

**EFFECTS OF TRUCKING REGULATORY  
RELAXATIONS ON FREIGHT SAFETY  
IN OREGON**

**Appendices**

**SPR 863**



Oregon Department of Transportation

## **APPENDIX A**

**Table A.1: Test for Equality of Proportions of Fatal and Suspected Serious Injury Crashes (Within-Severity) by Driver Age and Time Period**

Driver Age	Pre-COVID (Apr. 2019 - Mar. 16, 2020)		COVID Relaxations (Low VMT) (Mar. 16, 2020 - Mar. 2021)		COVID Relaxations (Normal VMT) (Mar. 2021 - Dec. 2021)		<i>p</i> -value <sup>1</sup>	<i>p</i> -value <sup>2</sup>	<i>p</i> -value <sup>3</sup>
	Frequency	Proportion of Total	Frequency	Proportion of Total	Frequency	Proportion of Total			
	15 yrs - 18 yrs	0	0.00%	1	1.10%	1			
19 yrs - 21 yrs	1	0.79%	0	0.00%	1	0.73%	0.396	0.957	0.414
22 yrs - 24 yrs	4	3.15%	5	5.49%	8	5.84%	0.391	0.294	0.912
25 yrs - 34 yrs	21	16.54%	13	14.29%	19	13.87%	0.652	0.546	0.929
35 yrs - 44 yrs	27	21.26%	18	19.78%	25	18.25%	0.790	0.539	0.772
45 yrs - 54 yrs	26	20.47%	19	20.88%	33	24.09%	0.942	0.481	0.572
55 yrs - 64 yrs	30	23.62%	25	27.47%	40	29.20%	0.519	0.305	0.778
65 yrs - 74 yrs	11	8.66%	9	9.89%	6	4.38%	0.757	0.157	0.100
75 yrs or Greater	3	2.36%	1	1.10%	1	0.73%	0.493	0.278	0.770
Unknown	4	3.15%	0	0.00%	3	2.19%	0.088	0.628	0.155
Total	127	100%	91	100%	137	100%			

<sup>1</sup> Comparison between Pre-COVID (Apr. 2019 - Mar. 16, 2020) and COVID Relaxations (Mar. 16, 2020 - Mar. 2021)

<sup>2</sup> Comparison between Pre-COVID (Apr. 2019 - Mar. 16, 2020) and COVID Relaxations (Mar. 2021 - Dec. 2021)

<sup>3</sup> Comparison between COVID Relaxations (Mar. 16, 2020 - Mar. 2021) and COVID Relaxations (Mar. 2021 - Dec. 2021)

<sup>a</sup> Significant with at least 95% confidence

**Table A.2: Test for Equality of Proportions of Fatal and Suspected Serious Injury Crashes (Within-Severity) by Driver-Level Crash Cause and Time Period**

Crash Cause	Pre-COVID (Apr. 2019 - Mar. 16, 2020)		COVID Relaxations (Low VMT) (Mar. 16, 2020 - Mar. 2021)		COVID Relaxations (Normal VMT) (Mar. 2021 - Dec. 2021)		p-value <sup>1</sup>	p-value <sup>2</sup>	p-value <sup>3</sup>
	Frequency	Proportion of Total	Frequency	Proportion of Total	Frequency	Proportion of Total			
	Careless Driving	2	1.57%	1	1.10%	0			
Did Not Yield Right-of-Way	9	7.09%	4	4.40%	4	2.92%	0.408	0.118	0.553
Disregard Traffic Signal	1	0.79%	0	0.00%	2	1.46%	0.396	0.607	0.247
Driver Drowsy/Fatigued/Sleepy	1	0.79%	1	1.10%	0	0.00%	0.812	0.298	0.219
Driving in Excess of Posted Speed	2	1.57%	0	0.00%	3	2.19%	0.229	0.714	0.155
Drove Left of Center on Two-Way Road	1	0.79%	1	1.10%	2	1.46%	0.812	0.607	0.815
Failed to Avoid Vehicle Ahead	1	0.79%	1	1.10%	5	3.65%	0.812	0.119	0.239
Followed Too Closely	1	0.79%	4	4.40%	5	3.65%	0.079	0.119	0.777
Improper Change of Traffic Lanes	1	0.79%	0	0.00%	1	0.73%	0.396	0.957	0.414
Inattention	6	4.72%	1	1.10%	9	6.57%	0.134	0.518	<b>0.048<sup>a</sup></b>
Made Improper Turn	1	0.79%	1	1.10%	3	2.19%	0.812	0.351	0.539
Not Applicable at This Level	75	59.06%	59	64.84%	88	64.23%	0.387	0.387	0.926
Other (Improper Driving)	12	9.45%	4	4.40%	7	5.11%	0.158	0.173	0.805
Other (Not Improper Driving)	0	0.00%	2	2.20%	3	2.19%	0.093	0.094	0.997
Passed Stop Sign or Flashing Red	0	0.00%	1	1.10%	1	0.73%	0.236	0.335	0.770
Phantom/Non-Contact Vehicle	1	0.79%	0	0.00%	0	0.00%	0.396	0.298	NA
Physical Illness	0	0.00%	2	2.20%	1	0.73%	0.093	0.335	0.341
Reckless Driving	2	1.57%	1	1.10%	1	0.73%	0.766	0.518	0.770
Speed Too Fast for Conditions	11	8.66%	8	8.79%	2	1.46%	0.973	<b>0.007<sup>a</sup></b>	<b>0.008<sup>a</sup></b>
Total	127	6%	91	5%	137	7%			

<sup>1</sup> Comparison between Pre-COVID (Apr. 2019 - Mar. 16, 2020) and COVID Relaxations (Mar. 16, 2020 - Mar. 2021)

<sup>2</sup> Comparison between Pre-COVID (Apr. 2019 - Mar. 16, 2020) and COVID Relaxations (Mar. 2021 - Dec. 2021)

<sup>3</sup> Comparison between COVID Relaxations (Mar. 16, 2020 - Mar. 2021) and COVID Relaxations (Mar. 2021 - Dec. 2021)

<sup>a</sup> Significant with at least 95% confidence

**Table A.3: Test for Equality of Proportions of Fatal and Suspected Injury Crashes (Within-Severity) by Collision Type and Time Period**

Collision Type	Pre-COVID (Apr. 2019 - Mar. 16, 2020)		COVID Relaxations (Low VMT) (Mar. 16, 2020 - Mar. 2021)		COVID Relaxations (Normal VMT) (Mar. 2021 - Dec. 2021)		<i>p</i> -value <sup>1</sup>	<i>p</i> -value <sup>2</sup>	<i>p</i> -value <sup>3</sup>
	Frequency	Proportion of Total	Frequency	Proportion of Total	Frequency	Proportion of Total			
	Angle	8	6.4%	6	7.0%	16			
Head-On	20	16.0%	20	23.3%	25	18.8%	0.127	0.669	0.531
Rear-End	25	20.0%	15	17.4%	24	18.0%	0.613	0.809	1.000
Sideswipe (Meeting)	2	1.6%	6	7.0%	5	3.8%	<b>0.050<sup>a</sup></b>	0.494	0.455
Sideswipe (Overtaking)	11	8.8%	2	2.3%	8	6.0%	0.949	0.537	0.344
Turning Movement	17	13.6%	17	19.8%	23	17.3%	0.157	0.518	0.777
Parked	1	0.8%	0	0.0%	0	0.0%	0.500	0.975	—
Non-Collision	9	7.2%	2	2.3%	6	4.5%	0.894	0.512	0.636
Backing	—	—	—	—	—	—	—	—	—
Pedestrian	14	11.2%	5	5.8%	11	8.3%	0.864	0.559	0.677
Fixed-Object	17	13.6%	13	15.1%	11	8.3%	0.456	0.240	0.173
Other	1	0.8%	0	0.0%	4	3.0%	0.500	0.405	0.269
<b>Total</b>	<b>125</b>	<b>100%</b>	<b>86</b>	<b>100%</b>	<b>133</b>	<b>100%</b>			

<sup>1</sup> Comparison between Pre-COVID (Apr. 2019 - Mar. 16, 2020) and COVID Relaxations (Mar. 16, 2020 - Mar. 2021)

<sup>2</sup> Comparison between Pre-COVID (Apr. 2019 - Mar. 16, 2020) and COVID Relaxations (Mar. 2021 - Dec. 2021)

<sup>3</sup> Comparison between COVID Relaxations (Mar. 16, 2020 - Mar. 2021) and COVID Relaxations (Mar. 2021 - Dec. 2021)

<sup>a</sup> Significant with at least 95% confidence

**Table A.4: Test for Equality of Proportions of Fatal and Suspected Serious Injury Crashes (Within-Severity) by Day of the Week and Time Period**

Day of the Week	Pre-COVID (Apr. 2019 - Mar. 16, 2020)		COVID Relaxations (Low VMT) (Mar. 16, 2020 - Mar. 2021)		COVID Relaxations (Normal VMT) (Mar. 2021 - Dec. 2021)		<i>p</i> -value <sup>1</sup>	<i>p</i> -value <sup>2</sup>	<i>p</i> -value <sup>3</sup>
	Frequency	Proportion of Total	Frequency	Proportion of Total	Frequency	Proportion of Total			
	Sunday	6	4.8%	2	2.3%	7			
Monday	17	13.6%	16	18.6%	25	18.8%	0.325	0.258	0.972
Tuesday	19	15.2%	13	15.1%	14	10.5%	0.987	0.261	0.313
Wednesday	24	19.2%	14	16.3%	26	19.5%	0.587	0.944	0.541
Thursday	22	17.6%	16	18.6%	29	21.8%	0.852	0.397	0.567
Friday	22	17.6%	13	15.1%	22	16.5%	0.634	0.821	0.779
Saturday	15	12.0%	12	14.0%	10	7.5%	0.676	0.224	0.122
Total	125	100%	86	100%	133	100%			

<sup>1</sup> Comparison between Pre-COVID (Apr. 2019 - Mar. 16, 2020) and COVID Relaxations (Mar. 16, 2020 - Mar. 2021)

<sup>2</sup> Comparison between Pre-COVID (Apr. 2019 - Mar. 16, 2020) and COVID Relaxations (Mar. 2021 - Dec. 2021)

<sup>3</sup> Comparison between COVID Relaxations (Mar. 16, 2020 - Mar. 2021) and COVID Relaxations (Mar. 2021 - Dec. 2021)

<sup>a</sup> Significant with at least 95% confidence

**Table A.5: Test for Equality of Proportions of Fatal and Suspected Serious Injury Crashes (Within-Severity) by Driver Gender and Time Period**

Gender	Pre-COVID (Apr. 2019 - Mar. 16, 2020)		COVID Relaxations (Low VMT) (Mar. 16, 2020 - Mar. 2021)		COVID Relaxations (Normal VMT) (Mar. 2021 - Dec. 2021)		<i>p</i> -value <sup>1</sup>	<i>p</i> -value <sup>2</sup>	<i>p</i> -value <sup>3</sup>
	Frequency	Proportion of Total	Frequency	Proportion of Total	Frequency	Proportion of Total			
	Male	119	93.7%	86	94.5%	131			
Female	4	3.1%	5	5.5%	3	2.2%	0.391	0.628	0.184
Unknown	4	3.1%	0	0.0%	3	2.2%	0.088	0.628	0.155
Total	127	100%	91	100%	137	100%			

<sup>1</sup> Comparison between Pre-COVID (Apr. 2019 - Mar. 16, 2020) and COVID Relaxations (Mar. 16, 2020 - Mar. 2021)

<sup>2</sup> Comparison between Pre-COVID (Apr. 2019 - Mar. 16, 2020) and COVID Relaxations (Mar. 2021 - Dec. 2021)

<sup>3</sup> Comparison between COVID Relaxations (Mar. 16, 2020 - Mar. 2021) and COVID Relaxations (Mar. 2021 - Dec. 2021)

<sup>a</sup> Significant with at least 95% confidence

**Table A.6: Test for Equality of Proportions of Fatal and Suspected Serious Injury Crashes (Within-Severity) by Lighting Condition and Time Period**

Lighting Condition	Pre-COVID (Apr. 2019 - Mar. 16, 2020)		COVID Relaxations (Low VMT) (Mar. 16, 2020 - Mar. 2021)		COVID Relaxations (Normal VMT) (Mar. 2021 - Dec. 2021)		<i>p</i> -value <sup>1</sup>	<i>p</i> -value <sup>2</sup>	<i>p</i> -value <sup>3</sup>
	Frequency	Proportion of Total	Frequency	Proportion of Total	Frequency	Proportion of Total			
	Dawn	3	2.4%	3	3.5%	8			
Daylight	82	65.6%	63	73.3%	87	65.4%	0.239	0.975	0.222
Dark (Lights)	9	7.2%	8	9.3%	12	9.0%	0.581	0.593	0.944
Dark (No Lights)	27	21.6%	11	12.8%	21	15.8%	0.102	0.231	0.540
Dusk	4	3.2%	1	1.2%	5	3.8%	0.339	0.807	0.250
Total	125	100%	86	100%	133	100%			

<sup>1</sup> Comparison between Pre-COVID (Apr. 2019 - Mar. 16, 2020) and COVID Relaxations (Mar. 16, 2020 - Mar. 2021)

<sup>2</sup> Comparison between Pre-COVID (Apr. 2019 - Mar. 16, 2020) and COVID Relaxations (Mar. 2021 - Dec. 2021)

<sup>3</sup> Comparison between COVID Relaxations (Mar. 16, 2020 - Mar. 2021) and COVID Relaxations (Mar. 2021 - Dec. 2021)

<sup>a</sup> Significant with at least 95% confidence

**Table A.7: Test for Equality of Proportions of Fatal and Suspected Serious Injury Older Driver Crashes (Within-Severity) by Time Period**

Age	Pre-COVID (Apr. 2019 - Mar. 16, 2020)		COVID Relaxations (Low VMT) (Mar. 16, 2020 - Mar. 2021)		COVID Relaxations (Normal VMT) (Mar. 2021 - Dec. 2021)		<i>p</i> -value <sup>1</sup>	<i>p</i> -value <sup>2</sup>	<i>p</i> -value <sup>3</sup>
	Frequency	Proportion of Total	Frequency	Proportion of Total	Frequency	Proportion of Total			
	Driver Less than 65 yrs	109	85.8%	81	89.0%	127			
Driver 65 yrs or Greater	14	11.0%	10	11.0%	7	5.1%	0.994	0.076	0.098
Unknown	4	3.1%	0	0.0%	3	2.2%	0.088	0.628	0.155
Total	127	100%	91	100%	137	100%			

<sup>1</sup> Comparison between Pre-COVID (Apr. 2019 - Mar. 16, 2020) and COVID Relaxations (Mar. 16, 2020 - Mar. 2021)

<sup>2</sup> Comparison between Pre-COVID (Apr. 2019 - Mar. 16, 2020) and COVID Relaxations (Mar. 2021 - Dec. 2021)

<sup>3</sup> Comparison between COVID Relaxations (Mar. 16, 2020 - Mar. 2021) and COVID Relaxations (Mar. 2021 - Dec. 2021)

<sup>a</sup> Significant with at least 95% confidence

**Table A.8: Test for Equality of Proportions of Fatal and Suspected Serious Injury Crashes (Within-Severity) by Driver Residence and Time Period**

Driver Residence	Pre-COVID (Apr. 2019 - Mar. 16, 2020)		COVID Relaxations (Low VMT) (Mar. 16, 2020 - Mar. 2021)		COVID Relaxations (Normal VMT) (Mar. 2021 - Dec. 2021)		<i>p</i> -value <sup>1</sup>	<i>p</i> -value <sup>2</sup>	<i>p</i> -value <sup>3</sup>
	Frequency	Proportion of Total	Frequency	Proportion of Total	Frequency	Proportion of Total			
Oregon Resident (Within 25 Miles of Home)	46	36.2%	40	44.0%	64	46.7%	0.249	0.084	0.682
Oregon Resident (More Than 25 Miles from Home)	29	22.8%	25	27.5%	30	21.9%	0.434	0.855	0.335
Oregon Resident (Unknown Distance from Home)	0	0.0%	0	0.0%	1	0.7%	NA	0.335	0.414
Non-Resident	47	37.0%	26	28.6%	38	27.7%	0.193	0.107	0.891
Unknown if Oregon Resident	5	3.9%	0	0.0%	4	2.9%	0.056	0.649	0.100
<b>Total</b>	<b>127</b>	<b>100%</b>	<b>91</b>	<b>100%</b>	<b>137</b>	<b>100%</b>			

<sup>1</sup> Comparison between Pre-COVID (Apr. 2019 - Mar. 16, 2020) and COVID Relaxations (Mar. 16, 2020 - Mar. 2021)

<sup>2</sup> Comparison between Pre-COVID (Apr. 2019 - Mar. 16, 2020) and COVID Relaxations (Mar. 2021 - Dec. 2021)

<sup>3</sup> Comparison between COVID Relaxations (Mar. 16, 2020 - Mar. 2021) and COVID Relaxations (Mar. 2021 - Dec. 2021)

<sup>a</sup> Significant with at least 95% confidence

**Table A.9: Test for Equality of Proportions of Fatal and Suspected Serious Injury Crashes (Within-Severity) by Road Surface Condition and Time Period**

Road Surface Condition	Pre-COVID (Apr. 2019 - Mar. 16, 2020)		COVID Relaxations (Low VMT) (Mar. 16, 2020 - Mar. 2021)		COVID Relaxations (Normal VMT) (Mar. 2021 - Dec. 2021)		<i>p</i> -value <sup>1</sup>	<i>p</i> -value <sup>2</sup>	<i>p</i> -value <sup>3</sup>
	Frequency	Proportion of Total	Frequency	Proportion of Total	Frequency	Proportion of Total			
Dry	91	72.8%	50	58.1%	99	74.4%	<b>0.026<sup>a</sup></b>	0.766	<b>0.012<sup>a</sup></b>
Ice	4	3.2%	6	7.0%	3	2.3%	0.205	0.641	0.086
Wet	25	20.0%	24	27.9%	27	20.3%	0.181	0.952	0.193
Snow	0	0.0%	1	1.2%	2	1.5%	0.227	0.169	0.832
Unknown	5	4.0%	5	5.8%	2	1.5%	0.542	0.217	0.077
Total	125	100%	86	100%	133	100%			

<sup>1</sup> Comparison between Pre-COVID (Apr. 2019 - Mar. 16, 2020) and COVID Relaxations (Mar. 16, 2020 - Mar. 2021)

<sup>2</sup> Comparison between Pre-COVID (Apr. 2019 - Mar. 16, 2020) and COVID Relaxations (Mar. 2021 - Dec. 2021)

<sup>3</sup> Comparison between COVID Relaxations (Mar. 16, 2020 - Mar. 2021) and COVID Relaxations (Mar. 2021 - Dec. 2021)

<sup>a</sup> Significant with at least 95% confidence

**Table A.10: Test for Equality of Proportions of Fatal and Suspected Injury Crashes (Within-Severity) by Time-of-Day and Time Period**

Time-of-Day	Pre-COVID (Apr. 2019 - Mar. 16, 2020)		COVID Relaxations (Low VMT) (Mar. 16, 2020 - Mar. 2021)		COVID Relaxations (Normal VMT) (Mar. 2021 - Dec. 2021)		<i>p</i> -value <sup>1</sup>	<i>p</i> -value <sup>2</sup>	<i>p</i> -value <sup>3</sup>
	Frequency	Proportion of Total	Frequency	Proportion of Total	Frequency	Proportion of Total			
12:00 a.m. - 3:00 a.m.	9	7.20%	2	2.33%	11	8.27%	0.118	0.748	0.069
3:00 a.m. - 6:00 a.m.	8	6.40%	6	6.98%	5	3.76%	0.869	0.333	0.287
6:00 a.m. - 9:00 a.m.	17	13.60%	16	18.60%	25	18.80%	0.325	0.258	0.972
9:00 a.m. - 12:00 p.m.	16	12.80%	23	26.74%	16	12.03%	<b>0.010<sup>a</sup></b>	0.851	<b>0.005<sup>a</sup></b>
12:00 p.m. - 3:00 p.m.	28	22.40%	16	18.60%	31	23.31%	0.505	0.862	0.408
3:00 p.m. - 6:00 p.m.	18	14.40%	11	12.79%	20	15.04%	0.739	0.885	0.641
6:00 p.m. - 9:00 p.m.	20	16.00%	8	9.30%	18	13.53%	0.159	0.576	0.344
9:00 p.m. - 12:00 a.m.	8	6.40%	4	4.65%	7	5.26%	0.590	0.697	0.840
Unknown	1	0.80%	0	0.00%	0	0.00%	0.406	0.301	—
<b>Total</b>	<b>125</b>	<b>100%</b>	<b>86</b>	<b>100%</b>	<b>133</b>	<b>100%</b>			

<sup>1</sup> Comparison between Pre-COVID (Apr. 2019 - Mar. 16, 2020) and COVID Relaxations (Mar. 16, 2020 - Mar. 2021)

<sup>2</sup> Comparison between Pre-COVID (Apr. 2019 - Mar. 16, 2020) and COVID Relaxations (Mar. 2021 - Dec. 2021)

<sup>3</sup> Comparison between COVID Relaxations (Mar. 16, 2020 - Mar. 2021) and COVID Relaxations (Mar. 2021 - Dec. 2021)

<sup>a</sup> Significant with at least 95% confidence

**Table A.11: Test for Equality of Proportions of Fatal and Suspected Serious Injury Crashes (Within-Severity) by Number of Vehicles and Time Period**

Number of Vehicles	Pre-COVID (Apr. 2019 - Mar. 16, 2020)		COVID Relaxations (Low VMT) (Mar. 16, 2020 - Mar. 2021)		COVID Relaxations (Normal VMT) (Mar. 2021 - Dec. 2021)		<i>p</i> -value <sup>1</sup>	<i>p</i> -value <sup>2</sup>	<i>p</i> -value <sup>3</sup>
	Frequency	Proportion of Total	Frequency	Proportion of Total	Frequency	Proportion of Total			
	Single Vehicle	35	28.00%	19	22.09%	32			
Multiple Vehicles	90	72.00%	67	77.91%	101	75.94%	0.334	0.471	0.737
Total	125	100%	86	100%	133	100%			

<sup>1</sup> Comparison between Pre-COVID (Apr. 2019 - Mar. 16, 2020) and COVID Relaxations (Mar. 16, 2020 - Mar. 2021)

<sup>2</sup> Comparison between Pre-COVID (Apr. 2019 - Mar. 16, 2020) and COVID Relaxations (Mar. 2021 - Dec. 2021)

<sup>3</sup> Comparison between COVID Relaxations (Mar. 16, 2020 - Mar. 2021) and COVID Relaxations (Mar. 2021 - Dec. 2021)

<sup>a</sup> Significant with at least 95% confidence

**Table A.12: Test for Equality of Proportions of Fatal and Suspected Serious Injury Crashes (Within-Severity) by Weather Condition and Time Period**

Weather Condition	Pre-COVID (Apr. 2019 - Mar. 16, 2020)		COVID Relaxations (Low VMT) (Mar. 16, 2020 - Mar. 2021)		COVID Relaxations (Normal VMT) (Mar. 2021 - Dec. 2021)		<i>p</i> -value <sup>1</sup>	<i>p</i> -value <sup>2</sup>	<i>p</i> -value <sup>3</sup>
	Frequency	Proportion of Total	Frequency	Proportion of Total	Frequency	Proportion of Total			
	Clear	77	61.60%	50	58.14%	93			
Cloudy	20	16.00%	13	15.12%	16	12.03%	0.862	0.358	0.511
Rain	20	16.00%	12	13.95%	14	10.53%	0.684	0.194	0.444
Fog	1	0.80%	6	6.98%	5	3.76%	<b>0.014<sup>a</sup></b>	0.115	0.287
Snow	3	2.40%	2	2.33%	2	1.50%	0.972	0.602	0.657
Unknown	4	3.20%	3	3.49%	3	2.26%	0.909	0.641	0.585
Total	125	100%	86	100%	133	100%			

<sup>1</sup> Comparison between Pre-COVID (Apr. 2019 - Mar. 16, 2020) and COVID Relaxations (Mar. 16, 2020 - Mar. 2021)

<sup>2</sup> Comparison between Pre-COVID (Apr. 2019 - Mar. 16, 2020) and COVID Relaxations (Mar. 2021 - Dec. 2021)

<sup>3</sup> Comparison between COVID Relaxations (Mar. 16, 2020 - Mar. 2021) and COVID Relaxations (Mar. 2021 - Dec. 2021)

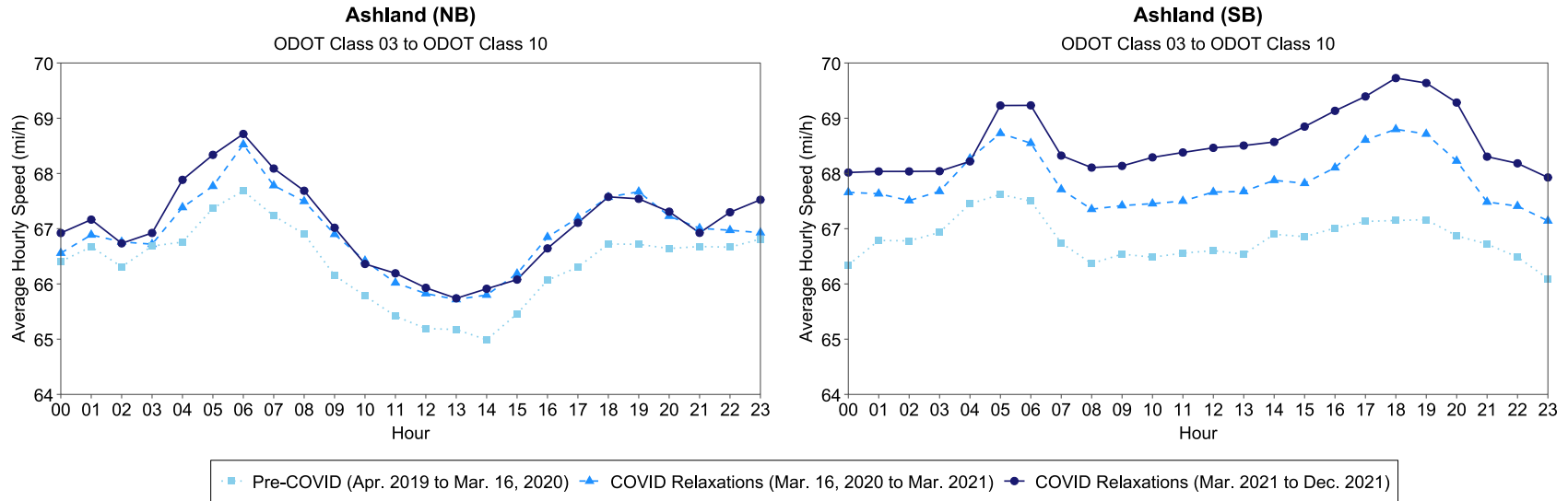
<sup>a</sup> Significant with at least 95% confidence

## **APPENDIX B**

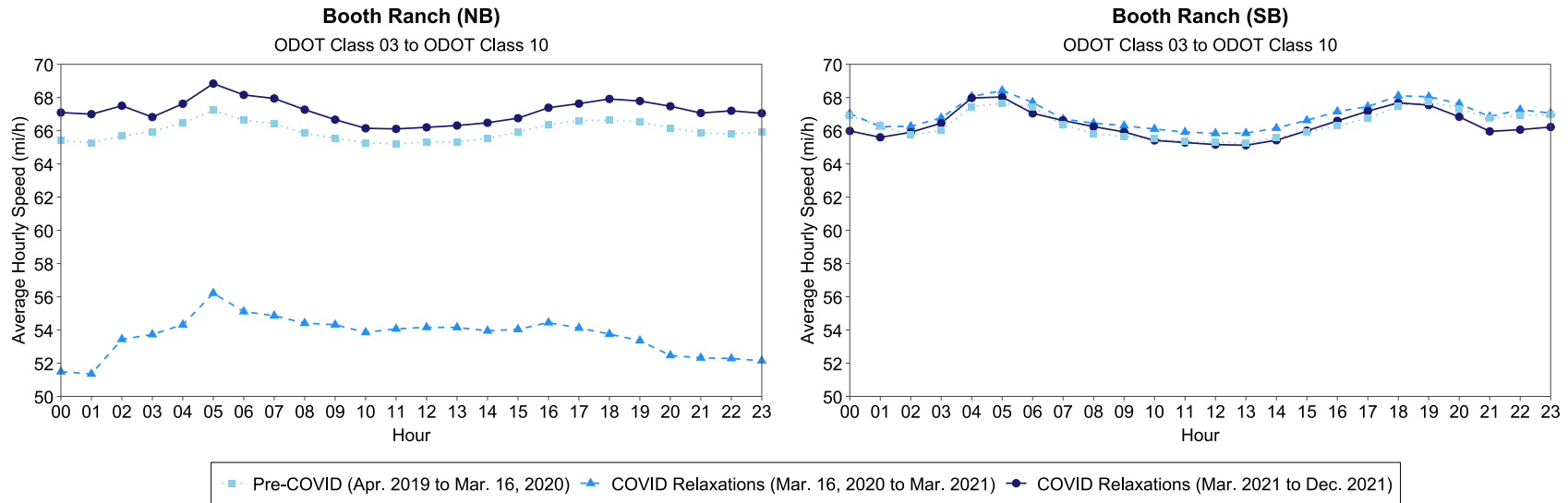
Appendix B presents average hourly truck speed by WIM station and truck classification for the time periods associated with the safety analysis. The classification groups considered follow the work done by Anderson et al. (2020).

Figures begin on the following page.

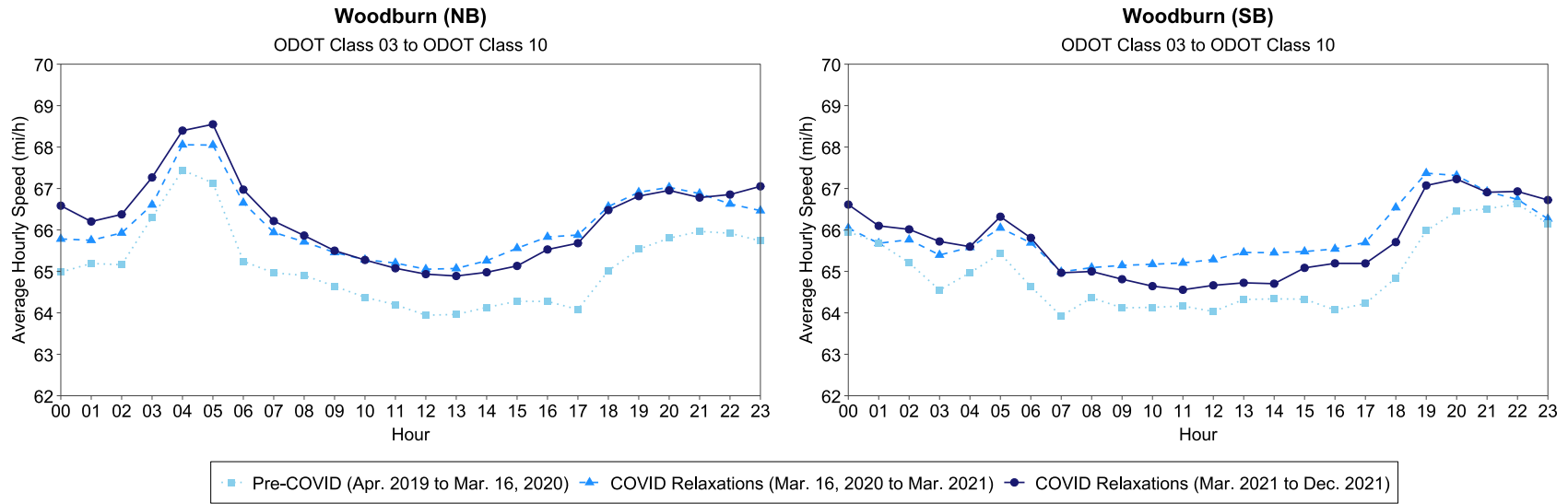
# INTERSTATE 5 WIM STATIONS



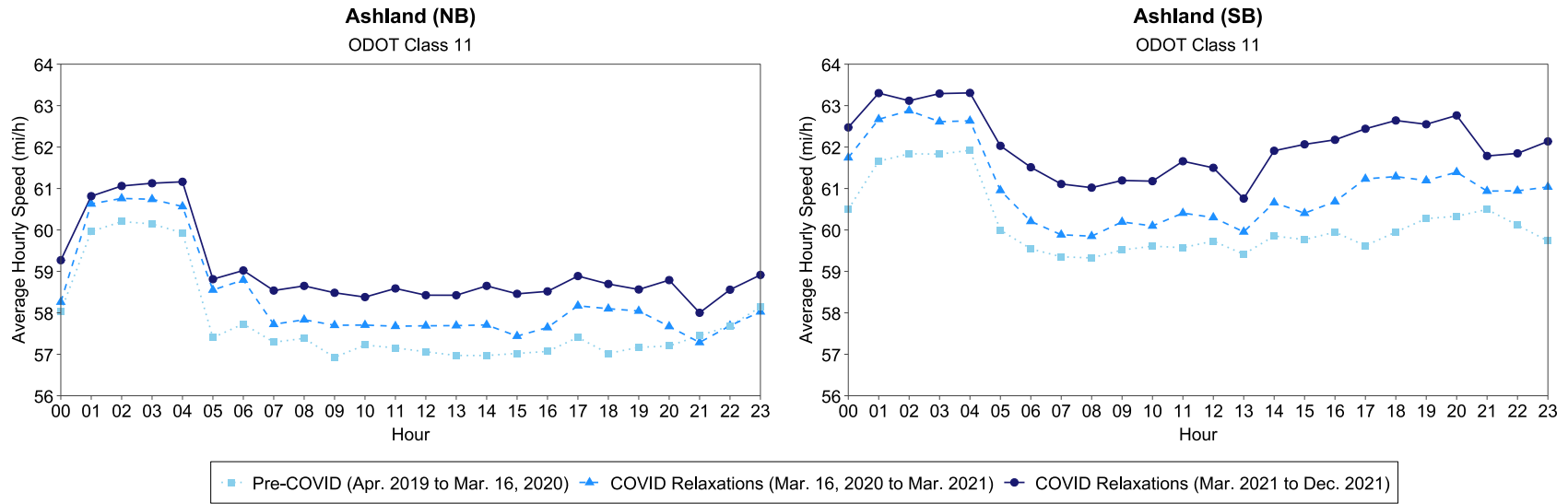
**Figure B.1: Average Hourly Speed of ODOT Class 03 to ODOT Class 10 Trucks at Ashland WIM Stations by Time Period**



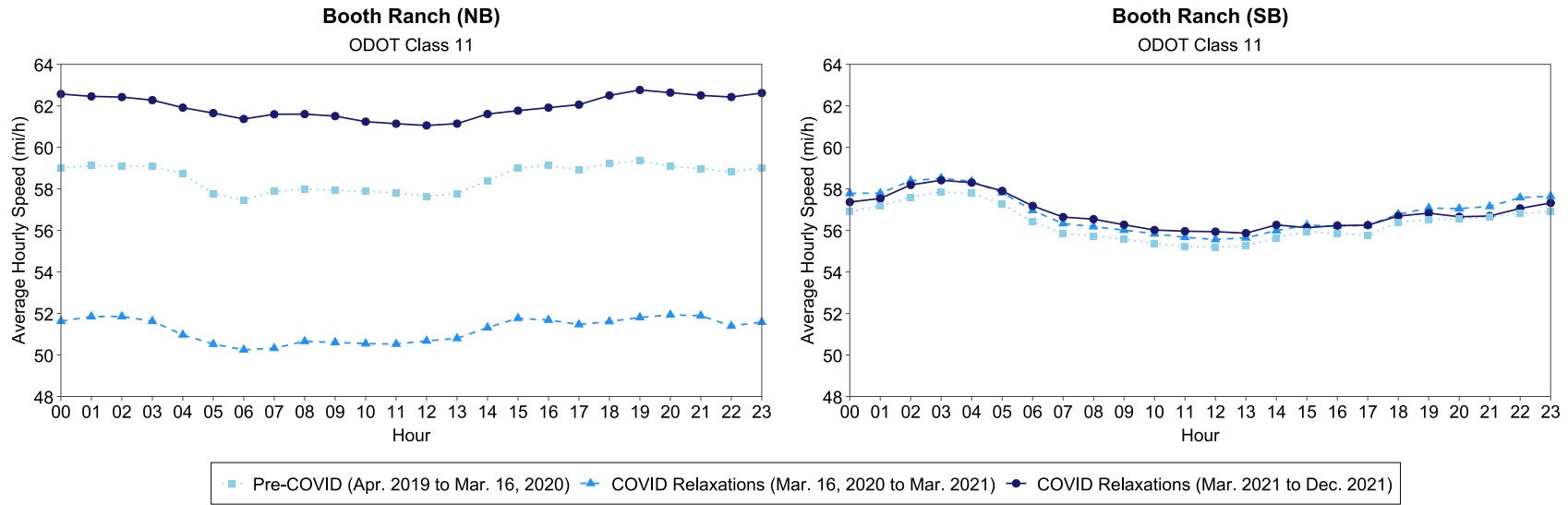
**Figure B.2: Average Hourly Speed of ODOT Class 03 to ODOT Class 10 Trucks at Booth Ranch WIM Stations by Time Period**



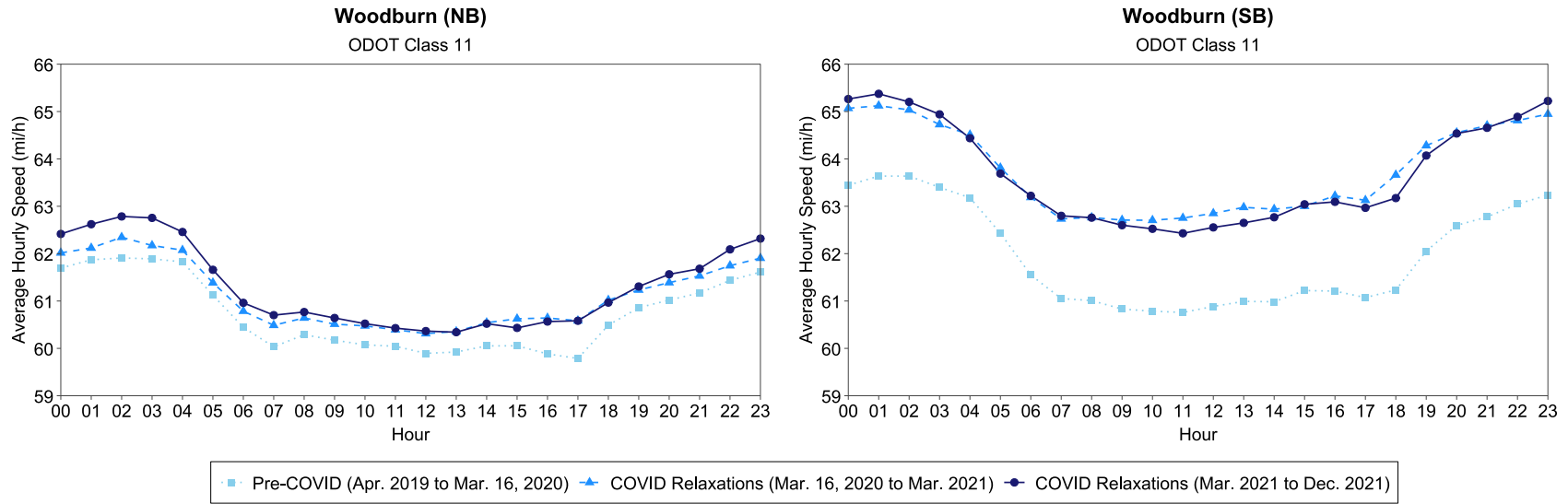
**Figure B.3: Average Hourly Speed of ODOT Class 03 to ODOT Class 10 Trucks at Woodburn WIM Stations by Time Period**



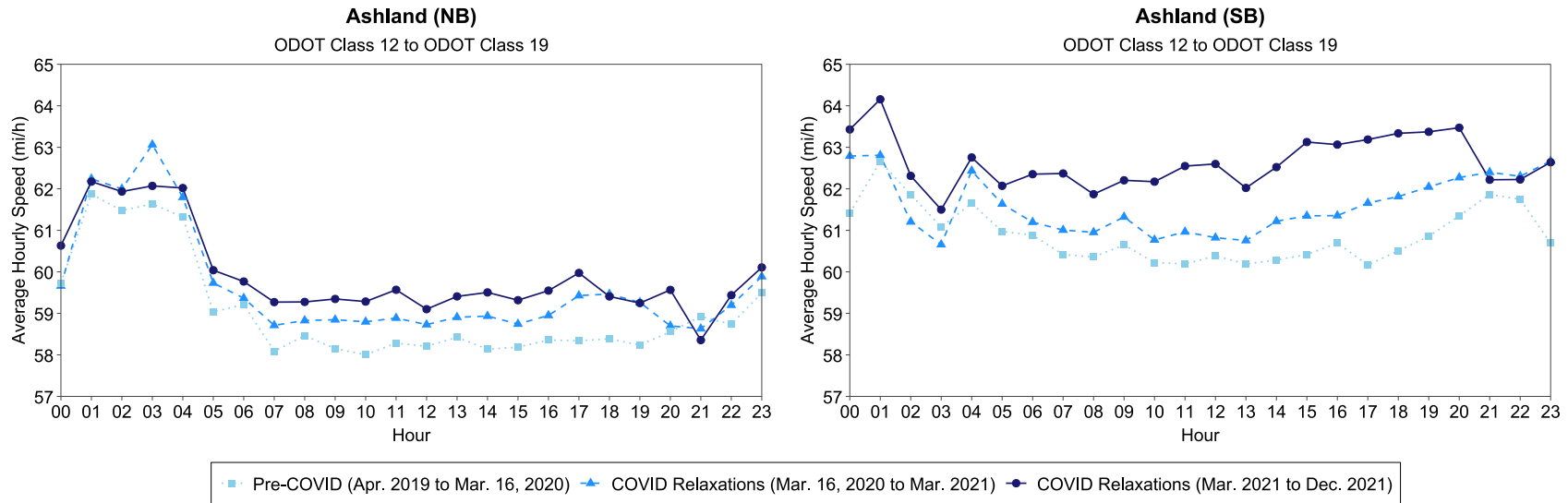
**Figure B.4: Average Hourly Speed of ODOT Class 11 Trucks at Ashland WIM Stations by Time Period**



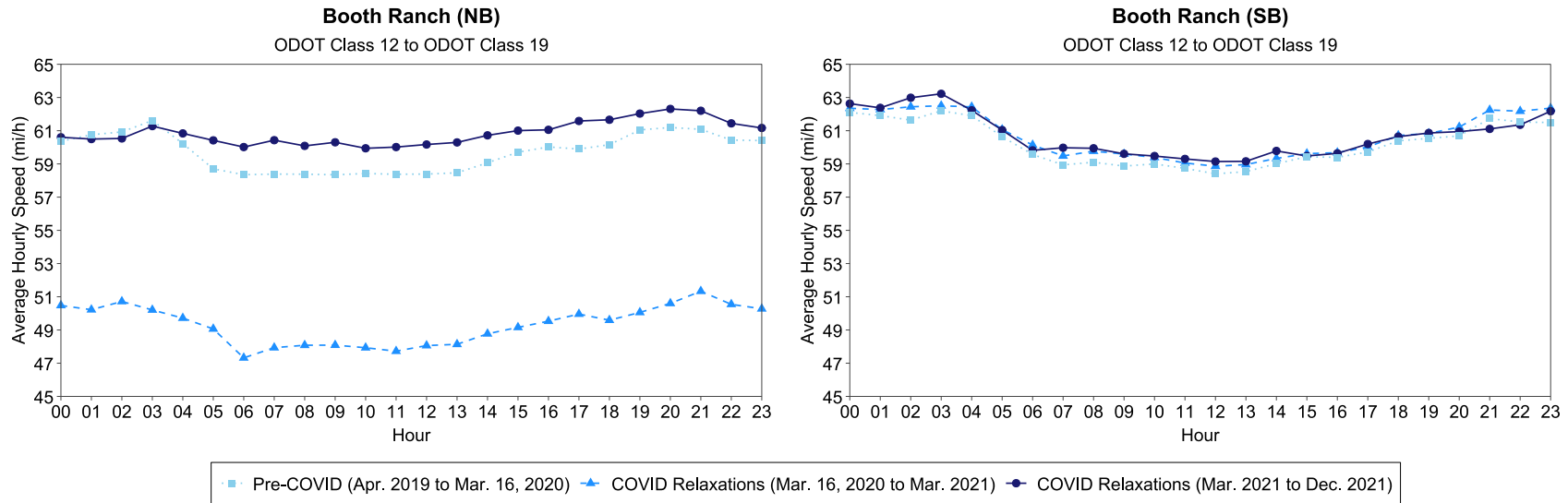
**Figure B.5: Average Hourly Speed of ODOT Class 11 Trucks at Booth Ranch WIM Stations by Time Period**



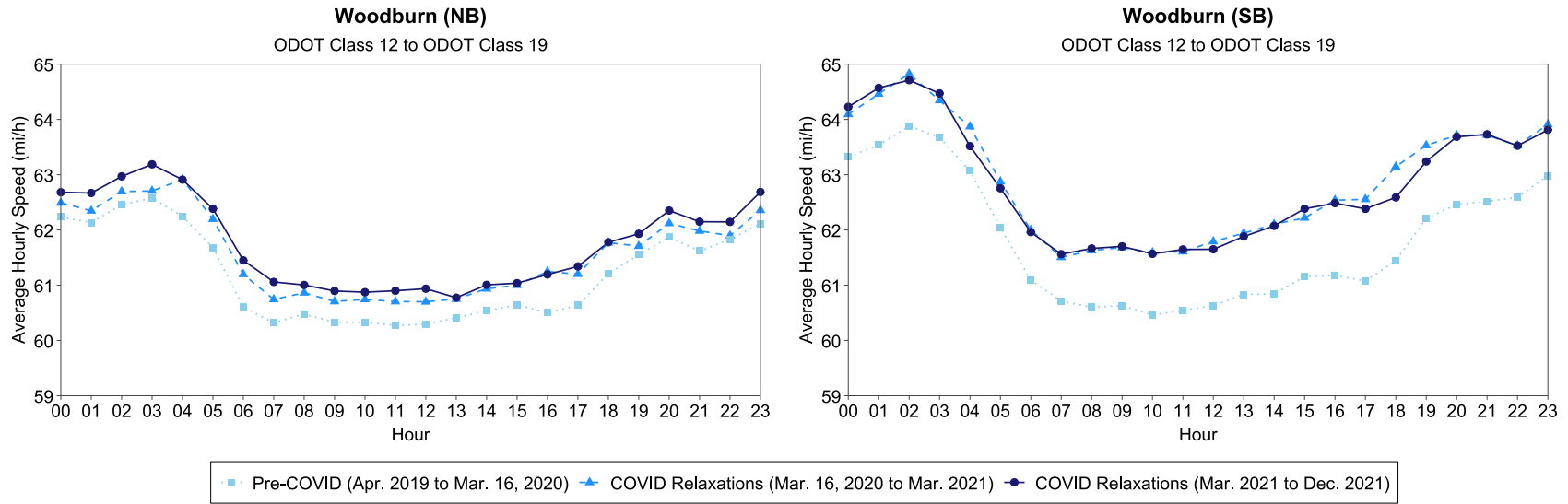
**Figure B.6: Average Hourly Speed of ODOT Class 11 Trucks at Woodburn WIM Stations by Time Period**



