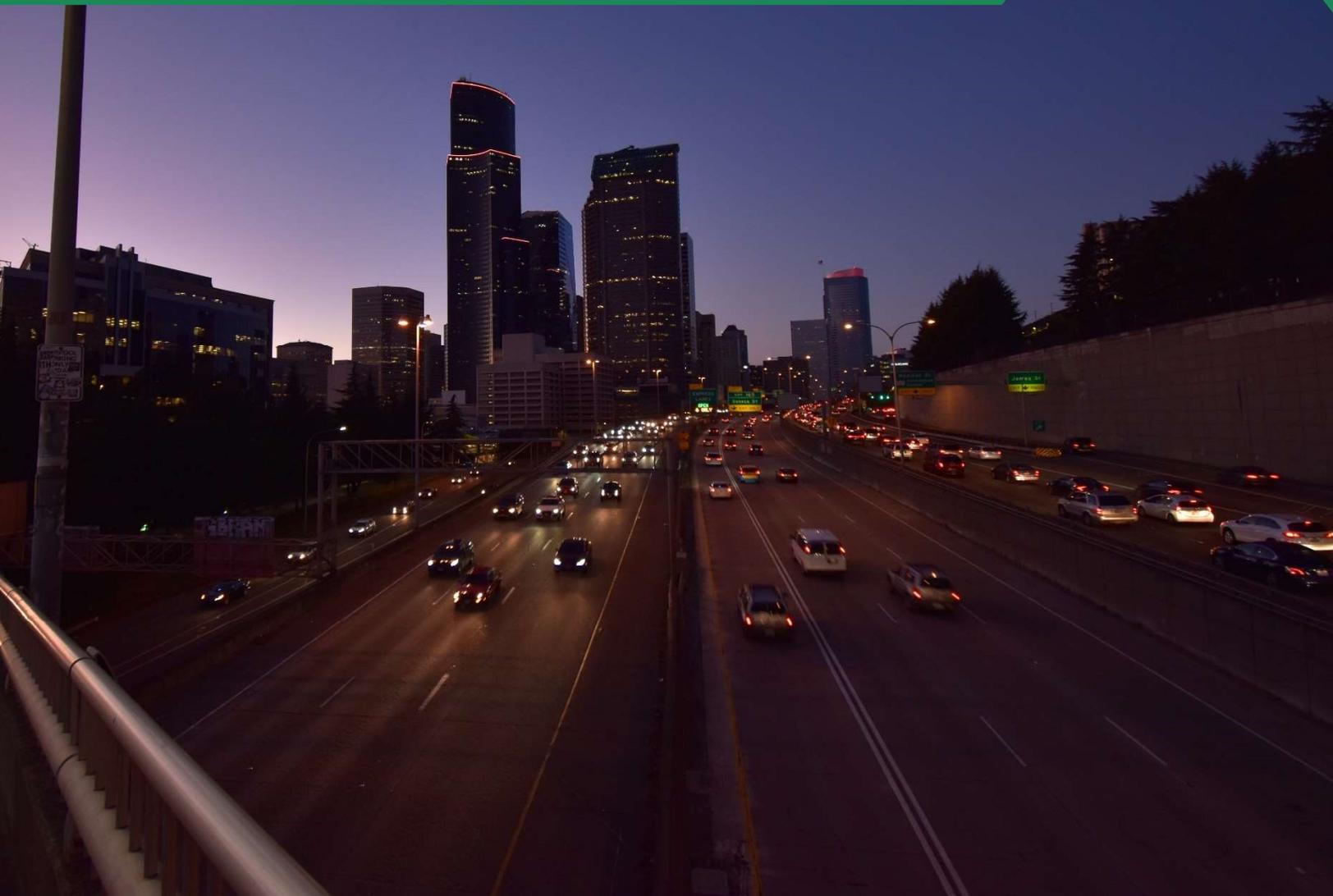


2020 Ramp & Roadway



Washington State Department of
Transportation

Northwest Region
Seasonal Factors

Seasonal Factors – Description and Example Calculation

Since traffic counts are taken throughout the year, data from a particular month may need to be calibrated to a more representative month by applying what's known as a seasonal factor (also called a monthly factor). Generally, but not universally, summer months have higher measured traffic volumes compared to other seasons and applying seasonal factors allows for the most representative traffic volumes to be used in studies, reports, and other calculations.

For example, a traffic count taken in December or January may yield lower volumes than a similar count at the exact same peak hour taken in June or July. Using one count without investigating the roadway's seasonal variance in volumes could impact the accuracy of further operational analysis.

Seasonal factors are not mandated to be used in WSDOT work; rather, they are provided as a resource to use when analyzing count data collected at various times throughout the year.

Example Calculation

A traffic count was taken in March along I-5 in Marysville in WSDOT's Northwest Region. The count yielded a daily vehicle count of 130,000 vehicles.

- Step 1: Identify a nearby Seasonal Factor Location (if any)
 - In this case, Seasonal Factor Location #1 can be used as it's noted to also be along I-5 in Marysville
- Step 2: Determine the Peak Month
 - In this case, the Peak Month (in terms of traffic volume) would be August
- Step 3: Apply Seasonal Factor adjustment to the count month
 - The Seasonal Factor Adjustment involves the following steps:
 - Peak Month Seasonal Factor: 1.067
 - Count Month Seasonal Factor: 0.979
 - Seasonal Adjustment: $1.067 / 0.979 = 1.09$

Therefore, traffic volumes in August are 1.09 times greater than in March. Because of this, a count at the same time of day in August would expect to count 141,700 vehicles (roughly 12,000 vehicles more).

