

## EXECUTIVE SUMMARY

Summary Table: WTMP Trail Segment Option Key Features

Option	Length	Cost	Treatment	Function	Special Features
<b>Segment 1: Tualatin River crossing to SW Beef Bend Road</b>					
River crossing	330' plus ramp	\$2,823,700	Bridge	River crossing	<ul style="list-style-type: none"> <li>• 200' north ramp</li> </ul>
5% slope (BPA – PGE)	① 0.76 mi	\$1,527,600	10' paved	Multimodal	<ul style="list-style-type: none"> <li>• Wetland crossing</li> <li>• Possible property acquisition</li> </ul>
<b>Segment 2: SW Beef Bend Road to Tigard city limits</b>					
5% slope (in-corridor)	②A 2.0 mi	\$3,907,500 + \$538,500 bridge	10' paved	Multimodal	<ul style="list-style-type: none"> <li>• 60 switchbacks</li> <li>• 200' gully bridge</li> <li>• Probable property acquisition</li> </ul>
8% slope (in-corridor)	②B 1.5 mi	\$2,721,400 + \$172,500 bridge	10' paved	Limited multimodal	<ul style="list-style-type: none"> <li>• 26 switchbacks</li> <li>• 100' gully bridge</li> <li>• Probable property acquisition</li> </ul>
5% – 8% slope (in-corridor, steps)	②C 1.46 mi	\$2,656,700 + \$52,500 bridge	10' paved	Primarily ped-only	<ul style="list-style-type: none"> <li>• 25 switchbacks</li> <li>• 40' gully bridge</li> <li>• Step section</li> <li>• Probable property acquisition</li> </ul>
8% slope (requires private property)	②D TBD	TBD	10' paved	Gully crossing option	<ul style="list-style-type: none"> <li>• Property acquisition required</li> <li>• Outside of corridor</li> <li>• Stream crossing</li> </ul>

Option		Length	Cost	Treatment	Function	Special Features
Colyer – 141st (on-street)	2E	1.01 mi	\$5,000	On-street	Probable interim solution	<ul style="list-style-type: none"> <li>• Bypasses steeper in-corridor section</li> <li>• May allow in-corridor sections to be soft surface</li> </ul>
Midblock crossing (NW Beef Bend)		N/A	\$426,250	Flashing beacon	Road crossing	
Midblock crossing (NW Bull Mountain)		N/A	\$426,250	Flashing beacon	Road crossing	
<b>Segment 3: Tigard city limits to SW Barrows Road</b>						
5% or 8% slope (in-corridor – Tigard to Mistletoe)	3A	5% 0.17 mi	\$325,500	10' paved	Multimodal	<ul style="list-style-type: none"> <li>• 9 switchbacks</li> </ul>
	3B	8% 0.12 mi	\$201,500	10' paved	Multimodal	<ul style="list-style-type: none"> <li>• 2-3 switchbacks</li> </ul>
5% or 8% slope (in-corridor – Mistletoe to Creekshire)		N/A	N/A	N/A	N/A	<ul style="list-style-type: none"> <li>• This option fatally flawed (see Segment 3: Tigard city limits to SW Barrows Road narrative)</li> </ul>
On-street (Nahcotta to Creekshire)	3C	0.5 mi	\$5,000	On-street	ADA	<ul style="list-style-type: none"> <li>• Option in 2 sections separated by paved cross corridor trail connector</li> </ul>

