recommended that Metro work with the City of Portland, via the IGA under discussion or some other manner, to perform this feasibility study.

3. Best Management Practices and Performance Standards

The subcommittee began a list of BMPs at its meeting on November 20, 2002. All of the concepts discussed at that meeting are important, and the subcommittee agreed that they require careful balancing of sometimes-conflicting needs.

Below is the list from November 20, 2002, with new concepts added from the February 6, 2003, meeting. The practices (or sometimes concepts) are arranged by relevant area – general principles, alignment, design, construction and management.

General principles

- From the Colorado trail planning guide*:
  - Any trail will have at least some negative impacts on wildlife, which must be weighed with the benefits of the trail.
  - Don't focus solely on the narrow width of the trail's treadway – also consider the wider area it may influence.
  - Trail corridors may encourage edge-loving generalists, but these species are already increasing across the landscape and may not need encouraging.
  - Trails may negatively affect species that need conditions that are altered in trail construction.
  - It is easier to balance competing wildlife and recreation needs across a landscape or region than it is on a specific trail project within a smaller area.
  - Plan a trail consistent with a regional or landscape-wide plan that identifies where trails should go and which areas should be conserved for wildlife.
  - Enlist the help of conservation advocates in planning trails, and find opportunities to integrate trails and open space planning.
  - Determine which species of interest actually occur in the area you are studying.
  - Use public support of trails to protect riparian corridors.
  - Because there isn't much detailed knowledge about the effects of human disturbance on wildlife, be cautious in planning a trail, carefully weighing the alternatives.
  - Use the best wildlife information available, even if it is scarce.
  - Generally, it is better to concentrate recreational use rather than disperse it.
  - Don't assume all wildlife impacts can be resolved through management.
  - In discussing trails and wildlife, avoid sweeping generalities about wildlife impacts that may not be possible to substantiate or even be true in a specific situation.
  - Scientific study doesn't reveal how the public values wildlife.
  - Invite broad public participation on every trail project.

Alignment

- Site trails along habitat edges – don't create new edges and fragment the habitat.
- Site trails where the area is already receiving disturbance from recreation.
- Trails need to have connectivity.
- Use spurs where you want lower traffic.
- Minimize impacts to riparian habitat.
- No net fill of wetlands.
- Consider what you want users to get out of the trail experience – e.g., take them through different habitats and educate them.
- Consider what people are coming to S&B for – e.g., bicycling for health and passing through, or coming to see the site itself.
- Keep education focused at one place.
- Alignments have to be truly viable.
- Look at the broad area – where else do trails go, where is the riparian area.
- For alignments on or near the landfill, minimize health and safety risks to the public.
- Minimize risks to the landfill infrastructure.

- Locate trails in a way that minimizes interference to landfill staff performing their duties.
- Incorporate the City of Portland's comprehensive plan objectives regarding wildlife and trails. These are:
  - Conserve significant areas and encourage the creation of new areas which increase the variety and quantity of fish and wildlife throughout the urban area in a manner compatible with other urban development and activities [overall goal].
  - Regulate activities in natural resource areas which are deemed to be detrimental to the provision of food, water, and cover for fish and wildlife [natural resource areas].
  - Encourage the creation or enhancement of fish and wildlife habitat throughout the city [city-wide].
  - Protect existing habitat and, where appropriate, incorporate new fish and wildlife habitat elements into park plans and landscaping [city parks].
- Incorporate the objectives in the 40-mile Loop master plan. These are:
  - Provide a trail and open space system that connects existing parks and future parks into a visually and mentally comprehensible park system for the region's citizens and visitors.
  - Plan and encourage neighborhood and community access to the 40 Mile Loop.
  - Serve as a "hub" for long distance regional and state trails including the Lower Elevation Columbia River Gorge Trail, the Portland to the Coast Trail and the Sandy River Gorge Trail.
  - Help protect and utilize the natural resources and physically attractive aspects of the urban environment.
- From the Colorado trail planning guide:
  - Seek out degraded areas that have the potential to be restored when aligning a trail, rather than creating another disturbed area.
  - Site a trail where there are already human-created disturbances or in areas of less sensitive habitat.
  - Align a trail along or near an existing human-created ecological edge, rather than bisecting undisturbed areas.
  - When possible, leave untouched large, undisturbed areas of wildlife habitat.
  - Keep a trail – and its zone of influence – away from specific areas of known sensitive species, populations, or communities.
  - Even within a single type of habitat, some elements may be of greater importance to wildlife than others.
  - Locate trails and supporting facilities in areas where they can be screened and separated from sensitive wildlife by vegetation or topography.
  - Provide trail experiences that are diverse and interesting enough that recreationists are less inclined to create their own trails and thereby expand the zone of influence.
  - Keep the density of trails lower within and near pristine or other high quality areas to reduce the contribution of trails to fragmentation.
  - Avoid small patches of high quality habitat in routing a trail.
  - Avoid smaller, isolated patches when laying out a trail, but do give users an experience of the varied landscape.
  - Avoid patches that are habitat for threatened, endangered, or other species of concern.
  - Analyze the landscape noting the patches, corridors, and matrix – the landscape structure – as they might be used by species of special interest.

- Minimize the number of times prominent landscape corridors – such as riparian zones – are crossed by a trail.
- For both habitat and maintenance reasons, it is better to run a trail just outside the riparian area (perhaps on a topographic bench) and bring it in at strategic places, than to keep it continuously close to a riparian area.
- In routing a trail near a pond or lake, don't run it completely around the body of water.
- Avoid crossings where two or more streams come together.
- In riparian areas of variable habitat quality, route a trail closer to a stream where habitat quality is poorer.
- Give trail users the opportunity to be near water or they will find ways themselves.
- When it is appropriate to provide access to a more sensitive area, use a spur trail instead of a through trail because spur trails tend to have lower volumes of traffic.
- In urban landscapes there are often few options for routing trails other than streetside (where there are not many ecological implications) and along streams.

Design

- Minimize the impact of impervious surface.
- Locate trails away from the water.
- Preserve the existing hydrology (shallow water), via French drains, boardwalks or other methods.
- From the Colorado trail planning guide:
  - To maintain natural processes along a stream corridor, maintain an interior or upland buffer on both sides of a stream.
  - In areas with sensitive vegetation, provide a well-designed trail to encourage users to stay on the trail.
  - Provide toilets at trailheads and other key locations to reduce damage to surrounding vegetation.
  - Design trails with proper drainage and sustainable gradients so users are less likely to trample vegetation along alternate routes.
  - Route a trail around meadows and other wet areas and build up a dry trail in areas where seasonal water creates boggy soil.
  - To minimize ground disturbance and possible spread of weedy species, reconstruct an existing trail instead of rerouting it.
  - Provide facilities, such as blinds, viewing areas, and boardwalks, for visitors to see wildlife with minimal disturbance.

Construction

- Avoid removing trees.
- Minimize construction impacts, including permanent impacts from temporary activities (e.g., soil compaction from movement of heavy equipment).
- Work within the final trail footprint to the extent possible.
- Build during the appropriate season.
- From the Colorado trail planning guide:
  - In constructing or upgrading a trail, disturb as narrow an area as possible to help minimize the zone of influence.

Management

- Do not allow dogs or other pets on trails within the wildlife area.
- Allow bicycle use only on perimeter trails designed for multi-modal transportation; this does not include the south side of Smith Lake.
- From the Colorado trail planning guide:
  - Either avoid wildlife breeding areas or close trails through them at the times such wildlife are most sensitive to human disturbance.
  - If there won't be sufficient resources to enforce a trail closure during wildlife-sensitive seasons, consider rerouting the trail through another area.
  - Educate trail users about the results of direct impacts to vegetation and indirect impacts to wildlife.
  - To prevent weed spread, control aggressive weeds along trails.
  - Plan how to manage a trail's wildlife issues before its alignment is set.
  - Don't depend on management to resolve wildlife conflicts that can be avoided by careful alignment in the first place.
  - More careful management of resources will be required when a trail passes through or near sensitive habitat.
  - Wildlife accept the more predictable disturbances of people on trails more readily than off trails.
  - Encourage visitors not to leave food or garbage around to further support generalist species.
  - Use a combination of management techniques to facilitate the coexistence of recreationists and wildlife.
  - Enlist the help of trail users in monitoring wildlife use of the trail corridor and other activities.
  - To protect wildlife, when describing points of sensitive, ecological interest near a trail – sites you want people to know about, but not visit – don't indicate the direction or distance to the spot.
  - Interpretation and environmental education are very important management tools.