**Figure B.7: Average Hourly Speed of ODOT Class 12 to ODOT Class 19 Trucks at Ashland WIM Stations by Time Period**

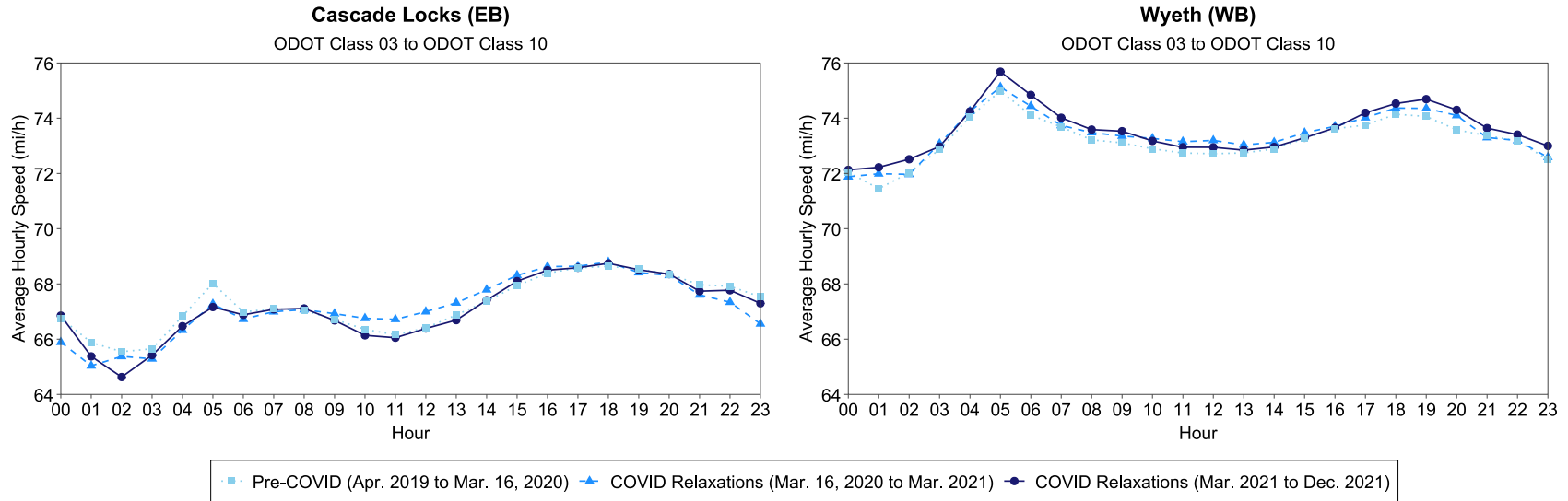


**Figure B.8: Average Hourly Speed of ODOT Class 12 to ODOT Class 19 Trucks at Booth Ranch WIM Stations by Time Period**

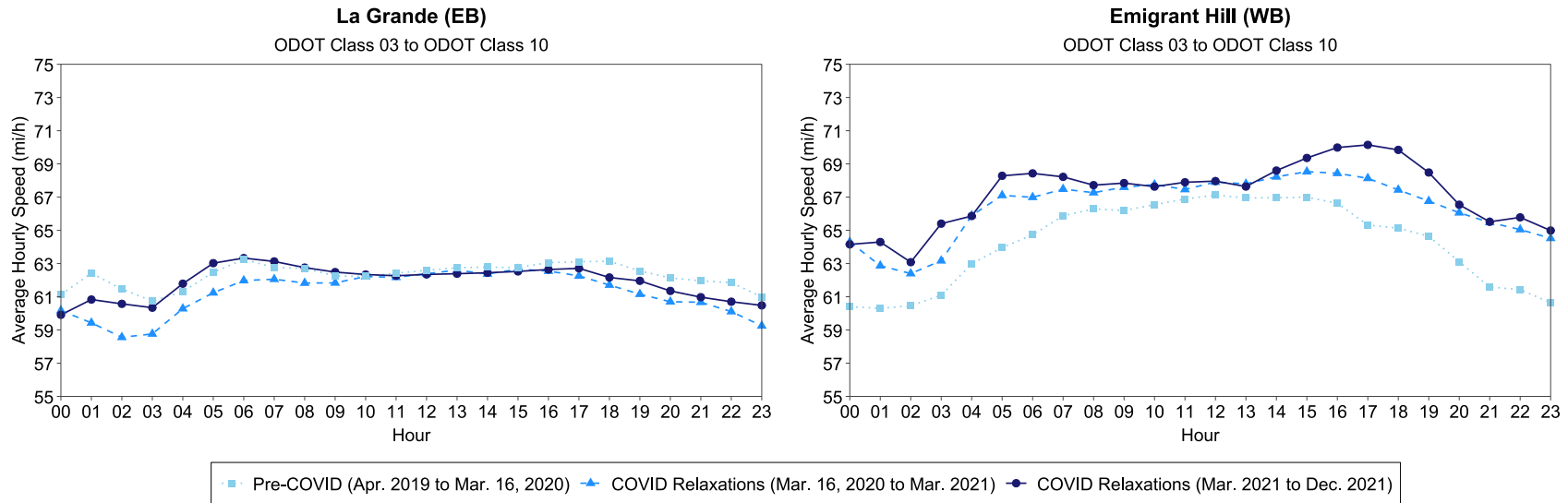


**Figure B.9: Average Hourly Speed of ODOT Class 12 to ODOT Class 19 Trucks at Woodburn WIM Stations by Time Period**

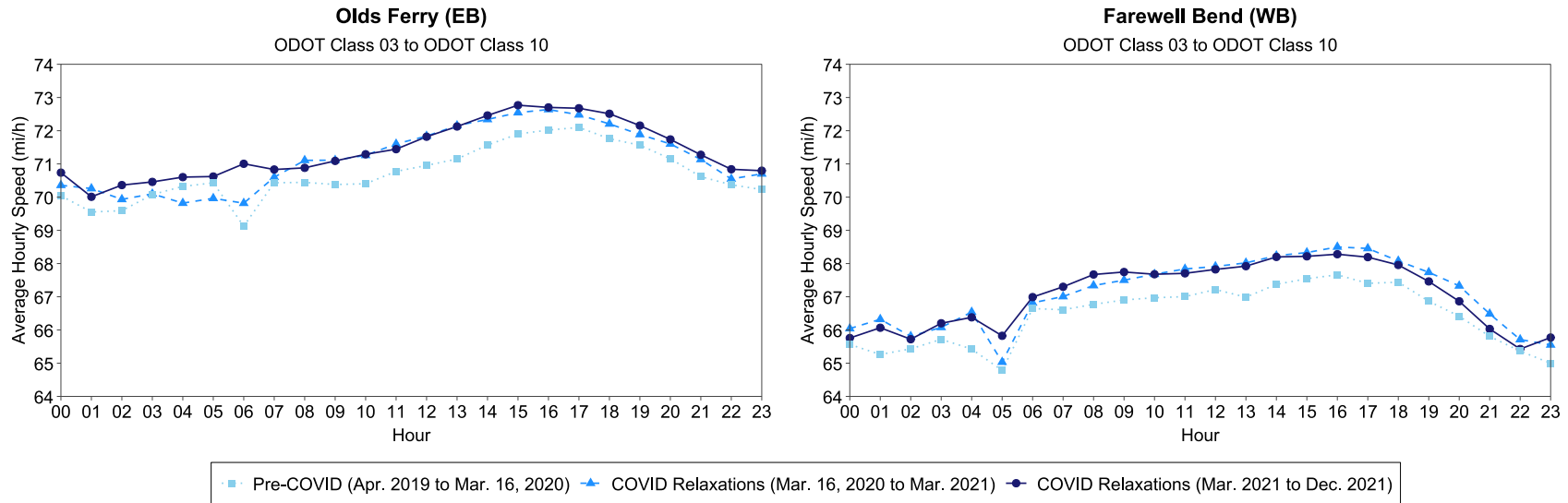
# INTERSTATE 84 WIM STATIONS



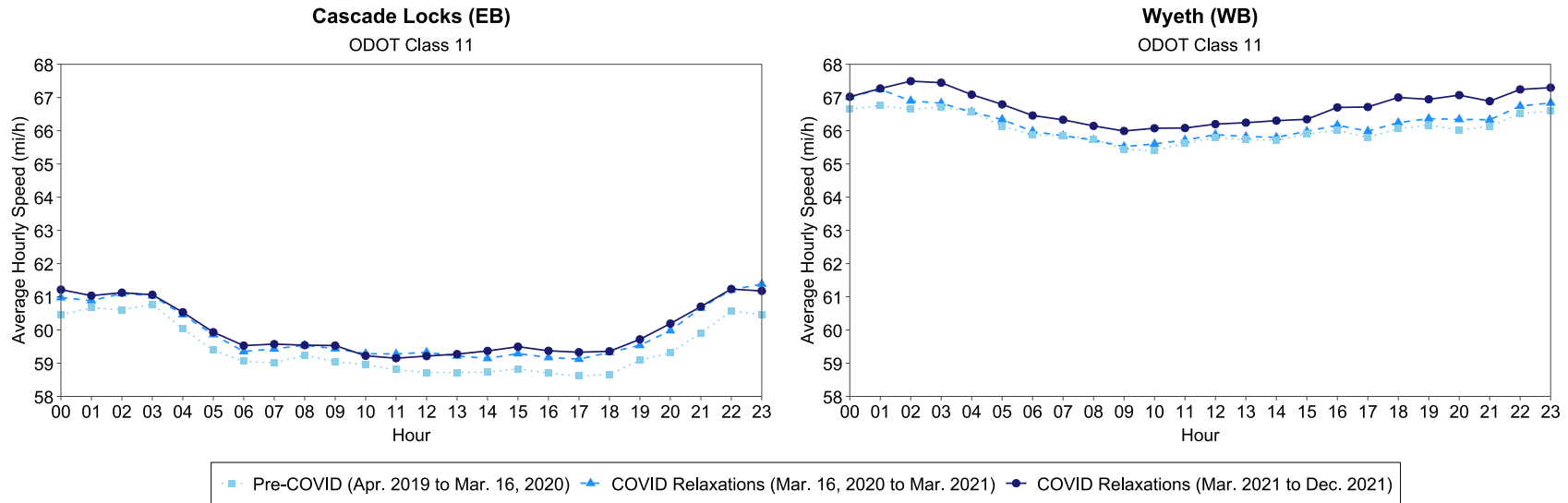
**Figure B.10: Average Hourly Speed of ODOT Class 03 to ODOT Class 10 Trucks at Cascade Locks and Wyeth WIM Stations by Time Period**



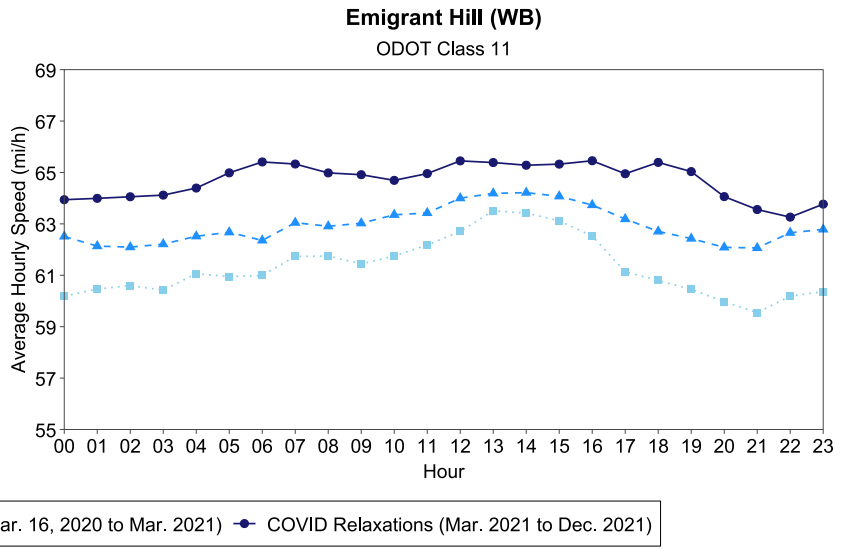
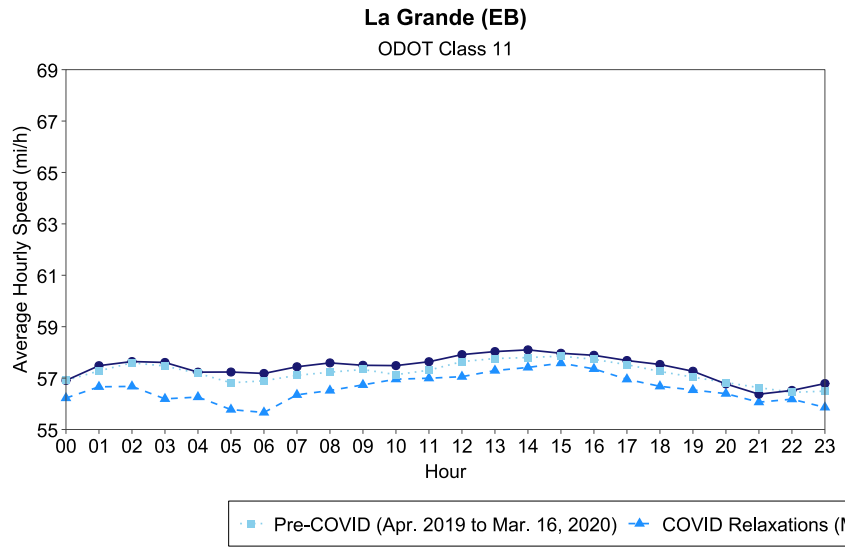
**Figure B.11: Average Hourly Speed of ODOT Class 03 to ODOT Class 10 Trucks at La Grande and Emigrant Hill WIM Stations by Time Period**



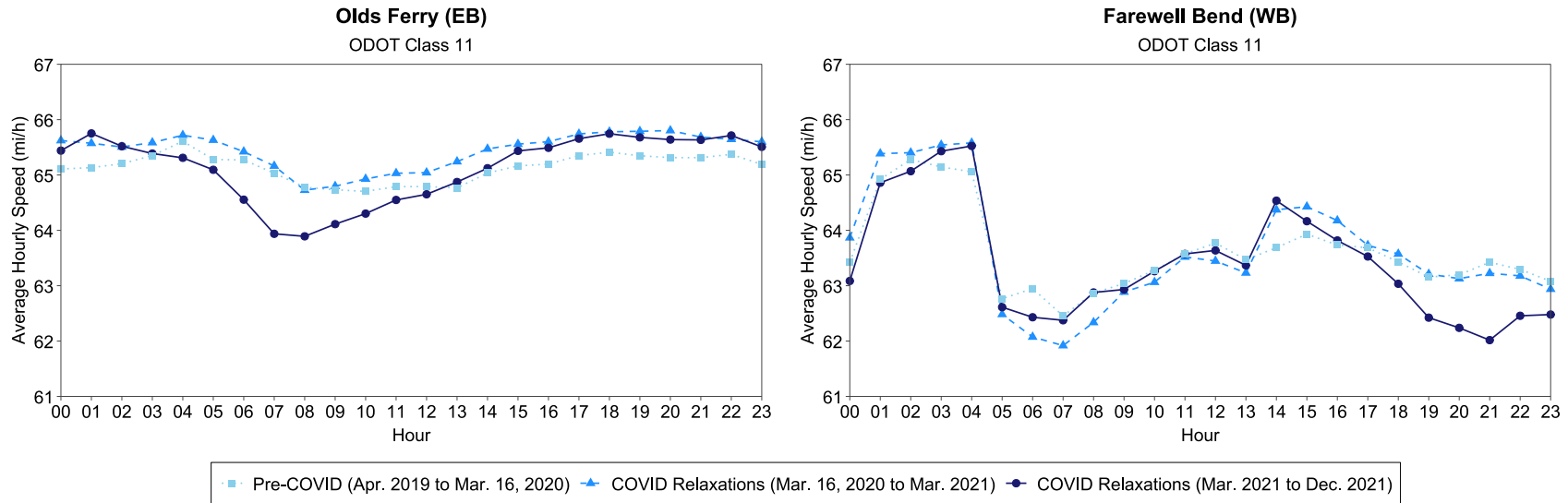
**Figure B.12: Average Hourly Speed of ODOT Class 03 to ODOT Class 10 Trucks at Olds Ferry and Farewell Bend WIM Stations by Time Period**



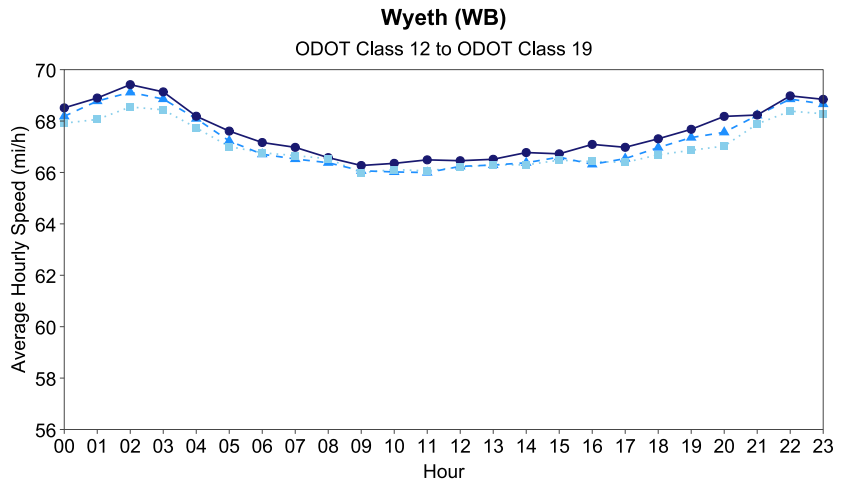
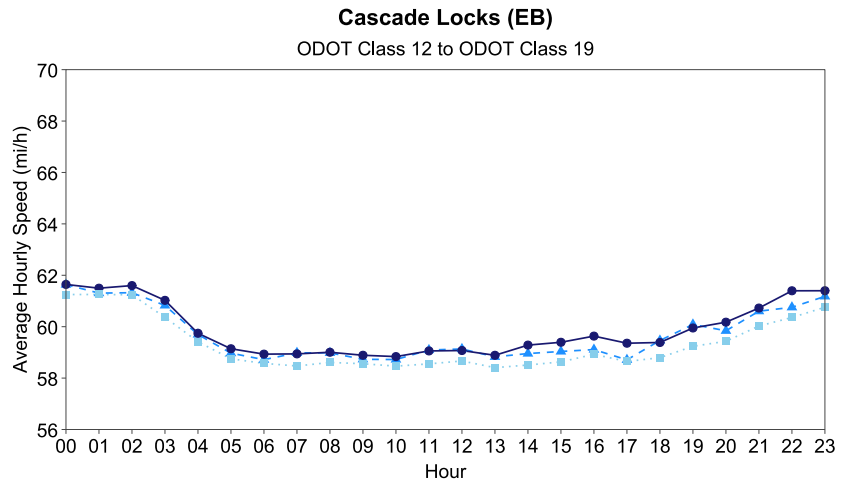
**Figure B.13: Average Hourly Speed of ODOT Class 11 Trucks at Cascade Locks and Wyeth WIM Stations by Time Period**



**Figure B.14: Average Hourly Speed of ODOT Class 11 Trucks at La Grande and Emigrant Hill WIM Stations by Time Period**

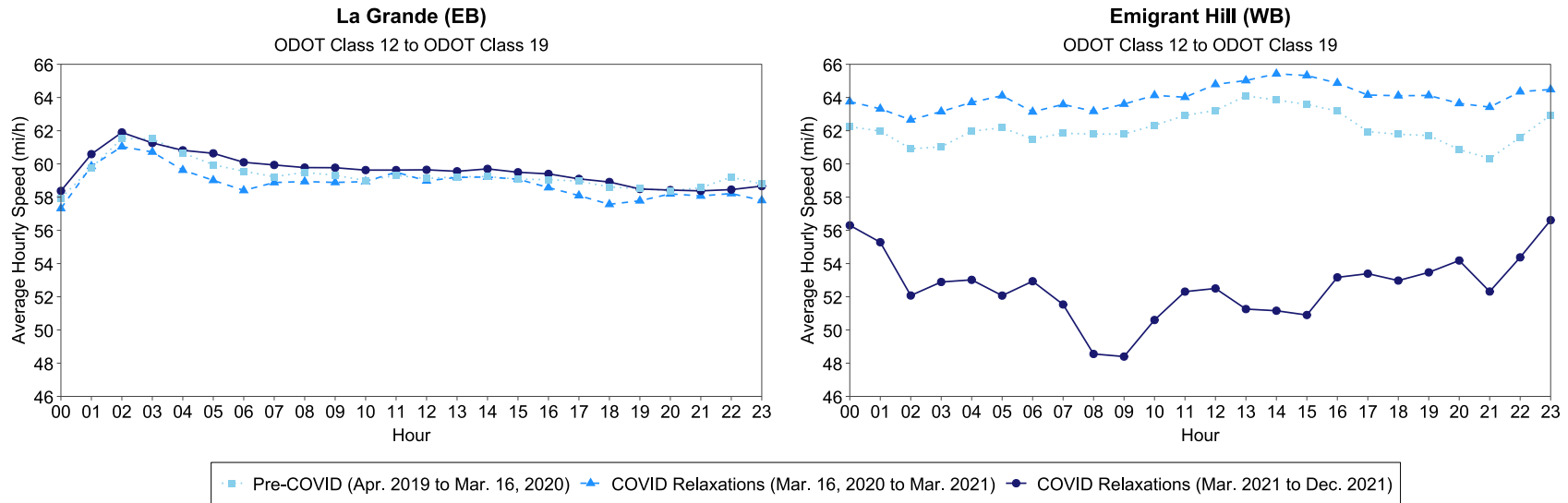


**Figure B.15: Average Hourly Speed of ODOT Class 11 Trucks at Olds Ferry and Farewell Bend WIM Stations by Time Period**

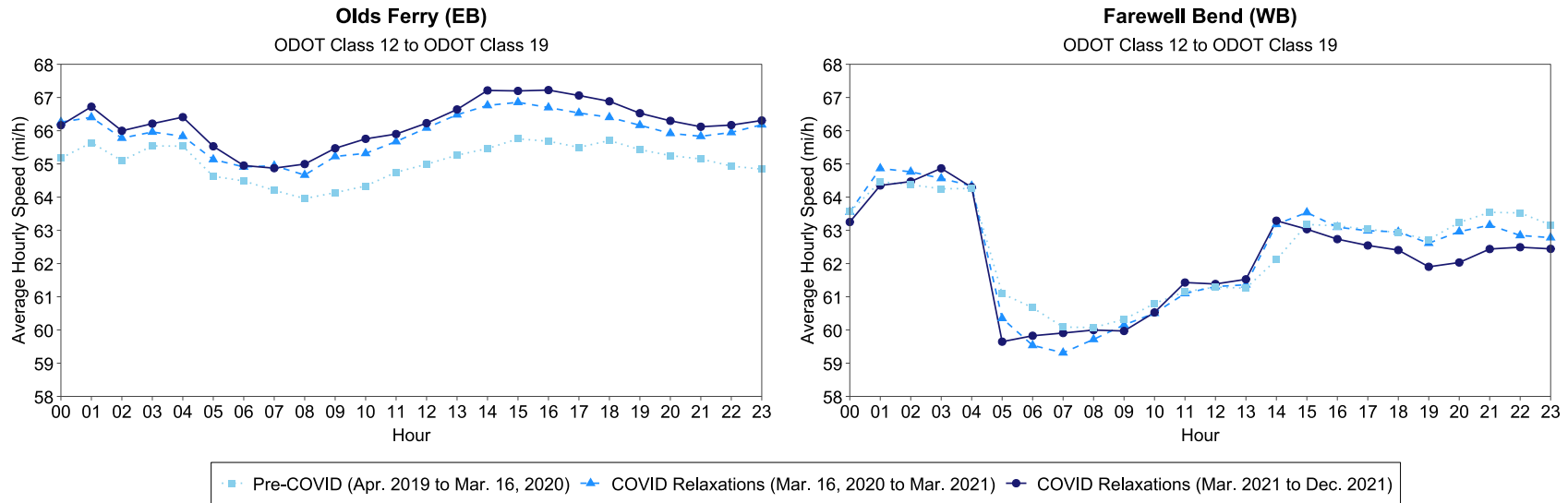


■ Pre-COVID (Apr. 2019 to Mar. 16, 2020) 
 ▲ COVID Relaxations (Mar. 16, 2020 to Mar. 2021) 
 ● COVID Relaxations (Mar. 2021 to Dec. 2021)

**Figure B.16: Average Hourly Speed of ODOT Class 12 to ODOT Class 19 Trucks at Cascade Locks and Wyeth WIM Stations by Time Period**

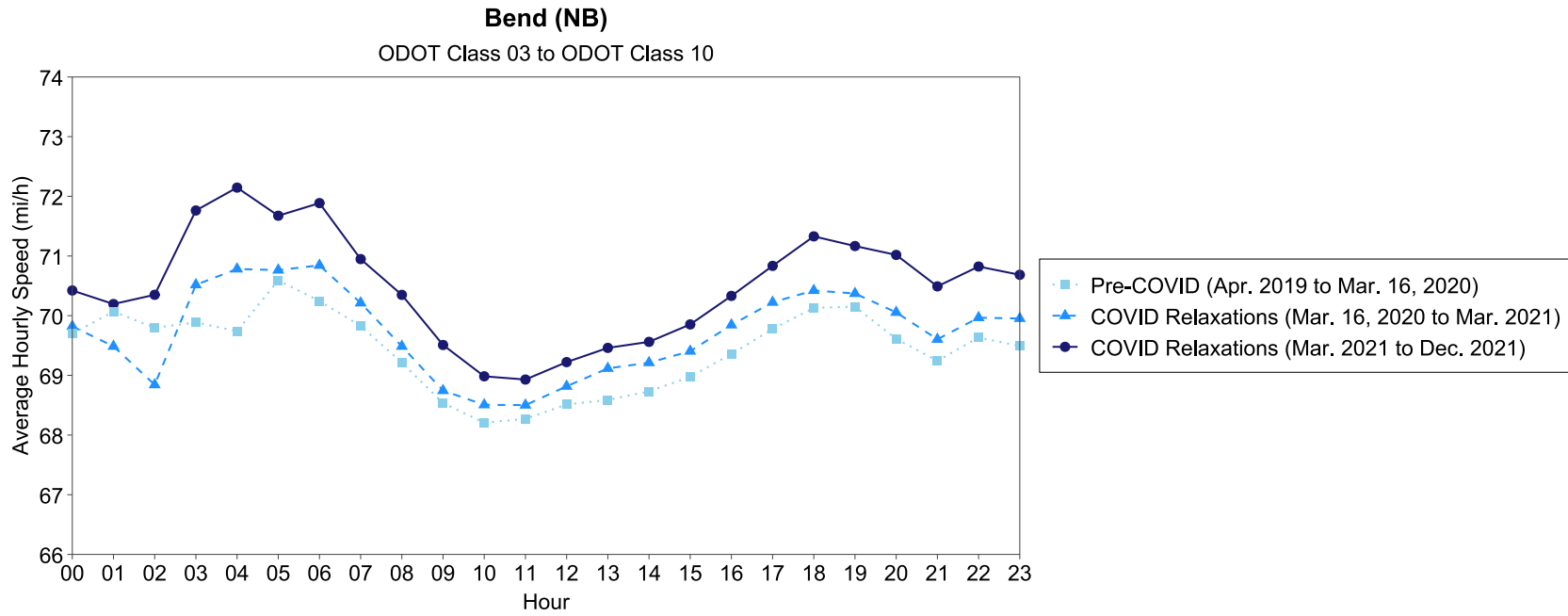


**Figure B.17: Average Hourly Speed of ODOT Class 12 to ODOT Class 19 Trucks at La Grande and Emigrant Hill WIM Stations by Time Period**

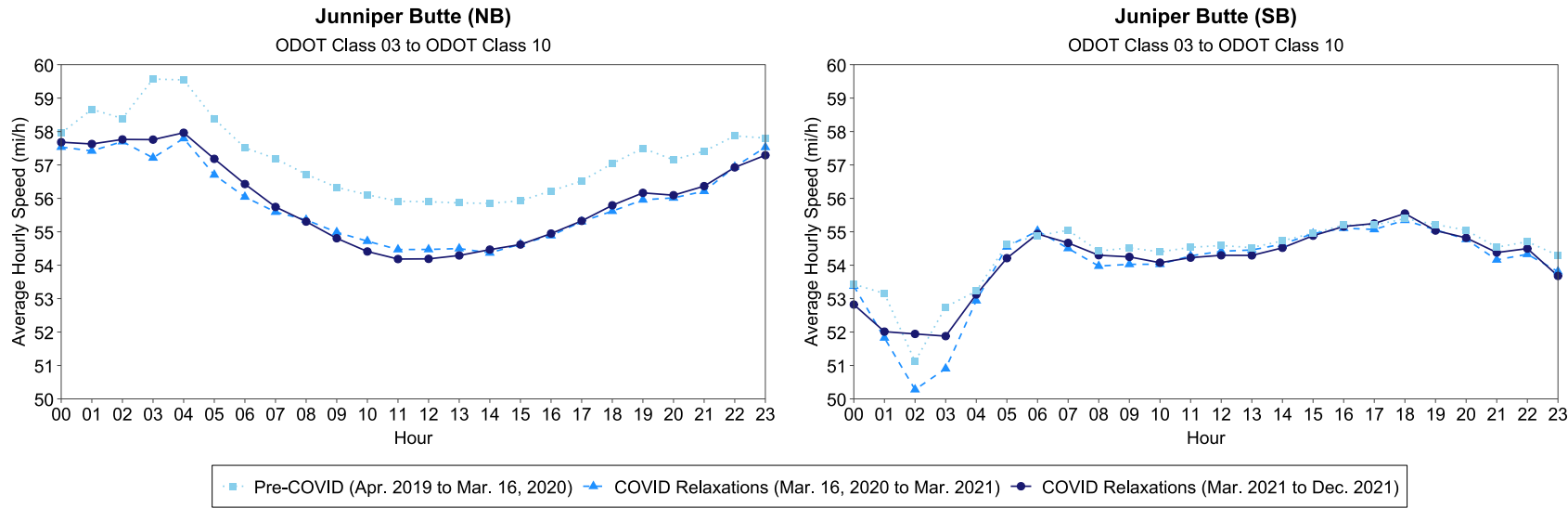


**Figure B.18: Average Hourly Speed of ODOT Class 12 to ODOT Class 19 Trucks at Olds Ferry and Farewell Bend WIM Stations by Time Period**

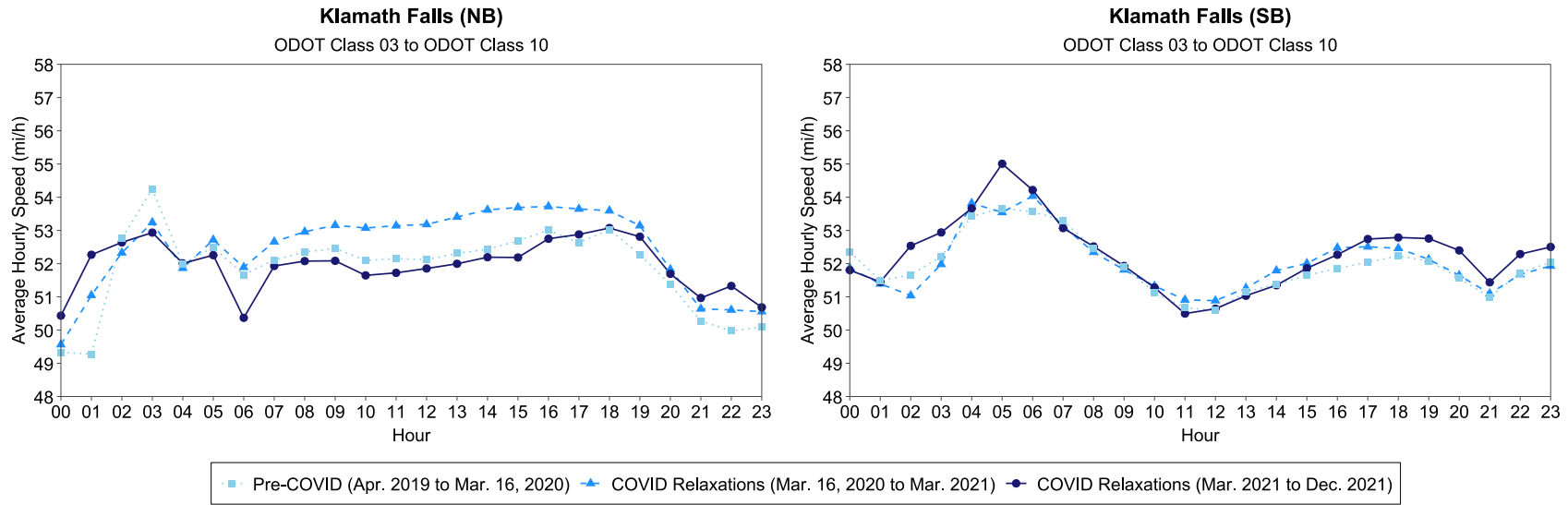
# US-97 WIM STATIONS



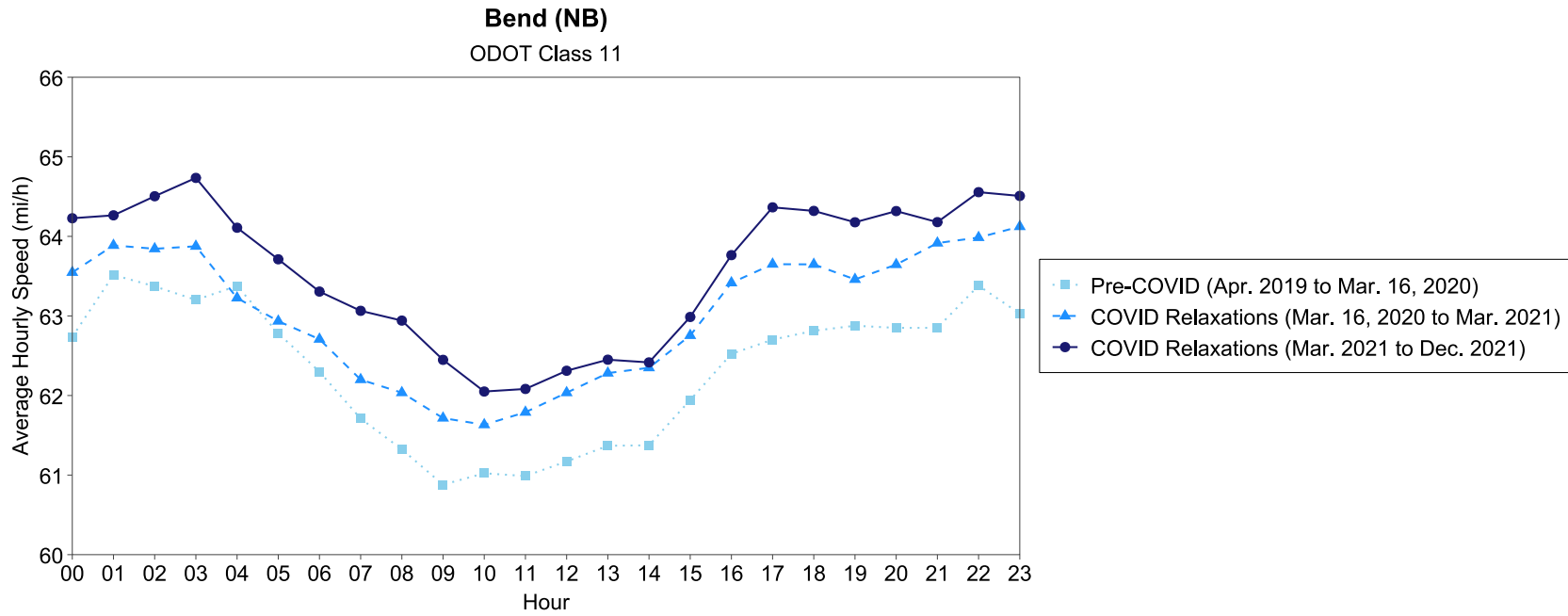
**Figure B.19: Average Hourly Speed of ODOT Class 03 to ODOT Class 10 Trucks at Bend WIM Station by Time Period**



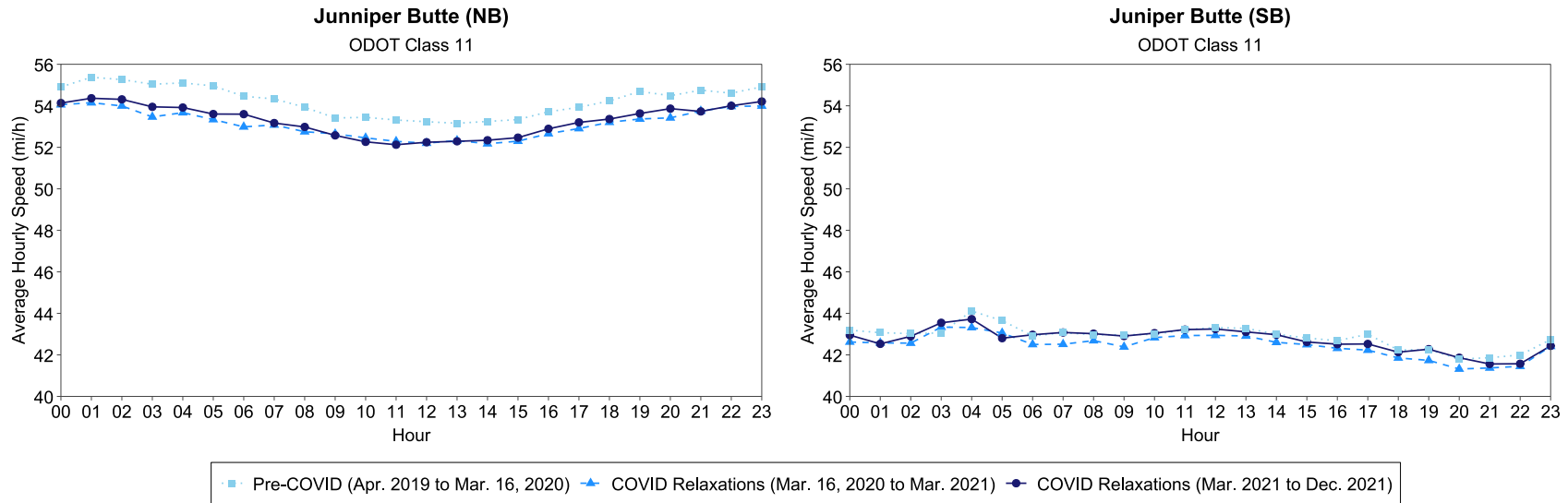
**Figure B.20: Average Hourly Speed of ODOT Class 03 to ODOT Class 10 Trucks at Juniper Butte WIM Stations by Time Period**



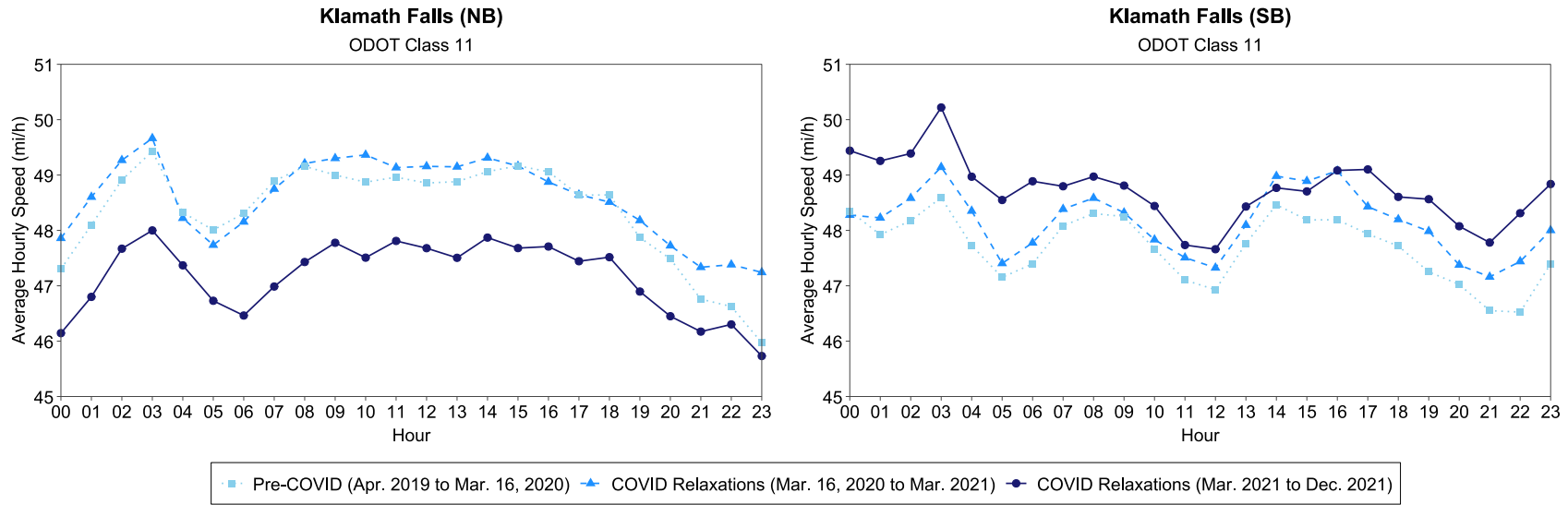
**Figure B.21: Average Hourly Speed of ODOT Class 03 to ODOT Class 10 Trucks at Klamath Falls WIM Stations by Time Period**



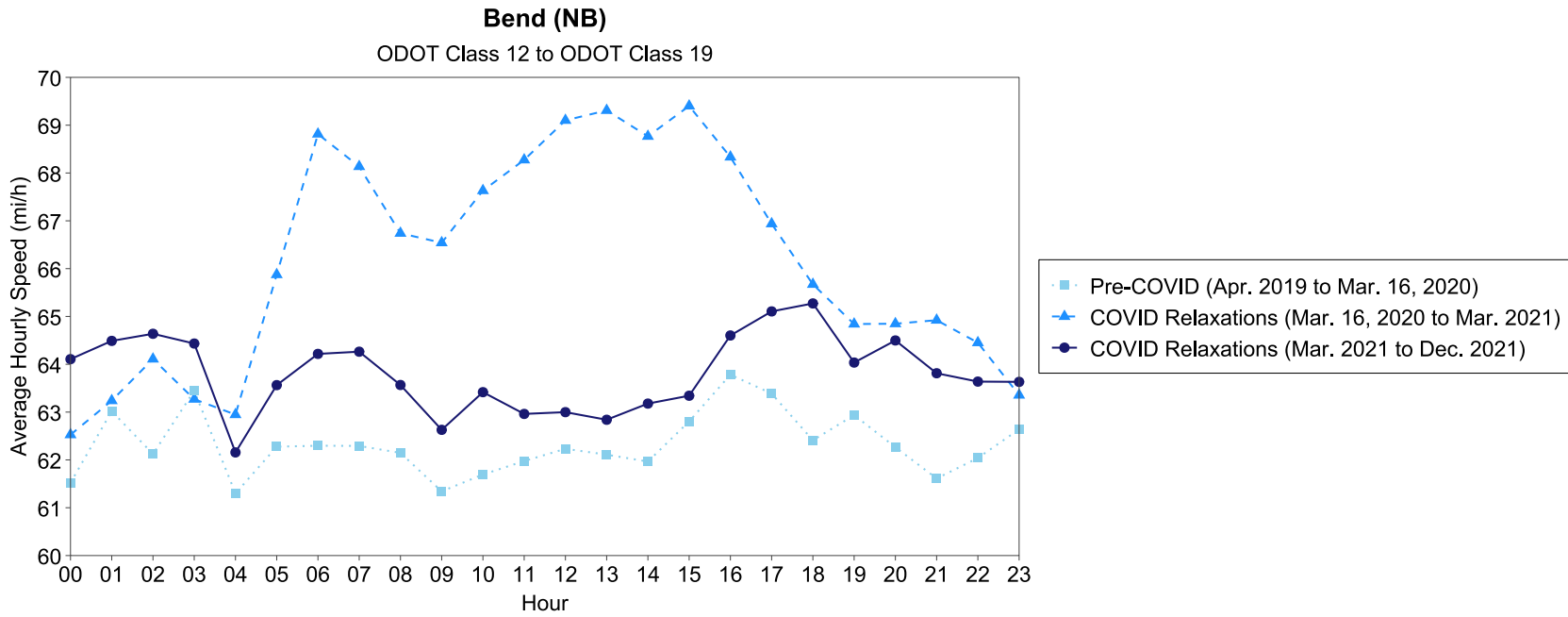
**Figure B.22: Average Hourly Speed of ODOT Class 11 Trucks at Bend WIM Station by Time Period**



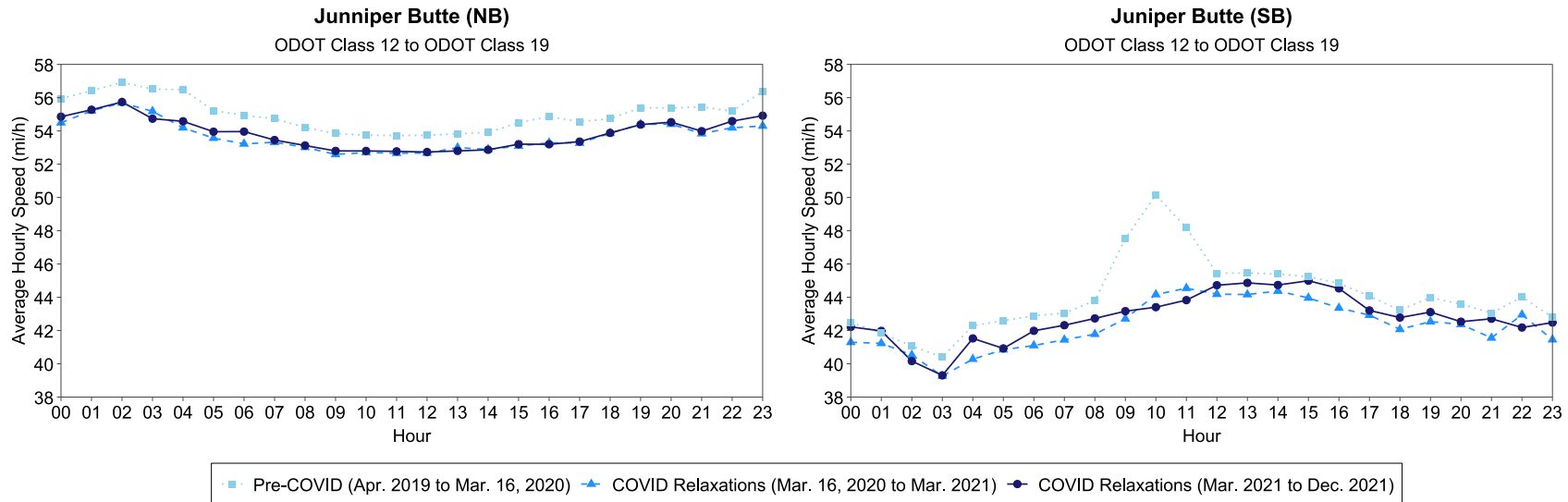
**Figure B.23: Average Hourly Speed of ODOT Class 11 Trucks at Juniper Butte WIM Stations by Time Period**



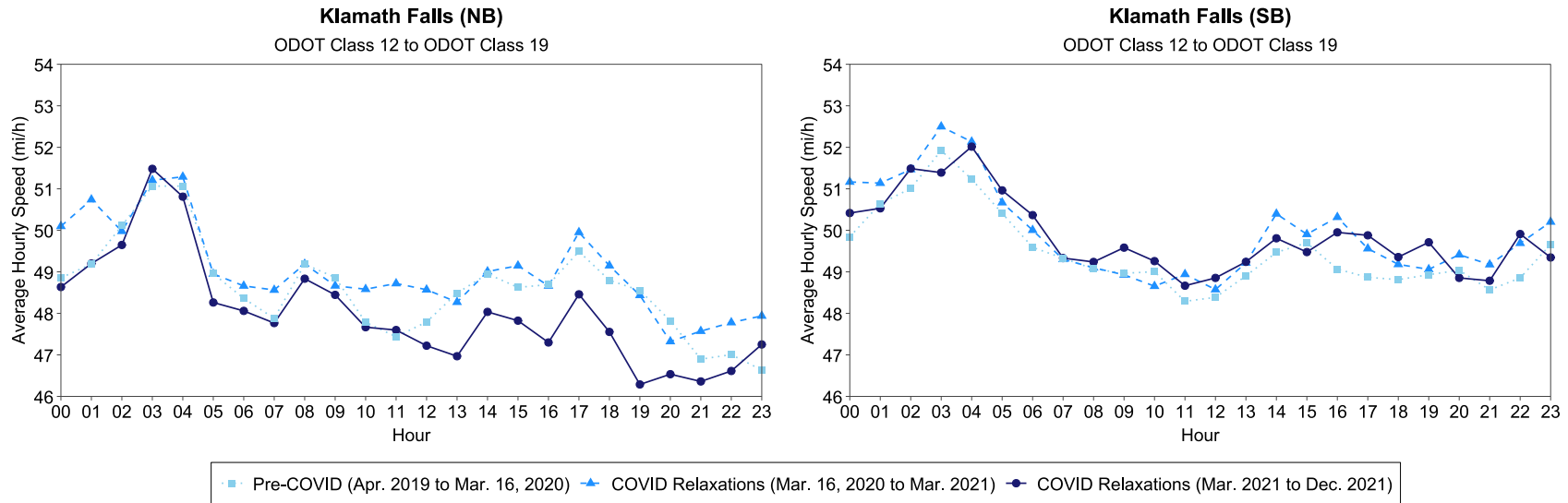
**Figure B.24: Average Hourly Speed of ODOT Class 11 Trucks at Klamath Falls WIM Stations by Time Period**



