

Westside Trail Master Plan

PLAN REPORT NO. 4 — IMPLEMENTATION STRATEGY



March 2014



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IMPLEMENTATION STRATEGY

The estimated overall cost of developing the remaining sections of the Westside Trail is on the order of \$30 million. The pace and pattern of trail development will be driven by funding availability, jurisdictional priorities and surrounding development. An overall implementation and phasing plan will assure that the trail will be developed in the most strategically consistent and cost-effective manner. The trail may take a decade or longer to complete and will almost certainly be developed in many phases and sections spread over the 15 or more miles of the undeveloped trail corridor. The updated trail alignments and estimated costs, funding sources, and phasing priorities in this Plan Report No. 4 will provide the developers and operators of the trail with essential tools and guidance in securing funding and anticipating development challenges. This implementation strategy also outlines the numerous and complex planning and permitting requirements that may have to be considered.

This Plan Report No. 4 cross references three previously published WTMP reports: *Existing Conditions*, *Trail Corridor Analysis*, and *Design Framework*. Taken together, the four reports provide a complete picture of the evolution of the Westside Trail Master Plan (WTMP) and the current recommendations that have emerged over an 18 month effort by the project team, partner jurisdictions and other entities such as power utilities, a stakeholder advisory committee, and the general public. The next and final step on the development of the WTMP will be a consolidated master plan report and consideration by partner jurisdictions.

This implementation strategy is divided into three major sections:

Refined trail alignments and costs estimates updates and refines the trail alignments options and cost estimates first published in Plan Report No. 2: *Trail Corridor Analysis*. Public and stakeholder comments and input from partner jurisdictions resulted in several trail alternative refinements that will assure a more functional trail.

The *Phasing strategy* section applies criteria that address jurisdictional authority, connectivity and functionality, relative benefit/cost, and potential trail alternatives, and recommends near-, mid- and long-term priorities.

The *Implementation requirements* section highlights and summarizes the array of planning and permitting requirements and other permissions that may apply to trail development and management.

Several appendices are included providing additional details and information.

REFINED TRAIL ALIGNMENTS AND COST ESTIMATES

Initial trail alignments and cost estimates have been developed for each trail segment and in some cases for two or more trail alignment alternates or sections within a given segment. Segment and section alignments and cost estimates, and the underlying assumptions to the cost estimates, are described in Plan Report No. 2, *Trail Corridor Analysis*. The WTMP Stakeholder Advisory Committee (SAC) reviewed these alignments in September 2012 and January 2013 and the general public provided input at project open houses held in October 2012. The reviews and subsequent comments received from participants and project partners resulted in refinements and modifications to some trail alignment alternatives and features. Other contributions to decisions and preferences for trail alignments and associated cost estimates came from outcomes of right-of-way acquisition reports developed by Metro; the development of Plan Report No. 3, *Design Framework*; ongoing discussions regarding costs and standards with the Tualatin Hills Parks and Recreation District (THPRD) and the two power utilities that control most of the trail corridor; and through development of an ODOT construction grant application for the new bicycle/pedestrian bridge across the Tualatin River and WTMP Segment 1.

A revised set of trail alignment maps are attached as Appendix A to this Plan Report No. 4. Appendix B enumerates the details underlying the refined cost estimates that are summarized herein. A summary of the major changes from the proposed alignments originally described in Plan Report No. 2 (published October 2012) is included as Appendix C. These changes impacted some cost estimates published in Plan Report No. 2, particularly in the areas of Bull Mountain and Portland's West Hills. The unit cost multiplier assumptions detailed in Plan Report No. 2 have been reapplied to reflect changed surface treatments, trail lengths, the number and extent of switchbacks, and other special features. Seven conceptual trailhead locations have been added, and a number of short connector trails to adjacent streets and features such as nearby parks are included.

Key summary tables published in Plan Reports Nos. 2 and 3 have been refined accordingly and are included below as Table 1 and Table 2.

Trail alignment and underlying assumption changes through April 2013

The underlying conceptual cost assumptions described in Plan Report No. 2 (Pages 2–5) are, for the most part, unchanged, except as noted below. Given the possibility of variations of up to two feet of width from the standard 10-foot trail width used for Plan Reports Nos. 2 and 4 cost estimates, and the possibility of variations in treatments for such features as wetland boardwalks and short low level bridges, all cost assumptions should be used for general guidance only. Boardwalks and minor bridges are, for instance, very site specific and standards and features cannot be precisely estimated at the master plan level. Future funding packages and construction estimates should rely on preliminary design and engineering outcomes to provide up-to-date cost estimates.

Combined main trail grade options

Several segments in Plan Report No. 2 illustrated two or three grade options: up to 5 percent, up to 8 percent, and some options including steps. The final trail alignments illustrated in Plan Report No. 4 combine these grade options into single preferred alignments. In nearly all cases, the final

illustrated routes follow grades of less than 8 percent, and frequently less than 5 percent, as allowed by slopes, cross slopes, switchback requirements, and access to power utility infrastructure. Trail surface treatments vary. The cost of each combined alignment option has been re-estimated.

Major trail alternative options

The 5 percent or 8 percent multimodal trail options illustrated in Plan Report No. 2 between SW Beef Bend Road and SW Eagles View Lane are replaced by a combination of a paved multimodal section and a soft-surface section. See below for the original Plan Report No. 2 option.

Original 5 and 8 percent options for Segment 2



A major option has been added in Plan Report No. 4 in order to direct bicyclists and pedestrians to a longer but significantly less steep option around Bull Mountain. Trail traffic would be directed onto SW Bull Mountain Road and SW Barrows Road to the Tigard's new River Terrace subdivision and the north-south 300-Foot Trail. This alternative is exclusively subject to private development actions and associated Washington County road improvements and does not therefore include cost estimates. See Map Figure 7 and Appendix C of Plan Report No. 4 for more information.

The interim on-street solution for crossing US 26 at SW Murray Boulevard as shown in Plan Report No. 2 has been removed for Plan Report No. 4. The construction of a new US 26 pedestrian/bicycle bridge in advance of the development of trail bridge approaches is highly unlikely. In any event there are numerous alternatives for interim on-street solutions involving either the SW Murray Boulevard or NW Cornell Road highway interchanges.

Mapping has been added to Appendix A (Map Figure 14) for the north portion of Segment 4.18.1 and all of Segment 4.18.2 that is being built by THPRD in 2014, and for trails through the south portion of Portland's Forest Park to US 30, the Willamette River Greenway, and the St. Johns Bridge (see Map Figure 19). These segments are not part of the scope of the WTMP but are essential connections in establishing a continuous region trail from the Tualatin River to the Willamette River.

Trailhead locations

The WTMP is not scoped to identify and detail trailhead locations and features. However, in response to stakeholder and partner input between September 2012 and January 2013, and as part

of the changes to the trail segment maps originally published under Plan Report No. 2, seven conceptual locations for trailheads have been identified and illustrated in revised trail alignment maps (Segments 1, 2, 3, 4.14, 4.15, 4.18.3, and 4.21). These trailheads were assigned an estimated lump sum construction cost of \$500,000 each. This estimate is modified from trailhead costs recently published in the final master plan for the Ice Age Tonquin Trail Master Plan,¹ which will connect to the Westside Trail over the Tualatin River. With the addition of the average percentages used in WTMP cost estimates for preliminary and construction engineering and contingencies, the assumed overall cost is \$775,000 each.

Actual trailhead costs will vary significantly based on variety of factors. The base estimate used contemplates 20 paved parking spaces, signing, security lighting, and limited site amenities. Several of the proposed trailhead locations along the Westside Trail may require relatively complex siting to avoid power poles and adjust to other land use constraints, and to provide safe access and egress to public roadways. The size of the trailhead parking areas may also be constrained by the amount of available vacant land irrespective of potential user demand. Treatments could include graveled surfaces to reduce costs. Municipal utility costs may also differ between trailheads and for at least one of the trailheads land acquisition may be necessary.

Connecting trails and on-street sections

Short connecting trails have been added in many segments linking to local streets and activity centers such as parks. The most significant added connector is in Segment 3 from SW Mistletoe Drive to SW Sunrise Lane and Tigard's new Sunrise Park (see Map Figure 6). This trail is constructed but is in private ownership. The other major change in connecting trail is in Segment 4.19 where the trail alignment illustrated in Plan Report N0.2 had be shifted and re-routed to more fully integrate into the planned trail system that is being created by private development in North Bethany neighborhoods.

The allocated cost estimate for in-street signing and striping where the trail system uses developed local streets to accommodate road bicycles was set at \$5,000 per section in Plan Report No. 2. This has been increased to \$10,000.

Crossing structures

Plan Report No. 2 cost estimates assumed the most basic and conventional crossing structures – bridges ranging from 330 feet to 30 feet (or less where crossing minor streams), and low level boardwalks across wetlands. Some refinements in bridge and boardwalk spans and locations are shown in Plan Report No. 4 based on revised trail alignment options.

Crossing requirements related to wildlife passage, flood elevations, natural resource mitigation and enhancement, intersecting trail width and surface, length of the crossing, and aesthetic and thematic elements may greatly impact actual costs. This can only be accurately determined at the time of design and construction. See Plan Report No. 3 for details on possible wildlife habitat enhancements to the trail and trail crossing structures.

¹ <http://www.oregonmetro.gov/index.cfm/go/by.web/id/31143>

Midblock road crossings

Plan Report No. 2 provided cost estimates for two basic types of arterial and collector street midblock crossings: pedestrian-activated signal and pedestrian-activated flashing beacon. Both assumed a refuge center island. In addition, midblock crossings for NW Springville Road and NW Skyline Boulevard were estimated as pedestrian-activated flashing beacon without a refuge island.

Cost estimates in Plan Report No. 2 were based on actual bid prices received by Washington County in early 2012 for midblock crossings designed and permitted to Washington County standards. Cost estimates for midblock crossings reported in the Ice Age Tonquin Master Plan were approximately half of the actual cost of these recent Washington County crossings. Some adjustments were made for Plan Report No. 4 including a cost factor for lighting at each arterial and collector crossing, but the Washington County bid prices remain the primary benchmark.

Trail furniture and signing

The cost estimates in Plan Report No. 2 did not include factors for trail furniture or signing. A factor of \$2,000 for each 1,000 feet of trail was used in refined estimates published in Plan Report No. 4. This lump sum accounts for benches, trash receptacles, and way signing. Interpretive signing and structures are not included in cost estimates, but should be included in trail design and construction. Plan Report No. 3 includes examples and suggestions.








Overall review








All the trail section distances and conceptual cost estimates originally published in Plan Report No. 2 were given a final review. Some refinements have been applied for Plan Report No. 4. Cost estimates have also been rounded up to the nearest whole \$1,000. As in Plan Report No. 2, the estimates in Plan Report No. 4 do not include land acquisition costs.

Trail segment options and costs

Table 1: Trail segment options and estimated costs (refined March 2013)

Option	Length	Cost	Treatment	Function	Special Features
Segment 1: Tualatin River crossing to SW Beef Bend Road (Map Figure 2)					
River crossing (Map Figure 3)	330' span plus ramp	\$2,830,000	Bridge	River crossing	• 200' north ramp
Up to 5% slope (entire segment)	0.74 mi	\$1,498,000 + \$775,000 for trailhead	10' paved	Multimodal	• Wetland crossing • Property acquisition unlikely • Trailhead at King City Park





Option		Length	Cost	Treatment	Function	Special Features
Segment 2: SW Beef Bend Road to Tigard city limits (Map Figure 4)						
Up to 8% slope (in-corridor, Beef Bend to Colyer)		0.16 mi	\$310,000	10' paved	Multimodal	<ul style="list-style-type: none"> • 3 switchbacks
Up to 8% slope (in-corridor, Colyer to Woodhue)		0.38 mi	\$463,000	6'–8' soft surface	Ped – mountain bike option	
On-street (Colyer)		0.25 mi	\$10,000 (signing and striping)	On-street	Road bike solution paired with 	<ul style="list-style-type: none"> • Bypasses steep in-corridor section
Up to 8% slope (Map Figure 5: in-corridor Woodhue to 144th)		0.46 mi	\$1,086,000	10' paved	Limited multimodal (due to gully crossing)	<ul style="list-style-type: none"> • 14 switchbacks • Probable property acquisition • Includes 100' span gully bridge
Up to 8% slope (Map Figure 5: in-corridor Woodhue to 144th)		0.51 mi	\$1,046,000	10' paved	Limited multimodal (due to gully crossing)	<ul style="list-style-type: none"> • 16 switchbacks • Partly outside of power corridor • REQUIRES property acquisition • Includes 30' span gully bridge
Up to 8% slope (144th to Tigard city limits)		0.50 mi	\$848,000 + \$775,000 for trailhead	10' paved	Multimodal	<ul style="list-style-type: none"> • 2 switchbacks • Possible property acquisition • Trailhead at Bull Mountain




Option		Length	Cost	Treatment	Function	Special Features
Midblock crossing (Beef Bend)			\$562,000	Flashing beacon	Road crossing	
Midblock crossing (Bull Mountain)			\$562,000	Flashing beacon	Road crossing	
Segment 3: Tigard city limits to SW Barrows Road (Map Figure 6)						
Up to 8% slope (in-corridor – Tigard to Mistletoe)		0.11 mi	\$199,000	10' paved	Multimodal	<ul style="list-style-type: none"> • 2 switchbacks • Connects to 
Sunrise (built private trail)		N/A	N/A	N/A	Multimodal	<ul style="list-style-type: none"> • Property acquisition REQUIRED • Connects to Sunrise Park
Hillshire Woods (soft surface)		0.55 mi	\$379,000	4' soft surface	Ped – mountain bike option	<ul style="list-style-type: none"> • Stream crossing • Through woodlands • Short connectors to Creekshire Dr. and Ascension Dr.
On-street (Nahcotta from Mistletoe to Catalina)		0.37 mi	\$10,000 (signing and striping)	On-street	Road bike solution paired with 	
Up to 8% slope (Nahcotta – Catalina to Barrows)		0.59 mi	\$1,187,000 + \$775,000 for trailhead	10' paved	Multimodal	<ul style="list-style-type: none"> • 8 switchbacks • 4 minor stream crossings • Trailhead at Horizon Blvd.

Option	Length	Cost	Treatment	Function	Special Features
Segments 4.11, 4.12 and 4.13 (south portion): Tualatin Hills Nature Park to Nike (Map Figure 8)					
Segment 4.11	0.13 mi	\$212,000	10' paved	Multimodal	<ul style="list-style-type: none"> • Connects to Nature Park and built Westside Trail section • Parallels MAX line • Part of Crescent Connection Trail • REQUIRES property acquisition
MAX crossing (Segment 4.12: SW 153 rd Drive – Jenkins)	0.34 mi	\$10,000 (signing and striping)	On- street	Multimodal	<ul style="list-style-type: none"> • Uses existing 153rd Drive MAX crossing • Uses existing NW Jenkins crossing • Uses existing 153rd on-street bike/pedestrian facilities
SW Jenkins Rd. (Segment 4.12)	0.06 mi	100,000	8'–10' paved	Multimodal	<ul style="list-style-type: none"> • Follows north side of Jenkins • REQUIRES property acquisition
Segment 4.13	0.09 mi	\$155,000	10' paved	Multimodal	<ul style="list-style-type: none"> • Short connector to Nike trail • REQUIRES property acquisition
Segment 4.14: SW Walker Road to US 26 (Map Figure 9)					
Midblock crossing (Walker)		\$600,000	Signal	Road crossing	

Option	Length	Cost	Treatment	Function	Special Features
Up to 5% slope (entire segment)	0.90 mi	\$1,545,000 + \$775,000 for trailhead	10' paved	Multimodal	<ul style="list-style-type: none"> • 2 switchbacks • Minor stream crossing • Trailhead at Pioneer Park
US 26 bridge (Map Figure 10)	230' span plus ramps	\$3,280,000	Bridge	US 26 crossing	<ul style="list-style-type: none"> • Switchback (north) and straight (south) approach ramps • Power pole relocations (north of US 26) • Possible wetland impacts (north side)
Segments 4.15 and 4.16: US 26 to NW Oak Hills Drive (Map Figure 11)					
Up to 5% slope (entire Segment 4.15)	0.26 mi	\$606,000 + \$775,000 for trailhead	10' paved	Multimodal	<ul style="list-style-type: none"> • Stream/wetland crossing • Trailhead at Cornell
Midblock crossing (Cornell)		\$600,000	Signal	Road crossing	
Up to 5% slope (entire Segment 4.16)	0.41 mi	\$1,324,000	10' paved	Multimodal	<ul style="list-style-type: none"> • 7 switchbacks • Stream/wetland crossings

Option	Length	Cost	Treatment	Function	Special Features
Segment 4.17: NW Oak Hills Drive to West Union Road (Map Figure 12)					
Up to 5% slope (entire Segment 4.17)	0.48 mi	\$846,000	10' paved	Multimodal	<ul style="list-style-type: none"> • Replaces existing private trail • 8 switchbacks
Segment 4.18.1 (south portion): West Union Road to NW Kaiser Road (Map Figure 13)					
Midblock crossing (West Union)		\$562,000	Flashing beacon	Road crossing	
Up to 5% slope (south portion of Segment 4.18.1)	0.27 mi	\$452,000	10' paved	Multimodal	<ul style="list-style-type: none"> • Connects across Kaiser to trail section (4.18.2) to be built by THPRD in 2014
Midblock crossing (Kaiser Rd)		\$562,000	Flashing beacon	Road crossing	
Segment 4.18.3: Rock Creek Greenway to NW Springville Road (Map Figure 15)					
Up to 5% slope (entire Segment 4.18.3)	0.44 mi	\$1,263,000 + \$775,000 for trailhead	10' paved	Multimodal	<ul style="list-style-type: none"> • Wetland/stream crossing • Meander to avoid power poles • Trailhead at Springville
Segment 4.19: North of NW Springville Road (Map Figure 16)					
Up to 5% slope (entire Segment 4.19)	0.86 mi	\$1,481,000	10' paved	Multimodal	<ul style="list-style-type: none"> • Integrate into North Bethany trails • 2 minor stream crossings

Option		Length	Cost	Treatment	Function	Special Features
Midblock crossing (Springville)			\$487,000	Flashing beacon, no refuge island	Road crossing	<ul style="list-style-type: none"> • Possible phased build (add refuge island)
Segment 4.21: Skycrest Parkway to Arbor Heights-County line (Map Figure 17)						
Up to 8% slope (Bethany Terrace Trail to Arbor Heights – entire Segment 4.21)		0.55 mi	\$1,016,000 + \$775,000 for trailhead	10' paved	Multimodal	<ul style="list-style-type: none"> • Follows power lines • Includes new Arbor Heights and existing Bannister Creek trails (<i>not</i> in length or cost estimate) • 6 switchbacks • 1 minor stream crossing • Trailhead at Skycrest Pkwy. • REQUIRES property acquisition
Segment 5: County line to NW Skyline Boulevard (Map Figure 18)						
Up to 8% slope (County line to Springville)		0.80 mi	\$1,364,000	10' paved	Multimodal	<ul style="list-style-type: none"> • REQUIRES private property acquisition • Completes loop with existing THPRD trail section
On-street (Springville – Skyline)	 	1.61 mi	\$3,559,000	On-street paved shoulders	Road bike solution paired with 	<ul style="list-style-type: none"> • New 4' paved shoulders <i>both sides</i> • Possible road widening

Option		Length	Cost	Treatment	Function	Special Features
Soft surface (Springville – Saltzman)		1.14 mi	\$900,000	Soft surface (4' width)	Ped – mountain bike option	<ul style="list-style-type: none"> • Through woodlands • 5 minor stream crossings • REQUIRES private property acquisition
On-street (Saltzman – Skyline)		0.22 mi	\$326,000	Sidewalks	Ped – mountain bike option with 	<ul style="list-style-type: none"> • Uses on-street Saltzman section to intersect with Skyline
Midblock crossing (Springville)			\$487,000	Flashing beacon, no refuge island	Road crossing	<ul style="list-style-type: none"> • Possible phased build (add refuge island)
Midblock crossing (Skyline)			\$487,000	Flashing beacon, no refuge island	Road crossing	<ul style="list-style-type: none"> • Possible phased build (add refuge island)

Trail design typology

Table 2: Trail typology (refined March 2013)

Trail segment or section	Jurisdiction	Width	Surface	Longitudinal slope	Cross slope	Notes
1	King City	10'–12' (2' gravel shoulder both sides)	Asphalt or concrete	0–5%	2%	
2A	Washington County	10'–12'	Concrete	0–8%	1%	
2B	Washington County	6' – 8'	Soil with gravel as needed	0–8%	2%	
2D 2E	Washington County	10'–12'	Concrete	0–8%	1%	• Includes bridge across gully
2F	Washington County	10' - 12'	Concrete	0–5%	1%	
3A 3B 3E	Tigard	10'–12'	Asphalt	0–8%	2%	
3C	Tigard	4' (pedestrian only)	Soil with gravel as needed	0–8%	2%	• Rolling grade to avoid erosion and minimize tree impacts
4.11	THPRD	8'–10'	Asphalt	0–5%	2%	• Connector along MAX line
4.13	THPRD	8'–10'	Concrete/ asphalt	0–5%	1%	• Nike property
4.14 -4.19	THPRD and Washington County	10'–12'	Asphalt	0–5%	2%	• All in BPA corridor
4.21	THPRD and Washington County	10'–12'	Asphalt	0–8%	2%	• May need some short section at 10–12%
5A	Multnomah County	10'–12'	Asphalt	0–8%	2%	

5B 5C	Multnomah County and City of Portland	4' shoulder (both sides)	Asphalt	Match existing road slope	Match existing road slope	<ul style="list-style-type: none"> On-street segment
5D	Multnomah County and City of Portland	4'	Soil with gravel as needed	0–8%	1–2%	<ul style="list-style-type: none"> Rolling grade to avoid erosion and minimize tree impacts

Trail alignment and underlying assumption changes after April 2013

Subsequent to publication of this Plan Report No. 4 in April 2013, the development of the final Westside Trail Master Plan was initiated. An initial draft was produced by the project team, including preferred trail alignments, and was presented at two open houses conducted in May 2013. Input from these events was incorporated into the draft master plan. The revised draft master plan was then reviewed by the project's SAC in July 2013.

Key revisions subsequent to Plan Report No. 4 (April 2013 to September 2013)

A summary of the significant changes from the preferred routes illustrated in Plan Report No. 4 follow. All changes are reflected in the March 2014 version of the master plan.

Segment 1: Tualatin River to SW Beef Bend Road

A soft-surface equestrian trail paralleling the paved multiuse trail was added to Segment 1. Cost estimates were modified accordingly.

Segment 2: SW Beef Bend Road to Tigard city limits

- The trail alignment between SW Beef Bend Road and SW Colyer Way was slightly modified to adjust the road crossing. Cost estimates were modified accordingly.
- A single alternative using a 100-foot-long bridge crossing the gully at midpoint in the segment was selected. Cost estimates were modified accordingly.

Segments 4.12 and 4.13: Tualatin Hills Nature Park to SW Walker Road

The proposed trail alignment along SW 153rd Avenue, then along the BPA power corridor through the Nike Campus, proved infeasible due to property ownership restrictions. A street-edge multiuse trail solution along SW 158th Avenue and SW Walker Road was substituted. Cost estimates were modified accordingly.

Segment 4.15: US 26 to NW Cornell Road

The conceptual switchback design for the north ramp of the proposed US 26 bicycle/pedestrian bridge was changed to a straight ramp on piers returning to grade south of the industrial access road to Columbia Sportswear. Cost estimates were modified accordingly.

Segment 4.18.3: Kaiser Ridge Natural Area to Segment 4.19: Multnomah County line

This entire alignment was removed from the master plan on the advice of Washington County and the THPRD. These agencies determined that this alignment was more suited as a community trail.

Segments 4.21 and 4.22: NW Skycrest Parkway to Multnomah County line

This alignment was modified to reflect the trail being built by private development in Segment 4.21 and to connect to the section of built trail in Segment 4.22 under the jurisdiction of THPRD.

Segment 5: Washington County line to NW Skyline Boulevard

The paved multiuse trail alignment, which was primarily north of the power line corridor crossing this segment, was modified to be primarily south of the power line corridor. This new alignment subsequently proved to be too steep and was further modified as part of supplemental tasks conducted between September and November 2013. See below for more discussion.