* Planning Trails with Wildlife in Mind: A Handbook for Trail Planners. Colorado State Parks, Trails and Wildlife Task Force. Available online at: http://www.coloradoparks.org/home/publications.asp#Trails%20Publications

APPENDIX C

COST ESTIMATES

MacLeod Reckord

Landscape Architects

Cost Estimate

Project: Smith + Bybee Lakes
Phase: Feasibility Study
Date: December 2004 By: MZ

ITEM & DESCRIPTION	QUANTITY	UNIT	UNIT COST	ITEM TOTAL	SUBTOTAL
Ash Groves Segment					
Hard Surface					
Mobilization 8%	ALLOW	LS	$ 18,093.60	$ 18,093.60	
Clearing and grubbing	4400	LF	2.40	10,560.00	
Earthwork	4800	LF	13.00	62,400.00	
Major earthwork	250	LF	37.00	9,250.00	
Fine grading	4800	LF	3.60	17,280.00	
Silt Fencing	4800	LF	2.00	9,600.00	
Asphalt paving	4,800	LF	16.60	79,680.00	
Shoulder	4,800	LF	5.00	24,000.00	
Hydroseed	4,800	LF	1.00	4,800.00	
Fencing		LF	17.00	-	
Landscaping		LF	5.00	-	
Mitigation/Landscaping	ALLOW	LS	5,000.00	5,000.00	
Furnishings	4800	LF	0.75	3,600.00	
Modify Water Control Structure	ALLOW	LS	4,000.00	4,000.00	
Subtotal					248,263.60
20% Estimating Contingency					49,653
Total Construction Cost					**297,916**
20% Soft Costs					59,583
Total Cost Hard Surface Trail					**$ 357,500**
Soft Surface					
Mobilization 8%	ALLOW	LS	$ 6,542.40	$ 6,542.40	
Clearing and grubbing	4800	LF	1.20	5,760.00	
Earthwork	4800	LF	5.60	26,880.00	
Major earthwork	250	LF	22.00	5,500.00	
Fine grading	4800	LF	1.80	8,640.00	
Silt Fencing	4800	LF	2.00	9,600.00	
Gravel surfacing	4,800	LF	2.50	12,000.00	
Hydroseed	4,800	LF	1.00	4,800.00	
Fencing		LF	17.00	-	
Mitigation/Landscaping	ALLOW	LS	5,000.00	5,000.00	
Furnishings	4800	LF	0.75	3,600.00	
Modify Water Control Structure	ALLOW	LS	4,000.00	4,000.00	
Subtotal					92,322.40
20% Estimating Contingency					18,464.48
Total Construction Cost					**110,787**
20% Soft Costs					22,157
Total Cost Soft Surface Trail					**$ 132,944**

Notes

1) 20% estimating contingency and soft costs used here as alignment does not include complex constuction components such as a bridge.
2) Hard surface trail assumes an 8' wide asphalt trail with 2' gravel shoulders, soft surface a 4' wide trail.

MacLeod Reckord

Landscape Architects

Cost Estimate

Project: Smith + Bybee Lakes
Phase: Feasibility Study
Date: December 2004 By: MZ

ITEM & DESCRIPTION	QUANTITY	UNIT	UNIT COST	ITEM TOTAL	SUBTOTAL
SW Landfill Segment					
Hard Surface					
Mobilization 8%	ALLOW	LS	$ 29,656.40	$ 29,656.40	
Clearing and grubbing		LF	2.40	-	
Earthwork	5900	LF	13.00	76,700.00	
Major earthwork	200	LF	37.00	7,400.00	
Fine grading	5900	LF	3.60	21,240.00	
Silt Fencing	5900	LF	2.00	11,800.00	
Asphalt paving	5,900	LF	16.60	97,940.00	
Shoulder	5,900	LF	5.00	29,500.00	
Hydroseed	5,900	LF	1.00	5,900.00	
Fencing	5,900	LF	17.00	100,300.00	
Fence gates	8	EA	1,000.00	8,000.00	
Mitigation/Mitigation	ALLOW	LS	7,500.00	7,500.00	
Furnishings	5900	LF	0.75	4,425.00	
Slough Bridge	ALLOW	LS	910,000.00	910,000.00	
Subtotal					1,310,361
30% Estimating Contingency					393,108
TOTAL Construction Cost					**1,703,470**
24% Soft Costs					408,833
TOTAL Cost Hard Surface Trail					**$ 2,112,303**
Soft Surface					
Mobilization 8%	ALLOW	LS	$ 10,490.00	$ 10,490.00	
Clearing and grubbing		LF	1.20	-	
Earthwork		LF	5.60	-	
Major earthwork	200	LF	22.00	4,400.00	
Fine grading		LF	1.80	-	
Silt Fencing	300	LF	2.00	600.00	
Gravel surfacing (soft trail)		LF	2.50	-	
Hydroseed	5,900	LF	1.00	5,900.00	
Fencing	5,900	LF	17.00	100,300.00	
Fence gates	8	EA	1,000.00	8,000.00	
Mitigation/Landscaping	ALLOW	LS	7,500.00	7,500.00	
Furnishings	5900	LF	0.75	4,425.00	
Slough Bridge	ALLOW	LS	910,000.00	910,000.00	
Subtotal					1,051,615
30% Estimating Contingency					315,485
TOTAL Construction Cost					**1,367,100**
24% Soft Costs					328,104
TOTAL Cost Soft Surface Trail					**$ 1,695,203**

Notes

1) Hard surface trail assumes an 8' wide asphalt trail with 2' gravel shoulders, soft surface a 4' wide trail.

MacLeod Reckord
Landscape Architects

Cost Estimate

Project: Smith + Bybee Lakes
Phase: Feasibility Study
Date: December 2004 By: MZ

ITEM & DESCRIPTION	QUANTITY	UNIT	UNIT COST	ITEM TOTAL	SUBTOTAL
North Landfill					
Hard Surface					
Mobilization 8%	ALLOW	LS	$ 21,790.40	$ 21,790.40	
Clearing and grubbing		LF	2.40	-	
Earthwork	4400	LF	13.00	57,200.00	
Major earthwork		LF	37.00	-	
Fine grading	4400	LF	3.60	15,840.00	
Silt Fencing	4400	LF	2.00	8,800.00	
Asphalt paving	4,400	LF	16.60	73,040.00	
Shoulder	4,400	LF	5.00	22,000.00	
Hydroseed	4,400	LF	1.00	4,400.00	
Fencing	4,400	LF	17.00	74,800.00	
Fence gates	8	EA	1,000.00	8,000.00	
Mitigation/Landscaping	ALLOW	LS	5,000.00	5,000.00	
Furnishings	4400	LF	0.75	3,300.00	
Slough Bridge	ALLOW	LS	910,000.00	910,000.00	
Subtotal					1,204,170
30% Estimating Contingency					361,251
Total Construction Cost					**1,565,422**
24% Soft Costs					375,701
Total Cost Hard Surface Trail					**$ 1,941,123**
Soft Surface					
Mobilization 8%	ALLOW	LS	$ 8,344.00	$ 8,344.00	
Clearing and grubbing		LF	1.20	-	
Earthwork		LF	5.60	-	
Major earthwork		LF	22.00	-	
Fine grading		LF	1.80	-	
Silt Fencing	4400	LF	2.00	8,800.00	
Gravel surfacing		LF	2.50	-	
Hydroseed	4,400	LF	1.00	4,400.00	
Fencing	4,400	LF	17.00	74,800.00	
Fence gates	8	EA	1,000.00	8,000.00	
Mitigation/Landscaping	ALLOW	LS	5,000.00	5,000.00	
Furnishings	4400	LF	0.75	3,300.00	
Slough Bridge	ALLOW	LS	910,000.00	910,000.00	
Subtotal					1,022,644
30% Estimating Contingency					306,793
TOTAL Construction Cost					**1,329,437**
24% Soft Costs					319,065
TOTAL Cost Soft Surface Trail					**$ 1,648,502**

Notes
1) Hard surface trail assumes an 8' wide asphalt trail with 2' gravel shoulders, soft surface a 4' wide trail.