Legend

AWD = Average Weekday Traffic

 = Seasonal Factor Location

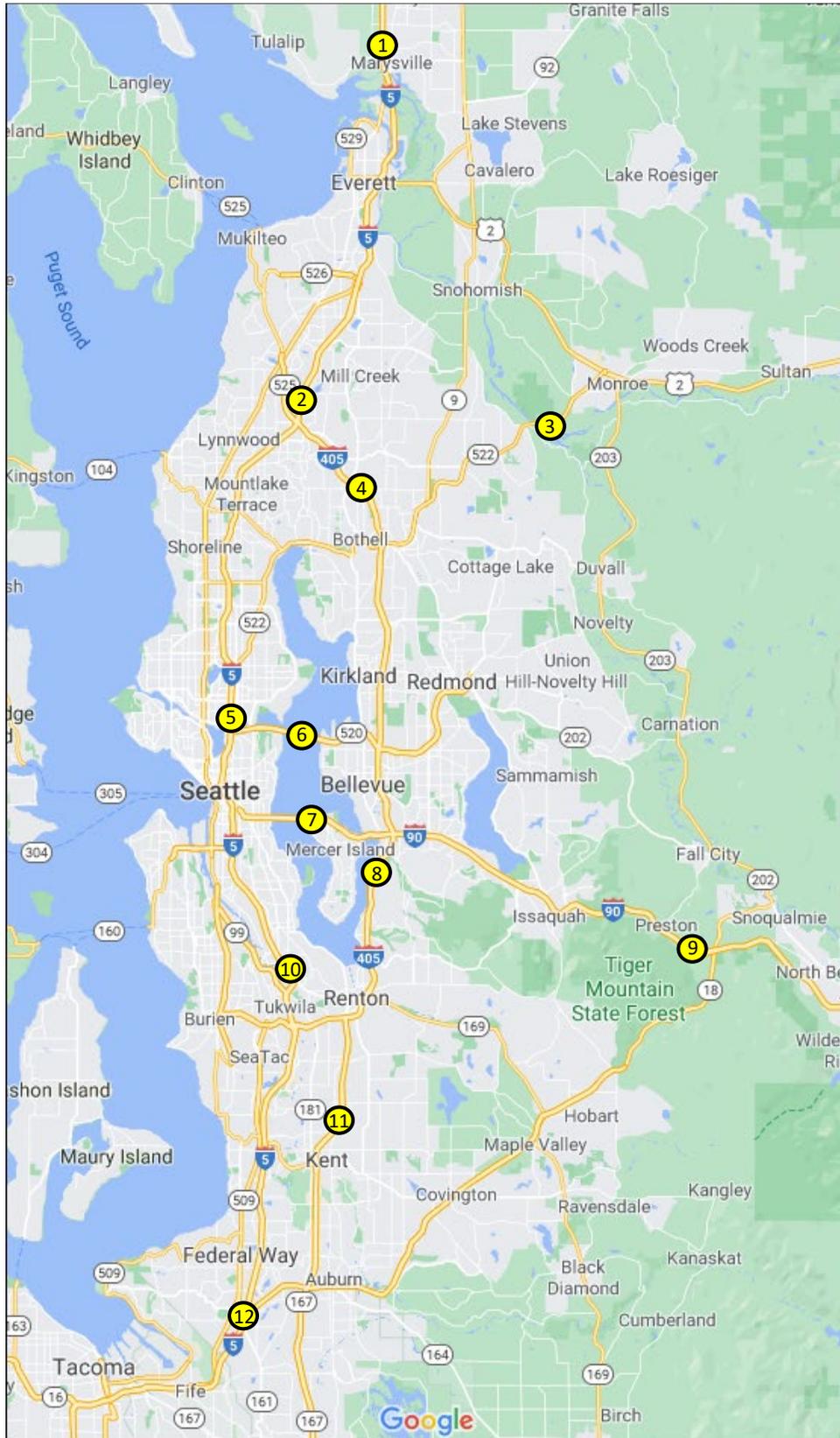
Final Notes

Special thanks go to the Northwest Region Transportation Management Center engineers, technicians, and interns for their hard work in compiling and analyzing the data for this report.

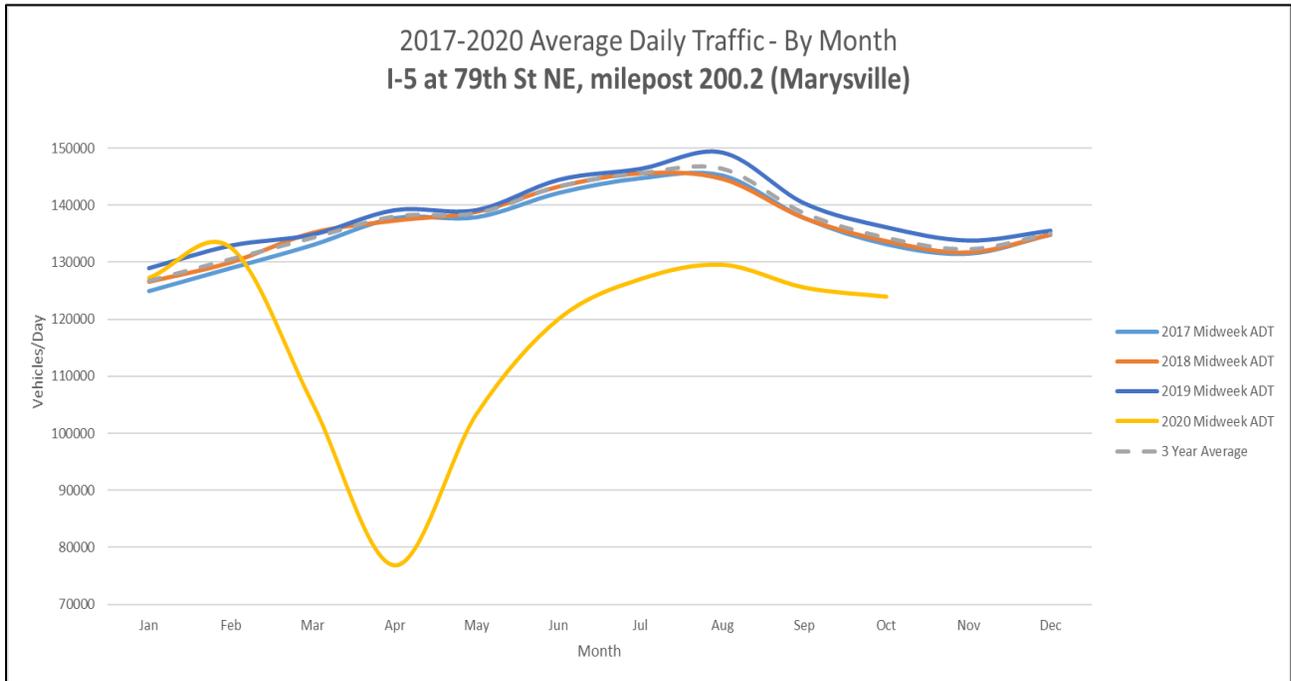
For more information, please contact:

WSDOT Transportation Management Center
Telephone: (206) 410-0090
Email: NWFlow@WSDOT.WA.gov

Seasonal Factor Locations: King and Snohomish Counties



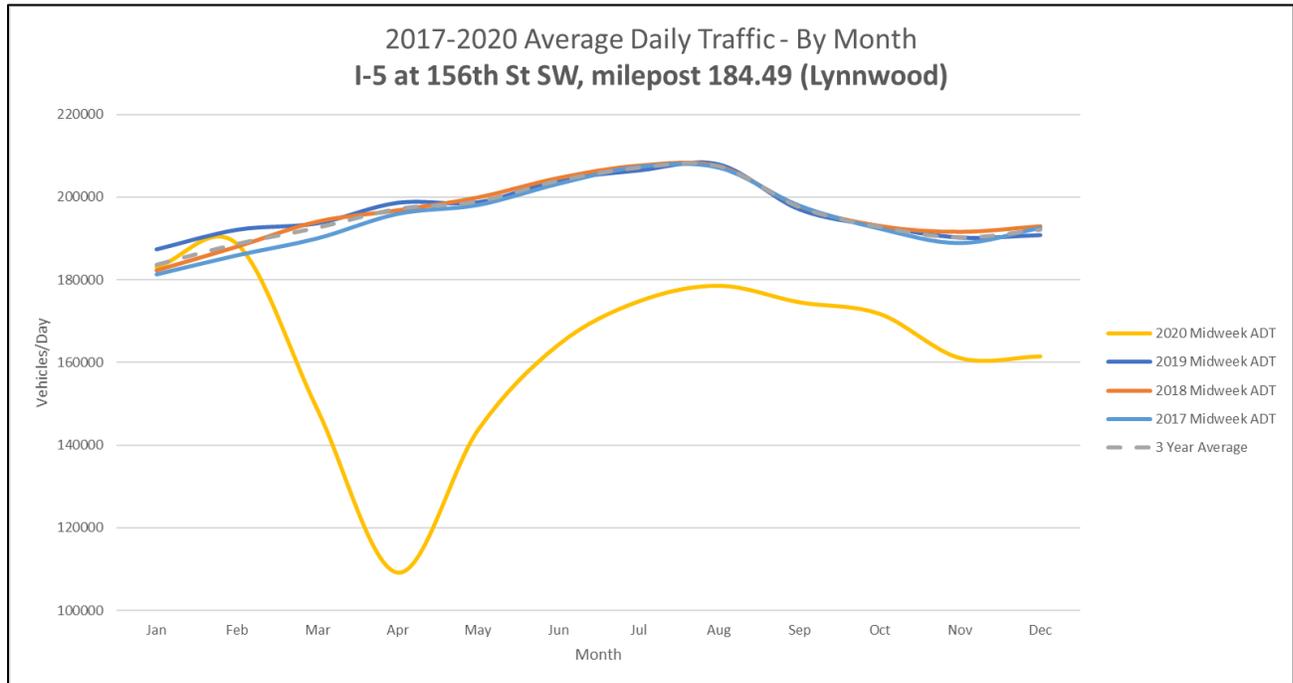
Location 1: I-5 at NE 79th Street (Marysville)