Supplemental Trail Analysis (September 2013 to November)

In July 2013, a supplemental set of tasks were developed based on all of the input received to that date. The SAC recommended that the publication of the full draft master plan for formal public comment be deferred until all supplemental tasks were completed and the outcomes considered and incorporated as appropriate. The supplemental analysis was conducted between September 2013 and November 2013. These tasks and outcomes were:

Segment 1: Tualatin River to SE Beef Bend Road

This further analysis included coordination with the City of King City on city limit boundary issues; verification from BPA regarding permissions to use the power corridor for trail development; review of the design impacts and probable CWS permitting for the proposed trail alignment through areas within 100-year floodplain and wetlands; and development of trail cross sections for a standard trail and an elevated boardwalk.

- The design concept for north ramp to the proposed Tualatin River bridge was modified to be on piers rather than fill to avoid impeding floodwaters. Cost estimates were modified accordingly.

Segment 5: Washington County line to NW Skyline Boulevard

This further analysis included research into probable storm water impacts from the trail alignments and types recommended for this segment and associated city and county permitting requirements; analysis using field surveys and CAD modeling on the extent of probable new retaining walls along two possible on-street routes and a paved multiuse trail route; and interviews with area residents and a cross section of wildlife professionals on possible impacts on wildlife in the area.

- The on-street route illustrated in Plan Report No. 4 (NW Springville Road and NW Skyline Boulevard) was determined to be significantly shorter and to require significantly fewer retaining walls than the alternative (NW Laidlaw Road-NW Thompson Road-NW Skyline).

- This analysis also determined that the conceptual alignment for the section of multiuser paved trail proposed in this segment resulted in retaining walls along most of both sides of the trail and significant grades above 8 percent. The conceptual alignment was revised to keep all grades at 8 percent or less. Cost estimates were modified accordingly.
- The proposed point of intersection between the paved multiuse trail and NW Springville Road was also moved uphill to improve sight lines. Cost estimates were modified accordingly.
- Mapping was modified to better communicate that the multiuse trail alignment and the alignment of a soft-surface pedestrian trail in the segment were conceptual and subject to land acquisition.

Segment 6: NW Skyline Boulevard to US 30 (St. Helens Road)

In earlier phase of this master plan development the alignment of the trail through the City of Portland's Forest Park to US 30 and the St. Johns Bridge had been left to jurisdictional consultation between Metro, the City, and ODOT. This consultation resulted in a determination that the existing Saltzman Trail through the park was the preferred route, but left open the question of the route from the Lower Saltzman Gate to the bridge. Several options were considered including shared roadways, widened sidewalks and bicycle lanes, and off-street trails along US 30.

- A shared roadway solution was selected from the Lower Saltzman Gate to the intersection with US 30.
- From this point to the west end of the St. Johns Bridge, the trail route will be determined by the City's plan for a Willamette Greenway trail system.

Master Plan Public Comment Outcomes (December 2013 to March 2014)

The draft master plan was revised between December 2013 and January 2014 to reflect the outcomes of public and stakeholder review, as well as the supplemental tasks described above. Cost estimates were comprehensively revised and updated. All these changes were incorporated in the draft master plan that was published on Metro's website in February 2014. No comments were received altering preferred trail solutions. Some minor changes were made to the draft master plan, and jurisdictional reviews were undertaken starting in March 2014.

PHASING STRATEGY

Plan Report No. 2, *Trail Corridor Analysis*, identified preferred trail alignments through 14 distinct segments between the Tualatin River near King City and Portland's Forest Park. These segments were, in many cases, further subdivided into specific trail sections, particularly for segments with trail routing challenges resulting from major crossings, steep slopes, and other factors. As noted in the *Refined Trail Alignments and Cost Estimates* chapter of this Plan Report No. 4, some modifications to the trail alignments previously illustrated in Plan Report No.2 were made based on outcomes of public and stakeholder comments and the analysis conducted under Plan Report No.3, *Design Framework*.

Many factors will influence the actual sequence in which Westside Trail segments and sections are built. Property acquisition and construction funding will be one primary driver. Viable funding opportunities should be pursued as available irrespective of an overall phasing plan. This notwithstanding, a phasing strategy is important for providing guidance to the trail's builders and jurisdictional operators in balancing options and pursuing construction funding.

Phasing criteria

The following phasing criteria (see Table 3) are suggested for use in arriving at decisions prioritizing the development of trail segments or sections. The criteria are not in order of importance nor are they weighted. These criteria should be used as a series of questions to ask in determining priorities. The criteria were preliminarily applied to recommended Westside Trail segment and section alignments (see Appendix A) to determine a relative priority ranking. This preliminary prioritization was reviewed and refined by the SAC in April 2013.

Table 3: Trail phasing criteria

Criteria	Examples
Jurisdiction	
The trail segment or section is within a jurisdiction that has established authority to fund, develop, own and/or operate trails.	Segment 3 across Bull Mountain is within the City of Tigard city limits, and Tigard builds, owns and operates trails. In contrast, Segment 2 (also Bull Mountain) is within unincorporated Washington County. The County does not have or exercise a parks authority.
Connectivity	
The trail section or crossing structure has a positive impact on regional trail connectivity of the trail beyond the specific segment in which it is located or on the Westside Trail as a whole.	The Tualatin River Bridge (Segment 1), although at the south end of the Westside Trail, is essential to linking into two other regional trails (Tualatin River Greenway and Ice Age Tonquin Trail).

Criteria	Examples
The trail section connects to major activity center(s) that could generate considerable local trail use – schools, regional open spaces, shopping centers, business parks, etc.	Segment 4.14 connects a major Beaverton corporate business park with a city park and considerable business and activities along SW Walker Road.
The trail section extends a built portion of the Westside Trail or other intersecting built trails.	Segment 4.18.3 extends the new Westside Trail segment (4.18.2) being built in 2014 and connects to the Bethany Terrace Trail, Kaiser Woods Park trails, and the Rock Creek Greenway.
The trail section connects to other transportation facilities – MAX, bus stops, park and rides – making use of such transportation and transit options more practical.	Improved transportation connectivity will result from building the short extension of the Crescent Connection Trail, linking to the Beaverton Creek MAX station, 153 rd bike lanes and sidewalks, and SW Jenkins Road transit lines.
Functionality	
Trail section is functional in and of itself.	The trail section between SW Beef Bend Road and SW Bull Mountain Road (Segment 2) would provide an off-street alternative for local bicycle and pedestrian traffic where none now exists.
Trail section or crossing structure is a crucial link, without which intersecting Westside Trail sections would not be functional.	Without a US 26 bridge, trail development in the north end of Segment 4.14 and all of Segment 4.15 would have little or no functionality.
Benefit/cost	
The benefits of a given trail section are distinctly greater than the relative cost, complexity and/or length of the section.	A very short paved trail extension from the east end of the Bethany Terrace Trail (Segment 4.20) sets the stage for the more complex extension of the trail system into Portland's West Hills.
Alternatives	
There are no practical or interim alternatives for one or more classes of trail users without constructing a particular trail section or crossing structure.	There is no practical off-street alternative to building trails through Segment 5 approaching the West Hills and Forest Park.

Funding sources

Table 4 summarizes some of the major sources of design and construction funding currently available for trails. The terms and conditions of these sources will change from time to time, new programs may emerge or others may sunset, and funding cycles and levels of funds available will vary. Grant application efforts or construction planning should be preceded by a review of the current programs and cycles being offered.

The funds listed in Table 4 are sourced from the federal government. State or regional agencies administer the allocation and award of these funds. Other more locally sourced funds may be available. The funding source for THPRD trail construction is that agency's current voter-approved bond measure. Transportation and parks system development charges (SDC) are assessed by trail partner jurisdictions against new development. Although limited to funding extra-capacity improvements to meet the demands generated by new development, SDCs would generally be available to apply against regional trail sections with the jurisdiction's boundary. For example, the City of King City pledged SDC funds as match for a recent ODOT trail construction grant helmed by the City of Tualatin and Metro.

Funding may also be available to underwrite specific elements or types of trail construction or to provide enhancements or mitigation within the trail corridor. This is particularly germane to the Westside Trail which is intended to be a wildlife corridor as well as a trail corridor. Possible funding sources are listed in Table 5.

Table 4: Trail construction funding sources

Agency	Program	Funding Cycle	Local Match Percentage	Range of Funds Available
Washington County	Major Streets Transportation Improvement Program 3d funds	5-year cycle	0%	\$170M Total
Washington County	MSTIP 3d - Opportunity Funds for Bike / Ped Projects	5-year cycle	Undetermined	\$5M Total
Metro	Metropolitan Transportation Improvement Program regional flexible funds (2016–2018)	3 -year cycle	0%	\$94.6M Total
Oregon Department of Transportation (ODOT)	Statewide Transportation Improvement Program – <i>Enhance</i> and <i>Fix-it</i> (2015–2018)	3-year cycle	10% (<i>Enhance</i>)	\$1.3B Total (\$720M <i>Fix-It</i> & \$227M <i>Enhance</i>)

Table 5: Potential trail enhancement funding sources

Agency	Program	Funding Cycle	Local Match Percentage	Range of Available Funds
Metro	Restoration & Enhancement Grants	Annual	100%	\$10,000 to \$30,000
Metro	Nature in Neighborhoods Capital Grants	Annual	200%	Minimum of \$50,000
Metro	Natural Areas Bond Acquisition Funds	Varies	Varies	Varies
Metro	Regional Travel Options	Biannual	10%	Minimum of \$50,000
Oregon State Parks	Measure 66 lottery funds for parks and trails	Biannual	Varies	Varies
Oregon State Parks	Local Government Grant	Annual	20% to 50%	\$40,000 to \$1M
Oregon State Parks	County Opportunity Grant Program	Annual	25% to 50%	\$5,000 to \$200,000
Oregon State Parks	Recreational Trails Grants	Annual	20%	Minimum of \$5,000
Oregon State Parks	Land and Water Conservation Fund (LWCF)	Annual	50%	Minimum of \$12,500
Oregon Watershed Enhancement Board	Restoration Grants	Annual	25%	Varies
Oregon Watershed Enhancement Board	Small Grants	Annual	25%	Up to \$10,000
Oregon Community Foundation	Oregon Historic Trails Fund	Annual	N/A	Up to \$40,000
Oregon Community Foundation	Oregon Parks Foundation Fund	Annual	N/A	\$1,500 to \$5,000
Bikes Belong	Bikes Belong Grant	Quarterly	N/A	Up to \$10,000
Cycle Oregon	Cycle Oregon Signature Grant	Annual	N/A	\$50,000 to \$100,000
The Trail Keepers Foundation	The Trail Keepers Foundation Grant	Annual	N/A	Up to \$3,000

Phasing recommendations




The full construction of the Westside Trail may take a decade or more, even with the substantial portions within the City of Portland and THPRD that are already built or scheduled for near-term construction. Over a decade or more, phasing will inevitably be influenced by funding availability, changing jurisdictional authority and priorities, and evolving regional and local transportation and land use plans. Success in building any given section of the Westside Trail or intersecting regional or local trails and the development of other transportation options and surrounding land uses will change the answers to the criteria described above. Overall phasing plans and rankings should be regularly revisited as trail sections are built and other circumstances change.



Given the above circumstances, a sequential numerical ranking (1, 2, 3, etc.) of trail development priorities is not particularly useful. Nor is it possible to provide a by-year ranking. The phasing criteria described under Table 3 above were applied and translated to near-term, mid-term, and long-term categories. Table 6 summarizes the phasing recommendations. Appendix D provides a more detailed summary of the application of the trail phasing criteria used to arrive at these suggested priorities.

Table 6: Trail phasing summary

Trail segment/ section	Section name	Jurisdictional authority	Development status	Priority
Segment 1: Tualatin River to SW Beef Bend Road				
Tualatin River bridge	Tualatin River bridge	City of Tualatin (has parks authority) City of King City (provides limited parks services)	Not built	Near-term
1	Tualatin River – Beef Bend Road	City of King City	Not built	Near-term
Segment 2: SW Beef Bend Road to Tigard city limits				
2A	Beef Bend – Colyer (in-corridor/paved)	Washington County (no parks authority)	Not built	Mid-term
2B	Colyer – Woodhue (soft surface)	Washington County (no parks authority)	Not built	Mid-term
2D	Woodhue –144th (100' bridge option)	Washington County	Not built	Mid-term

Trail segment/ section	Section name	Jurisdictional authority	Development status	Priority
2E	Woodhue – 144th (30' bridge option)	Washington County	Not built	Mid-term
2F	144th – Tigard city limits	Washington County	Not built	Mid-term
Segment 3: Tigard city limits to SW Barrows Road				
3A	Tigard city limits – Mistletoe	City of Tigard (has and exercises parks authority)	Not built	Mid-term
3C	Hillshire Woods (soft surface)	City of Tigard	Not built	Near-term
3E	Nahcotta – Barrows	City of Tigard	Not built	Mid-term
Segments 4.11, 4.12, and 4.13 (south portion): Tualatin Hills Nature Park to Nike				
4.11	Crescent Connection trail section	THPRD (parks authority)	Not built	Near-term
4.13	Jenkins – Nike connector trail	Washington County	Not built	Long-term
Segment 4.14: SW Walker Road to US 26				
4.14	Walker – US 26	THPRD City of Beaverton (no parks authority)	Not built (north end required for new US 26 bridge)	Mid-term Near-term (for bridge approach)
US 26 bridge	US 26 bridge	ODOT	Not built	Near-term
Segment 4.15: US 26 to NW Cornell Road				
4.15	US 26 – Cornell	Washington County (Future THPRD annexation possible)	Not built (entire segment required for new US 26 bridge)	Near-term

Trail segment/ section	Section name	Jurisdictional authority	Development status	Priority
Segment 4.16: NW Cornell Road to NW Oak Hills Drive				
4.16	Cornell – Oak Hills	Washington County (Future THPRD annexation possible)	Not built	Mid-term
Segment 4.17: NW Oak Hills Drive to West Union Road				
4.17	Oak Hills – West Union	Washington County (Future THPRD annexation possible)	Built (but sub- standard width and grades)	Long-term
Segment 4.18.1 (south portion): West Union Road to NW Kaiser Road				
4.18.1	West Union – Kaiser	Washington County (Future THPRD annexation possible)	Not built	Mid-term
Segment 4.18.3: Rock Creek Greenway to NW Springville Road				
4.18.3	Rock Creek – Springville	Multnomah County (no parks authority)	Not built	Long-term (priority may increase as North Bethany trails are built)
Segment 4.19: North of NW Springville Road				
4.19	North of Springville	Washington County	Not built	Built as part of development
Segment 4.21: NW Skycrest Parkway to Arbor Heights – County line				
4.21	Skycrest – Arbor Heights	THPRD and Washington County	Partly built (only the short most westerly section)	Mid-term
Segment 5: County line to NW Skyline Boulevard				
	County/THPRD line – Springville	Multnomah County	Not built	Mid-term
 	Springville – Skyline (on-street)	Multnomah County and City of Portland	Built streets (new shoulders required)	Mid-term

Trail segment/ section	Section name	Jurisdictional authority	Development status	Priority
	Springville– Saltzman	Multnomah County (east end in City of Portland)	Not built	Long-term
	Saltzman (on-street)	City of Portland (west end in Multnomah County)	Built street (new sidewalks required)	Long-term

IMPLEMENTATION REQUIREMENTS

The Westside Trail will pass through multiple jurisdictions including the cities of King City, Tigard, Beaverton and Portland; Washington and Multnomah Counties; and the Tualatin Hills Parks and Recreation District (THPRD). These jurisdictions will have to partner to fund, build, and maintain the Westside Trail. Many of the implementation considerations may require two or more partners to work together. Among the more important partnership actions will be ensuring that the findings and recommendations of the WTMP is incorporated into local planning such as comprehensive, transportation and trail system plans.

THPRD will have approximately 8 miles of the Westside Trail built by 2014. Some of the remaining undeveloped trail segments at the north end of the trail corridor could be annexed to THPRD. The City of Portland also has a significant trail network in place through Forest Park (Segment 6), and Tigard operates many trails near Segments 1, 2 and 3 of the Westside Trail.

The remaining undeveloped trail segments are, in many respects, the most challenging to complete. Segments across Bull Mountain and into Portland's West Hills involve major crossing structures, steeply sloped trail corridors, potentially significant private property acquisitions, and jurisdictions without parks authority. Several segments are challenged by a combination of two to three of these factors.

ODOT and TriMet have jurisdiction over the trail's two major transportation crossings: US 26 and the MAX Blue Line. Metro has parks authority within Multnomah County. Two power utilities, BPA and PGE, own outright or control, through easements, a large percentage of the trail corridor. Both utilities have standards and practices for trail improvements and vegetation management impacting implementation (see Plan Report No. 3).

The Ice Age Tonquin Trail and Tualatin River Greenway Trail will pass through the City of Tualatin and connect to the Westside Trail across the Tualatin River. Because of this connection, the City of Tualatin could be a partner in development of the south end of the Westside Trail even though the Westside Trail will not pass through the city limits. The City was recently (December 2012) lead applicant for an ODOT construction grant for the Tualatin River bridge, Ice Age Tonquin Trail Segment 13, and Westside Trail Segment 1.

A variety of other federal, state and regional regulatory agencies will also have roles in permitting. Additional coordination activities, permits and approvals may be identified during design and engineering. Local neighborhoods, businesses and property owners, and advocacy groups such as bicycling and open space groups will need to be consulted on an ongoing basis. Ongoing formal coordination in advancing trail development within this complex set of jurisdictional authorities and stakeholders is critical.

This Plan Report No. 4: *Implementation Requirements* chapter includes cross references to details impacting implementation that are contained in Plan Reports Nos. 1, 2 and 3. Some of this type of information has been expanded in this Plan Report No. 4. The following sections describe probable considerations with respect to utility requirements; private ownership; permitting and compliance requirements; environmental restoration, preservation, and mitigation; partner jurisdiction

requirements; long-range planning; transportation facilities; and trail construction and maintenance authority.

Utility requirements

Power utility use permissions

The trail corridor in Washington County is within the major BPA – PGE power transmission corridor that traverses the eastern county from north to south. PGE’s power transmission facilities are primarily secured by easement in Segments 1, 2 and 3. BPA owns the land underlying its power transmission poles and lines for most of the length of the entire north-south corridor. The east-west segments of the trail corridor that approach and enter Forest Park are *partly* within a “branch” BPA power corridor easement. Some other proposed trail sections are located along or within public road right of way, and/or cross private lands.

PGE and BPA are partner jurisdictions in the WTMP and have prospectively made the power corridor available for trail development, provided that maintenance and emergency access to power infrastructure is maintained and that trail corridor maintenance practices meet utility specifications. Where BPA owns the underlying corridor, formal use agreements with the utility will nonetheless be required. Where power utility use is secured by easements across private property, additional agreements or outright acquisitions from private property owners will be required in order to develop the trail. In addition, in some BPA-owned corridor areas, BPA has previously granted easements to private parties for agricultural uses. These easements will have to be quitclaimed.

BPA has a formal process for permitting nonutility uses within the BPA-owned power corridor. Use is nominally available to both public agencies and private users. The BPA use application and process is attached as Appendix E-1. PGE owns some property in fee under power line infrastructure in Segments 1, 2, and 3, although most of the PGE power corridor is secured by easement. The PGE private use policy and permission process is attached as Appendix E-2. For more information about securing trail development and access rights for the portions of the trail/power corridor established by easement over private lands, see a following section of Plan Report No. 4, *Private ownership considerations*.

Power infrastructure relocations

There are numerous power utility structures along the corridor including transmission and distribution-scale power lines, steel lattice towers, dual wooden power pole sets, structural support cables, access roads, and small utility buildings. Within the power corridor, the trail alignment analysis conducted under Plan Report No. 2 found that generally enough routing flexibility is available to avoid power line structure relocations. The exception is potentially for areas approaching the Tualatin River and US 26 trail crossings. See Plan Report No. 2, Pages 9-11 and 41-46. The high cost of relocating power transmission-scale power poles and towers in particular could have constituted a “significant impediment” or “fatal flaw” to trail development under the level of analysis detailed in Plan Report No. 2.

The most significant impediment to trail development is not pole or tower *relocation*. The impact on maintenance and emergency *access* to power infrastructure is more significant. On Bull Mountain (Segments 2 and 3, see Plan Report No. 3, Pages 1–2) some trail sections with extremely steep slopes would require trail alignments and extensive switchback configurations to meet consistent trail grades of 8% or less. Even though possible, the number and density of required physical trail improvements to meet such grades, such as trail landings, retaining walls, and safety railings, would greatly impede or outright bar power tower and pole maintenance access. Accordingly, changes were made to trail alignment options shown (see Appendix A) in the steeper sections of Segments 2 and 3 to assure adequate power utility access. Actual design and engineering of other trail sections may reveal additional areas where trail structures or alignment will have to be modified to retain acceptable power utility access.

Power utility maintenance agreements

All the trail segments within the power corridor that were analyzed under the WTMP are presently undeveloped for trail purposes, with the exception of Segment 4.17 where a privately built trail section is within the power corridor. PGE and BPA follow their usual and customary maintenance practices in these segments. Maintenance practices suitable for undeveloped lands under power lines may not however be compatible with a trail corridor developed for bicycle and pedestrian traffic, nor with the planned dual function of the trail corridor as a wildlife corridor. Plan Report No. 3 (Pages 1-2 and 24-27) details baseline utility standards and limitations.

Existing maintenance agreements between the power utilities and THPRD for developed trail segments provide adequate precedence for future agreements with respect to basic maintenance but not for practices compatible with wildlife corridors. Customary THPRD practices, while probably more supportive of an enhanced landscaped corridor than power utility vegetation management approaches, do not address wildlife habitat needs. Plan Report No. 3 (Pages 32–39) proposes wildlife habitat restoration and preservation principles and practices specific to vegetation types. These principles and practices will have to be translated to agreements between the two power utilities and the jurisdictions that maintain and operate different trail segments (including for THPRD-built and operated sections).

Other utilities

Buried natural gas and particularly petroleum pipelines follow or cross the corridor in several locations. Maintenance access to these lines must be preserved through trail design and engineering and infrastructure placement. Major trail structures in particular, such as bridge footings or retaining walls, could potentially limit pipeline access or safety to an extent that line relocation would be required. In addition, some pipelines are buried at relatively shallow depths. Compaction and other impacts resulting from trail construction and use could cause line damage or breakage. Line operators such as Kinder Morgan for the petroleum pipeline must be fully consulted in design and construction phases.

Private ownership considerations

While BPA and PGE are WTMP project partners and have generally indicated their willingness to grant permission for trail development and operation on utility fee-owned lands, these utilities will generally not have the right to grant permission where there is an underlying private ownership. As noted earlier, much of the trail corridor across Bull Mountain (under PGE power lines) and into Portland's West Hills (under BPA power lines), while reserved for power transmission purposes by easements, remains in private ownership.

Most Westside Trail power corridor *easements* date to an era when much of the land over which the power lines pass was predominantly in agricultural use. Many power utility easements secured across private lands allowed continued farming uses under and around power poles and lines. Other agricultural uses have been permitted by easement within BPA-owned lands provided that power line infrastructure integrity and maintenance is not adversely impacted. Today, many trail segments have a variety of uses under power lines in addition to agricultural activities: gravel and paved private parking lots and driveways, private accessory building, and landscaped and fenced backyards. The most extensive private uses within the power corridor are the private trails and appurtenant structures built in Segments 4.13 (Nike) and 4.17 (Oak Hills), the paved parking lots in the Cornell Oaks business park in Segment 4.14, and gravel parking lots in Segment 4.15 serving abutting residential apartments. Private agricultural and other nonutility uses have also been identified in Segments 2, 3, and 4.21.

Within areas within the power corridor encumbered by easements secured or issued by PGE and BPA, future Westside Trail public managers will have to secure permissions or quitclaims from the underlying private property owners, as well as respect utility infrastructure safety and access restrictions (see Plan Report No. 3). Private property owned by homeowners associations (HOA) or other similar groups may involve more complex acquisition undertakings than with individual ownerships. HOAs may require a vote of the entire ownership to sell lands or grant access easements and sometimes require 100 percent consent. There are also two segments – 4.19 and 4.21 – where the trail will be built as part of new residential subdivisions.

Options to acquire rights to privately controlled power corridor lands include use agreements, easements, quitclaims, or outright acquisition. The WTMP right-of-way reports produced by Metro identify acquisition requirements and options for specific trail sections and individual properties.