**Figure B.25: Average Hourly Speed of ODOT Class 12 to ODOT Class 19 Trucks at Bend WIM Station by Time Period**

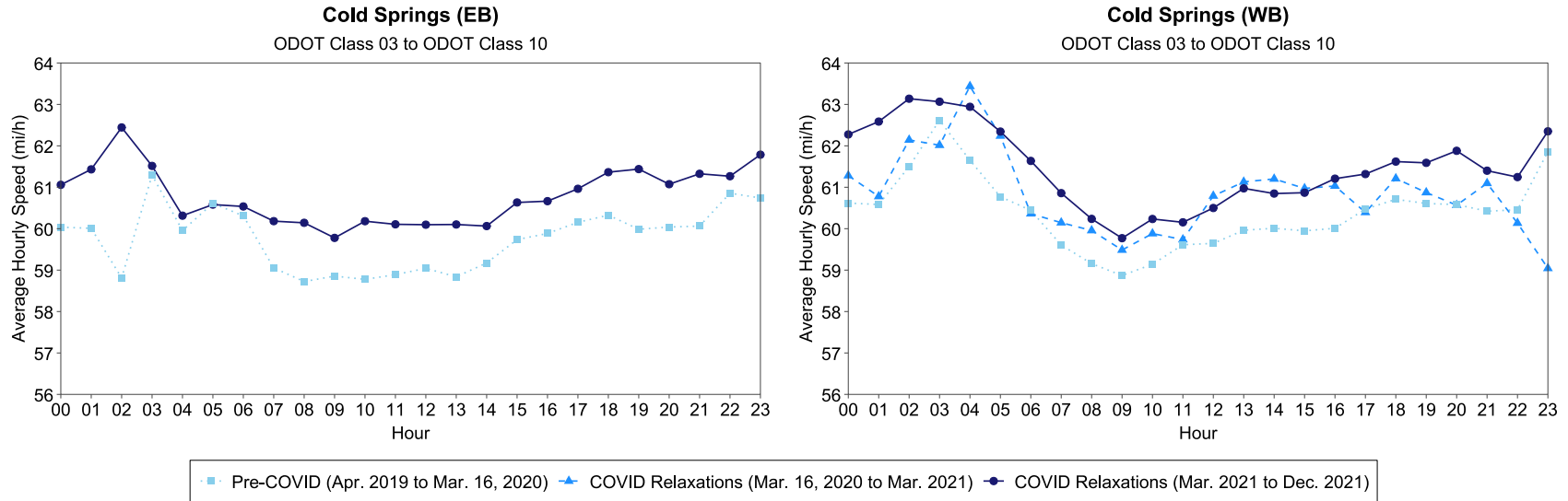


**Figure B.26: Average Hourly Speed of ODOT Class 12 to ODOT Class 19 Trucks at Juniper Butte WIM Stations by Time Period**

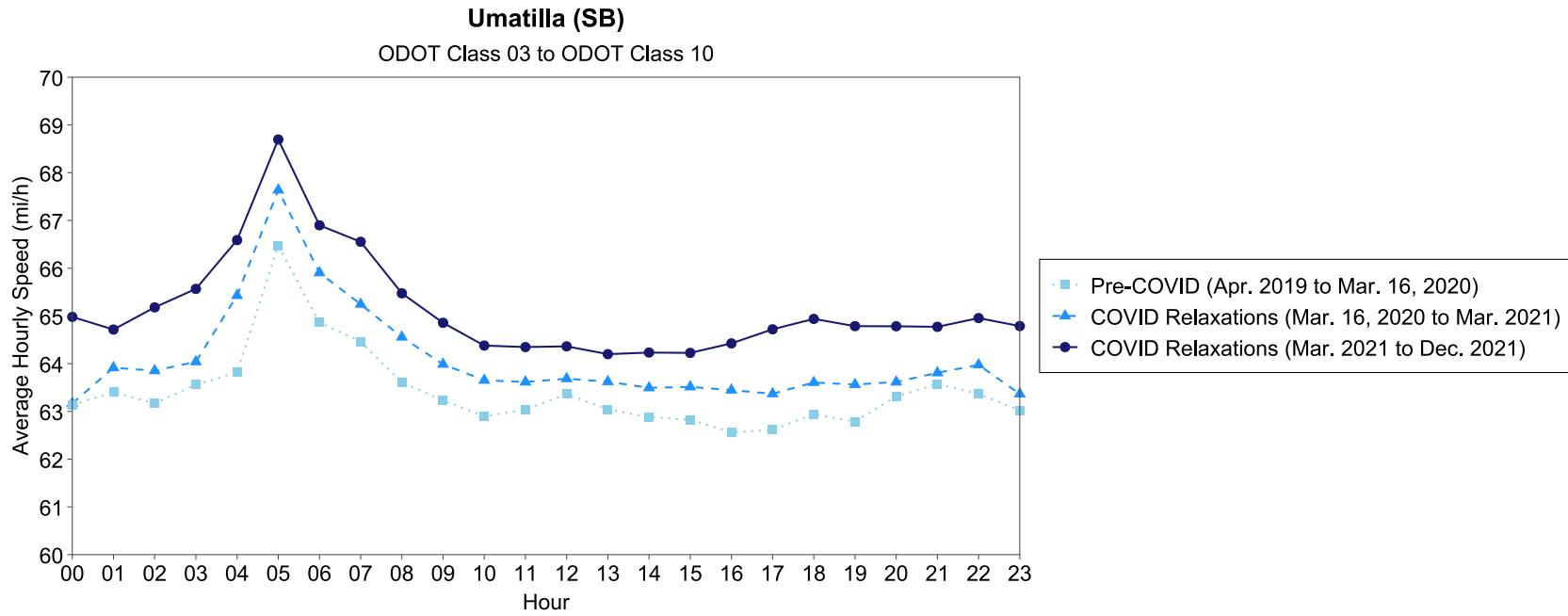


**Figure B.27: Average Hourly Speed of ODOT Class 12 to ODOT Class 19 Trucks at Klamath Falls WIM Stations by Time Period**

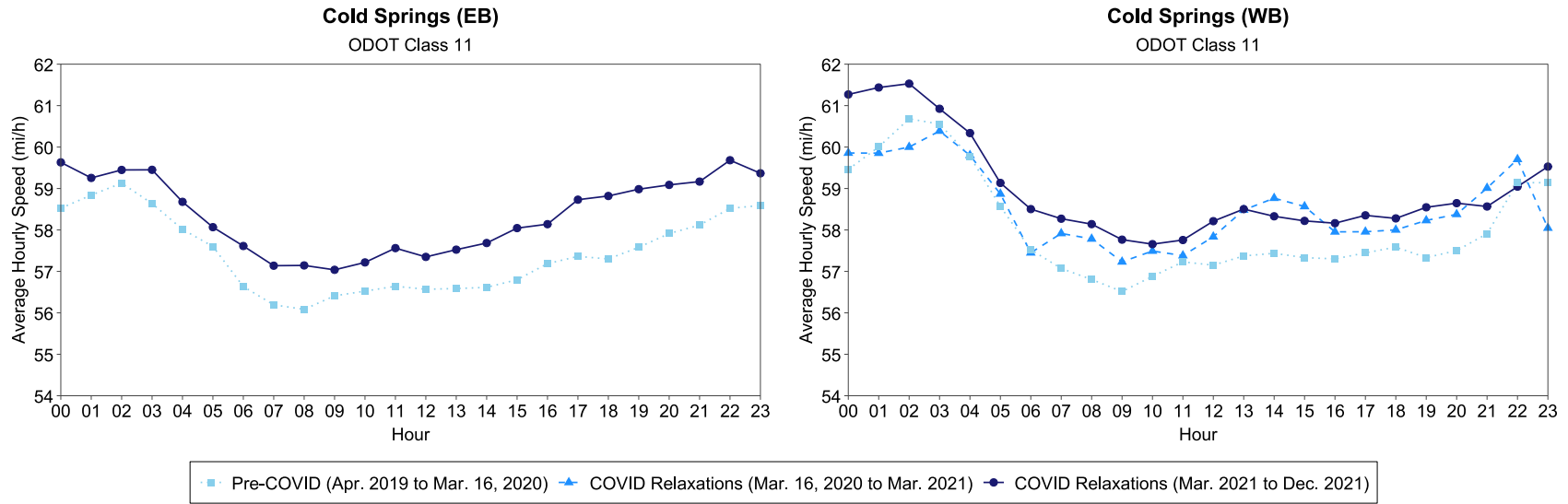
# US-730 WIM STATIONS



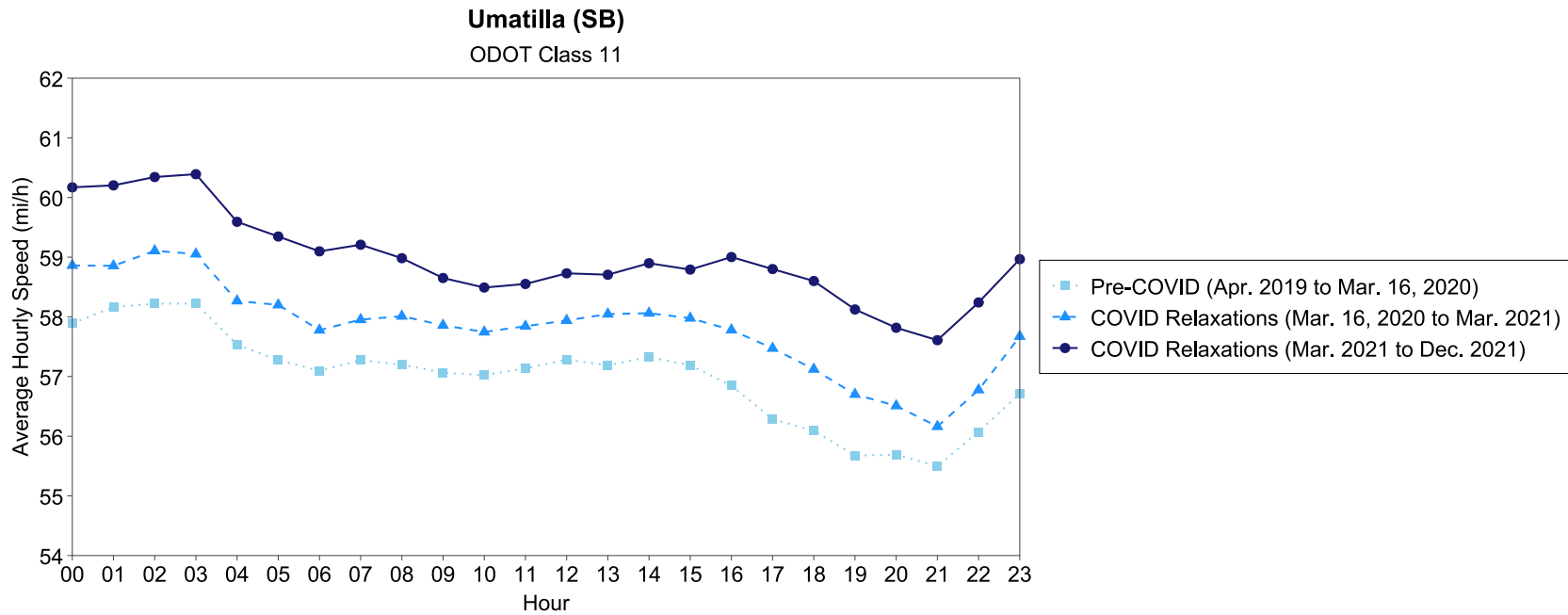
**Figure B.28: Average Hourly Speed of ODOT Class 03 to ODOT Class 10 Trucks at Cold Springs WIM Stations by Time Period**



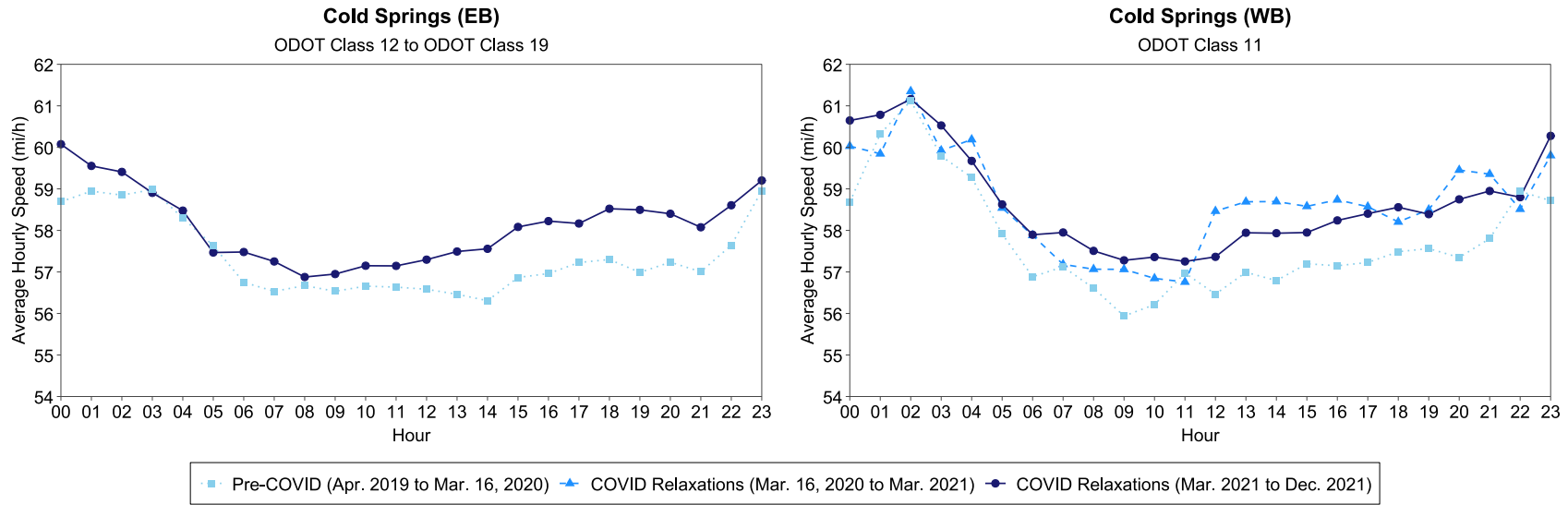
**Figure B.29: Average Hourly Speed of ODOT Class 03 to ODOT Class 10 Trucks at Umatilla WIM Station by Time Period**



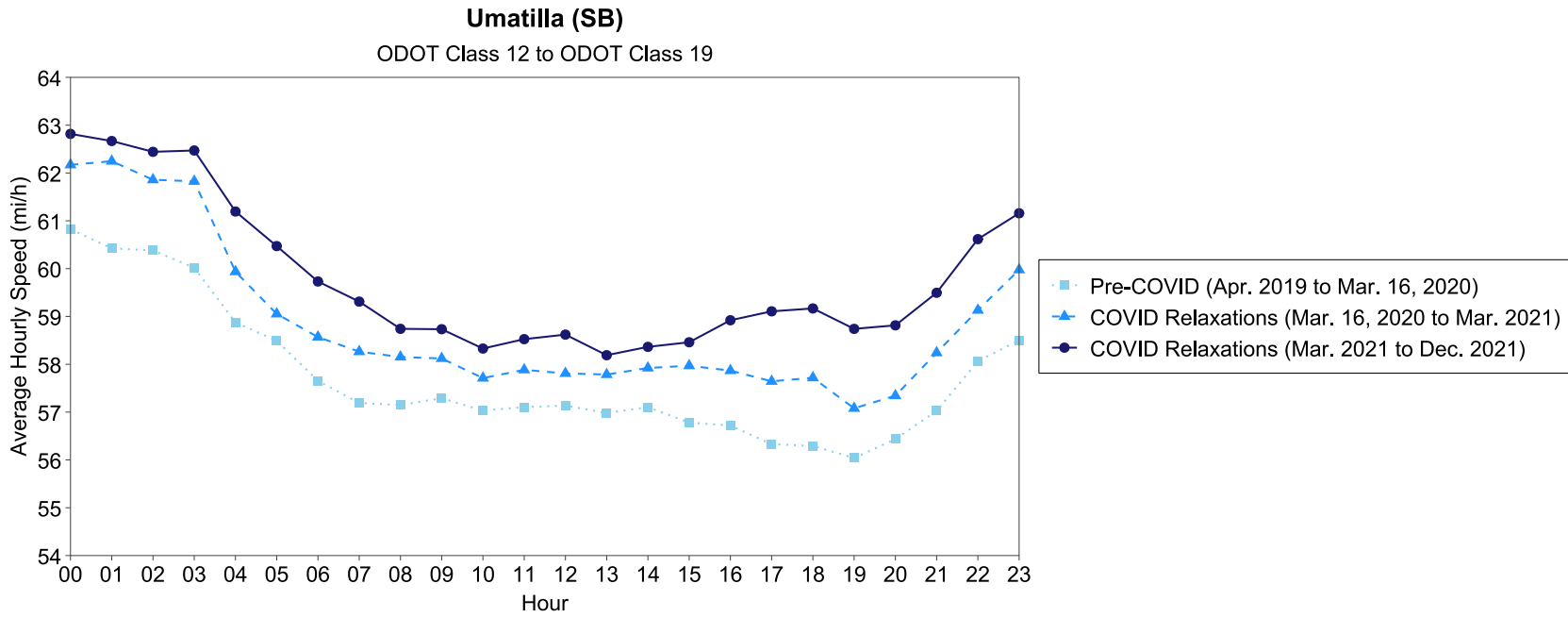
**Figure B.30: Average Hourly Speed of ODOT Class 11 Trucks at Cold Springs WIM Stations by Time Period**



**Figure B.31: Average Hourly Speed of ODOT Class 11 Trucks at Umatilla WIM Station by Time Period**

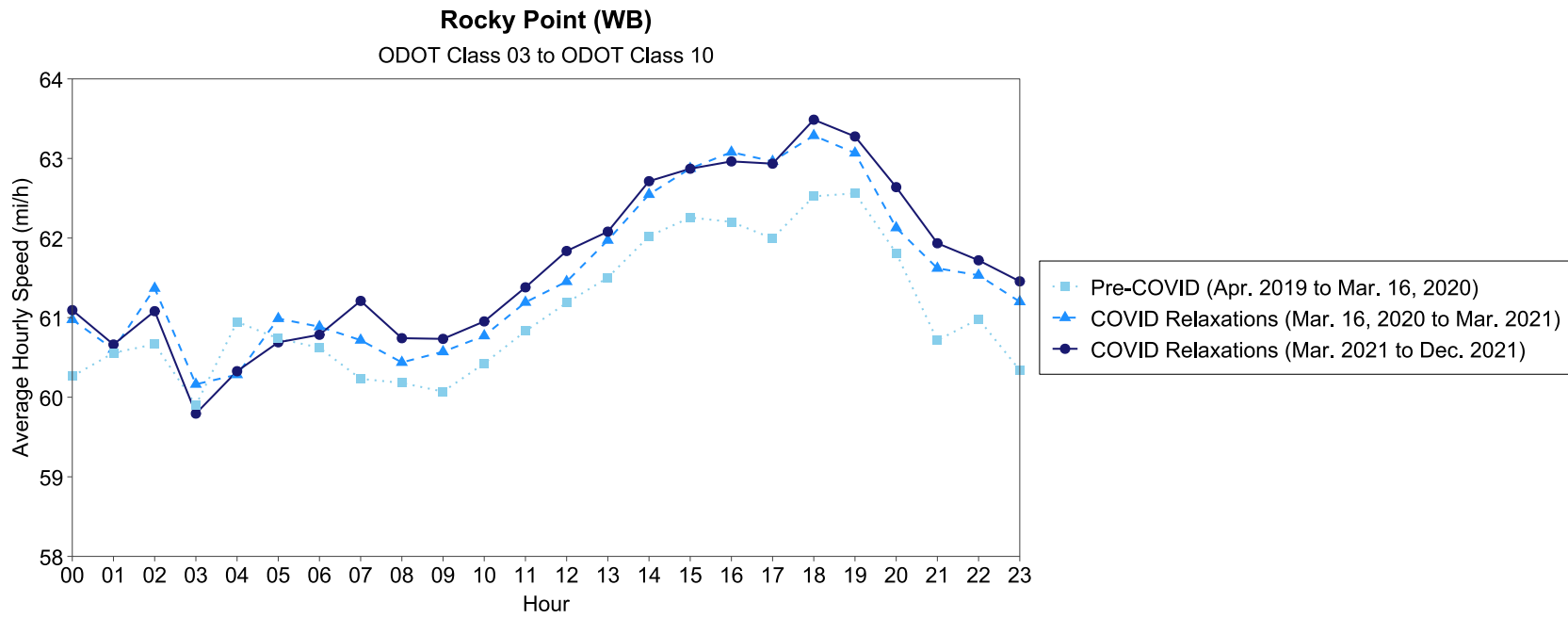


**Figure B.32: Average Hourly Speed of ODOT Class 12 to ODOT Class 19 Trucks at Cold Springs WIM Stations by Time Period**

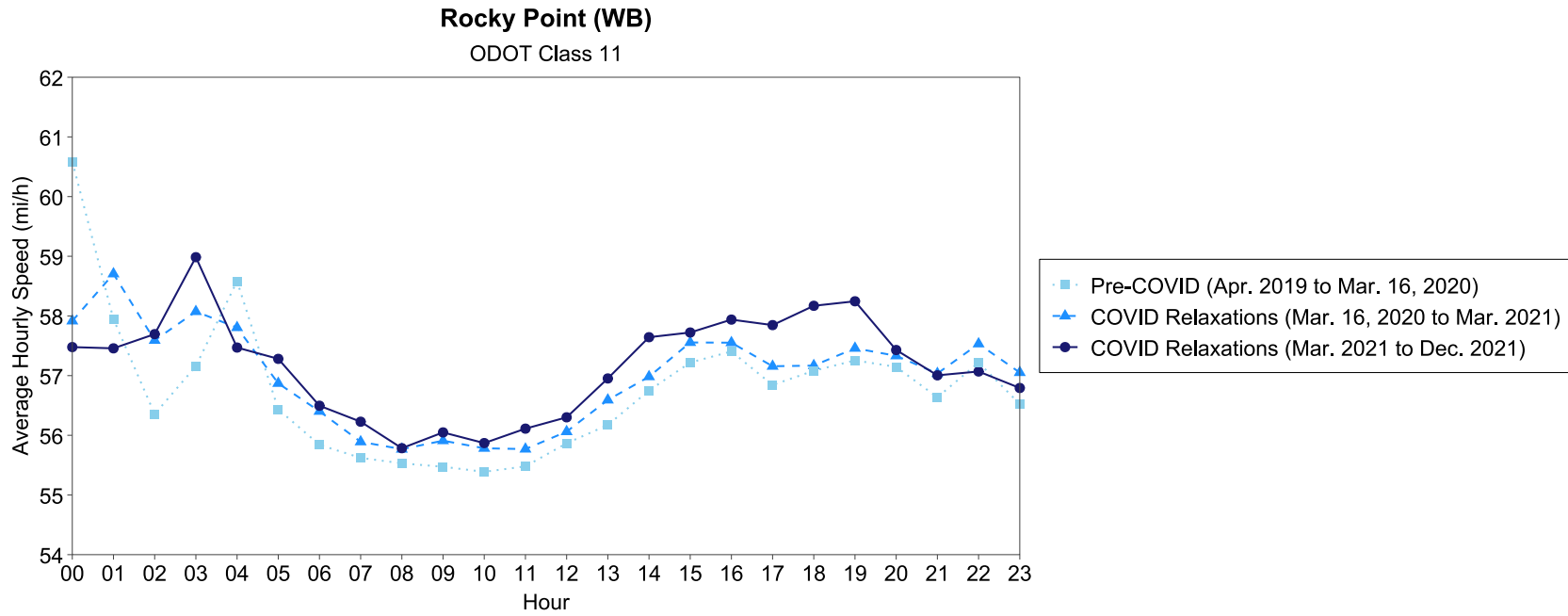


**Figure B.33: Average Hourly Speed of ODOT Class 12 to ODOT Class 19 Trucks at Umatilla WIM Station by Time Period**

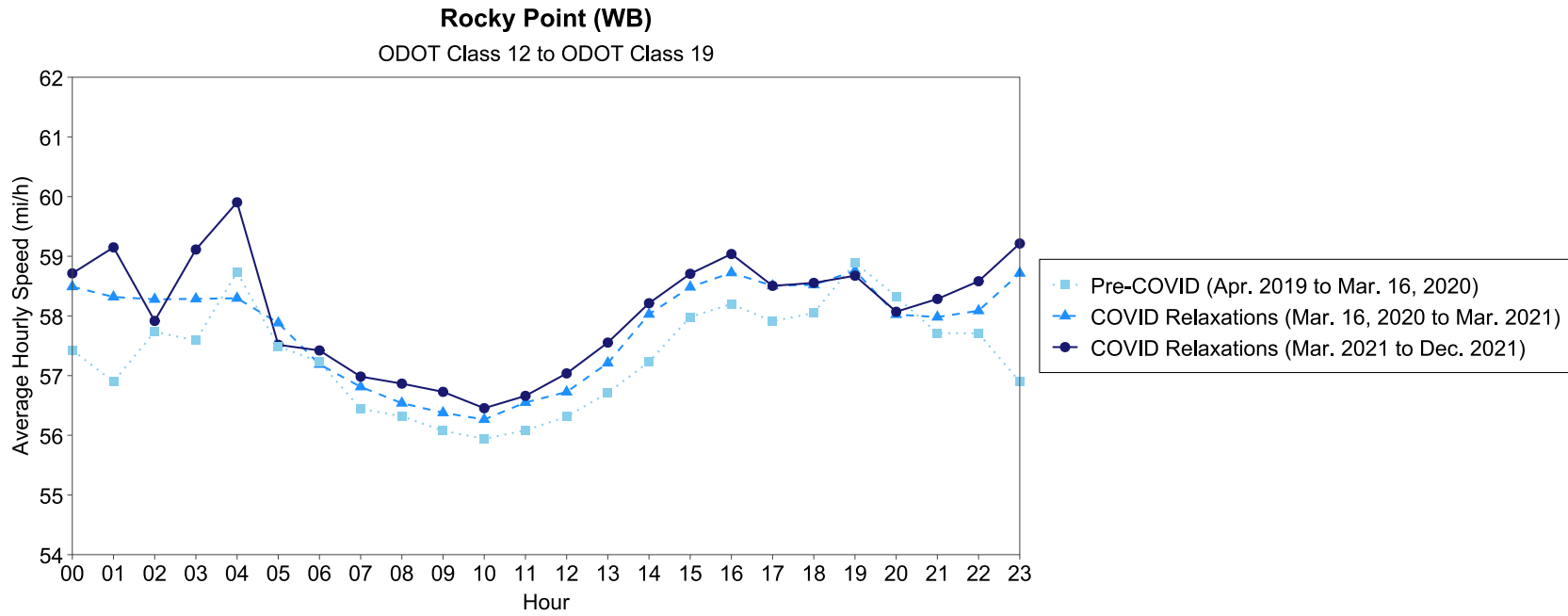
# US-30 WIM STATIONS



**Figure B.34: Average Hourly Speed of ODOT Class 03 to ODOT Class 10 Trucks at Rocky Point WIM Station by Time Period**



**Figure B.35: Average Hourly Speed of ODOT Class 11 Trucks at Rocky Point WIM Station by Time Period**



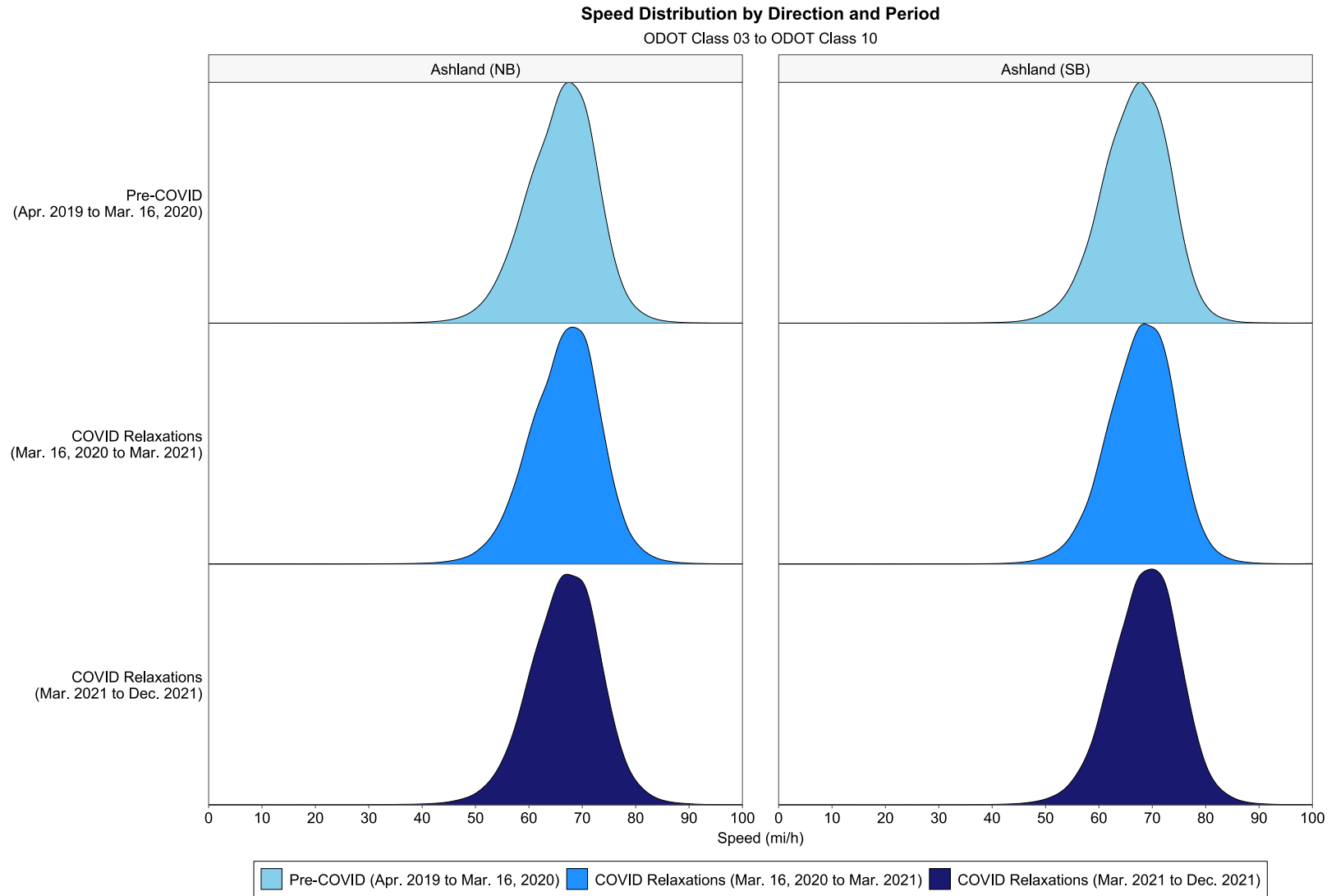
**Figure B.36: Average Hourly Speed of ODOT Class 12 to ODOT Class 19 Trucks at Rocky Point WIM Station by Time Period**

## **APPENDIX C**

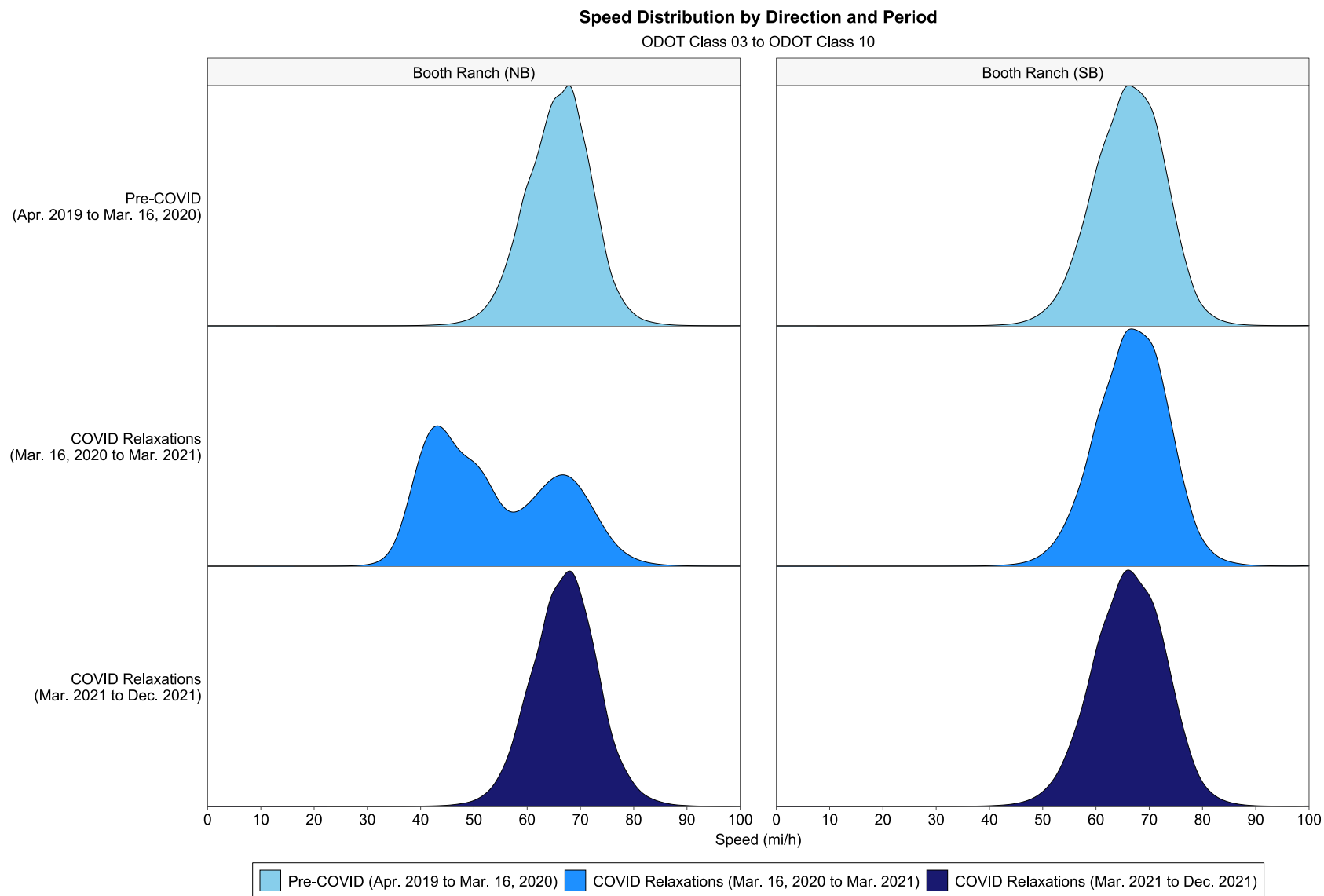
Appendix C presents speed distributions by WIM station and truck classification for the time periods associated with the safety analysis. The classification groups considered follow the work done by Anderson et al. (2020).

Figures begin on the following page.

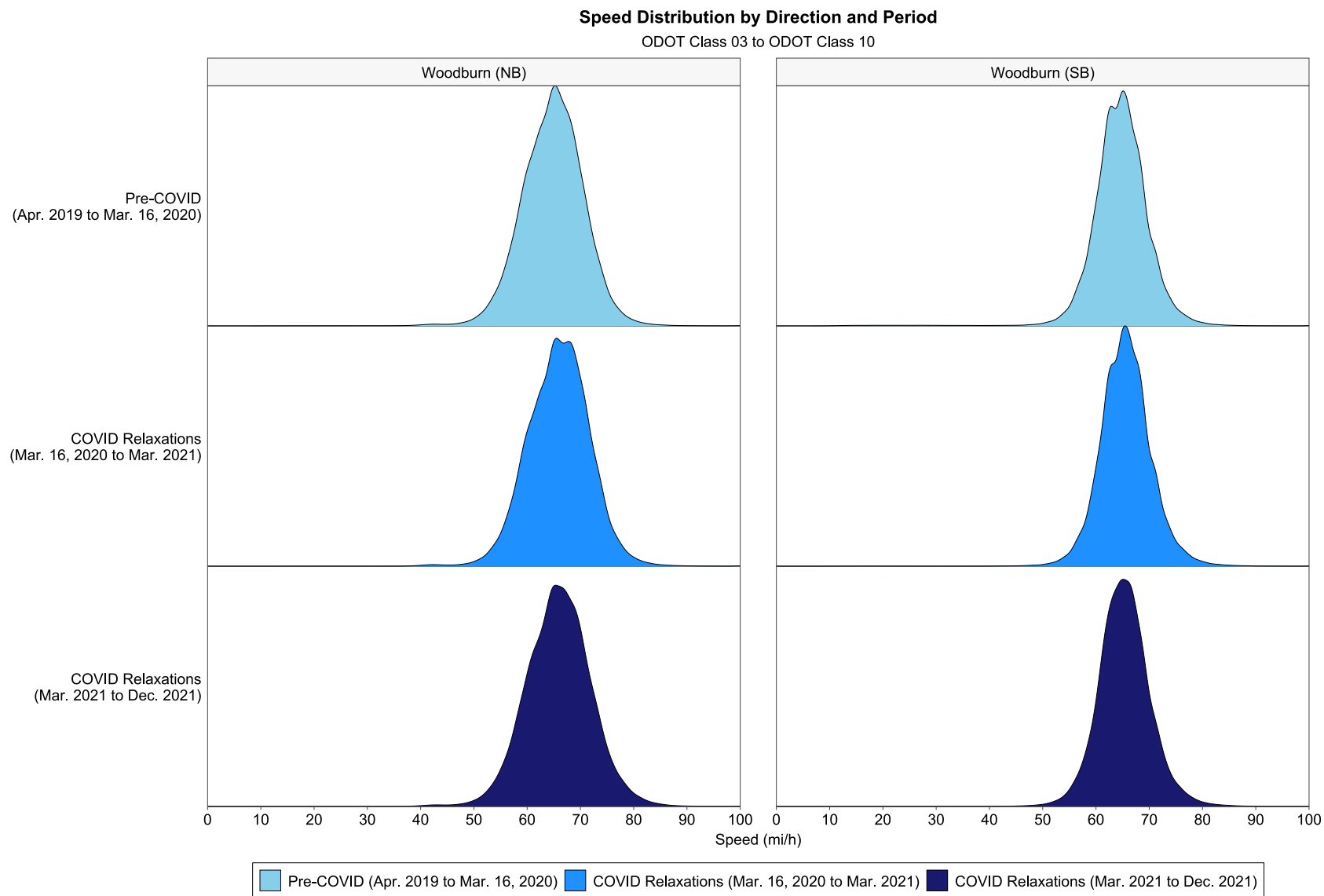
# INTERSTATE 5 WIM STATIONS



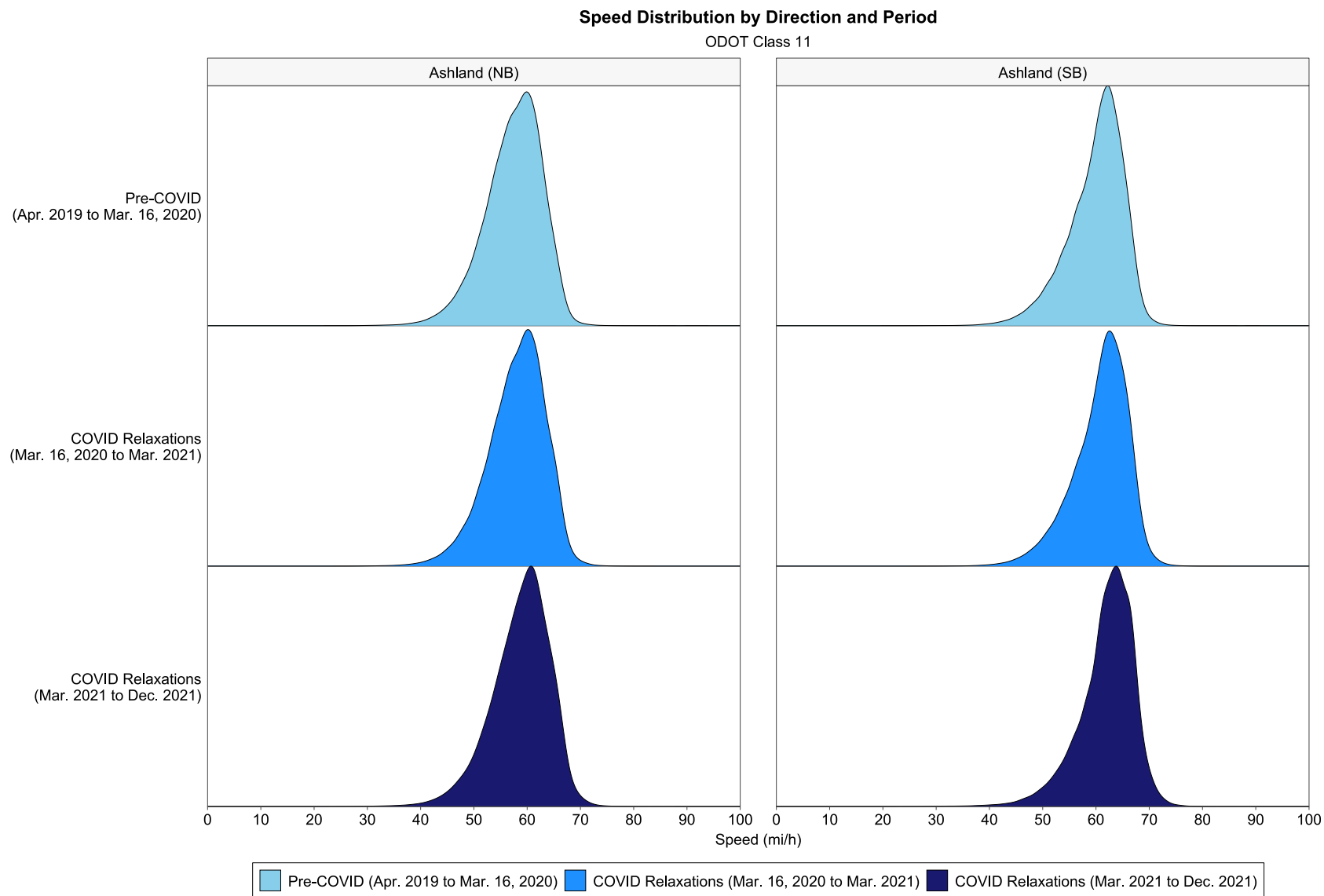
**Figure C.1: Speed Distribution of ODOT Class 03 to ODOT Class 10 Trucks at Ashland WIM Stations by Time Period**



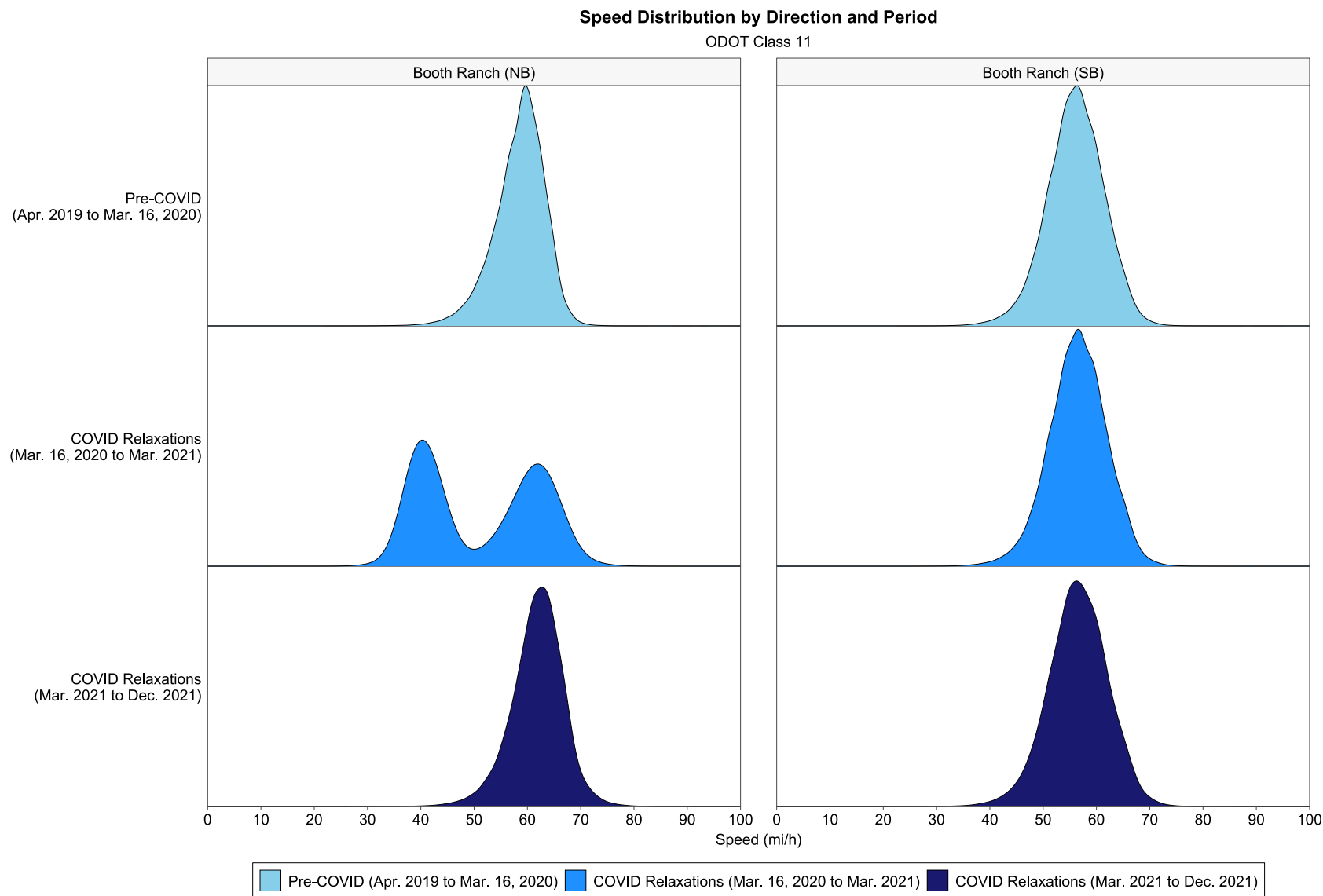
**Figure C.2: Speed Distribution of ODOT Class 03 to ODOT Class 10 Trucks at Booth Ranch WIM Stations by Time Period**



