



APPENDIX B
EMISSIONS ESTIMATES TABULATIONS

Table B-1. Existing Vehicle Idling Emissions based on Vehicle Delay and Traffic Volumes along Analyzed Roadways

Roadway Segment	Daily CO Emissions (tons/year)	PM10 Emissions (tons/year)	CO2 Emissions (metric tons per year)
NW 54 th St west of NW Market St	1.241186	0.001443	82.25383
28 th Ave NW north of MW Market St	0.057174	8.1E-05	4.171538
NW Market St west of 24 th Ave NW	4.003318	0.003298	229.557
NW 56 th St west of 24 th Ave NW	0.22148	0.000105	10.66514
NW 56 th St east of 24 th Ave NW	0.918896	0.00044	44.33982
NW Market St west of 24 th Ave NW	4.003318	0.003298	229.557
Shilshole Ave NW southeast of 24 th Ave NW	1.048685	0.000711	56.1085
22 nd Ave NW south of NW 56 th St	1.658834	0.000961	84.41996
22 nd Ave NW south of NW Market St	0.897842	0.000609	48.05352
Leary Ave NW south of NW Market St	4.496598	0.003604	255.2028
Ballard Ave NW southeast of 22 nd Ave NW	0.167048	0.000482	18.65624
NW Vernon Pl northwest of Shilshole Ave NW	0.166163	0.000148	9.820184
17 th Ave NW north of Shilshole Ave NW	1.095268	0.002118	94.8524
Shilshole Ave NW west of NW 46 th St	0.592295	0.000421	32.20061
NW Ballard Way east of 17 th Ave NW	0.285207	0.000532	24.18516
NW 46 th St west of 15 th Ave NW	0.545424	0.000425	30.63442
NW Leary Way west of 15 th Ave NW	0.944013	0	33.62891
NW 45 th St west of 14 th Ave NW	0.212339	0.000144	11.34869
14 th Ave NW south of NW Ballard Way	0.297543	0.000339	19.52691
NW Leary Way east of 14 th Ave NW	1.015333	0.001258	69.34339
11 th Ave NW north of NW 46 th Ave NW	0.563632	0.000466	32.3634
Total Idling Emissions along Analyzed Roadways	24.4316	0.020881	1,420.89

Table B-2. Tabulation of Annual Vehicle Idling Emissions for the No Build Alternative based on Forecasted Vehicle Delay and Traffic Volumes in 2040

Roadway Segment	CO Emissions (tons/year)	CO Increase over Existing	PM10 Emissions (tons/year)	PM10 Increase over Existing	CO ₂ Emissions (metric tons/year)	CO ₂ Increase over Existing
NW 54 th St west of NW Market St	2.08	0.84	0.0040	0.0026	180.67	98.42
28 th Ave NW north of MW Market St	0.08	0.02	0.0002	0.0001	7.68	3.51
NW Market St west of 24 th Ave NW	5.00	1.00	0.0069	0.0036	360.92	131.36
NW 56 th St west of 24 th Ave NW	0.96	0.74	0.0008	0.0007	54.62	43.96
NW 56 th St east of 24 th Ave NW	3.98	3.06	0.0032	0.0028	226.87	182.53
NW Market St west of 24 th Ave NW	4.15	0.14	0.0069	0.0036	330.59	101.04
Shilshole Ave NW southeast of 24 th Ave NW	1.59	0.54	0.0015	0.0008	95.56	39.45
22 nd Ave NW south of NW 56 th St	2.57	0.91	0.0025	0.0016	157.74	73.32
22 nd Ave NW south of NW Market St	1.44	0.54	0.0016	0.0010	93.44	45.39
Leary Ave NW south of NW Market St	6.99	2.49	0.0094	0.0058	497.49	242.29
Ballard Ave NW southeast of 22 nd Ave NW	0.20	0.03	0.0009	0.0005	32.10	13.45
NW Vernon Pl northwest of Shilshole Ave NW	0.25	0.08	0.0004	0.0002	18.61	8.79
17 th Ave NW north of Shilshole Ave NW	6.42	5.33	0.0206	0.0185	771.54	676.69
Shilshole Ave NW west of NW 46 th St	0.78	0.18	0.0009	0.0005	52.13	19.93
NW Ballard Way east of 17 th Ave NW	0.34	0.05	0.0010	0.0005	39.57	15.38
NW 46 th St west of 15 th Ave NW	0.71	0.17	0.0009	0.0005	50.20	19.56
NW Leary Way west of 15 th Ave NW	1.22	0.28	0.0000	0.0000	43.51	9.88
NW 45 th St west of 14 th Ave NW	0.27	0.06	0.0003	0.0002	17.84	6.50
14 th Ave NW south of NW Ballard Way	0.39	0.09	0.0007	0.0004	33.68	14.15
NW Leary Way east of 14 th Ave NW	1.34	0.33	0.0028	0.0015	120.99	51.65
11 th Ave NW north of NW 46 th Ave NW	0.73	0.17	0.0010	0.0006	52.79	20.43
Total Idling Emissions along Analyzed Roadways	41.49	17.05	0.0668	0.0459	3,238.56	1,817.67