Table 7: Probable trail use permission or acquisition partners

Segment	Utility	TriMet	HOA	Private Owner	Developer
1	X		X		
2	X		X	X	
3	X		X	X	
4.11		X			
4.13	X			X	
4.14	X				
4.15	X				
4.16	X				
4.17	X				
4.18.1	X				
4.18.3	X				
4.19					X
4.21	X			X	X
5	X		X	X	

Permitting and compliance requirements

Engineering, permitting and construction requirements may vary greatly across the trail corridor based on the physical particulars of a given segment or section and the source of development funding. Furthermore, while local financial resources (such as the THPRD park bonds or city parks and open space SDCs) may fund some trail construction, it is more likely that federal and state funding will be applied to trail construction. The *Environmental conditions* section of Plan Report No. 1 preliminarily identified many environmental and physical conditions that may generate permitting requirements.

Table 8 lists the most likely public agency permitting and compliance processes that may impact trail development. Sections that follow this table provide more detail on the specific structures, crossings and other features that may need permitting, and provide cross references to details contained in other WTMP Plan Reports. Table 8 can also be used as a general indicator of potential funding sources. Many agencies offer programs to assist in meeting regulatory requirements.

Table 8: Probable permitting and approval processes

Agency	Method
Federal	
Federal Highway Administration	<ul style="list-style-type: none"> • National Environmental Policy Act (NEPA)
Executive Orders	<ul style="list-style-type: none"> • EO 11988 Floodplain Management Compliance • EO 11990 Protection of Wetlands Compliance • EO 12898 Environmental Justice Compliance
National Marine Fisheries Service	<ul style="list-style-type: none"> • Endangered Species Act Section 7 Consultation • Magnuson-Stevens Fishery Conservation and Management Act Consultation • Fish and Wildlife Coordination Act
U.S. Fish and Wildlife Service	<ul style="list-style-type: none"> • Endangered Species Act Section 7 Consultation • Migratory Bird Treaty Act Compliance • Fish and Wildlife Coordination Act Coordination
U.S. Army Corps of Engineers	<ul style="list-style-type: none"> • Clean Water Act Section 404 Permit
State of Oregon	
State Historic Preservation Office	<ul style="list-style-type: none"> • National Historic Preservation Act Section 106 Consultation
Department of Environmental Quality	<ul style="list-style-type: none"> • Clean Water Act Section 401: Water Quality Certification • Clean Water Act Section 404 Permit Review • National Pollutant Discharge Elimination System Program Construction • Stormwater Discharge Permit
Department of State Lands	<ul style="list-style-type: none"> • Wetland Delineation Clearance • Removal-Fill Permit or General Authorization •
Department of Fish and Wildlife	<ul style="list-style-type: none"> • Oregon Fish Passage Law Compliance • Oregon Endangered Species Act Compliance • Habitat Mitigation Policy
Department of Transportation	<ul style="list-style-type: none"> • Permit to occupy or perform operations upon state highways

Agency	Method
Local government and special district jurisdictions	
Washington County, Multnomah County, King City, Tigard, Beaverton, Portland	<ul style="list-style-type: none"> • Land use permits and approvals (conditional use, development, and/or environmental) • Natural resource overlay zone reviews • Floodplain development permits • Roadway construction permits, Americans with Disabilities Act variances (in particular the cities of Tigard and Portland)
Clean Water Services	<ul style="list-style-type: none"> • Environmental review, development review, storm water permits

Environmental restoration, preservation and mitigation

Some but not all of the Westside Trail's jurisdictional and cooperating partners have natural resource and open space policies and practices that could be applied to the trail corridor. These policies or practices are described below.

Restoration and preservation activities

Table 9 summarizes the primary habitats and restoration or preservation actions suggested by segment. As noted in Plan Report No. 3, "habitat restoration guidelines and practices can be used by a variety of trail stakeholders and users ranging from a design/engineering team developing trail construction specifications to local community groups looking to improve their own particular patch of trail habitat."

Table 9: Primary restoration or preservation activities

Segment	Primary habitat	Primary action	Other Habitats
1	Prairie grasslands	Restoration	Park/wetland
2	Prairie grasslands	Restoration	Woodlands/stream
3	Prairie grasslands	Restoration	Woodlands/streams
4.11–4.13	Urbanized (on-street, near street)	Limited opportunities	Woodlands (nearby)
4.14	Prairie grasslands	Restoration	Park/stream
4.15	Prairie grasslands	Restoration	Streams/wetlands
4.16	Prairie grasslands	Restoration	Streams/wetlands
4.17	Prairie grasslands	Restoration	Parks
4.18.1	Prairie grasslands	Restoration	None
4.18.3	Agricultural	Grassland restoration	Park/wetlands/ agricultural
4.19	Prairie grasslands	Limited opportunities	Stream/urbanizing
4.21	Agricultural	Grassland restoration	Streams/agricultural/ wetlands
5	Woodlands	Preservation	Streams/agricultural

Water body and wetland crossings

Plan Report No. 3 suggests a wide variety of principles and approaches to restoring or preserving the grassland, woodland and wetland habitats along the trail corridor. The most emphasis in Plan Report No. 3 is placed on restoring prairie grasslands for which, typically, there are little or no regulatory protections. For woodlands, restoration as part of the development of the Westside Trail is generally not contemplated. The general principle is to develop narrow and low impact soft surface woodland trails (primarily in Segments 3 and 5) and with careful siting and construction

limit tree removal and “do no harm”. Plan Report No. 3 lists appropriate practices. Trail crossings of, or development near to, water bodies, wetlands, and associated riparian areas do however involve many regulatory and policy considerations. Water bodies and wetlands are particularly important as the incubators of many of the wildlife species that will make the Westside Trail corridor “home.” The Westside Trail will cross two major stream corridors:

- Tualatin River (Segment 1) – A proposed 330-foot trail bridge span is proposed to cross the Tualatin River and connect to the Ice Age Tonquin Trail. Refer to Table 8 above for regulatory and permitting requirements. For this bridge crossing, probable permitting agencies include, but are not limited to, the U.S. Army Corps of Engineers, National Marine Fisheries Service, Oregon DEQ and DSL, and CWS.
- Bronson Creek Wetlands (Segment 4.18.2) – This crossing is to be constructed by THPRD in 2014. All permitting will be handled by THPRD.

Other wetlands and water bodies are identified within the trail corridor. See Plan Reports Nos. 1 and 2 for locations and descriptions. Impacts from trail construction will have to be mitigated and potentially restoration or enhancement undertaken. See Plan Report No. 3 and this Plan Report No. 4, particularly the sections below on Clean Water Services (CWS), for more information and recommendations. The wetland and other water features crossed by the trail include those listed in Table 10.

While many local partner jurisdictions have some individual policies that may apply to water bodies and wetlands, CWS is the surface water management regulatory authority for urban Washington County. CWS manages, and, in some cases, owns stream and riparian corridors, including some within or near the Westside Trail corridor. Trail development may trigger CWS requirements to protect sensitive areas and vegetated corridors during construction. In addition, mitigation and enhancement may be required.

Table 10: Wetlands, non-wetland waters, and 100-year floodplain crossings

Segment	Wetlands	Streams	Floodplains	Other
1	X	X	X	Tualatin River
2		X		
3		X		
4.11-4.13		X		
4.14		X	X	
4.15	X	X		
4.16	X	X	X	
4.18.3	X			
4.19		X		
4.21	X	X		
5		X		

CWS *Design and Construction Standards* Chapter 3, *Sensitive Areas and Vegetated Corridors*, includes standards based on percent covered by native trees, shrubs and groundcover. Coverage is defined for degraded, marginal and good conditions. Invasive nonnative species are to be removed, and a native plant re-vegetation plan must be developed that will restore the corridor to “good condition.” Compliance with CWS standards will be challenging in some portions of the power corridor. The standard requires more than 50 percent tree canopy, and variances may have to be obtained or off-site mitigation or enhancements provided.

CWS *Sensitive Areas and Vegetated Corridors*² standards allow pedestrian or bike trail crossings of vegetated corridors if impacts are minimized and mitigation is provided. The standards require that trail facilities be designed and constructed to protect water quality and mitigate any impacts to public storm water systems. Vegetated swales and/or dry basins are required to provide on-site treatment of all storm water runoff from paved trails. Paths up to 12 feet in width, including any structural embankments, are allowed if certain conditions are met:

- Constructed so as to minimize disturbance to existing vegetation and maintain slope stability.
- For the Tualatin River, located no closer than 30 feet from the 2-year 24-hour design storm elevation.
- For all other sensitive areas, the path shall be located in the outermost 40 percent of the vegetated corridor.
- The area of the path beyond the first 3 feet of width shall be mitigated in accordance with Section 3.08, Replacement Mitigation Standards.
- Path construction shall not remove native trees greater than 6 inches diameter at breast height.

Paths between 12 and 14 feet wide are considered an allowed use if constructed using low impact development approaches in accordance with Chapter 4³ (Runoff Treatment and Control). If these conditions cannot be met, the project shall be reviewed in accordance with Section 3.07 (Encroachment Standards).⁴

Partner jurisdiction environmental requirements and guidelines

Metro

Metro's *Green Trails: Guidelines for Environmentally Friendly Trails*⁵ suggests that natural resource opportunities and challenges should be identified early in trail planning and development processes so that trails can be designed to preserve sensitive natural resources. Some of the ideas and principles stated include:

² <http://www.cleanwaterservices.org/Content/Permit/DAndC%20Chapters/Chapter%203%20DC%20Amendment%20RO%2008-28.pdf>

³ <http://www.cleanwaterservices.org/Content/Permit/DAndC%20Chapters/Chapter%204%20Amendment%20RO%2007-20.pdf>

⁴ <http://www.cleanwaterservices.org/Content/Permit/DAndC%20Chapters/Chapter%203%20DC%20Amendment%20RO%2008-28.pdf>

⁵ Green Trails: Guidelines for environmentally friendly trails, Metro, 2004

- Locate trails in existing disturbed areas, at habitat edges, and/or out of core habitat areas to maintain habitat connectivity and avoid patches of high-quality connector habitat.
- Provide vegetative screening to protect sensitive species from disturbance by trail users. These buffers of native vegetation should be of “appropriate widths and densities to screen the trail.”

City of Portland

Portland Parks and Recreation (PP&R) uses an ecosystem management process based on a natural area parkland vegetation inventory, existing plant species, and the National Vegetation Classification System Ecological System for each ecological unit through which a trail passes. This inventory process notes ecological health and primary management concerns and the presence of invasive plants, informal trails, and erosion. Based on the inventory, a desired future condition is defined, and the necessary actions and monitoring are specified giving PP&R the adaptive management tools and information to enhance ecological health.

Vegetation clearances for soft-surface trails are illustrated in PP&R guidelines with standard details for hikers, mountain bikers, and equestrians. Native herbaceous plants are allowed to re-vegetate all but the trail bed, with seeding or mulching as needed. In sites with invasive nonnatives, most trail projects include a substantial re-vegetation component.

In addition, the City of Portland Zoning Code’s Standards for Public Recreational Facilities⁶ allows trail development on public property or easements if several standards are met. Environmental review is required if there are hazard trees or more than 5,000 linear feet of trail is constructed at one time. The standards to avoid environmental review are:

- Trail may be no longer than 5,000 feet and no wider than 4 feet.
- Maximum vegetation clearance of 8 feet above the trail and 2 feet on either side.
- If the trail crosses a water body, it must be constructed above the top of the bank.
- No native trees more than 10 inches in diameter breast height may be removed.

Tualatin Hills Parks and Recreation District (THPRD)

THPRD has a Natural Resources Advisory Committee as well as a Natural Resources Management Plan (NRMP) that is an “administrative, planning and maintenance reference guide” with a “flexible tool kit.” THPRD uses adaptive management strategies to maintain and enhance natural resources appropriate to an urban environment. One NRMP goal is to “plan for, provide and manage appropriate access to natural resource areas while protecting natural resources.” THPRD has an extensive habitat restoration and enhancement program that involves the community in stewardship activities.

⁶ Section 33.430.190, <http://www.portlandoregon.gov/bps/article/53343>

City of Tigard and City of King City

No specifics are included in the City of Tigard's *Greenways Trail System Master Plan*⁷ with respect to habitat restoration associated with trails. The plan notes that environmental and regulatory rules apply to projects within environmentally sensitive areas since "... ground disturbing activities associated with trail projects will have some level of impacts on biological and possibly wetland or water resources." Various regulations that could apply are listed. The plan also states, "topographical constraints will need to be addressed on a trail specific basis such that environmentally sensitive areas are protected and trails are constructed in the most cost-effective way while meeting trail standards of safety and accessibility".

The City of King City does not have standards for trails or for habitat restoration. The City of King City would likely refer to the standards or practices of Metro, THPRD, CWS, or perhaps to City of Tigard standards in the development and maintenance of Segment 1.

Multnomah County and Washington County

Neither county has trail development standards and accordingly does not have standards for trail area vegetation management or restoration. The counties would probably refer to the standards or practices of Metro or adjacent jurisdictions such as the City of Portland or THPRD.

Long-range planning

Plan Report No. 1 inventoried a wide range of state, regional, and local land use and transportation plans and policies. These plans and policies may impact development of the Westside Trail. Refer to the *Existing Plans* section of Plan Report No.1 for additional details. No exceptions or actions under the State of Oregon's land use laws or policies are anticipated due to trail development.

The WTMP as adopted or accepted by Metro and local partner jurisdictions will provide the detailed planned basis for the trail. No significant local plan amendments or exceptions are anticipated as a result of WTMP adoption or trail development, although local plan updates may be necessary. The Westside Trail is presently referenced in the following regional and local jurisdiction plans or ordinances:

- Metro
- City of Tigard
- City of King City
- Washington County
- City of Beaverton
- Tualatin Hills Parks and Recreation District
- Multnomah County
- City of Portland

⁷ http://www.tigard-or.gov/community/parks/docs/trail_system_master_plan.pdf

Transportation facilities

Major transportation facilities

US 26 is under ODOT's jurisdiction. US 26 will be crossed within the power corridor by a 230-foot-span pedestrian and bicycle bridge. Besides the usual and customary permitting required for highway projects, close coordination with ODOT will be needed to achieve the wildlife friendly bridge and approach improvements suggested in Plan Report No. 3 (Pages 29-30). Close coordination will also be required with power utilities with respect to working around and under power transmission towers and lines and for the possible relocation of both north-south transmission lines running up the corridor and the east-west distribution line along the north side of the highway. A petroleum pipeline in the trail corridor on the south side of the highway may also be impacted.

The recommended crossing of the MAX Light Rail Line (Blue Line) will utilize an existing signalized crossing at SW 153rd Drive. MAX is under the jurisdiction of TriMet. No special permitting is anticipated for this crossing other than possible construction permits associated with upgrading the crossing or crossing gates and signals to connect to the new Segment 4.11 trail section.

In addition, the Westside Trail will connect through Portland's Forest Park to US 30 and the St. Johns Bridge. The points and form of connection (existing trails in Forest Park, pathway paralleling the highway, etc.) will be determined based on existing City of Portland plans and requirements and discussions between Metro, ODOT, and the City.

Local surface roadways

Surface roadway crossings and trail intersections within the trail corridor are cataloged under Plan Report No. 1 and analyzed under Plan Report No. 2. Refined trail crossing recommendations and design typology are included in Plan Reports Nos. 3 and 4, and wildlife habitat considerations at crossings are described in Plan Report No. 3 (Pages 28-29).

Concurrence on appropriate trail crossing treatments and associated permits must be obtained from the jurisdiction that owns and manages the local surface road. Most local jurisdiction road crossings – arterial, collector and local – within the trail corridor are in Washington County (18 in all) or the City of Tigard (5 crossings in Segment 3). Crossings subject to City of Beaverton jurisdiction are limited to SW Greenbriar Parkway (Segment 4.14). The two NW Springville Road (Segments 4.18.3 and 5) crossings are in Multnomah County jurisdiction and the planned crossing of NW Skyline Boulevard (Segment 5) is within the City of Portland's jurisdiction.

The usual standard for midblock crossings used for the WTMP is the Washington County *Pedestrian Mid-block Crossing Policy*.⁸ This policy describes a process for determining appropriate treatments for midblock crossings. Each crossing is evaluated separately and must be approved under County Code Chapter 15.08. Approved crossings also require right-of-way and construction permits from the County. See Plan Reports Nos. 1 and 2 for more information on this Washington County policy.

⁸ <http://www.co.washington.or.us/LUT/upload/MidblockCountyPolicy2010.pdf>

For the NW Springville Road and NW Skyline Boulevard crossings, the Washington County policy was used as a reference point for planning purposes. Recommended crossing treatments were modified in consultation with the jurisdictional authority and would be subject to the permitting processes of those jurisdictions.

Construction and maintenance authority

Jurisdictional construction or operation and maintenance agreements may have to be developed defining the responsibilities for construction and maintenance of trail segments, particularly where there is no current parks provider. Agreements may be needed to expand the responsibilities of a parks provider, change current maintenance practices, and/or outright assume trail construction or maintenance responsibility outside of usual jurisdictional authority. Of particular importance is establishing agreements for modified maintenance practices for trail corridor habitat. The goals of restoring and preserving habitat for wildlife along the trail corridor will require power utilities to make changes and may also impact the standard practices of current parks providers.

Two segments within the trail corridor are within the jurisdiction of counties that do not exercise park authority: Segment 2 (Washington County) and Segment 5 (Multnomah County). These two segments are also among the most challenging to design and construct due to steep topography.

Power utilities

In addition to use permissions (see Pages 21-23 and Appendices D-1/D-2), agreements will need to be executed allowing the power utilities certain prerogatives with respect to performing corridor vegetation and other maintenance activities to preserve and protect power line infrastructure. Other agreements will be needed to mutually establish new vegetation maintenance practices for wildlife habitat restoration and preservation in the corridor (see Plan Report No. 3).

Oregon Department of Transportation

Although other agencies may play significant roles in funding the construction of the Westside Trail, ODOT will almost certainly be the largest single provider of funding, either directly or through a variety of “pass-through” programs with local jurisdictions. ODOT is the conduit for federal funds through several programs (see Table 4). ODOT has many funding programs and processes in place and recently consolidated programs making trail projects more competitive against other forms of transportation. The information included in the WTMP with respect to alignments, design typology, and costs will be an essential aid in developing competitive and responsive grant applications to ODOT and other funders.

ODOT requires that construction projects utilize a project prospectus as part of a request for project construction funding and development. Many of the elements of the Westside Trail cataloged and analyzed in Plan Reports Nos. 1 through 4 were driven by the requirements of ODOT's prospectus process. The current (as of April 2013) Parts 1, 2 and 3 ODOT Project Prospectus forms are attached as Appendix F. Elements required by the prospectus that can be estimated and derived from the guidance provided by the WTMP are listed in Table 11.

Table 11: ODOT project prospectus requirements

Part 1 Project Request	Part 2 Project Details	Part 3 Project Environmental Classification*
<ul style="list-style-type: none"> • Cost Estimates • Project Components • Right of way • Project Justification 	<ul style="list-style-type: none"> • Activity Responsibilities • Permits and Clearances • Right of way • Number of Acquisitions and Relocations • Suggested Base Design • Structures • Segment-by-Segment Typology (existing and proposed) 	<ul style="list-style-type: none"> • Right of way • Traffic • Land Use and Socioeconomic • Wetlands, Waterways and Water Quality • Biological, and ESA Species • Archeological and Historical • Park and Visual • Hazardous Materials • Potential Areas of Concern • Public/Stakeholder Concerns

*Part 3 requires an indication of the probable project classification under NEPA and poses questions with respect to any proposed “categorical exclusion” from NEPA. The environmental classification prospectus requires a brief project description and estimated impacts.

Full service parks providers

For trail segments where there are current parks providers, ongoing operation and maintenance responsibilities, and where the providers recognize the Westside Trail in jurisdictional plans, formal maintenance agreements may not be required beyond adoption or acceptance of the final WTMP and acceptance of jurisdictional responsibility for a trail section as a matter of course. Table 12 lists the trail segments within full service partner jurisdictions.

Table 12: Full service parks providers

Segment	Jurisdiction
3	City of Tigard
4.11, 4.12, and 4.14	THPRD
4.15, 4.16, 4.18.1, 4.18.3, 4.19, and 4.21	Within THPRD planning area, could assume responsibility subject to annexation
5 (east end)	City of Portland
6	City of Portland

Limited service parks providers

Segment 1 is within the City of King City. Although the City owns and operates some parks, including a city park at the south end of Segment 1, the City's capacity for ongoing construction and maintenance of a regional trail is limited. A third party (Metro, City of Tigard, City of Tualatin) may be required to participate with or on behalf of King City. Metro could use its regional parks planning role to directly partner to secure funding and build this and other trail segments or sections where there is limited or no local government parks authority.

No parks service providers

Segments 2 and 5 are in unincorporated county areas where there are no current parks providers. Assumption of an active parks authority by Washington County (Segment 2) or Multnomah County (Segment 5) is highly unlikely. The Washington County decision to step out of parks authority was explicit and is long-standing. Metro has assumed ownership and responsibility for Multnomah County's urban parks and open spaces, and Multnomah County is not likely to re-assume these services.

A third party government(s) will likely have to participate in trail development and operation in Segments 2 and 5. This could be accomplished through intergovernmental agreements or contracts, although the third party would presumably require the impacted county to provide capital or operational funding support. The City of Tigard is the possible third party for Segment 2. The City of Portland, THPRD, and Metro are the most likely third-party candidates for building and/or maintaining Segment 5.

Another possible approach is for the two counties to assume responsibility for the development or operation of the portions of the Westside Trail within their jurisdiction on the basis of the trail as a *transportation* facility. Trails in the Portland Metropolitan Region are increasingly treated as essential elements in comprehensive transportation systems, not just as open space or recreational amenities. The Washington County and Multnomah County transportation authorities may be sufficient basis for assuming trail responsibilities, particularly as the Westside Trail is part of a regional trail system and equivalent to an arterial street, not a local facility akin to a neighborhood street.

Metro has also had recent discussions with private and nonprofit user groups with some interest in assuming trail maintenance responsibilities. The trail sections in question have been for soft-surface routes such as those planned through Segment 5 in Portland's West Hills.