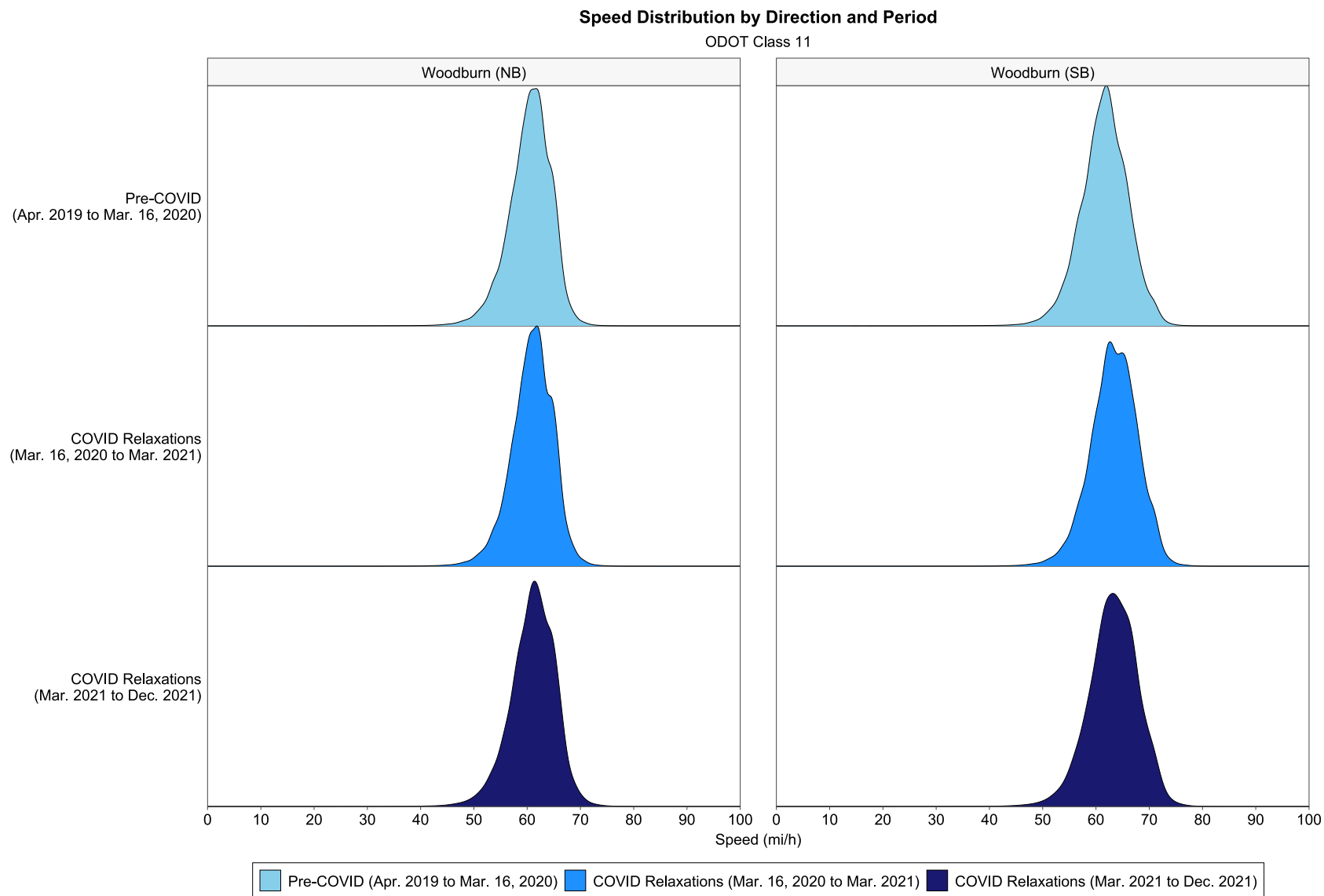
**Figure C.3: Speed Distribution of ODOT Class 03 to ODOT Class 10 Trucks at Woodburn WIM Stations by Time Period**



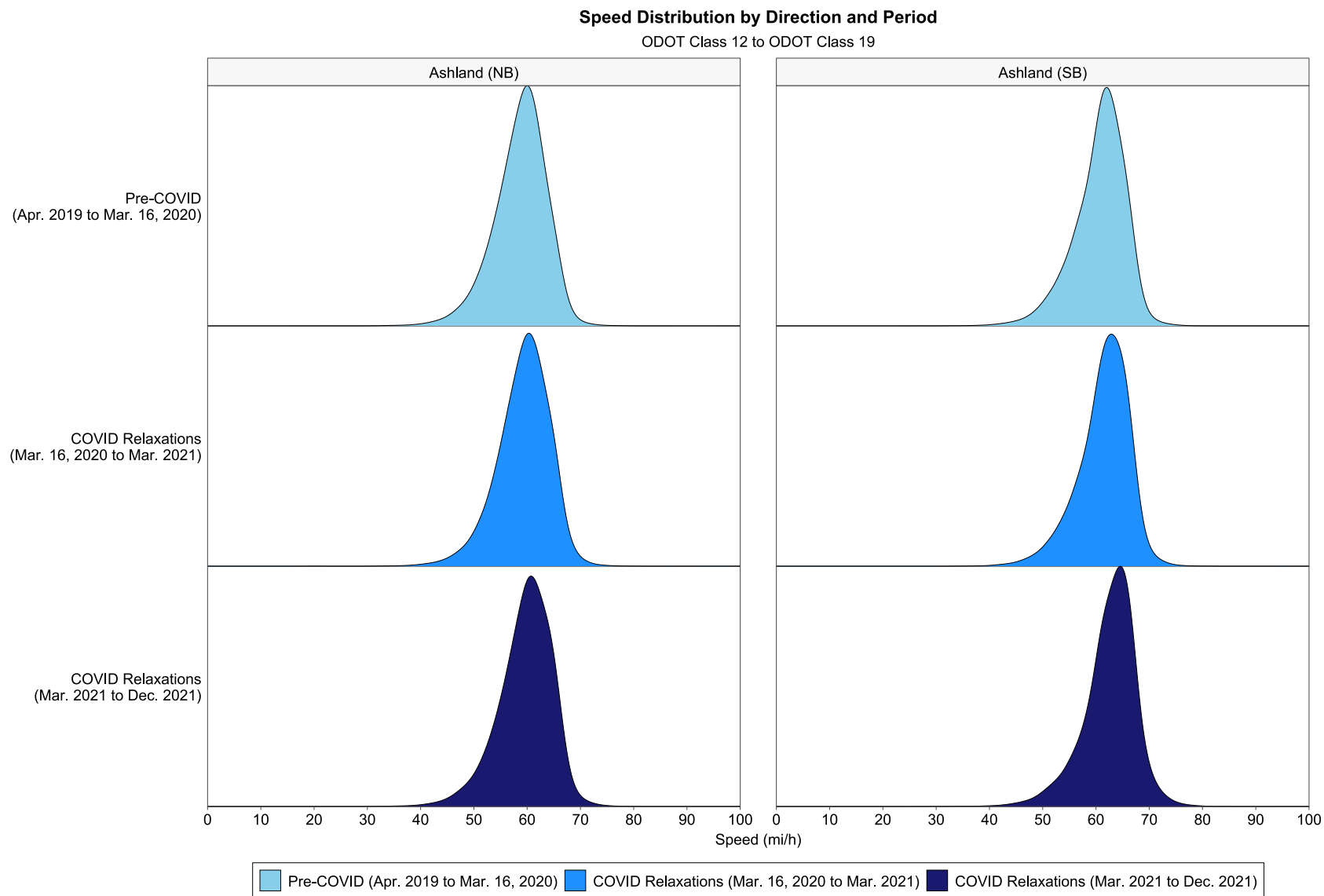
**Figure C.4: Speed Distribution of ODOT Class 11 Trucks at Ashland WIM Stations by Time Period**



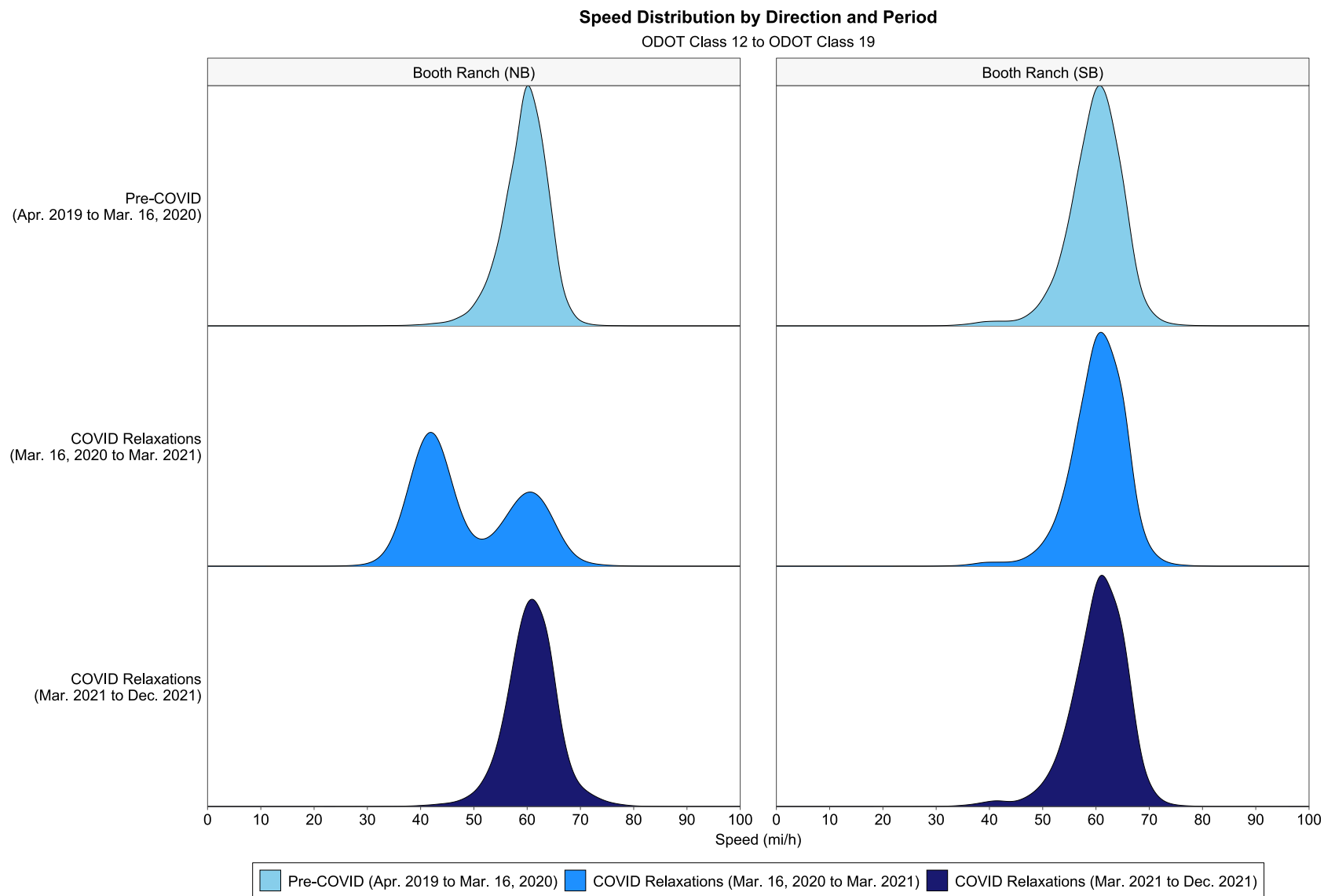
**Figure C.5: Speed Distribution of ODOT Class 11 Trucks at Booth Ranch WIM Stations by Time Period**



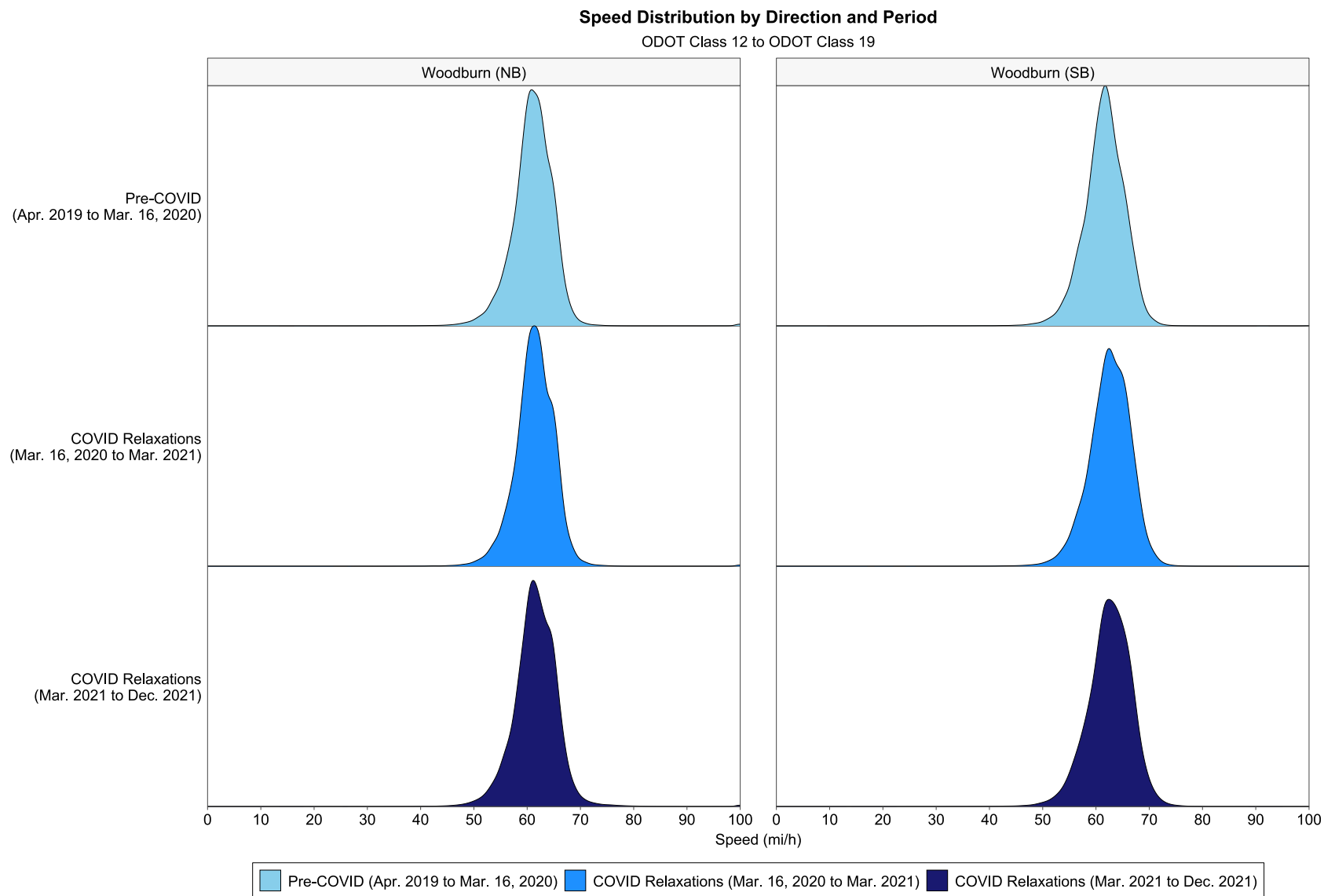
**Figure C.6: Speed Distribution of ODOT Class 11 Trucks at Woodburn WIM Stations by Time Period**



**Figure C.7: Speed Distribution of ODOT Class 12 to ODOT Class 19 Trucks at Ashland WIM Stations by Time Period**

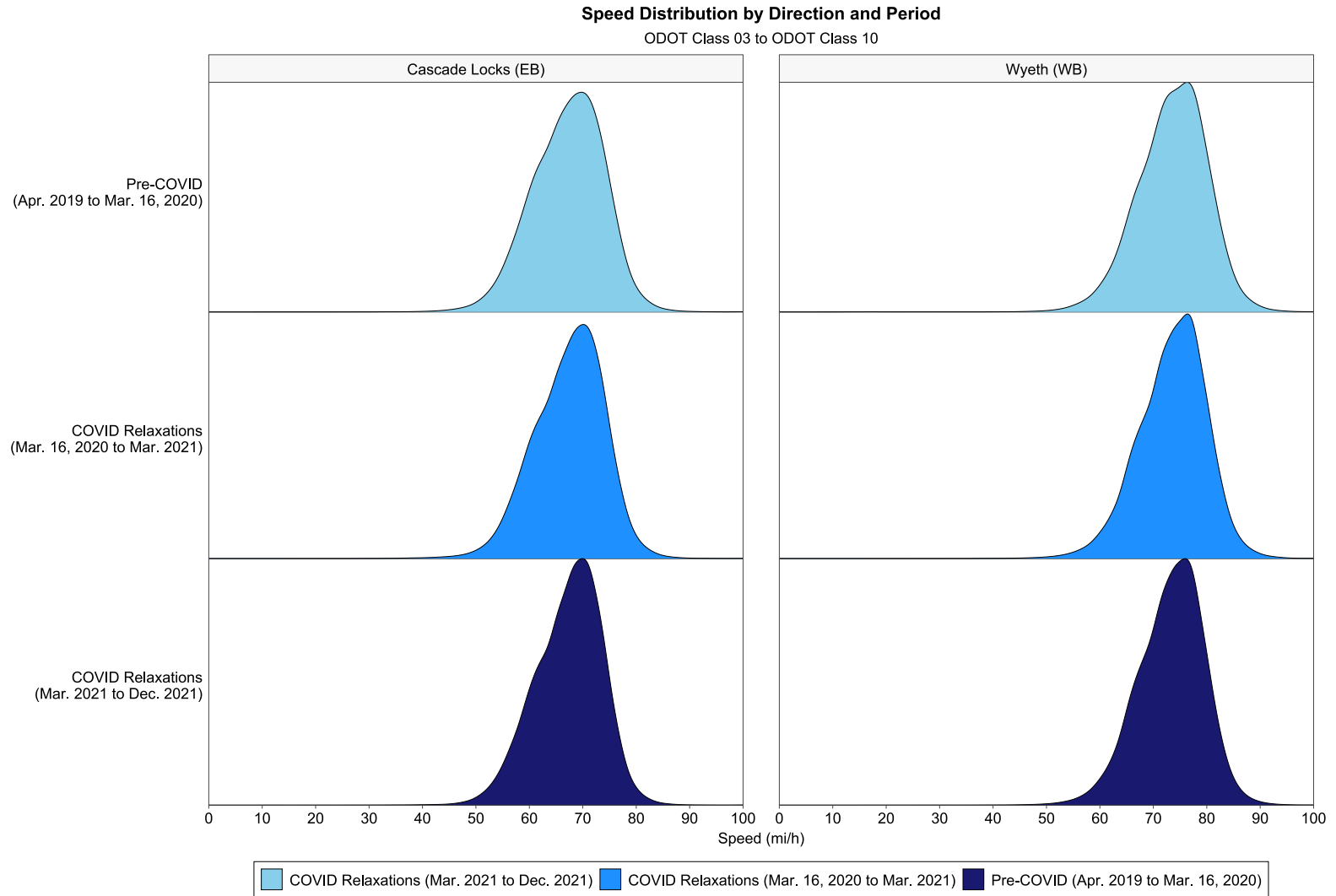


**Figure C.8: Speed Distribution of ODOT Class 12 to ODOT Class 19 Trucks at Booth Ranch WIM Stations by Time Period**

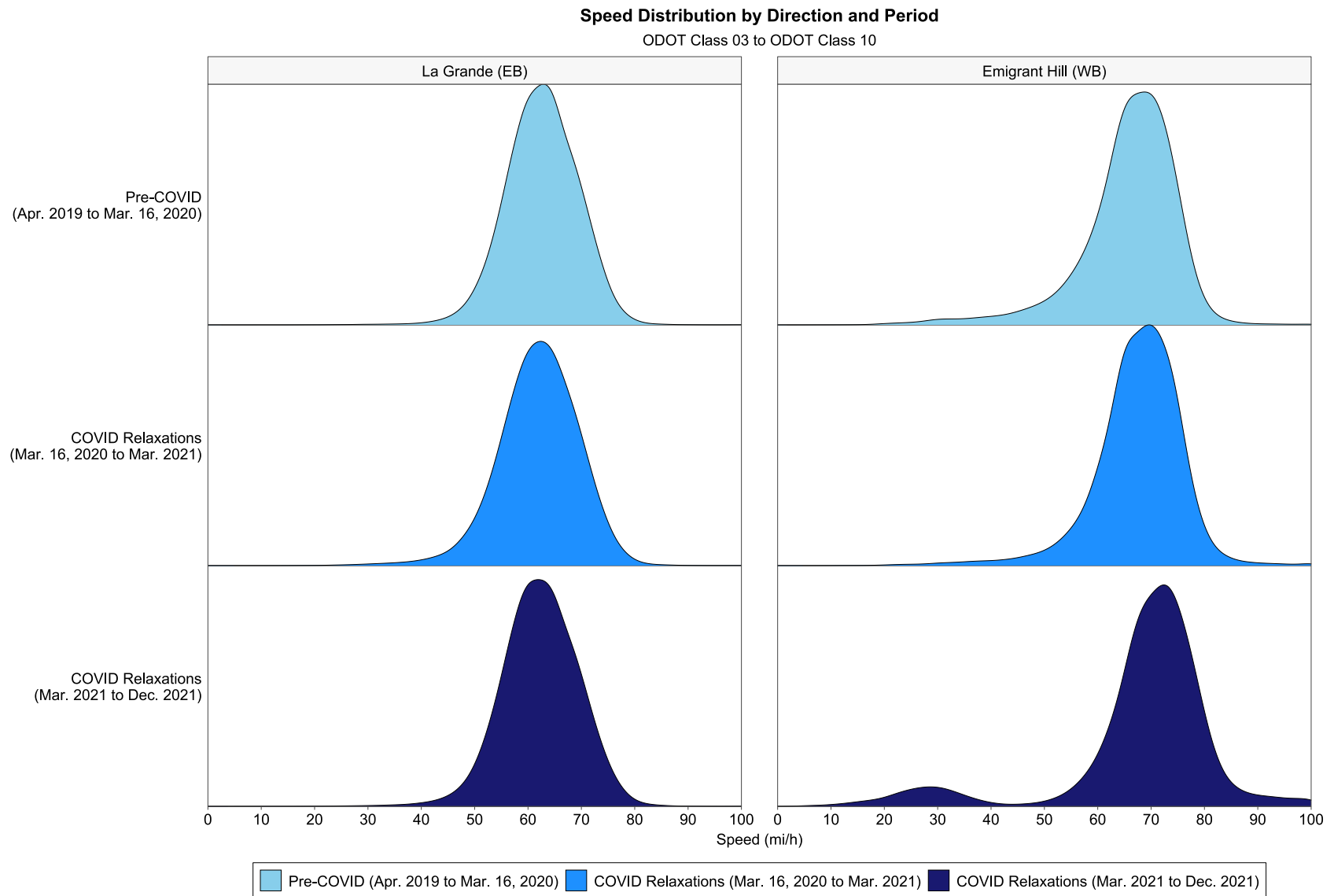


**Figure C.9: Speed Distribution of ODOT Class 12 to ODOT Class 19 Trucks at Woodburn WIM Stations by Time Period**

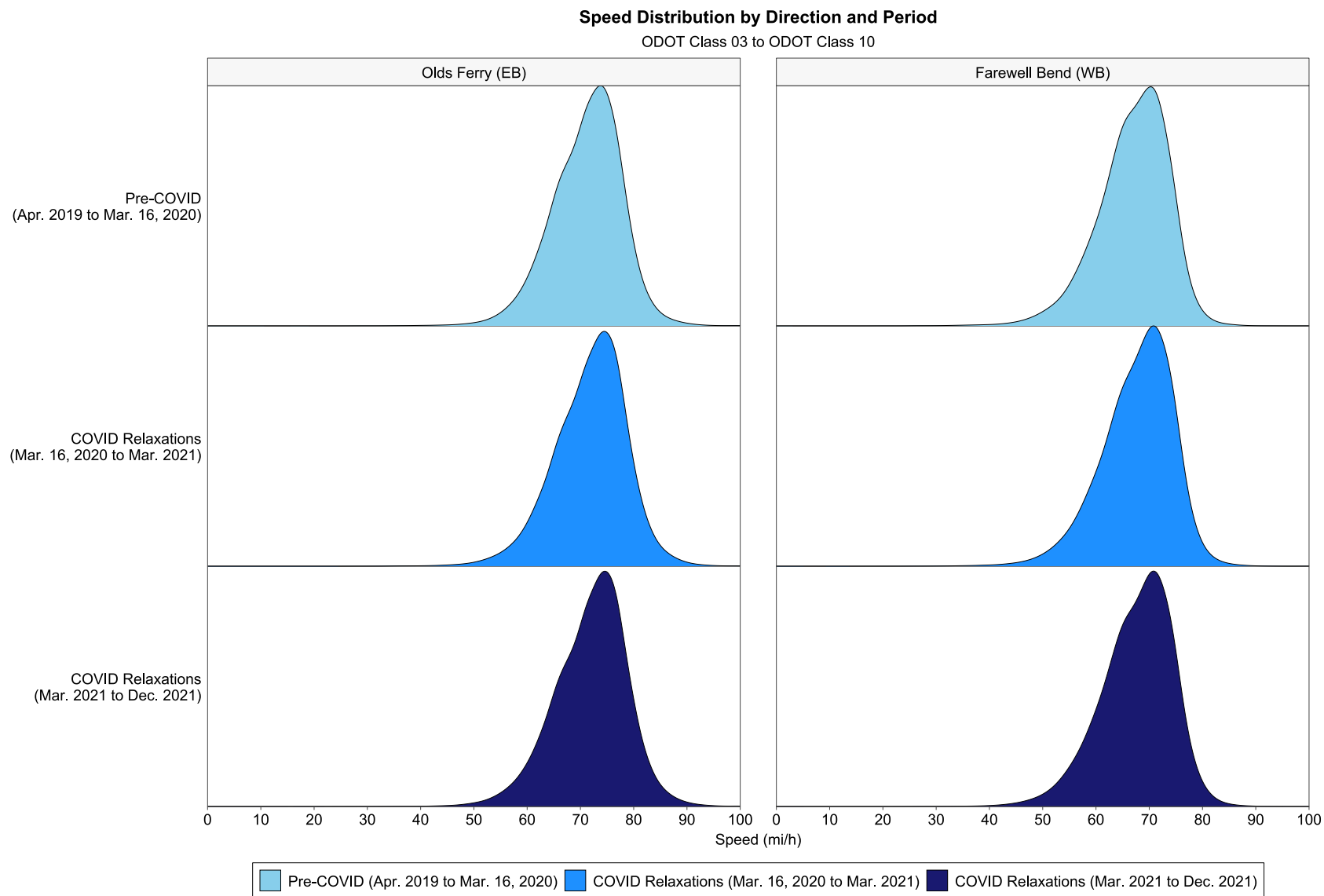
# INTERSTATE 84 WIM STATIONS



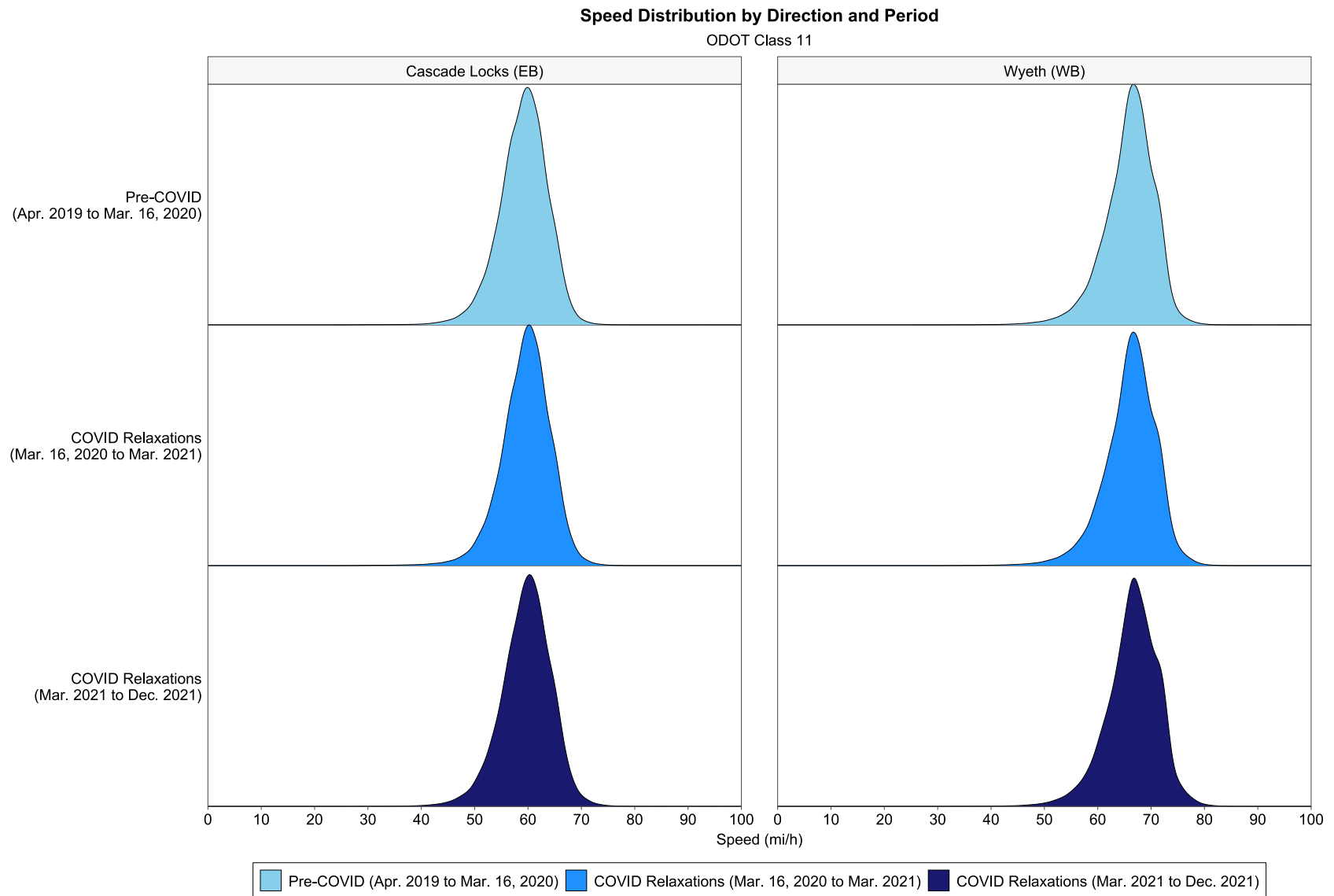
**Figure C.10: Speed Distribution of ODOT Class 03 to ODOT Class 10 Trucks at Cascade Locks and Wyeth WIM Stations by Time Period**



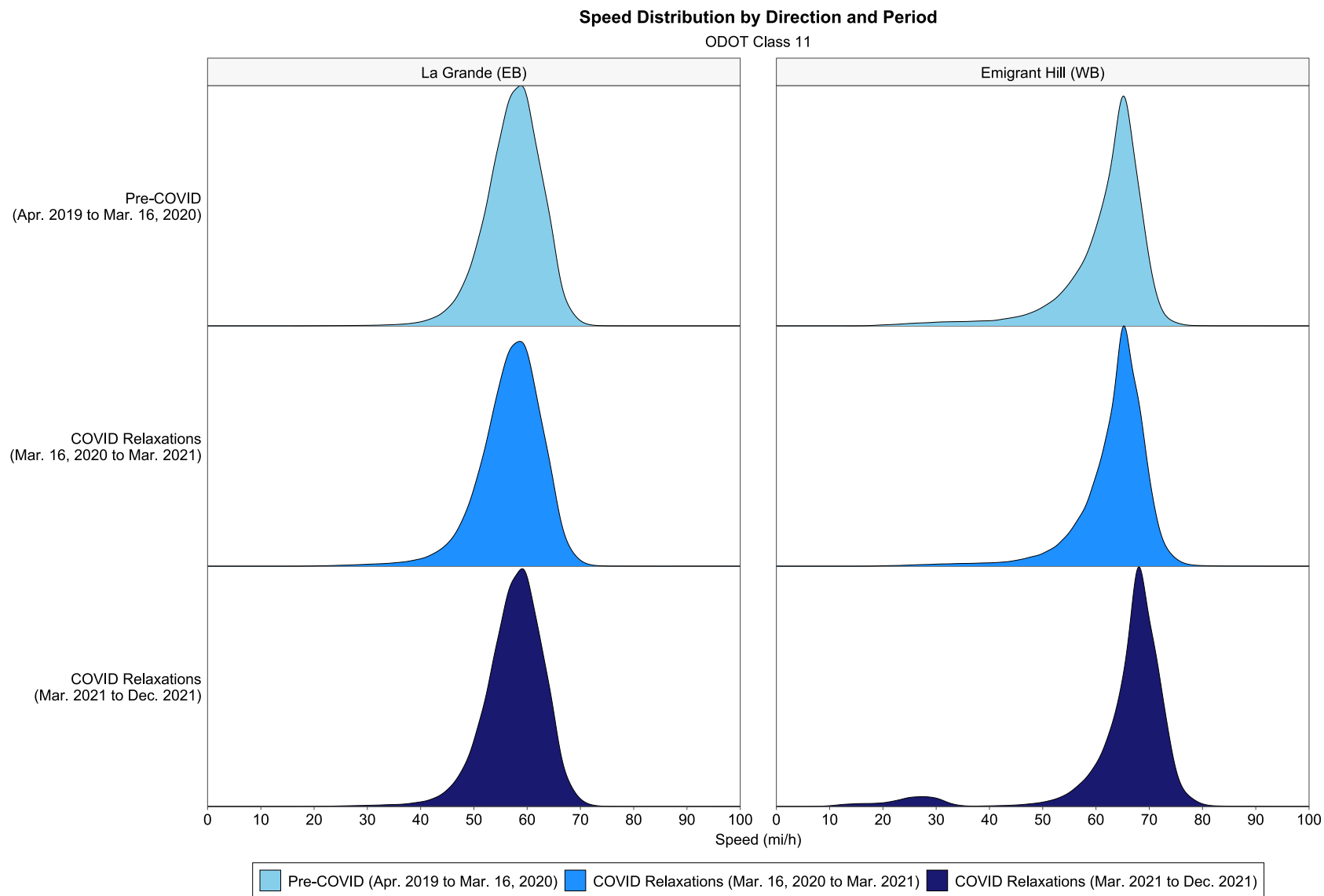
**Figure C.11: Speed Distribution of ODOT Class 03 to ODOT Class 10 Trucks at La Grande Emigrant Hill WIM Stations by Time Period**



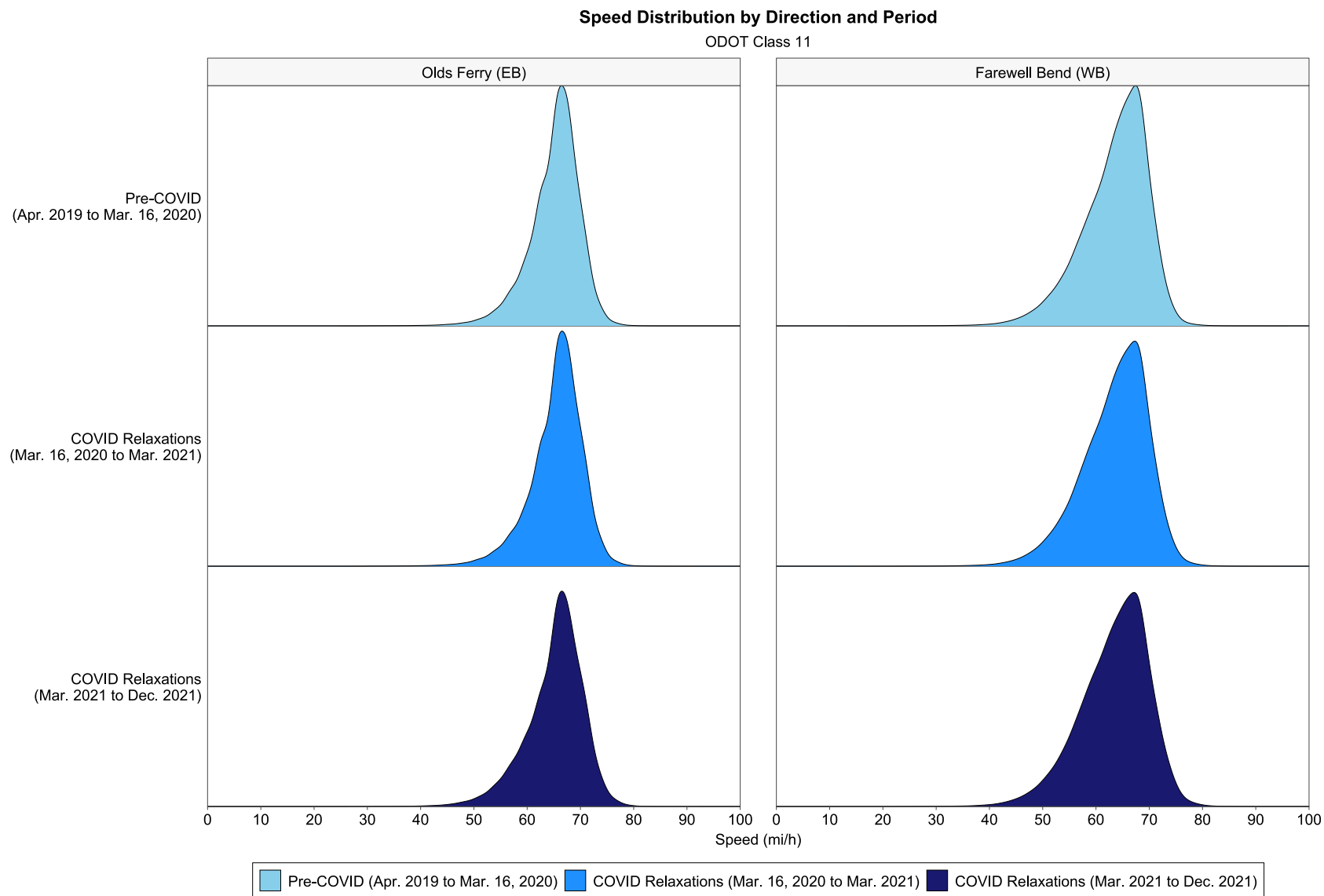
**Figure C.12: Speed Distribution of ODOT Class 03 to ODOT Class 10 Trucks at Olds Ferry and Farewell Bend WIM Stations by Time Period**



**Figure C.13: Speed Distribution of ODOT Class 11 Trucks at Cascade Locks and Wyeth WIM Stations by Time Period**



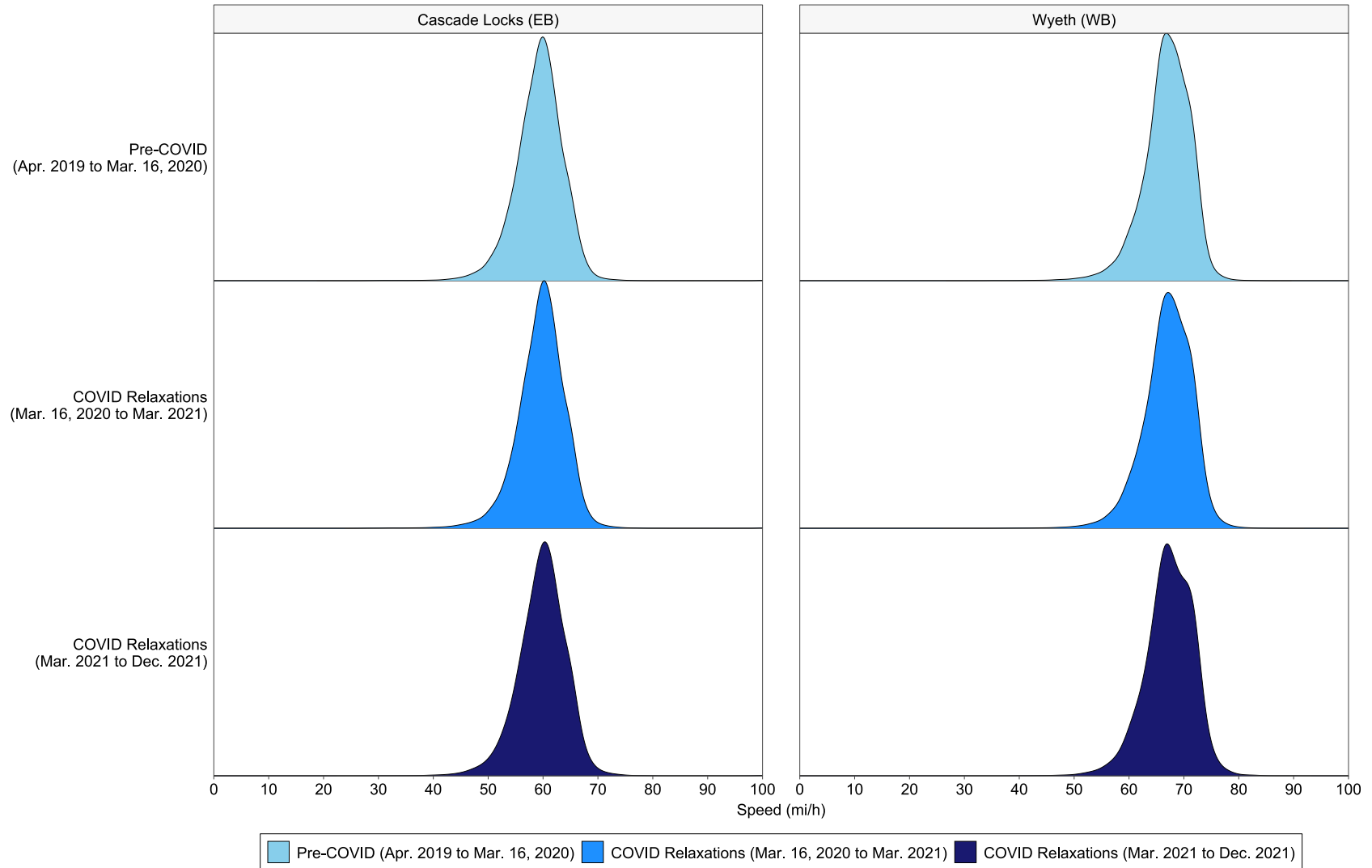
**Figure C.14: Speed Distribution of ODOT Class 11 Trucks at La Grande and Emigrant Hill WIM Stations by Time Period**



**Figure C.15: Speed Distribution of ODOT Class 11 Trucks at Olds Ferry and Farewell Bend WIM Stations by Time Period**

### Speed Distribution by Direction and Period

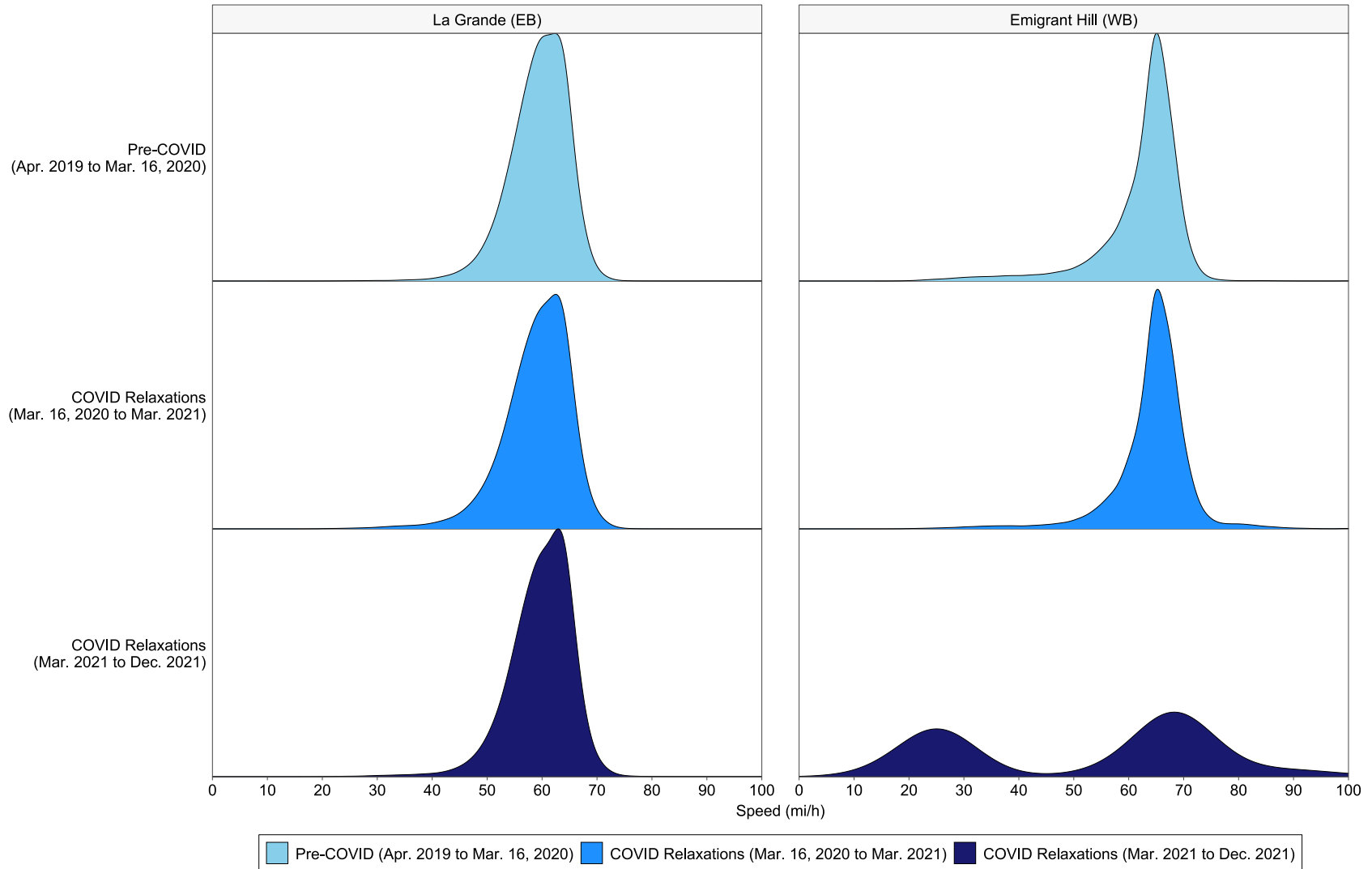
ODOT Class 12 to ODOT Class 19



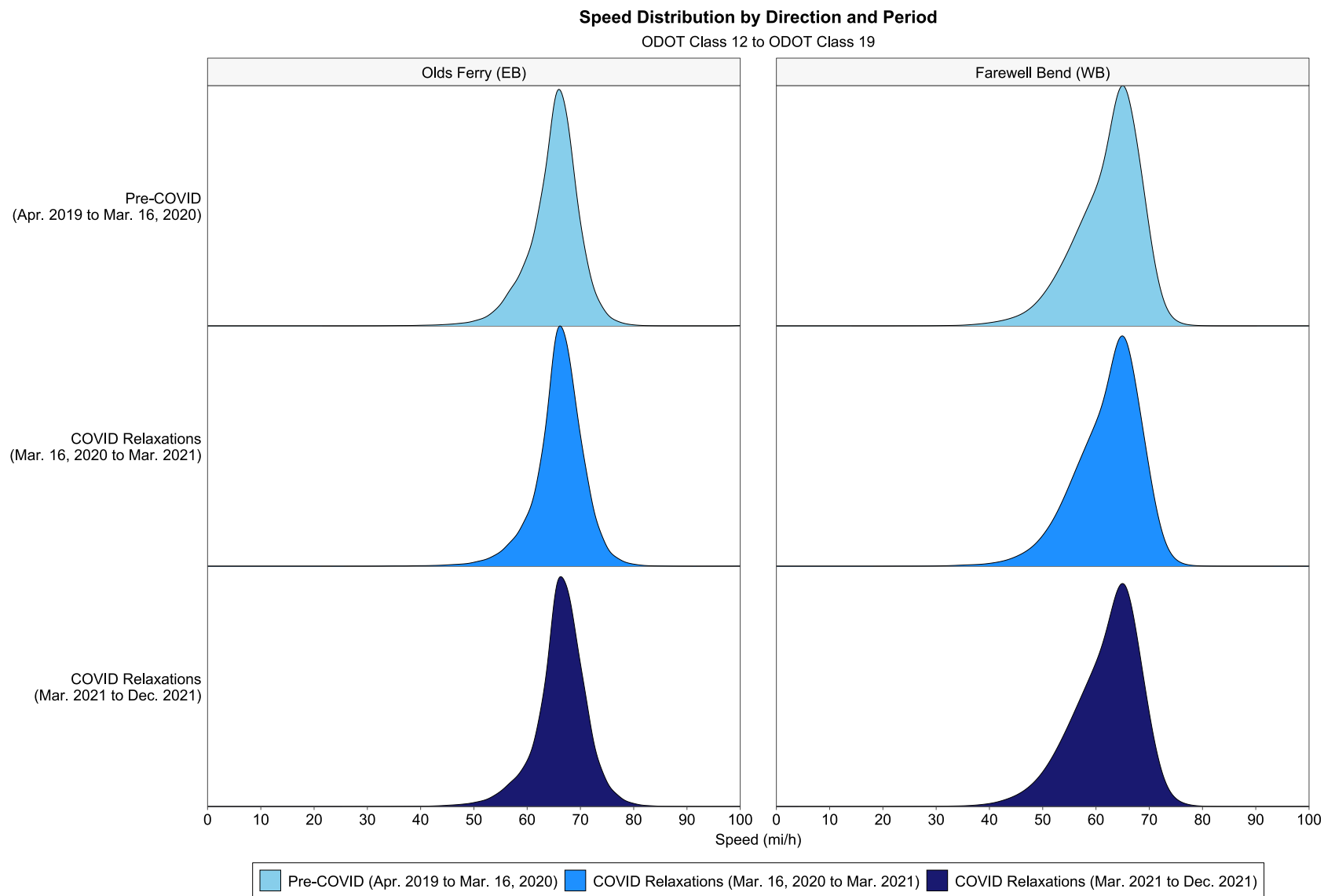
**Figure C.16: Speed Distribution of ODOT Class 12 to Class 19 Trucks at Cascade Locks and Wyeth WIM Stations by Time Period**