MacLeod Reckord

Landscape Architects

Cost Estimate

Project: Smith + Bybee Lakes
Phase: Feasibility Study
Date: December 2004 By: MZ

ITEM & DESCRIPTION	QUANTITY	UNIT	UNIT COST	ITEM TOTAL	SUBTOTAL
East Landfill Segment					
Hard Surface Trail					
Mobilization 8%	ALLOW	LS	$ 25,398.00	$ 25,398.00	
Clearing and grubbing		LF	2.40	-	
Earthwork	4500	LF	13.00	58,500.00	
Major earthwork		LF	37.00	-	
Fine grading	4,500	LF	3.60	16,200.00	
Silt Fencing	4,500	LF	2.00	9,000.00	
Asphalt paving	4,500	LF	16.60	74,700.00	
Shoulder	4,500	LF	5.00	22,500.00	
Hydroseed	4,500	LF	1.00	4,500.00	
Fencing	6,100	LF	17.00	103,700.00	
Fence gates	12	EA	1,000.00	12,000.00	
Mitigation/Landscaping	ALLOW	LS	5,000.00	5,000.00	
Furnishings	4,500	LF	0.75	3,375.00	
Viewpoint	ALLOW	LS	8,000.00	8,000.00	
Subtotal					342,873
20% Estimating Contingency					68,575
TOTAL Construction Cost					**411,448**
20% Soft Costs					82,290
TOTAL Cost Hard Surface Trail					**$ 493,737**
Soft Surface Trail					
Mobilization8%	ALLOW	LS	$ 11,646.00	$ 11,646.00	
Clearing and grubbing		LF	1.20	-	
Earthwork		LF	5.60	-	
Major earthwork		LF	22.00	-	
Fine grading		LF	1.80	-	
Silt Fencing	4500	LF	2.00	9,000.00	
Gravel surfacing		LF	2.50	-	
Hydroseed	4,500	LF	1.00	4,500.00	
Fencing	6,100	LF	17.00	103,700.00	
Fence gates	12	EA	1,000.00	12,000.00	
Mitigation/Landscaping	ALLOW	LS	5,000.00	5,000.00	
Furnishings	4500	LF	0.75	3,375.00	
Viewpoint	ALLOW	LS	8,000.00	8,000.00	
Subtotal					157,221
20% Estimating Contingency					31,444
TOTAL Construction Cost					**188,665**
20% Soft Costs					37,733
TOTAL Cost Soft Surface Trail					**$ 226,398**

Notes

1) 20% estimating contingency and soft costs used here as alignment does not include complex constuction components such as a bridge.

2) Hard surface trail assumes an 8' wide asphalt trail with 2' gravel shoulders, soft surface a 4' wide trail.

MacLeod Reckord

Landscape Architects

Cost Estimate

Project: Smith + Bybee Lakes
Phase: Feasibility Study
Date: December 2004 By: MZ

ITEM & DESCRIPTION	QUANTITY	UNIT	UNIT COST	ITEM TOTAL	SUBTOTAL
South Lake Shore Segment					
Hard Suface Trail					
Mobilization 8%	ALLOW	LS	$ 42,407.20	$ 42,407.20	
Clearing and grubbing	8400	LF	2.40	20,160.00	
Earthwork	8400	LF	13.00	109,200.00	
Major earthwork	250	LF	37.00	9,250.00	
Fine grading	8400	LF	3.60	30,240.00	
Silt Fencing	8400	LF	2.00	16,800.00	
Asphalt paving	8,400	LF	16.60	139,440.00	
Shoulder	8,400	LF	5.00	42,000.00	
Hydroseed	8,400	LF	1.00	8,400.00	
Fencing	8,400	LF	17.00	142,800.00	
Landscaping		LF	5.00	-	
Mitigation	ALLOW	LS	5,500.00	5,500.00	
Furnishings	8400	LF	0.75	6,300.00	
Bridge Underpass	ALLOW	LS	40,000.00	40,000.00	
Subtotal					612,497
30% Estimating Contingency					183,749
TOTAL Construction Cost					**796,246**
24% Soft Costs					191,099
TOTAL Cost Hard Surface Trail					**$ 987,345**
Soft Surface Trail					
Mobilization 8%	ALLOW	LS	$ 22,283.20	$ 22,283.20	
Clearing and grubbing	8400	LF	1.20	10,080.00	
Earthwork	8400	LF	5.60	47,040.00	
Major earthwork	250	LF	22.00	5,500.00	
Fine grading	8400	LF	1.80	15,120.00	
Silt Fencing	8400	LF	2.00	16,800.00	
Gravel surfacing	8,400	LF	2.50	21,000.00	
Hydroseed	8,400	LF	1.00	8,400.00	
Fencing	8,400	LF	17.00	142,800.00	
Landscaping		LF	5.00	-	
Mitigation	ALLOW	LS	5,500.00	5,500.00	
Furnishings	8400	LF	0.75	6,300.00	
Bridge Underpass	ALLOW	LS	40,000.00	40,000.00	
Subtotal					340,823
30% Estimating Contingency					102,247
TOTAL Construction Cost					**443,070**
24% Soft Costs					106,337
TOTAL Cost SoftSurface Trail					**$ 549,407**

Notes

1) Hard surface trail assumes an 8' wide asphalt trail with 2' gravel shoulders, soft surface a 4' wide trail.

MacLeod Reckord

Landscape Architects

Cost Estimate

Project: Smith + Bybee Lakes
Phase: Feasibility Study
Date: December 2004 By: MZ

ITEM & DESCRIPTION	QUANTITY	UNIT	UNIT COST	ITEM TOTAL	SUBTOTAL
South Slough Segment					
Hard Surface Trail					
Mobilization 8%	ALLOW	LS	$46,018.40	$ 46,018.40	
Clearing and grubbing	10800	LF	2.40	25,920.00	
Earthwork	10800	LF	13.00	140,400.00	
Major earthwork	250	LF	37.00	9,250.00	
Fine grading	10800	LF	3.60	38,880.00	
Silt Fencing	10800	LF	2.00	21,600.00	
Asphalt paving	10,800	LF	16.60	179,280.00	
Shoulder	10,800	LF	5.00	54,000.00	
Hydroseed	10,800	LF	1.00	10,800.00	
Fencing	5,000	LF	17.00	85,000.00	
Landscaping		LF	5.00	-	
Mitigation	ALLOW	LS	2,000.00	2,000.00	
Furnishings	10800	LF	0.75	8,100.00	
Bridge Underpass	ALLOW	LS	40,000.00	40,000.00	
Modifications to Landfill Bridge	ALLOW	LS	25,000.00	25,000.00	
N.Portland Bridge Modifications	ALLOW	LS	282,000.00	282,000.00	
Subtotal					922,230
30% Estimating Contingency					276,669
TOTAL Construction Cost					**1,198,899**
24% Soft Costs					287,736
TOTAL Cost Hard Surface Trail					**$ 1,486,635**
Soft Surface Trail					
Mobilization 8%	ALLOW	LS	$20,230.40	$ 20,230.40	
Clearing and grubbing	10800	LF	1.20	12,960.00	
Earthwork	10800	LF	5.60	60,480.00	
Major earthwork	250	LF	22.00	5,500.00	
Fine grading	10800	LF	1.80	19,440.00	
Silt Fencing	10800	LF	2.00	21,600.00	
Gravel surfacing	10,800	LF	2.50	27,000.00	
Hydroseed	10,800	LF	1.00	10,800.00	
Fencing	5,000	LF	17.00	85,000.00	
Landscaping		LF	5.00	-	
Mitigation	ALLOW	LS	2,000.00	2,000.00	
Furnishings	10800	LF	0.75	8,100.00	
Bridge Underpass	ALLOW	LS	40,000.00	40,000.00	
N.Portland Bridge Modifications	ALLOW	LS	282,000.00	282,000.00	
Subtotal					595,110
30% Estimating Contingency					178,533
TOTAL Construction Cost					**773,644**
24% Soft Costs					185,674
TOTAL Cost Soft Surface Trail					**$ 959,318**

Notes

1) Hard surface trail assumes an 8' wide asphalt trail with 2' gravel shoulders, soft surface a 4' wide trail.