Table B-3. Tabulation of Annual Vehicle Idling Emissions for the Shilshole South Alternative based on Forecasted Vehicle Delay and Traffic Volumes in 2040

Roadway Segment	CO Emissions (tons/year)	CO Increase over Existing	PM10 Emissions (tons/year)	PM10 Increase over Existing	CO ₂ Emissions (metric tons/year)	CO ₂ Increase over Existing
NW 54 th St west of NW Market St	2.42	0.35	0.0047	0.0007	210.79	30.11
28 th Ave NW north of MW Market St	0.08	0.00	0.0002	0.0000	7.68	0.00
NW Market St west of 24 th Ave NW	12.33	7.33	0.0171	0.0102	890.27	529.35
NW 56 th St west of 24 th Ave NW	0.73	-0.23	0.0006	-0.0002	41.53	-13.09
NW 56 th St east of 24 th Ave NW	3.02	-0.95	0.0025	-0.0008	172.49	-54.39
NW Market St west of 24 th Ave NW	4.15	0.00	0.0069	0.0000	330.59	0.00
Shilshole Ave NW southeast of 24 th Ave NW	2.10	0.51	0.0019	0.0005	125.97	30.41
22 nd Ave NW south of NW 56 th St	2.53	-0.04	0.0025	0.0000	155.55	-2.19
22 nd Ave NW south of NW Market St	1.42	-0.02	0.0016	0.0000	92.14	-1.30
Leary Ave NW south of NW Market St	6.89	-0.10	0.0093	-0.0001	490.58	-6.91
Ballard Ave NW southeast of 22 nd Ave NW	0.20	0.00	0.0009	0.0000	32.10	0.00
NW Vernon Pl northwest of Shilshole Ave NW	0.32	0.08	0.0005	0.0001	24.27	5.66
17 th Ave NW north of Shilshole Ave NW	0.25	-6.18	0.0008	-0.0198	29.67	-741.87
Shilshole Ave NW west of NW 46 th St	2.41	1.64	0.0029	0.0020	162.17	110.04
NW Ballard Way east of 17 th Ave NW	0.34	0.00	0.0010	0.0000	39.57	0.00
NW 46 th St west of 15 th Ave NW	2.22	1.51	0.0029	0.0020	156.17	105.97
NW Leary Way west of 15 th Ave NW	1.22	0.00	0.0000	0.0000	43.51	0.00
NW 45 th St west of 14 th Ave NW	0.27	0.00	0.0003	0.0000	17.84	0.00
14 th Ave NW south of NW Ballard Way	0.39	0.00	0.0007	0.0000	33.68	0.00
NW Leary Way east of 14 th Ave NW	1.34	0.00	0.0028	0.0000	120.99	0.00
11 th Ave NW north of NW 46 th Ave NW	0.58	-0.15	0.0008	-0.0002	42.23	-10.56
Total Idling Emissions along Analyzed Roadways	45.23	3.75	0.0610	-0.0058	3,219.80	-18.76

Table B-4. Tabulation of Annual Vehicle Idling Emissions for the Shilshole North Alternative based on Forecasted Vehicle Delay and Traffic Volumes in 2040