### Speed Distribution by Direction and Period

ODOT Class 12 to ODOT Class 19

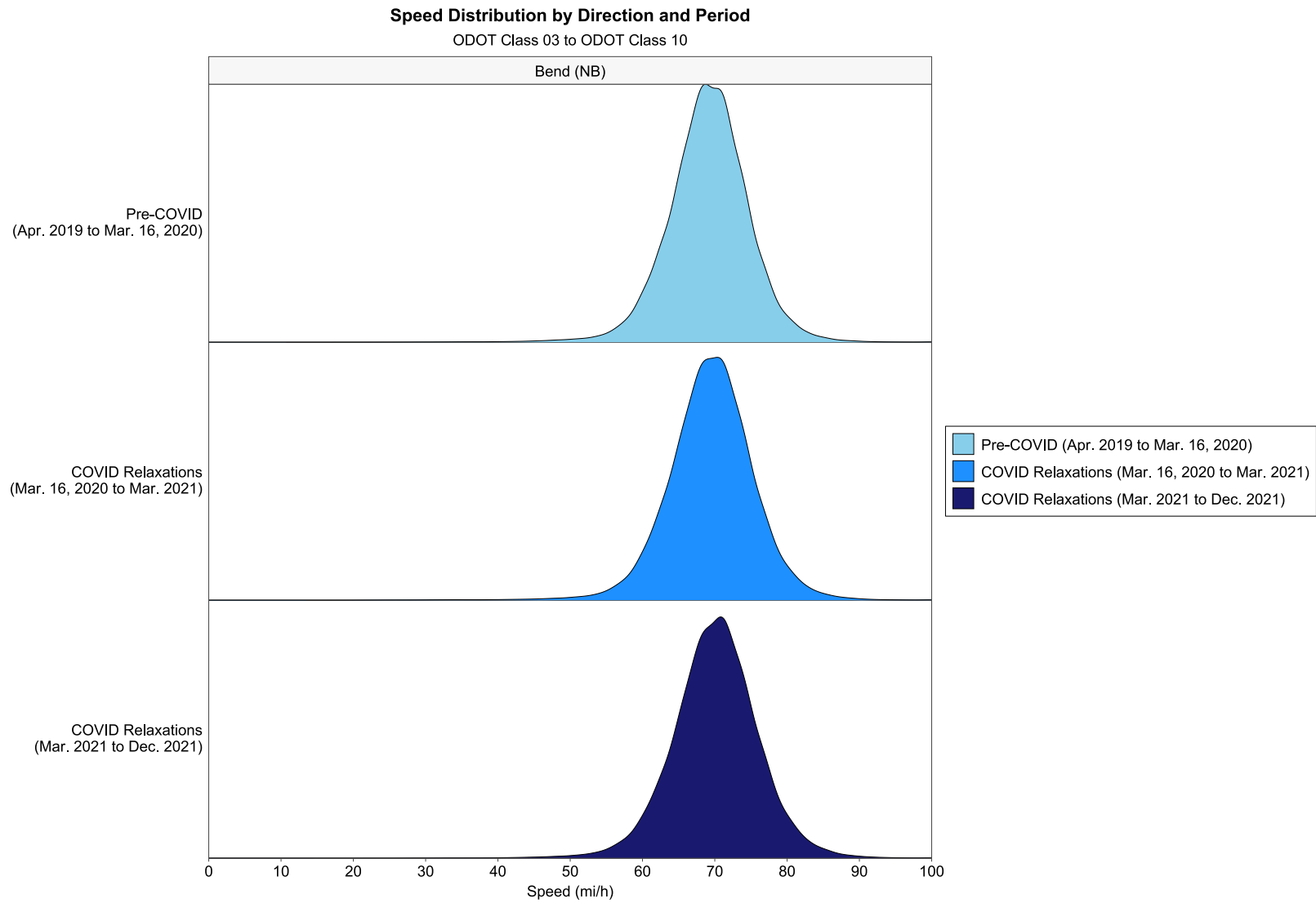


**Figure C.17: Speed Distribution of ODOT Class 12 to Class 19 Trucks at La Grande and Emigrant Hill WIM Stations by Time Period**

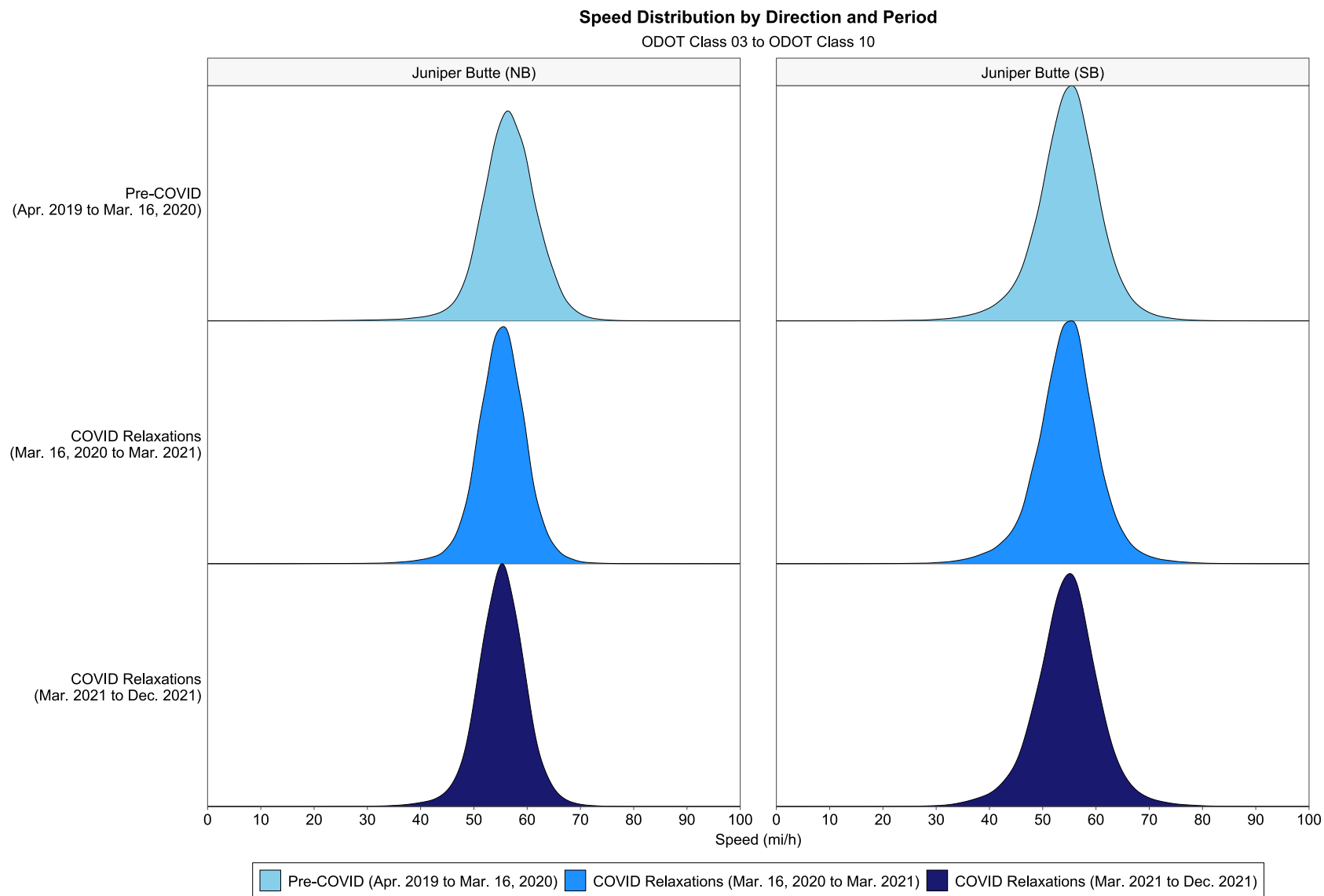


**Figure C.18: Speed Distribution of ODOT Class 12 to Class 19 Trucks at Olds Ferry and Farewell Bend WIM Stations by Time Period**

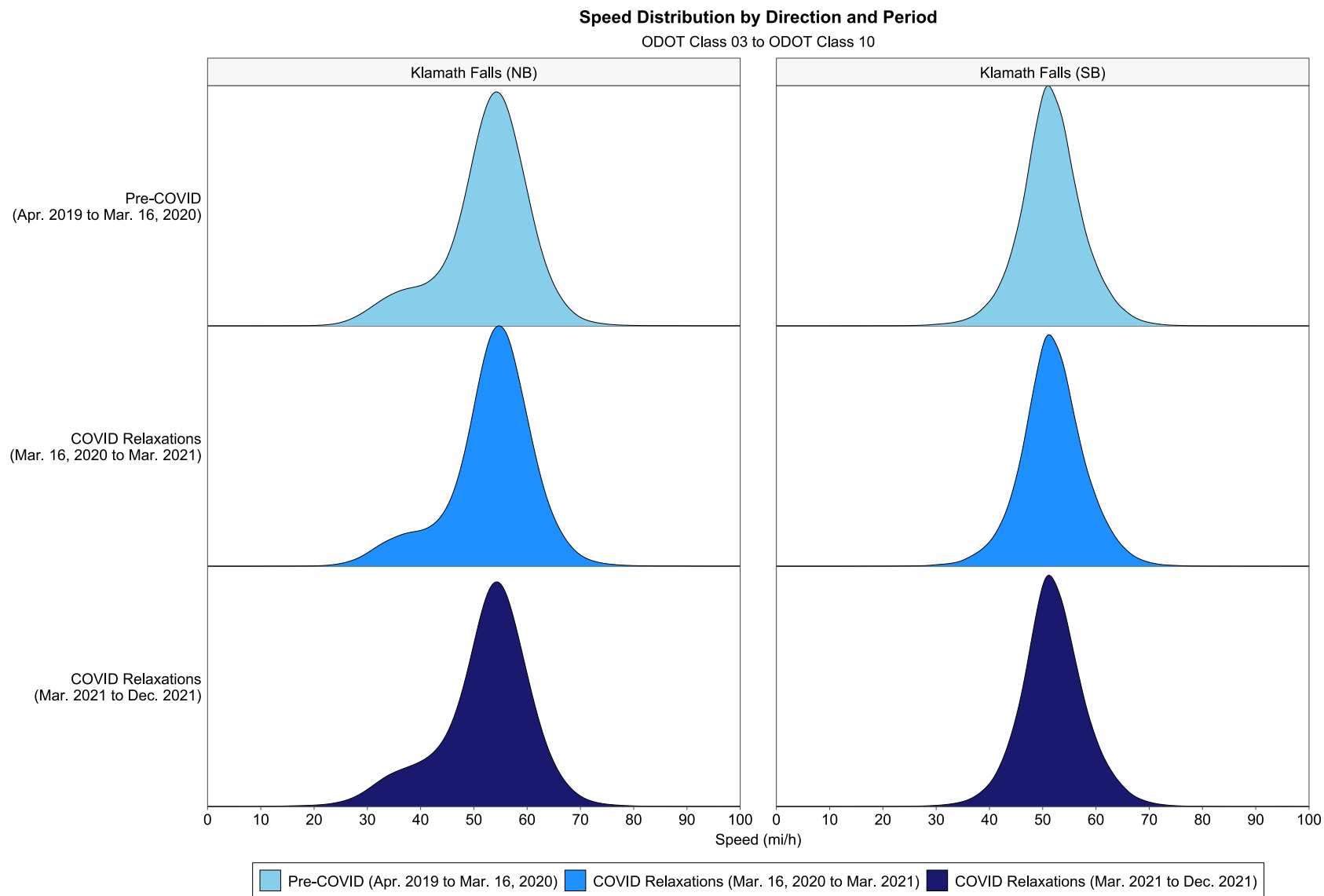
# US-97 WIM STATIONS



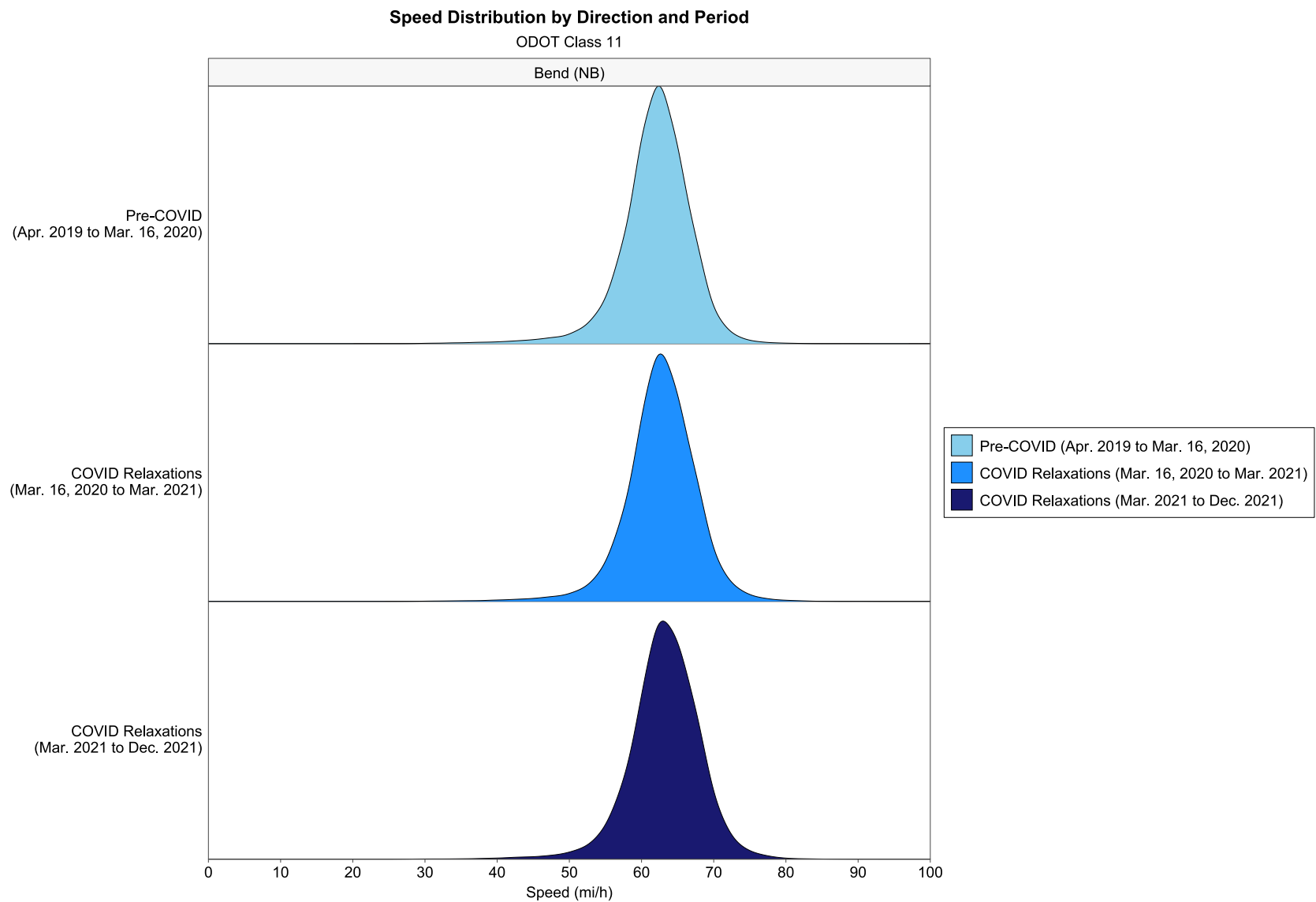
**Figure C.19: Speed Distribution of ODOT Class 03 to Class 10 Trucks at Bend WIM Station by Time Period**



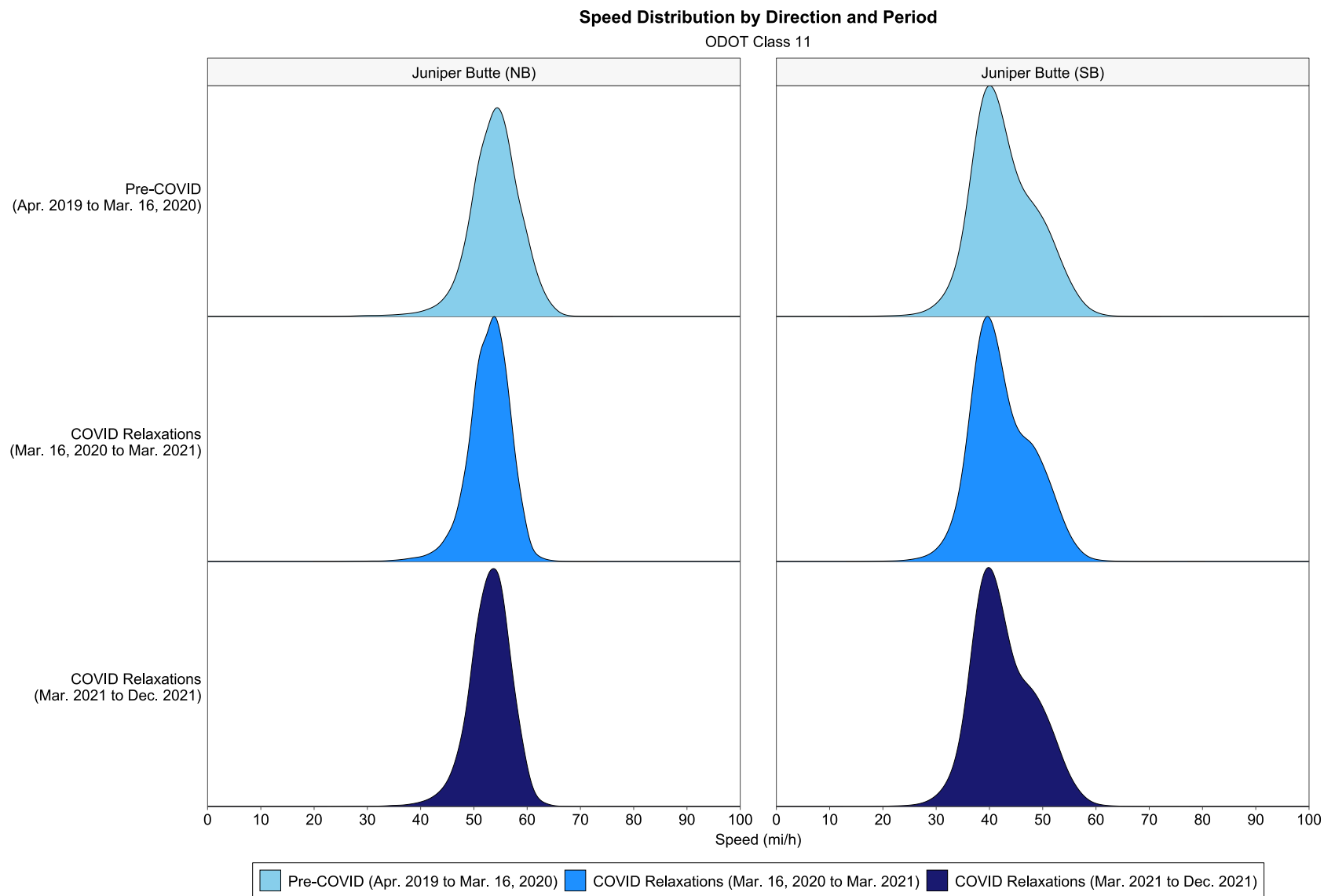
**Figure C.20: Speed Distribution of ODOT Class 03 to Class 10 Trucks at Juniper Butte WIM Stations by Time Period**



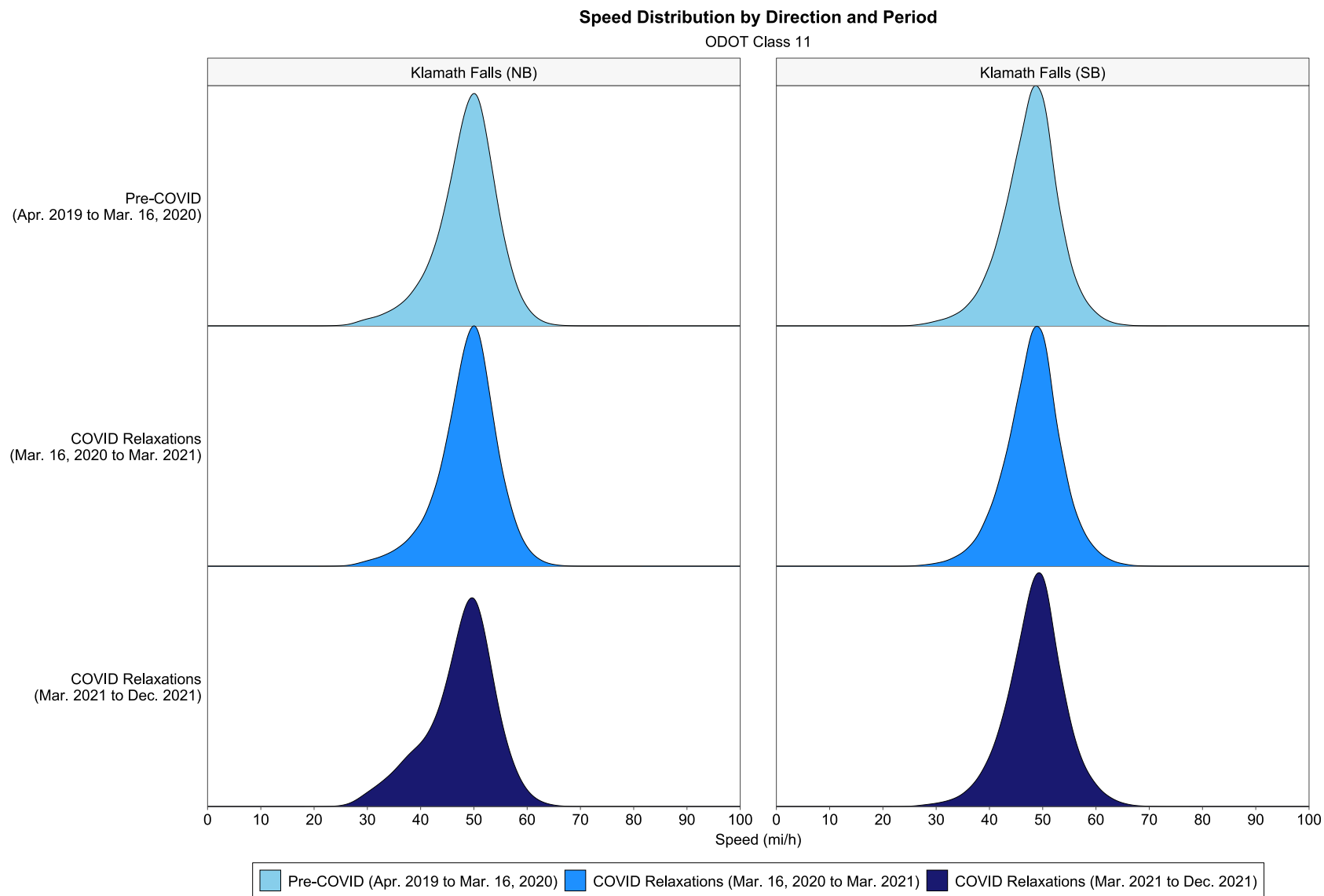
**Figure C.21: Speed Distribution of ODOT Class 03 to Class 10 Trucks at Klamath Falls WIM Stations by Time Period**



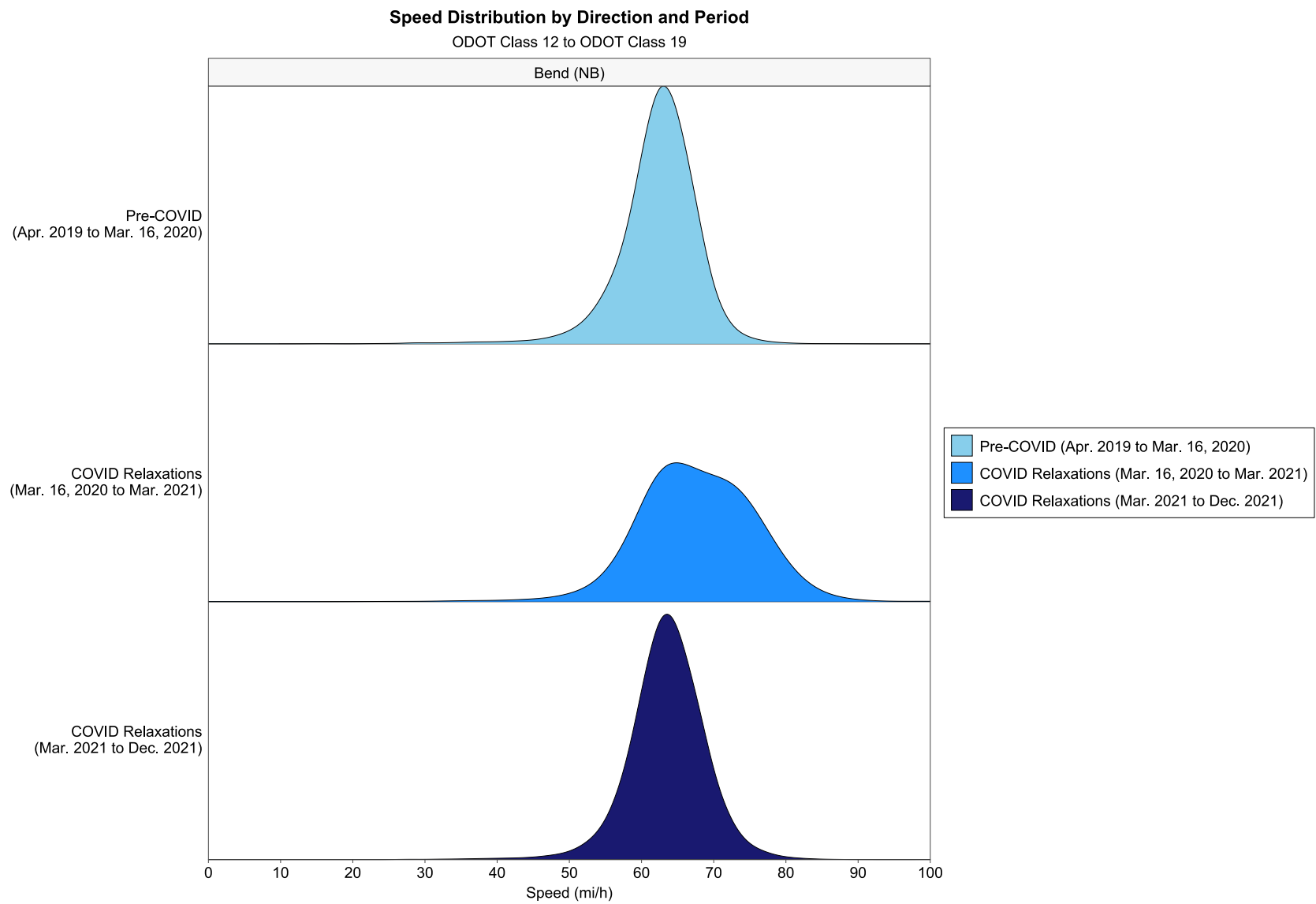
**Figure C.22: Speed Distribution of ODOT Class 11 Trucks at Bend WIM Station by Time Period**



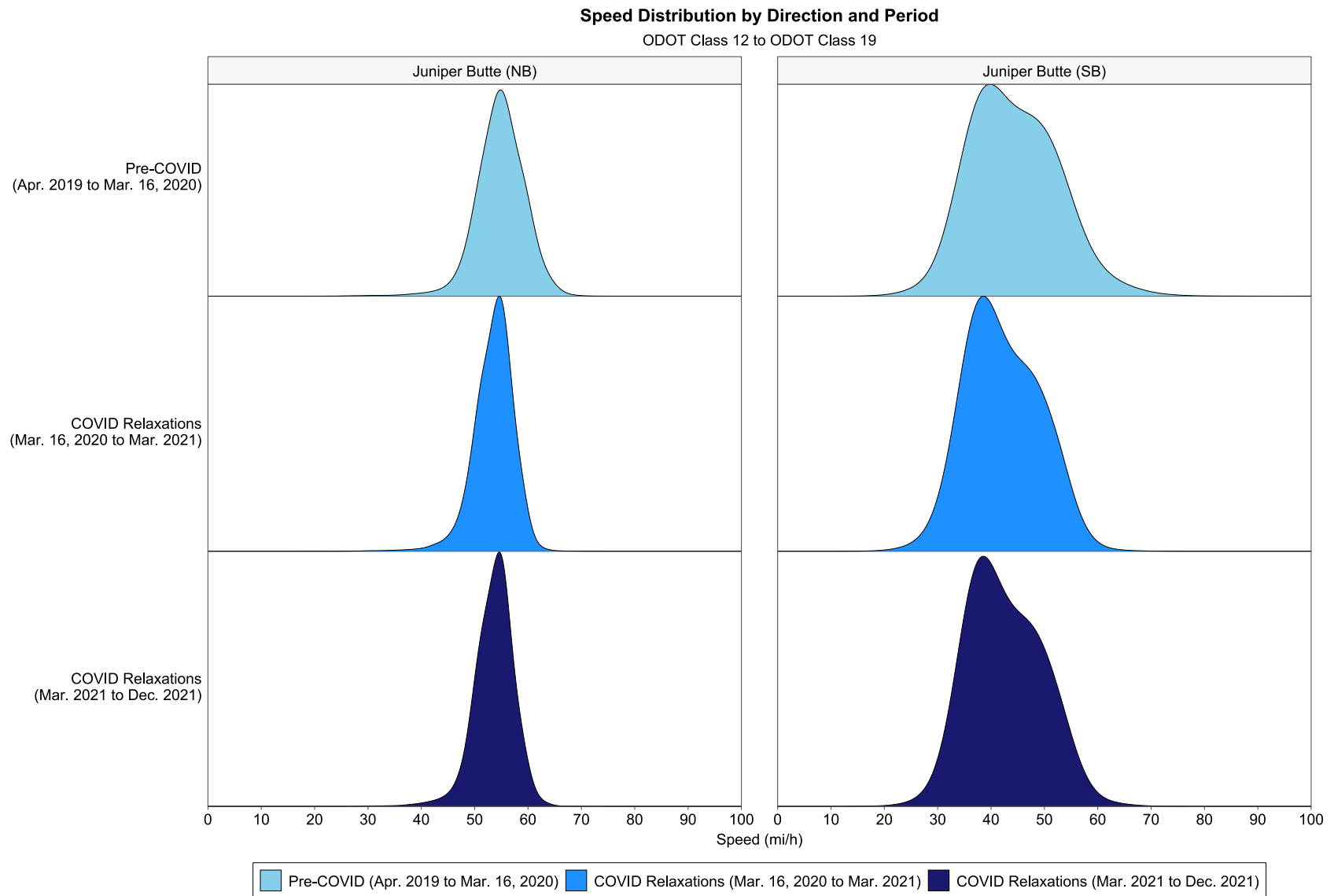
**Figure C.23: Speed Distribution of ODOT Class 11 Trucks at Juniper Butte WIM Stations by Time Period**



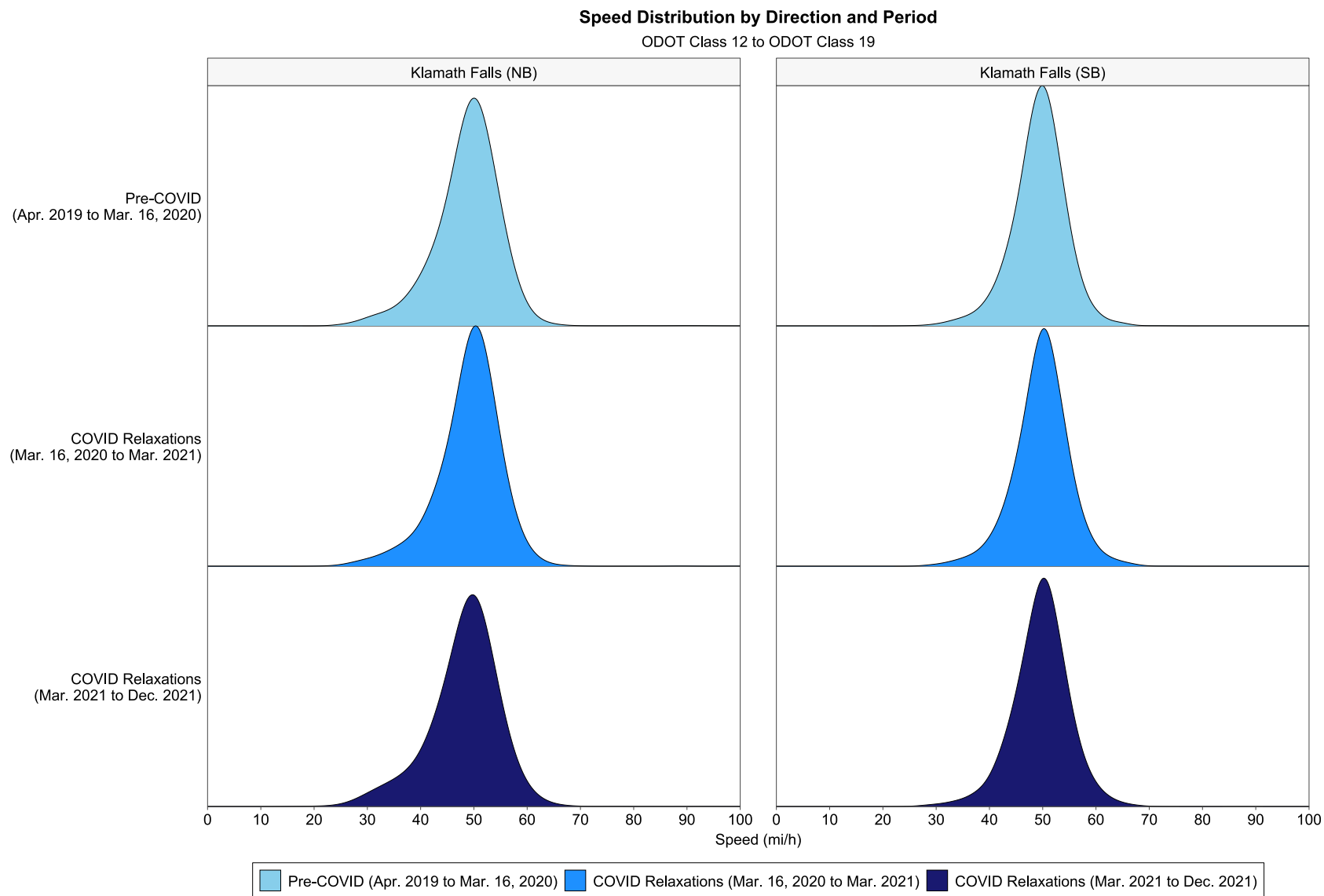
**Figure C.24: Speed Distribution of ODOT Class 11 Trucks at Klamath Falls WIM Stations by Time Period**



**Figure C.25: Speed Distribution of ODOT Class 12 to Class 19 Trucks at Bend WIM Station by Time Period**

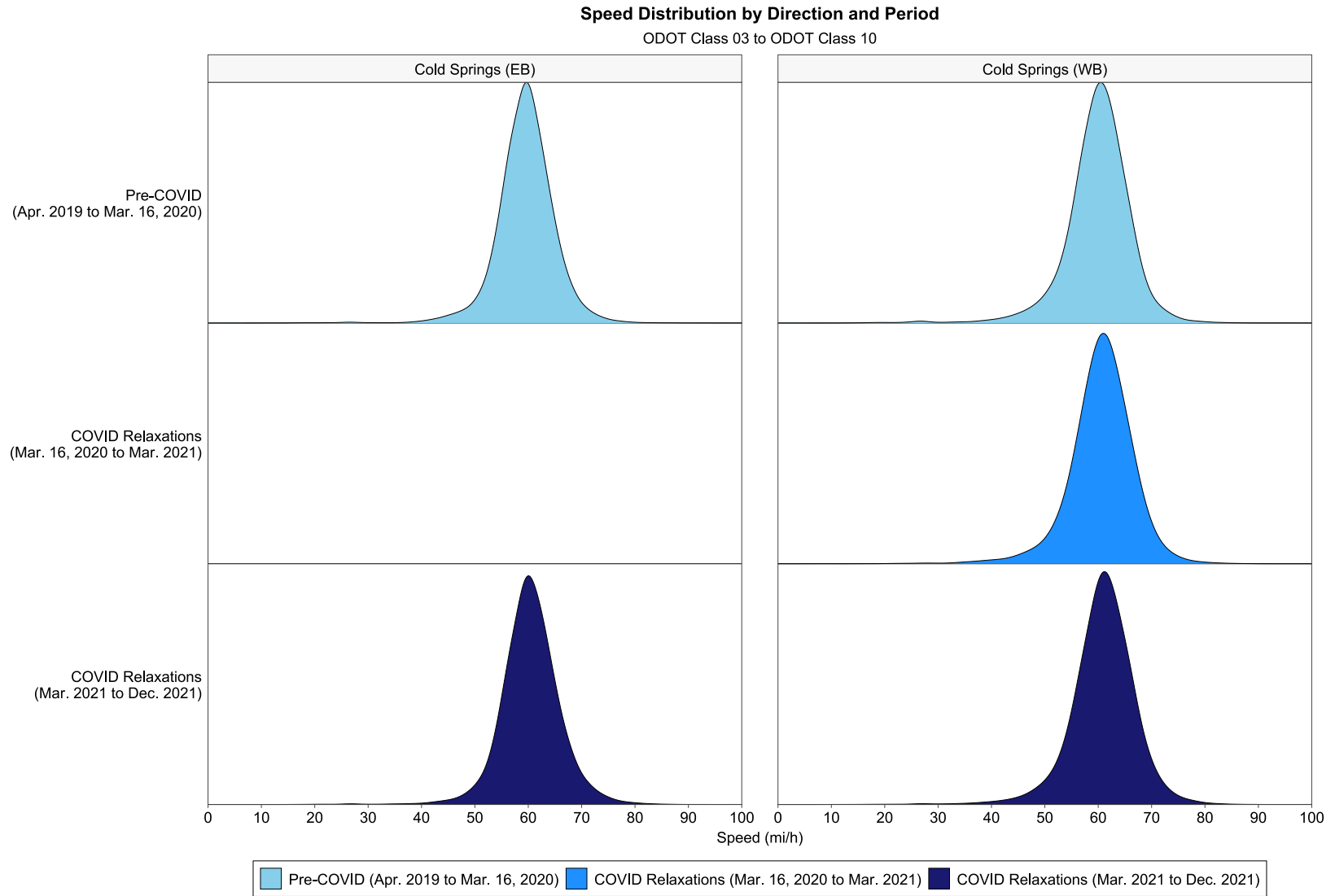


**Figure C.26: Speed Distribution of ODOT Class 12 to Class 19 Trucks at Juniper Butte WIM Stations by Time Period**

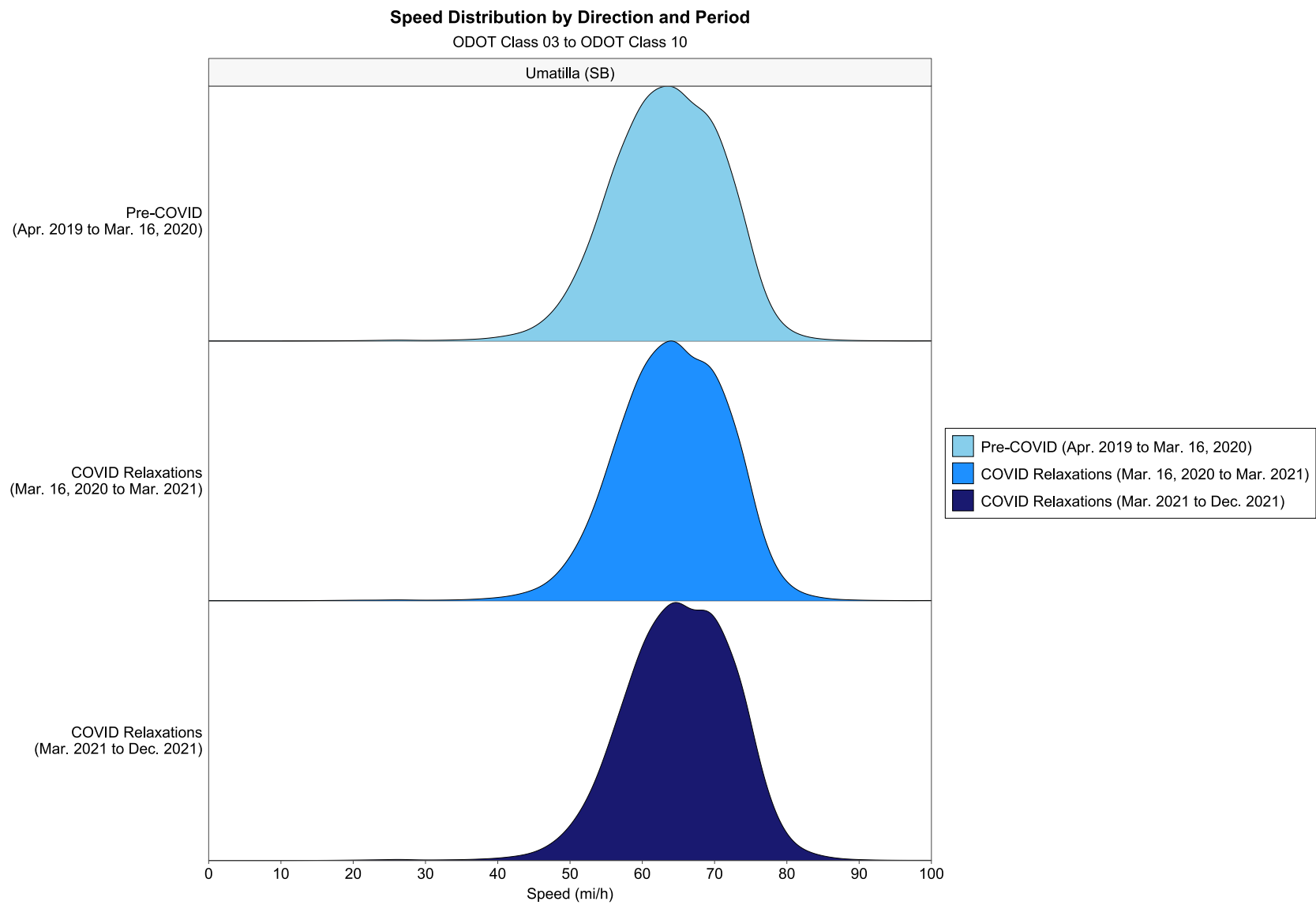


**Figure C.27: Speed Distribution of ODOT Class 12 to Class 19 Trucks at Klamath Falls WIM Stations by Time Period**

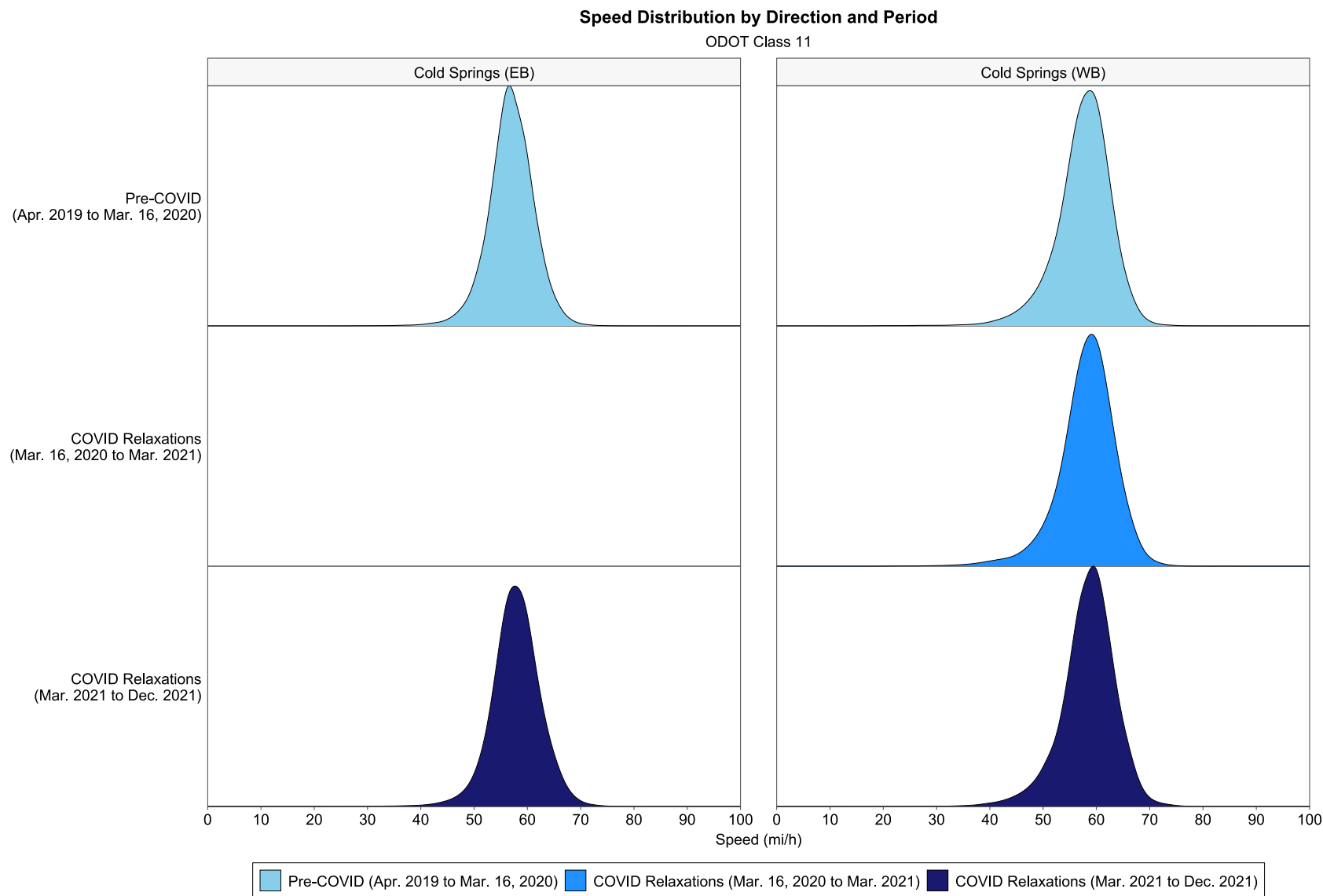
# US-730 WIM STATIONS



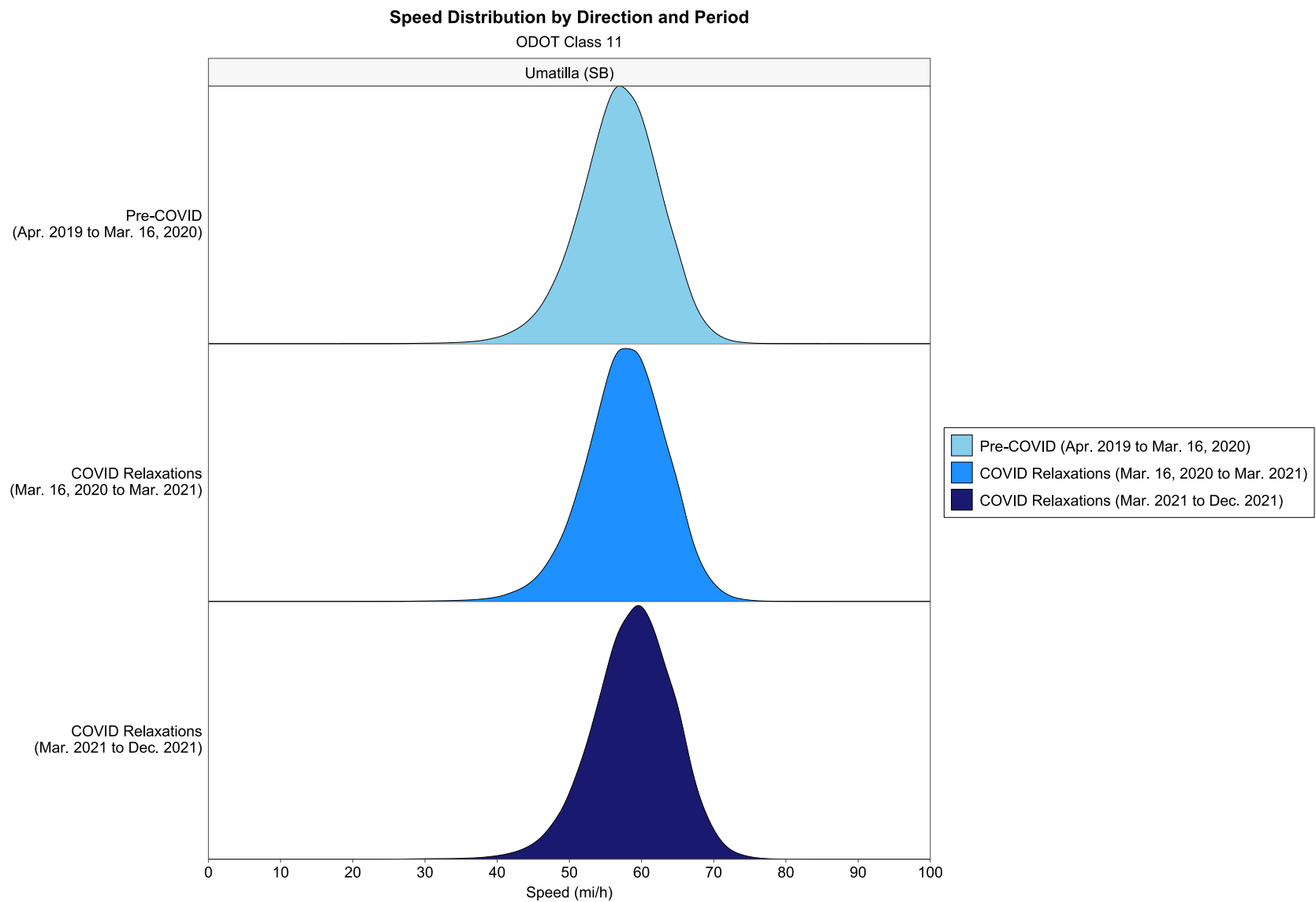
**Figure C.28: Speed Distribution of ODOT Class 03 to Class 10 Trucks at Cold Springs WIM Stations by Time Period**