Month	2017-2019 AWD	2017	2018	2019	3-Year Average	2020 ¹
January	126760	0.918	0.926	0.929	0.924	1.098
February	130570	0.948	0.951	0.958	0.952	1.143
March	134310	0.978	0.989	0.972	0.979	0.907
April	138030	1.012	1.004	1.003	1.006	0.663
May	138610	1.013	1.016	1.003	1.011	0.892
June	143280	1.045	1.048	1.041	1.045	1.035
July	145560	1.064	1.065	1.055	1.061	1.096
August	146320	1.067	1.058	1.076	1.067	1.117
September	138550	1.012	1.007	1.011	1.010	1.083
October	134280	0.978	0.978	0.981	0.979	1.069
November	132300	0.966	0.963	0.964	0.965	n/a ²
December	135030	0.991	0.986	0.977	0.985	n/a ²

1. Seasonal Factors calculated for 2020 include region-wide COVID-reduced traffic volumes and do not reflect normal monthly variations when compared to 2017-2019 average seasonal factors.
2. November and December 2020 data was not included due to a nearby ITS outage that affected traffic data collection

Location 2: I-5 at 156th St SW (Lynnwood)



	2017-2019 AWD	2017	2018	2019	3-Year Average	2020 ¹
January	183650	0.929	0.927	0.951	0.936	1.128
February	188700	0.953	0.957	0.975	0.961	1.163
March	192610	0.974	0.987	0.983	0.981	0.916
April	197170	1.004	1.002	1.008	1.005	0.673
May	198960	1.015	1.017	1.008	1.014	0.886
June	204010	1.042	1.041	1.035	1.039	1.013
July	207180	1.063	1.057	1.047	1.056	1.077
August	207530	1.062	1.056	1.055	1.057	1.101
September	197640	1.014	1.007	1.000	1.007	1.076
October	192810	0.986	0.982	0.979	0.982	1.059
November	190260	0.968	0.975	0.965	0.969	0.993
December	192140	0.987	0.982	0.968	0.979	0.995

1. Seasonal Factors calculated for 2020 include region-wide COVID-reduced traffic volumes and do not reflect normal monthly variations when compared to 2017-2019 average seasonal factors.

Location 3: SR 522 at Snohomish River (Monroe)

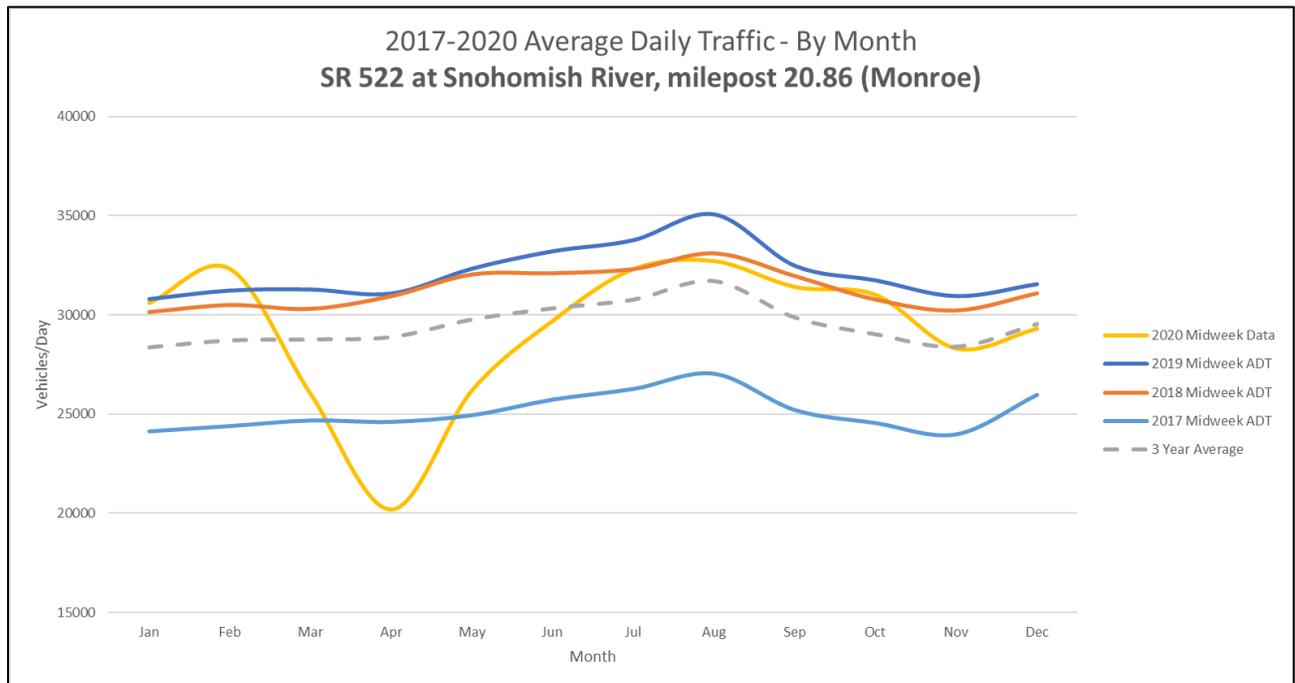


Table 3: 2017-2020 Midweek Seasonal Factors						
	2017-2019 AWD	2017	2018	2019	3-Year Average	2020 ¹
January	28360	0.961	0.962	0.957	0.960	1.053
February	28710	0.971	0.974	0.970	0.972	1.111
March	28760	0.982	0.967	0.972	0.974	0.895
April	28880	0.980	0.988	0.966	0.978	0.695
May	29770	0.993	1.022	1.004	1.007	0.902
June	30340	1.025	1.024	1.031	1.027	1.022
July	30780	1.046	1.031	1.049	1.042	1.111
August	31720	1.077	1.056	1.089	1.074	1.125
September	29870	1.004	1.019	1.009	1.011	1.081
October	29020	0.977	0.982	0.986	0.982	1.067
November	28390	0.955	0.965	0.961	0.960	0.974
December	29540	1.034	0.992	0.980	1.002	1.008

1. Seasonal Factors calculated for 2020 include region-wide COVID-reduced traffic volumes and do not reflect normal monthly variations when compared to 2017-2019 average seasonal factors.