Roadway Segment	CO Emissions (tons/year)	CO Increase over Existing	PM10 Emissions (tons/year)	PM10 Increase over Existing	CO ₂ Emissions (metric tons/year)	CO ₂ Increase over Existing
NW 54 th St west of NW Market St	2.22	0.14	0.0043	0.0003	192.72	12.04
28 th Ave NW north of MW Market St	0.24	0.16	0.0006	0.0004	23.05	15.36
NW Market St west of 24 th Ave NW	5.11	0.11	0.0071	0.0002	368.94	8.02
NW 56 th St west of 24 th Ave NW	0.73	-0.23	0.0006	-0.0002	41.53	-13.09
NW 56 th St east of 24 th Ave NW	3.02	-0.95	0.0025	-0.0008	172.49	-54.39
NW Market St west of 24 th Ave NW	4.24	0.09	0.0071	0.0002	337.94	7.35
Shilshole Ave NW southeast of 24 th Ave NW	1.30	-0.29	0.0012	-0.0003	78.19	-17.38
22 nd Ave NW south of NW 56 th St	2.53	-0.04	0.0025	0.0000	155.55	-2.19
22 nd Ave NW south of NW Market St	1.42	-0.02	0.0016	0.0000	92.14	-1.30
Leary Ave NW south of NW Market St	6.89	-0.10	0.0093	-0.0001	490.58	-6.91
Ballard Ave NW southeast of 22 nd Ave NW	0.20	0.00	0.0009	0.0000	32.10	0.00
NW Vernon Pl northwest of Shilshole Ave NW	0.19	-0.05	0.0003	-0.0001	14.56	-4.05
17 th Ave NW north of Shilshole Ave NW	0.31	-6.12	0.0010	-0.0196	37.09	-734.45
Shilshole Ave NW west of NW 46 th St	2.41	1.64	0.0029	0.0020	162.17	110.04
NW Ballard Way east of 17 th Ave NW	0.34	0.00	0.0010	0.0000	39.57	0.00
NW 46 th St west of 15 th Ave NW	2.22	1.51	0.0029	0.0020	156.17	105.97
NW Leary Way west of 15 th Ave NW	1.22	0.00	0.0000	0.0000	43.51	0.00
NW 45 th St west of 14 th Ave NW	0.27	0.00	0.0003	0.0000	17.84	0.00
14 th Ave NW south of NW Ballard Way	0.39	0.00	0.0007	0.0000	33.68	0.00
NW Leary Way east of 14 th Ave NW	1.34	0.00	0.0028	0.0000	120.99	0.00
11 th Ave NW north of NW 46 th Ave NW	0.58	-0.15	0.0008	-0.0002	42.23	-10.56
Totals	37.19	-4.30	0.0504	-0.0164	2,653.05	-585.52

Table B-5. Tabulation of Annual Vehicle Idling Emissions for the Ballard Avenue Alternative based on Forecasted Vehicle Delay and Traffic Volumes in 2040

Roadway Segment	CO Emissions (tons/year)	CO Increase over Existing	PM10 Emissions (tons/year)	PM10 Increase over Existing	CO ₂ Emissions (metric tons/year)	CO ₂ Increase over Existing
NW 54 th St west of NW Market St	2.42	0.35	0.0047	0.0007	210.79	30.11
28 th Ave NW north of MW Market St	0.10	0.02	0.0002	0.0001	9.88	2.19
NW Market St west of 24 th Ave NW	5.44	0.44	0.0076	0.0006	393.00	32.08
NW 56 th St west of 24 th Ave NW	0.09	-0.88	0.0001	-0.0007	4.86	-49.76
NW 56 th St east of 24 th Ave NW	0.35	-3.62	0.0003	-0.0029	20.20	-206.67
NW Market St west of 24 th Ave NW	4.52	0.37	0.0076	0.0006	359.98	29.39
Shilshole Ave NW southeast of 24 th Ave NW	1.30	-0.29	0.0012	-0.0003	78.19	-17.38
22 nd Ave NW south of NW 56 th St	2.53	-0.04	0.0025	0.0000	155.55	-2.19
22 nd Ave NW south of NW Market St	1.42	-0.02	0.0016	0.0000	92.14	-1.30
Leary Ave NW south of NW Market St	6.89	-0.10	0.0093	-0.0001	490.58	-6.91
Ballard Ave NW southeast of 22 nd Ave NW	0.20	0.00	0.0009	0.0000	32.10	0.00
NW Vernon Pl northwest of Shilshole Ave NW	0.19	-0.05	0.0003	-0.0001	14.56	-4.05
17 th Ave NW north of Shilshole Ave NW	1.24	-5.19	0.0040	-0.0166	148.37	-623.17
Shilshole Ave NW west of NW 46 th St	2.50	1.72	0.0030	0.0021	167.96	115.84
NW Ballard Way east of 17 th Ave NW	0.34	0.00	0.0010	0.0000	39.57	0.00
NW 46 th St west of 15 th Ave NW	2.30	1.59	0.0030	0.0021	161.75	111.55
NW Leary Way west of 15 th Ave NW	1.22	0.00	0.0000	0.0000	43.51	0.00
NW 45 th St west of 14 th Ave NW	0.27	0.00	0.0003	0.0000	17.84	0.00
14 th Ave NW south of NW Ballard Way	0.39	0.00	0.0007	0.0000	33.68	0.00
NW Leary Way east of 14 th Ave NW	1.34	0.00	0.0028	0.0000	120.99	0.00
11 th Ave NW north of NW 46 th Ave NW	0.62	-0.11	0.0009	-0.0002	44.87	-7.92
Total Idling Emissions along Analyzed Roadways	35.69	-5.80	0.0519	-0.0149	2,640.39	-598.18