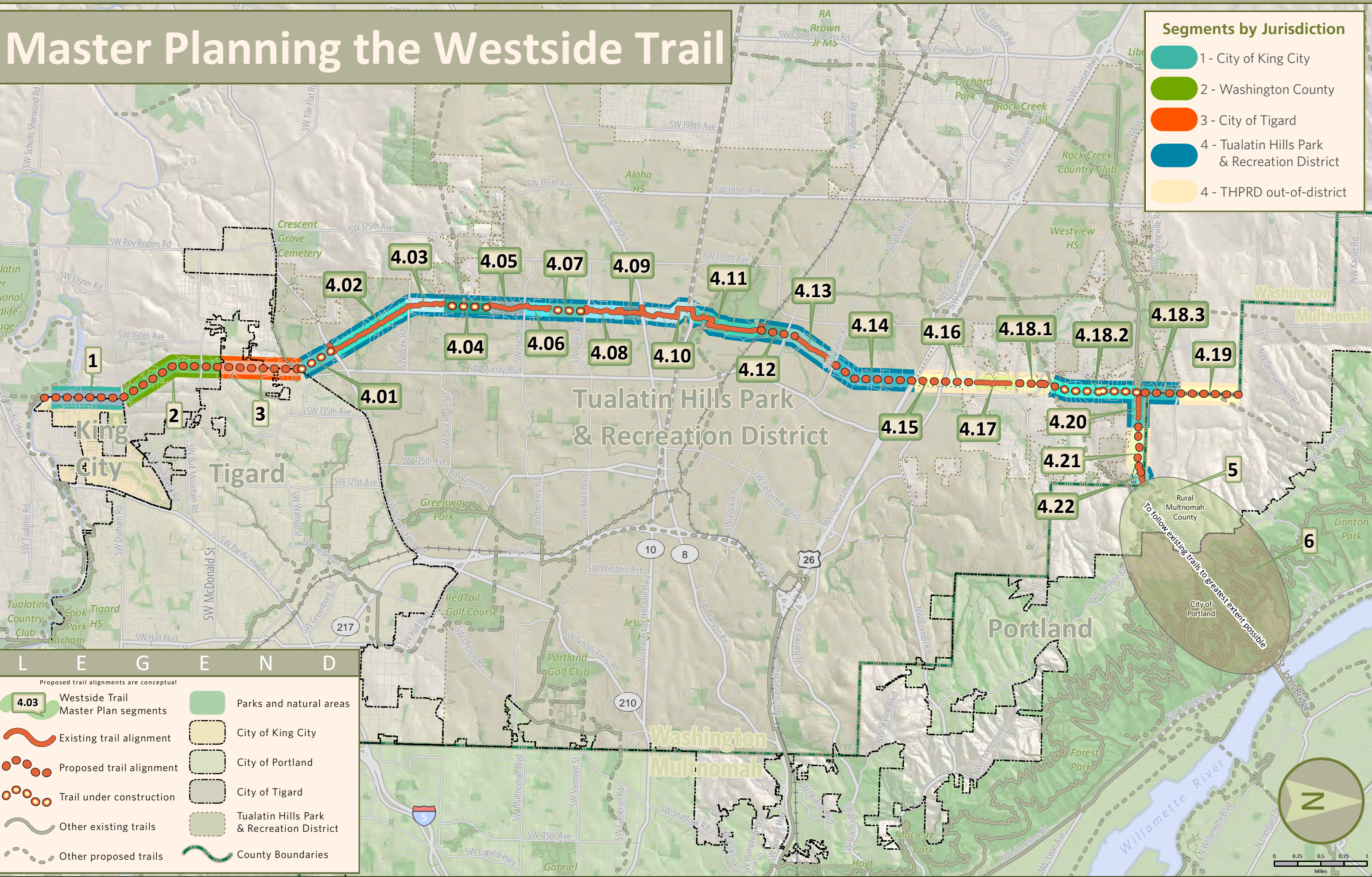
APPENDIX A

Revised Trail Segment Maps

Master Planning the Westside Trail

Segments by Jurisdiction

- 1 - City of King City
- 2 - Washington County
- 3 - City of Tigard
- 4 - Tualatin Hills Park & Recreation District
- 4 - THPRD out-of-district



Westside Trail Master Plan

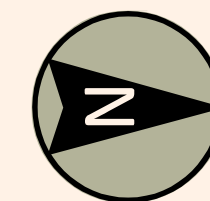
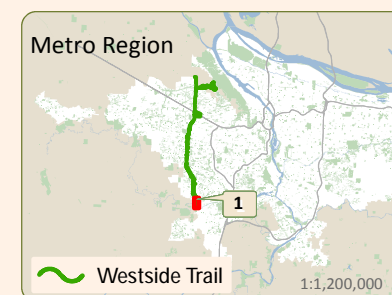
Figure 2

Segment 1
Tualatin River to Beef Bend Rd
Segment Corridor = 0.85 Miles



Westside Trail Recommended Alignment

- | | | | | |
|------------------------------------|-------------------------|-------------------------|------------------|---|
| Multimodal | Existing Westside Trail | Trailhead | School sites | Streams |
| Soft surface | Other Trails | Parks and natural areas | Wetlands | 10 foot contours |
| On-street | Midblock Crossings | Privately owned | Taxlots | City Boundaries |
| Bridge | Wetland Crossings | Publicly owned | Powerline Towers | County Boundaries |
| Recommended Access Connector Paths | Minor Stream Crossings | Segment option number | Powerlines | Tualatin Hills Park & Rec District Boundary |



All illustrated alignments
subject to change based on
final design, permitting,
and engineering.

Westside Trail Master Plan

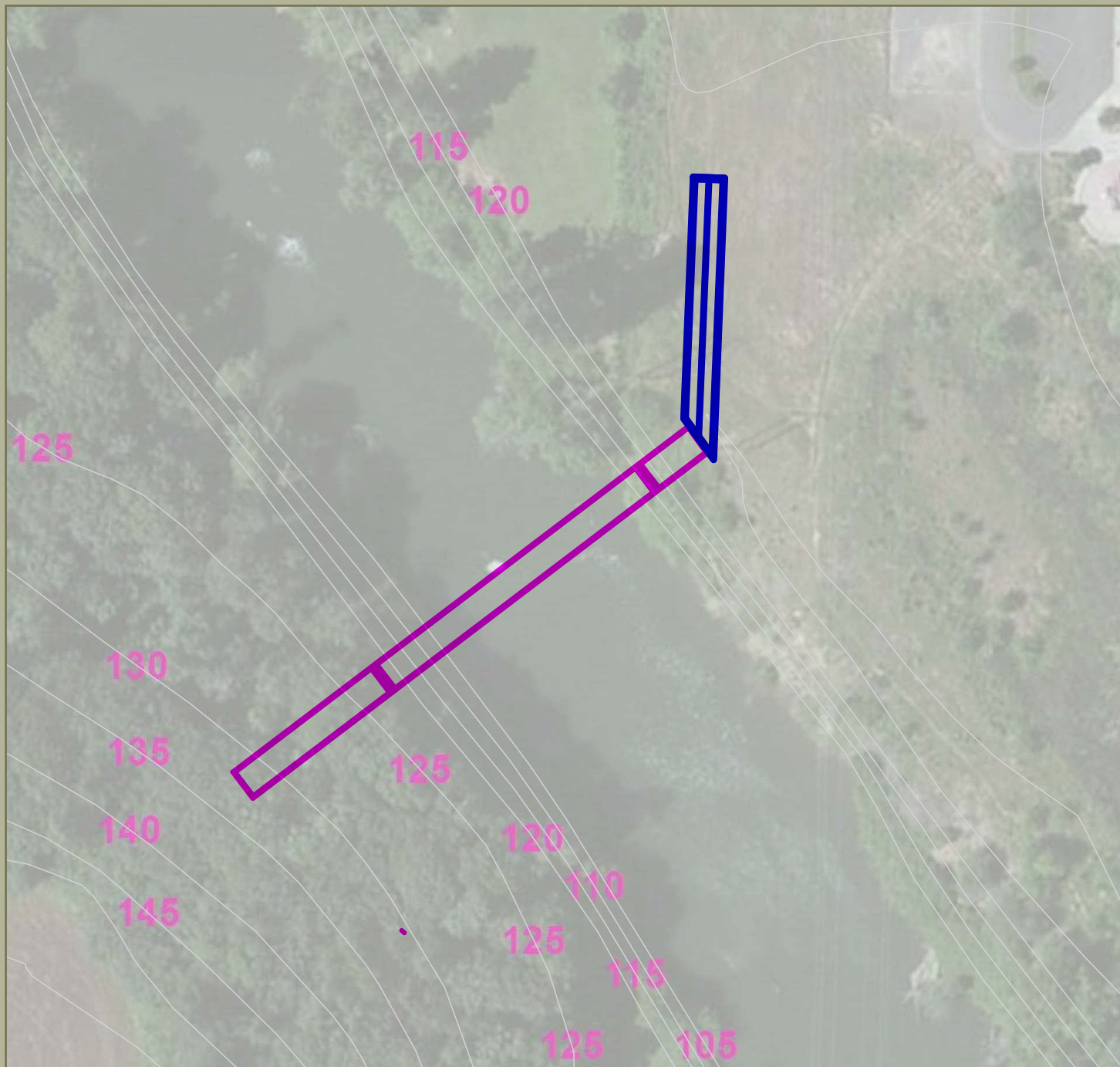


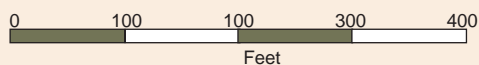


Figure 3
Tualatin River Crossing

-  Three-span Bridge
-  Bridge Approach Ramp



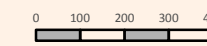
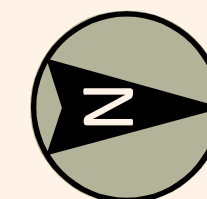
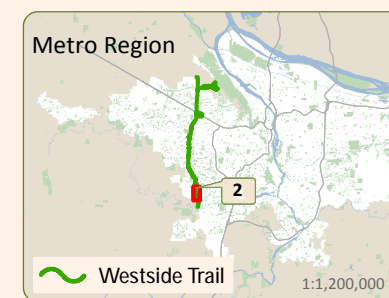
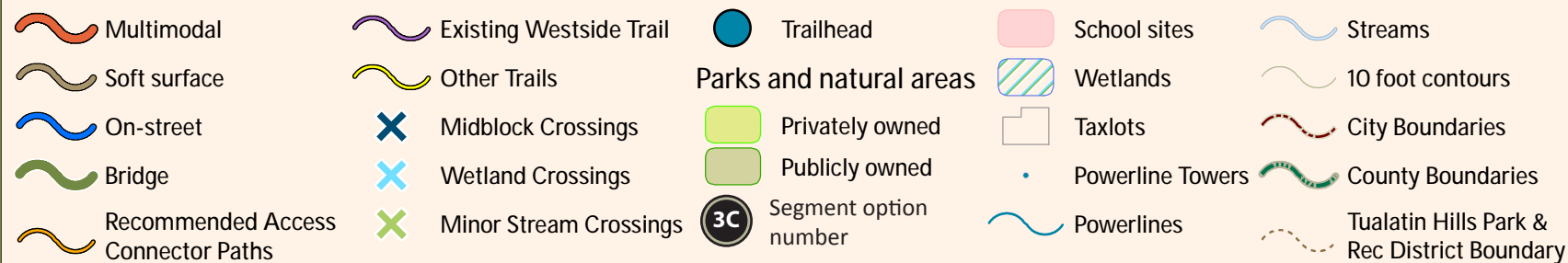
Westside Trail Master Plan

Figure 4

Segment 2
Beef Bend Rd to Tigard city limits
Segment Corridor = 1.15 Miles



Westside Trail Recommended Alignment



All illustrated alignments
subject to change based
on final design, permitting,
and engineering.

Westside Trail Master Plan

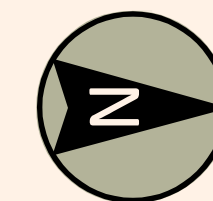
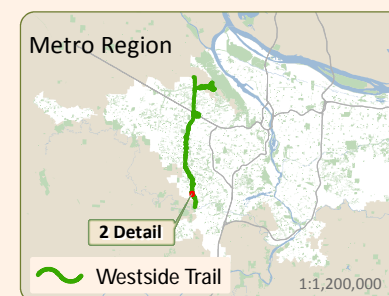
Figure 5

Segment 2 Detail
Midsection Gully Crossing Alternatives
Segment Corridor = 0.18 Miles



Westside Trail Recommended Alignment

- | | | | | |
|------------------------------------|-------------------------|-------------------------|------------------|---|
| Multimodal | Existing Westside Trail | Trailhead | School sites | Streams |
| Soft surface | Other Trails | Parks and natural areas | Wetlands | 10 foot contours |
| On-street | Midblock Crossings | Privately owned | Taxlots | City Boundaries |
| Bridge | Wetland Crossings | Publicly owned | Powerline Towers | County Boundaries |
| Recommended Access Connector Paths | Minor Stream Crossings | Segment option number | Powerlines | Tualatin Hills Park & Rec District Boundary |

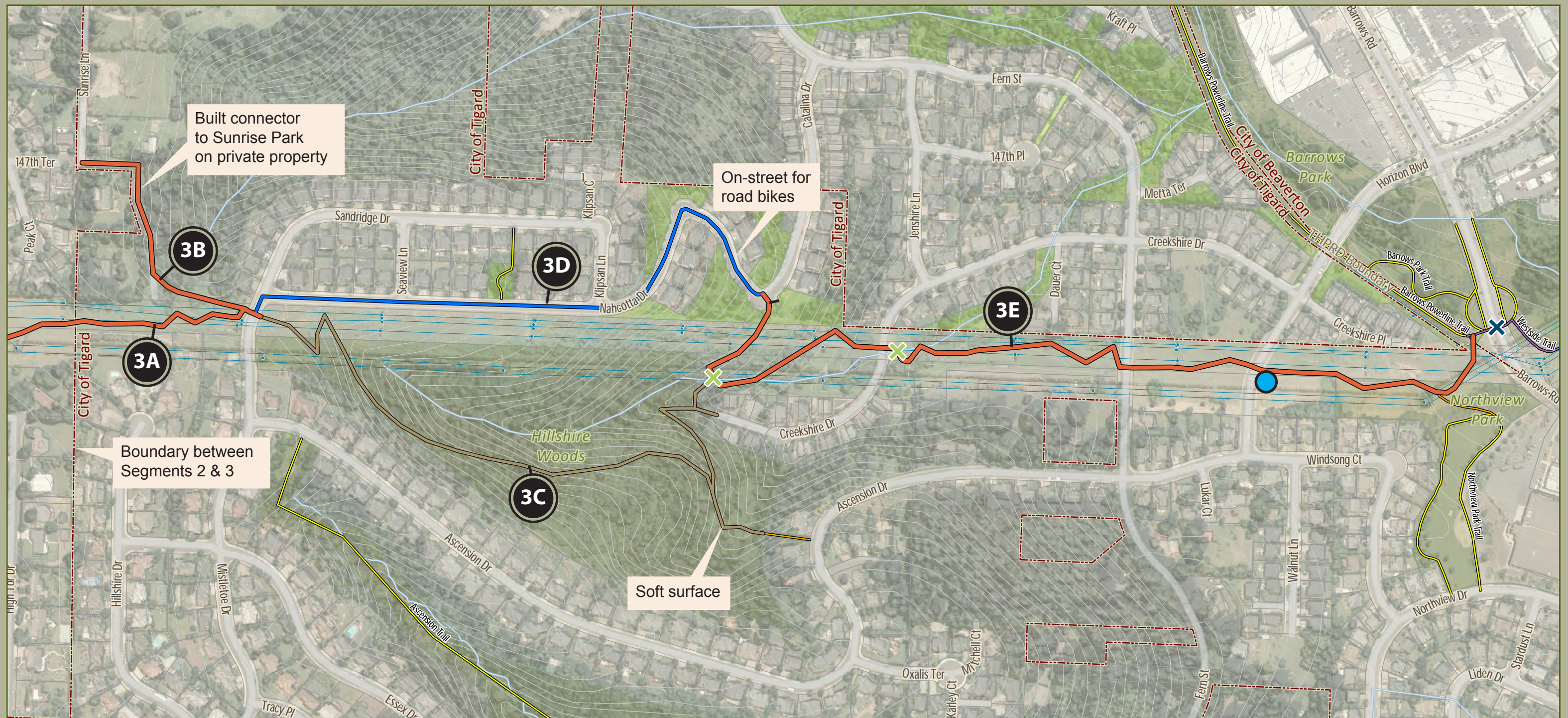


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Feet

All illustrated alignments
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on final design, permitting,
and engineering.

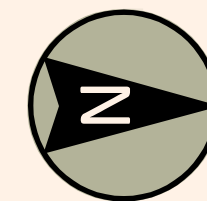
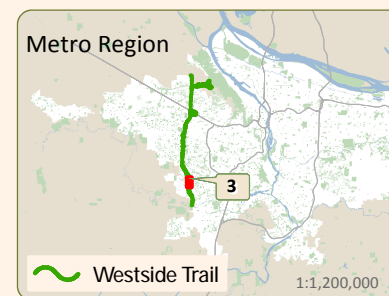
Westside Trail Master Plan **Figure 6**

Segment 3
Tigard city limits to Barrows Rd
Segment Corridor = 0.83 Miles



Westside Trail Recommended Alignment

- | | | | | |
|------------------------------------|-------------------------|-------------------------|------------------|---|
| Multimodal | Existing Westside Trail | Trailhead | School sites | Streams |
| Soft surface | Other Trails | Parks and natural areas | Wetlands | 10 foot contours |
| On-street | Midblock Crossings | Privately owned | Taxlots | City Boundaries |
| Bridge | Wetland Crossings | Publicly owned | Powerline Towers | County Boundaries |
| Recommended Access Connector Paths | Minor Stream Crossings | Segment option number | Powerlines | Tualatin Hills Park & Rec District Boundary |

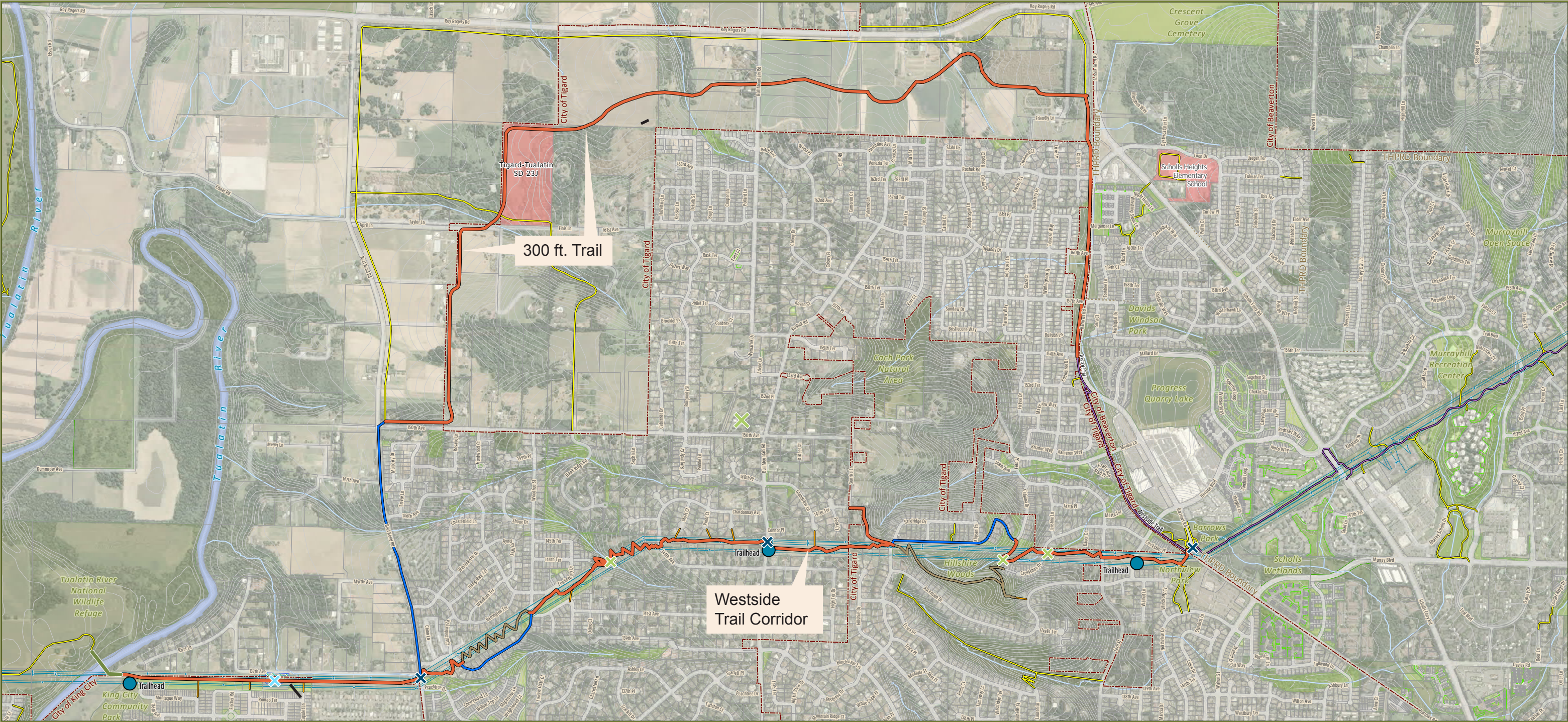


All illustrated alignments subject to change based on final design, permitting, and engineering.

Westside Trail Master Plan

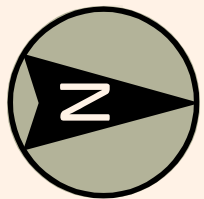
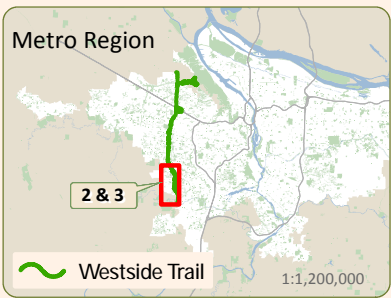
Figure 7

Segment 2 & 3 Alternate Route
Beef Bend Rd to Barrows Rd
Segment Corridor = 1.15 Miles



Westside Trail Recommended Alignment

- | | | | | |
|------------------------------------|-------------------------|-------------------------|------------------|---|
| Multimodal | Existing Westside Trail | Trailhead | School sites | Streams |
| Soft surface | Other Trails | Parks and natural areas | Wetlands | 10 foot contours |
| On-street | Midblock Crossings | Privately owned | Taxlots | City Boundaries |
| Bridge | Wetland Crossings | Publicly owned | Powerline Towers | County Boundaries |
| Recommended Access Connector Paths | Minor Stream Crossings | Segment option number | Powerlines | Tualatin Hills Park & Rec District Boundary |



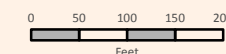
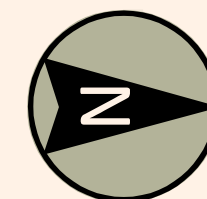
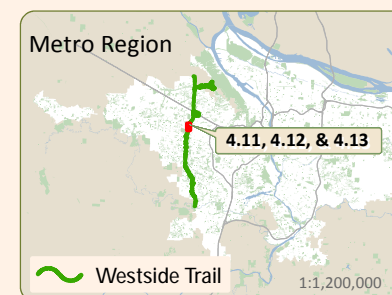
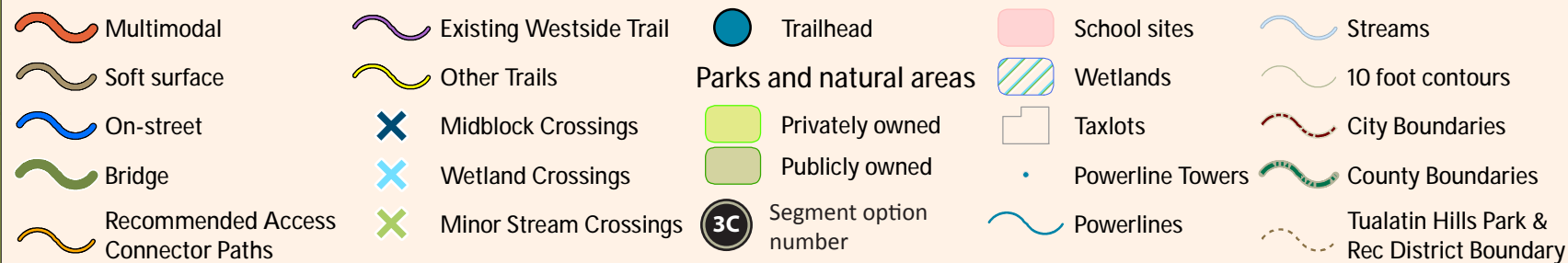
All illustrated alignments
subject to change based
on final design, permitting,
and engineering.