MacLeod Reckord
Landscape Architects

Cost Estimate

Project: Smith + Bybee Lakes
Phase: Feasibility Study
Date: December 2004 By: MZ

ITEM & DESCRIPTION	QUANTITY	UNIT	UNIT COST	ITEM TOTAL	SUBTOTAL
Landfill Connector Segment					
Hard Surface Trail					
Mobilization 8%	ALLOW	LS	$ 116,135.60	$ 116,135.60	
Clearing and grubbing	1,700	LF	2.40	4,080.00	
Earthwork	1,700	LF	13.00	22,100.00	
Major earthwork	1,700	LF	37.00	62,900.00	
Fine grading	1,700	LF	3.60	6,120.00	
Silt Fencing	1,700	LF	2.00	3,400.00	
Asphalt paving	1,700	LF	16.60	28,220.00	
Shoulder	1,700	LF	5.00	8,500.00	
Hydroseed	1,700	LF	1.00	1,700.00	
Fencing	200	LF	17.00	3,400.00	
Fence gates	5	EA	1,000.00	5,000.00	
Furnishings	1,700	LF	0.75	1,275.00	
Landfill Bridge Modifications	ALLOW	LS	25,000.00	25,000.00	
Columbia Blvd. Crossing	ALLOW	LS	80,000.00	80,000.00	
RR Underpass	ALLOW	LS	1,200,000.00	1,200,000.00	
Subtotal					1,447,615
30% Estimating Contingency					434,285
TOTAL Construction Cost					**1,881,900**
24% Soft Costs					451,656
TOTAL Cost Hard Surface Trail					**$ 2,333,555**
Soft Surface Trail					
Mobilization 8%	ALLOW	LS	$ 105,582.00	$ 105,582.00	
Clearing and grubbing		LF	1.20	-	
Earthwork		LF	5.60	-	
Major earthwork		LF	22.00	-	
Fine grading		LF	1.80	-	
Silt Fencing	1,700	LF	2.00	3,400.00	
Gravel surfacing		LF	2.50	-	
Hydroseed	1,700	LF	1.00	1,700.00	
Fencing	200	LF	17.00	3,400.00	
Fence gates	5	EA	1,000.00	5,000.00	
Furnishings	1,700	LF	0.75	1,275.00	
Landfill Bridge Modifications	ALLOW	LS	25,000.00	25,000.00	
Columbia Blvd. Crossing	ALLOW	LS	80,000.00	80,000.00	
RR Underpass	ALLOW	LS	1,200,000.00	1,200,000.00	
Subtotal					1,319,775
30% Estimating Contingency					395,933
TOTAL Construction Cost					**1,715,708**
24% Soft Costs					411,770
TOTAL Cost Soft Surface Trail					**$ 2,127,477**

Notes
1) Hard surface trail assumes an 8' wide asphalt trail with 2' gravel shoulders, soft surface a 4' wide trail.

MacLeod Reckord
Landscape Architects

Cost Estimate

Project: Smith + Bybee Lakes
Phase: Feasibility Study
Date: December 2004 By: MZ

ITEM & DESCRIPTION	QUANTITY	UNIT	UNIT COST	ITEM TOTAL	SUBTOTAL
Pier Park Segment					
Chimney/Pier Park Hard Surface					
Mobilization 8%	ALLOW	LS	$ 68,005.60	$ 68,005.60	
Clearing and grubbing	4,200	LF	2.40	10,080.00	
Earthwork	4,200	LF	13.00	54,600.00	
Major earthwork	4,200	LF	37.00	155,400.00	
Fine grading	4,200	LF	3.60	15,120.00	
Silt Fencing	4,200	LF	2.00	8,400.00	
Asphalt paving	4,200	LF	16.60	69,720.00	
Shoulder	4,200	LF	5.00	21,000.00	
Hydroseed	4,200	LF	1.00	4,200.00	
Fencing	200	LF	17.00	3,400.00	
Landscaping	ALLOW	LS	5,000.00	5,000.00	
Furnishings	4,200	LF	0.75	3,150.00	
Bridge Crossing	ALLOW	LS	500,000.00	500,000.00	
Subtotal					918,076
30% Estimating Contingency					275,423
TOTAL Construction Cost Chimney/Pier Pk					**1,193,498**
24% Soft Costs					220,338
TOTAL Cost Chimney/Pier Park					**$ 1,413,836**
Chimney/Pier Park Soft Surface					
Mobilization 8%	ALLOW	LS	$ 54,333.60	$ 54,333.60	
Clearing and grubbing	4,200	LF	1.20	5,040.00	
Earthwork	4,200	LF	5.60	23,520.00	
Major earthwork	4,200	LF	22.00	92,400.00	
Fine grading	4,200	LF	1.80	7,560.00	
Silt Fencing	4,200	LF	2.00	8,400.00	
Asphalt paving	4,200	LF	2.50	10,500.00	
Shoulder	4,200	LF	5.00	21,000.00	
Hydroseed	4,200	LF	1.00	4,200.00	
Fencing	200	LF	17.00	3,400.00	
Landscaping		LF	5.00	-	
Furnishings	4,200	LF	0.75	3,150.00	
Bridge Crossing	ALLOW	LS	500,000.00	500,000.00	
Subtotal					733,504
30% Estimating Contingency					220,051
TOTAL Construction Cost Chimney/Pier Pk					**$ 953,554.68**
24% Soft Costs					228,853
TOTAL Cost Chimney/Pier Park					**$ 1,182,408**

MacLeod Reckord
Landscape Architects

Cost Estimate

Project: Smith + Bybee Lakes
Phase: Feasibility Study
Date: December 2004 By: MZ

ITEM & DESCRIPTION	QUANTITY	UNIT	UNIT COST	ITEM TOTAL	SUBTOTAL
Route 1 - N. Fessenden Street					
Clearing and grubbing (hard)		LF	2.40	-	
Earthwork (hard)		LF	13.00	-	
Major earthwork (hard)		LF	37.00	-	
Fine grading (hard)		LF	3.60	-	
Silt Fencing		LF	2.00	-	
Asphalt paving (hard trail)		LF	16.60	-	
Shoulder (hard)		LF	5.00	-	
Hydroseed		LF	1.00	-	
Fencing		LF	17.00	-	
Furnishings	7,600	LF	0.75	5,700	
Arterial Improvements	ALLOW	LS	5,000.00	5,000	
Subtotal					11,556
20% Estimating Contingency					2,311
TOTAL Construction Cost Route 1					**13,867**
20% Soft Costs					2,773
TOTAL Route 1 Cost					**16,641**
TOTAL Pier Park with Route 1					**$ 1,427,704**
Route 2 - N. Smith Street					
Mobilization (hard surface) 8%	ALLOW	LS	$ 3,174.00	$ 3,174.00	
Clearing and grubbing (hard)		LF	2.40	-	
Earthwork (hard)		LF	13.00	-	
Major earthwork (hard)		LF	37.00	-	
Fine grading (hard)		LF	3.60	-	
Silt Fencing		LF	2.00	-	
Asphalt paving (hard trail)		LF	16.60	-	
Shoulder (hard)		LF	5.00	-	
Hydroseed		LF	1.00	-	
Fencing		LF	17.00	-	
Furnishings	8,900	LF	0.75	6,675.00	
Arterial Improvements		LS	33,000.00	33,000.00	
Subtotal					42,849
20% Estimating Contingency					8,570
TOTAL Construction Cost Route 2					**51,419**
20% Soft Costs					10,284
TOTAL Route 2 Cost					**61,703**
TOTAL Pier Park with Route 2					**$ 1,465,255**

Notes
1) Hard surface trail assumes an 8' wide asphalt trail with 2' gravel shoulders, soft surface a 4' wide trail.

APPENDIX D

PUBLIC INVOLVEMENT

Learn about Smith and Bybee lakes trail study at Feb. 16 open house

Metro and the city of Portland are exploring possible new trail routes that will connect nearby parks, neighborhoods and workplaces to the Smith and Bybee Lakes Wildlife Area. Come to the open house to:

- learn about the trail study
- see possible trail routes and designs
- meet members of the trail work group
- provide your comments and questions
- find out about future ways to be heard.