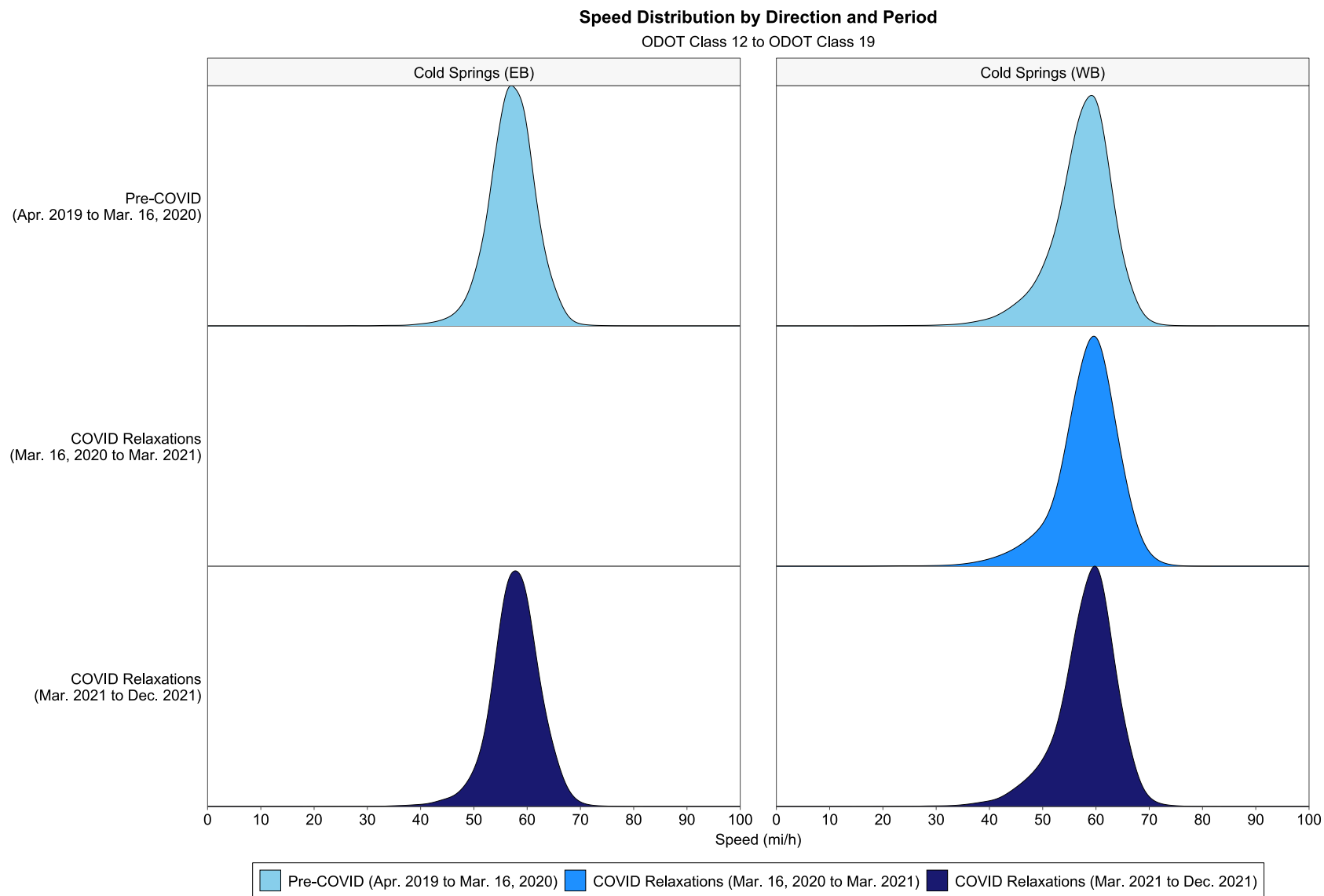
**Figure C.29: Speed Distribution of ODOT Class 03 to Class 10 Trucks at Umatilla WIM Station by Time Period**



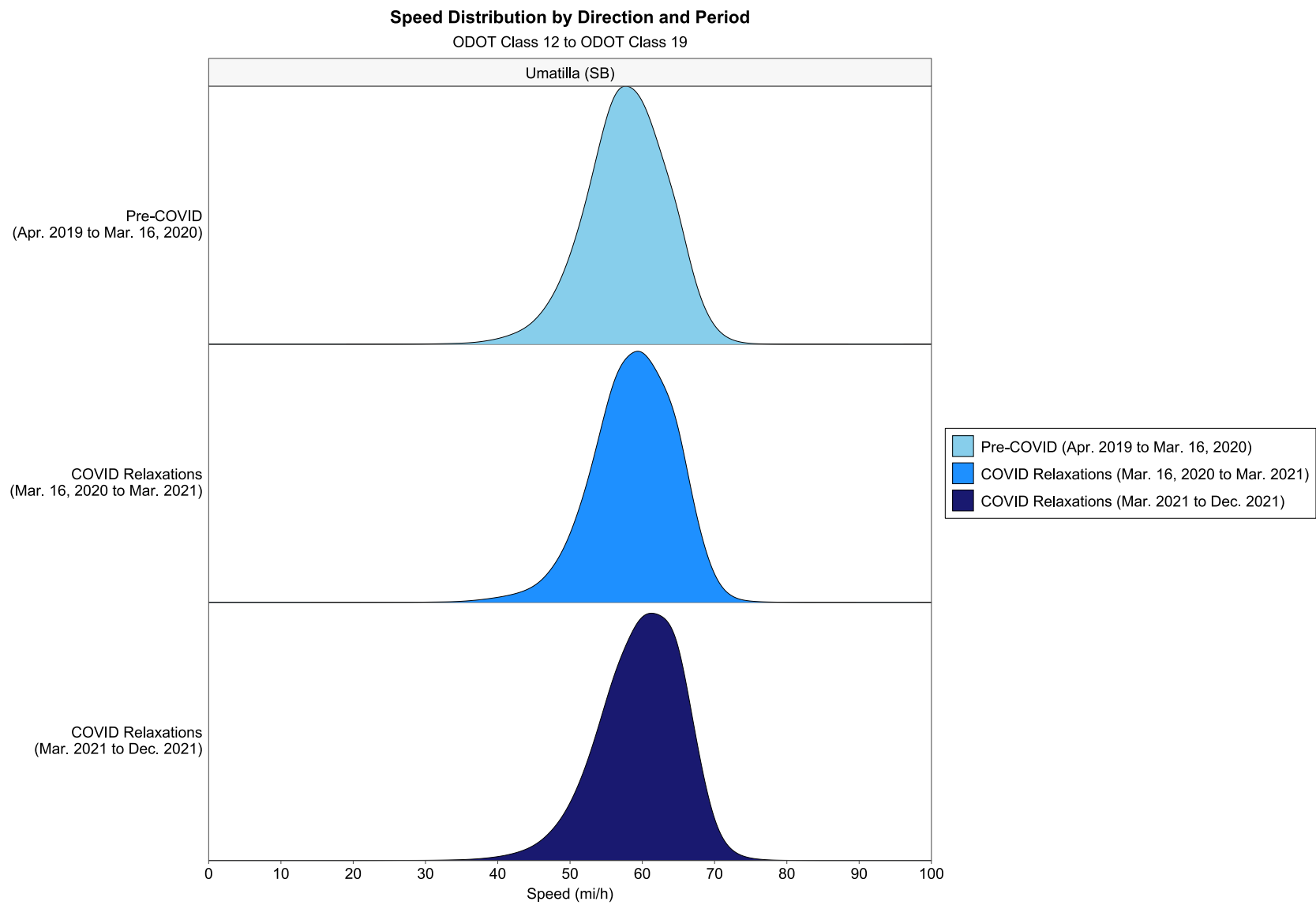
**Figure C.30: Speed Distribution of ODOT Class 11 Trucks at Cold Springs WIM Stations by Time Period**



**Figure C.31: Speed Distribution of ODOT Class 11 Trucks at Umatilla WIM Station by Time Period**

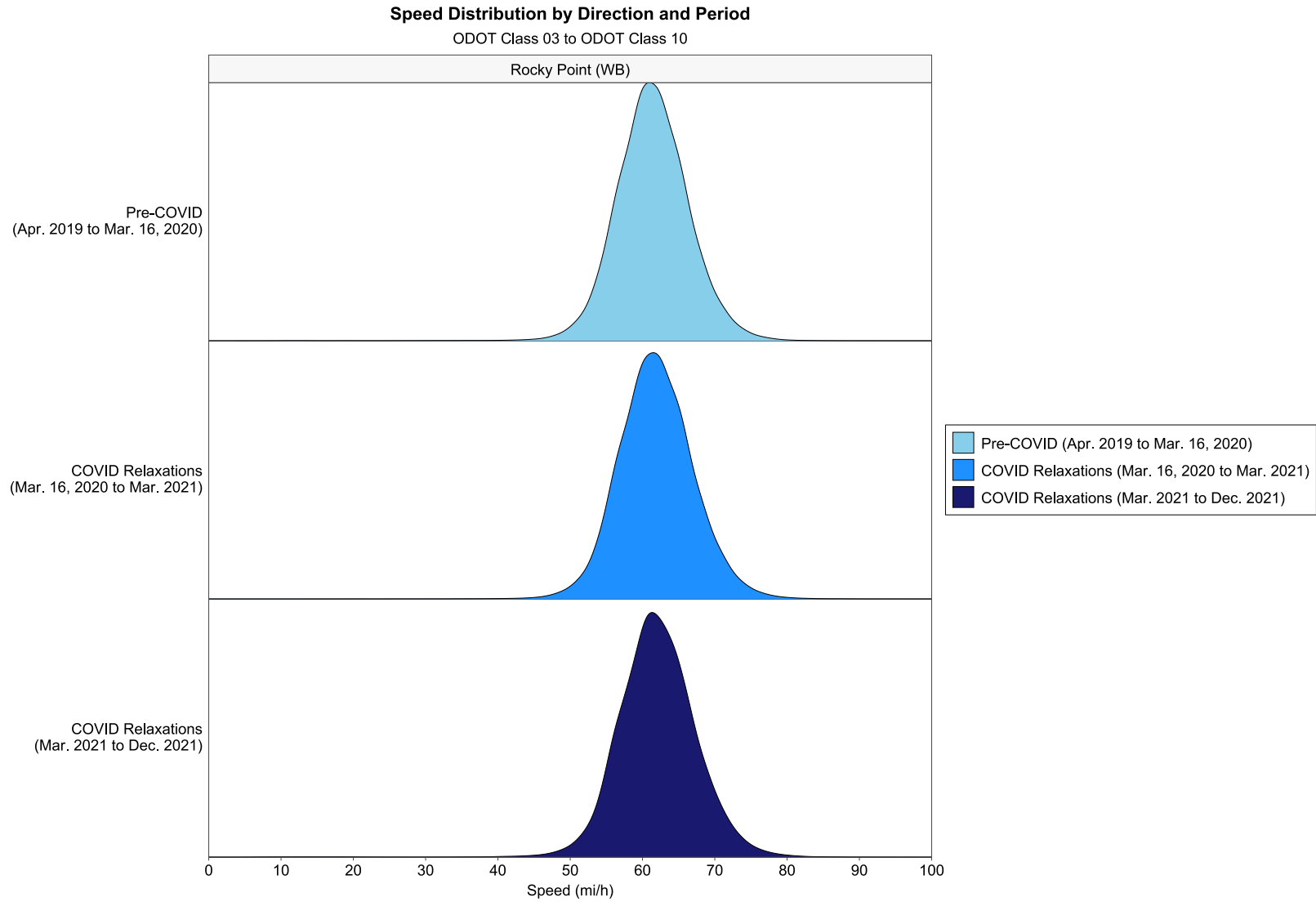


**Figure C.32: Speed Distribution of ODOT Class 12 to Class 19 Trucks at Cold Springs WIM Stations by Time Period**

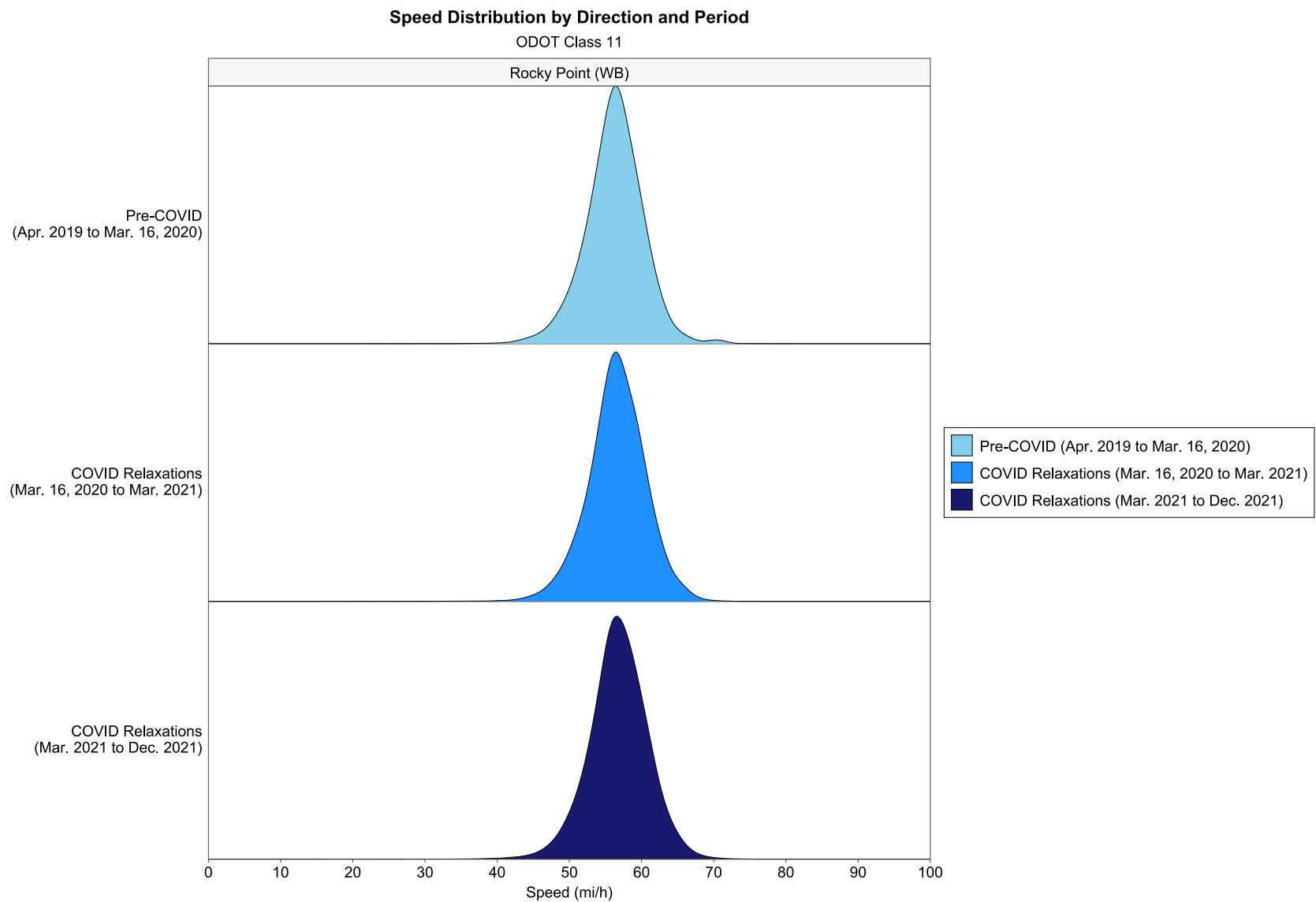


**Figure C.33: Speed Distribution of ODOT Class 12 to Class 19 Trucks at Umatilla WIM Station by Time Period**

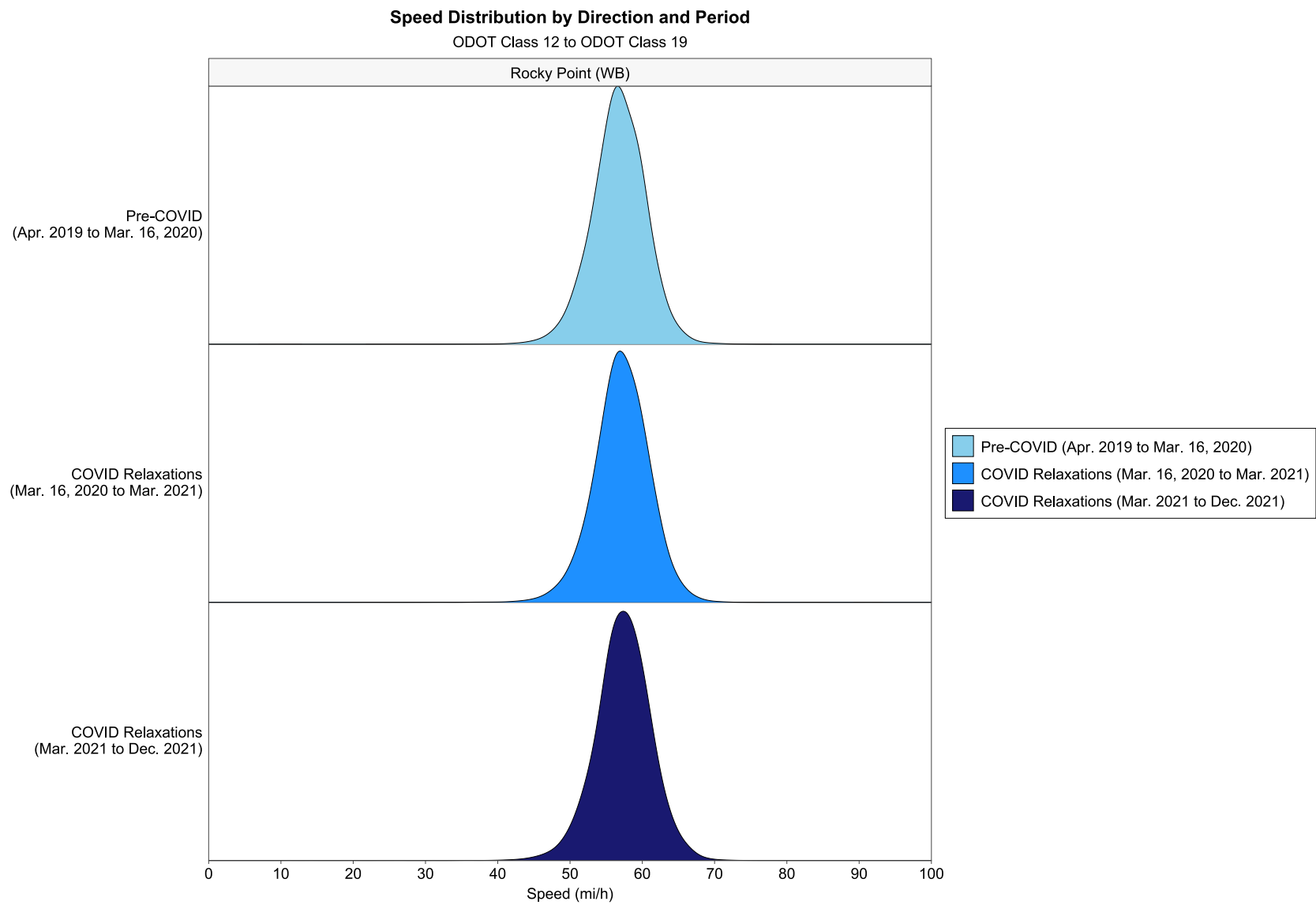
# US-30 WIM STATIONS



**Figure C.34: Speed Distribution of ODOT Class 03 to Class 10 Trucks at Rocky Point WIM Station by Time Period**



**Figure C.35: Speed Distribution of ODOT Class 11 Trucks at Rocky Point WIM Station by Time Period**



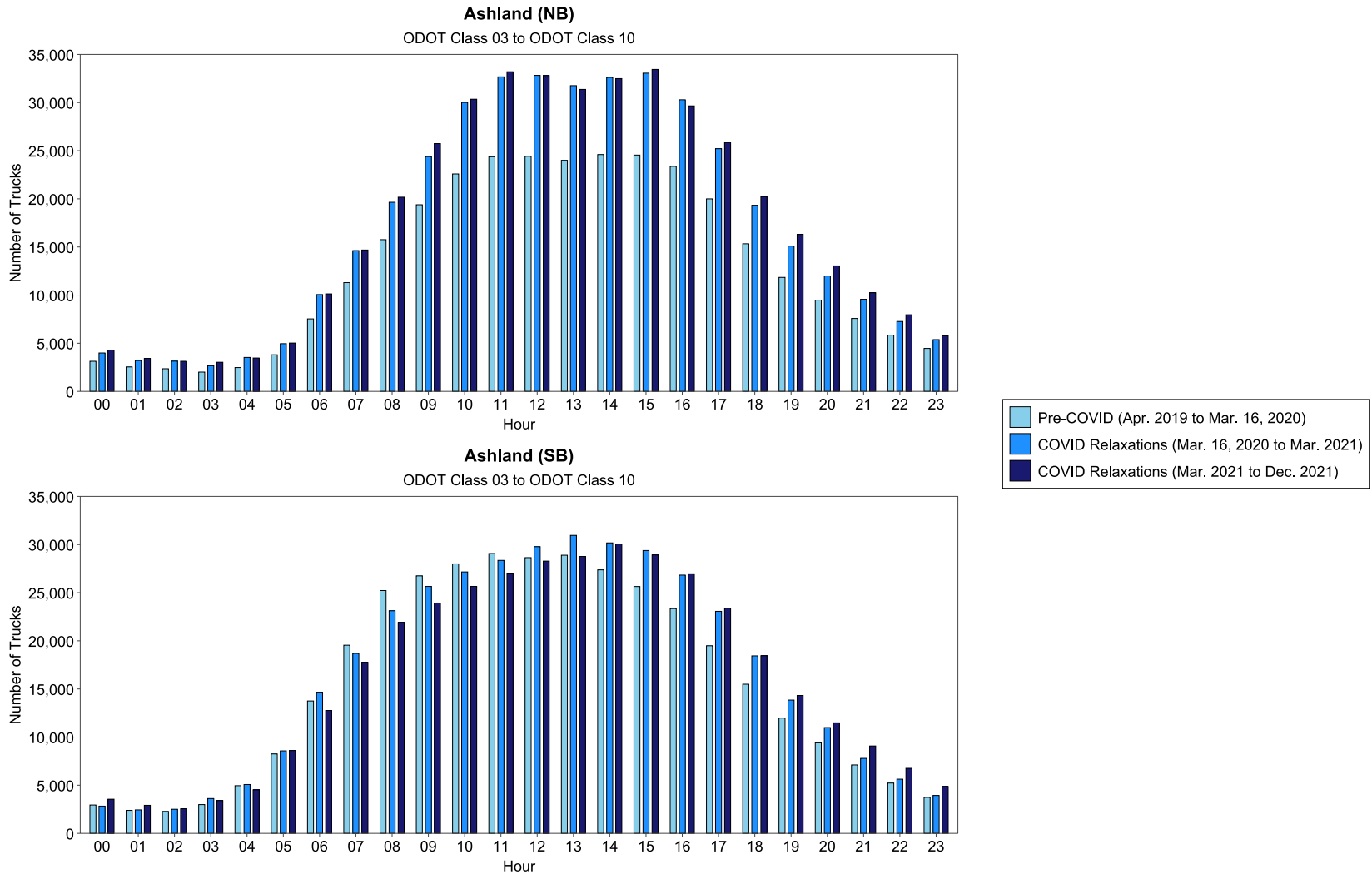
**Figure C.36: Speed Distribution of ODOT Class 12 to Class 19 Trucks at Rocky Point WIM Station by Time Period**

## **APPENDIX D**

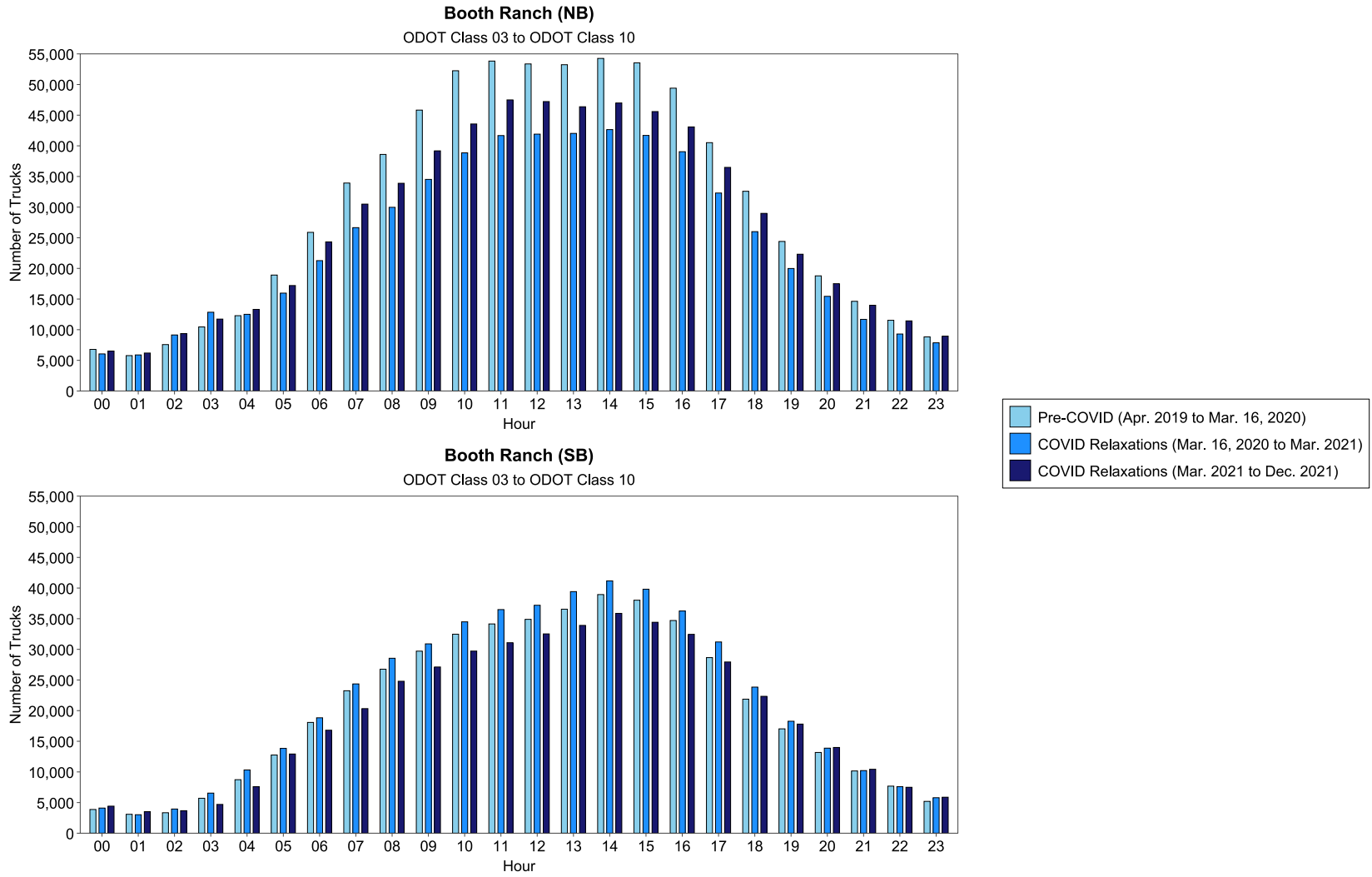
Appendix D presents hourly truck counts by WIM station and truck classification for the time periods associated with the safety analysis. The classification groups considered follow the work done by Anderson et al. (2020).

Figures begin on the following page.

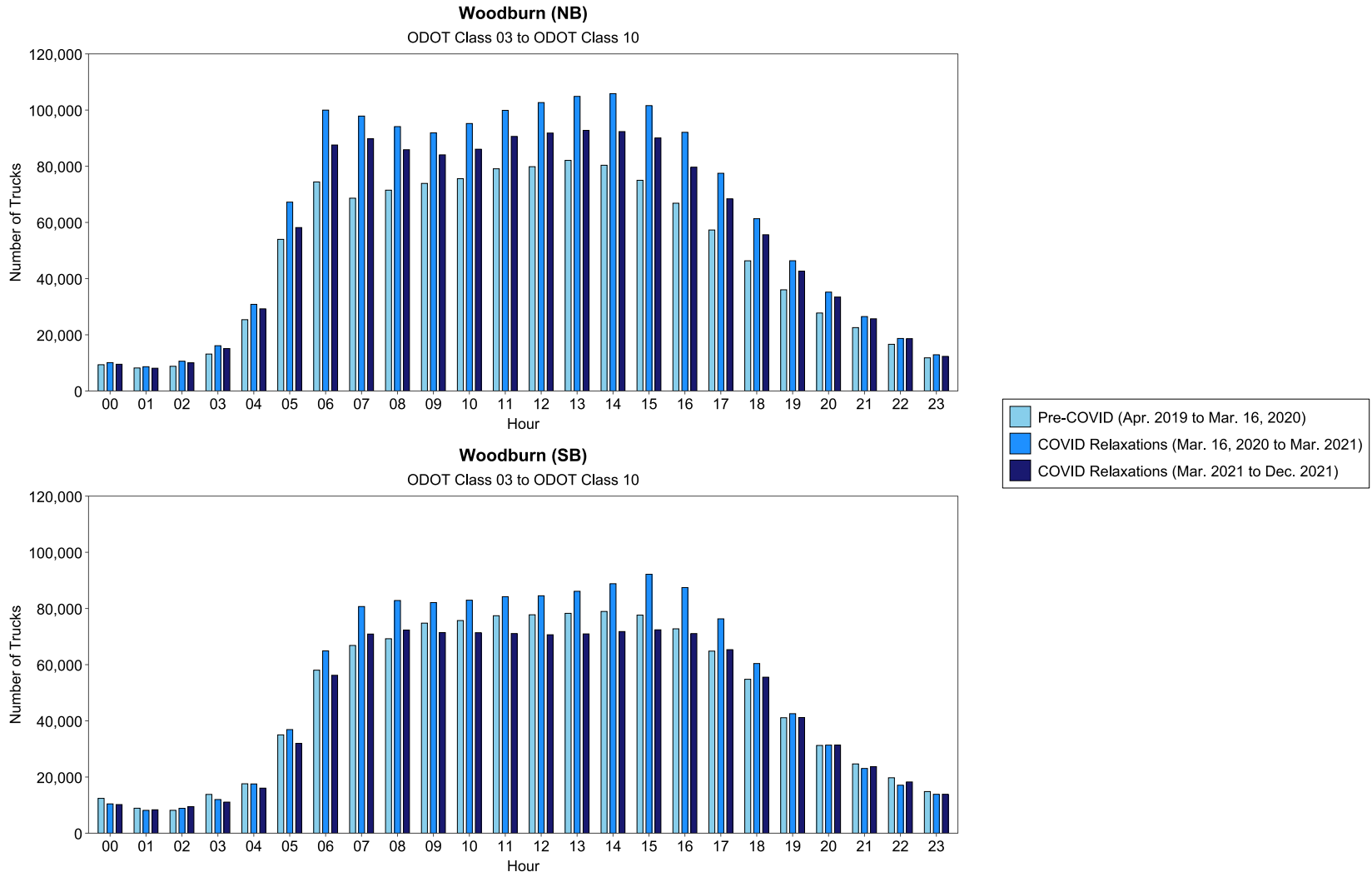
# INTERSTATE 5 WIM STATIONS



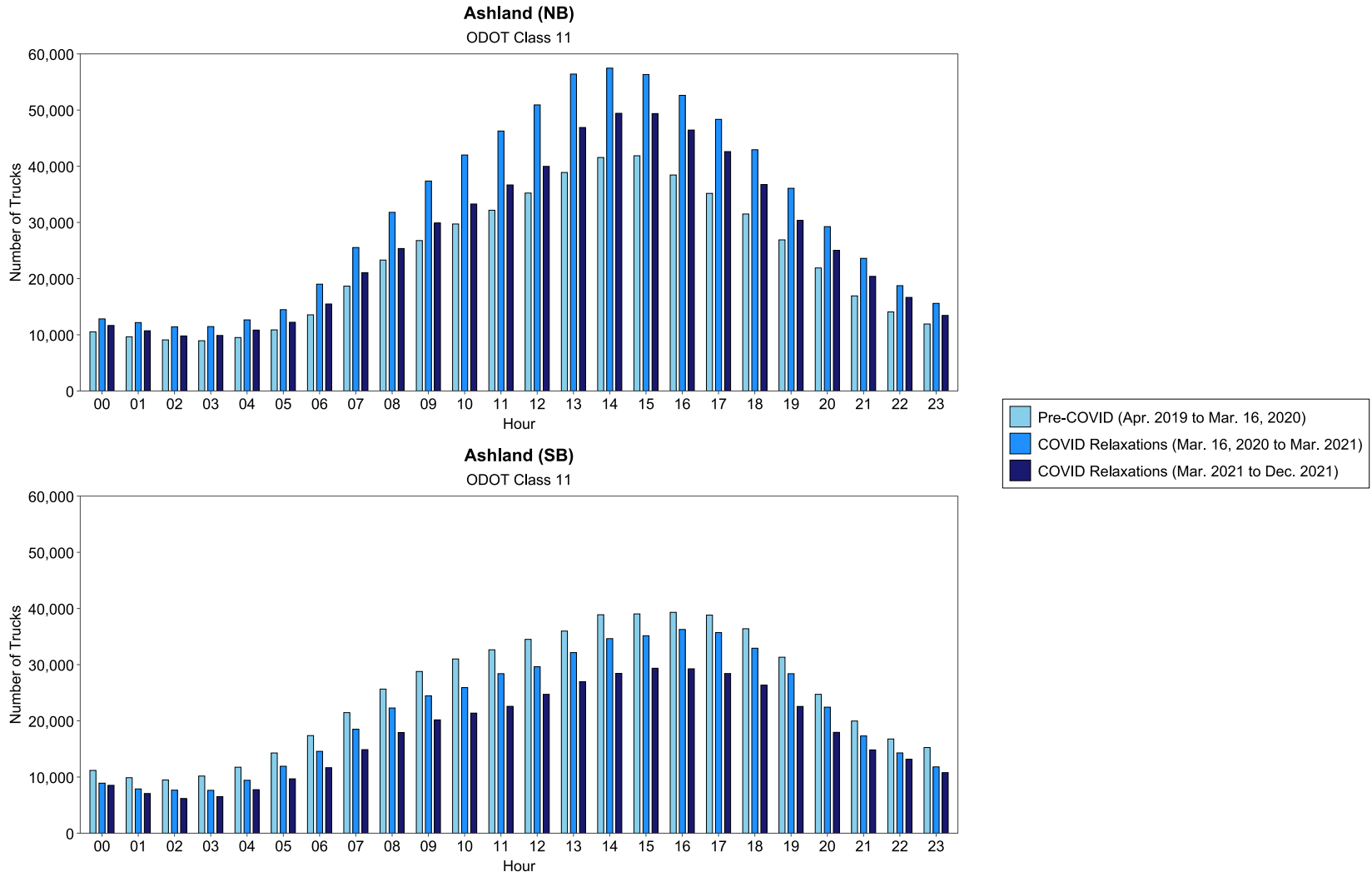
**Figure D.1: Hourly ODOT Class 03 to ODOT Class 10 Truck Counts at Ashland WIM Stations by Time Period**



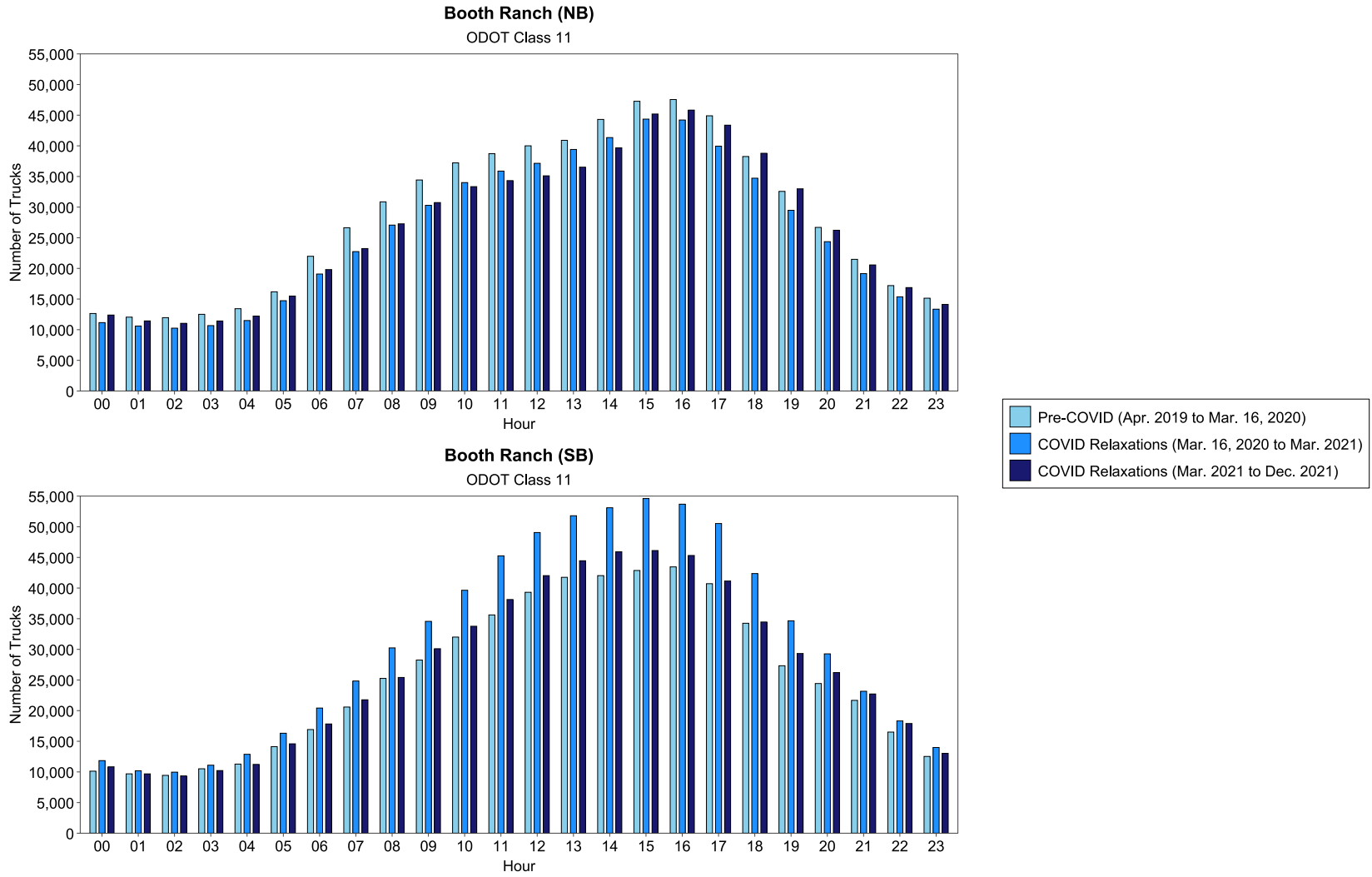
**Figure D.2: Hourly ODOT Class 03 to ODOT Class 10 Truck Counts at Booth Ranch WIM Stations by Time Period**



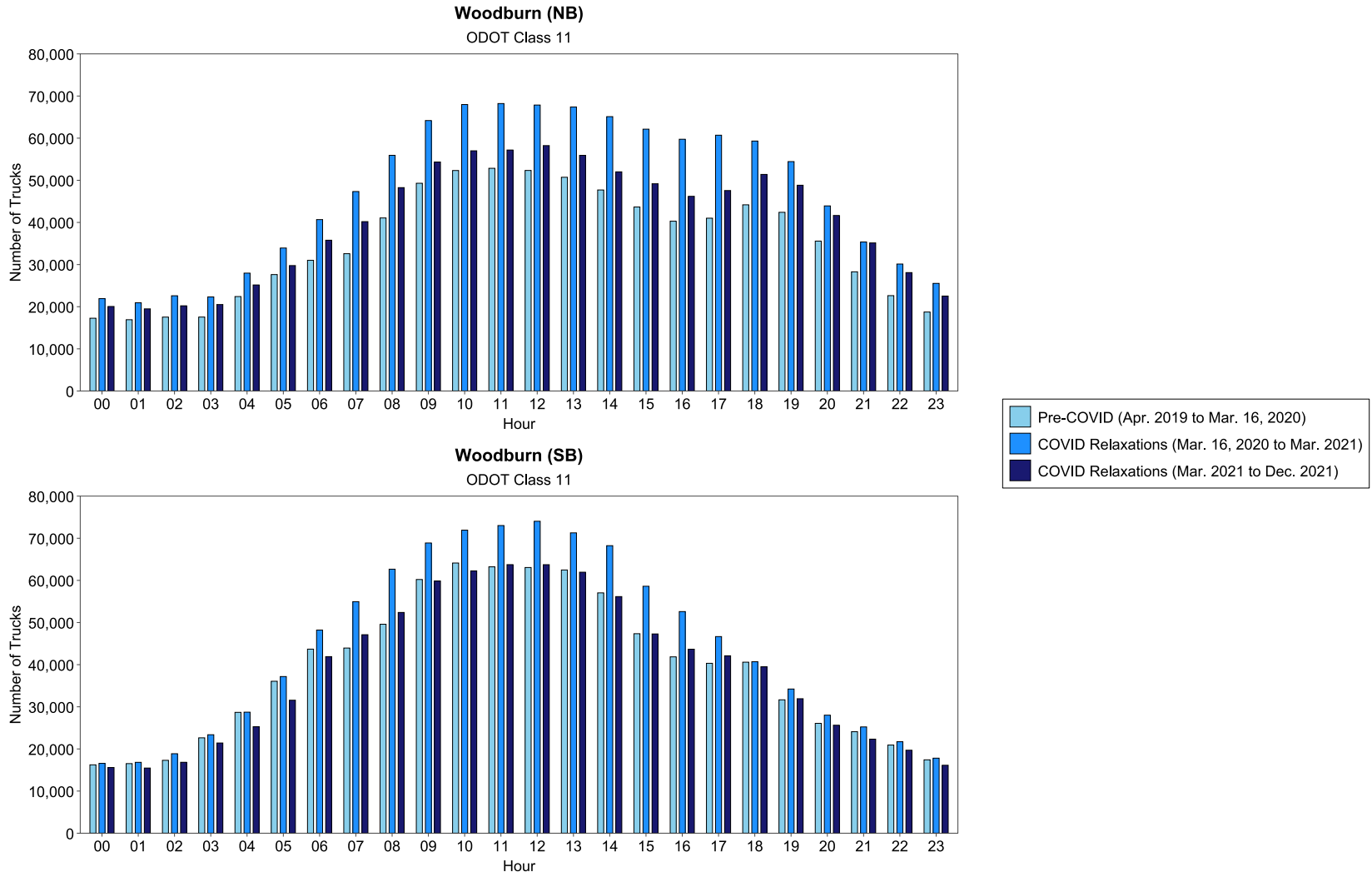
**Figure D3: Hourly ODOT Class 03 to ODOT Class 10 Truck Counts at Woodburn WIM Stations by Time Period**