Westside Trail Master Plan **Figure 8**

Segment 4.11, 4.12, & 4.13
Tualatin Hills Nature Park to Nike Campus
Segment Corridor = 0.49 Miles



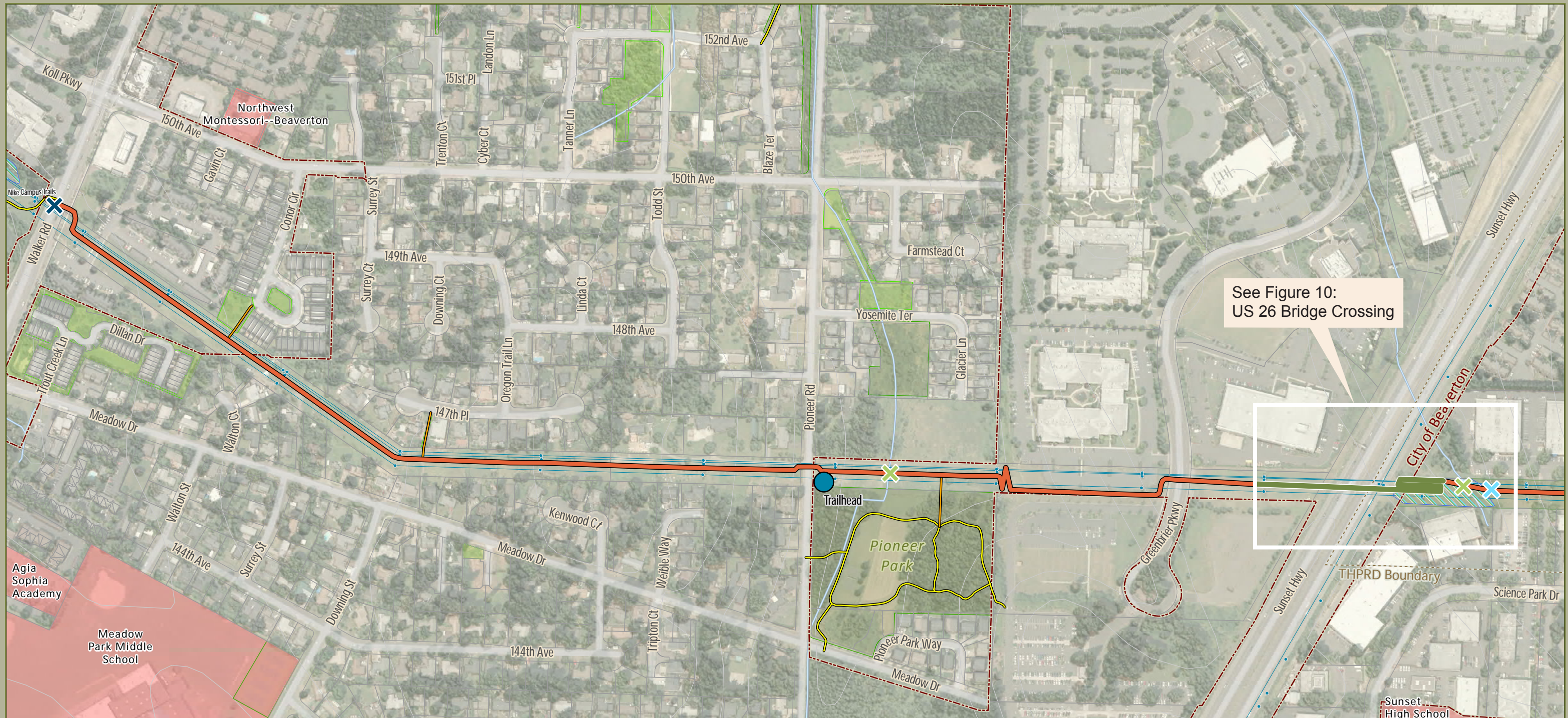
Westside Trail Recommended Alignment



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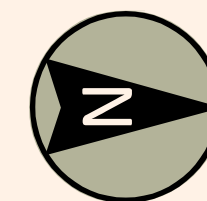
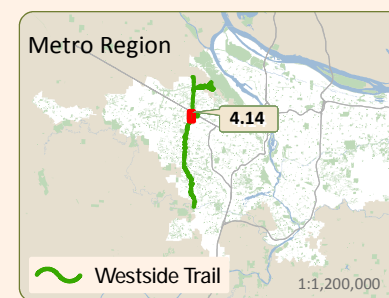
Westside Trail Master Plan **Figure 9**

Segment 4.14
Walker Rd to Sunset Highway
Segment Corridor = 0.91 Miles



Westside Trail Recommended Alignment

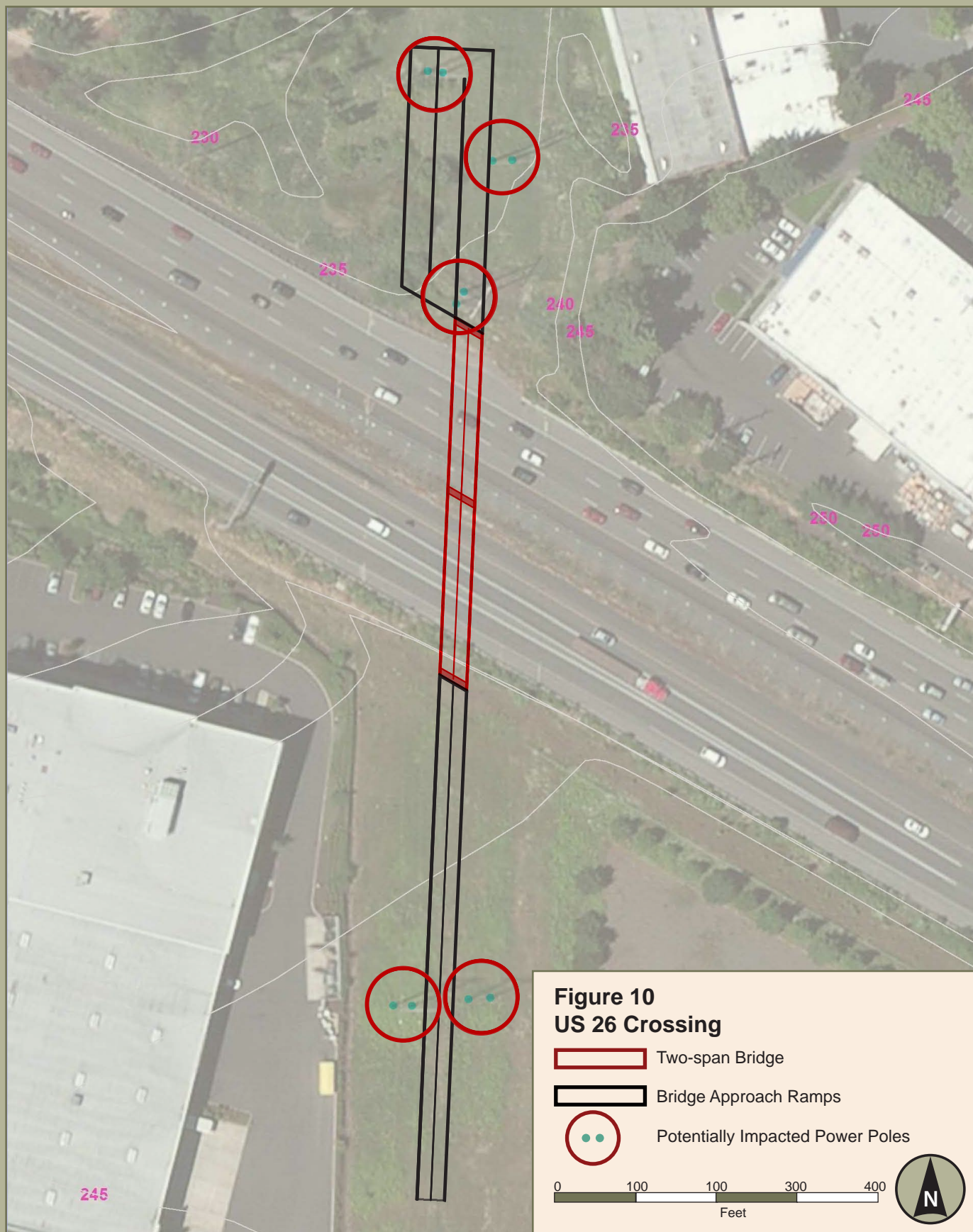
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|------------------------------------|-------------------------|-------------------------|------------------|---|
| Multimodal | Existing Westside Trail | Trailhead | School sites | Streams |
| Soft surface | Other Trails | Parks and natural areas | Wetlands | 10 foot contours |
| On-street | Midblock Crossings | Privately owned | Taxlots | City Boundaries |
| Bridge | Wetland Crossings | Publicly owned | Powerline Towers | County Boundaries |
| Recommended Access Connector Paths | Minor Stream Crossings | Segment option number | Powerlines | Tualatin Hills Park & Rec District Boundary |



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Feet

All illustrated alignments
subject to change based
on final design, permitting,
and engineering.

Westside Trail Master Plan



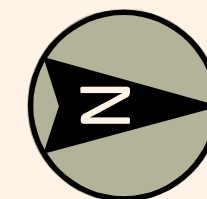
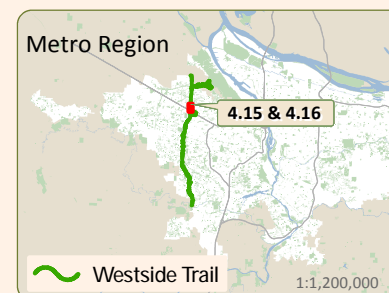
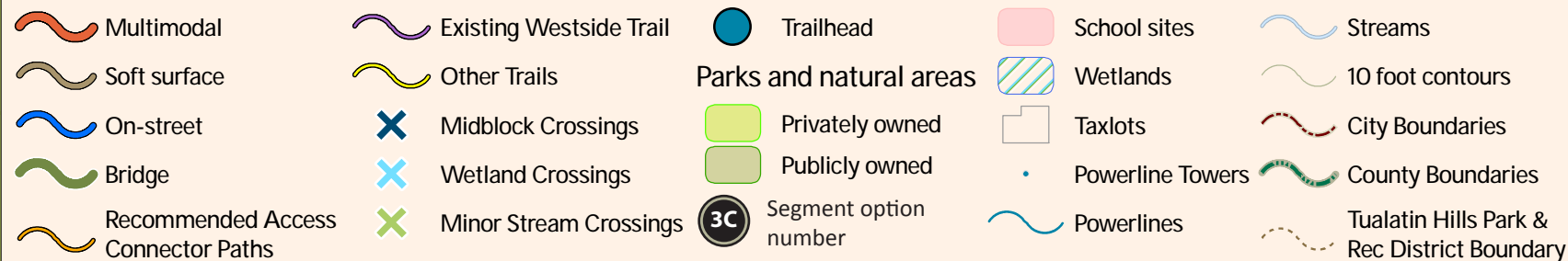
Westside Trail Master Plan

Figure 11

Segment 4.15 & 4.16
Sunset Highway to NW Oak Hills Drive
Segment Corridor = 0.77 Miles



Westside Trail Recommended Alignment



All illustrated alignments subject to change based on final design, permitting, and engineering.

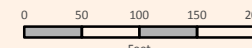
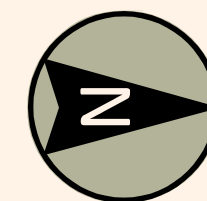
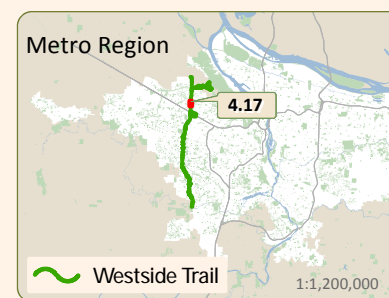
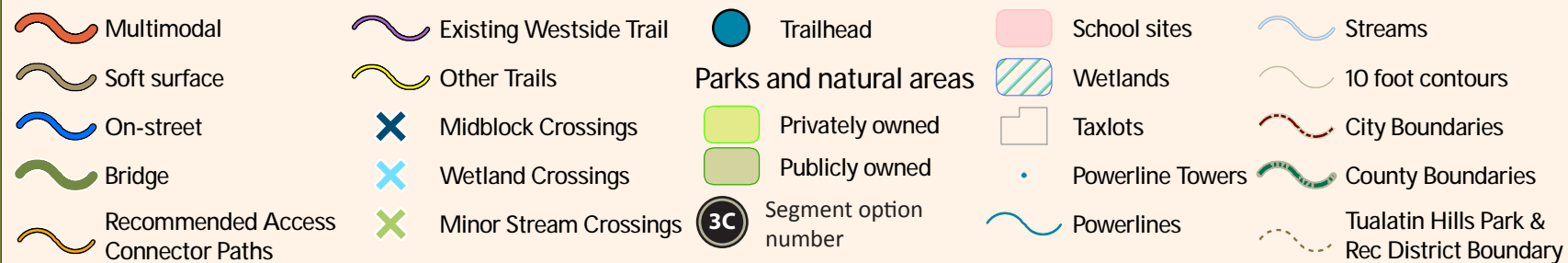
Westside Trail Master Plan

Figure 12

Segment 4.17
Oak Hills Dr to West Union Rd
Segment Corridor = 0.43 Miles



Westside Trail Recommended Alignment



All illustrated alignments
subject to change based
on final design, permitting,
and engineering.

Westside Trail Master Plan

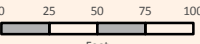
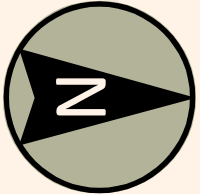
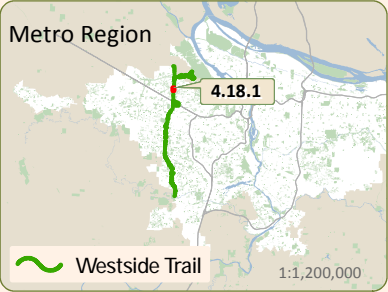
Figure 13

Segment 4.18.1
West Union Rd to Kaiser Rd
Segment Corridor = 0.27 Miles



Westside Trail Recommended Alignment

Multimodal	Existing Westside Trail	Trailhead	School sites	Streams
Soft surface	Other Trails	Parks and natural areas	Wetlands	10 foot contours
On-street	Midblock Crossings	Privately owned	Taxlots	City Boundaries
Bridge	Wetland Crossings	Publicly owned	Powerline Towers	County Boundaries
Recommended Access Connector Paths	Minor Stream Crossings	Segment option number	Powerlines	Tualatin Hills Park & Rec District Boundary

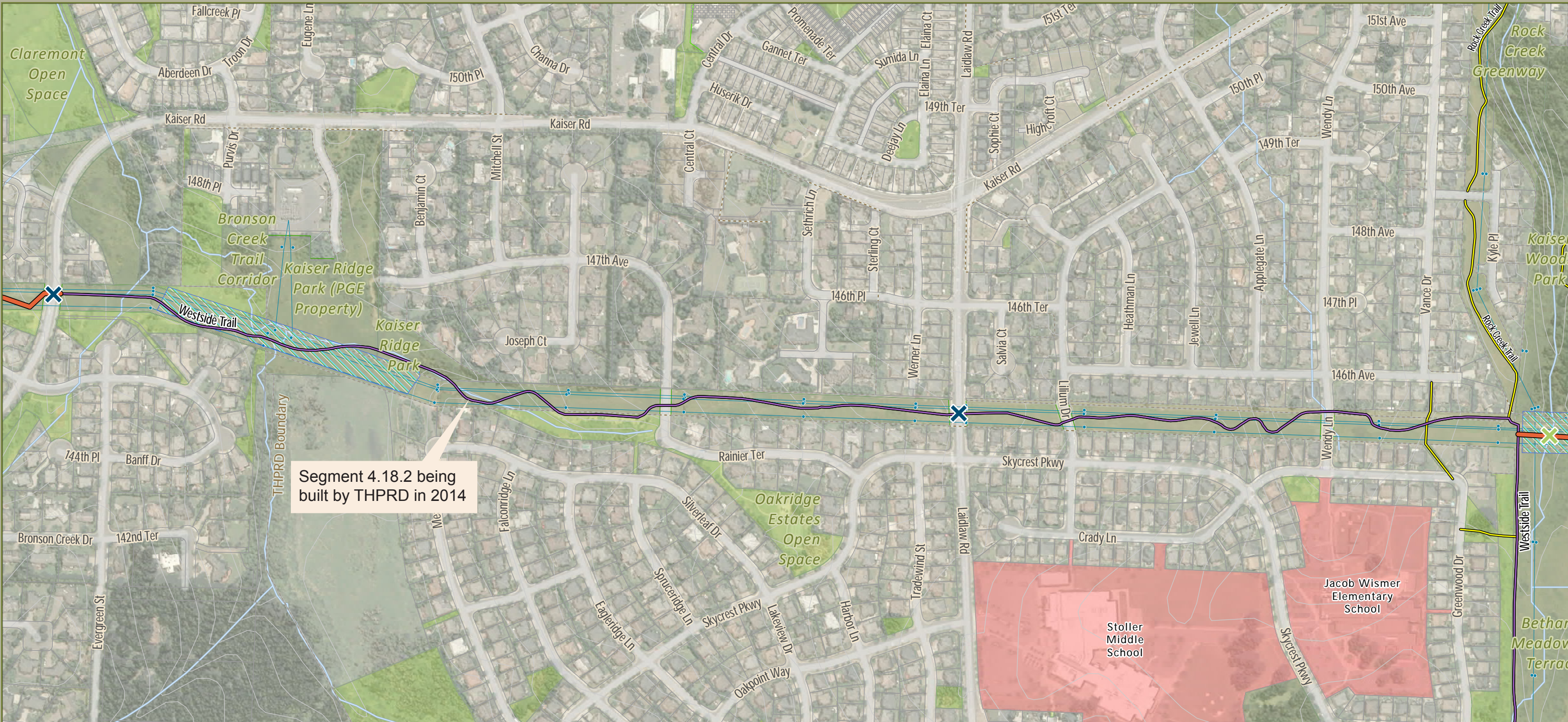


All illustrated alignments subject to change based on final design, permitting, and engineering.

Westside Trail Master Plan

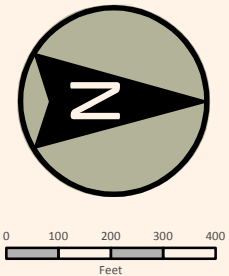
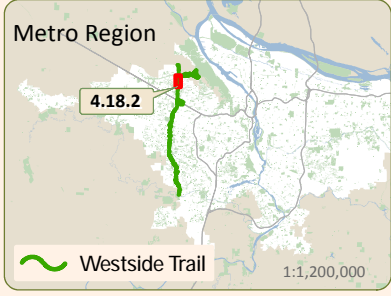
Figure 14

Segment 4.18.2
Kaiser Rd to Kaiser Woods Park
Segment Corridor = 1.1 Miles



Westside Trail Recommended Alignment

Multimodal	Existing Westside Trail	Trailhead	School sites	Streams
Soft surface	Other Trails	Parks and natural areas	Wetlands	10 foot contours
On-street	Midblock Crossings	Privately owned	Taxlots	City Boundaries
Bridge	Wetland Crossings	Publicly owned	Powerline Towers	County Boundaries
Recommended Access Connector Paths	Minor Stream Crossings	Segment option number	Powerlines	Tualatin Hills Park & Rec District Boundary

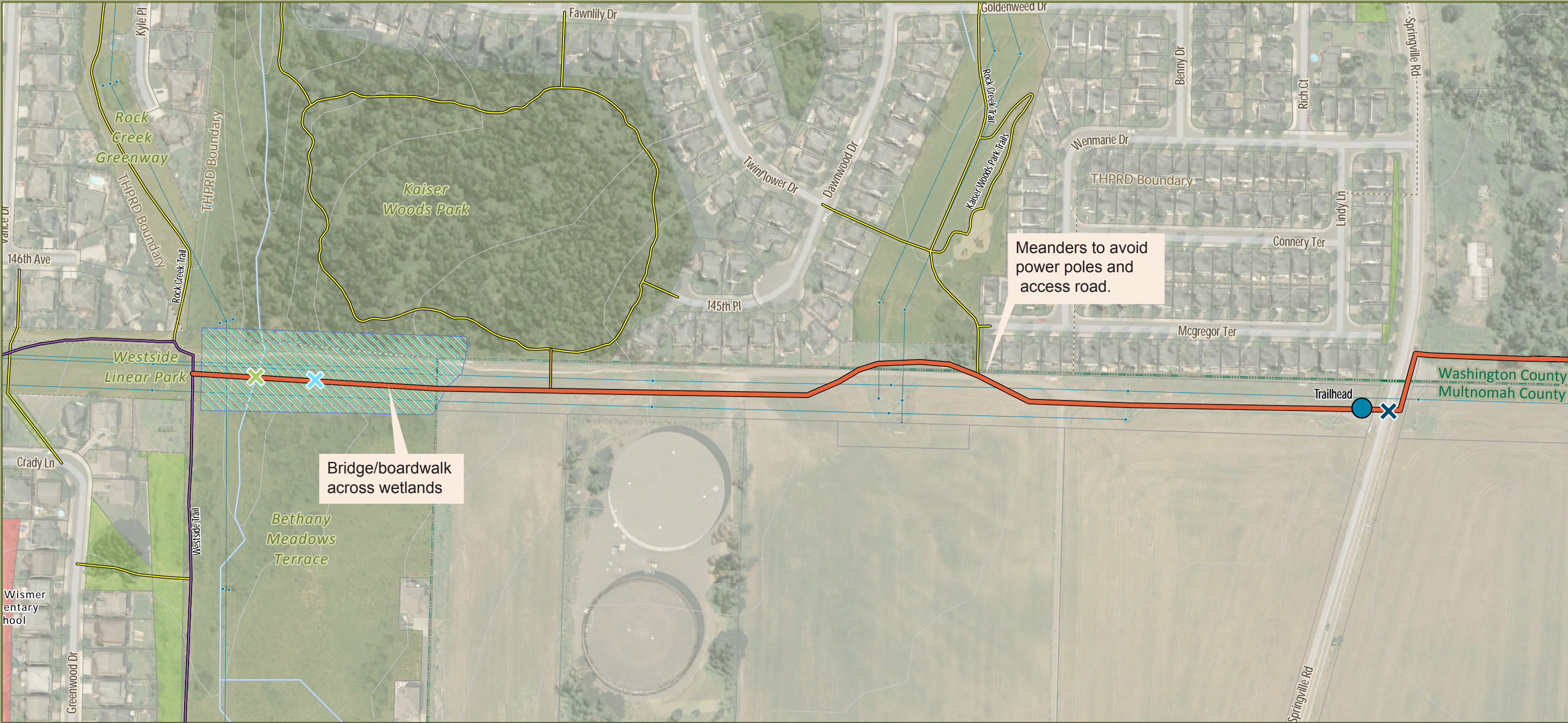


All illustrated alignments subject to change based on final design, permitting, and engineering.

Westside Trail Master Plan

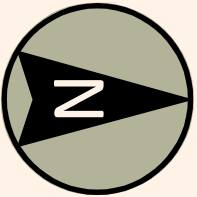
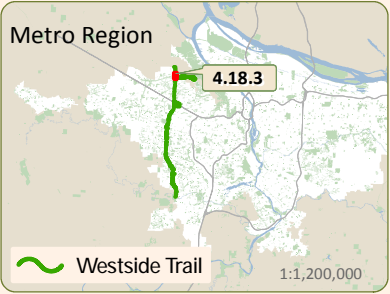
Figure 15

Segment 4.18.3
Kaiser Woods Park to Springville Rd
Segment Corridor = 0.44 Miles



Westside Trail Recommended Alignment

Multimodal	Existing Westside Trail	Trailhead	School sites	Streams
Soft surface	Other Trails	Parks and natural areas	Wetlands	10 foot contours
On-street	Midblock Crossings	Privately owned	Taxlots	City Boundaries
Bridge	Wetland Crossings	Publicly owned	Powerline Towers	County Boundaries
Recommended Access Connector Paths	Minor Stream Crossings	Segment option number	Powerlines	Tualatin Hills Park & Rec District Boundary

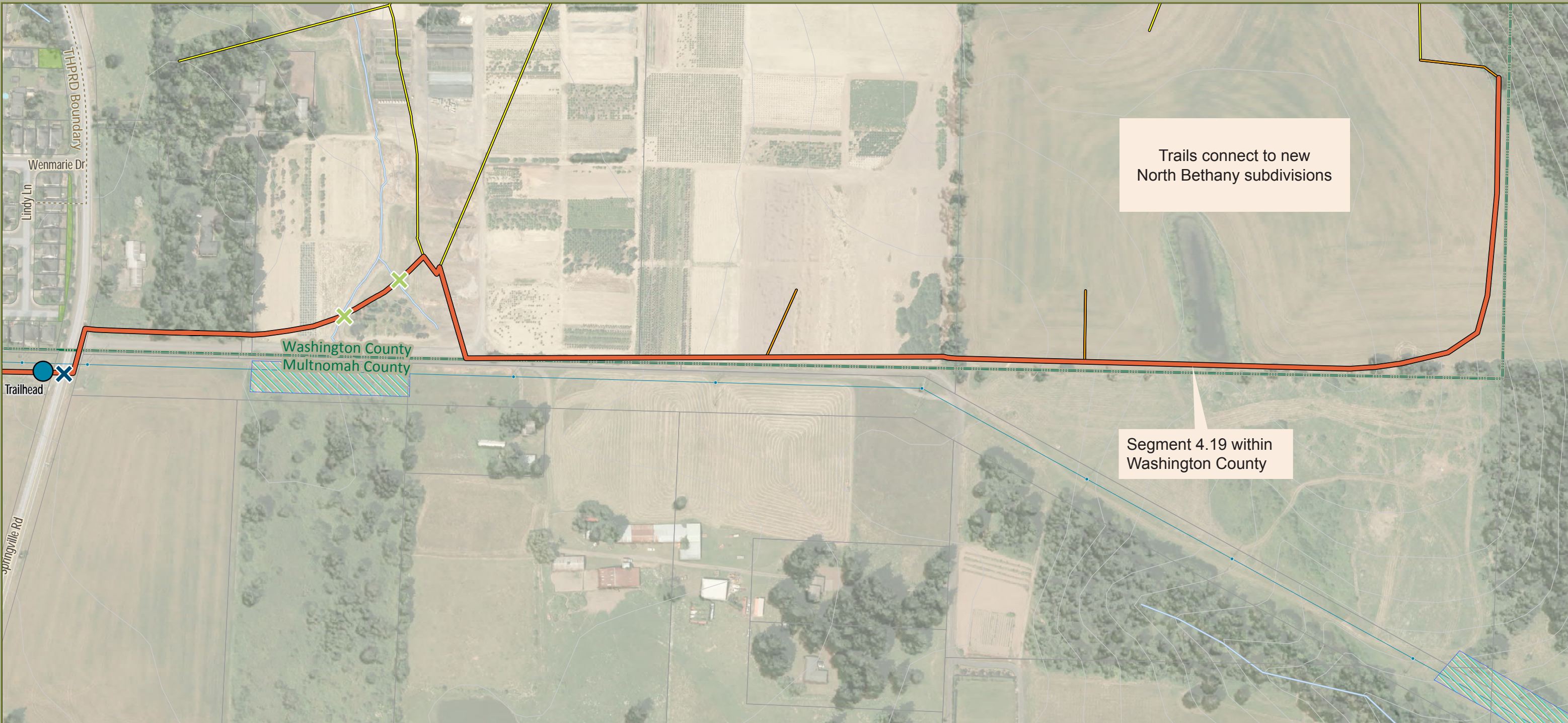


All illustrated alignments subject to change based on final design, permitting, and engineering.