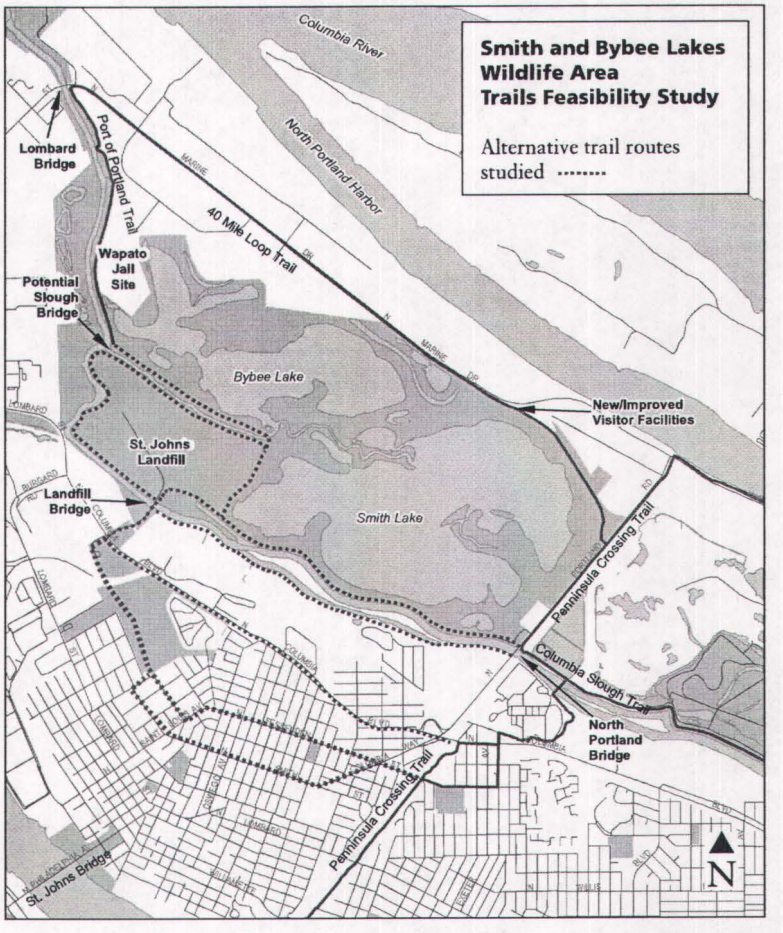
4:30 to 7:30 p.m.
Wednesday, Feb. 16, 2005

Water Pollution Control Laboratory
6543 N. Burlington Ave., Portland

The trail study will be completed this summer and will feature alternative trail routes, designs and amenities. The Metro Council will make a decision about the final trail alignment shortly after the study is published.

For more information, call Jane Hart, Metro project manager, at (503) 797-1585, send an e-mail to hartj@metro.dst.or.us or visit Metro's web site at www.metro-region.org/parks.

At nearly 2,000 acres, Smith and Bybee Lakes Wildlife Area is home to beavers, otters, osprey, bald eagles, waterfowl, herons, songbirds and turtles just to name a few. The natural area is managed by Metro to benefit fish and wildlife, and offer visitors the opportunity to hike, canoe, fish, as well as to study and enjoy nature. Additional future trails will improve public access to the area while protecting valuable habitat.



Directions to the Water Pollution Control Laboratory

From I-5, take the Portland Boulevard exit (304).

Turn west and go about one mile to where North Portland Boulevard becomes North Willamette Boulevard.

Travel about three miles on North Willamette Boulevard and turn left on North Richmond.

Go three blocks and turn right on North Crawford.

Go about three blocks and turn left on North Burlington.

Go to the bottom of the hill, cross railroad tracks and park at the lab.

From the west side crossing the St. Johns Bridge, turn right on North Syracuse.

Go about 0.1 mile and turn right on North Burlington.

Go to the bottom of the hill, cross railroad tracks and park at the lab.

METRO

PEOPLE PLACES
OPEN SPACES

Metro, the regional government that serves 1.3 million people who live in Clackamas, Multnomah and Washington counties and the 25 cities in the Portland metropolitan area, provides planning and services that protect the nature of the region.

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Summary of Comments Recorded on Flip Charts at the Smith and Bybee Lakes Trail Study Open House on February 16, 2005

General Comments

- Are bikes and dogs going to be prohibited in the natural area?
- The decision of which alignment to develop will be a value judgement.

Ash Groves Alignment

- Replace Ash Grove segment with the north landfill road segment to avoid sensitive habitat in the ash grove.
- Trail along either side of the south slough is preferable to the neighborhood route portion of this alignment.
- Ash Grove alignment has habitat that is too fragile to have a paved trail through it.
- This alternative doesn't work well for connecting the Port of Portland Trail to the Peninsula Crossing Trail.
- Ash groves alignment includes known habitat for an endangered species of bat, should avoid trail development here.
- Instead of putting trail through Ash Grove or on north landfill road, put trail on west and south landfill roads; this will avoid disruption to the western painted turtles and listed species who live along/in the north arm of the slough.

Landfill Alignment

- Trail should be located on the west and south side of the landfill, not north landfill road, this would result in least impact to wildlife and the user experience is enjoyable.
- This alignment has the lowest wildlife impact.
- The neighborhood route shown on the Ash Groves option should be added to this alignment for better connection to the neighborhoods and the Penninsula Crossing Trail.
- This alignment offers the best views with the least ecological impact.
- Bridge over the slough is not a limiting factor.

South Lake Shore Alignment

- Will trees need to be cut to put a trail on either bank of the slough?
- The potential for increased activity (bikes, dogs) that is inconsistent with the wildlife area makes this alignment less desirable.

- Do not put trail here, wildlife quality should be the top priority. Lakes are surrounded three sides by trails, need to have some areas set aside for wildlife. Extensive fragmentation will occur in best riparian area of the slough. Eagles, herons, beaver all use this area and will be displaced if a trail is put here.
- Trails should be kept at least 100 feet from wetlands/slough/lake.
- This is the preferred route for the 40 Mile Loop.
- Some wildlife can co-exist with human activity. Examples include San Juan Island, Alki Beach and Eliot Bayside in Seattle where eagles nest near a path. Eagles and herons will adapt to changes in their habitat. Negative impact on them is conjecture.
- Perhaps the span from the old Sauvie Island Bridge could be used for this trail at the west end of the landfill.
- Trail users could be trained to become monitors for sensitive wildlife areas.
- Curving trails could get people to travel more slowly.
- Plan could be phased so that trail development could happen if/when eagles leave.
- Ash Groves trail is preferable because it doesn't require a bridge and avoids more sensitive habitat along the south shore of Smith Lake.
- Could be problems with methane leaks from the landfill causing the trail on the landfill to be shut down.
- Trail along the south side of the lake would be detrimental to paddler's experience.
- Prefer neighborhood alignment along Smith or Fessenden Streets to trail along South shore of Smith Lake.

South Slough Alignment

- Do we know about the Salmon/Wetland Mitigation Project?
- Do not put a trail near multiple side channels between the south side of the slough and uplands.
- There are safety and security concerns to consider when crossing private property, particularly in industrial areas. Signage will be necessary.
- Who will the trail serve? Serious bicyclists? Hikers? Families with children?
- A trail alignment south of the slough would minimize impacts to eagles, herons and salmonids and be easier to patrol. Staying away from Smith Lake and Ash Grove is preferable to avoid habitat impacts.
- Would a trail on the south side of the slough be far enough away to avoid impacts to the eagles nesting on the north side of the slough?
- Stay off both sides of the slough; leave it for wildlife habitat.
- There are engineering challenges associated with improving the Portland Road Bridge for pedestrians.
- With 2,200 acres in the natural area and so many trail needs elsewhere, should avoid purchasing expensive industrial properties to solve this trails issue.

Public invited to learn about, comment on possible new trail connections to North Portland wetland

Metro news release: Feb. 4, 2005
Contacts: Heather Nelson Kent, (503) 797-1739; Karen Kane (503) 797-1942

Metro and the city of Portland are exploring possible trail routes that will connect nearby parks, neighborhoods and workplaces to the 2,000-acre Smith and Bybee Lakes Wildlife Area in North Portland. An open house is scheduled from 4:30 to 7:30 p.m. Wednesday, Feb. 16, at the Water Pollution Control Laboratory, 6543 N. Burlington Ave., Portland.

Metro Councilor Rex Burkholder, whose North and Northwest Portland district includes the wetland, points out, "The residents of my district want nature in their neighborhoods. Connecting neighborhoods to places like Smith and Bybee Lakes Wildlife Area will offer countless learning and outdoor activities. But the trails must be carefully considered so they are safe for both people and wildlife who share the natural habitat. This is best done by involving folks in the planning at the very beginning of a trail project."

The trail feasibility study will be completed this summer, and will include possible trail routes, designs and amenities. The Metro Council will make a decision about the final trail alignment shortly after the study is published.

Residents who can't attend the open house but want information about the study may call Jane Hart, Metro project manager, at (503) 797-1585, send e-mail to hartj@metro.dst.or.us or visit Metro's web site at www.metro-region.org/parks.

The Smith and Bybee Lakes Wildlife Area is situated on the ancient floodplain of the Columbia River near its confluence with the Willamette. This system of shallow lakes, sloughs and marshes is home to beavers, otters, osprey, bald eagles, waterfowl, herons, songbirds and turtles. The natural area is managed to protect the natural habitat - the neighborhood that is home to fish and wildlife.