Location 4: I-5 at 230th St NE (Bothell)

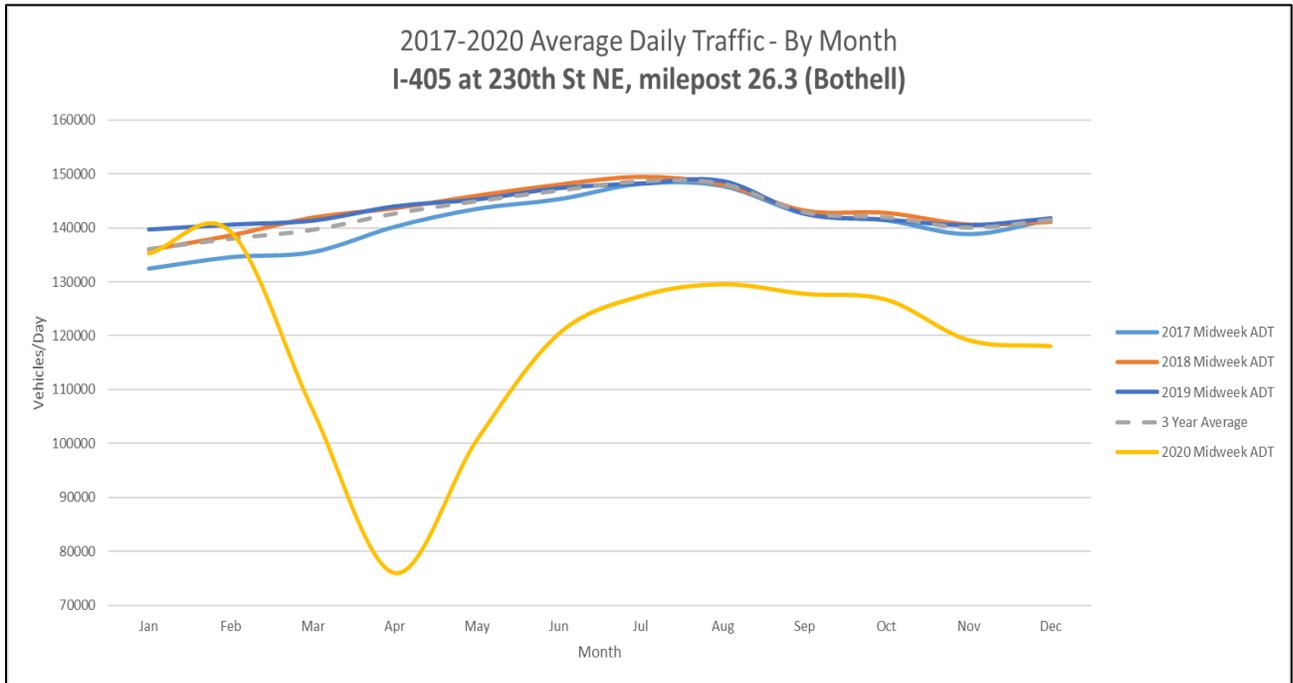
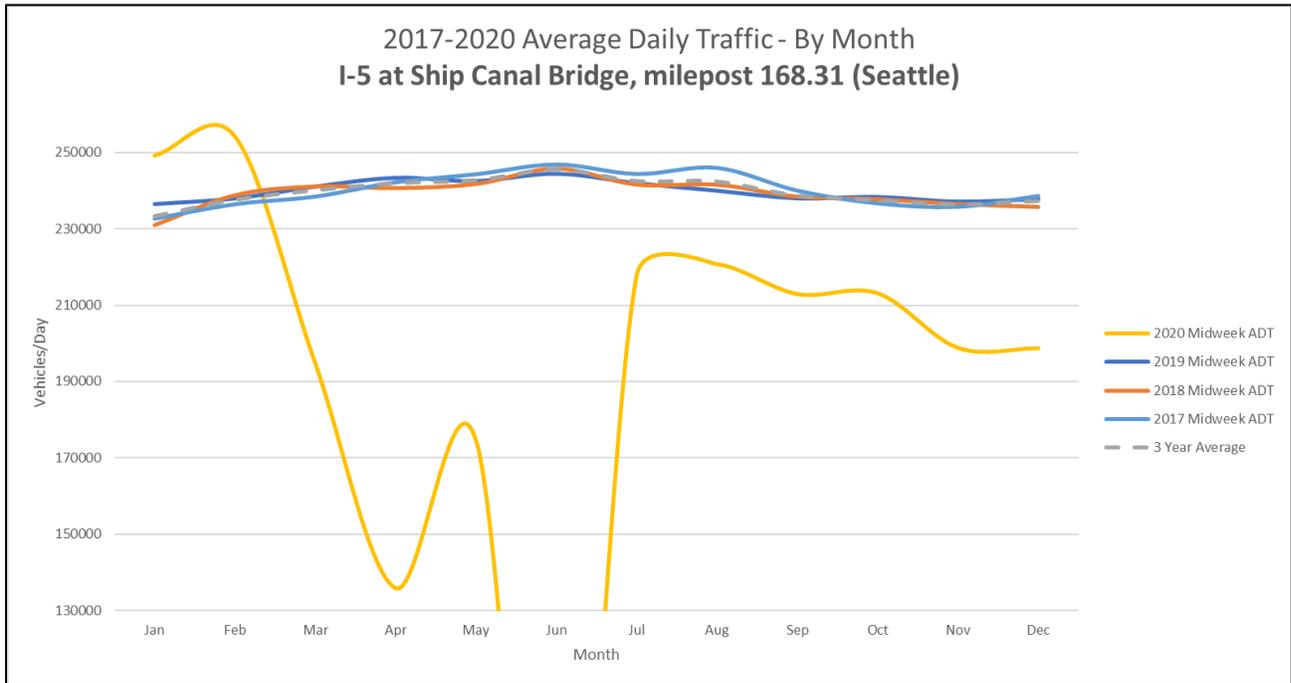


Table 4: 2017-2020 Midweek Seasonal Factors						
Month	2017-2019 AWD	2017	2018	2019	3-Year Average	2020 ¹
January	136010	0.940	0.948	0.972	0.953	1.082
February	137920	0.955	0.967	0.979	0.967	1.114
March	139580	0.961	0.990	0.984	0.978	0.849
April	142600	0.994	1.002	1.002	0.999	0.608
May	144890	1.018	1.018	1.011	1.016	0.805
June	146860	1.030	1.032	1.025	1.029	0.963
July	148570	1.050	1.042	1.031	1.041	1.018
August	148120	1.048	1.033	1.035	1.038	1.036
September	142790	1.011	0.999	0.993	1.001	1.022
October	141880	1.003	0.996	0.985	0.994	1.013
November	139970	0.985	0.981	0.978	0.981	0.953
December	141440	1.003	0.984	0.987	0.991	0.944

1. Seasonal Factors calculated for 2020 include region-wide COVID-reduced traffic volumes and do not reflect normal monthly variations when compared to 2017-2019 average seasonal factors.

