

Appendix B

Alternative Comparison Metric

When WSDOT conducts a multimodal corridor analyses, based on RCW 47.06.130, on major congested corridors where needed improvements are likely to cost in excess of one hundred million dollars a Cost Benefit analysis , also referred to as a Cost Effectiveness analysis, is completed. It will include the cost-effectiveness of all feasible strategies in addressing congestion or improving mobility within the corridor, and must recommend the most effective strategy or mix of strategies to address identified deficiencies. To the extent that is practical, full costs of all strategies must be reflected in the analysis. At a minimum, this analysis must include:

- a. The current and projected future demand for total person trips on that corridor;
- b. The impact of making no improvements to that corridor;
- c. The daily cost per added person served for each mode or improvement proposed to meet demand;
- d. The cost per hour of travel time saved per day for each mode or improvement proposed to meet demand; and,
- e. How much of the current and anticipated future demand will be met and left un-met for each mode or improvement proposed to meet demand.

The following analysis provides the metrics to define the most cost-effective improvement or mode, or mix of improvements and modes, for increasing mobility and reducing congestion.

Metric: Annual Vehicle Hours of Delay Savings per \$1
Million Total Capital Investment

The economic analysis metric compares each scenario's primary benefit of travel time savings against the primary cost of capital investment. The SR 167 Alternative Comparison table illustrates the annual quantity of delay reduction experienced by motorists traveling along the corridor and

compares it to the level of capital investment for each scenario. The annual delay savings are the results of model analysis for the Alternate or Option Years 2010, 2020 and 2030 as illustrated in the table. Annual Vehicle Hours of Delay Savings per \$1 Million per Total Capital Investment was calculated by dividing the Annual Vehicle Hours of Delay by the Total Project Cost.

SR 167 Alternative Comparison Metric: Annual Vehicle Hours of Delay Savings per \$1 Million Total Capital Investment

ALTERNATIVES	Begin MP	End MP	DESCRIPTION	Daily Vehicle Hours of Delay Reduction	Annual Vehicle Hours of Delay Reduction	Total Capital Investment - Total Project Cost	Annual Vehicle Hours of Delay Saved per \$1 Million Capital Investment
2010 Baseline			Includes SB General Purpose between I-405 and SW 43rd Street & Stage 3 HOV/HOT Lane (NB HOV/HOT Lane from 15th Street SW to 15th Street NW)				
2010 Alt 1 = 2010 Baseline +	10.68	15.77	Stage 4 HOV/HOT Lanes - adds SB HOV/HOT lane between 15th Street NW and 8th Street East	4,618	1,200,670	\$ 98,790,000	12,154
2010 Alt 2 = 2010 Alt 1 +	10.68	13.85	Stage 5 King County HOV/HOT Lane - adds a NB and SB HOV/HOT lane between 8th Street East and 15th Street SW	5,194	1,350,414	\$ 128,220,000	10,532
2010 Alt 3 = 2010 Alt 2 +	17.93	19.62	Kent Auxiliary Lane - adds a NB and SB auxiliary lane between SR 516 and South 277th Street	7,197	1,871,126	\$ 67,380,000	27,770
2010 Alt 4 = 2010 Alt 2 +	21.33	24.42	Renton/Kent General Purpose Lanes - adds and NB and SB GP lane between South 180th Street and 84th Avenue South	5,650	1,468,943	\$ 216,280,000	6,792
2020 Baseline			Includes all of the 2010 Alternatives with 2020 land use				
2020 Alt 1 = 2020 Baseline +	7.03	10.68	Pierce County HOV/HOT lane - adds a NB and SB HOV/HOT lane between 8th Street East and SR 410	6,603	1,716,858	\$ 114,610,000	14,980
2020 Alt 2 = 2020 Alt 1 +	24.42	24.42	South 180th Street Interchange Improvements - project consolidates and improves the arterial connections and linkages with SR 167	5,190	1,349,509	\$ 193,210,000	6,985
2020 Alt 3 = 2020 Alt 1 +	14.34	14.34	SR 18 Interchange Improvements - provides the "missing ramps" - NB SR 167 to WB SR 18 and EB SR 18 to SB SR 167	5,511	1,432,751	\$ 246,640,000	5,809
2020 Alt 4 = 2020 Alt 1 +	5.99	7.03	SR 410/SR 512 Interchange Improvements - improves the short-weave section between SR 410 and SR 512 and provides direct connections between HOV/HOT lanes on SR 167 with the HOV lanes on SR 410	5,933	1,542,684	\$ 163,270,000	9,449
2030 Baseline			Includes all of the 2010 and 2020 Alternatives with 2030 land use				
2030 Option 2	5.99	26.29	Adds 1 NB and SB GP lane between I-405 and SR 512 - resulting in a 3 GP + 1 HOV/HOT lane configuration	43,012	11,183,120	\$ 902,868,800	12,386
2030 Option 2A	5.99	26.29	Adds 1 NB and HOV/HOT lane between I-405 and SR 512 - resulting in a 2 GP + 2 HOV/HOT lane configuration	11,463	2,980,380	\$ 902,868,800	3,301
2030 Option 4	5.99	26.29	Adds 1 NB and SB GP lane and 1 NB and SB HOV/HOT lane between I-405 and SR 512 - resulting in a 3 GP + 2 HOV/HOT lane configuration	38,656	10,050,560	\$ 1,805,737,600	5,566
2030 Option 4A	5.99	26.29	Adds 1 NB and SB GP lane and 1 NB and SB HOV/HOT lane between I-405 and SR 18; adds 1 NB and SB HOV/HOT lane between SR 18 and SR 512	26,695	6,940,700	\$ 1,474,217,600	4,708
2030 Option 4 with Direct Access Ramps @ I-405	5.99	26.29	Adds 1 NB and SB GP lane and 1 NB and SB HOV/HOT lane between I-405 and SR 512 - resulting in a 3 GP + 2 HOV/HOT lane configuration with Direct Access Ramps at I-405	40,828	10,615,280	\$ 1,805,737,600	5,879
2030 Option 2A with Enhanced Transit	5.99	26.29	Adds 1 NB and SB HOV/HOT lane between I-405 and SR 512 - resulting in a 2 GP + 2 HOV/HOT lane configuration with Enhanced Transit Service	16,021	4,165,460	\$ 1,052,868,800	3,956