Table B-6. Tabulation of Daily Vehicle Idling Emissions for the Leary Alternative based on Forecasted Vehicle Delay and Traffic Volumes in 2040

Roadway Segment	CO Emissions (tons/year)	CO Increase over Existing	PM10 Emissions (tons/year)	PM10 Increase over Existing	CO ₂ Emissions (metric tons/year)	CO ₂ Increase over Existing
NW 54 th St west of NW Market St	2.22	0.14	0.0043	0.0003	192.72	12.04
28 th Ave NW north of MW Market St	0.24	0.16	0.0006	0.0004	23.05	15.36
NW Market St west of 24 th Ave NW	5.11	0.11	0.0071	0.0002	368.94	8.02
NW 56 th St west of 24 th Ave NW	0.73	-0.23	0.0006	-0.0002	41.53	-13.09
NW 56 th St east of 24 th Ave NW	3.02	-0.95	0.0025	-0.0008	172.49	-54.39
NW Market St west of 24 th Ave NW	4.24	0.09	0.0071	0.0002	337.94	7.35
Shilshole Ave NW southeast of 24 th Ave NW	1.30	-0.29	0.0012	-0.0003	78.19	-17.38
22 nd Ave NW south of NW 56 th St	3.10	0.53	0.0030	0.0005	190.61	32.86
22 nd Ave NW south of NW Market St	1.74	0.30	0.0019	0.0003	112.91	19.47
Leary Ave NW south of NW Market St	8.44	1.46	0.0114	0.0020	601.13	103.64
Ballard Ave NW southeast of 22 nd Ave NW	0.20	0.00	0.0009	0.0000	32.10	0.00
NW Vernon Pl northwest of Shilshole Ave NW	0.19	-0.05	0.0003	-0.0001	14.56	-4.05
17 th Ave NW north of Shilshole Ave NW	1.24	-5.19	0.0040	-0.0166	148.37	-623.17
Shilshole Ave NW west of NW 46 th St	2.41	1.64	0.0029	0.0020	162.17	110.04
NW Ballard Way east of 17 th Ave NW	0.34	0.00	0.0010	0.0000	39.57	0.00
NW 46 th St west of 15 th Ave NW	2.22	1.51	0.0029	0.0020	156.17	105.97
NW Leary Way west of 15 th Ave NW	3.53	2.31	0.0000	0.0000	125.69	82.18
NW 45 th St west of 14 th Ave NW	0.27	0.00	0.0003	0.0000	17.84	0.00
14 th Ave NW south of NW Ballard Way	1.13	0.74	0.0022	0.0014	97.30	63.62
NW Leary Way east of 14 th Ave NW	3.87	2.53	0.0080	0.0052	349.53	228.54
11 th Ave NW north of NW 46 th Ave NW	0.58	-0.15	0.0008	-0.0002	42.23	-10.56
Total Idling Emissions along Analyzed Roadways	46.14	4.65	0.0630	-0.0038	3,305.03	66.47

Table B-7. GHG and Air Quality Assumptions for Each Alternative

Alternative	Estimated Pavement Width (feet)	Trail Length (linear feet)	Pavement (square feet)	Project Life (years)
Shilshole South Alternative	30	6,500	195,000	30
Shilshole North Alternative	30	6,650	199,500	30
Ballard Avenue Alternative	30	7,550	226,500	30
Leary Alternative	30	6,800	204,000	30