Location 5: I-5 at Ship Canal Bridge (Seattle)

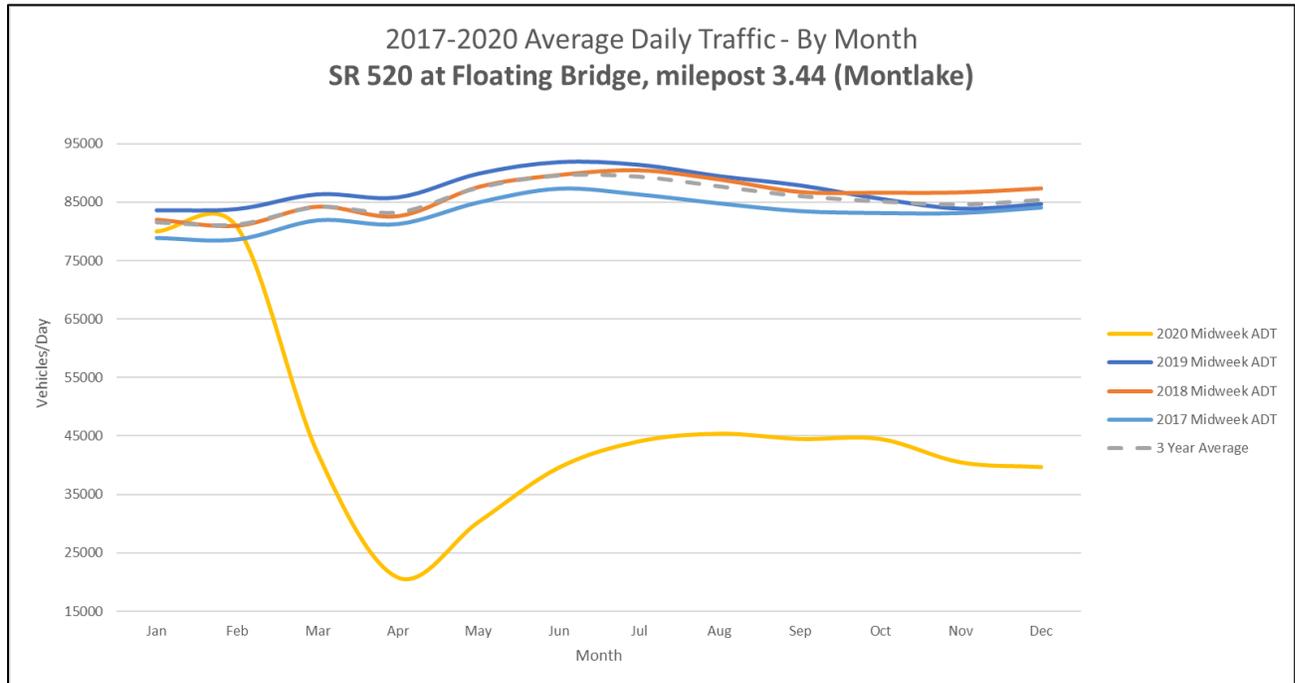


	2017-2019 AWD	2017	2018	2019	3-Year Average	2020 ¹
January	233380	0.968	0.965	0.985	0.973	1.220
February	237720	0.984	0.998	0.991	0.991	1.245
March	240190	0.992	1.007	1.004	1.001	0.953
April	242060	1.008	1.005	1.013	1.009	0.665
May	242830	1.016	1.010	1.010	1.012	0.855
June ²	245660	1.027	1.027	1.018	1.024	n/a
July	242610	1.017	1.009	1.007	1.011	1.067
August	242480	1.023	1.009	0.999	1.011	1.081
September	238800	0.999	0.996	0.991	0.995	1.043
October	237580	0.985	0.993	0.993	0.990	1.044
November	236460	0.981	0.988	0.987	0.986	0.974
December	237380	0.993	0.985	0.990	0.989	0.973

1. Seasonal Factors calculated for 2020 include region-wide COVID-reduced traffic volumes and do not reflect normal monthly variations when compared to 2017-2019 average seasonal factors.

2. June 2020 volume data on I-5 at the Ship Canal Bridge was deemed unreliable due to numerous mid-day I-5 closures

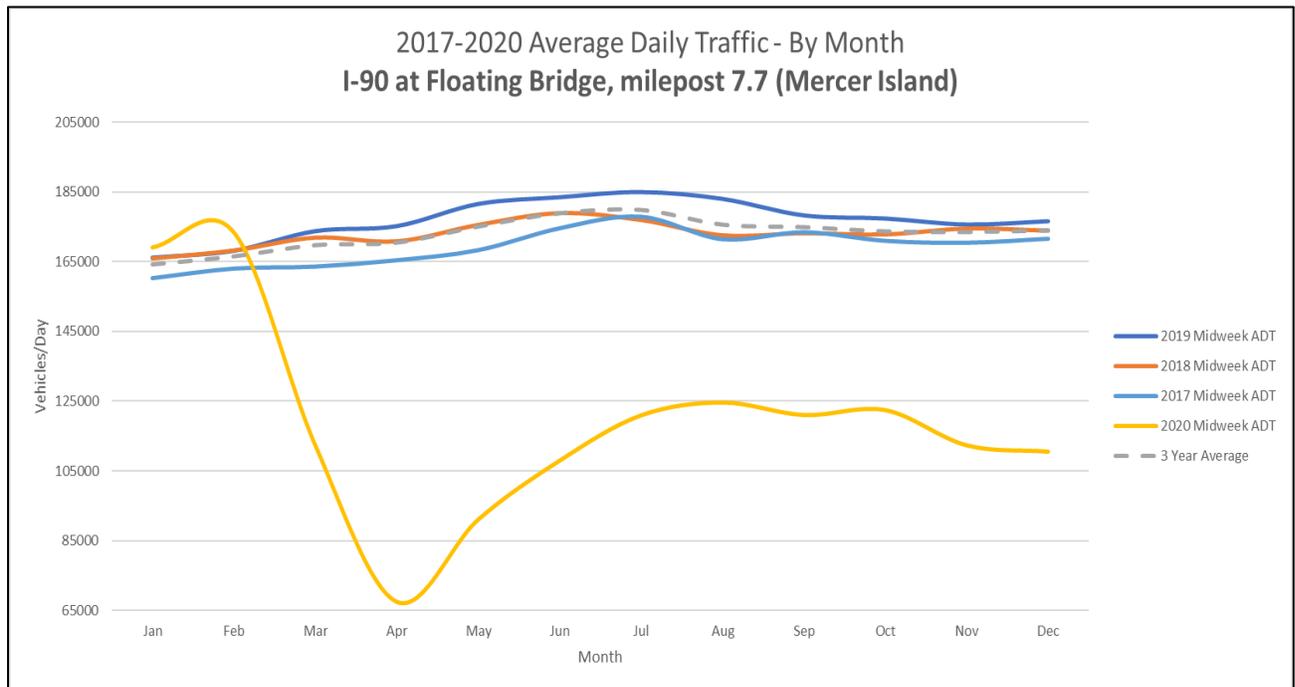
Location 6: SR 520 at Montlake Blvd (Seattle)



	2017-2019 AWD	2017	2018	2019	3-Year Average	2020 ¹
January	81500	0.948	0.952	0.976	0.959	1.762
February	81140	0.945	0.940	0.978	0.955	1.778
March	84160	0.985	0.978	1.007	0.990	0.927
April	83230	0.977	0.959	1.002	0.979	0.458
May	87480	1.022	1.017	1.048	1.029	0.667
June	89600	1.051	1.041	1.071	1.054	0.872
July	89380	1.039	1.050	1.066	1.052	0.971
August	87700	1.020	1.032	1.043	1.032	1.000
September	86040	1.004	1.007	1.025	1.012	0.980
October	85120	1.000	1.006	0.999	1.002	0.980
November	84580	1.000	1.007	0.979	0.995	0.892
December	85380	1.012	1.014	0.988	1.005	0.874

1. Seasonal Factors calculated for 2020 include region-wide COVID-reduced traffic volumes and do not reflect normal monthly variations when compared to 2017-2019 average seasonal factors.