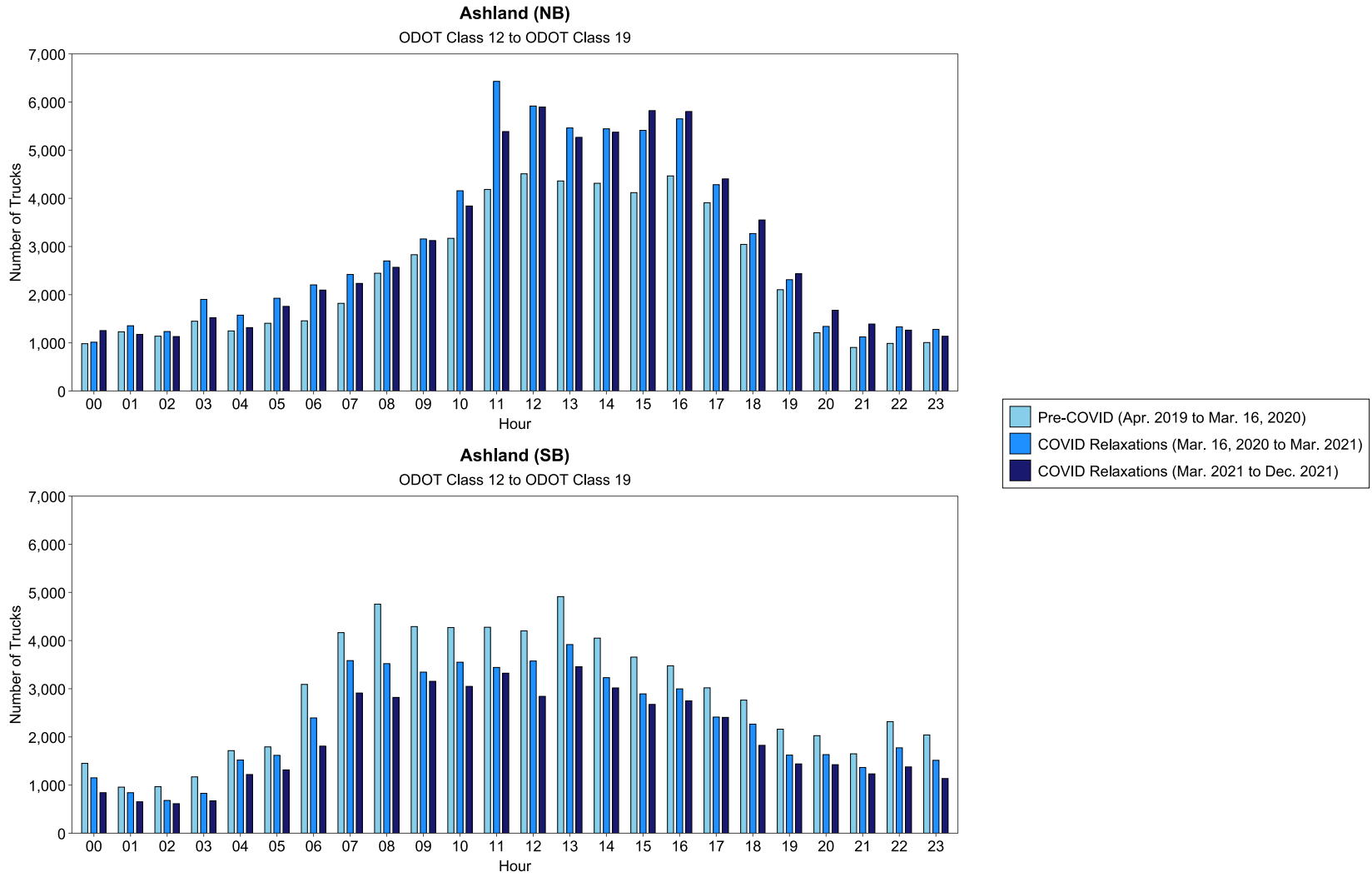
**Figure D.4: Hourly ODOT Class 11 Truck Counts at Ashland WIM Stations by Time Period**



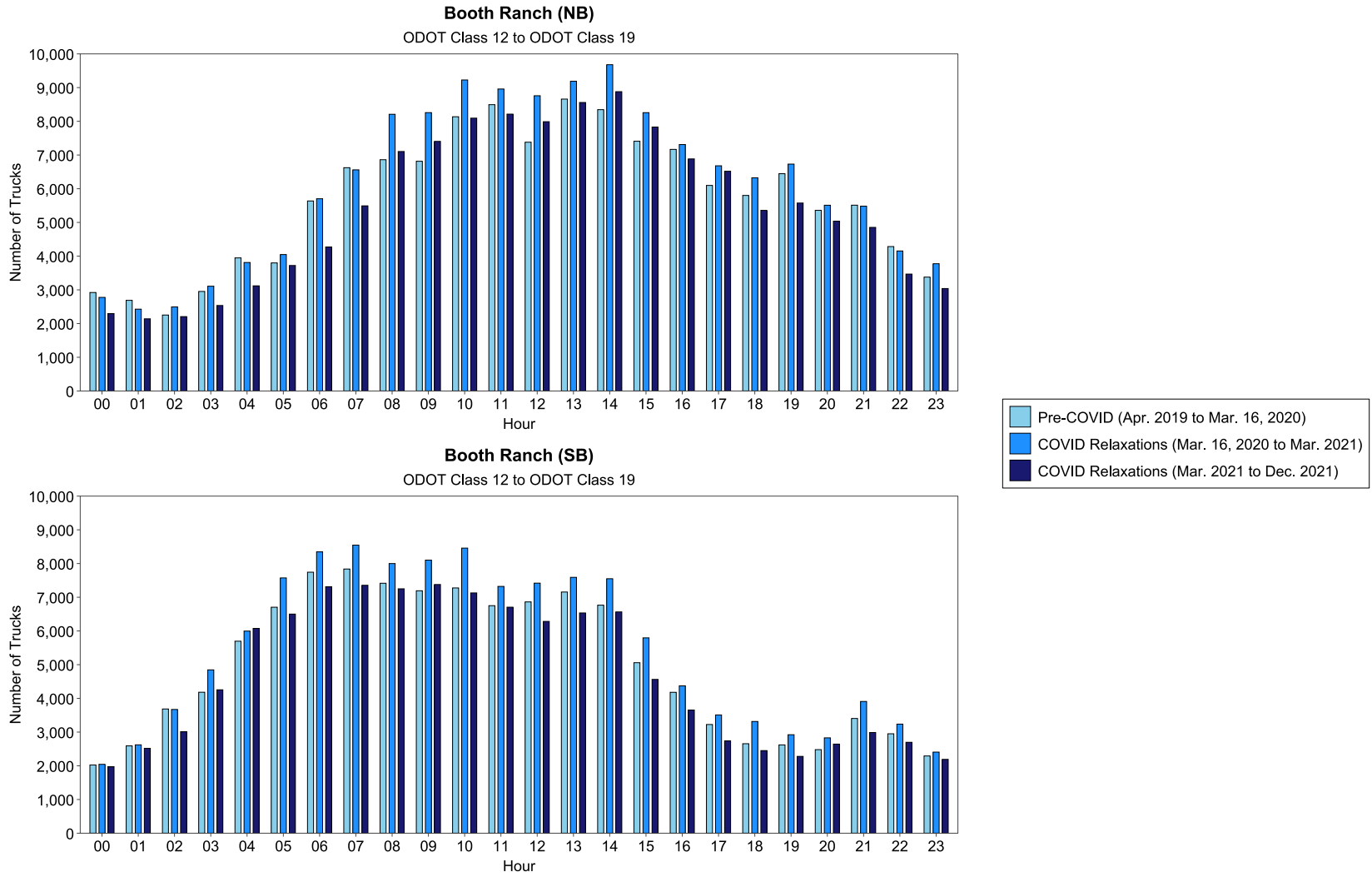
**Figure D.5: Hourly ODOT Class 11 Truck Counts at Booth Ranch WIM Stations by Time Period**



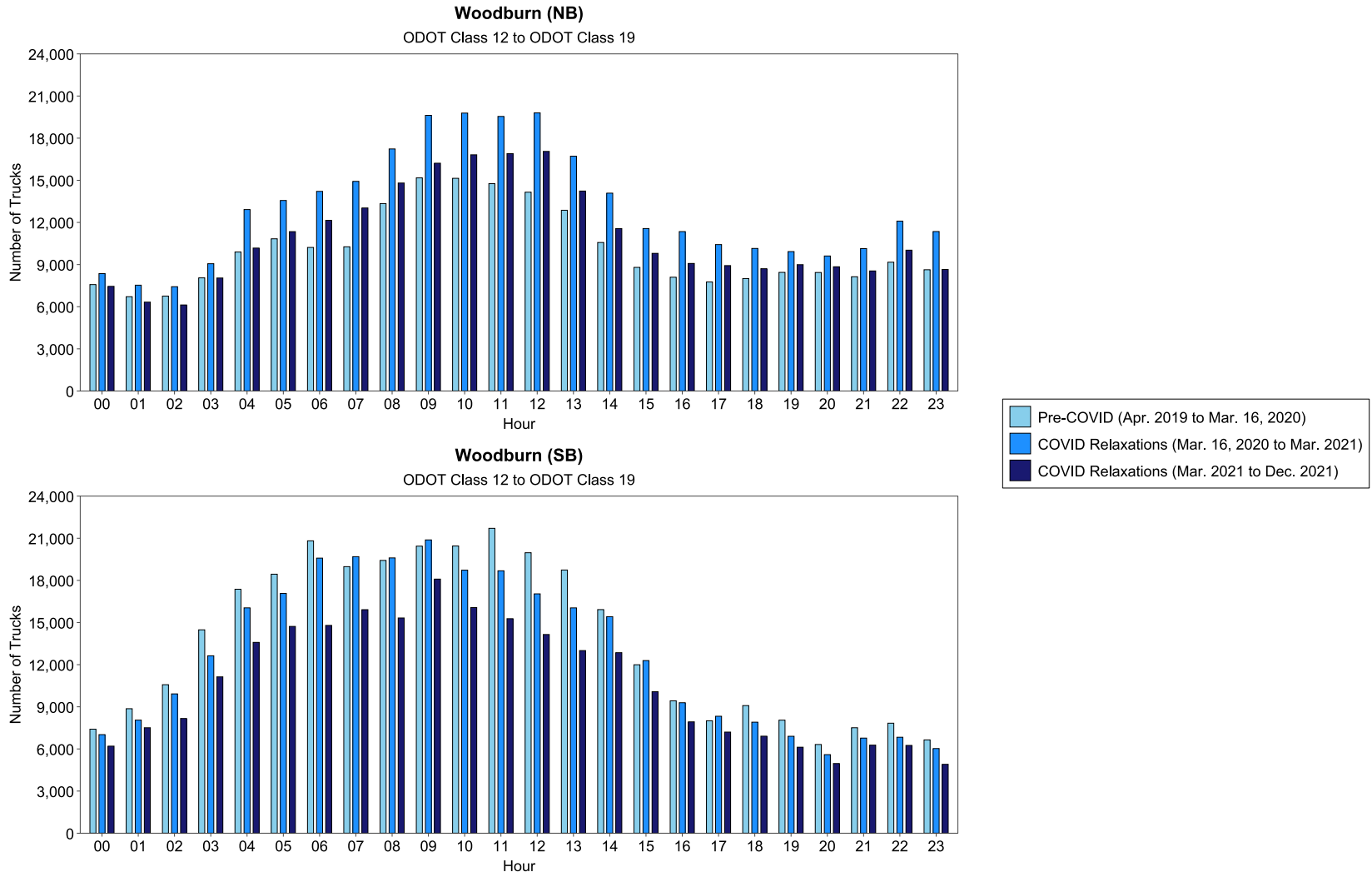
**Figure D.6: Hourly ODOT Class 11 Truck Counts at Woodburn WIM Stations by Time Period**



**Figure D.7: Hourly ODOT Class 12 to ODOT Class 19 Truck Counts at Ashland WIM Stations by Time Period**

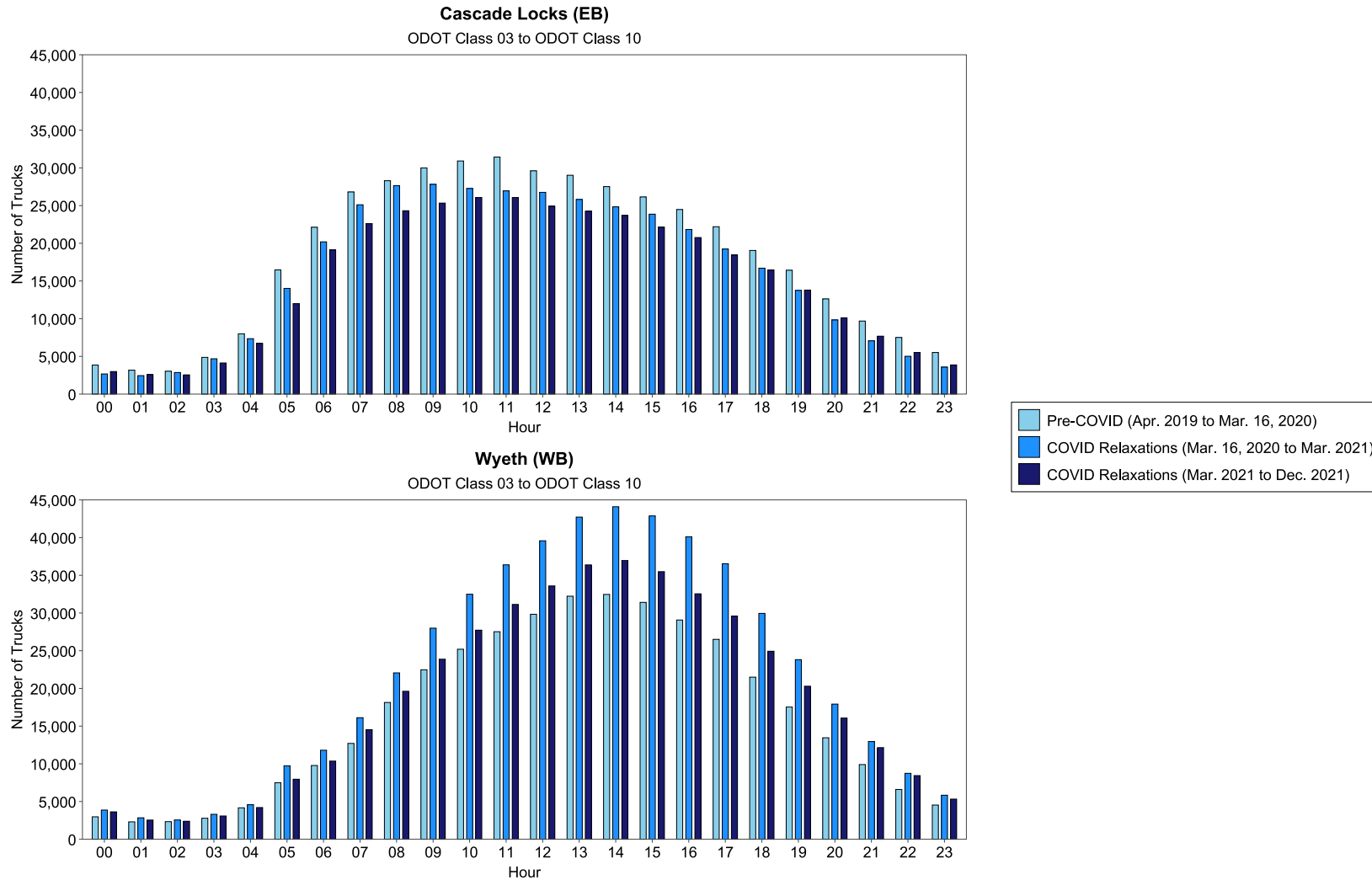


**Figure D.8: Hourly ODOT Class 12 to ODOT Class 19 Truck Counts at Booth Ranch WIM Stations by Time Period**

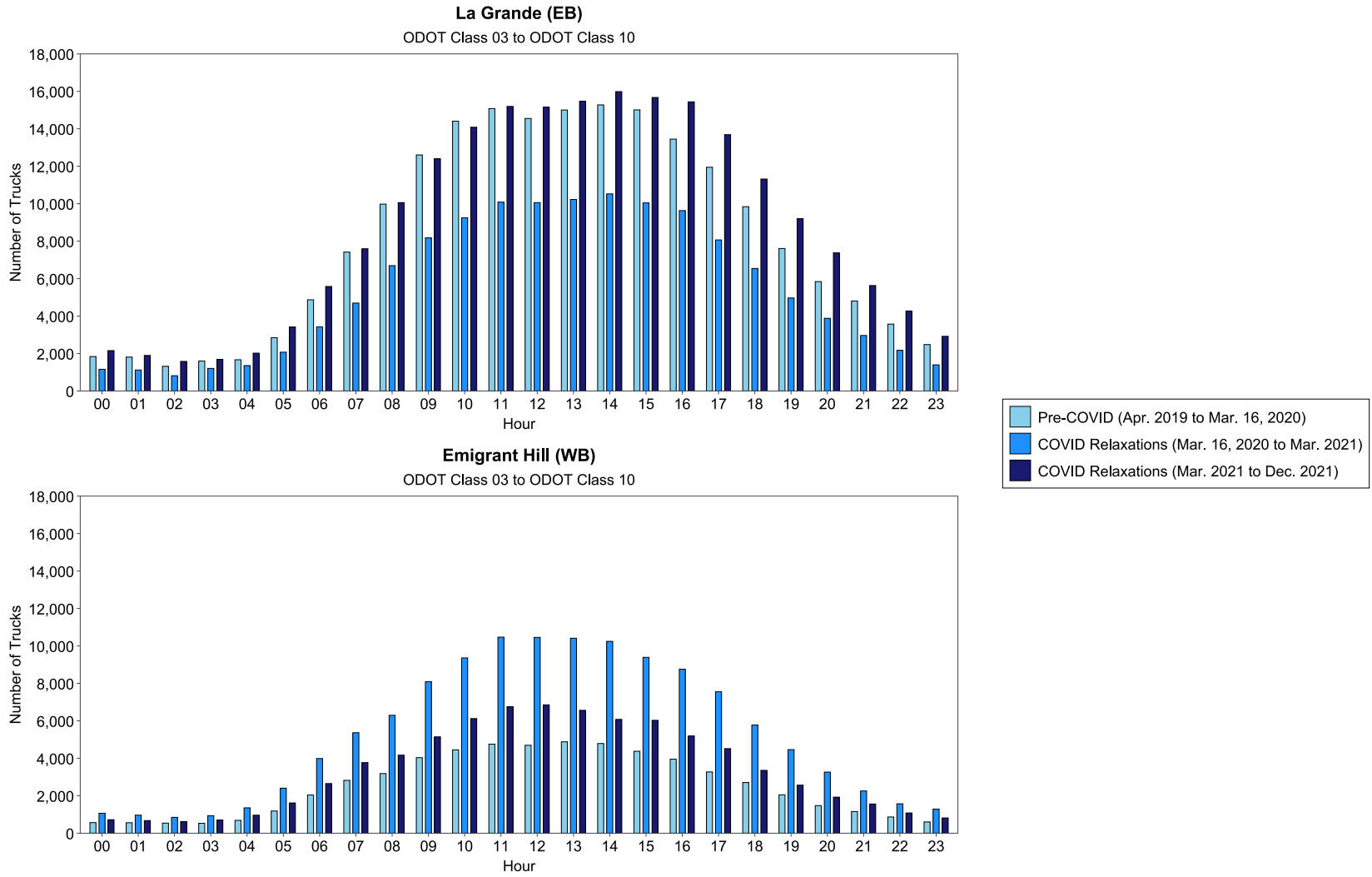


**Figure D.9: Hourly ODOT Class 12 to ODOT Class 19 Truck Counts at Woodburn WIM Stations by Time Period**

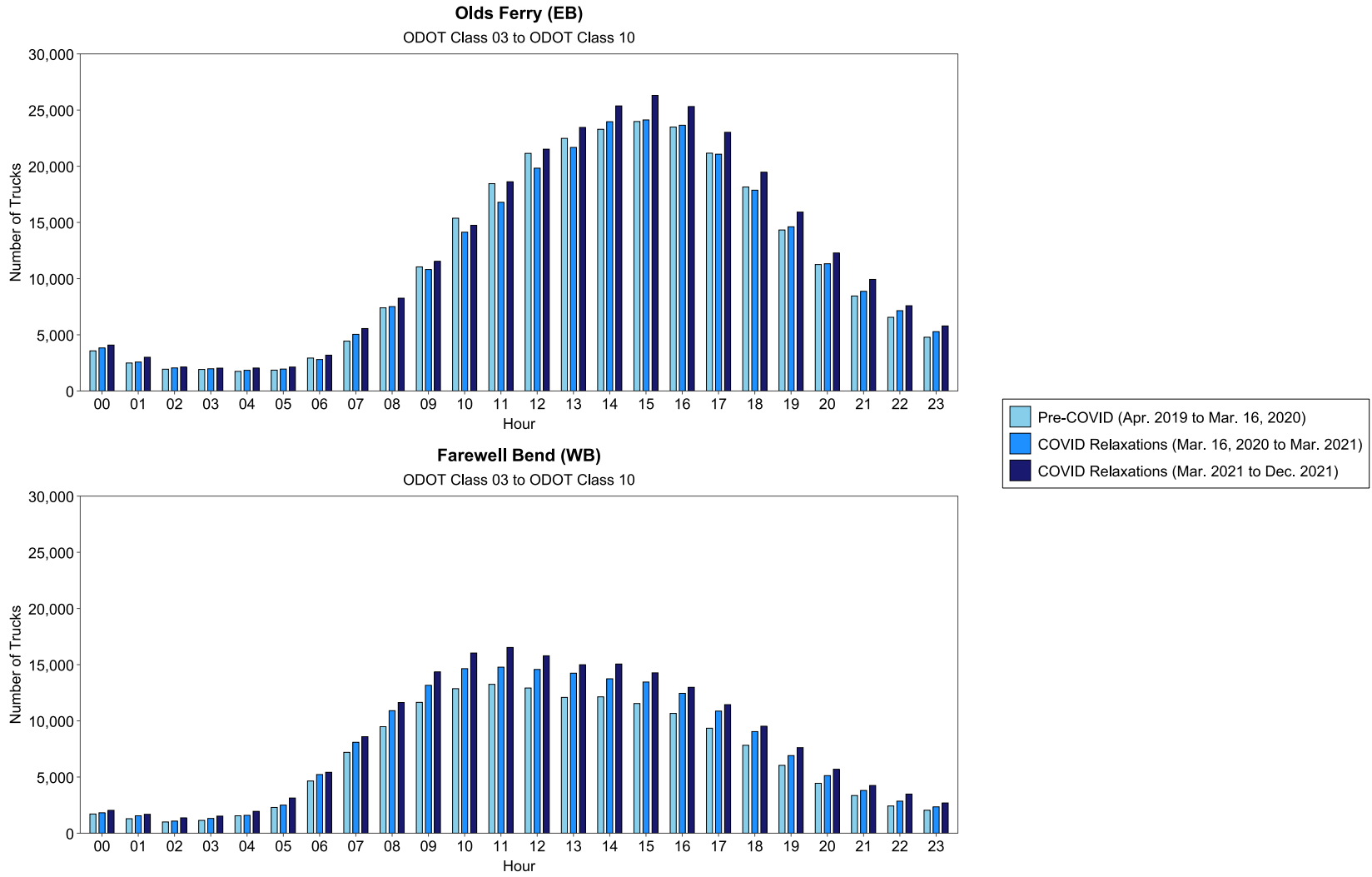
# INTERSTATE 84 WIM STATIONS



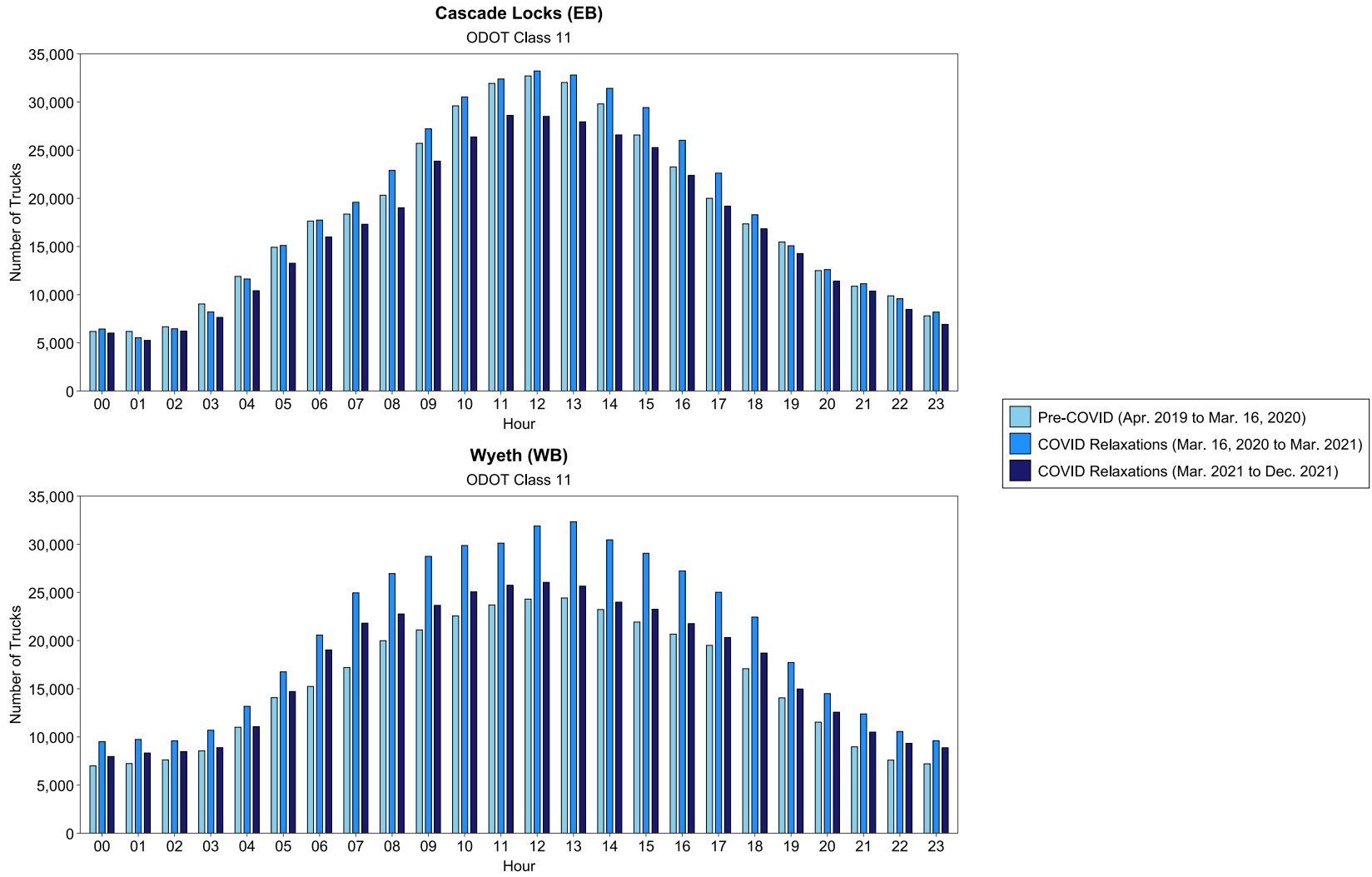
**Figure D.10: Hourly ODOT Class 03 to ODOT Class 10 Truck Counts at Cascade Locks and Wyeth WIM Stations by Time Period**



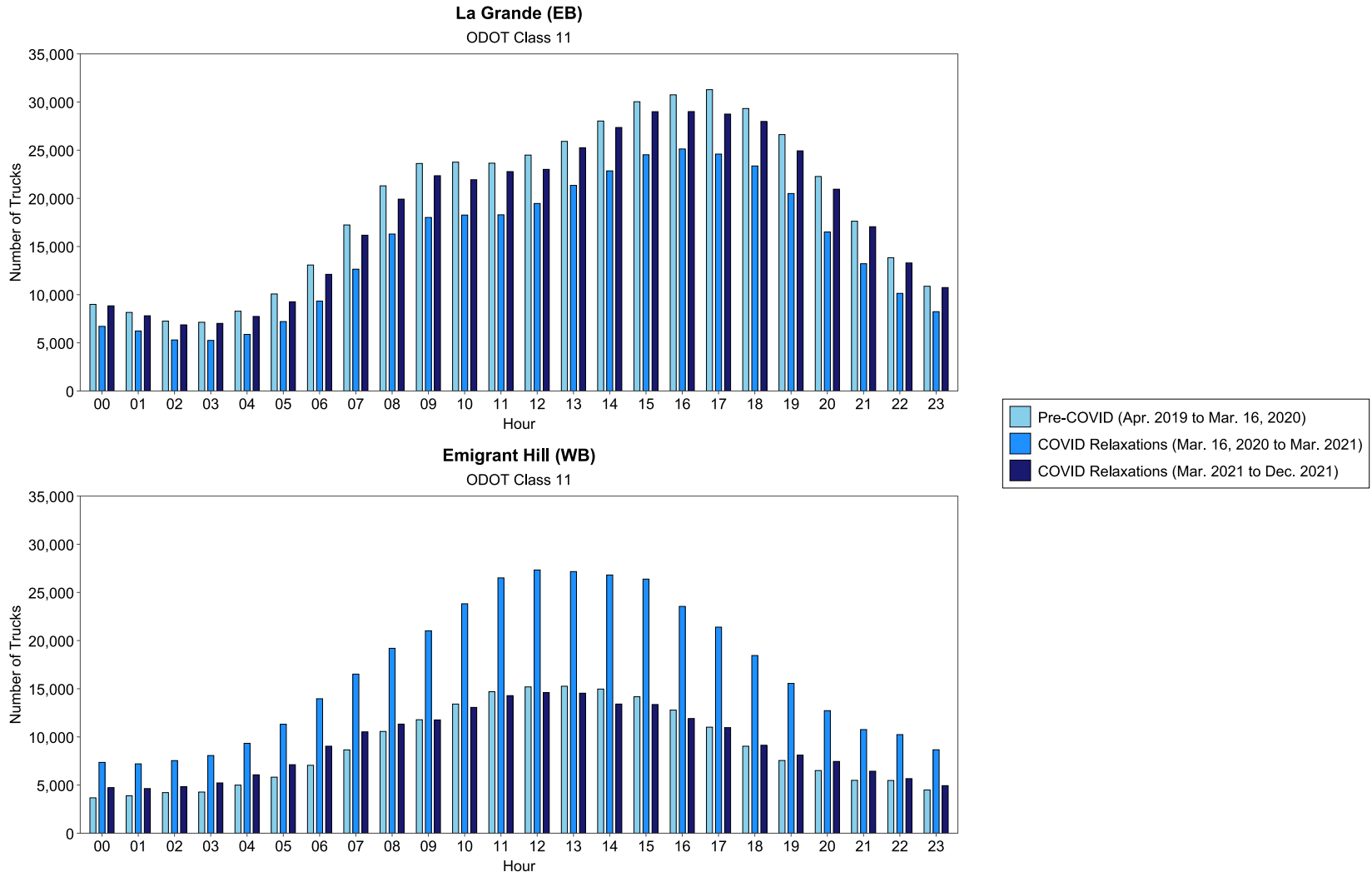
**Figure D.11: Hourly ODOT Class 03 to ODOT Class 10 Truck Counts at La Grande and Emigrant Hill WIM Stations by Time Period**



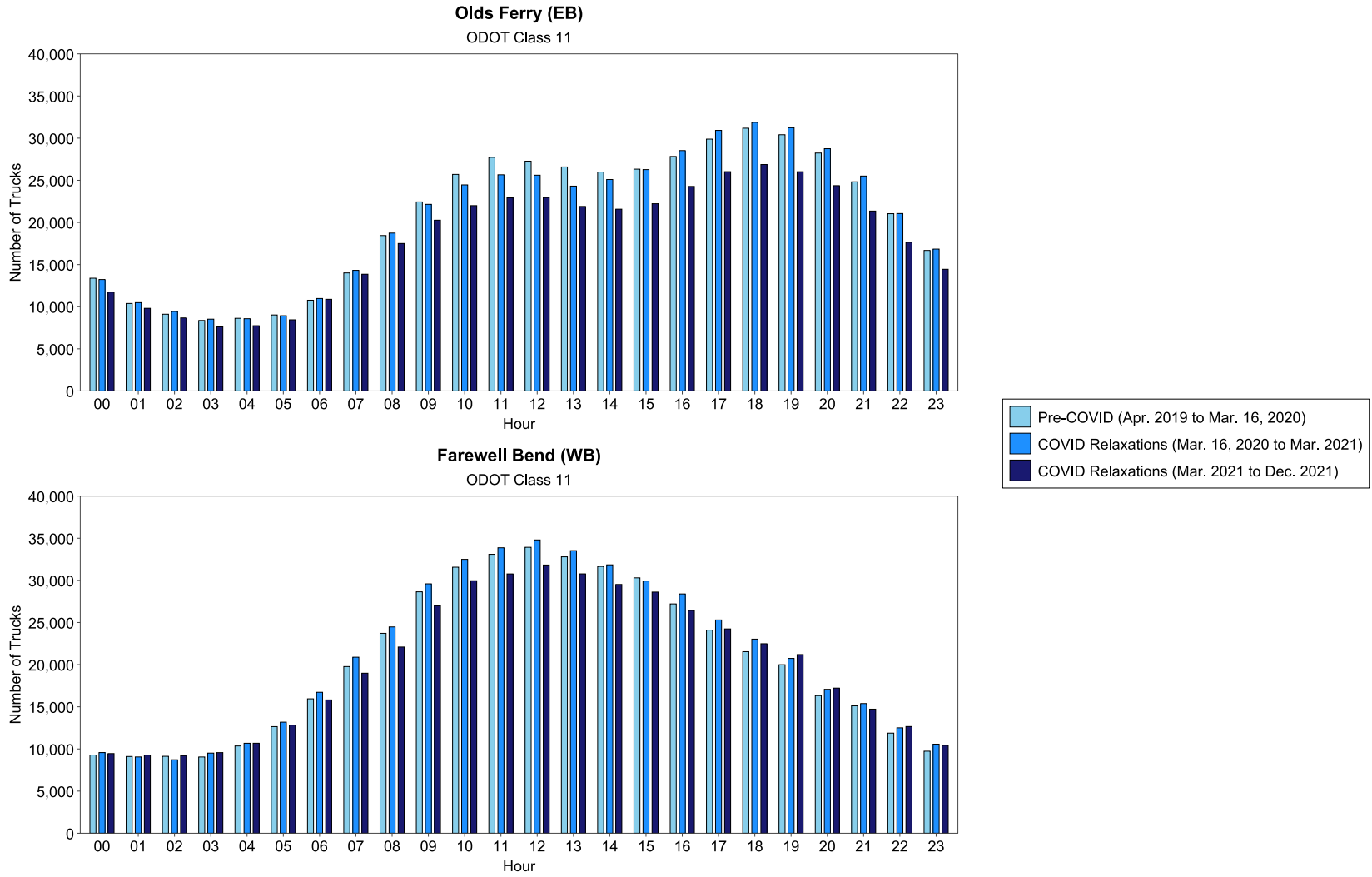
**Figure D.12: Hourly ODOT Class 03 to ODOT Class 10 Truck Counts at Olds Ferry and Farewell Bend WIM Stations by Time Period**



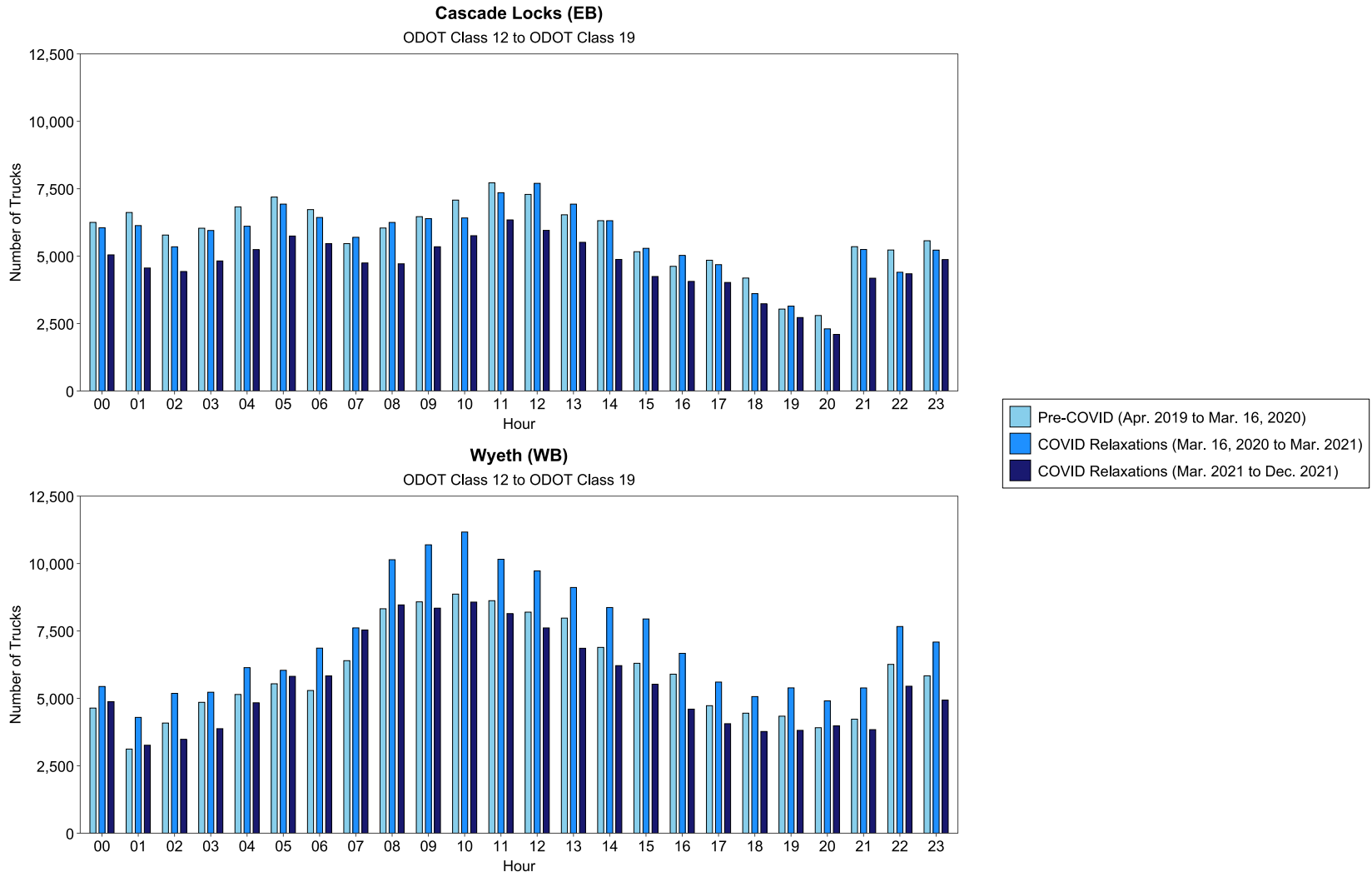
**Figure D.13: Hourly ODOT Class 11 Truck Counts at Cascade Locks and Wyeth WIM Stations by Time Period**



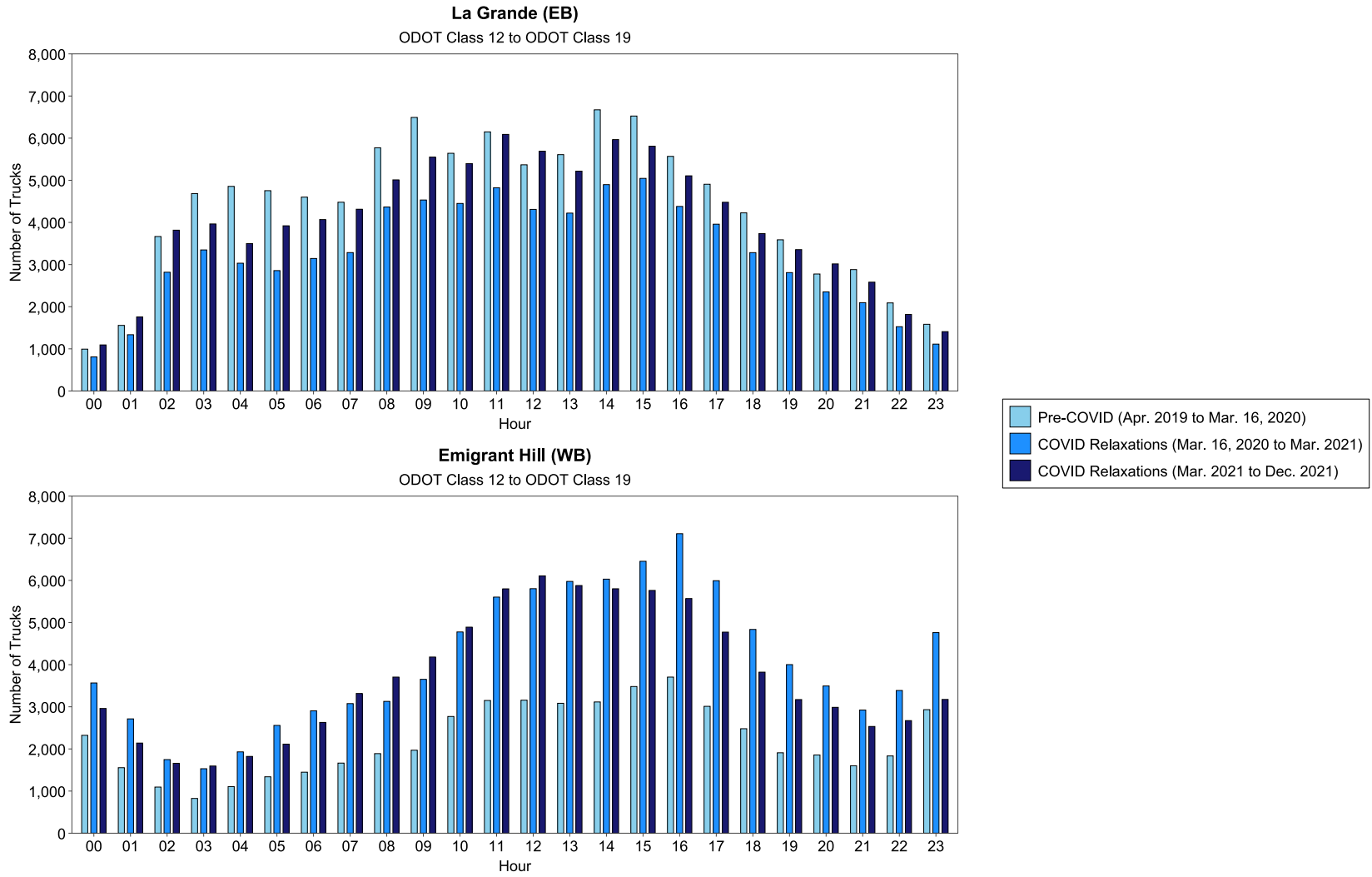
**Figure D.14: Hourly ODOT Class 11 Truck Counts at La Grande and Emigrant Hill WIM Stations by Time Period**



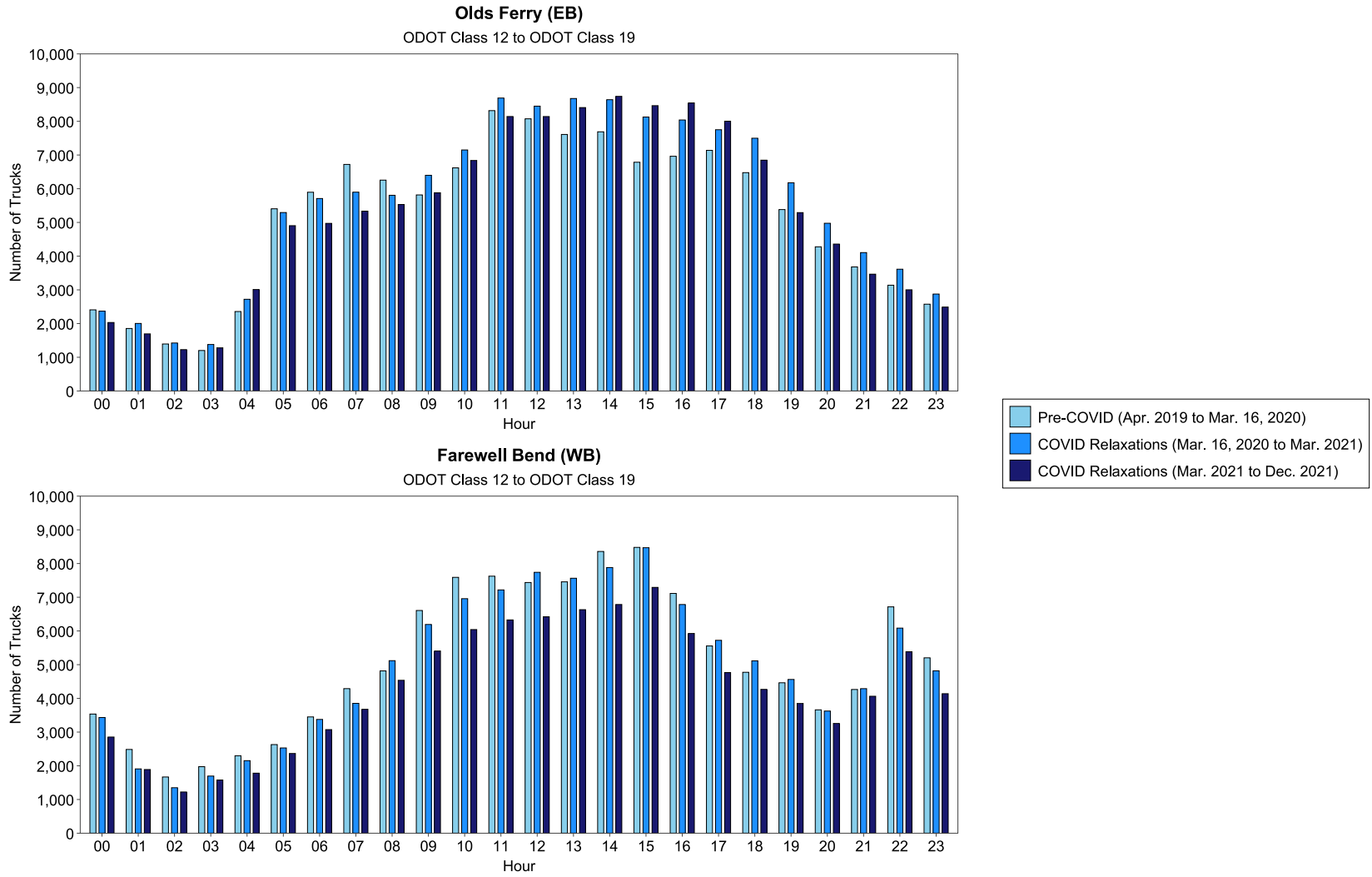
**Figure D.15: Hourly ODOT Class 11 Truck Counts at Olds Ferry and Farewell Bend WIM Stations by Time Period**



**Figure D.16: Hourly ODOT Class 12 to ODOT Class 19 Truck Counts at Cascade Locks and Wyeth WIM Stations by Time Period**

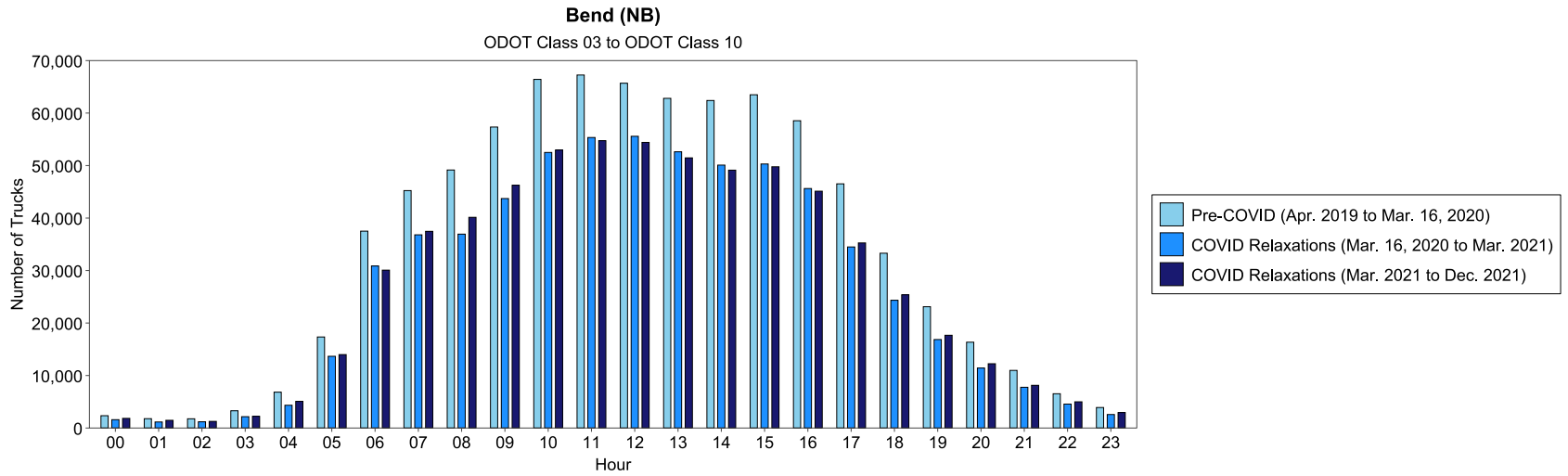


**Figure D.17: Hourly ODOT Class 12 to ODOT Class 19 Truck Counts at La Grande and Emigrant Hill WIM Stations by Time Period**