Option		Length	Cost	Treatment	Function	Special Features
5% slope (cross corridor – Nahcotta to Creekshire connector)	<b>3D</b>	0.09 mi	\$151,900	10' paved	Multimodal	<ul style="list-style-type: none"> <li>• Crosses power corridor east-west</li> <li>• Connects Nahcotta and Creekshire on-street sections</li> </ul>
Hillshire Woods (soft surface)	<b>3E</b>	0.62 mi	\$378,600	Soft surface	Ped-only alternative	<ul style="list-style-type: none"> <li>• Stream crossing</li> <li>• Option in two sections separated by paved cross-corridor trail connector</li> </ul>
5% or 8% slope (in-corridor- Creekshire- to Barrows)	<b>3F</b>	5% 0.43 mi	\$782,750	10' paved	Multimodal	<ul style="list-style-type: none"> <li>• 7 switchbacks</li> </ul>
	<b>3G</b>	8% 0.39 mi	\$645,500	10' paved	Multimodal	<ul style="list-style-type: none"> <li>• 2 switchbacks</li> </ul>
<b>Segments 4.11, 4.12 and 4.13 (south portion): MAX line crossing to Nike open space</b>						
New MAX crossing (BPA)		N/A	N/A	N/A	N/A	<ul style="list-style-type: none"> <li>• This option fatally flawed (see Segment 4.12 narrative)</li> </ul>
Existing MAX crossing (SW 153rd Drive)	<b>4A</b>	N/A	\$5,000			<ul style="list-style-type: none"> <li>• Uses existing 153rd Drive MAX crossing</li> <li>• Uses NW Jenkins intersection crossing</li> <li>• Uses Nike street-edge trail or on-street bike/ped facilities</li> </ul>

Option		Length	Cost	Treatment	Function	Special Features
Connector (Segment 4.11 MAX corridor)	4B	0.10 mi	\$170,800	10' paved	Multimodal	<ul style="list-style-type: none"> <li>• New trail section parallel to MAX line</li> <li>• Part of Crescent Connector Trail</li> </ul>
Connector (SW Jenkins)	4C	260'	\$52,000	10' paved	Multimodal	<ul style="list-style-type: none"> <li>• New street-edge trail</li> </ul>
Connector (Segment 4.13)	4D	0.09 mi	\$151,900	10' paved	Multimodal	<ul style="list-style-type: none"> <li>• Short connector to Nike trail</li> </ul>
<b>Segment 4.14: SW Walker Road to US 26</b>						
5% slope (all BPA)	4E	0.86 mi	\$591,600	10' paved	Multimodal	<ul style="list-style-type: none"> <li>• 2 switchbacks</li> </ul>
Midblock crossing (SW Walker)		N/A	\$600,000	Signal	Road crossing	
<b>Segments 4.15 and 4.16: US 26 to NW Oak Hills Road</b>						
US 26 crossing (bridge)		230' plus ramps	\$3,274,000	Bridge	US 26 crossing	<ul style="list-style-type: none"> <li>• Switchback (north) and straight (south) approach ramps</li> <li>• Power pole relocations</li> <li>• Possible wetland impacts</li> </ul>

Option		Length	Cost	Treatment	Function	Special Features
US 26 crossing (tunnel)		250' plus ramps	\$5.0M +	Tunnel	US 26 crossing	<ul style="list-style-type: none"> <li>• Requires boring</li> <li>• Subgrade approach ramps</li> <li>• Highway reconstruction impacts</li> <li>• Power pole relocations</li> <li>• Wetland impacts</li> </ul>
5% slope (all BPA)	4F	0.65 mi	\$591,600	10' paved	Multimodal	<ul style="list-style-type: none"> <li>• 7 switchbacks (4.16)</li> <li>• 2 wetland and stream crossings (4.16)</li> </ul>
Pioneer – Science Park (On-street, interim solution)	4G	1.79 mi	\$1,019,100	On-street	US 26 crossing	<ul style="list-style-type: none"> <li>• Uses Segments 4.14 and 4.15</li> <li>• New sidewalks needed</li> </ul>
Midblock crossing (NW Cornell)		N/A	\$600,000	Signal	Road crossing	
<b>Segment 4.17: NW Oak Hills Drive to West Union Road</b>						
5% slope (all BPA)	4H	0.49 mi	\$857,300	10' paved	Multimodal	<ul style="list-style-type: none"> <li>• Widens existing trail</li> <li>• 8 switchbacks</li> </ul>
<b>Segment 4.18.1 (south portion): West Union Road to NW Kaiser Road</b>						
5% slope (BPA – private open space)	4I	0.25 mi	\$416,800	10' paved	Multimodal	<ul style="list-style-type: none"> <li>• Minor acquisition at north end</li> </ul>