Metro, the regional government that serves 1.3 million people who live in Clackamas, Multnomah and Washington counties and the 25 cities in the Portland metropolitan area, provides planning and services that protect the nature of the region.

Related Metro links »

Smith and Bybee Wetlands Natural Area
Home to beaver, river otter, black-tailed deer, osprey, bald eagles and Western painted turtles, this 2,000-acre natural area offers a paved trail with two wildlife viewing platforms. Non-motorized boats are welcome.

Water control structure helps restore wetlands
Metro is turning back the clock at Smith and Bybee Wetlands Natural Area by re-establishing historic water conditions.

Peninsula Crossing Trail
Located in North Portland, this 3.5-mile trail connects Smith and Bybee Wetlands Natural Area with the Willamette Greenway.

This web page was last updated February 7, 2005

600 NE Grand Ave., Portland, OR 97232-2736
(503) 797-1700 | TDD (503) 797-1804 | Fax (503) 797-1797
webmaster@metro-region.org

Tour possible trail connections to Smith and Bybee Wetlands

Metro and the city of Portland are exploring possible new regional trail routes that will connect nearby parks, neighborhoods and workplaces to the Smith and Bybee Wetlands Natural Area. Come to a public tour on Aug. 11, 2005 to:

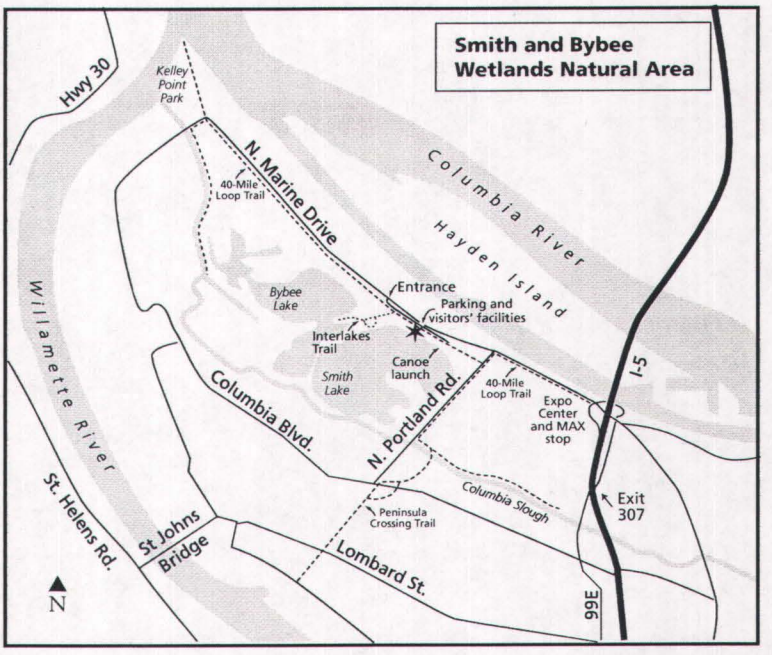
- learn about the trail study
- see possible trail routes
- meet members of the trail work group
- find out about future ways to get involved.

Public tour
5:30 to 8 p.m.
Thursday, Aug. 11

Beginning at the Smith and Bybee Wetlands Natural Area parking area on North Marine Drive

Tour participants will meet at the new visitor parking area at Smith and Bybee Wetlands Natural Area on North Marine Drive and carpool to several locations where the potential alignments are visible. Advance registration required; call Sue at (503) 797-1928.

The trail study will be released to the public in early August and will feature alternative trail routes, design, amenities and cost estimates. The Metro Council will consider the trail study at a public hearing on Sept. 29, 2005.



At nearly 2,000 acres, Smith and Bybee Wetlands Natural Area is home to beavers, otters, osprey, bald eagles, waterfowl, herons, songbirds and turtles just to name a few. The natural area is managed by Metro to benefit fish and wildlife, and offer visitors the opportunity to hike, canoe, fish, as well as to study and enjoy nature. Additional future trails will improve public access to the area while protecting valuable habitat.

For more information about the study, call Jane Hart, Metro project manager, at (503) 797-1585, send an e-mail to hartj@metro.dst.or.us or visit Metro's web site at www.metro-region.org/parks.

Directions to Smith and Bybee Wetlands Natural Area

Smith and Bybee Wetlands Natural area is located on Marine Drive between the Expo Center and Kelley Point Park. Take I-5 to exit 307. Go west on North Marine Drive for 2.2 miles. Turn left at the large brown and white natural area sign.

METRO

PEOPLE PLACES
OPEN SPACES

Metro, the regional government that serves 1.3 million people who live in Clackamas, Multnomah and Washington counties and the 25 cities in the Portland metropolitan area, provides planning and services that protect the nature of the region.

In and About Community News , ST. JOHNS
February 2005

Saturday, Feb 5
Sauvie Island Raptor Road Trip
Did you say road trip? ROAD TRIP! Well, for some of us going to Sauvie Island is a road trip and on this particular Saturday, Metro's Green Team has arranged a fun and educational day of bird watching, specifically looking out for bald eagles, hawks and falcons that spend the winter nesting in our own back yard. Naturalists and experts will host activities at four locations on the island. Pick up a map at the Sauvie Island Bridge parking lot. And remember, going on a road trip doesn't always mean by car. Why not go by bike? But dress appropriately for the weather. PS: I hear they will provide hot drinks and donuts. For more info on this event, call 503-797-1850, or visit www.metro-region.org/greenscene. (Sauvie Island Bridge Parking Lot) 9 a.m. - 2 p.m., free, $3.50 parking

Wednesday, Feb 16
Trail Study Open House
The public is invited to a Smith and Bybee Lakes trail study open house. Currently, Metro and the City of Portland are exploring possible trail routes that will connect nearby parks and neighborhoods. Interested citizens are invited to attend an open house to meet the trail working group and review ideas and features. Public questions and comments welcome. For more info contact Jane Hart at Metro, 503-797-1585, or hartj@metro.dst.or.us. Water Pollution Control Laboratory (6543 N Burlington Ave) 4:30 - 7:30 p.m.

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it's not the worst day of the year."

After a scenic ride along the Eastbank Esplanade, groups of riders stopped for hot tea at REI in the Pearl District. "We're loving this," said Sherri Riley, who straddled her bike next to longtime friend Randi Dawdy from Gresham. "This has some of the same spirited elements as Cycle Oregon but without the long distances."

To highlight the festive day, a pair of riders wore bouquets of flowers on their helmets and followed Steve Peters whose homemade bike, called the Kon Tiki, looked equally prepared for a South Sea voyage as the streets of

who moved to the city from Texas. "That's what makes Portlanders so special and a ride like this a real community affair."

"This is the second year in a row when the weather has fooled us," Crotty said. "But, we had 200 more riders than last year and that's got to make everyone happy."

Linton Community Center buy building

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good deal for the nonprofit, which has been raising money to buy and renovate the 79-year-old building at 10614 N.W. St. Helens Road.

"They basically gave it to us," Wagner said of the church.

The Metro grant, which comes from garbage collection fees, will help pay for some renovations. The building was badly deteriorated after it was reopened as a community center in 2002.

The building was erected in 1926 by employees of the Clark & Wilson Lumber Co., as a library and community hall. It also was used at times as a church

Facilities include a small gymnasium, a preschool room, community room, kitchen and small outdoor playground. A potluck dinner has been scheduled from 4 to 6 p.m. on March 13 at the center to celebrate the purchase.

Improvements so far include a new roof, new windows in the gymnasium, new exterior paint and the playground. "There used to be a half an inch of water on the gymnasium floor at any given time," Wagner said.

Works in progress or yet to start include new sidewalks, a storage room and renovation of the community meeting room.

"It was overwhelming at the start, but I think we're getting the upper hand," said Burr Boutwell, a contractor who is working on the project.

— Fred Leeson

City.

Meanwhile, city Commissioner Eric Sten claims wiping out homelessness as one of his pet projects. He's been in office since 1996. I sure hope he gets started on it soon!

RAYMOND A. TAYLOR
Southeast Portland

Segway not the best way to go

As a walker and an advocate for pedestrians, I am dismayed to read that the city of Portland is considering the use of the Segway. Sidewalks are intended for walkers, not large machines. If the parking patrol officers walk 10 to 15 miles a day they should consider themselves fortunate to have a "built in" way to maintain their weight and engage in physical activity. The city would do better investing in comfortable and stable shoes for the parking patrol. These expensive contraptions (Segways) have no place on the sidewalks of Portland.

WENDY RANKIN
Southeast Portland

Use signs to promote carpools

Those big electric signboards on

few minutes a time each day during rush hour, it might make a huge difference in the amount of traffic on our highways.