Westside Trail Master Plan

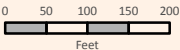
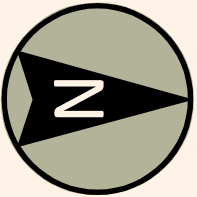
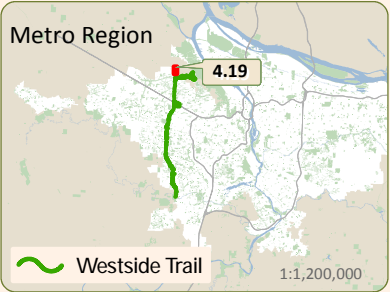
Figure 16

Segment 4.19
Springville Rd to Multnomah Co. line
Segment Corridor = 0.65 Miles



Westside Trail Recommended Alignment

Multimodal	Existing Westside Trail	Trailhead	School sites	Streams
Soft surface	Other Trails	Parks and natural areas	Wetlands	10 foot contours
On-street	Midblock Crossings	Privately owned	Taxlots	City Boundaries
Bridge	Wetland Crossings	Publicly owned	Powerline Towers	County Boundaries
Recommended Access Connector Paths	Minor Stream Crossings	Segment option number	Powerlines	Tualatin Hills Park & Rec District Boundary

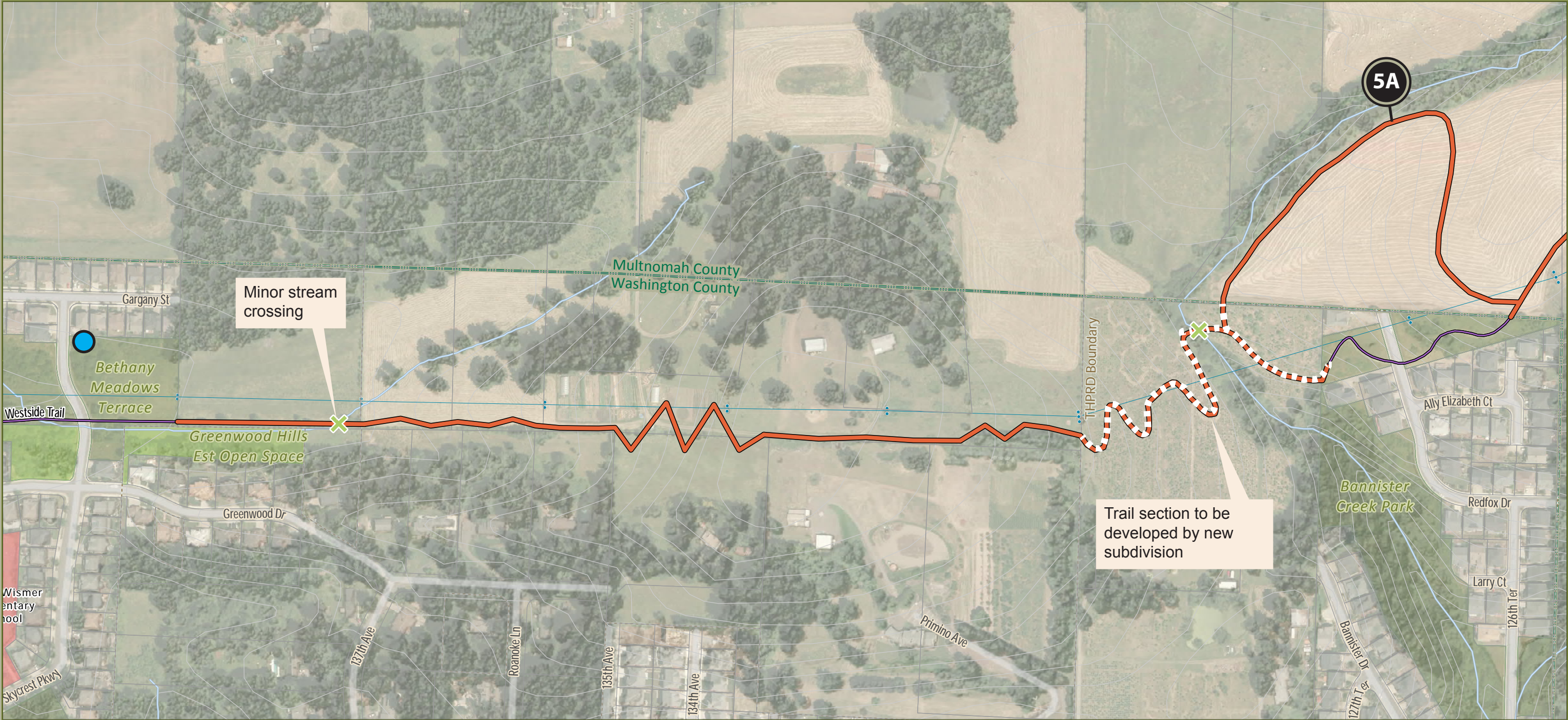


All illustrated alignments subject to change based on final design, permitting, and engineering.

Westside Trail Master Plan

Figure 17

Segment 4.21
Skycrest Pkwy to Multnomah Co. line
Segment Corridor = 0.67 Miles



Westside Trail Recommended Alignment

- | | | | | |
|------------------------------------|-------------------------|-------------------------|------------------|---|
| Multimodal | Existing Westside Trail | Trailhead | School sites | Streams |
| Soft surface | Other Trails | Parks and natural areas | Wetlands | 10 foot contours |
| On-street | Midblock Crossings | Privately owned | Taxlots | City Boundaries |
| Bridge | Wetland Crossings | Publicly owned | Powerline Towers | County Boundaries |
| Recommended Access Connector Paths | Minor Stream Crossings | Segment option number | Powerlines | Tualatin Hills Park & Rec District Boundary |



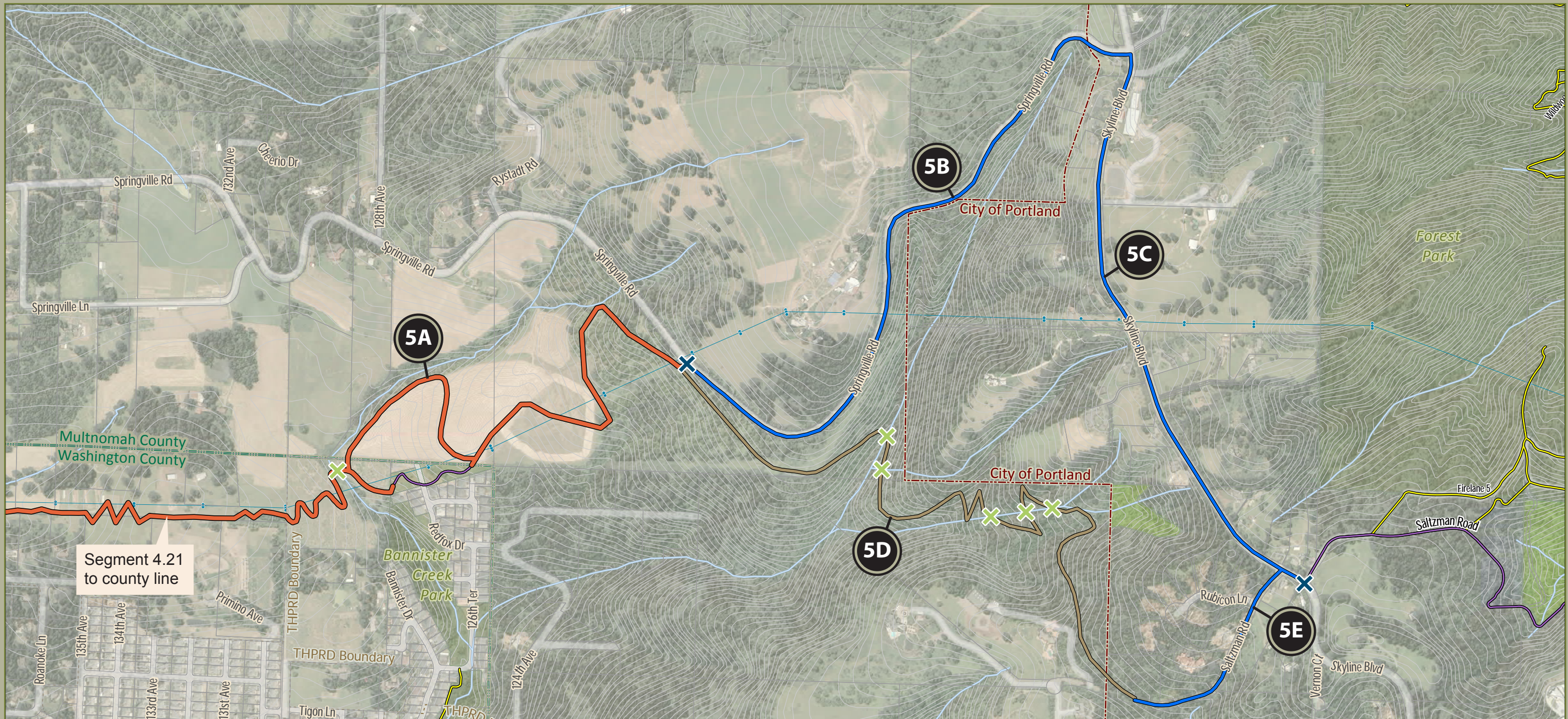
0 50 100 150 200
Feet

All illustrated alignments
subject to change based on
final design, permitting,
and engineering.

Westside Trail Master Plan

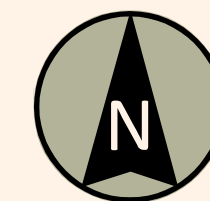
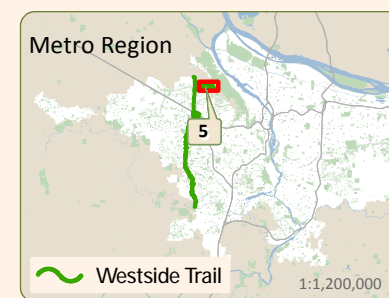
Figure 18

Segment 5
Washington Co. line to Skyline Blvd
Segment Corridor = 1.21 Miles



Westside Trail Recommended Alignment

- | | | | | |
|------------------------------------|-------------------------|-------------------------|------------------|---|
| Multimodal | Existing Westside Trail | Trailhead | School sites | Streams |
| Soft surface | Other Trails | Parks and natural areas | Wetlands | 10 foot contours |
| On-street | Midblock Crossings | Privately owned | Taxlots | City Boundaries |
| Bridge | Wetland Crossings | Publicly owned | Powerline Towers | County Boundaries |
| Recommended Access Connector Paths | Minor Stream Crossings | Segment option number | Powerlines | Tualatin Hills Park & Rec District Boundary |



0 200 400 600 800
Feet

All illustrated alignments
subject to change based
on final design, permitting,
and engineering.

APPENDIX B

Cost Estimate Details

Westside Trail Preliminary Cost Analysis Worksheet

Segment	Option/Route	Cost	\$200 LF	\$250 LF	N/A	\$75 LF	\$150 LF	\$145 LF	N/A	\$7,000 EA	\$840 LF	\$23,000 EA	\$2,000 EA	\$5,000 EA	\$270 LF	\$500,000 EA	\$2,000 EA	25%		15%	15%	Total Segment Cost
		Total Length	Basic Paved Trail	Length with Switchbacks	# of Switchbacks	Soft Surface Trail (4')	Soft Surface Trail (8')	On-Street (Retrofit Sidewalk)	Length W/ Steps	# of Steps	Wetland Boardwalk	Minor Stream Crossing	Local/Neighborhood Midblock Crossing	On-Street Option (Has Sidewalks)	4' Paved Shoulders	Trail head	Appurtenances per 1000'	Segment Const Cost	PE	CE	Contingency	
1	5%	3913	3639								274					1	4	\$1,465,960	\$366,490	\$219,894.00	\$219,894	\$2,272,238
2	Beef Bend to Colyer	832	284	548	3								2				1	\$199,800	\$49,950	\$29,970.00	\$29,970	\$309,690
	Colyer to Woodhue - soft surface	1991						1991										\$298,650	\$74,663	\$44,797.50	\$44,798	\$462,908
	Colyer to Woodhue - on street	1312												1312			2	\$9,000	\$2,250	\$1,350.00	\$1,350	\$13,950
	100-foot bridge	2448	1081	1367	14							1	1				3	\$588,950	\$147,238	\$88,342.50	\$88,343	\$912,873
	30-foot bridge	2682	1081	1601	16							1	1				3	\$647,450	\$161,863	\$97,117.50	\$97,118	\$1,003,548
	144 - Tigard	2656	2468	188	2											1	3	\$1,046,600	\$261,650	\$156,990.00	\$156,990	\$1,622,230
3	Tigard to Mistletoe	612	366	246	3								1				1	\$138,700	\$34,675	\$20,805.00	\$20,805	\$214,985
	Catalina to Barrows	3105	2330	775	8							4	3			1	4	\$1,265,750	\$316,438	\$189,862.50	\$189,863	\$1,961,913
	Nahocotta	1956												1956			2	\$9,000	\$2,250	\$1,350.00	\$1,350	\$13,950
	Hillshire Woods - soft surface	2910				2686			224	2		1					3	\$244,450	\$61,113	\$36,667.50	\$36,668	\$378,898
4.11	Crescent	672	672														1	\$136,400	\$34,100	\$20,460.00	\$20,460	\$211,420
4.12	153rd – Jenkins	1829												1829			2	\$9,000	\$2,250	\$1,350.00	\$1,350	\$13,950
4.13	Jenkins - multi-use path	320	320															\$64,000	\$16,000	\$9,600.00	\$9,600	\$99,200
	North of Jenkins	488	488														1	\$99,600	\$24,900	\$14,940.00	\$14,940	\$154,380
4.14	5%	4745	4531	214	2							1	2			1	5	\$1,496,700	\$374,175	\$224,505.00	\$224,505	\$2,319,885
4.15	5%	1370	1230								140	1				1	2	\$890,600	\$222,650	\$133,590.00	\$133,590	\$1,380,430
4.16	5%	2146	1062	551	7						533	2	2				3	\$853,870	\$213,468	\$128,080.50	\$128,081	\$1,323,499
4.17	5%	2517	1831	686	8								1				3	\$545,700	\$136,425	\$81,855.00	\$81,855	\$845,835
4.18.1	5%	1437	1437														2	\$291,400	\$72,850	\$43,710.00	\$43,710	\$451,670
4.18.3	5%	2298	1789								509	1				1	3	\$1,314,360	\$328,590	\$197,154.00	\$197,154	\$2,037,258
4.19	5%	4496	4496									2					5	\$955,200	\$238,800	\$143,280.00	\$143,280	\$1,480,560
4.21-5	Bethany Terrace to Bannister Creek	2889	1918	971	6							1				1	3	\$1,155,350	\$288,838	\$173,302.50	\$173,303	\$1,790,793
	Bannister to Springville	4235	4235									1					5	\$880,000	\$220,000	\$132,000.00	\$132,000	\$1,364,000
	Springville & Skyline	8507													8507		9	\$2,314,890	\$578,723	\$347,233.50	\$347,234	\$3,588,080
	Springville to Saltzman	6019				6019						5					7	\$580,425	\$145,106	\$87,063.75	\$87,064	\$899,659
	Saltzman to Skyline - on street	1423						1423									2	\$210,335	\$52,584	\$31,550.25	\$31,550	\$326,019
	Sub development at Bannister	1158	1158									1					2	N/A	N/A	N/A	N/A	N/A

Stand Alone Cost Items

				25%		15%		10%		Total
Arterial & collector midblock crossings		Const		PE		CE		Contingency		
With Beacon		\$ 375,000	EA	\$ 93,750	\$	\$ 56,250	\$	\$ 37,500	\$	\$ 562,500
With Signal		\$ 400,000	EA	\$ 100,000	\$	\$ 60,000	\$	\$ 40,000	\$	\$ 600,000
Without refuge Island		\$ 325,000	EA	\$ 81,250	\$	\$ 48,750	\$	\$ 32,500	\$	\$ 487,500
Segment 2 Gully crossing										
30 foot single span Ped only bridge		\$ 28,000	EA	\$ 7,000	\$	\$ 4,200	\$	\$ 2,800	\$	\$ 42,000
100 foot single span Ped/ Mt. Bike		\$ 115,000	EA	\$ 28,750	\$	\$ 17,250	\$	\$ 11,500	\$	\$ 172,500

West Side Trail Preliminary Pricing worksheet

Major Crossings

Pedestrian Bridge with Steel Fabricated Truss and Concrete Deck	\$	160	sqft
Pedestrian Bridge with Steel Fabricated Truss and Timber Deck	\$	130	sqft
Pedestrian Bridge with PCPS Voided Boxes and Concrete Deck	\$	160	sqft
Vehicular Bridge with steel box girders and concrete deck 220' span	\$	210	sqft
MSE Retaining Walls with Coping	\$	50	sqft

Costs from 2010 & 2011 ODOT Historical Bridge Cost Data

Notes

2010 & 2011 ODOT Historical Bridge Cost Data
 2010 & 2011 ODOT Historical Bridge Cost Data
 2010 & 2011 ODOT Historical Bridge Cost Data
 2011 & 2011 ODOT Historical Bridge Cost Data
 2010 & 2011 ODOT Historical Bridge Cost Data

Preliminary Engineering (PE)	25%
Estimated Construction Engineering (CE)	15%
Contingency for Major bridges	20%

Hwy 26 Crossing

Bridge

Length	230	ft
width (out-to-out)	18	ft
	4140	sqft
cost/sqft	\$	160 sqft
Increase for Skew & Complexity	\$	180 sqft
Bridge cost	\$	745,200

Approaches (5%)

South	5780	sqft
North	7938	sqft
cost/sqft	\$	50

Approach cost \$ 685,900

Extra Items:

Const Subtotal	\$	1,431,100	Mob (10%)	\$	143,110	
Const Total	\$	1,798,875	TP&DT (15%)	\$	214,665	
Contingency	30%	\$	539,663	Temp EC	\$	10,000

Total US26 Bridge Const Cost	\$	2,338,538
PE	25%	\$ 584,634
CE	15%	\$ 350,781

Total Cost with PE, CE, & Contingency \$ 3,273,953

Tualatin River Crossing

Bridge - main span

Length		190 ft
width (out-to-out)		18 ft
		3420 sqft
cost/sqft	\$	210 sqft
cost	\$	718,200

Bridge - south approach span

Length		100 ft
width (out-to-out)		18 ft
		1800 sqft
cost/sqft	\$	160 sqft
cost	\$	288,000

Bridge - north approach span

Length		40 ft
width (out-to-out)		18 ft
		720 sqft
cost/sqft	\$	160 sqft
cost	\$	115,200

Total Bridge Cost \$ 1,121,400

Approaches (5%)

North		2180 sqft
cost/sqft	\$	50

Total Approach cost \$ 109,000

Const Subtotal \$ 1,230,400

Const Total \$ 1,551,480

Contingency 30% \$ 465,444

Extra Items:

Mob (15%) \$ 184,560 Mob increased to 15% due to location and limited access on south side

TP&DT (5%) \$ 61,520 Lowered to 5% due to location

Temp EC/ enviro protection \$ 75,000 Increased due to environmental sensitivity over water

Total Tualatin River Bridge Const Cost \$ 2,016,924

PE 25% \$ 504,231

CE 15% \$ 302,539

Total Cost with PE, CE, & Contingency \$ 2,823,694

APPENDIX C

Refinements to Trail Segments and Sections

Plan Report No. 2 (November 2012) detailed trail segments and sections with respect to length, costs, special features, and opportunities and constraints. Plan Report No. 3 (February 2013) provided a recommended trail design typology for these same segments and sections. As an outcome of the stakeholder reviews and public input, changes were made to some alignments and treatments. Several trail sections were also re-numbered to account for changes in alignments or the addition or deletion of alignment options. The section numbers below refer to the original sections as numbered in Plan Report No. 2. These changes are reflected in the revised and refined tables included in Plan Report No. 4, shown on revised trail maps included as Appendix A, and summarized below.

Segment 1: Tualatin River to SW Beef Bend Road

- A conceptual trailhead location is added adjacent to King City Park.

Segment 2: SW Beef Bend Road to Tigard city limits

- **Sections 2A-B:** Two in-corridor paved options with multiple switchbacks from SW Beef Bend Road to SW Woodhue Street are replaced by a *combination* of one paved in-corridor multimodal trail from SW Beef Bend Road to SW Colyer Way and one in-corridor soft-surface option from SW Colyer Way to SW Woodhue Street. This change significantly moderates the physical impact of numerous paved switchbacks and retaining walls, adverse wildlife habitat impacts, and restricted utility access to power poles and towers.
- **Section 2E:** The on-street section from SW Colyer Way section to Eagles View Lane is shortened and ends at SW Woodhue Street
- **Sections 2C-D:** Segment 2 gully crossing alignments are modified to reduce acquisition requirements, switchbacks, and trail grades, and to minimize impacts to adjacent housing and woodlands. Two options (200-foot bridge and at-grade crossings) are eliminated. Options using a 100-foot and 30-foot bridge span, respectively, to cross the gully are retained.
- Separate 5 percent and 8 percent in-corridor paved options for the balance of Segment 2 between SW 144th and the Tigard city limits are combined into a single “up to 8 percent” grade alignment.
- A conceptual trailhead location is added adjacent to SW Bull Mountain Road on the east side of the power corridor.

Segment 2 and Segment 3 off-corridor: SW Beef Bend Road to SW Barrows Road

An area west of Segments 2 and 3 was recently annexed to the City of Tigard. This area was originally called West Bull Mountain and is currently called River Terrace. The adopted Washington County master plan for this area includes several trails including one north-south section specifically intended as a through bicycle-pedestrian route. Development of all trails in River

Terrace will be subject to the pace of a private subdivision which cannot be predicted, although some areas are under construction as of mid-2013.

The designated through trail route – termed in the county master plan as the 300-Foot Trail in reference to the basic contour that this trail follows – connects to SW Beef Bend Road at the southeast end of the subdivision and to planned and existing THPRD trails along SW Barrows Road on the north. The 300-Foot Trail is relatively flat, making for a less physically strenuous experience but is also significantly out-of-direction compared to an in-corridor Westside Trail. This route has been added to the WTMP not as a substitute for the in-corridor trail, but as a potential future route providing trail users with choice in trail grades. Cost is not included as private development will be responsible. See Map Figure 7 for the 300-Foot Trail planned through River Terrace and the connections back to the Westside Trail corridor along SW Beef Bend Road and SW Barrows Road.

Segment 3: Tigard city limits to SW Barrows Road

- **Sections 3A-B, 3G-F:** Separate 5 percent and 8 percent in-corridor paved options were combined into a single preferred “up to 8 percent” grade alignment.
- **Section 3E:** The soft-surface trail in Hillshire Woods, which previously continued down the power corridor to the point that SW Creekshire Drive crosses the corridor, now ends at the point of first intersection with the power corridor. Short soft-surface connecting trails, potentially requiring steps, have been included at the south end of SW Creekshire Drive and midblock on SW Ascension Drive.
- **Section 3C:** This on-street section originally included portions of SW Creekshire Drive and SW Nahcotta Drive. The use of SW Creekshire Drive as an on-street option between Hillshire Woods Park and the power corridor is eliminated. SW Creekshire Drive in this location is a private street. Although the property owners have posted signing allowing access for users of Hillshire Woods, an “upgrade” to regional trail use was deemed inappropriate.
- **Section 3D:** This paved trail section from SW Nahcotta Drive to the power corridor is combined with an “up to 8 percent” hard surface trail along the power corridor to SW Barrows Road.
- An extended westerly spur trail from SW Mistletoe Drive to SW Sunrise Lane and Tigard’s new Sunrise Park is added. This spur already physically exists but is on private property. Acquisition costs are not included in WTMP trail construction cost estimates.
- A conceptual trailhead location is added adjacent to SW Horizon Boulevard on the east side of the power corridor.