Option		Length	Cost	Treatment	Function	Special Features
Midblock crossing (West Union)		N/A	\$426,250	Flashing beacon	Road crossing	
Midblock crossing (NW Kaiser)		N/A	\$426,250	Flashing beacon	Road crossing	
<b>Segment 4.18.3: Rock Creek Greenway to NW Springville Road</b>						
5% slope (all BPA)	<b>4J</b>	0.43 mi	\$1,173,750	10' paved	Multimodal	<ul style="list-style-type: none"> <li>• Wetland and stream crossing</li> <li>• Major meander to avoid power towers</li> </ul>
<b>Segment 4.19: North of NW Springville Road</b>						
5% slope (BPA – along county line)	<b>4K</b>	0.69 mi	\$1,130,000	10' paved	Multimodal	<ul style="list-style-type: none"> <li>• Integrate into North Bethany trails</li> </ul>
Midblock crossing (NW Springville)		N/A	\$387,500	Flashing beacon, no refuge island	Road crossing	<ul style="list-style-type: none"> <li>• Possible phased build</li> </ul>
<b>Segments 4.20 to 5: Rock Creek Greenway to NW Skyline Boulevard</b>						
Connector (to Bethany Terrace Trail)	<b>5A</b>	520'	\$160,150	10' paved	Multimodal	<ul style="list-style-type: none"> <li>• Common to all Segment 4.20-5 options</li> <li>• Requires private property acquisition</li> </ul>
5% slope (West section)	<b>5B</b>	0.71 mi	\$1,165,000	10' paved	Multimodal	<ul style="list-style-type: none"> <li>• Requires private property acquisition</li> </ul>

Option		Length	Cost	Treatment	Function	Special Features
8% slope (West section)	5C	0.59 mi	\$1,051,900	10' paved	Multimodal	<ul style="list-style-type: none"> <li>Approximately follows power lines</li> </ul>
8% slope (East section)	5D	0.90 mi	\$1,505,000	10' paved	Multimodal	<ul style="list-style-type: none"> <li>Requires private property acquisition</li> <li>Stream crossing</li> </ul>
On-street (Springville – Saltzman)	5E	1.63 mi	\$3,612,500	On-street paved shoulders	ADA	<ul style="list-style-type: none"> <li>New 4' paved shoulders <i>both sides</i></li> <li>Possible road ROW widening</li> </ul>
Soft surface (Springville – Saltzman)	5F	1.39 mi	\$1,128,200	Soft surface	Mountain bike and ped	<ul style="list-style-type: none"> <li>5 stream crossings</li> <li>Switchbacks needed</li> <li>Highly variable slopes</li> <li>Requires private property acquisition</li> </ul>
Midblock crossing (NW Skyline)		N/A	\$387,500	Flashing beacon, no refuge island	Road crossing	<ul style="list-style-type: none"> <li>Possible phased build</li> </ul>