Carpooling is great — it keeps cars off the road, saves people money, puts less toxic pollution in the air and makes the commute less stressful for those that have to endure it.

Let's make use of those signs to encourage carpooling. Perhaps it will catch on in other cities. Portland often leads the way.

ALBERT KAUFMAN
Southwest Portland

LETTERS POLICY

Send letters pertaining to the Portland Metro section to Portland Team, 1320 S.W. Broadway, Portland, OR 97201; portland@news.oregonian.com; or 503-294-5023 (fax). Limit letters to 150 words and include home address and daytime phone number. All submissions become the property of The Oregonian and will not be returned; submissions may be edited and may be published or otherwise used in any medium.

PORTLAND EVENTS CALENDAR

OREGONIAN FEB 14, 2005

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School, 3119 S.E. Holgate Blvd. Free. Register at 284-6827 or 284-4962.

Community strategy forum: 7 to 9 p.m., Multnomah Building, Multnomah County Board of Commissioners Board Room, 501 S.E. Hawthorne Blvd. Sponsored by the City Club of Portland and Multnomah County Citizen Involvement Committee. Panel and community discussion on the theme of "Accountable Government." 988-3450.

Self Help for the Hard of Hearing meeting: 7 p.m., Legacy Good Samaritan Hospital, Wistar Morris room, 1015 N.W. 22nd Ave. Support group informs about rights and resources available to consumers of hearing alds. 452-8888 or www.shhhor.org.

WEDNESDAY

International Humanitarian Relief: Reports from Mercy Corps field staff: noon to 12:50 p.m. Wednesdays through March 9, Portland State University, Smith Memorial Union, room 228, 1825 S.W. Broadway. Today's topic, presented by Carol Skowron is "Positive Deviance/Health." Free. 725-8587.

Water conservation workshop: 6:30 to 8 p.m., Mt. Scott Community Center, 5530 S.E. 72nd Ave. Free. Register at 284-6827 or 284-4962.

Community strategy forum: 7 to 9 p.m., Multnomah Building, Multnomah County Board of Commissioners Board Room, 501 S.E. Hawthorne Blvd. Sponsored by the City Club of Portland and Multnommah County Citizen Involvement Committee. Panel and community discussion on the theme of "Thriving Economy." 988-3450.

THURSDAY

"Exploring the Oregon Coast Legacy": 10 a.m., Portland Garden Club, 1132 S.W. Vista Ave. Executive director of the North Coast Land Conservancy, Neal Maine, will answer questions regarding the environmental future of Oregon's coast. Free. 222-2845.

Transportation public hearing: 5 to 8 p.m., Metro Regional Center, Council Chambers, 600 N.E. Grand Ave. The Metro Council and Joint Advisory Committee on Transportation will hear final public comments regarding regionwide transportation projects to be selected for federal funding. To review the list of transportation projects considered for funding, call 797-1839. For more information, call 797-1757 or go to www.metro-region.org/mtip.

Mazamas street ramble: 6-9 p.m., 909 N.W. 19th Ave. Explore Northwest Portland at a faster pace; $1 donation. 227-2345.

Port of Portland public meeting: 6:30 to 8:30 p.m., Hayden Island Doubletree Hotel, Multnomah Room, 909 N. Hayden Island Drive. Second of three public meetings to give community members the opportunity to review and comment on recommendations for the Portland International Airport Noise Compatibility Plan. Information: 460-4837 or 1-800-547-8411, ext. 4837.

FRIDAY

Smith and Bybee Lakes open house: 4:30 to 7:30 p.m., Water Pollution Control Lab, 6543 N. Burlington Ave. Help experts make decisions on what future trails should be added to connect the Smith and Bybee Lakes Wildlife Area to surrounding neighborhoods. 797-1585 or e-mail, hartj@metro.dst.or.us.

Cornel West book signing and lecture: book signing at 6:30; lecture at 7:30, Reed College, Kaul Auditorium, 3203 S.E. Woodstock Blvd. West, author of the best selling book, "Race Matters," talks about his latest book titled "Democracy Matters." Free. 777-7755.

Irish Ceili dancing: lessons at 8 p.m., dancing from 9 p.m. to 12:30 a.m., Portland Policeman's Athletic Association, 618 S.E. Alder St. Join the Portland Ceili Society every third Friday of the month for lessons and dancing. February's featured band is David Cory & Friends. Ages 12 and older. $8 for members, students and seniors; $10 for adults. 691-2078.

SATURDAY

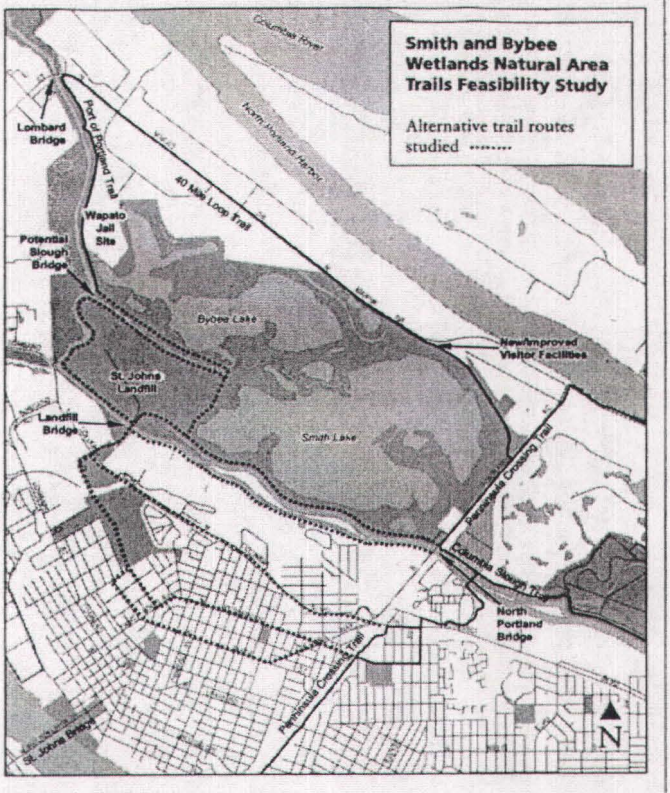
Kids Story Theater: 10-11 a.m., The Brooklyn Bay, 1825 S.E. Franklin St., Bay K. Interactive theater presentation titled "Grandmother Spider," is a humorous story of how light was first brought to a dark land. Free. Reservations: 772-4005. Directions: www.brooklynbay.org.

Additional trail connections to wetlands studied

Four possible trail alignments that would connect North Portland neighborhoods to Smith and Bybee Wetlands Natural Area and other trails in the community are being studied by Metro, city of Portland and other interested groups and citizens. The trail study will be completed this summer and will feature alternative trail routes, designs and amenities. The Metro Council will make a decision about the final trail alignment shortly after the study is published.

Metro Councilor, Rex Burkholder, whose district includes the wetland points out, "It's critical that people have an opportunity to experience, understand and appreciate the benefits nature brings to our communities. Connecting neighborhoods to places like Smith and Bybee Wetlands Natural Area will offer countless learning and outdoor activities, but trail routes must be carefully considered to minimize conflicts with wildlife and their habitat."

For details about the project and to offer your comments, visit Metro's web site at www.metro-region.org/parks or contact Metro project manager Jane Hart at (503) 797-1585 or hartj@metro.dst.or.us.



Down by the Riverside

9 a.m. to 1 p.m. Saturday, May 21

Last year, nearly 17,000 Oregonians at 400 sites participated in watershed restoration and enhancement projects, removing more than 1 million pounds of man-made trash and 4 million pounds of invasive plants and green debris.

SOLV's 10th annual Down by the Riverside event, presented by the Oregon Lottery, brings thousands of Oregonians together for the largest river enhancement event in the nation. Volunteers help build trails, plant native trees and shrubs, remove invasive vegetation and clean up illegally dumped materials, among other projects. For more information and to review the list of project sites, visit www.solv.org/doumbytheriverside or call (503) 844-9571. ♿ *by arrangement*

Down by the Riverside at Chinook Landing
Participate in SOLV's Down by the Riverside event by rolling up your sleeves at Metro's Chinook Landing Marine Park along the Columbia River. Chinook Landing not only is Oregon's largest public marine facility, but it includes 67 acres of wetland, beaches and wildlife habitat. Help remove invasive plants that threaten native species, clear brush and pick up litter. Advance registration required; call (503) 797-1928.

Wilsonville WERK Day at Graham Oaks
Join the Wilsonville Environmental Resource Keepers for their annual WERK Day. In conjunction with Down by the Riverside, volunteers work at a variety of sites including Metro's Graham Oaks Natural Area. Breakfast, lunch, t-shirts and prizes are provided. To register, call (503) 570-1525.

Metro takes input on North Portland trail

Choosing one of four routes to link the Smith and Bybee Lakes area with Pier Park has drawn some debate

By STEPHEN BEAVEN
THE OREGONIAN

Neighborhood activists and preservationists are working with Metro on a proposed trail linking North Portland to the Smith and Bybee Lakes Wildlife Area.

The Metro Council is expected to decide where to place the trail in July and is seeking public input on four possible sites with price tags from $4.3 million to $7 million, not including the cost of land acquisition.

Metro will discuss the options today at an open house in North Portland.

The trail will link neighborhoods to the 2,000-acre wildlife area between North Marine Drive and Columbia Boulevard. Metro, the regional government, manages the area, which is enjoyed by a range of recreational users.

Preservationists want the least invasive route that will protect animal habitat within the wildlife area, and some North Portland residents favor a trail that will provide greater access.

"We want to do something that's affordable, gives people good access and protects wildlife," Metro Councilor Rex Burkholder said.

All four trails start at the southern end of the Port of Portland trail and continue through the wildlife area to Pier Park, between North Lombard Street and Columbia Boulevard.

Troy Clark, president of Friends of Smith and Bybee Lakes, a nonprofit preservation group, said he favors two of the proposed routes.

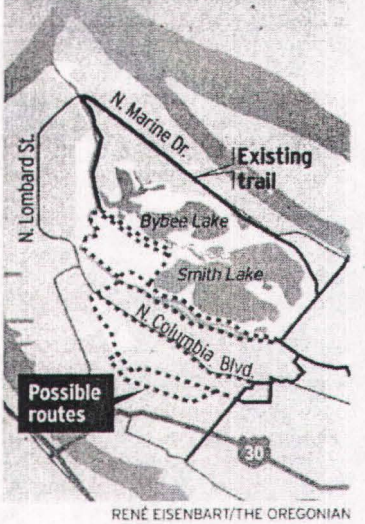
The landfill trail and the south slough trail, he said, are easier on wildlife habitat than the two other routes.

The other routes would go through an ash grove forest and along the south side of Smith Lake. Clark fears either would provide too much access.

But some North Portland residents would like to see more access to the wildlife area.

TRAIL ROUTE STUDY

Metro is holding an open house today on four options for a trail linking North Portland to the Smith and Bybee Lakes Wildlife Area. The map sketches all the possibilities, including overlapping sections.



RENÉ EISENBART/THE OREGONIAN

"We want to do something that's affordable, gives people good access and protects wildlife."

REX BURKHOLDER,
METRO COUNCILOR

♦

"This is an area that should be accessible to the community," said Pam Arden, a board member of the 40-Mile Loop Land Trust, a nonprofit that advocates the completion of a series of trails in the Portland area. "Kids have figured out how to get to these areas for years and years and years. It's not like these have been locked off and never been intruded upon."

She favors the trail that goes along the south side of Smith Lake and connects with the Peninsula Crossing Trail.

"I think the crucial piece for discussion is how much protection does that Smith and Bybee Lakes area get," she said.

♦

Stephen Beaven: 503-294-7663; stevebeaven@news.oregonian.com

The St Johns SENTINEL
Sauvie Island, St. Johns, North Portland

- The St. Johns Sentinel is a monthly newspaper dedicated to St. John's, Sauvie Island and Greater North Portland.

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- Find out what what to do and where to go for fun, culture and community. There may be more going on in your backyard than you know!

Calendar

Smith and Bybee Lakes Trails

By Robin Richards

A year-long study of trail access to North Portland's Smith and Bybee Wetlands Natural Area is reaching completion. A draft feasibility study outlining suggested new trail alignments will be available to the public the second week of August.

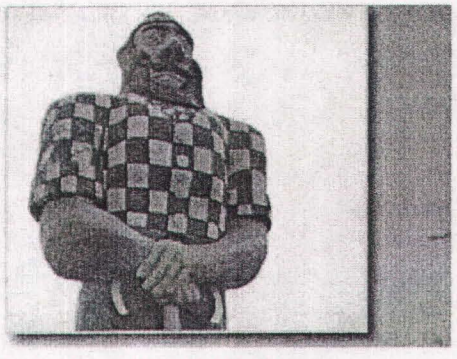
A new trail alignment would connect more of the natural area of Smith and Bybee with other trails, parks and neighborhoods. At issue is the desire of Metro, Portland Parks, and trails advocates to complete a missing link in the regional trail system and to connect the natural area to nearby trails, parks and neighborhoods. The Metro Council has put four alignments forth for final selection.

The alignment selection process has been contentious. Two camps have lined up, one in favor of trails that will maximize trail access from the surrounding neighborhoods, and one proposing limited access in favor of greater natural preservation.

Friends of Smith and Bybee Lakes urge alternatives that avoid impacting a mature Ash grove or a large heron rookery and bald eagle nesting site. Friends board member, Frank

In & About YOUR Community

In & About YOUR Neighborhood



In & About YOUR World

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Submit

- **Click here** for site map.

Opila, says the ash grove provides critical habitat for many species. "Once you put a trail in, then you have people going off trail," he explains. "It degrades habitat. Animals don't hang around where people are tramping."

Any trail introduced near the heron rookery and bald eagle nest site would need to be closed during nesting and fledging season. "The bald eagle pair hatched triplets this season," Opila says. "Wildlife managers know that trail closures don't work very well."

Residents and activists groups like the 40 Mile Loop Trail Trust want a trail alignment that connects best with the City's vast network of walking and biking trails known as the 40 Mile Loop. The option would allow bicycles and pedestrians from North Portland and throughout the city to easily access scenic qualities of the lakes.

The 40-mile loop is an example of the kind of community-wide tie-in the neighborhood association wants to promote. Robin Plance, Chairman of the St. Johns Neighborhood Association insists, "Smith and Bybee Lakes are a city-wide resource. Everyone should have access to this asset."

Pam Arden, of the Land Trust, claims that the study group's assessment to make an alignment that favors more citizen access had been made to "sound like that alternative is more environmentally difficult than it is."

Arden is unfazed by the possibility of impacting eagle nests or the heron rookery.

She posits, "the eagles may very well move. The herons can move. They change their nesting sites all the time. No one knows why they move, it's not an exact science."

"The trails study group was not expected to reach consensus on a specific alternative," says Jane Hart, Project Manager form Metro. Stakeholders may advocate for their preferred alternative. Metro Council will make the final decision based on all facts and public comments.

Professional consultants have helped tally such factors as land and right-of-way acquisitions, engineering requirements such as bridges over railroad tracks or railroad underpasses, and other values while at the same time minimizing environmental impacts to wildlife.

Estimated costs for each trail alignment range from $4.3 million to $7 million. Projected costs do not include the land easements necessary to complete the South Lake Shore or South Slough alignments. South Slough will require major renovation of old Portland Road Bridge or construction of an alternative crossing to the north side of the Columbia Slough. The other three alternatives will each require construction of a railway overpass or underpass.

A 30-day public comment period will allow interested persons to submit written testimony before the Metro Council public hearing scheduled for September 29.

A public tour to preview

segments of the alternative routes is scheduled for Thursday, August 11th, 5:30 - 8 pm. Advance registration is required. Interested persons may contact Jane Hart at (503) 797-1585 or via e-mail at hartj@metro.dst.or.us. Maps of the proposed alignments can be viewed online at http://www.metro-region.org/article.cfm\?articleid=12960.

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August 2005 [4.65MB]

The Social Capitalist
Ethos Inc's Charles Lewis
by Brooke Werley

The Great Freight Debate
Solutions to truck traffic in St. John's remain elusive, contested
By David Plechl

Smith and Bybee Lakes Trails
By Robin Richards

Oregon Oil Men
Local BioDesiel businessmen look to turn cooking oil into Black Gold
By Marliese Franklin

Street Fair Events

WEB EXCLUSIVE
Club Remains Issue with Area Crime
by Nell Zawicki

WEB EXCLUSIVE
August puts its mark on the melon season
by Norma Broussard

WEB EXCLUSIVE
Music Review - Cool Hand Cobretti

WEB EXCLUSIVE
Flavored Ice and Banana Seats
by Ken Cregger

WEB EXCLUSIVE
St Johns Windows

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