Segment 4.12: MAX Crossing to SW Jenkins Road

- The previously unnumbered trail alignment option down the power corridor is eliminated. This option is deemed unfeasible due to the required new crossings of the MAX line, Cedar Creek wetlands, and SW Jenkins Road. TriMet and Washington County indicated that existing street crossings would have to be used.

- **Sections 4B:** This section along SW153rd Drive was previously shown as “street edge” trail option. The revised section uses existing on-street sidewalks and bike lanes. The property owner (Nike) recently built a new private street edge trail along parts of these sections and has been enforcing privacy. THPRD, who will operate and maintain Westside Trail segments in this area, has indicated that the on-street solution will be acceptable.

Segment 4.14: SW Walker Road to US 26

- A conceptual trailhead location is added adjacent to SW Pioneer Road and Pioneer Park on the east side of the power corridor.
- The proposed US 26 bridge crossing was illustrated and described in Plan Report No. 2 as part of Segment 4.15. This Plan Report No. 4 describes the bridge crossing under Segment 4.14. This change provides for clearer and more sequential segment narratives and maps.
- The original trail alignment option maps for Segment 4.14 (and 4.15) illustrated an on-street interim alternative using the SW Murray Boulevard interchange to the US 26 bridge. This was only one of several on-street approach routes possible over this interchange, and on-street routes crossing US 26 at the NW Cornell Road interchange were also possible. Based on reviews of the alignment published in Plan Report No. 2, this on-street option is eliminated. Interim solutions may be appropriate especially if the construction of in-corridor trail section approaching US 26 occurs in advance of bridge construction, but illustration of a “preferred” solution was not deemed necessary.

Segment 4.15 US 26 to NW Cornell Road

- A conceptual trailhead location is added adjacent to the south side of NW Cornell Road within the power corridor.

Segment 4.18.1 (portion north of NW Kaiser Road) through 4.18.2 Rock Creek Greenway

- The trail approach on the south side of NW Kaiser Road and associated midblock crossing is shifted slightly west to stay within the power corridor. This change connects the trail with the final trail alignment on the north side of NW Kaiser Road as established by action of the THPRD Board of Directors in February 2013.
- The final trail alignment from the north side of SW Kaiser Road and through Segment 4.18.2 to the Rock Creek Greenway and the south end of Segment 4.18.3 is shown as established by action of the THPRD Board of Directors in February 2013. As this trail section will be constructed by THPRD in 2014, cost estimates are not included in the WTMP.

Segment 4.18.3 Bronson Creek Greenway to NW Springville Road

- A conceptual trailhead location is added on the south side of NW Springville Road.

Segment 4.19: North of NW Springville Road

- Conceptual trails in the North Bethany master plan overlapped in part with the north-south trail illustrated in prior WTMP mapping. The trail alignment through Segment 4.19 is modified to show connections to master planned trails within the developing North Bethany neighborhood, and is shifted and modified to be totally within Washington County. Cost

estimates are included, although, as presently aligned, the trail should mostly be developed as a part of private North Bethany development processes.

Segment 4.21 to 5: Skycrest Parkway to SW Skyline Boulevard

- A conceptual trailhead location is added adjacent to the northeast side NW Skycrest Parkway nearest to NW Gargany Street.
- **Section 5B:** This option is eliminated. Reviewers found the option unacceptable due to potential impacts on existing productive farmlands.
- **Section 5C:** Trail section revised to “not exceed 8 percent” paved trail grade. Trail section connects directly to a new dedicated trail right-of-way in the Arbor Heights subdivision approved by Washington County in late 2012. Trail construction through this subdivision will be the responsibility of the developer and is not included on cost estimates.
- **Section 5D:** Trail section revised to modify points of intersection with NW Springville Road; a short, existing Segment (4.22); and with soft-surface trail section. Includes some rerouting of the trail mainline between these points.
- A new collector-level midblock crossing is added to the trail intersection with NW Springville Road in Segment 5. Prior alignments only contemplated taking bicycle and pedestrian traffic onto the south side of NW Springville Road along a new 4-foot-wide shoulder; the current specification has new 4-foot shoulders on both sides requiring a crossing.
- **Section 5E:** This on-street section is divided into two new sections to reflect jurisdictional boundaries: NW Springville Road (Multnomah County) and NW Skyline Boulevard (City of Portland).
- **Section 5F:** Soft-surface trail section is modified to establish a more westerly point of intersection with NW Saltzman Road.

APPENDIX D

Trail Segment, Section and Crossing Phasing Details

Segment - Section	Jurisdictional authority	Development status	Operating authority	Connectivity	Functionality	Benefit/cost	Alternatives	Priority
Segment 1: Tualatin River to SW Beef Bend Road								
Tualatin River bridge	City of Tualatin (has parks authority) City of King City (provides limited parks services)	Not built	TBD	Crucial connector to regional trail system	Standalone function only as viewing platform Requires new trails	Highly beneficial Very high cost	None	NEAR-term Only build concurrently with Segment 1 and Tonquin Segment 13
1	City of King City	Not built	King City	Crucial connection to river bridge King City Park also provides access	Provides high function to river bridge	Flat, small wetland only, no other uses in corridor Least expensive per foot trail segment	Parallel streets on both sides of trail	NEAR-term
Segment 2: SW Beef Bend Road to Tigard city limits								
2A	Washington County (no parks authority)	Not built	TBD	No connection to any other <i>existing</i> trail. Would connect Segment 1 to 2B and 2C	Has limited standalone functionality	Steep slopes and development patterns = complex and expensive segment	On-street option for ADA and road bikes users	MID-term If built with 2B and 2D

Segment - Section	Jurisdictional authority	Development status	Operating authority	Connectivity	Functionality	Benefit/cost	Alternatives	Priority
2B	Washington County	Not built	TBD	No connection to any other <u>existing</u> trail. Would connect 2A to 2D or 2E	Has limited standalone functionality	Use of narrower soft-surface treatment reduces cost	On-street section 2C	MID-term If built with 2A and 2D or 2E
2D 2E	Washington County	Not built (two section options vary by solution to crossing gully including bridge length ⁹)	TBD	Crossing Bull Mt. makes this the most challenging trail section for users	Trail into steep gully Bridge crossings required to make trail sections function	Requires bridge crossing - 100' or 30' span Costly and complex	Road and subdivision pattern limits close-in street options	MID-term If built with 2A and 2B
2F	Washington County	Not built	TBD	Extension of or 2D or 2E No connection to street or trail without 3A	Section differentiated from 3A only by Tigard city limit, so little standalone function	One of the flattest Bull Mt. trail sections, but build with 3A	Road and subdivision pattern limits close-in street options	MID-term Need to build concurrently with 3A

Segment - Section	Jurisdictional authority	Development status	Operating authority	Connectivity	Functionality	Benefit/cost	Alternatives	Priority
Segment 3: Tigard city limits to SW Barrows Road								
3A	City of Tigard (has and exercises parks authority)	Not built	Tigard	None if built without 2F and 3C	No standalone function	Relatively short but expensive multimodal section	Road and subdivision pattern limits close-in street options	MID-term Build only in conjunction with 2F
3C	City of Tigard	Not built	Tigard	Half of split-mode solution climbing flank of Bull Mt.	Provides a wooded soft surface between existing streets	Relatively inexpensive soft-surface option	3D for road bikes	NEAR-term
3E	City of Tigard	Not built	Tigard	Extends built Westside Trail north of Barrows Rd. into Tigard neighborhoods	Only local junction without connections to other new trail sections	Relatively flat with only one set of switchbacks	Street options indirect and steep	MID-term

Segments 4.01 to 4.11: SW Barrows Road to Tualatin Hills Nature Park

All segments either built or scheduled for construction by 2014. All operated and maintained by THPRD.

Segment - Section	Jurisdictional authority	Development status	Operating authority	Connectivity	Functionality	Benefit/cost	Alternatives	Priority
Segments 4.11 (north portion), 4.12, and 4.13 (south portion): Tualatin Hills Nature Park to Nike								
4.11	THPRD (parks authority)	Not built	THPRD	Connects built section of Westside Trail to south to on-street and private trail system	Functions standalone; provides a crucial major crossing (MAX) link	Relatively inexpensive given impact with respect to function and connectivity	Only feasible means to cross MAX line	NEAR-term Low cost, high function, major traffic generators
4.12	THPRD Washington County Nike	Street edge trail <i>not</i> built On-street facilities built	Depends on final trail solution	With 4.11 and 4.13 connects Nature Park, Nike and other businesses	High functionality with other trail and on-street sections	Relatively inexpensive MAX crossing improvement	None	NEAR-term With 4.11 and 4.13
4.13	THPRD Nike	Not built	THPRD or Nike	With 4.11 and 4.12 connects Nature Park, Nike and other businesses	High functionality with other trail and on-street sections	Inexpensive multimodal trail Better connections Land acquisition (Nike)	No options with same level of benefit	LONG-term




Segment 4.13 (north portion): Nike Campus






Trail built and maintained by Nike and connected to the un-built south portion of Segment 4.13 and to SW Walker Road

Segment - Section	Jurisdictional authority	Development status	Operating authority	Connectivity	Functionality	Benefit/cost	Alternatives	Priority
Segment 4.14: SW Walker Road to US 26								
4.14	THPRD	Not built	THPRD	Connects Nike to US 26 through urbanized areas	Standalone function between Nike and US 26 business park	Minor switchbacks and wetland-road crossings Connects urban areas	Numerous potential on-street options	NEAR-term Approach to bridge required. Medium Balance highly desirable
US 26 bridge	ODOT (highway authority) THPRD (approach ramps)	Not built	ODOT and/or THPRD	Essential linchpin	Essential regional function No standalone function	Expensive, but <i>the</i> most crucial section for functional regional trail	Interim street option	NEAR-term Build concurrently with Segments 4.14 and 4.15
Segment 4.15: US 26 to NW Cornell Road								
4.15	Washington County (could be annexed to THPRD)	Not built	THPRD	Connects Cornell Rd. to US 26 bridge north approach	Without this segment US 26 bridge would not be functional	Short and flat segment Economical to build and essential for bridge function	See US 26 bridge section	NEAR-term Segment 4.15 necessary for US 26 bridge function

Segment - Section	Jurisdictional authority	Development status	Operating authority	Connectivity	Functionality	Benefit/cost	Alternatives	Priority
Segment 4.16: NW Cornell Road to NW Oak Hills Drive								
4.16	Washington County (could be annexed to THPRD)	Not built	THPRD	Connects Cornell Rd. to Segment 4.17	Standalone Improves bike-ped to Sunset High School and Cornell Rd. businesses	Short and mostly flat requires some switchbacks and crossings	Nearby 143rd Ave. could be an interim on-street option	MID-term Impact on overall trail function not as key as US 26 crossing
Segment 4.17: NW Oak Hills Drive to West Union Road								
4.17	Washington County (could be annexed to THPRD)	Built Substandard width and grades	THPRD or Oak Hills HOA	Current trail serves as local facility No connection north or south	Current trail is half of planned trail width Switchbacks needed to lower grades	Relatively short and flat section Existing trail would have to be replaced	Other on-street and trail options	LONG-term Trail section too narrow, but suffices while other sections develop
Segment 4.18.1 (south portion): West Union Road to NW Kaiser Road								
4.18.1	Washington County (could be annexed to THPRD)	Not built	THPRD	Connects built (by 2014 for north end) trails at both ends	Highest function requires connection to Segments 4.17 and 4.18.1 (north end)	Flat, no wetland crossings 2 major midblock crossings and minor property acquisition	Other streets and trails indirect	MID-term South segment priority increases when north is built

Segment - Section	Jurisdictional authority	Development status	Operating authority	Connectivity	Functionality	Benefit/cost	Alternatives	Priority
Segment 4.18.1 (north portion) to Segment 4.18.2: NW Kaiser Road to Rock Creek Greenway/Kaiser Woods Park								
Being built by THPRD in 2014.								
Segment 4.18.3: Rock Creek Greenway to NW Springville Road								
4.18.3	Multnomah County (no parks authority)	Not built	TBD	Connects to Kaiser Woods and Bethany Terrace parks and trails	Function improves when trail in Segment 4.18.2 is built (2014)	Costs are “standard” except one wetland crossing	None Neighbor- hood west and farmlands east	NEAR-term Trail segment is a feeder trail to main Westside Trail as it turns toward Portland’s West Hills
Segment 4.19: North of NW Springville Road								
4.19	Multnomah County	Not built	TBD	Local feeder connection only	Requires 4.18.3 to function as feeder to main line of Westside Trail	Costs are “standard” except for one wetland crossing	Future North Bethany trails	Built as part of development
Segment 4.20: Rock Creek Greenway/Kaiser Woods Park to NW Skycrest Parkway								
Built section - referred to as Bethany Terrace Trail and maintained by THPRD								

Segment - Section	Jurisdictional authority	Development status	Operating authority	Connectivity	Functionality	Benefit/cost	Alternatives	Priority
Segments 4.21: NW Skycrest Parkway to Arbor Heights - County line								
4.21	THPRD Washington County	Partly built (the short, most westerly and easterly sections) 3 rd section to be built by development	THPRD	Linchpin for continuing trail into West Hills and Forest Park	Northeast end of Westside Trail goes nowhere without this segment	Some sections are already built New parts will require switchbacks and property acquisitions	No on- street options No other practical alternative through segment	MID-term
Segment 5: County line to NW Skyline Boulevard/Forest Park								
	Multnomah County	Not built	TBD	Continues Segment 4.21 Connects to Springville Rd	Little without 4.21	Requires major property acquisition	No on- street options No other practical alternative	MID-term
 and 	Multnomah County City of Portland	Existing street – widened shoulders not built	County and City	Improves existing connection used extensively by bicycles	Provides for more functional and safer pedestrian and bicycle use of streets	Widened paved shoulders needed on both sides of Cost high Improvement not prioritized by county/city	Multimodal trail through wooded with significant habitat and acquisition impacts	MID-term

Segment - Section	Jurisdictional authority	Development status	Operating authority	Connectivity	Functionality	Benefit/cost	Alternatives	Priority
 and 	Multnomah County City of Portland (for Saltzman Rd.)	Soft surface not built	TBD City of Portland	Provides off-street connection to Forest Park and Segment 6	Little without 	Soft surface Many stream crossings, and forest impacts. Extensive property acquisition	 and 	LONG-term

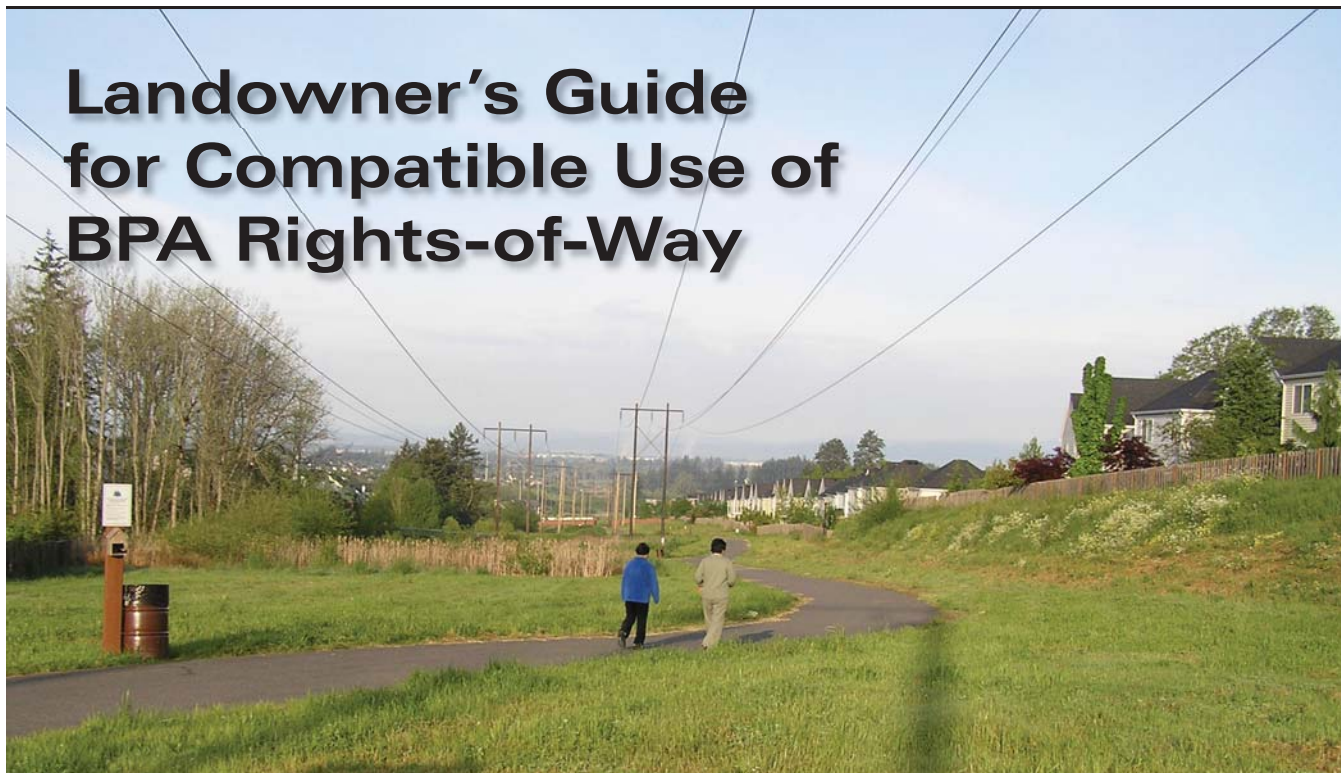
Segment 6: NW Skyline Boulevard/Forest Park to US 30/St. Johns Bridge

City of Portland operates and maintains trails within Forest Park. Connection along US 30 responsibility of City in conjunction with ODOT.

APPENDIX E-1

BPA Corridor Use Guidelines and Use Application

Landowner's Guide for Compatible Use of BPA Rights-of-Way



January 2006

We need your help to keep the way clear for safe and reliable service

Keeping transmission lines safe and reliable is a critical priority for the Bonneville Power Administration. The key element in achieving those objectives is BPA's ability to construct, operate and maintain its transmission lines and rights-of-way—the area under and around the lines.

You can help BPA keep these rights-of-way clear of, trees, brush and structures that could affect the safety or reliability of the transmission system.

Prior to planting, digging, or constructing within BPA's rights-of-way, fill out BPA's Land Use

Application Form. The information you provide on the application helps BPA understand your proposed use and the potential impacts to public safety, and the safety of our crews. BPA also reviews the application to determine whether a proposed use of land is compatible with the construction, operation and maintenance of BPA transmission lines. Coordinating with BPA early in your planning process can keep you safe and avoid wasting time and money.

Coordination of land uses

BPA's rights-of-way can sometimes be available for other, compatible, uses. BPA wants to help you carry out your plans in ways that are safe and satisfactory for everyone. Therefore, you are encouraged to make prior arrangements with BPA through the Land Use Application process.

BPA takes several factors into consideration when applications for use of the right-of-way are reviewed. Our transmission lines were designed



to take topography, physical features, environmental and cultural constraints into consideration. BPA's land rights as they relate to the location of your proposed use are also reviewed. If your project is not compatible with BPA's transmission lines, you may be asked to modify your design. In extreme cases, BPA may be able to modify its transmission facilities; however, you would be required to pay for the modifications.

Please consider the following guidelines when preparing your application:

- Maintain at least 50 feet of clearance from BPA's poles, structures or guy wires, whether it be vegetation, roads, fences, utilities, pipelines, or any other improvements.
- Maintain at least 30 feet of clearance from the top of any vegetation and the lowest point of BPA's wires. Do not attempt to measure this distance yourself! You only need to identify the species of the vegetation you propose to plant in the right-of-way so that BPA can consider the mature height of the vegetation.
- Design underground utilities to withstand HS-20 loadings (a federal highway standard).

Who we are

The Bonneville Power Administration is a federal agency headquartered in Portland, Oregon, that markets wholesale electricity and transmission services to the Pacific Northwest's public and private utilities as well as to some large industries.

BPA provides about 40 percent of the electricity used in the Northwest and operates more than 15,000 circuit miles of transmission lines. To deliver power, BPA operates and maintains a transmission network throughout Oregon, Washington, Idaho and Montana with small portions into Wyoming, Nevada, Utah and California.

- Design roads, utilities and pipelines to cross BPA's rights-of-way, rather than a long, linear alignment.
- Assure concurrence of underlying property owner when not BPA.

Three important steps

There are three important steps that you can take to keep safe and avoid wasting time and money:

1. Call BPA before you plant, dig or construct: 1-800-836-6619.
2. Fill out BPA's Land Use Application: www.transmission.bpa.gov/LanCom
3. Obtain a permit from BPA before proceeding with your project.

Location surveys

You are encouraged to have a licensed surveyor determine the location of the BPA easement before beginning any construction activities. Unfortunately, many people inadvertently build structures on BPA easements because they believe they know the boundaries of their property, and believe measuring off the conductor or centerline of the towers is sufficient to fix the location of the easement. Without survey instruments, knowledge of survey law and an understanding of BPA's right-of-ways, it is impossible to accurately locate property boundaries. By having your surveyor coordinate with the BPA Survey Section, we can prevent many of the encroachment problems that BPA experiences (call 1-800-836-6619 and ask to be connected to BPA's Survey Section).

Danger trees

BPA must identify and arrange to cut trees that, although outside the right-of-way, may threaten the transmission line because they may fall into the conductor (wires) or structures. Trees that are unstable, diseased, dead or leaning toward the transmission facilities don't need to touch power lines to be dangerous. Electricity can "arc" or

**Never cut or trim a
tree near a power line.
Call BPA!**

“flashover” from wires, through the air, to trees or equipment, where it can cause fires, injuries or even fatalities to anyone near the tree or equipment. BPA will arrange to remove these trees.

Available uses of BPA-owned land

Although BPA acquired most of its transmission line rights-of-way as easements, some of BPA’s transmission lines are constructed on property BPA owns in fee. BPA also has fee ownership of most of its substation sites as well as other properties BPA acquired to meet its responsibilities. There are three possible options if you wish to use land that BPA owns in fee. You will need to

fill out BPA’s Land Use Application so that we can determine whether your proposed use interferes with BPA’s use. Easements may be granted for permanent uses such as private road crossings or utilities. Leases may be granted primarily for agricultural purposes on occupied or vacant BPA property. Nontransferrable Land Use Agreements may also be granted for use of BPA’s fee owned property. Current market value of the land is the basis for the consideration for these transactions.

Information resources

For more information, including regional realty specialist contacts, or access to BPA’s electronic Land Use Application form visit BPA’s Web site at: www.transmission.bpa.gov/LanCom/Real_Property.cfm

Should you have any questions or would like assistance in completing the application, please call 1-888-836-6619. A BPA realty representative will return your call within two business days.

DOs and DON'Ts

BPA does not permit any use of rights-of-way that are unsafe or might interfere with constructing, operating or maintaining our facilities. These restrictions are part of the legal rights BPA acquires for its rights-of-way. Even when no transmission line has been constructed on the easement area, BPA’s rights are maintained for future use. You can avoid or minimize incurring redesign or removal costs and benefit from developing reasonable construction schedules by being aware of the prohibited uses and by applying early in your planning process to BPA for concurrence.

DO call BPA before planting, digging or constructing.

DO check your property and review your property records for transmission right-of-way easements.

DO take the time to plan projects that conform to proper use of the rights-of-way which includes completing a BPA Land Use Application form.

DO comply with the terms and conditions of the agreement provided by BPA for your safety.

DO consult with BPA when planning subdivisions. Backyards and BPA rights-of-way are not compatible.

DON'T cut or trim a tree near a power line.
Call BPA!

DON'T plant, dig or construct in BPA’s right-of-way without first contacting BPA and filling out a BPA Land Use Application.

DON'T store equipment, materials, waste, flammable material or anything that would cause a fire hazard or other safety issue or impede access by line crews to towers and lines.



Vandalizing BPA property is a crime.