**Summary Table: WTMP Trail Segment Option Descriptions**

Option	Description
<b>Segment 1: Tualatin River crossing to SW Beef Bend Road</b>	
River crossing (bridge)	A right angle river crossing with a total 330-foot three-span bridge and a 200-foot-long north side approach ramp.
5% slope (BPA - PGE)	This trail option begins at the foot of the north bank approach ramp of the bridge option. The alignment meanders between BPA wood power poles and PGE lattice towers. This alignment accommodates equestrian use along the west edge of the BPA-owned corridor. The trail could also meander between BPA power poles and areas just east of PGE towers. The use of meanders may require easements across privately owned land underneath PGE power lines. Grades of 5% or less are achieved throughout. A 270-foot-wide wetland will be crossed by a boardwalk. Overall length is 0.76 mile.
<b>Segment 2: SW Beef Bend Road to Tigard city limits</b>	
5% slope (in-corridor)	5% grades can be achieved along the power corridor using extensive switchbacks, but the resulting density of paving, retaining walls, etc., would be very costly and greatly limit visual and wildlife habitat values. A 5% trail slope simply cannot be achieved in and out of the gully at midsection of this segment where the southeast bank drops 25 feet vertically in 40 feet horizontally. A 200-foot-long multimodal bridge would maintain accessible grades across the top of the bank. The overall length of this in-corridor option is 2.0 miles with up to approximately 60 switchbacks.
8% slope (in-corridor)	At an average 8% grade, it possible to develop this segment for both pedestrian and bicycle traffic using climbing turns and fewer switchbacks. Some retaining walls would still be required, but longitudinal slope would vary with the slope of hillside. By using switchbacks <i>within the power corridor</i> into the gully, an approximately 100-foot-long bridge could span a lower elevation crossing. The overall length of this in-corridor option is 1.5 miles with up to approximately 26 switchbacks.
5% – 8% slope (in-corridor, steps)	Combining varying trail slopes and using steps in the steepest areas of Segment 2, particularly in crossing the gully, effectively bars bicycle use, but could improve pedestrian functionality compared to the two other in-corridor options. Using steps down the southeast bank of the gully could reduce any needed bridge span to approximately 40 feet. The overall length of this in-corridor option is 1.46 miles with up to approximately 25 switchbacks and at least one step section.



Option	Description
8% slope (requires private property)	A final option for an 8% gully crossing involves the use of private property to the west and outside of the power corridor. A series of switchbacks and a short (less than 40-feet) bridge could be developed to enter the gully and cross the stream. This option is subject to a significant private property easement or purchase. Actual trail alignments, number of switchbacks and landings, and bridge location will be subject to further analysis if acquisition prospects are deemed favorable. The current mapped solution (see Figure 5) is highly conceptual.
Colyer – 141st (on-street)	SW Colyer Way and SW 141st Avenue are Washington County neighborhood routes. This on-street section would function as a trail bypass avoiding the steepest in-corridor sections immediately north of SW Beef Bend Road. It could also be used in concert with a soft-surface trail within the corridor. This option is from the intersection of SW Colyer Way and SW Glastonbury Lane to the intersection of SW 14st Avenue and SW Eagles View Lane. The length of this on-street option is 1.01 miles.
<b>Segment 3: Tigard city limits to SW Barrows Road</b>	
5% or 8% slope (in-corridor, Tigard city limits to Mistletoe)	At 5% and 8% grades, it is possible to develop this section of Segment 3 for both pedestrian and bicycle traffic using climbing turns and switchbacks. Total overall length of this option at 5% is 0.17 mile with approximately 9 switchbacks. Length at 8% is 0.12 mile with approximately 2-3 switchbacks.
5% or 8% slope (in-corridor, Mistletoe to Creekshire)	Very steep slopes and cross slopes between SW Mistletoe Drive and SW Creekshire Drive makes 5% multimodal trail grades impossible to maintain without a series of extremely sharp switchbacks using retaining walls. The adverse impacts greatly exceed even those in comparable Segment 2 options. The result would be a virtual paving over of the corridor in some sections. Achieving 8% slopes would require fewer switchbacks but are still considerable. <i>Therefore, the use of the power corridor for a trail in this section of Segment 3 is fatally flawed.</i>
On-street (Nahcotta to Creekshire)	This on-street route will have to be interconnected by a new trail section across the power corridor from the vicinity of SW Catalina Drive to the south end of SW Creekshire Drive. This option starts at SW Mistletoe Drive and ends where SW Creekshire Drive crosses over the power corridor. All streets used are either local or neighborhood classified routes. The on-street portions are 0.5 mile long and the new connecting trail section is 0.09 mile long. This option will have to be designated or constructed along with the Hillshire Woods soft-surface trail described below to provide for both bicycle and pedestrian accessibility.

Option	Description
Hillshire Woods (soft surface)	This soft-surface trail starts and ends within the power corridor and is routed through Tigard’s Hillshire Woods Park starting just north of SW Mistletoe Drive. The option is in two sections with an intervening hard-surface section (see preceding Nahcotta-Creekshire description). The first soft-surface section starts at SW Mistletoe Drive and connects to the new hard-surface trail section at the south end of SW Creekshire Drive. A second section of soft-surface trail is within the power corridor between the hard-surface section and the point where SW Creekshire Drive crosses the corridor. Total length of both soft-surface sections is 0.62 mile.
5% or 8% slope (Creekshire to Barrows)	At 5% and 8% grades, it is possible to develop this section of Segment 3 for both pedestrian and bicycle traffic using climbing turns and switchbacks. Some retaining walls would still be required, but longitudinal slope would vary with the slope of the hillside. Total overall length of this option at 5% is 0.43 mile with up to approximately 7 switchbacks. Length at 8% is 0.39 miles with up to approximately 2 switchbacks.

**Segments 4.12 and 4.13 (south portion): MAX line crossing to Nike open space**

New MAX crossing (BPA corridor)	<p>This option connects to the developed Westside Trail section in Segment 4.11, and requires a new controlled crossing of the MAX Blue Line. The trail would then follow the power corridor between a PGE maintenance yard and power substation for about a third of the segment, cross two industrial service roads, and continue down the power corridor. A bridge and boardwalk would be needed to span the Cedar Mill Creek wetlands, and a new midblock crossing would be required at SW Jenkins Road. The total overall length of this option is 0.30 mile.</p> <p><i>This option is “fatally flawed.”</i> TriMet has indicated that a new MAX crossing would <i>not</i> be allowed so close to the existing SW 153rd Drive crossing. Washington County will <i>not</i> permit a midblock crossing of SW Jenkins Road so close to the signalized intersection with SW 153rd Drive.</p>
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Option	Description
Existing MAX crossing (SW 153rd Drive)	<p>This option connects the existing end of the Westside Trail in Segment 4.11 to SW 153rd Drive via a new trail section along the south edge of the MAX right-of-way. This new trail section is 0.10 mile long and would functionally become part of the Crescent Connection Trail THPRD is planning to parallel the MAX line. After crossing the MAX line at SW 153rd Drive, the trail could either use the existing sidewalks and bicycle lanes along the east side of SW 153rd Road all the way to SW Jenkins Road and/or use a new street-edge trail recently built on adjacent privately owned vacant land to the east.</p> <p>Both the SW 153rd Drive street-edge and on-street solutions cross NW Jenkins Road at the existing signalized intersection and connect back to the power corridor up SW Jenkins Road via a new 260-foot-long street-edge multimodal trail along the north side. A 10-foot-wide multimodal trail would then turn north up the power corridor for 0.09 mile to connect to the end of an existing trail.</p>
<b>Segment 4.14: SW Walker Road to US 26</b>	
5% slope (all BPA)	<p>The proposed trail alignment is illustrated down the center of BPA property, between power poles. Meanders could be added to improve the trail experience and to connect to future trail access points. The overall length of this option is 0.86 mile.</p>
<b>Segments 4.15 and 4.16: US 26 to NW Oak Hills Road</b>	
US 26 crossing (bridge)	<p>The primary issue with a new pedestrian/bicycle bridge over US 26 is relocating electrical transmission and distribution poles and lines, both north-south and east-west.</p>
US 26 crossing (tunnel)	<p>Tunnel solutions are more expensive than bridge solutions, and raise major issues with respect to safety, wetlands, natural gas line relocation, and US 26 operations.</p>
5% slope (all BPA)	<p>The power corridor alignment provides the most direct route for a multimodal trail but requires a new US 26 crossing to work. The total length of Segment 4.15 from the end of the north bridge approach ramp to NW Cornell Road is 0.25 mile. Segment 4.16 from NW Cornell Road to NW Oak Hills Drive is 0.40 mile long.</p>

