

Comparison of Greenfield Alternative to Point Defiance Bypass Project

	Fredrickson	Lakewood South	Tacoma Tunnel	Rainier	Spanaway	Pt. Defiance Bypass ¹
Design						
Route Length	32.5 miles	29 miles	32.5 miles	44 miles	30 miles	18 miles
New/Reconstructed Track	10.5 miles/22 miles	10 miles/10 miles	4.1 miles/28.4 miles	0 miles/44 miles	19 miles/11 miles	2.5 miles/11.5 miles
At-Grade Crossings Upgraded	33	2	24	46	24	10
Construction Cost¹⁰	\$296M - \$988M	\$238M - \$792M	\$2.4B - \$7.9B	\$205M - \$682M	\$361M - \$1.2B	\$59.6M
Increase/Decrease Travel Time	Increase	Decrease	Decrease	Increase	Decrease	Decrease
Accommodates 2 Additional Amtrak Cascades Daily Trips	Yes	Yes	Yes	Yes	Yes	Yes
Total ROW Required/ Residential ROW	118 acres/15 acres	118 acres/15 acres	12 acres/12 acres	0 acres	217 acres/88 acres	1.3 acres/<1 acre
Potential Environmental Impacts						
Hazardous Materials: Sites Within 500'	Yes	Yes	Yes	Yes	Yes	Yes
ESA²: Species Permanently Affected	Yes	Yes	Yes	No	Yes	No
Wetlands: Total Impacted³	6.7 acres	5.2 acres	0.8 acre	5.9 acres	6.6 acres	0 acres
Wetlands: Mitigation Ratio⁴ (3:1⁵/6:1⁶)	20.1 acres/40.2 acres	15.6 acres/31.2 acres	2.4 acres/4.8 acres	17.7 acres/35.4 acres	19.8 acres/39.6 acres	N/A
Wetlands: Mitigation Cost^{7,8} (3:1/6:1)	\$5.2M/\$10.3M	\$4.0M/\$8.0M	\$0.6M/\$1.2M	\$4.5M/\$9.1M	\$5.1M/\$10.2M	N/A
Socioeconomic/Environmental Justice: % Minority Population	30%	36%	40%	25%	33%	39%
Recreation/Section 4(f) and 6(f): Resources Impacted⁹	Yes	Yes	Yes	Yes	Yes	No
Historic/Cultural: Resources Impacted	24 sites	25 sites	1 site	19 sites	25 sites	0 sites

Note: Since the information was the same for all the routes, no information is being provided in this comparison table for Air Quality (*Attainment Area*), Noise (*Sensitive Receptors*), Hydrology/Water Quality (*Proximity to Sensitive Surface or Ground Waterbodies*), or Socioeconomic/Environmental Justice (*2009 Poverty Guidelines* and *Average Median Income*). See the sub-section for more information.

¹ Point Defiance Bypass Project Environmental Summary (May 2008), and supporting discipline reports; the Environmental Summary analyzed only to S. 66th Street in Tacoma, which was the northern extent of the project at that time

² The timeframe for formal consultation under Section 7 of the ESA, for larger projects in the Puget Sound area, generally exceeds one year and may take up to two years to complete

³ Assumes all the wetlands identified during this analysis rated as a Category I (*i.e.*, highest-functioning wetlands)

⁴ Creation/restoration ratios are determined by the US Army Corps of Engineers if a Section 404 Individual Permit is issued

⁵ The likely (*lower cost*) scenario; this scenario would require a 3:1 creation/restoration ratio per Class I acre impacted and include a 150-foot buffer.

⁶ The conservative (*higher cost*) scenario; this scenario would require a 6:1 creation/restoration ratio per Class I acre impacted and include a 300-foot buffer

⁷ A total of \$256,784/acre based on 2006 guidance, and input from Geoff Gray, SCR Biologist, on September 9, 2010; this total was inflated by 15% from the 2006 guidance of \$223,290/acre and has been rounded to the nearest \$100,000 for the purposes of this analysis

⁸ This cost does not include real estate acquisition costs or the area required for the buffer

⁹ FRA will not approve the use of a Section 4(f) resource unless a determination is made that 1) there is no feasible and prudent alternative to the use of land from the property; and 2) the proposed action includes all possible planning to minimize harm to the property resulting from such use; supporting information demonstrates that there is a feasible and prudent alternative that would avoid these Section 4(f) resources

¹⁰ Per the "Cost Estimating Manual for WSDOT Projects", an estimate range of -40% to 100% was used for a 1% to 15% project maturity (% of design completed)