Please report any vandalism or theft to BPA property to the Crime Witness Program at 1-800-437-2744. Cash rewards of up to \$25,000 will be paid to those providing information that leads to the arrest and conviction of persons committing the crime.

Bonneville Power Administration

DOE/BP-3657 • January 2006 • Third Printing • 1C

**U.S. DEPARTMENT OF ENERGY
BONNEVILLE POWER ADMINISTRATION
APPLICATION FOR PROPOSED USE OF BPA RIGHT-OF-WAY
1-800-282-3713**



Ask for Real Property Services or a contact person from web site.

www.transmission.bpa.gov/LanCom/Real_Property.cfm

Privacy Act Statement

16 USC § 832, et. seq., and 42 USC § 7101 authorize the collection of this information, which will be used by BPA to assess whether your proposed use of our right-of-way will interfere with BPA's land rights. This information is authorized to be maintained in Privacy Act system of records DOE-24, "Land Records System." Providing the requested information is voluntary; however, failure to provide complete information may result in a delay or denial of your application. Authorized routine uses for which this information may be disclosed are listed in the Privacy Act system of records notice for DOE-24, which is published in the Federal Register.

Date

NO APPLICATION FEE For individual landowners requesting personal use of BPA Right-of-Way	\$250 APPLICATION FEE For developments or subdivisions. Application fee is non-refundable	\$2500 APPLICATION FEE For longitudinal occupancies that require multiple miles of BPA Right-of-Way. Application fee is non-refundable.
--	---	---

Applicant	Owner (Complete only if the applicant is not the owner.)
1. NAME	4. NAME
2. ADDRESS, CITY, STATE, ZIP	5. ADDRESS, CITY, STATE, ZIP
3. TELEPHONE NO. EMAIL ADDRESS: FAX NO:	6. TELEPHONE NO. EMAIL ADDRESS: FAX NO:

7. LOCATION OF PROPERTY (Legal description of the property. *This information is on your title, insurance policy, courthouse deed, or your tax statement.*)

(PROVIDE A COUNTY ASSESSOR'S MAP SHOWING THE OWNER'S BOUNDARY LINES AND THE LOCATION OF USE.)

QUARTER SECTION(S)	SECTION(S)	TOWNSHIP	RANGE	COUNTY	STATE
--------------------	------------	----------	-------	--------	-------

8. PURPOSE FOR WHICH BPA RIGHT-OF-WAY/PROPERTY IS TO BE USED

Check all boxes that apply and complete the information on the following page. *(Include a map, plan or sketch if appropriate.)*

<input type="checkbox"/> Driveway / Roadway Width Width _____ Material _____ PLEASE ATTACH EXISTING AND PROPOSED GRADING PLANS.	<input type="checkbox"/> Pipelines Type: <input type="checkbox"/> Gas <input type="checkbox"/> Sewer <input type="checkbox"/> Water Diameter _____ Material _____ Buried Depth _____	<input type="checkbox"/> Electric Service Line Voltage _____ Underground _____ Overhead _____
<input type="checkbox"/> Other Uses: _____		

Narrative: Please describe your intended use in detail. In order to assure safe clearance, please describe any equipment that will be used for applied use (including equipment intended to construct and maintain the use). Space is provided on page 2 for a drawing. **IF GRADING, PLEASE ATTACH EXISTING AND PROPOSED GRADING PLANS**

9. APPLICANT NAME	10. APPLICANT SIGNATURE	11. APPLICANT TITLE
-------------------	-------------------------	---------------------

IF APPLICABLE, ATTACH NAME, COMPANY ADDRESS, AND A CONTACT PERSON FOR ALL UTILITIES INVOLVED IN PROJECT.

12. RIGHT-OF-WAY Draw in space provided below the location of the proposed use. (**Identify structures and show distances and angles from BPA structures**). Diamonds on the line represent BPA structures on the right-of-way. Copy the series of letters and numbers from the lower half of each BPA structure (*see example below*) and enter in "BPA Structure Identification" block. Indicate which direction is "North" in relation to the right-of-way.

BIG E – CHEM 1-81-2

BPA STRUCTURE IDENTIFICATION



PS2 1-2-A

BPA STRUCTURE IDENTIFICATION



Identify structures and show distances and angles from BPA structures

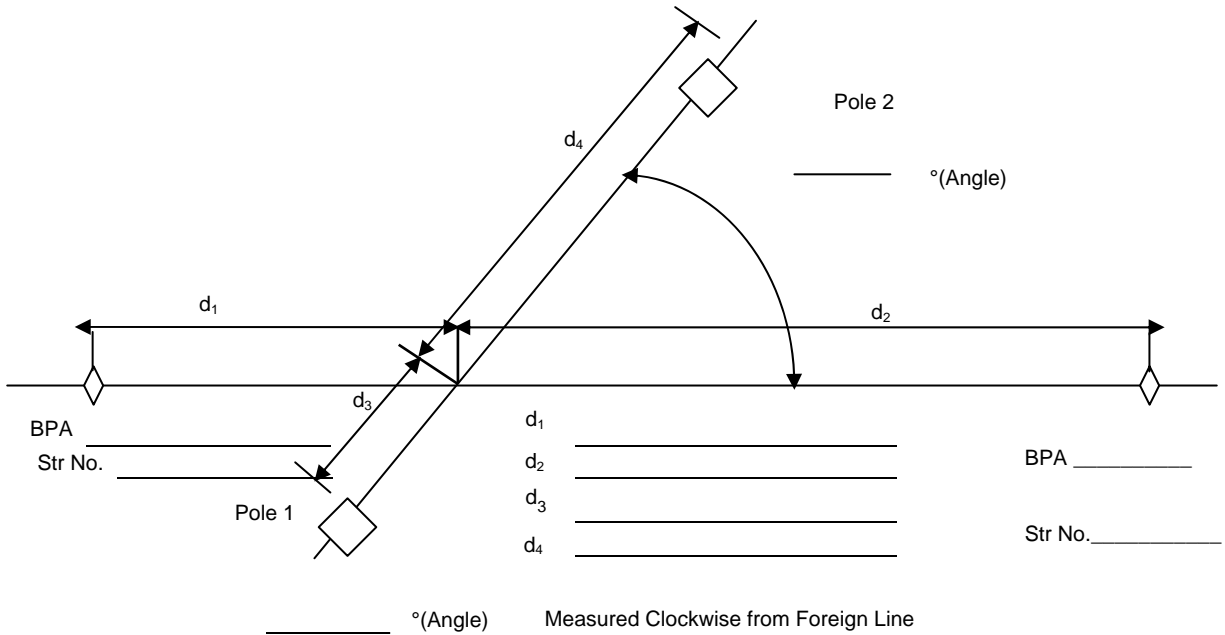
BPA STRUCTURE IDENTIFICATION

BPA STRUCTURE IDENTIFICATION

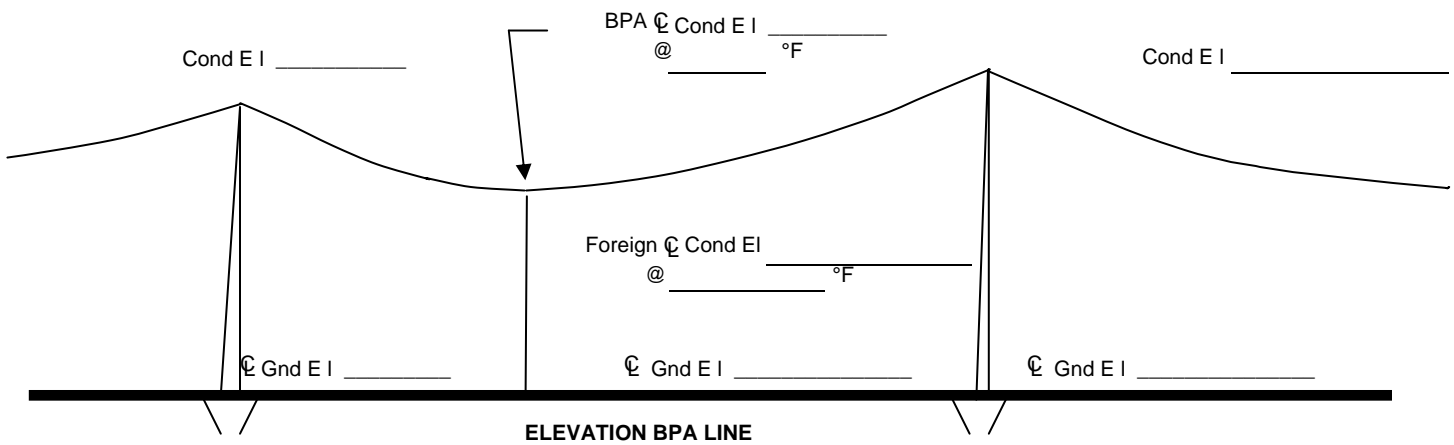
U.S. DEPARTMENT OF ENERGY BONNEVILLE POWER ADMINISTRATION APPLICATION FOR PROPOSED USE OF BPA RIGHT-OF-WAY

APPLICANT NAME

Complete **ONLY** if overhead or underground foreign line crosses an overhead BPA line. If the foreign line crosses more than one BPA line use additional sheets.



PLAN



ELEVATION BPA LINE

POLES		LENGTH	DEPTH SET	CLASS POLE
POLE 1				
POLE 2				
F I X T U R E S	SIZE OF CROSSARMS			
	MAKE AND CATALOG NUMBER OF INSULATORS			
C O N D U C T O R S	NUMBER		SIZE	
	KIND		VOLTAGE	
	MWT		LOADING	
	COMMENTS			

POLE 1

POLE 2
CONFIGURATIONS

A
P
P
L
I
C
A
N
T

APPENDIX E-2

PGE Corridor Use Guidelines

PORTLAND GENERAL ELECTRIC COMPANY

Transmission Right-Of-Way Use - General Information Guidelines

All plans for improvements within transmission easements/rights-of-way (ROW) including but not limited to lighting, landscaping, excavation, road construction, fencing, etc. shall be submitted to PGE for review and written approval. All drawings must indicate the location of PGE ROW and location of all towers or poles within the PGE ROW. The property owner shall not build or erect any structure or conduct any improvements upon, over, or under the ROW area without prior written consent from the PGE Property Department.

In general, the following types of structures and activities shall be **prohibited**:

- Building structures of any type (permanent or temporary). This includes but is not limited to sheds, playground equipment, basketball courts, rest rooms, picnic facilities such as shelters, tables and barbecues.
- Grade cutting or filling in the ROW
- Any vegetation with a maximum mature height of 15 feet or taller
- Any structure, obstruction or construction within 50 feet of a PGE transmission structure (pole or tower)

In general, excavation within 50 feet of PGE transmission structures is prohibited. In rare projects where excavation is permitted within 50 feet of PGE transmission structures, prior written approval by PGE Property Department is required.

Drain fields are generally permitted when placed at least 50 feet from any transmission structure. However, safety concerns must be considered during installation of drain fields (depending on type of construction methods and equipment used). Drain fields must be clearly marked and must not impede access to ROW.

Parking lots and **roadways** may be compatible uses of the ROW. In general, roadways may cross transmission easements but not within an easement - running parallel to transmission lines. As a precaution, all area street lighting structures shall meet the clearances and grounding requirements as established by the National Electrical Safety Code (NESC) and PGE safety regulations.

Fencing is generally permitted in the ROW provided non-metallic fencing is used. In rare instances when metallic fencing is permitted, the fencing must be appropriately grounded by licensed electrician according to requirements established by the NESC. Fencing surrounding transmission structures shall maintain a minimum of 8 feet clearance between the fence and the legs or pole of the transmission structure. When access to structures and/or ROW is obstructed by fencing, a gate shall be provided. If the gate is lockable, provisions shall be made by the customer to install a dual lock system allowing a PGE lock to be installed.

PGE shall retain the right to enter upon the ROW to erect, maintain, repair, rebuild, operate, and patrol the power lines, telecommunication lines, structures and appurtenant signal or communications and all uses directly or indirectly necessary to perform said operations. Property owners should anticipate that existing transmission lines and towers may be modified or additional lines and towers or poles may be added to the ROW. For safety reasons, no impediments may be added to the ROW that impede the ability to traverse the ROW with maintenance vehicles on 24 hour per day 7 day-per-week basis.

This Guideline is intended as general information and subject to revision as safety and other issues change. Most jurisdictions require a "Permit Letter" from PGE before construction can begin on properties traversed by PGE ROW. The permit letter outlines the permitted uses within the PGE ROW and is issued after review of detailed plans as outlined in the first paragraph. The 2006 PGE transmission ROW information number is 503-464-8887 or toll free 1-888-743-2665.

APPENDIX F

ODOT Project Prospectus Forms, Parts 1, 2, and 3



PROJECT PROSPECTUS

Part 1 — Project Request (Page 1 of 2)

						Key Number:		Jurisdiction:			
Section:						Region: 1		Area:		District:	
State Highway No.:		Highway Name:				Mile Point From: To:		Length: (MI)			
<input type="checkbox"/> Urban <input type="checkbox"/> Rural		City:		MPO: P	Within UGB	<input type="checkbox"/> Yes <input type="checkbox"/> No	County:		Road/Street Name:		
Route No.:		NHS <input type="checkbox"/> YES <input type="checkbox"/> NO	HPMS:		FC:	Applicant (If other than State):					
US Congressional District:				State Senate District:				State Representative District:			
Cost Estimates (x \$ 1,000)				Project Components				Right Of Way			
Preliminary Engineering				Grading				Files (#)			
Right Of Way				Paving				Acres (#)			
Utility Reimbursement				Structures				Relocations (#)			
				Signing				Acquisitions (#)			
Roadway				Signals				Easements (#)			
Structures				Illumination				Work By: State / Consultant / Applicant			
Signals				Detour				Preliminary Engineering (S,C,A)			
Illumination								Construction Engineering (S,C,A)			
Temp. Protection								Right of Way Descriptions (S,C,A)			
Const. Contingencies								Right Of Way Acquisitions (S,C,A)			
Const. Engineering				Project Categories				Constructed By			
Detour				Environmental Class (1, 2, 3, PCE)				<input type="checkbox"/> Contract		<input type="checkbox"/> County Force	
				Design Category (1-7)				<input type="checkbox"/> State Force		<input type="checkbox"/> Other	
Total CE and Construction:		\$ -		Work Type Code (1-13)				<input type="checkbox"/> City Force			
Total Estimate:		\$ -		Primary STIP Work Type:							
Recommended Let Date By Federal Fiscal Year (Quarter-Year):											
PE Fund:		R/W Fund:		UR Fund:		CE-CN Fund:					
PE EA:		R/W EA:		UR EA:		CE-CN EA:					
Item		Existing		Proposed		Define The Problem:					
Travel Lanes (#)											
Structures (#)											
Signals (#)											
Bike Way (#)											
Average Daily Traffic											
Year of ADT											
Throughway Y/N											
						Describe Proposed Solution: - Attach Sketch Map					
Prepared By:				Date:		OTC Approval Date:		Program Year:		Funding Amount:	

X



PROJECT PROSPECTUS

Part 1 Project Request (Page 2 of 2)

Key Number:

Jurisdiction:

0

0

Section:

0

Region:

1

Area:

0

District:

0

Project Justification

Additional Information For Project Requested By Local Jurisdictions

Responsible Local Office To Be Contacted For The Following Activities:

- | | | | | |
|-----------------------------|--|----------|--|---------|
| 1. Public Hearing / | | (Office) | | (Phone) |
| Citizen Involvement | | | | |
| 2. Environmental / Planning | | (Office) | | (Phone) |
| | | | | |
| 3. Pre-Engineering | | (Office) | | (Phone) |
| | | | | |

This Official Request is From:

City of: _____ and/or _____ County

By: _____ By: _____

By: _____ By: _____

By: _____

Applicable Intergovernmental Agreements:

IGA Number:

Jurisdiction Name:

Agreement Date:

Administrative Recommendation



PROJECT PROSPECTUS

Part 2 Project Details (Page 1 of 2)

Key Number:

0

Jurisdiction:

0

Section:

0

Region:

1

Area:

0

District:

0

Enter: S-State C - Consultant A - Applicant E - Existing N - No

Activity Responsibilities**Permits and Clearances**

Surplus Property		Signs (Permanent)		Storm Sewer		Airport Clearance		Wetlands	
Citizen's Advisory		Striping (Permanent)		Landscaping		Land Use Actions/Permits		Endangered Species	
Photogrammetry		Project Signing		Irrigation		Flood Plain		Hazmat	
Reconnaissance Survey		Detour		Borrow Source		Building		Historic Resource	
Public Hearing		Illumination		Material Source		Corps Engrs/DSL Remove/Fill		DEQ Indirect Source Air	
Field Survey		RR Crossing		Disposal Source		Coast Guard		DEQ Non-Point Source Water	
Vicinity Map		RR Protection		Local Agreement		Geology and Minerals		Archaeology Survey	
Soils/Geotech Investigation		RR Separation		Sensitive Land		Signals Warrants		Noise Study	
Hydraulic Study		RR Encroachment		Value Engineering		Utilities (see below)		Section4(F)	
Utility Coordination		Utility Verify Vert Horiz (VVH)							

Right-Of -Way

Right-Of-Way Liaison

Access Control (Y/N)

Curr

Propsd

Acquisitions**Relocations**

Simple No.

Complex No.

Business No.

Residential No.

List of Utilities:

Design Standards

Design Speeds

Exception (Y/N)

Suggested Base Design

Item	New Work Surface (in)	Over Existing Surface (in)	Item	New Work Surface (in)	Over Existing Surface (in)

Structures

Structures	Length	Width	Height	Cost	Structure	Length	Width	Height	Cost

Approved Area Manager

Date

X



PROJECT PROSPECTUS

Part 2 — Project Details (Page 2 of 2)

Key No.: 0
Jurisdiction: 0

SECTION: 0
Region: 1
Area: 0
District: 0

Segment of Alternative 1:

Comments on Segment or Alternative:

Existing (below) Units In: Feet Comment on Existing:

Bike Path	Side-Walk	Curb Type	Parking	Shoulder/Bikelane	Lane 3	Lane 2	Lane 1	Median	Lane 1	Lane 2	Lane 3	Shoulder/Bikelane	Parking	Curb Type	Side-Walk	Bike Path

Proposed (above) Units In: Feet Comment on Proposed:

Segment or Alternative 2:

Comments on Segment or Alternative:

Existing (below) Units In: Feet Comment on Existing: Testing second alternative

Bike Path	Side-Walk	Curb Type	Parking	Shoulder/Bikelane	Lane 3	Lane 2	Lane 1	Median	Lane 1	Lane 2	Lane 3	Shoulder/Bikelane	Parking	Curb Type	Side-Walk	Bike Path

Proposed (above) Units In: Feet Comment on Proposed:

Segment or Alternative 3:

Comments on Segment or Alternative:

Existing (below) Units In: Comment on Existing:

Bike Path	Side-Walk	Curb Type	Parking	Shoulder/Bikelane	Lane 3	Lane 2	Lane 1	Median	Lane 1	Lane 2	Lane 3	Shoulder/Bikelane	Parking	Curb Type	Side-Walk	Bike Path

Proposed (above) Units In: Comment on Proposed:

Segment or Alternative 4:

Comments on Segment or Alternative:

Existing (below) Units In: Comment on Existing:

Bike Path	Side-Walk	Curb Type	Parking	Shoulder/Bikelane	Lane 3	Lane 2	Lane 1	Median	Lane 1	Lane 2	Lane 3	Shoulder/BIKELANE	Parking	Curb Type	Side-Walk	Bike Path

Proposed (Above) Units In: Comment on Proposed:



PROJECT PROSPECTUS

Part 3 Project Environmental Classification

Project Classification

- ☐ Class 1 DEIS FEIS
- ☐ Class 2 Categorical Exclusion
- ☐ Programmatic Categ. Exclusion
- ☐ Class 3 EA Revised EA

Key Number:

Jurisdiction:

Project Name:

Bridge No.:

County:

Region:

Area:

District:

1) Provide a brief description of the Project

USGS Quad Name, Township, Range, Section:

2) Estimated Right-of-Way Impacts (Including Easements, Number of Parcels, Acreage, and Improvements)

3) Estimated Traffic Volume, Flow Pattern and Safety Impacts (Including Construction Impacts, Detours, etc.)

4) Estimated Land Use and Socioeconomic Impact (Including Consistency with Comprehensive Plan)

5) Estimated Wetlands, Waterways and Water Quality Impacts

6) Estimated Biological & Threatened & Endangered Species Impacts:

7) Estimated Archaeology and Historical Impacts

8) Estimated Park, Visual Impacts and 4(f) Potential

9) Estimated Air, Noise and Energy Impacts

10) Estimated Hazardous Materials Impacts

11) Preliminary Identification of Potential Areas of Critical Concern and Controversial Issues

12) Documentation Requirements

13) Estimated Pre-Construction Activity Impacts (drilling, survey work, etc

14) Preliminary Identification of Public/Stakeholder Concerns



Env-Cat Exclusions

A "Categorical Exclusion" (Class 2) is a category of actions which does not individually or cumulatively have a significant environmental effect (40 CFR 1508.4, 23 CFR 771.115).

The NEPA context of "significant" is defined at 40 CFR 1508.27 in order to determine whether a U.S. DOT project is excluded from preparation of an Environmental Assessment (EA) or Environmental Impact Statement (EIS).

Please answer the following questions:

Categorical Exclusions

23 CFR 771.117(a) - Would the project involve any of the following effects:

Y <input type="radio"/>	N <input type="radio"/>	U <input type="radio"/>	N/A <input type="radio"/>	1. Induce significant impacts to planned growth or land use for an area?
Y <input type="radio"/>	N <input type="radio"/>	U <input type="radio"/>	N/A <input type="radio"/>	2. Require relocation of significant numbers of people?
Y <input type="radio"/>	N <input type="radio"/>	U <input type="radio"/>	N/A <input type="radio"/>	3. Have a significant impact on any natural, cultural, recreational, historic or other resources?
Y <input type="radio"/>	N <input type="radio"/>	U <input type="radio"/>	N/A <input type="radio"/>	4. Involve significant air, noise, or water quality impacts?
Y <input type="radio"/>	N <input type="radio"/>	U <input type="radio"/>	N/A <input type="radio"/>	5. Have significant impacts on travel patterns?

23 CFR 771.117(b) - Would the project involve unusual circumstances such as:

Y <input type="radio"/>	N <input type="radio"/>	U <input type="radio"/>	N/A <input type="radio"/>	1. Significant environmental impacts?
Y <input type="radio"/>	N <input type="radio"/>	U <input type="radio"/>	N/A <input type="radio"/>	2. Substantial controversy on environmental grounds?
Y <input type="radio"/>	N <input type="radio"/>	U <input type="radio"/>	N/A <input type="radio"/>	3. Significant impacts to properties protected by Section 4(f) of the DOT Act or Section 106 of the National Historic Preservation Act?
Y <input type="radio"/>	N <input type="radio"/>	U <input type="radio"/>	N/A <input type="radio"/>	4. Inconsistencies with any federal, state, or local law, requirements or administrative determination relating to the environmental aspects of the project?

If you answered "YES" to one or more of the above questions, you likely DO NOT have a Class II project. If you answered "UNKNOWN" to one or more of the above questions, you MAY NOT have a Class II project.

In either of these cases, you should discuss the NEPA classification with an Environmental Manager, the REC Program Coordinator, the NEPA Program Coordinator, and/or the FHWA Environmental Coordinator prior to classifying the project of the Prospectus Part 3.

If you answered "NO" to ALL of the above questions, the project is likely a Class II Action.*

Type of Categorical Exclusions:

Y <input type="radio"/>	N <input type="radio"/>	U <input type="radio"/>	N/A <input type="radio"/>	A. Is the proposed action specifically listed under 23 CFR 771.117 (c)? If "YES" please identify what:
				are specifically listed under 23 CFR 771.117 (c), 3.
Y <input type="radio"/>	N <input type="radio"/>	U <input type="radio"/>	N/A <input type="radio"/>	B. Is the proposed action specifically listed under 23 CFR 771.117 (d)? If "YES" please identify what:
				are not specifically listed under section (d).

*While Class 2 actions do not require preparation of an EA or EIS, they may yet require additional environmental analysis of impacts to the natural and built environment.

Some 23 CFR 771.17 (d) list Class II actions may require a NEPA type process to facilitate coordination with regulatory agencies and stakeholder involvement.

Prepared By:			FHWA or State Official Approval:	
Date:	Revised:		Date:	Phone Number: