

Appendix F4.6
Washington State Intersection Screening Tool
(WASIST) Methodology and Results, and Greenhouse
Gas Estimating Methodology and Results

TECHNICAL MEMORANDUM

Washington State Intersection Screening Tool Methodology

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The Project is located in a CO maintenance area; therefore, the state and federal air quality conformity regulations require a demonstration to ensure transportation activities associated with the Project will not cause new air quality violations, worsen existing violations, or delay timely attainment of the National Ambient Air Quality Standards (NAAQS). To satisfy this requirement, air quality modeling is used to calculate air quality impacts for comparison of build to no build conditions. The Project must meet air quality conformity standards for a CO maintenance area. CO is the only pollutant for which quantitative modeling guidance for transportation projects exists.

The Washington State Intersection Screening Tool (WASIST) was selected to model and analyze the CO levels of the specifically impacted intersections in the Project vicinity. Developed by the Washington Department of Transportation, WASIST is a screening model for determining the worst case scenario for CO concentrations at signalized intersections and on metered roadways. WASIST uses predefined traffic data to estimate the Project generated CO emissions by inputting a combination of worse-case scenarios simultaneously into the model in an effort to produce the highest possible level of CO emissions. By using a combination of these worse-case scenarios and predefined data assumptions, the model can estimate worse-case CO concentrations for intersections and metered roadways within the Project area. Traffic data for the Project area was collected to determine which intersections would be representative for modeling. The collected traffic data was then used to identify the intersections with a Level of Service (LOS) of “D” or worse which were then selected for modeling analysis

The initial step in the WASIST modeling process is to perform a *pre-screen*. This requires three informational inputs: the intersection location, the traffic volume on the intersection’s busiest leg, and the distance of the closest receptors to the roadway edge. Once these are entered into the model, the results of the *pre-screen* are summarized and displayed with a *pass/fail* result given in the report. A *pass* result does not require a complete WASIST analysis. However, a *fail* result does require a complete WASIST analysis be performed to better estimate the intersection’s impact on ambient CO concentrations. There are three informational data input categories necessary to perform a complete WASIST analysis:

- 1) General Inputs – these include the project’s general characteristics, such as the project name, intersections name, year of the analysis, background concentration, and if the project is located in a CO maintenance area.
- 2) Intersection Inputs – this includes detailed information on the modeled intersection, the layout of the intersection, peak hour traffic volumes, approach speed, and signal timing.
- 3) Receptor Inputs – this involves more specific information concerning receptors, the distance from the edge of the roadways and quadrants they are located in.

After these informational data inputs are entered, the model calculates the worst-case CO concentrations at the specified intersections. The results summarizing the one-hour and eight-hour concentrations of CO that were calculated are given in a report. If the specified receptor CO concentrations are less than the one-hour and eight-

hour NAAQS of 35 ppm and 9 ppm, respectively, the intersection will pass the complete analysis and is not expected to exceed the NAAQS.

References

Washington State Department of Transportation. 2005. WSDOT Washington State Intersection Screening Tool. WASIST version 1.0, October 2005.

Traffic Section of the East Link Draft Environmental Impact Statement. December 20, 2007.

Segment A

Alternative A1 CO Concentrations

Existing CO Concentrations			No-Build CO Concentrations						Build CO Concentrations					
Intersection	LOS	CO Conc.	2020			2030			2020			2030		
			Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.
**			I 90 Ramp & 4th Ave S	E	5.0	I 90 Ramp & 4th Ave S	F	5.0	I 90 Ramp & 4th Ave S	D	5.0	I 90 Ramp & 4th Ave S	F	5.0
4th Ave. & S. Royal Brougham Way	D	6.9	S Royal Brougham Way & 4th Ave S	F	5.4	S Royal Brougham Way & 4th Ave S	F	5.6	S Royal Brougham Way & 4th Ave S	F	5.5	S Royal Brougham Way & 4th Ave S	F	5.6
Dearborn St. & Rainier Ave	F	6.8	Dearborn St. & Rainier Ave	F	5.1	Dearborn & Rainier	F	5.2	Dearborn & Rainier	F	5.2	Dearborn & Rainier	F	5.2
**			I-90 EB off ramp & Rainier Ave	E	5.0	I-90 EB off ramp & Rainier	F	4.8	I-90 EB off ramp & Rainier	E	4.8	I-90 EB off ramp & Rainier	F	4.8
**			Massachusetts Ave & Rainier Ave	D	5.0	Massachusetts & Rainier	E	5.0	Massachusetts & Rainier	**		Massachusetts & Rainier	E	5.0
Rainier & 23 Ave S	D	6.5	Rainier Ave & 23 Ave S		5.2	Rainier & 23 Ave S	F	5.2	Rainier & 23 Ave S	F	5.1	Rainier & 23 Ave S	F	5.2
**			N Mercer Way & Island Crest Way	D	4.2	N Mercer Way & Island Crest Way	E	4.3	N Mercer Way & Island Crest Way	**		N Mercer Way & Island Crest Way	E	4.3

CO concentrations in parts per million (ppm).

** Intersections did not trigger modeling requirements.

Segment B

Alternative B1 CO Concentrations

Existing CO Concentrations			No Build CO Concentrations						Build CO Concentrations					
Intersection	LOS	CO Conc.	2020			2030			2020			2030		
			Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.
	**		**			**			SE 30th St & Bel Way	F	5.4	SE 30th St & Bel Way	F	5.4
108: 112th & Bel Way	F	7.2	108: 112th & Bel Way	F	5.3	108: 112th & Bel Way	F	5.2	108: 112th & Bel Way	F	5.6	108: 112th & Bel Way	F	5.4
	**		**			**			14: Bel Way & 112th	F	6.2	14: Bel Way & 112th	F	6.0
SE 8th St & 118th Ave	F	5.4	SE 8th St & 118th Ave	F	5.0	SE 8th St & 118th Ave	F	4.8	SE 8th St & 118th Ave	F	5.2	SE 8th St & 118th Ave	F	4.7
	**		**			**				**			**	

CO concentrations in parts per million (ppm).

** Intersections did not trigger modeling requirements.

Alternative B2A CO Concentrations

Existing CO Concentrations			No Build CO Concentrations						Build CO Concentrations					
Intersection	LOS	CO Conc.	2020			2030			2020			2030		
			Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.
108: 112th & Bel Way	F	7.2	108: 112th & Bel Way	F	5.3	108: 112th & Bel Way	F	5.2	108: 112th & Bel Way	F	5.7	108: 112th & Bel Way	F	5.4
	**			**			**			**			**	
SE 8th St & 118th Ave	F	5.4	SE 8th St & 118th Ave	F	5.0	SE 8th St & 118th Ave	F	4.8	SE 8th St & 118th Ave	F	5.0	SE 8th St & 118th Ave	F	4.7
	**			**			**			**			**	

* CO concentrations in parts per million (ppm).

** Intersections did not trigger modeling requirements.

Alternative B2E CO Concentrations

Existing CO Concentrations			No Build CO Concentrations						Build Concentrations					
			2020			2030			2020			2030		
Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.
	**			**			**			**			**	
108: 112th & Bel Way	F	7.2	108: 112th & Bel Way	F	5.3	108: 112th & Bel Way	F	5.2	108: 112th & Bel Way	F	5.5	108: 112th & Bel Way	F	5.3
	**			**			**			**			**	
SE 8th St & 118th Ave	F	5.4	SE 8th St & 118th Ave	F	5.0	SE 8th St & 118th Ave	F	4.8	SE 8th St & 118th Ave	F	5.0	SE 8th St & 118th Ave	F	4.7
	**			**			**			**			**	

CO concentrations in parts per million (ppm).

** Intersections did not trigger modeling requirements.

Alternative B3 CO Concentrations

Existing CO Concentrations			No Build CO Concentrations				Build CO Concentrations			
			2020		2030		2020		2030	
Intersection	LOS	CO Conc.	Intersection	LOS	Intersection	LOS	Intersection	LOS	Intersection	LOS
**			**		**		**		**	
108: 112th & Bel Way	F	7.2	108: 112th & Bel Way	F	108: 112th & Bel Way	F	108: 112th & Bel Way	F	108: 112th & Bel Way	F
**			**		**		**		**	
SE 8th St & 118th Ave	F	5.4	SE 8th St & 118th Ave	F	SE 8th St & 118th Ave	F	SE 8th St & 118th Ave	F	SE 8th St & 118th Ave	F
**			**		**		**		**	

CO concentrations in parts per million (ppm).

** Intersections did not trigger modeling requirements.

Alternative B7 CO Concentrations

Existing CO Concentrations		No Build CO Concentrations						Build CO Concentrations						
		2020			2030			2020			2030			
Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.
	**			**			**			**			**	
108: 112th & Bel Way	F	7.2	108: 112th & Bel Way	F	5.3	108: 112th & Bel Way	F	5.2	108: 112th & Bel Way	F	5.3	108: 112th & Bel Way	F	5.2
	**			**			**			**			**	
SE 8th St & 118th Ave	F	5.4	SE 8th St & 118th Ave	F	5.0	SE 8th St & 118th Ave	F	4.8	SE 8th St & 118th Ave	F	5.0	SE 8th St & 118th Ave	F	4.9
	**			**			**			**			**	

* CO concentrations in parts per million (ppm).

** Intersections did not trigger modeling requirements.

Segment C

Alternative C1T CO Concentrations

Existing CO Concentrations			No-Build CO Concentrations				Build CO Concentrations							
Intersection	LOS	CO Conc.	2020		2030		2020		2030					
			Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.			
	**			**		SE 6th St & 112th	E	4.2	Main St. & Bel Way	F	5.4	SE 6th St & 112th	E	4.3
Main St. & Bel Way	E	6.8	Main St. & Bel Way	F	5.6	Main St. & Bel Way	F	5.4	Main St. & 110th	D	4.4	Main St. & Bel Way	F	5.4
	**			**			**			**			**	
	**			**		Main St. & 110th	D	4.4	Main St. & 110th	**		Main St. & 110th	E	4.4
Main St. & 112th	E	6.5	Main St. & 112th	F	5.4	Main St. & 112th	F	5.3	Main St. & 112th	F	5.3	Main St. & 112th	F	5.3
	**			**		NE 2nd & Bel Way	D	4.9	NE 2nd & Bel Way	**		NE 2nd & Bel Way	E	4.9
	**			**			**			**			**	
	**		NE 2nd & 110th	D	4.3	NE 2nd & 110th	D	4.5	NE 2nd & 110th	D	4.3	NE 2nd & 110th	E	4.5
	**		NE 2nd St & 112th	D	4.6	NE 2nd St & 112th	E	4.8	NE 2nd St & 112th	D	4.7	NE 2nd St & 112th	E	4.7
NE 4th St & 106th	D	5.7		**			**			**			**	
NE 4th St & 108th	D	6.0		**			**			**			**	
	**		NE 4th St & 110th	D	4.8	NE 4th St & 110th	E	4.7	NE 4th St & 110th	D	4.7	NE 4th St & 110th	E	4.7
NE 4th St & 112th	D	6.5		**			**			**		NE 4th St & 112th	D	5.2
	**			**			**			**		NE 4th St & 116th	D	4.8

Alternative C1T CO Concentrations

Existing CO Concentrations			No-Build CO Concentrations						Build CO Concentrations						
Intersection	LOS	CO Conc.	2020			2030			2020			2030			
			Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	
NE 6th & 108th	D	4.4		**			**		**		**		**		**
	**			**			**		**		**		**		**
NE 8th & 106th	D	6.2		**			**		**		**		**		**
NE 8th & 108th	F	6.5	NE 8th & 108th	D	5.0	NE 8th & 108th	E	4.3	NE 8th & 108th	D	5.0	NE 8th & 108th	E	5.0	
NE 8th & 110th	F	6.6	NE 8th & 110th	E	5.4	NE 8th & 110th	F	5.3	NE 8th & 110th	F	5.5	NE 8th & 110th	F	5.3	
NE 8th & 112th	F	6.9	NE 8th & 112th	F	5.3	NE 8th & 112th	F	5.2	NE 8th & 112th	F	5.3	NE 8th & 112th	F	5.2	
NE 8th & 116th Ave	F	7.5	NE 8th & 116th Ave	D	6.2	NE 8th & 116th Ave	F	5.8	NE 8th & 116th Ave	D	5.9	NE 8th & 116th Ave	D	5.9	
	**			**			**		**		**		**		**
	**			**			**		**		**		**		**
	**			**			**		**		**		**		**
NE 12th St & 112th	D	6.4	NE 12th St & 112th	E	5.2	NE 12th St & 112th	F	5.0	NE 12th St & 112th	E	5.2	NE 12th St & 112th	F	5.0	
Bel-Red Rd & 116th	D	6.2	Bel-Red Rd & 116th	D	5.4	Bel-Red Rd & 116th	D	5.1	Bel-Red Rd & 116th	D	5.2	Bel-Red Rd & 116th	D	5.0	

CO concentrations in parts per million (ppm).

** Intersections did not trigger modeling requirements.

Alternative C2T CO Concentrations

Existing CO Concentrations			No-Build CO Concentrations						Build Concentrations					
			2020			2030			2020			C2T		
Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.
	**		SE 6th St & 112th	**		SE 6th St & 112th	E	4.2	Main St. & Bel Way	F	5.7	SE 6th St & 112th	E	4.3
Main St. & Bel Way	E	6.8	Main St. & Bel Way	F	5.6	Main St. & Bel Way	F	5.4		**		Main St. & Bel Way	F	5.4
	**			**			**			**			**	
	**		Main St. & 110th	**		Main St. & 110th	D	4.4		**		Main St. & 110th	D	4.4
Main St. & 112th	E	6.5	Main St. & 112th	F	5.4	Main St. & 112th	F	5.3	Main St. & 112th	F	5.3	Main St. & 112th	F	5.2
	**		NE 2nd & Bel Way			NE 2nd & Bel Way	D	4.9		**		NE 2nd & Bel Way	D	4.9
	**			**			**			**			**	
NE 4th St & 106th	D	5.7	NE 2nd & 110th	D	4.3	NE 2nd & 110th	D	4.5	NE 2nd & 110th	D	4.4	NE 2nd & 110th	D	4.5
NE 4th St & 108th	D	6.0	NE 2nd St & 112th	D	4.6	NE 2nd St & 112th	E	4.8	NE 2nd St & 112th	D	4.7	NE 2nd St & 112th	E	4.7
	**			**			**			**			**	
	**		NE 4th St & 110th	D	4.8	NE 4th St & 110th	E	4.7	NE 4th St & 110th	D	4.6	NE 4th St & 110th	E	4.7
NE 4th St & 112th	D	6.5		**			**			**		NE 4th St & 112th	D	5.2
	**			**			**			**			**	
NE 6th & 108th	D	4.4		**			**			**			**	

Alternative C2T CO Concentrations

Existing CO Concentrations				No-Build CO Concentrations						Build Concentrations									
Intersection	LOS	CO Conc.	2020			2030			2020			C2T							
			Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.					
	**		**			**			**			**			**			**	
NE 8th & 106th	D	6.2																	
NE 8th & 108th	F	6.5	NE 8th & 108th	D	5.0	NE 8th & 108th	E	4.3	NE 8th & 108th	D	5.0	NE 8th & 108th	E	5.0	NE 8th & 108th	E	5.0		
NE 8th & 110th	F	6.6	NE 8th & 110th	E	5.4	NE 8th & 110th	F	5.3	NE 8th & 110th	E	5.4	NE 8th & 110th	F	5.4	NE 8th & 110th	F	5.3		
NE 8th & 112th	F	6.9	NE 8th & 112th	F	5.3	NE 8th & 112th	F	5.2	NE 8th & 112th	F	5.3	NE 8th & 112th	F	5.3	NE 8th & 112th	F	5.2		
NE 8th & 116th Ave	F	7.5	NE 8th & 116th Ave	D	6.2	NE 8th & 116th Ave	F	5.8	NE 8th & 116th Ave	D	6.2	NE 8th & 116th Ave	D	6.2	NE 8th & 116th Ave	E	5.9		
	**		**			**			**			**			**			**	
	**		**			**			**			**			**			**	
	**		**			**			**			**			**			**	
NE 12th St & 112th	D	6.4	NE 12th St & 112th	E	5.2	NE 12th St & 112th	F	5.0	NE 12th St & 112th	E	5.3	NE 12th St & 112th	E	5.3	NE 12th St & 112th	F	5.0		
Bel-Red Rd & 116th	D	6.2	Bel-Red Rd & 116th	D	5.4	Bel-Red Rd & 116th	D	5.1	Bel-Red Rd & 116th	D	5.2	Bel-Red Rd & 116th	D	5.2	Bel-Red Rd & 116th	D	5.2		

CO concentrations in parts per million (ppm).

** Intersections did not trigger modeling requirements.

Alternative C3T CO Concentrations

Existing CO Concentrations			No-Build CO Concentrations						Build CO Concentrations					
			2020			2030			2020			2030		
Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.
	**		SE 6th St & 112th	**	4.2	SE 6th St & 112th	E	4.2	SE 6th St & 112th	**		SE 6th St & 112th	E	4.3
Main St. & Bel Way	E	6.8	Main St. & Bel Way	F	5.6	Main St. & Bel Way	F	5.4	Main St. & Bel Way	F	5.7	Main St. & Bel Way	F	5.3
	**			**			**			**			**	
	**		Main St. & 110th	**	4.4	Main St. & 110th	D	4.4	Main St. & 110th	**		Main St. & 110th	D	4.4
Main St. & 112th	E	6.5	Main St. & 112th	F	5.4	Main St. & 112th	F	5.3	Main St. & 112th	F	5.3	Main St. & 112th	F	5.4
	**		NE 2nd & Bel Way			NE 2nd & Bel Way	D	4.9	NE 2nd & Bel Way	**		NE 2nd & Bel Way	D	4.9
	**			**			**			**			**	
NE 4th St & 106th	D	5.7	NE 2nd & 110th	D	4.3	NE 2nd & 110th	D	4.5	NE 2nd & 110th	D	4.4	NE 2nd & 110th	D	4.5
NE 4th St & 108th	D	6.0	NE 2nd St & 112th	D	4.6	NE 2nd St & 112th	E	4.8	NE 2nd St & 112th	D	4.7	NE 2nd St & 112th	E	4.7
	**			**			**			**			**	
NE 4th St & 112th	D	6.5	NE 4th St & 110th	D	4.8	NE 4th St & 110th	E	4.7	NE 4th St & 110th	D	4.6	NE 4th St & 110th	E	4.7
	**			**			**			**			**	
NE 6th & 108th	D	4.4		**			**			**			**	

Alternative C3T CO Concentrations

Existing CO Concentrations			No-Build CO Concentrations						Build CO Concentrations					
Intersection	LOS	CO Conc.	2020			2030			2020			2030		
			Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.
**			**			**			**			**		
NE 8th & 106th	D	6.2	**			**			**			**		
NE 8th & 108th	F	6.5	NE 8th & 108th	D	5.0	NE 8th & 108th	E	4.3	NE 8th & 108th	D	5.0	NE 8th & 108th	E	5.0
NE 8th & 110th	F	6.6	NE 8th & 110th	E	5.4	NE 8th & 110th	F	5.3	NE 8th & 110th	E	5.4	NE 8th & 110th	F	5.3
NE 8th & 112th	F	6.9	NE 8th & 112th	F	5.3	NE 8th & 112th	F	5.2	NE 8th & 112th	F	5.3	NE 8th & 112th	F	5.2
NE 8th & 116th Ave	F	7.5	NE 8th & 116th Ave	D	6.2	NE 8th & 116th Ave	F	5.8	NE 8th & 116th Ave	D	6.2	NE 8th & 116th Ave	E	5.9
**			**			**			**			**		
**			**			**			**			**		
**			**			**			**			**		
NE 12th St & 112th	D	6.4	NE 12th St & 112th	E	5.2	NE 12th St & 112th	F	5.0	NE 12th St & 112th	E	5.1	NE 12th St & 112th	F	5.0
Bel-Red Rd & 116th	D	6.2	Bel-Red Rd & 116th	D	5.4	Bel-Red Rd & 116th	D	5.1	Bel-Red Rd & 116th	D	5.2	Bel-Red Rd & 116th	D	5.1

* CO concentrations in parts per million (ppm).

** Intersections did not trigger modeling requirements.

Alternative C4A CO Concentrations

Existing CO Concentrations			No-Build CO Concentrations						Build CO Concentrations					
Intersection	LOS	CO Conc.	2020			2030			2020			2030		
			Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.
	**			**		SE 6th St & 112th	E	4.2		**		SE 6th St & 112th	E	4.2
Main St. & Bel Way	E	6.8	Main St. & Bel Way	F	5.6	Main St. & Bel Way	F	5.4	Main St. & Bel Way	F	5.7	Main St. & Bel Way	F	5.3
	**			**			**			**			**	
	**			**		Main St. & 110th	D	4.4		**		Main St. & 110th	F	4.9
Main St. & 112th	E	6.5	Main St. & 112th	F	5.4	Main St. & 112th	F	5.3	Main St. & 112th	F	5.4	Main St. & 112th	F	5.3
	**			**		NE 2nd & Bel Way	D	4.9		**		NE 2nd & Bel Way	E	4.9
	**			**			**			**		NE 2nd & 108th	D	4.1
	**		NE 2nd & 110th	D	4.3	NE 2nd & 110th	D	4.5	NE 2nd & 110th	F	4.5	NE 2nd & 110th	F	4.6
	**		NE 2nd St & 112th	D	4.6	NE 2nd St & 112th	E	4.8	NE 2nd St & 112th	E	4.8	NE 2nd St & 112th	F	4.7
NE 4th St & 106th	D	5.7		**			**			**			**	
NE 4th St & 108th	D	6.0		**			**			**			**	
	**		NE 4th St & 110th	D	4.8	NE 4th St & 110th	E	4.7	NE 4th St & 110th	E	4.9	NE 4th St & 110th	F	4.8
NE 4th St & 112th	D	6.5		**			**			**		NE 4th St & 112th	D	5.1
	**			**			**			**		NE 4th St & 116th	D	4.8

Alternative C4A CO Concentrations

Existing CO Concentrations			No-Build CO Concentrations						Build CO Concentrations									
Intersection	LOS	CO Conc.	2020			2030			2020			2030						
			Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.				
NE 6th & 108th	D	4.4		**			**				**			**				
	**			**			**				**			**	NE 6th & 112th	D	4.4	
NE 8th & 106th	D	6.2		**			**				**			**				
NE 8th & 108th	F	6.5	NE 8th & 108th	D	5.0	NE 8th & 108th	E	4.3	NE 8th & 108th	F	5.0	NE 8th & 108th	F	5.0	NE 8th & 108th	F	5.0	
NE 8th & 110th	F	6.6	NE 8th & 110th	E	5.4	NE 8th & 110th	F	5.3	NE 8th & 110th	F	5.4	NE 8th & 110th	F	5.4	NE 8th & 110th	F	5.5	
NE 8th & 112th	F	6.9	NE 8th & 112th	F	5.3	NE 8th & 112th	F	5.2	NE 8th & 112th	F	5.3	NE 8th & 112th	F	5.3	NE 8th & 112th	F	5.3	
NE 8th & 116th Ave	F	7.5	NE 8th & 116th Ave	D	6.2	NE 8th & 116th Ave	F	5.8	NE 8th & 116th Ave	D	6.2	NE 8th & 116th Ave	D	6.2	NE 8th & 116th Ave	E	5.9	
	**			**			**			**			**		NE 10th St & 108th	D	4.4	
	**			**			**			**			**		NE 10th & 116th	D	4.4	
	**			**			**			**			**		NE 12th St & 108th	F	4.4	
NE 12th St & 112th	D	6.4	NE 12th St & 112th	E	5.2	NE 12th St & 112th	F	5.0	NE 12th St & 112th	E	5.2	NE 12th St & 112th	E	5.2	NE 12th St & 112th	F	5.0	
Bel-Red Rd & 116th	D	6.2	Bel-Red Rd & 116th	D	5.4	Bel-Red Rd & 116th	D	5.1	Bel-Red Rd & 116th	D	5.4	Bel-Red Rd & 116th	D	5.2	Bel-Red Rd & 116th	D	5.1	

* CO concentrations in parts per million (ppm).
 ** Intersections did not trigger modeling requirements.

Alternative C7E CO Concentrations

Existing CO Concentrations			No-Build CO Concentrations						Build CO Concentrations					
Intersection	LOS	CO Conc.	2020			2030			2020			2030		
			Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.
**			**			SE 6th St & 112th	E	4.2	Main St. & Bel Way	F	5.7	SE 6th St & 112th	E	4.3
Main St. & Bel Way	E	6.8	Main St. & Bel Way	F	5.6	Main St. & Bel Way	F	5.4	**	**	**	Main St. & Bel Way	F	5.4
**			**			**			**			**		
**			**			Main St. & 110th	D	4.4	Main St. & 110th	D	4.4	Main St. & 110th	D	4.4
Main St. & 112th	E	6.5	Main St. & 112th	F	5.4	Main St. & 112th	F	5.3	Main St. & 112th	F	5.5	Main St. & 112th	F	5.2
**			**			NE 2nd & Bel Way	D	4.9	NE 2nd & Bel Way	D	4.9	NE 2nd & Bel Way	D	4.9
**			**			**			**			**		
**			NE 2nd & 110th	D	4.3	NE 2nd & 110th	D	4.5	NE 2nd & 110th	D	4.4	NE 2nd & 110th	D	4.5
NE 4th St & 106th	D	5.7	NE 2nd St & 112th	D	4.6	NE 2nd St & 112th	E	4.8	NE 2nd St & 112th	D	4.6	NE 2nd St & 112th	E	4.7
NE 4th St & 108th	D	6.0	**			**			**			**		
**			NE 4th St & 110th	D	4.8	NE 4th St & 110th	E	4.7	NE 4th St & 110th	D	4.6	NE 4th St & 110th	E	4.8
NE 4th St & 112th	D	6.5	**			**			**			NE 4th St & 112th	D	5.1
**			**			**			**			**		
NE 6th & 108th	D	4.4	**			**			**			**		

Alternative C7E CO Concentrations

Existing CO Concentrations			No-Build CO Concentrations						Build CO Concentrations											
Intersection	LOS	CO Conc.	2020			2030			2020			2030								
			Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.						
**			**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**		
NE 8th & 106th	D	6.2	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**		
NE 8th & 108th	F	6.5	NE 8th & 108th	D	5.0	NE 8th & 108th	E	4.3	NE 8th & 108th	**	NE 8th & 108th	D	5.0	NE 8th & 108th	**	NE 8th & 108th	D	5.0		
NE 8th & 110th	F	6.6	NE 8th & 110th	E	5.4	NE 8th & 110th	F	5.3	NE 8th & 110th	E	5.4	NE 8th & 110th	F	5.4	NE 8th & 110th	E	5.4	NE 8th & 110th	F	5.4
NE 8th & 112th	F	6.9	NE 8th & 112th	F	5.3	NE 8th & 112th	F	5.2	NE 8th & 112th	F	5.3	NE 8th & 112th	F	5.3	NE 8th & 112th	F	5.3	NE 8th & 112th	F	5.2
NE 8th & 116th Ave	F	7.5	NE 8th & 116th Ave	D	6.2	NE 8th & 116th Ave	F	5.8	NE 8th & 116th Ave	F	6.2	NE 8th & 116th Ave	D	6.2	NE 8th & 116th Ave	D	6.2	NE 8th & 116th Ave	E	5.9
**			**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
**			**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
NE 12th St & 112th	D	6.4	NE 12th St & 112th	E	5.2	NE 12th St & 112th	F	5.0	NE 12th St & 112th	F	5.2	NE 12th St & 112th	E	5.2	NE 12th St & 112th	E	5.2	NE 12th St & 112th	F	5.0
Bel-Red Rd & 116th	D	6.2	Bel-Red Rd & 116th	D	5.4	Bel-Red Rd & 116th	D	5.1	Bel-Red Rd & 116th	D	5.1	Bel-Red Rd & 116th	D	5.2	Bel-Red Rd & 116th	D	5.2	Bel-Red Rd & 116th	D	5.2

* CO concentrations in parts per million (ppm).
 ** Intersections did not trigger modeling requirements.

Alternative C8E CO Concentrations

Existing CO Concentrations			No-Build CO Concentrations						Build CO Concentrations					
			2020			2030			2020			2030		
Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.
	**		SE 6th St & 112th	**	4.2	Main St. & Bel Way	E	5.7	Main St. & Bel Way	F	5.4	SE 6th St & 112th	E	4.3
Main St. & Bel Way	E	6.8	Main St. & Bel Way	F	5.6	Main St. & Bel Way	F	5.4	Main St. & Bel Way	**	5.4	Main St. & Bel Way	F	5.4
	**			**			**			**			**	
	**		Main St. & 110th	**	4.4	Main St. & 110th	D	4.4	Main St. & 110th	D	4.4	Main St. & 110th	D	4.3
Main St. & 112th	E	6.5	Main St. & 112th	F	5.4	Main St. & 112th	F	5.3	Main St. & 112th	F	5.3	Main St. & 112th	F	5.3
	**		NE 2nd & Bel Way	D	4.9	NE 2nd & Bel Way	D	4.9	NE 2nd & Bel Way	**	4.9	NE 2nd & Bel Way	E	5.0
	**			**			**			**			**	
	**		NE 2nd & 110th	D	4.3	NE 2nd & 110th	D	4.5	NE 2nd & 110th	D	4.3	NE 2nd & 110th	F	4.5
	**		NE 2nd St & 112th	D	4.6	NE 2nd St & 112th	E	4.8	NE 2nd St & 112th	D	4.7	NE 2nd St & 112th	F	4.7
NE 4th St & 106th	D	5.7		**			**			**			**	
NE 4th St & 108th	D	6.0		**			**			**			**	
	**		NE 4th St & 110th	D	4.8	NE 4th St & 110th	E	4.7	NE 4th St & 110th	D	4.8	NE 4th St & 110th	F	4.7
NE 4th St & 112th	D	6.5		**			**			**		NE 4th St & 112th	D	5.2
	**			**			**			**		NE 4th St & 116th	D	4.8
NE 6th & 108th	D	4.4		**			**			**			**	

Alternative C8E CO Concentrations

Existing CO Concentrations			No-Build CO Concentrations						Build CO Concentrations					
Intersection	LOS	CO Conc.	2020			2030			2020			2030		
			Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.
NE 8th & 106th	D	6.2	**	**	**	**	**	**	**	**	**	**	**	**
NE 8th & 108th	F	6.5	NE 8th & 108th	D	5.0	NE 8th & 108th	E	4.3	NE 8th & 108th	D	5.0	NE 8th & 108th	D	5.0
NE 8th & 110th	F	6.6	NE 8th & 110th	E	5.4	NE 8th & 110th	F	5.3	NE 8th & 110th	F	5.6	NE 8th & 110th	F	5.1
NE 8th & 112th	F	6.9	NE 8th & 112th	F	5.3	NE 8th & 112th	F	5.2	NE 8th & 112th	F	5.4	NE 8th & 112th	F	5.2
NE 8th & 116th Ave	F	7.5	NE 8th & 116th Ave	D	6.2	NE 8th & 116th Ave	F	5.8	NE 8th & 116th Ave	D	6.2	NE 8th & 116th Ave	E	5.9
**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
NE 12th St & 112th	D	6.4	NE 12th St & 112th	E	5.2	NE 12th St & 112th	F	5.0	NE 12th St & 112th	E	5.2	NE 12th St & 112th	F	5.0
Bel-Red Rd & 116th	D	6.2	Bel-Red Rd & 116th	D	5.4	Bel-Red Rd & 116th	D	5.1	Bel-Red Rd & 116th	D	5.2	Bel-Red Rd & 116th	D	5.1

* CO concentrations in parts per million (ppm).

** Intersections did not trigger modeling requirements.

Segment D

Alternative D2A CO Concentrations

Existing CO Concentrations			No-Build CO Concentrations						Build CO Concentrations											
Intersection	LOS	CO Conc.	2020			2030			2020			2030								
			Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.						
**			**			**			**			**			**			**		
Bel-Red Rd & 124th	D	6.3				Bel-Red Rd & 124th	D	5.5				Bel-Red Rd & 124th	D	5.0				Bel-Red Rd & 120th	D	4.9
**			**			NE 20th St & 124th	D	5.2				NE 20th St & 124th	D	5.3				NE 20th St & 124th	D	5.3
NE 20th St & 140th	D	7.3	NE 20th St & 140th	E	5.7	NE 20th St & 140th	F	5.7			NE 20th St & 140th	F	5.7				NE 20th St & 140th	F	5.7	
NE 20th St & 148th	E	7.8	NE 20 St & 148 Ave NE	E	5.7	NE 20 St & 148 Ave NE	E	5.5			NE 20 St & 148 Ave NE	E	5.5				NE 20 St & 148 Ave NE	E	5.6	
NE 24th & 148th	E	8.2	NE 24 St & 148 Ave NE	F	6.1	NE 24 St & 148 Ave NE	F	5.9			NE 24 St & 148 Ave NE	F	5.9				NE 24 St & 148 Ave NE	F	6.2	
**			**			**			**			**			**			NE 24 St & 151 Ave NE	F	5.0
**			**			**			**			**			**			NE 24 St & 152 Ave NE	F	4.8
NE 29 PI & 148 Ave NE	D	6.4	NE 29 PI & 148 Ave NE	D	5.2	NE 29 PI & 148 Ave NE	D	5.0			NE 29 PI & 148 Ave NE	D	5.0				NE 29 PI & 148 Ave NE	D	4.9	
NE 31 St & 156th Ave	D	5.7	NE 31 St & 156 Ave NE	D	4.8	NE 31 St & 156 Ave NE	E	4.8			NE 31 St & 156 Ave NE	E	4.8				NE 31 St & 156 Ave NE	E	4.9	
NE 36 St & 156 Ave NE	D	6.1	NE 36 St & 156 Ave NE	E	5.2	NE 36 St & 156 Ave NE	E	5.1			NE 36 St & 156 Ave NE	E	5.1				NE 36 St & 156 Ave NE	E	5.0	
NE 40 St & 156 Ave NE	D	8.0	NE 40 St & 156 Ave NE	F	5.9	NE 40 St & 156 Ave NE	F	5.9			NE 40 St & 156 Ave NE	F	5.9				NE 40 St & 156 Ave NE	F	5.9	
**			**			NE 40 St & 148 Ave NE	D	5.2			NE 40 St & 148 Ave NE	F	5.5				NE 40 St & 148 Ave NE	F	5.6	

Alternative D2A CO Concentrations

Existing CO Concentrations			No-Build CO Concentrations						Build CO Concentrations						
Intersection	LOS	CO Conc.	2020			2030			2020			2030			
			Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	
**			**			NE 40 St & 520 EB	D	5.4	NE 40 St & 520 EB	**					
**			**			520 EB Off & 148 Ave NE	E	5.4	520 EB Off & 148 Ave NE	**			520 EB Off & 148 Ave NE	E	5.4
**			**				**		Overlake T C & 156 Ave NE	**			Overlake T C & 156 Ave NE	D	4.7

* CO concentrations in parts per million (ppm).
 ** Intersections did not trigger modeling requirements.

Alternative D2E CO Concentrations

Existing CO Concentrations				No-Build CO Concentrations						Build CO Concentrations								
Intersection	LOS	CO Conc.		2020			2030			2020			2030					
				Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.			
	**			**			**			**		**			**		**	
Bel-Red Rd & 124th	D	6.3		**			Bel-Red Rd & 124th	D	5.5		**			**			**	
	**			**			NE 20th St & 124th	D	5.2		**			**		NE 20th St & 124th	D	5.3
NE 20th St & 140th	D	7.3			E	5.7	NE 20th St & 140th	F	5.7			NE 20th St & 140th	F	5.7	NE 20th St & 140th	F	5.7	
NE 20th St & 148th	E	7.8			E	5.7	NE 20 St & 148 Ave NE	E	5.5			NE 20 St & 148 Ave NE	E	5.7	NE 20 St & 148 Ave NE	E	5.6	
NE 24th & 148th	E	8.2			F	6.1	NE 24 St & 148 Ave NE	F	5.9			NE 24 St & 148 Ave NE	F	6.1	NE 24 St & 148 Ave NE	F	6.2	
	**			**				**			**		**		NE 24 St & 151 Ave NE	F	5.0	
	**			**				**			**		**		NE 24 St & 152 Ave NE	F	4.8	
NE 29 PI & 148 Ave NE	D	6.4			D	5.2	NE 29 PI & 148 Ave NE	D	5.0			NE 29 PI & 148 Ave NE	D	5.0	NE 29 PI & 148 Ave NE	D	4.9	
NE 31 St & 156th Ave	D	5.7			D	4.8	NE 31 St & 156 Ave NE	E	4.8			NE 31 St & 156 Ave NE	D	4.8	NE 31 St & 156 Ave NE	E	4.9	
NE 36 St & 156 Ave NE	D	6.1			E	5.2	NE 36 St & 156 Ave NE	E	5.1			NE 36 St & 156 Ave NE	E	5.2	NE 36 St & 156 Ave NE	E	5.0	
NE 40 St & 156 Ave NE	D	8.0			F	5.9	NE 40 St & 156 Ave NE	F	5.9			NE 40 St & 156 Ave NE	F	5.9	NE 40 St & 156 Ave NE	F	5.9	
	**			**			NE 40 St & 148 Ave NE	F	5.5			NE 40 St & 148 Ave NE	F	5.3	NE 40 St & 148 Ave NE	F	5.6	
	**			**			NE 40 St & 520 EB	D	5.4			NE 40 St & 520 EB	**		NE 40 St & 520 EB	D	5.5	

Alternative D2E CO Concentrations

Existing CO Concentrations			No-Build CO Concentrations				Build CO Concentrations							
			2020			2030			2020			2030		
Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.
**			520 EB Off & 148 Ave NE	E	5.4	521 EB Off & 148 Ave NE	E	5.4	521 EB Off & 148 Ave NE	E	5.4	521 EB Off & 148 Ave NE	E	5.4
**				**		Overlake T C & 156 Ave NE	**		Overlake T C & 156 Ave NE	**		Overlake T C & 156 Ave NE	D	4.7

* CO concentrations in parts per million (ppm).

** Intersections did not trigger modeling requirements.

Alternative D3 CO Concentrations

Existing CO Concentrations			No-Build CO Concentrations						Build CO Concentrations					
Intersection	LOS	CO Conc.	2020			2030			2020			2030		
			Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.
Bel-Red Rd & 124th	D	6.3		**		Bel-Red Rd & 124th	D	5.5				Bel-Red Rd & 124th	D	5.0
	**						**						**	
	**			**		NE 20th St & 124th	D	5.2				NE 20th St & 124th	D	5.3
	**						**						**	
NE 20th St & 140th	D	7.3	NE 20th St & 140th	E	5.7	NE 20th St & 140th	F	5.7				NE 20th St & 140th	F	5.4
NE 20th St & 148th	E	7.8	NE 20 St & 148 Ave NE	E	5.7	NE 20 St & 148 Ave NE	E	5.5				NE 20 St & 148 Ave NE	E	5.1
NE 24th & 148th	E	8.2	NE 24 St & 148 Ave NE	F	6.1	NE 24 St & 148 Ave NE	F	5.9				NE 24 St & 148 Ave NE	F	6.2
	**			**			**						**	
NE 29 PI & 148 Ave NE	D	6.4	NE 29 PI & 148 Ave NE	D	5.2	NE 29 PI & 148 Ave NE	D	5.0				NE 29 PI & 148 Ave NE	D	4.9
NE 31 St & 156th Ave	D	5.7	NE 31 St & 156 Ave NE	D	4.8	NE 31 St & 156 Ave NE	E	4.8				NE 31 St & 156 Ave NE	E	4.9
NE 36 St & 156 Ave NE	D	6.1	NE 36 St & 156 Ave NE	E	5.2	NE 36 St & 156 Ave NE	E	5.1				NE 36 St & 156 Ave NE	E	5.0
NE 40 St & 156 Ave NE	D	8.0	NE 40 St & 156 Ave NE	F	5.9	NE 40 St & 156 Ave NE	F	5.9				NE 40 St & 156 Ave NE	F	5.9
	**		NE 40 St & 148 Ave NE	D	5.2	NE 40 St & 148 Ave NE	F	5.5				NE 40 St & 148 Ave NE	D	5.6
	**			**		NE 40 St & 520 EB	D	5.4				NE 40 St & 520 EB	D	5.5

Alternative D3 CO Concentrations

Existing CO Concentrations			No-Build CO Concentrations				Build CO Concentrations				
			2020		2030		2020		2030		
Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.
**			520 EB Off & 148 Ave NE	E	5.4	520 EB Off & 148 Ave NE	E	5.4	520 EB Off & 148 Ave NE	E	5.4
**			Overlake T C & 156 Ave NE	**	**	Overlake T C & 156 Ave NE	**	**	Overlake T C & 156 Ave NE	D	4.7

* CO concentrations in parts per million (ppm).

** Intersections did not trigger modeling requirements.

Alternative D5 CO Concentrations

Existing CO Concentrations			No-Build CO Concentrations				Build CO Concentrations							
Intersection	LOS	CO Conc.	2020			2030			2020			2030		
			Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.
**			**			**			**			**		
Bel-Red Rd & 124th	D	6.3	**			Bel-Red Rd & 124th	D	5.5	**			Bel-Red Rd & 120th	D	4.9
**			**			NE 20th St & 124th	D	5.2	**			NE 20th St & 124th	D	5.3
NE 20th St & 140th	D	7.3	NE 20th St & 140th	E	5.7	NE 20th St & 140th	F	5.7	NE 20th St & 140th	E	5.8	NE 20th St & 140th	F	5.7
NE 20th St & 148th	E	7.8	NE 20 St & 148 Ave NE	E	5.7	NE 20 St & 148 Ave NE	E	5.5	NE 20 St & 148 Ave NE	E	5.7	NE 20 St & 148 Ave NE	E	5.6
NE 24th & 148th	E	8.2	NE 24 St & 148 Ave NE	F	6.1	NE 24 St & 148 Ave NE	F	5.9	NE 24 St & 148 Ave NE	F	6.1	NE 24 St & 148 Ave NE	F	6.2
**			**			**			**			NE 24 St & 152 Ave NE	D	5.0
NE 29 PI & 148 Ave NE	D	6.4	NE 29 PI & 148 Ave NE	D	5.2	NE 29 PI & 148 Ave NE	D	5.0	NE 29 PI & 148 Ave NE	D	5.0	NE 29 PI & 148 Ave NE	D	4.9
NE 31 St & 156th Ave	D	5.7	NE 31 St & 156 Ave NE	D	4.8	NE 31 St & 156 Ave NE	E	4.8	NE 31 St & 156 Ave NE	D	4.8	NE 31 St & 156 Ave NE	E	4.9
NE 36 St & 156 Ave NE	D	6.1	NE 36 St & 156 Ave NE	E	5.2	NE 36 St & 156 Ave NE	E	5.1	NE 36 St & 156 Ave NE	E	5.2	NE 36 St & 156 Ave NE	E	5.0
NE 40 St & 156 Ave NE	D	8.0	NE 40 St & 156 Ave NE	F	5.9	NE 40 St & 156 Ave NE	F	5.9	NE 40 St & 156 Ave NE	F	5.9	NE 40 St & 156 Ave NE	F	5.9
**			NE 40 St & 148 Ave NE	D	5.2	NE 40 St & 148 Ave NE	F	5.5	NE 40 St & 148 Ave NE	D	5.3	NE 40 St & 148 Ave NE	F	5.6
**			**			NE 40 St & 520 EB	D	5.4	**			NE 40 St & 520 EB	D	5.5
**			**			520 EB Off & 148 Ave NE	E	5.4	**			520 EB Off & 148 Ave NE	E	5.4
**			**			**			**			Overlake T C & 156 Ave NE	D	4.7

* CO concentrations in parts per million (ppm).
 ** Intersections did not trigger modeling requirements.

Segment E

Alternative E1 CO Concentrations

Existing CO Concentrations			No-Build CO Concentrations				Build CO Concentrations							
Intersection	LOS	CO Conc.	2020		2030		2020		2030					
			Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.			
**			**		D	4.4	NE 65 St. & ELSP	**		D	4.4	NE 65 St. & ELSP	D	4.4
**			**		E	5.9	NE 70 St & Redmond Way			D	6.1	Redmond Way & NE 70 St	F	6.2
Redmond Way & NE 76th	E	7.0	**		D	5.2	Redmond Way & NE 76 St			D	5.2	Redmond Way & NE 76th	E	5.3
**			**		D	4.1	NE 80 St. & 164 Ave NE			D	4.1	NE 80 St. & 164 Ave NE	D	4.1
NE 85 St. & 164 Ave NE	D	5.5	NE 85 St. & 164 Ave NE	E	F	4.3	NE 85 St. & 164 Ave NE			E	4.4	NE 85 St. & 164 Ave NE	F	4.3
**			Redmond Way & 161 Ave NE	D	E	4.0	Redmond Way & 161 Ave NE			E	4.3	Redmond Way & 161 Ave NE	F	4.2
**			**		D		Redmond Way & 166 Ave NE	**		**		Redmond Way & 166 Ave NE	D	4.1
Redmond Way & 180 Ave NE	F	8.0	Redmond Way & 180 Ave NE	F	F	6.2	Redmond Way & 180 Ave NE			F	6.4	Redmond Way & 180 Ave NE	F	6.4
WLSP & Leary Way (520 WB & WLSP)	F	8.0	520 WB & WLSP	F	F	5.9	520 WB & WLSP			F	6.1	520 WB & WLSP	F	5.9
SR 520 EB & Redmond Way	D	7.5	Redmond Way & 520 EB	E	F	5.2	Redmond Way & 520 EB			E	5.4	SR 520 EB & Redmond Way	F	5.4

Alternative E1 CO Concentrations

Existing CO Concentrations			No-Build CO Concentrations				Build CO Concentrations							
Intersection	LOS	CO Conc.	2020			2030			2030					
			Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.			
**			Leary Way & 159 Ave NE	D	5.0	Leary Way & 159 Ave NE	D	5.2	Leary Way & 159 Ave NE	D	4.6	Leary Way & 159 Ave NE	D	4.5
**			**			Leary Way & Bear Creek Pkwy	D		**			Bear Creek Pkwy & Leary Way	D	5.9
Union Hill Rd & Avondale Rd NE	F	7.8	Union Hill Rd & Avondale Rd NE	F	5.8	Union Hill Rd & Avondale Rd NE	F	5.7	Union Hill Rd & Avondale Rd NE	F	5.8	Union Hill Rd & Avondale Rd NE	F	5.7
**			**			**			**			Cleveland St. & 164 Ave NE	D	4.0
**			**			**			**			Cleveland St. & 166 Ave NE	E	4.2

* CO concentrations in parts per million (ppm).
 ** Intersections did not trigger modeling requirements.

Alternative E2 CO Concentrations

Existing CO Concentrations			No-Build CO Concentrations				Build CO Concentrations							
Intersection	LOS	CO Conc.	2020		2030		2020		2030					
			Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.			
**			NE 65 St. & ELSP	**	4.4	NE 65 St. & ELSP	D	4.4	NE 65 St. & ELSP	**	4.4	NE 65 St. & ELSP	D	4.4
**			NE 70 St & Redmond Way	**	5.9	NE 70 St & Redmond Way	E	5.9	Redmond Way & NE 70 St	D	6.1	Redmond Way & NE 70 St	F	6.2
Redmond Way & NE 76th	E	7.0	Redmond Way & NE 76 St	**	5.2	Redmond Way & NE 76 St	D	5.2	Redmond Way & NE 76th	D	5.2	Redmond Way & NE 76th	E	5.3
**			NE 80 St. & 164 Ave NE	**	4.1	NE 80 St. & 164 Ave NE	D	4.1	NE 80 St. & 164 Ave NE	D	4.1	NE 80 St. & 164 Ave NE	D	4.0
**				**			**		NE 83 St & 161 Ave NE	D	4.0	NE 83 St & 161 Ave NE	E	4.0
NE 85 St. & 164 Ave NE	D	5.5	NE 85 St. & 164 Ave NE	E	4.4	NE 85 St. & 164 Ave NE	F	4.3	NE 85 St. & 164 Ave NE	E	4.4	NE 85 St. & 164 Ave NE	F	4.3
**			Redmond Way & 161 Ave NE	D	4.2	Redmond Way & 161 Ave NE	E	4.0	Redmond Way & 161 Ave NE	F	4.3	Redmond Way & 161 Ave NE	F	4.3
**			Redmond Way & 166 Ave NE	**		Redmond Way & 166 Ave NE	D		Redmond Way & 166 Ave NE	**		Redmond Way & 166 Ave NE	D	4.1
Redmond Way & 180 Ave NE	F	8.0	Redmond Way & 180 Ave NE	F	6.3	Redmond Way & 180 Ave NE	F	6.2	Redmond Way & 180 Ave NE	F	6.4	Redmond Way & 180 Ave NE	F	6.4
WLSP & Leary Way (520 WB & WLSP)	F	8.0	520 WB & WLSP	F	6.0	520 WB & WLSP	F	5.9	520 WB & WLSP	F	6.1	520 WB & WLSP	F	5.9
SR 520 EB & Redmond Way	D	7.5	Redmond Way & 520 EB	E	5.9	Redmond Way & 520 EB	F	5.2	SR 520 EB & Redmond Way	E	5.4	SR 520 EB & Redmond Way	F	5.4

Alternative E2 CO Concentrations

Existing CO Concentrations			No-Build CO Concentrations				Build CO Concentrations							
Intersection	LOS	CO Conc.	2020		2030		2020		2030					
			Intersection	LOS	CO Conc.	Intersection	LOS	Intersection	LOS	CO Conc.	CO Conc.			
**			Leary Way & 159 Ave NE	D	5.0	Leary Way & 159 Ave NE	D	5.2	Leary Way & 159 Ave NE	D	4.6	Leary Way & 159 Ave NE	D	4.5
**			**			Leary Way & Bear Creek Pkwy	D		**			Bear Creek Pkwy & Leary Way	D	5.9
Union Hill Rd & Avondale Rd NE	F	7.8	Union Hill Rd & Avondale Rd NE	F	5.8	Union Hill Rd & Avondale Rd NE	F	5.7	Union Hill Rd & Avondale Rd NE	F	5.8	Union Hill Rd & Avondale Rd NE	F	5.7
**			**			**			**			Cleveland St. & 161 Ave NE	D	4.0
**			**			**			Cleveland St. & 164 Ave NE	D	4.0	Cleveland St. & 164 Ave NE	D	4.0
**			**			**			Cleveland St. & 166 Ave NE	E	4.2	Cleveland St. & 166 Ave NE	E	4.2

* CO concentrations in parts per million (ppm).
 ** Intersections did not trigger modeling requirements.

Alternative E4 CO Concentrations

Existing CO Concentrations			No-Build CO Concentrations				Build CO Concentrations					
Intersection	LOS	CO Conc.	2020		2030		2020		2030			
			Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	
**			**		NE 65 St. & ELSP	D	4.4	**		NE 65 St. & ELSP	D	4.4
**			**		NE 70 St & Redmond Way	E	5.9			Redmond Way & NE 70 St	D	6.1
Redmond Way & NE 76th	E	7.0	**		Redmond Way & NE 76 St	D	5.2			Redmond Way & NE 76th	D	5.2
**			**		NE 80 St. & 164 Ave NE	D	4.1			NE 80 St. & 164 Ave NE	D	4.1
NE 85 St. & 164 Ave NE	D	5.5	NE 85 St. & 164 Ave NE	E	4.4	F	4.3	NE 85 St. & 164 Ave NE	E	4.4	F	4.3
**			Redmond Way & 161 Ave NE	D	4.2	E	4.0	Redmond Way & 161 Ave NE	E	4.3	E	4.2
**			**		Redmond Way & 166 Ave NE	D		**		Redmond Way & 166 Ave NE	D	4.1
Redmond Way & 180 Ave NE	F	8.0	Redmond Way & 180 Ave NE	F	6.3	F	6.2	Redmond Way & 180 Ave NE	F	6.4	F	6.4
WLSP & Leary Way (520 WB & WLSP)	F	8.0	520 WB & WLSP	F	6.0	F	5.9	520 WB & WLSP	F	6.1	F	5.9
SR 520 EB & Redmond Way	D	7.5	Redmond Way & 520 EB	E	5.9	F	5.2	SR 520 EB & Redmond Way	E	5.4	F	5.4
**			Leary Way & 159 Ave NE	D	5.0	D	5.2	Leary Way & 159 Ave NE	D	5.4	D	4.5

Alternative E4 CO Concentrations

Existing CO Concentrations			No-Build CO Concentrations				Build CO Concentrations								
Intersection	LOS	CO Conc.	2020		2030		2020		2030						
			Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.	Intersection	LOS	CO Conc.				
	**			**	Leary Way & Bear Creek Pkwy	D		Bear Creek Pkwy & Leary Way	E			Bear Creek Pkwy & Leary Way	E	5.7	
Union Hill Rd & Avondale Rd NE	F	7.8	Union Hill Rd & Avondale Rd NE	F	5.8	F	5.7	Union Hill Rd & Avondale Rd NE	F	5.8	F	5.8	Union Hill Rd & Avondale Rd NE	F	5.7
	**			**		**			**		**		Cleveland St. & 164 Ave NE	D	4.0
	**			**		**			**		**		Cleveland St. & 166 Ave NE	E	4.2

* CO concentrations in parts per million (ppm).
 ** Intersections did not trigger modeling requirements.