Location 7: I-5 at Island Crest Way (Mercer Island)



Month	2017-2019 AWD	2017	2018	2019	3-Year Average	2020 ¹
January	164130	0.971	0.959	0.936	0.956	1.426
February	166470	0.988	0.973	0.947	0.969	1.463
March	169730	0.991	0.994	0.979	0.988	0.947
April	170470	1.002	0.988	0.987	0.992	0.568
May	175110	1.020	1.015	1.023	1.019	0.768
June	178970	1.058	1.034	1.033	1.042	0.910
July	179920	1.078	1.023	1.042	1.048	1.020
August	175660	1.039	0.998	1.031	1.022	1.051
September	174940	1.051	1.001	1.004	1.019	1.021
October	173710	1.036	0.999	0.999	1.011	1.032
November	173510	1.033	1.009	0.990	1.010	0.947
December	174010	1.040	1.005	0.995	1.013	0.932

1. Seasonal Factors calculated for 2020 include region-wide COVID-reduced traffic volumes and do not reflect normal monthly variations when compared to 2017-2019 average seasonal factors.

Location 8: I-405 at SE 59th Street (Bellevue)

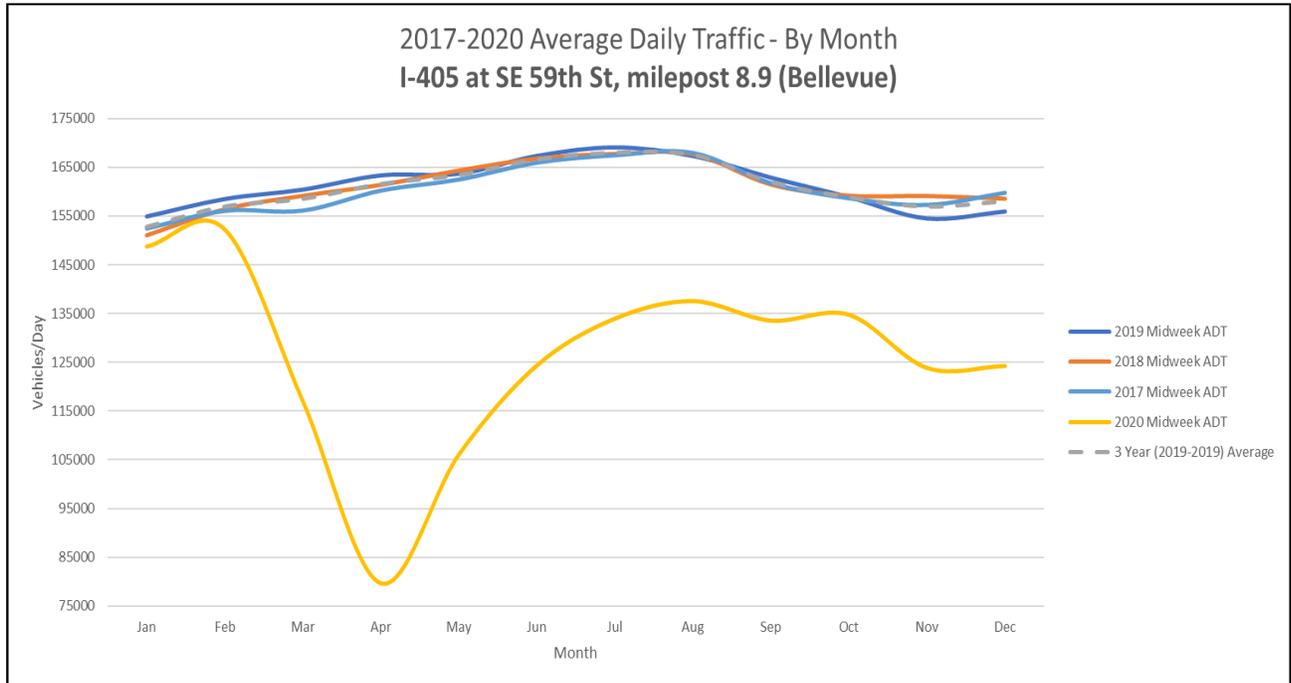
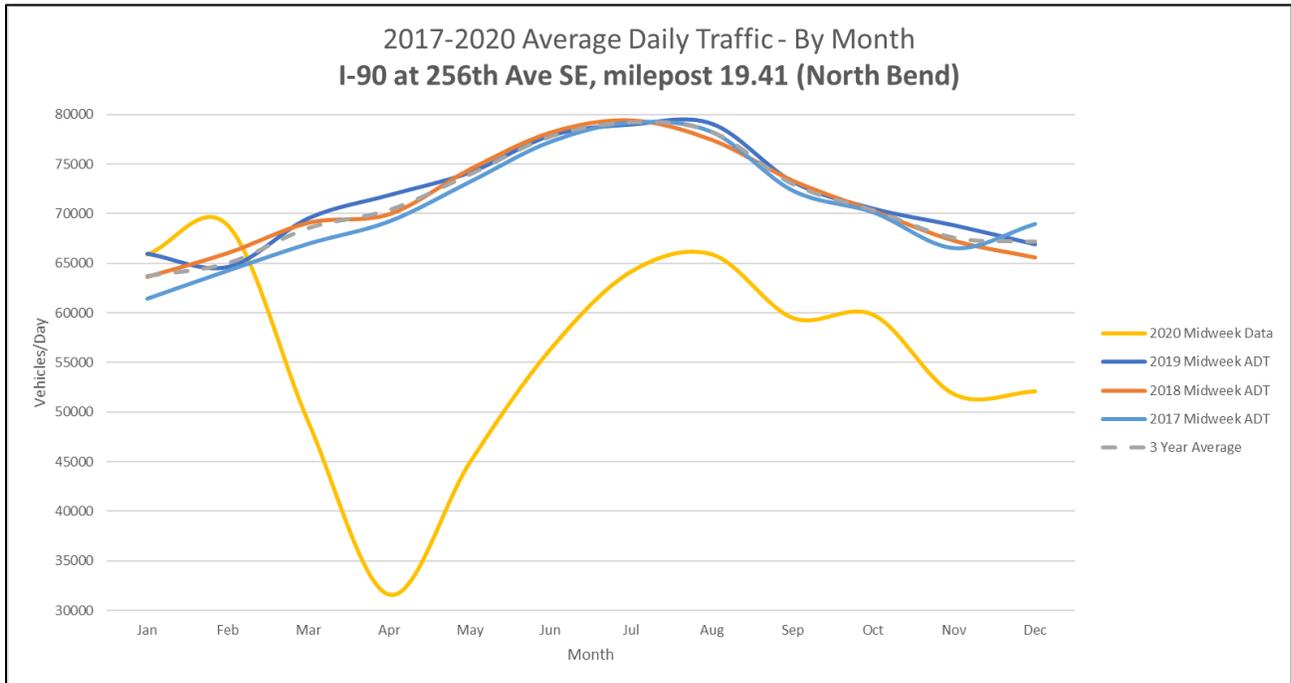


Table 8: 2017-2020 Midweek Seasonal Factors

Month	2017-2019 AWD	2017	2018	2019	3-Year Average	2020 ¹
January	152810	0.949	0.939	0.958	0.949	1.167
February	156990	0.971	0.973	0.980	0.975	1.194
March	158550	0.972	0.990	0.992	0.984	0.918
April	161630	0.997	1.004	1.010	1.003	0.625
May	163470	1.011	1.022	1.012	1.015	0.832
June	166660	1.032	1.037	1.034	1.035	0.975
July	168050	1.042	1.043	1.045	1.043	1.051
August	167620	1.045	1.043	1.034	1.041	1.079
September	162020	1.006	1.004	1.007	1.006	1.048
October	158890	0.987	0.990	0.982	0.986	1.057
November	156970	0.979	0.990	0.955	0.974	0.972
December	158080	0.994	0.986	0.964	0.981	0.975

1. Seasonal Factors calculated for 2020 include region-wide COVID-reduced traffic volumes and do not reflect normal monthly variations when compared to 2017-2019 average seasonal factors.

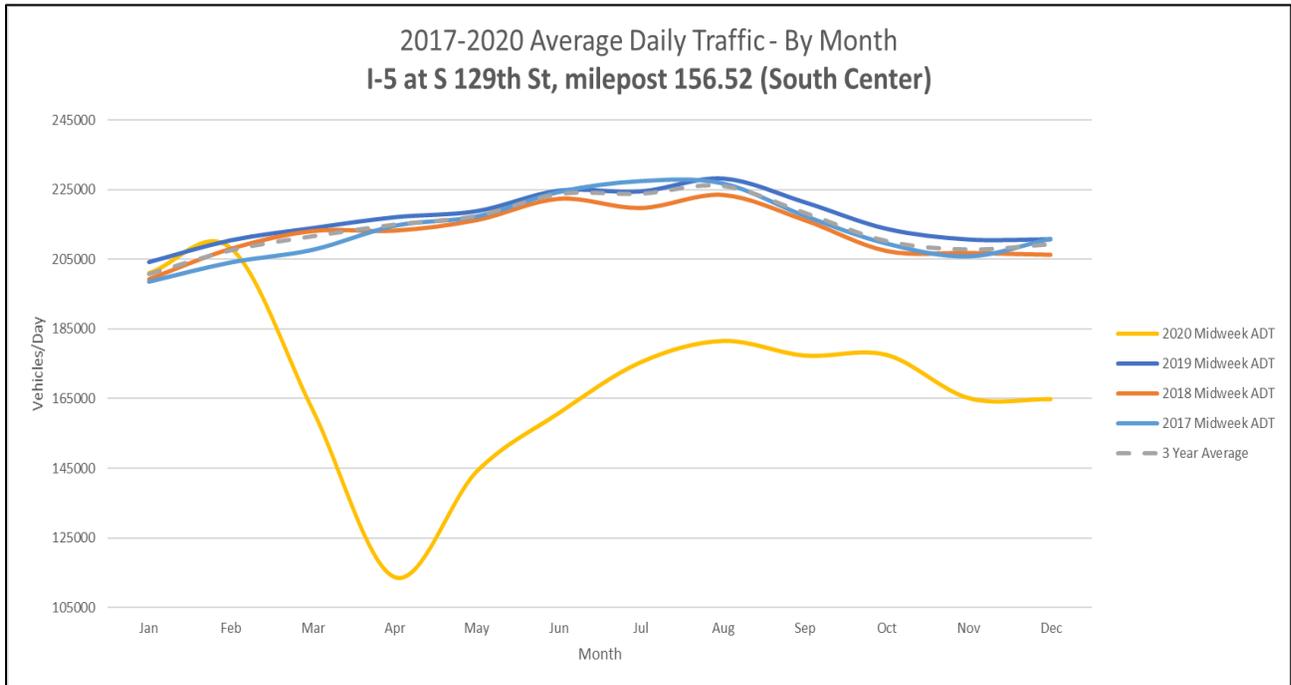
Location 9: I-90 at 256th Ave SE (North Bend)



	2017-2019 AWD	2017	2018	2019	3-Year Average	2020 ¹
January	63670	0.867	0.890	0.913	0.890	1.185
February	64980	0.907	0.924	0.894	0.908	1.237
March	68530	0.945	0.967	0.962	0.958	0.879
April	70350	0.977	0.979	0.994	0.983	0.568
May	73950	1.033	1.042	1.026	1.034	0.809
June	77770	1.090	1.094	1.077	1.087	1.014
July	79190	1.117	1.111	1.092	1.107	1.154
August	78220	1.104	1.084	1.093	1.094	1.185
September	72940	1.020	1.026	1.013	1.020	1.070
October	70290	0.990	0.983	0.975	0.983	1.075
November	67530	0.939	0.941	0.952	0.944	0.931
December	67140	0.973	0.917	0.926	0.939	0.937

1. Seasonal Factors calculated for 2020 include region-wide COVID-reduced traffic volumes and do not reflect normal monthly variations when compared to 2017-2019 average seasonal factors.

Location 10: I-5 at S 129th St (South Center)



	2017-2019 AWD	2017	2018	2019	3-Year Average	2020 ¹
January	200700	0.928	0.936	0.941	0.935	1.194
February	207570	0.954	0.977	0.970	0.967	1.236
March	211640	0.971	1.001	0.986	0.986	0.960
April	215010	1.004	1.001	1.000	1.002	0.675
May	217500	1.016	1.015	1.008	1.013	0.856
June	223850	1.049	1.044	1.035	1.043	0.955
July	223930	1.063	1.032	1.034	1.043	1.042
August	226190	1.060	1.049	1.051	1.054	1.078
September	218400	1.017	1.015	1.020	1.017	1.053
October	210230	0.980	0.974	0.985	0.979	1.054
November	207800	0.962	0.971	0.971	0.968	0.981
December	209330	0.986	0.969	0.971	0.975	0.979

1. Seasonal Factors calculated for 2020 include region-wide COVID-reduced traffic volumes and do not reflect normal monthly variations when compared to 2017-2019 average seasonal factors.

Location 11: SR 167 at S 196th St (Kent)

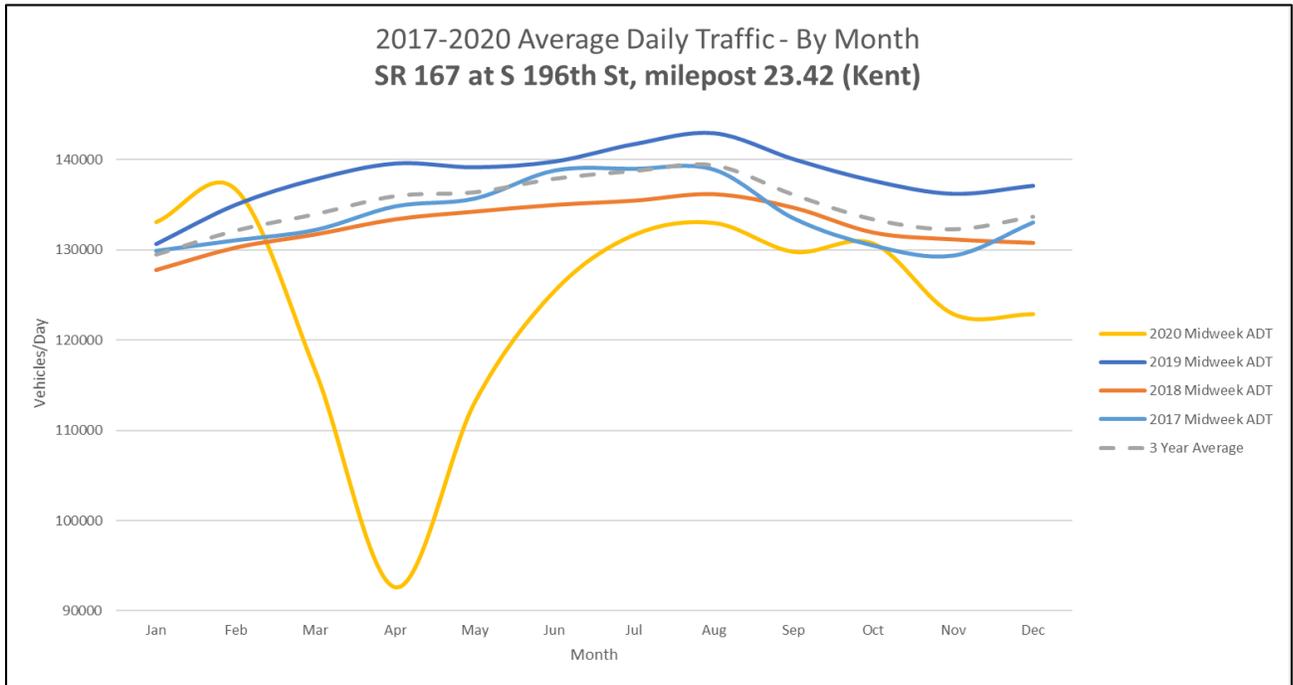


Table 11: 2017-2020 Midweek Seasonal Factors

	2017-2019 AWD	2017	2018	2019	3-Year Average	2020 ¹
January	129460	0.961	0.962	0.944	0.956	1.077
February	132130	0.970	0.981	0.976	0.975	1.106
March	133950	0.978	0.992	0.996	0.989	0.943
April	135960	0.998	1.004	1.009	1.004	0.749
May	136390	1.004	1.011	1.006	1.007	0.916
June	137890	1.027	1.016	1.010	1.018	1.016
July	138750	1.028	1.020	1.024	1.024	1.066
August	139360	1.028	1.025	1.033	1.029	1.076
September	136090	0.988	1.014	1.012	1.005	1.051
October	133360	0.965	0.993	0.995	0.984	1.058
November	132270	0.957	0.988	0.985	0.976	0.995
December	133660	0.984	0.985	0.991	0.987	0.995

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Location 12: I-5 at Enchanted Pkwy (Federal Way)

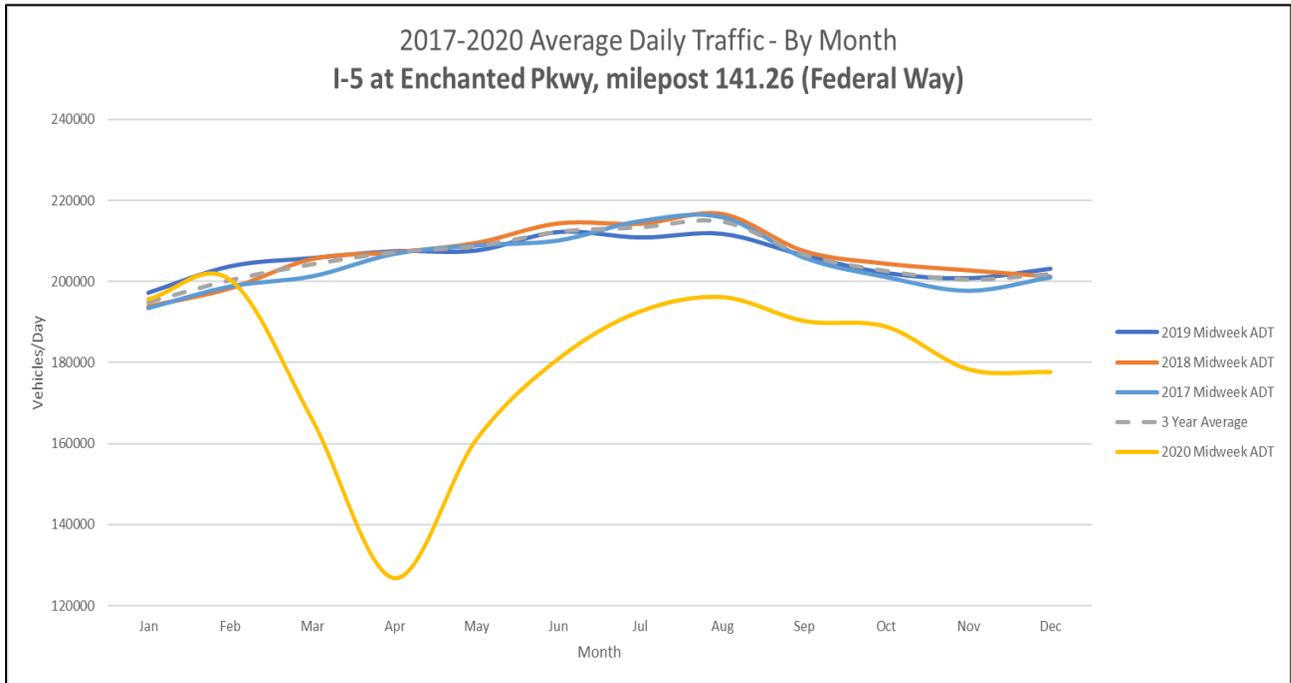


Table 12: 2017-2020 Midweek Seasonal Factors

	2017-2019 AWD	2017	2018	2019	3-Year Average	2020 ¹
January	194840	0.944	0.938	0.957	0.947	1.094
February	200310	0.970	0.960	0.989	0.973	1.121
March	204240	0.982	0.995	0.999	0.992	0.928
April	207200	1.009	1.003	1.007	1.007	0.709
May	208720	1.019	1.014	1.008	1.014	0.901
June	212260	1.025	1.038	1.030	1.031	1.012
July	213380	1.049	1.037	1.024	1.037	1.077
August	214790	1.053	1.049	1.028	1.044	1.097
September	206600	1.005	1.004	1.002	1.004	1.064
October	202540	0.981	0.989	0.981	0.984	1.056
November	200450	0.965	0.982	0.975	0.974	0.997
December	201820	0.981	0.974	0.986	0.981	0.993

1. Seasonal Factors calculated for 2020 include region-wide COVID-reduced traffic volumes and do not reflect normal monthly variations when compared to 2017-2019 average seasonal factors.