Option	Description
On-street (Pioneer to Science Park – <i>interim</i> crossing solution)	This on-street option crosses US 26 at the SW Murray Boulevard interchange and returns to the power corridor without having to use any sections of NW Cornell Road. The option is intended as an interim solution until a new US 26 crossing is constructed. NW Pioneer Road has sections without sidewalks. NW 139th Avenue and NW Millcreek Drive have no sidewalks. The total length of this option from NW Pioneer Road to the return to the corridor down NW Science Park Drive and then within the corridor to the crossing of NW Cornell Road is 1.79 miles.
<b>Segment 4.17: NW Oak Hills Drive to West Union Road</b>	
5% slope (all BPA)	The proposed trail alignment is illustrated down the center of BPA property, between power poles. Meanders could be added to improve the trail experience. One short section immediately north of NW Oak Hills Drive would require approximately 8 switchbacks to maintain 5% slope. Total overall length of this option is 0.49 mile.
<b>Segment 4.18.1 (south portion): West Union Road to NW Kaiser Road</b>	
5% slope (all BPA)	The proposed trail alignment is illustrated down the center of the BPA-owned corridor, between power poles. Meanders could be added to improve the trail experience and to connect to future trail access points. The final approach of the trail to NW Kaiser Road would have to cross a small privately-owned vacant property to connect with the planned south end terminus of the Westside Trail section (Segment 4.18.2) scheduled for construction by THPRD in 2014. Total overall length of this option is 0.25 mile.
<b>Segment 4.18.3: Rock Creek Greenway to NW Springville Road</b>	
5% slope (all BPA)	The proposed trail alignment is illustrated down the center of the BPA-owned corridor, between power poles. One wetland/stream will have to be crossed. One significant meander is required to skirt an intersection of north-south and east-west power poles within the corridor. Other meanders could be added to improve the trail experience and to connect to any future trail access points. The total overall length of this option is 0.43 mile.
<b>Segment 4.19: North of NW Springville Road</b>	

Option	Description
5% slope (BPA – along county line)	The proposed trail alignment is illustrated down the center of the BPA-owned corridor, between power poles. This conceptual option should be fully integrated with trails and pathways planned for developing North Bethany neighborhoods to the west. Total overall length of this option down the BPA centerline is 0.69 mile.
<b>Segments 4.20 to 5: Rock Creek Greenway to NW Skyline Boulevard</b>	
Connector (to Bethany Terrace Trail)	This connector is common to all trail options for Segments 4.20 to 5. This 520-foot-long extension of the Bethany Terrace Trail has a 5% slope and is multimodal.
West section 5% slope (Multimodal paved surface)	This option extends north and east from the Bethany Terrace Trail extension through a wide cleared area between woodlands. This option then turns south to the same terminus as the west section 8% slope option. Total length is 0.71 mile.
West section 8% slope (multimodal paved surface)	This alternative extends due east from the end of the extended Bethany Terrace Trail primarily under or near to BPA power lines. This option provides an average 8% to 10% slope paved alternative along a different route but with the same terminus as the west section 5% slope option. Total length is 0.59 mile.
East section 8% slope (multimodal paved surface to Springville)	This alternative starts at the same point as the end of the west section 5% and 8% slope options summarized above. Through a series of approximately 4 to 5 wide switchbacks, this route first crosses and then parallels Bannister Creek then climbs to connection with NW Springville Road and the soft-surface route summarized below. Total length is 0.90 mile.
On-street (Springville - Skyline)	This on-street option follows NW Springville Road and NW Skyline Boulevard and enters Forest Park. The total length is 1.63 miles. NW Springville Road and NW Skyline Boulevard do not have sidewalk or bike lane improvements. This option primarily accommodates road bikes with the addition of widened paved shoulders on both sides of the roads.
Soft surface (Springville – Saltzman)	This soft-surface trail section will be designed for pedestrians, mountain bikes and equestrians and meander through the steep and wooded areas of Portland’s West Hills to NW Saltzman Road. Approximately 5 minor stream crossings are involved. The total length for this option is 1.39 miles including a 900-foot-long stretch of NW Saltzman Road. NW Saltzman Road does not have sidewalk improvements.