CO2 Equivalent Emissions Savings for High and Low East Link Project Ridership for the Puget Sound Region

Energy consumption during operations for Region

Vehicle Type	2030 No Build		2030 Build-High Ridership		2030 Build-Low Ridership		% Change in Btus from No Build		
	Consumption Factor	Daily VMT	MMBtus	Daily VMT	MMBtus	Daily VMT	MMBtus	High Ridership	Low Ridership
Passenger Vehicle	6.132	89,188,832	546,906	88,988,548	545,678	89,015,577	545,844	-0.2%	-0.2%
Heavy Duty	20.539	4,257,715	87,449	4,245,161	87,191	4,245,161	87,191	-0.3%	-0.3%
Transit Bus	38.275	201,586	7,716	194,829	7,457	194,829	7,457	-3.4%	-3.4%
Commuter Rail	92.739	1,524	141	1,524	141	1,524	141	0.0%	0.0%
Light Rail	62.762	17,288	1,085	21,194	1,330	21,194	1,330	22.6%	22.6%
Total		93,666,945	643,297	93,451,256	641,798	93,478,285	641,963	-0.2%	-0.2%

Passenger Vehicle includes autos, motorcycles, and light trucks

-1.66E+02

Gallons of Fuel Consumed and CO2 emissions for Region

Vehicle Type	Fuel Consumption Factor (mile/gal)	2030 No Build			2030 Build-High Ridership			2030 Build-Low Ridership		
		CO2 (g/gal)	Daily VMT	Gallons of Fuel Consumed	CO2 Emissions (metric tonnes)	Daily VMT	Gallons of Fuel Consumed	CO2 Emissions (metric tonnes)	Daily VMT	Gallons of Fuel Consumed
Passenger Vehicle	22.9	8,810	89,188,832	3,894,709	34,312	3,885,963	34,235	3,887,143	34,246	34,246
Heavy Duty	5.8	10,150	4,257,715	734,089	7,451	731,924	7,429	731,924	7,429	7,429
Transit Bus			201,586	51,648	507	49,917	490	49,917	490	490
Diesel	4.1	10,274	139,094	34,260	352	33,111	340	33,111	340	340
Hybrid	3.4	10,274	24,190	7,032	72	6,796	70	6,796	70	70
CNG	4.0	7,517	22,174	5,544	42	5,358	40	5,358	40	40
Transit Bus	btus/mile	CO2 (g/gal)								
Trolley	37.270	8,482	16,127	4,813	41	4,652	39	4,652	39	39
Commuter Rail	92.739	8,810	1,524	1,132	10	1,132	10	1,132	10	10
Light Rail	62.762	8,810	17,288	8,688	77	10,651	94	10,651	94	94
Total			93,666,945	4,690,266	42,357	4,679,587	42,258	4,680,767	42,268	42,268

CO2 Equivalent Emissions Savings for High and Low East Link Project Ridership for the Project SubArea

Energy consumption during operations for Sub Area

Vehicle Type	Consumption Factor	2030 No Build		2030 Build-High Ridership		2030 Build-Low Ridership		% Change in Btus from No Build	
		Daily VMT	MMBtus	Daily VMT	MMBtus	Daily VMT	MMBtus	High Ridership	Low Ridership
Passenger Vehicle	6.132	30,887,755	189,404	30,697,486	188,237	30,723,164	188,394	-0.6%	-0.5%
Heavy Duty	20.539	1,614,437	33,159	1,614,889	33,168	1,614,889	33,168	0.0%	0.0%
Transit Bus	38.275	109,293	4,183	102,591	3,927	102,591	3,927	-6.1%	-6.1%
Commuter Rail	92.739	312	29	312	29	312	29	0.0%	0.0%
Light Rail	62.762	9,319	585	13,224	830	13,224	830	41.9%	41.9%
Total		32,621,116	227,360	32,428,502	226,191	32,454,180	226,348	-0.5%	-0.4%

Passenger Vehicle includes autos, motorcycles, and light trucks

-1.57E+02

Gallons of Fuel Consumed and CO2 emissions for Sub Area

Vehicle Type	Fuel Consumption Factor (mile/gal)	CO2 (g/gal)	2030 No Build			2030 Build-High Ridership			2030 Build-Low Ridership		
			Daily VMT	Gallons of Fuel Consumed	CO2 Emissions (metric tonnes)	Daily VMT	Gallons of Fuel Consumed	CO2 Emissions (metric tonnes)	Daily VMT	Gallons of Fuel Consumed	CO2 Emissions (metric tonnes)
Passenger Vehicle	22.9	8,810	30,887,755	1,348,810	11,883	30,697,486	1,340,502	11,810	30,723,164	11,820	
Heavy Duty	5.8	10,150	1,614,437	278,351	2,825	1,614,889	278,429	2,826	1,614,889	2,826	
Transit Bus			109,293	28,178	286	102,591	26,450	268	102,591	268	
Diesel	4.1	10,274	82,079	20,217	208	77,046	18,977	195	77,046	195	
Hybrid	3.4	10,274	20,656	6,005	62	19,390	5,637	58	19,390	58	
CNG	4.0	7,517	0	0	0	0	0	0	0	0	
Transit Bus	btus/mile	CO2 (g/gal)									
Trolley	37.270	8,482	6,558	1,957	17	6,155	1,837	16	6,155	16	
Commuter Rail	92.739	8,810	312	232	2	312	232	2	312	2	
Light Rail	62.762	8,810	9,319	4,683	41	13,224	6,646	59	13,224	59	
Total			32,621,116	1,660,255	15,038	32,428,502	1,652,259	14,965	32,454,180	14,975	

Construction CO2 Equivalent Emissions by Alternative

CO2e Emissions (Metric Tonnes)				
	Rail Construction	Yard Construction	Building Construction	Total
Maintenance Facility	988	356	396	1,740

CO2e Emissions (Metric Tonnes)						
Segment Construction	Rail Material (emissions associated with guideway)	Station Construction	Park & Ride Construction	Site Prep - Additional Construction Eq. Fuel Use	Transport of Waste and Fill Material	Total
Segment A						
A1 - Joint Option	9,925	115	0	0	274	10,315
Segment B						
B1	7,479	58	5,667	3,767	1,779	18,749
B2A-AG	7,701	115	5,667	3,135	1,608	18,226
B2A-RC	7,931	115	5,667	3,003	1,608	18,325
B2E	7,336	1,612	5,667	3,362	729	18,706
B3	8,179	58	5,667	3,334	1,319	18,556
B7	7,193	806	4,048	4,161	1,630	17,837
Segment C - Tunnel						
C1T	12,111	7,649	0	28,113	13,924	61,796
C2T/B2A	11,919	6,843	0	38,571	9,967	67,300
C2T/B2E	10,736	6,843	0	26,346	7,731	51,655
C2T/B3	11,174	10,264	0	28,800	8,025	58,263
C2T/B7	11,230	10,264	0	28,827	8,129	58,449
C3T/B2A	8,221	4,227	0	40,107	7,664	60,219
C3T/B2E	7,646	4,227	0	27,326	5,999	45,199
C3T/B3	8,051	5,033	0	29,418	6,632	49,134
C3T/B7	8,109	5,033	0	29,446	6,668	49,257
Segment C - AG & Elev						
C4A/B2A	7,589	115	0	3,920	2,142	13,766
C4A/B2E	7,444	115	0	4,129	1,707	13,396
C4A/B3	7,248	921	0	4,031	1,280	13,480
C4A/B7	7,109	921	0	4,064	1,281	13,375
C7E/B2A	5,213	1,612	0	2,240	1,631	10,697
C7E/B2E	4,934	1,612	0	2,419	979	9,944
C7E/B3	4,708	2,418	0	2,308	625	10,060
C7E/B7	4,766	2,418	0	2,337	619	10,140
C8E/B3	5,397	2,418	0	2,646	827	11,288
C8E/B7	5,463	2,418	0	2,678	778	11,338
Segment D						
D2A-12th	12,927	230	7,690	5,076	2,106	28,030
D2A-BNSF	12,864	230	7,690	4,963	2,093	27,841
D2E-12th	12,773	2,476	7,690	5,223	1,758	29,920
D2E-BNSF	12,616	2,476	7,690	5,166	1,749	29,696
D3-12th	15,749	2,476	7,690	11,269	4,184	41,368
D3-BNSF	15,664	2,476	7,690	11,141	4,219	41,191
D5-12th SFWY	13,727	115	1,821	5,680	1,835	23,178
D5-12th 152	13,727	115	1,821	5,680	1,832	23,176
D5-BNSF SFWY	14,087	115	1,821	5,736	1,987	23,746
D5-BNSF 152	14,087	115	1,821	5,736	1,984	23,744
Segment E						
E1	15,804	864	6,071	5,927	5,583	34,249
E2	13,722	173	6,071	5,923	5,985	31,874
E4	14,685	115	6,071	5,033	5,108	31,012

CO2e - Equivalent Carbon Dioxide emissions. Include CH4 and N2O emissions in the form of their CO2 equivalent.