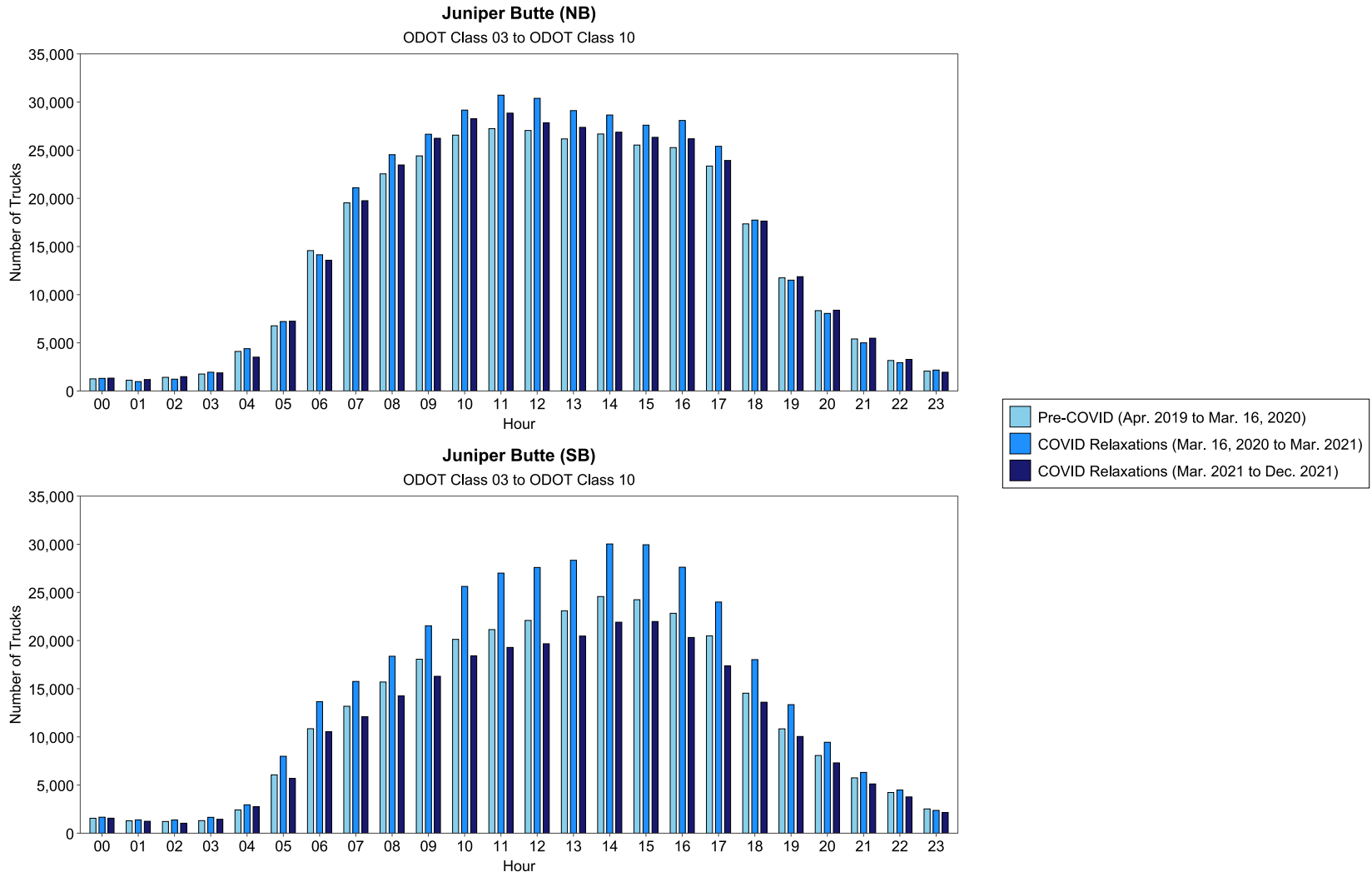


**Figure D.18: Hourly ODOT Class 12 to ODOT Class 19 Truck Counts at Olds Ferry and Farewell Bend WIM Stations by Time Period**

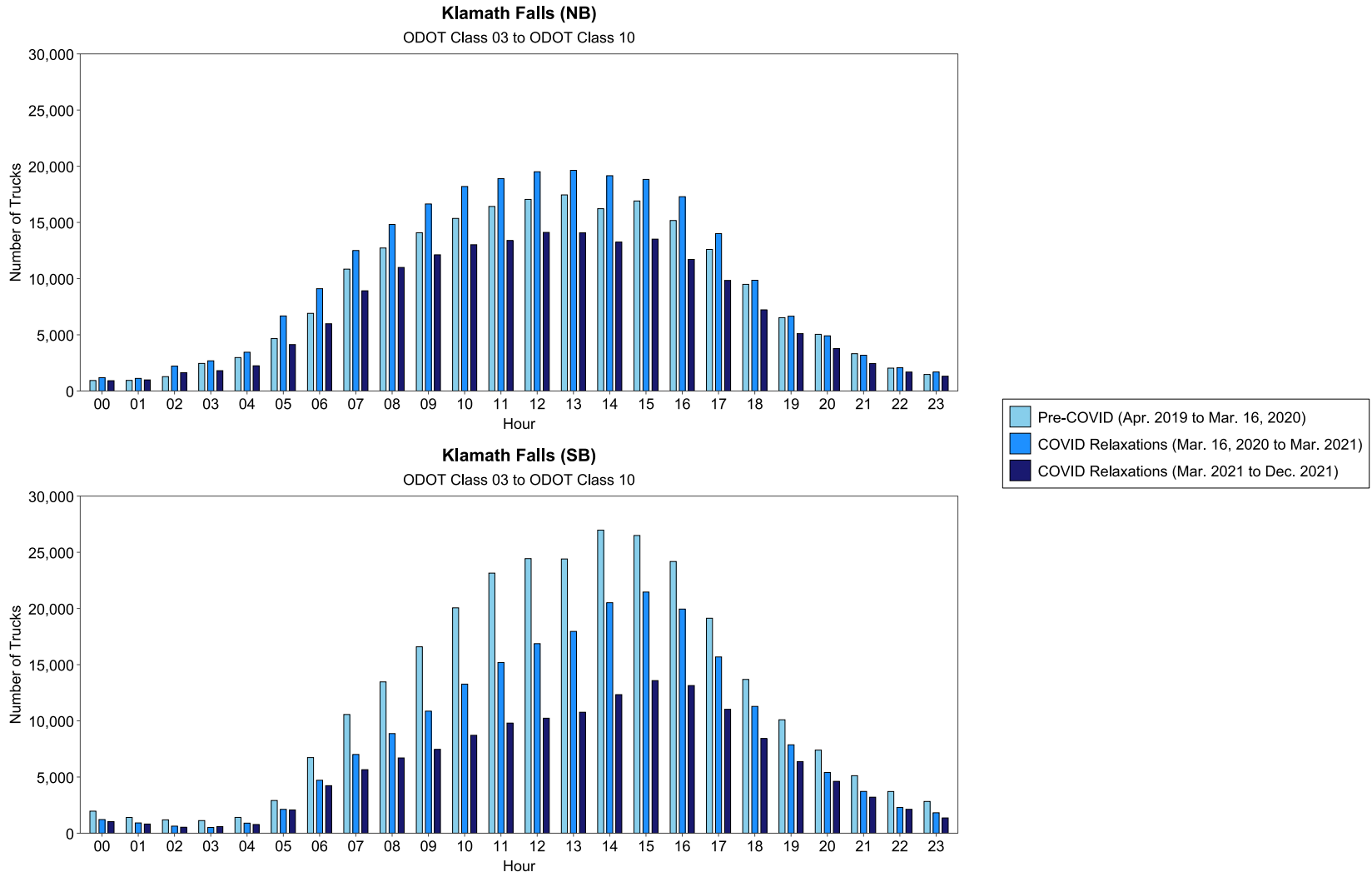
# US-97 WIM STATIONS



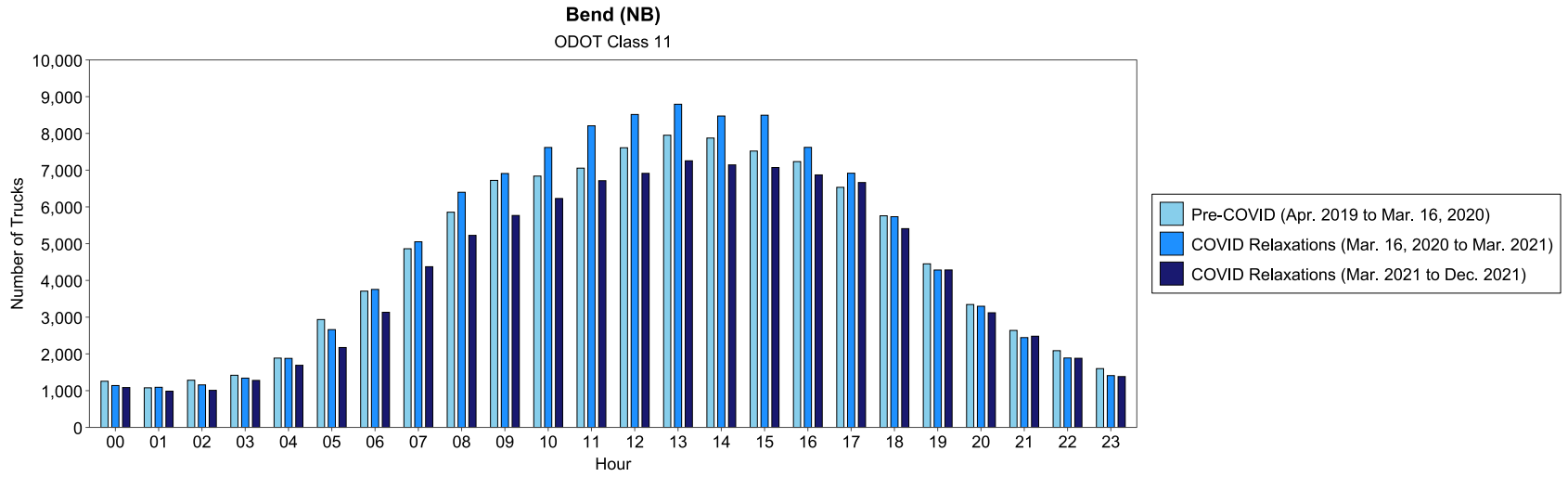
**Figure D.19: Hourly ODOT Class 03 to ODOT Class 10 Truck Counts at Bend WIM Station by Time Period**



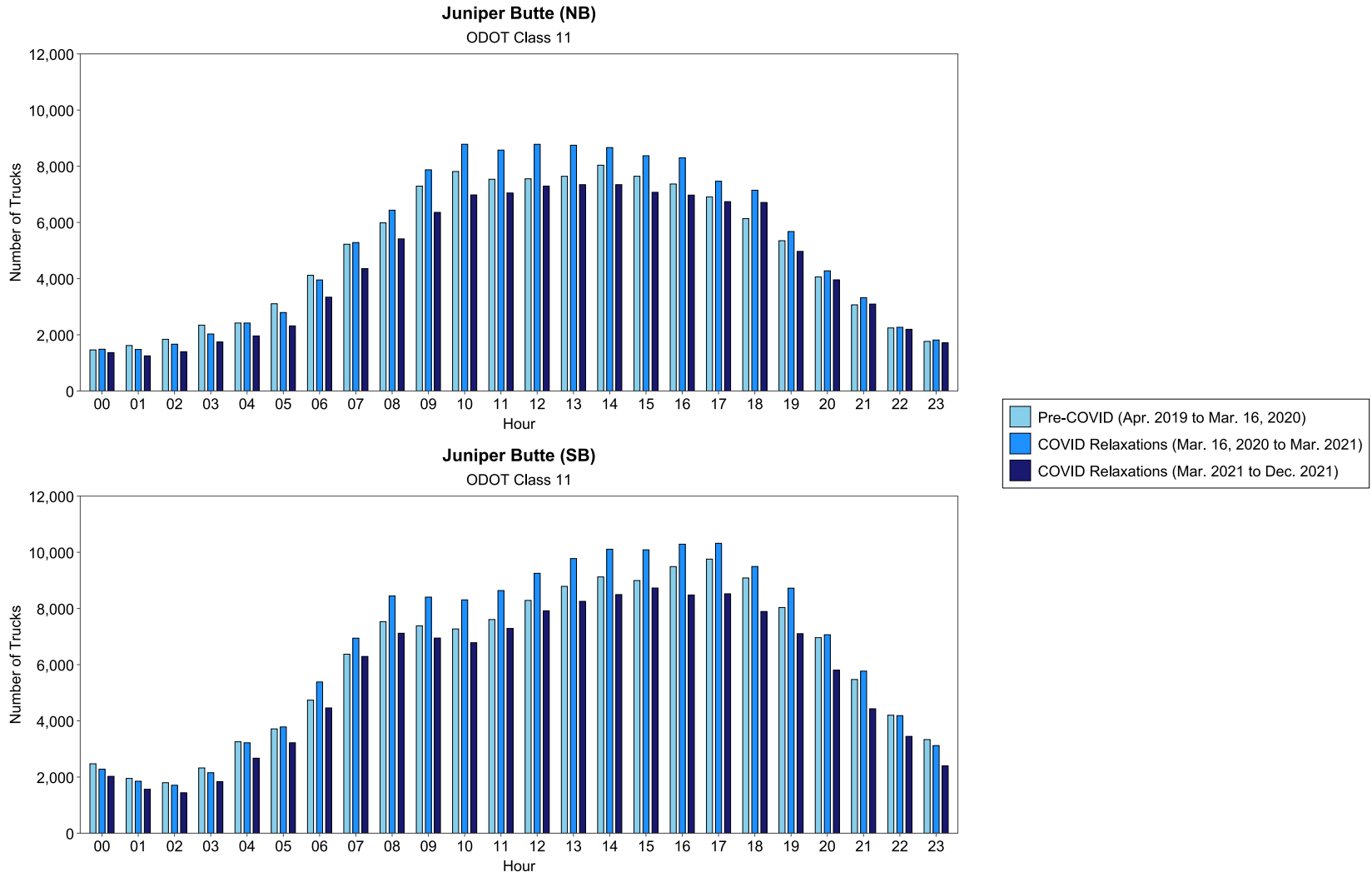
**Figure D.20: Hourly ODOT Class 03 to ODOT Class 10 Truck Counts at Juniper Butte WIM Stations by Time Period**



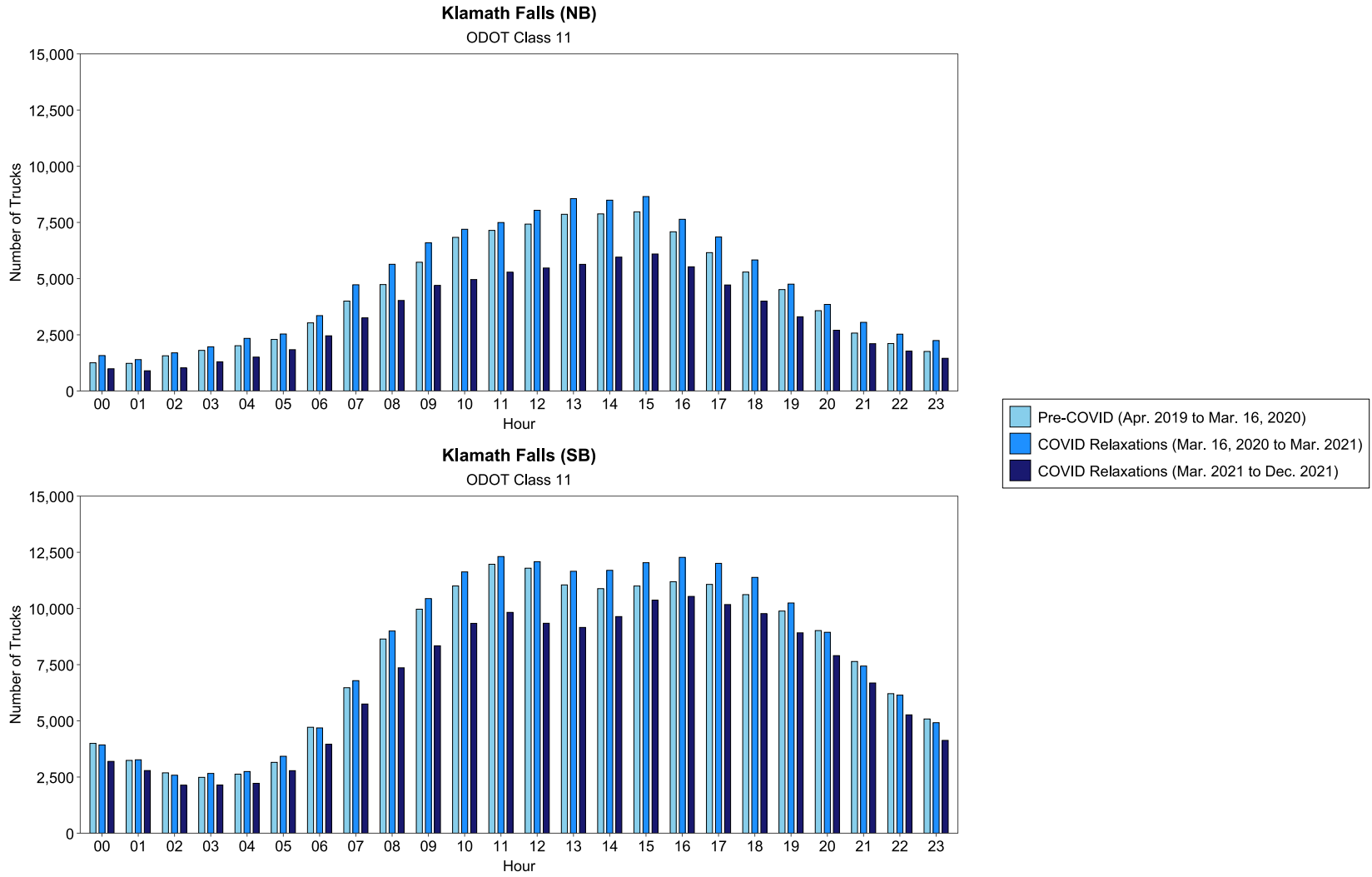
**Figure D.21: Hourly ODOT Class 03 to ODOT Class 10 Truck Counts at Klamath Falls WIM Stations by Time Period**



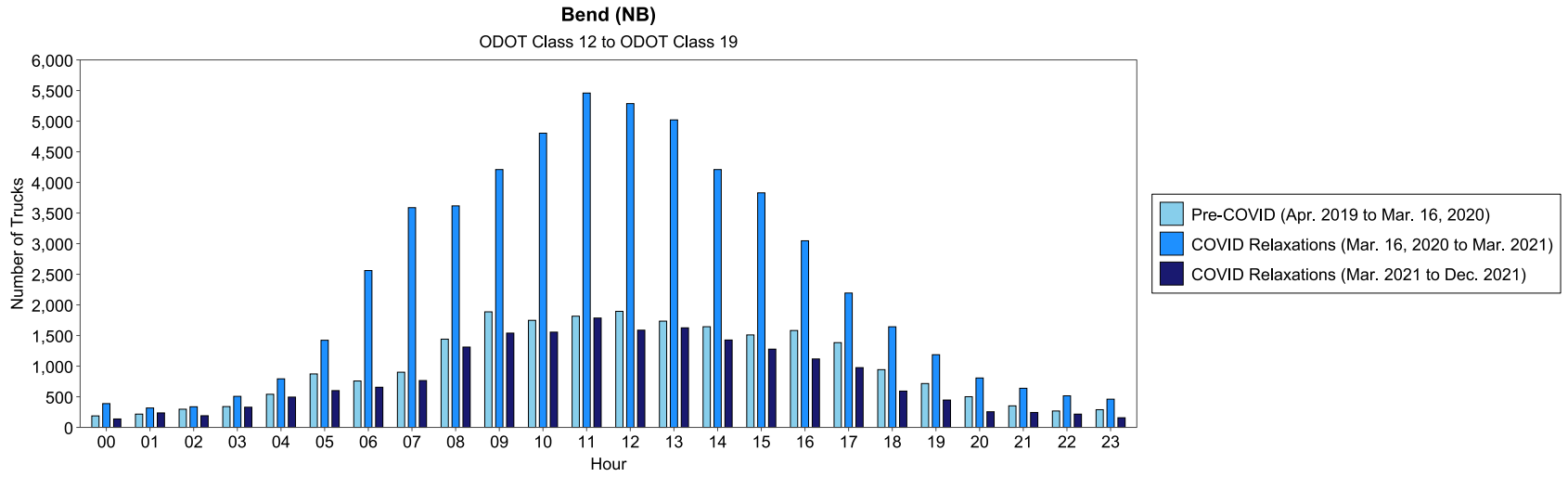
**Figure D.22: Hourly ODOT Class 11 Truck Counts at Bend WIM Station by Time Period**



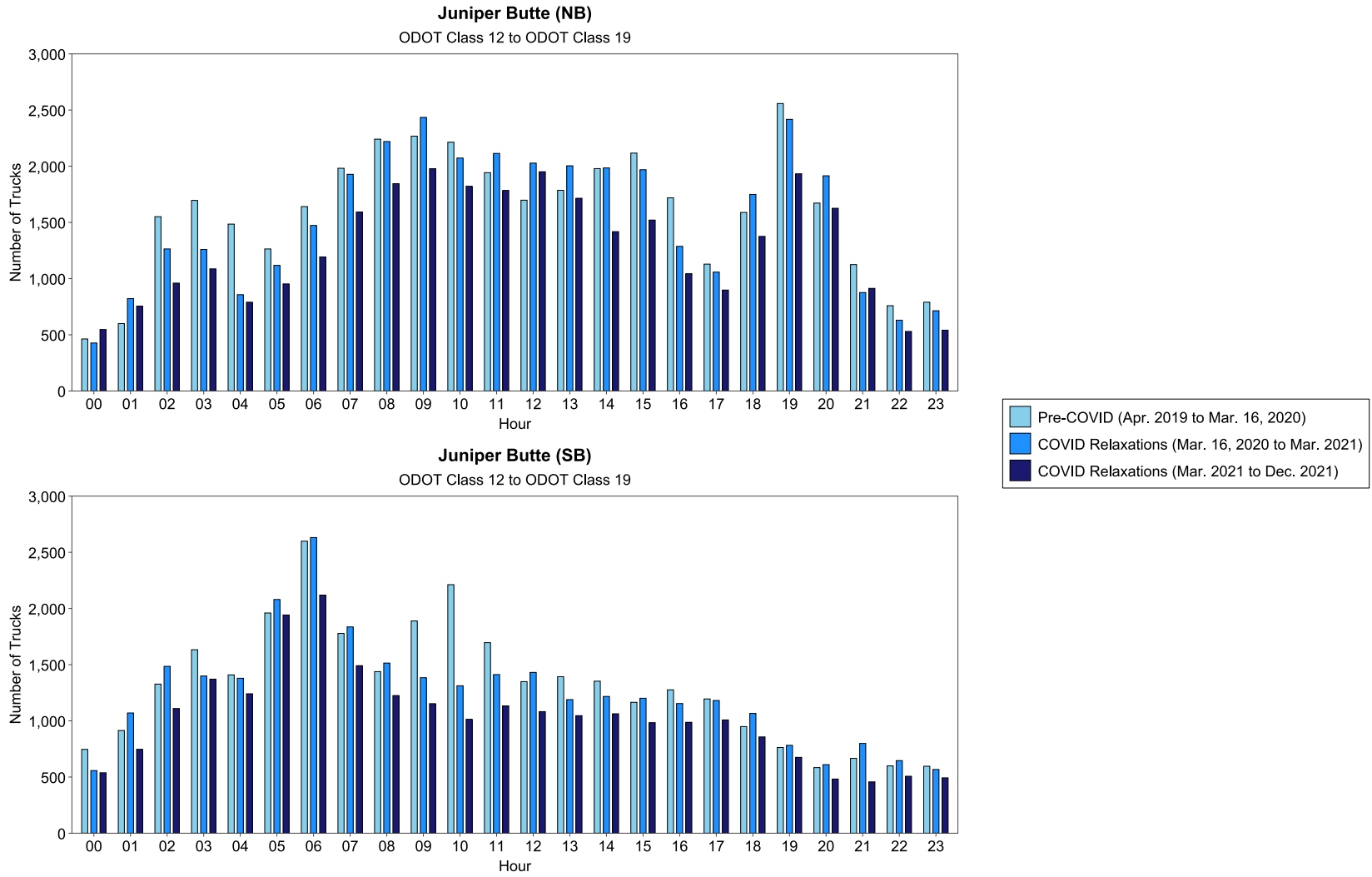
**Figure D.23: Hourly ODOT Class 11 Truck Counts at Juniper Butte WIM Stations by Time Period**



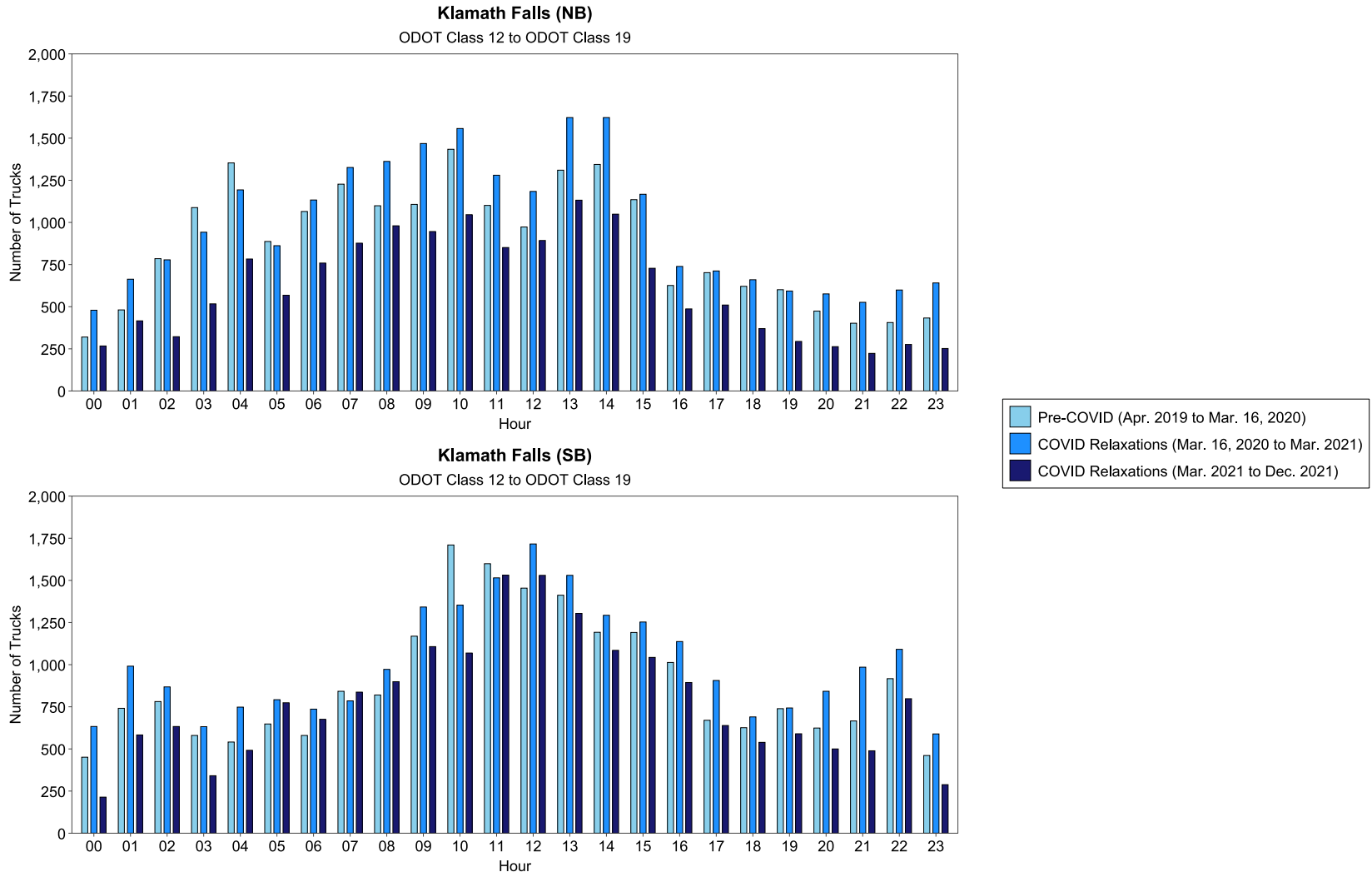
**Figure D.24: Hourly ODOT Class 11 Truck Counts at Klamath Falls WIM Stations by Time Period**



**Figure D.25: Hourly ODOT Class 12 to ODOT Class 19 Truck Counts at Bend WIM Station by Time Period**

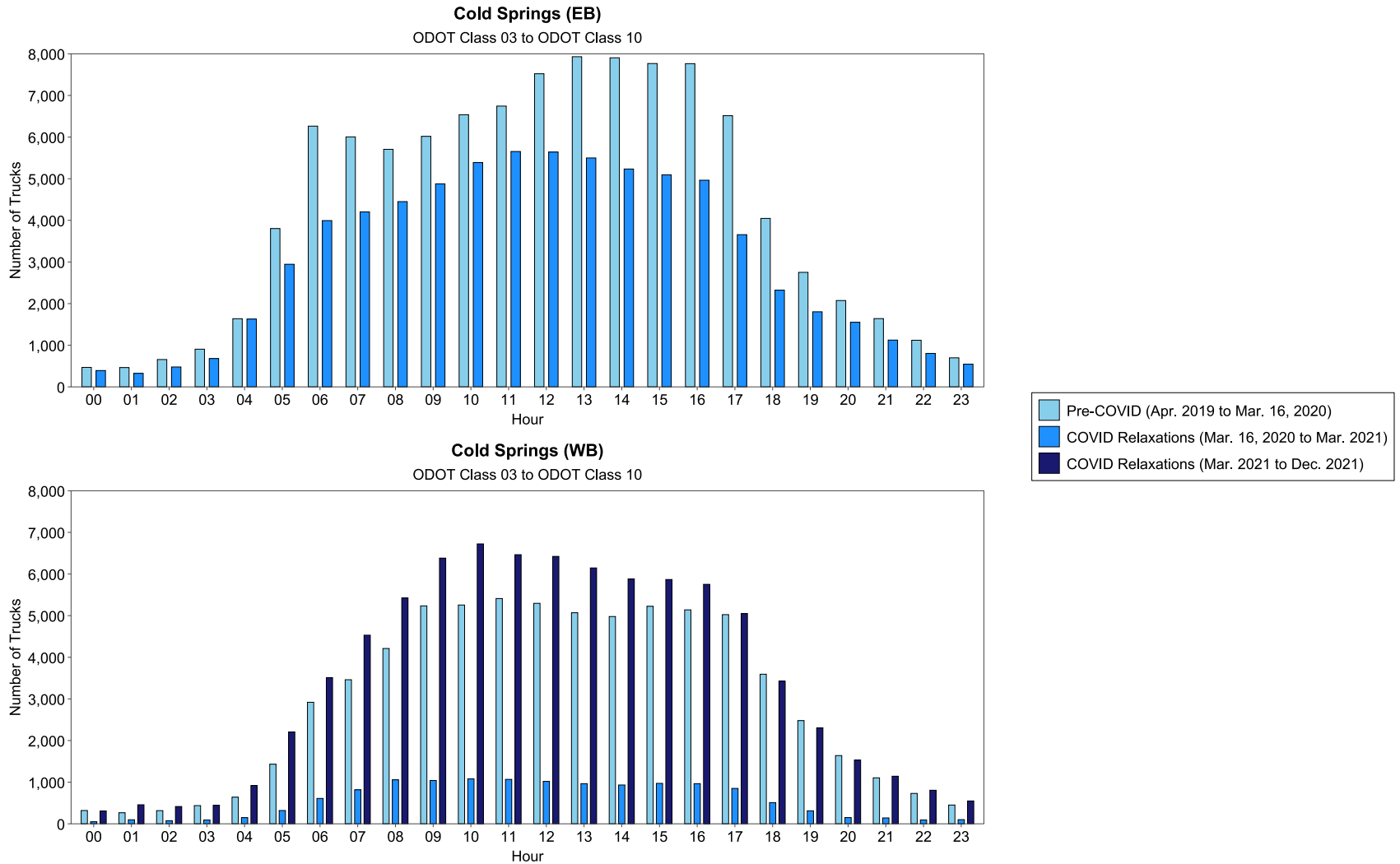


**Figure D.26: Hourly ODOT Class 12 to ODOT Class 19 Truck Counts at Juniper Butte WIM Stations by Time Period**

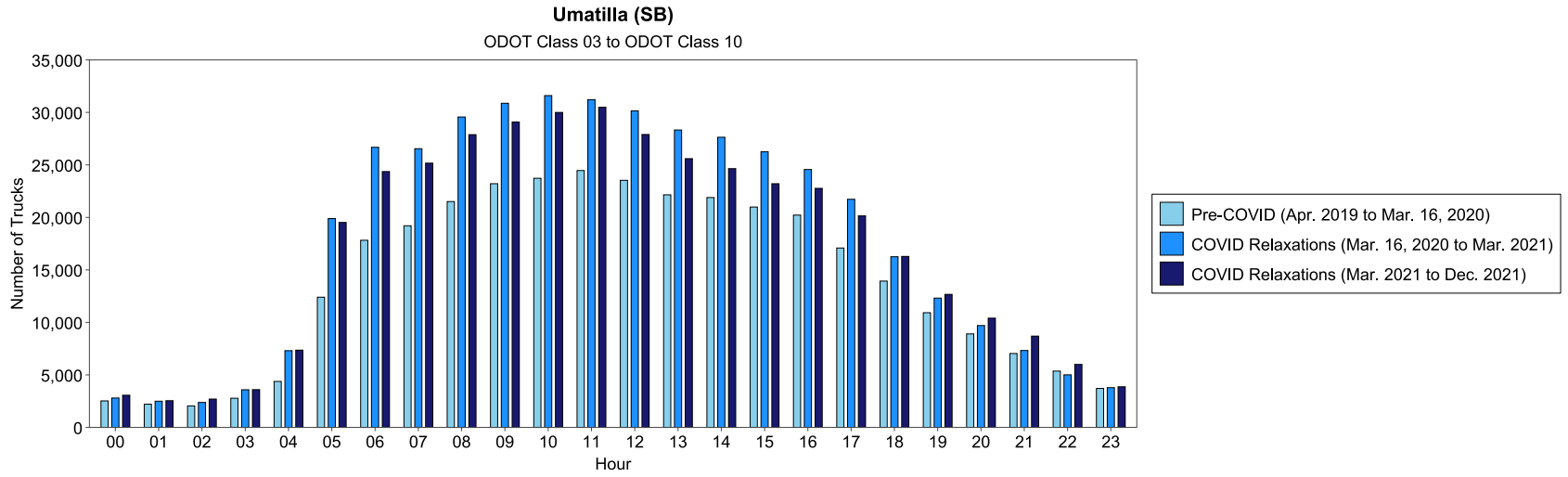


**Figure D.27: Hourly ODOT Class 12 to ODOT Class 19 Truck Counts at Klamath Falls WIM Stations by Time Period**

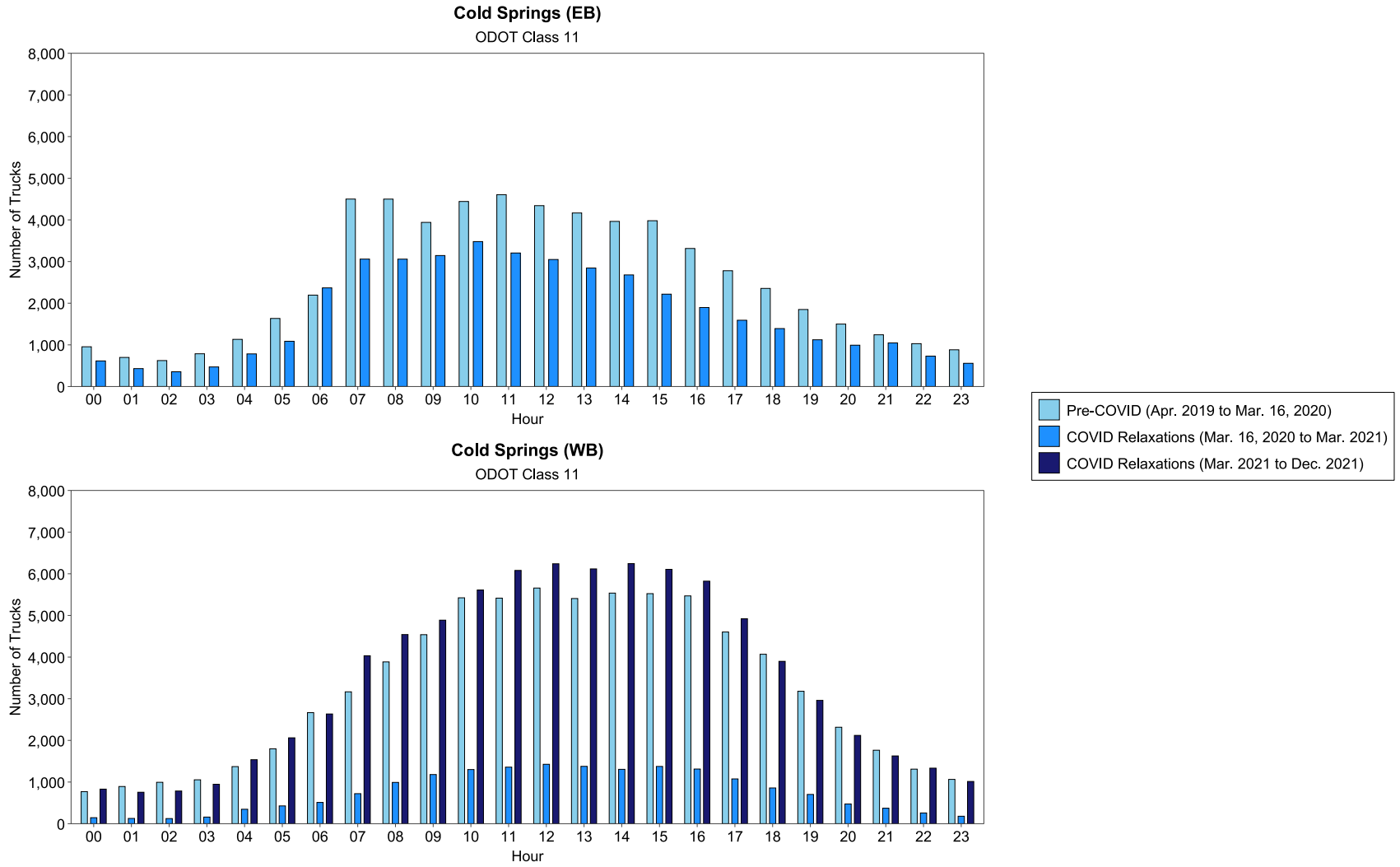
# US-730 WIM STATIONS



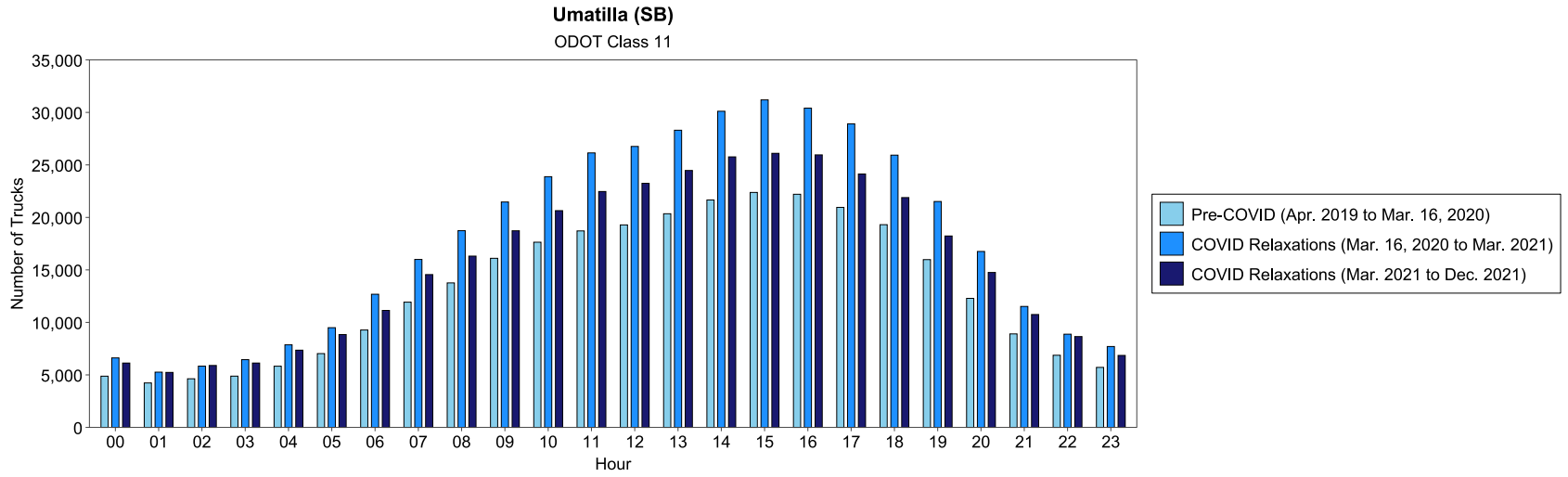
**Figure D.28: Hourly ODOT Class 03 to ODOT Class 10 Truck Counts at Cold Springs WIM Stations by Time Period**



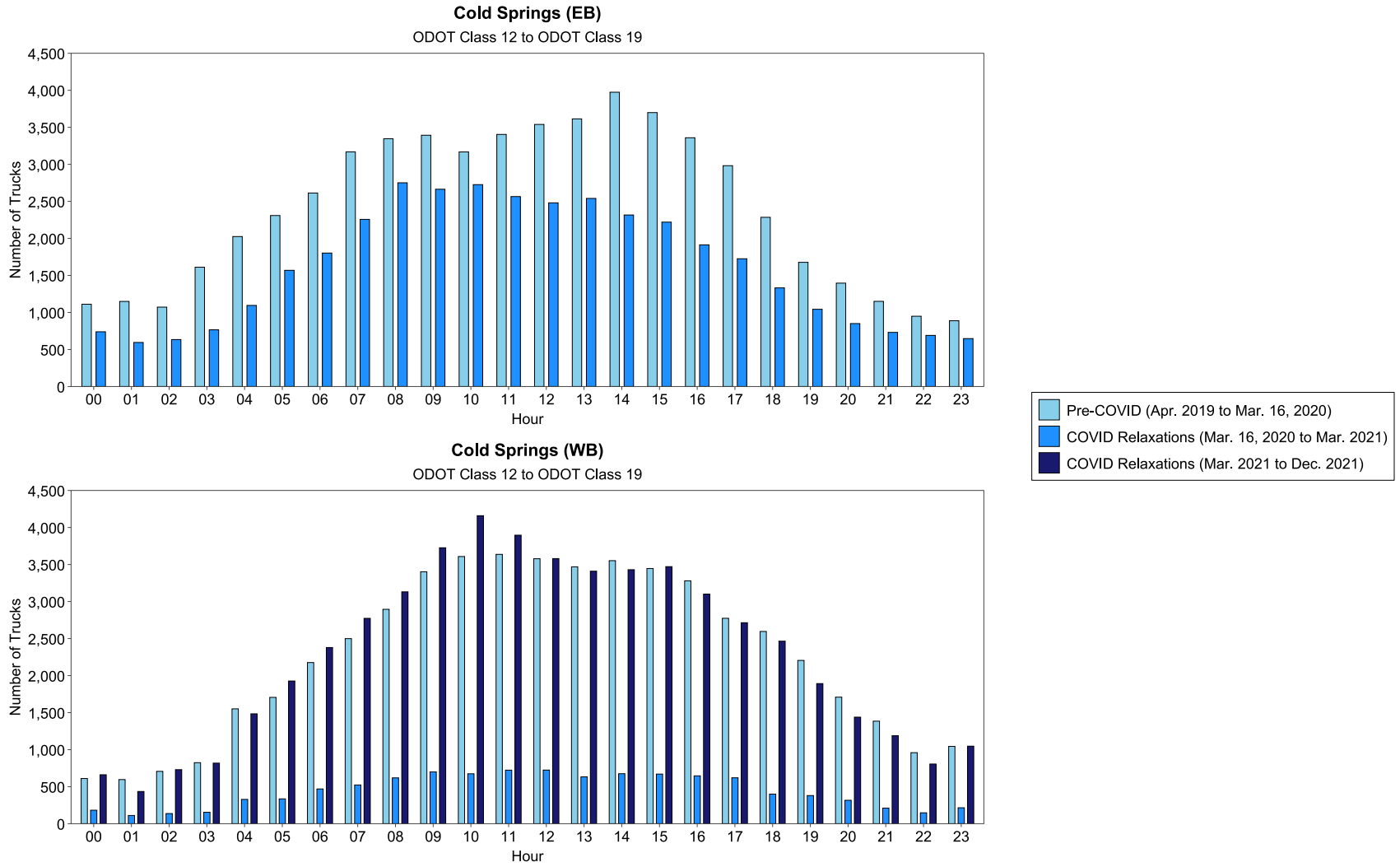
**Figure D.29: Hourly ODOT Class 03 to ODOT Class 10 Truck Counts at Umatilla WIM Station by Time Period**



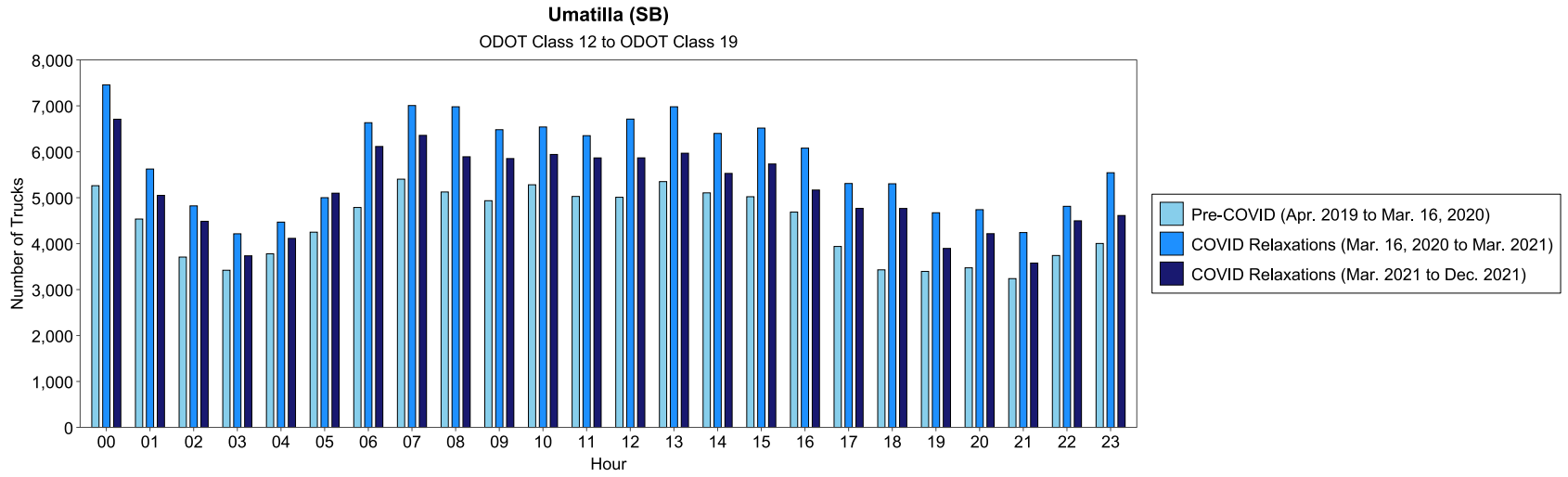
**Figure D.30: Hourly ODOT Class 11 Truck Counts at Cold Springs WIM Stations by Time Period**



**Figure D.31: Hourly ODOT Class 11 Truck Counts at Umatilla WIM Station by Time Period**

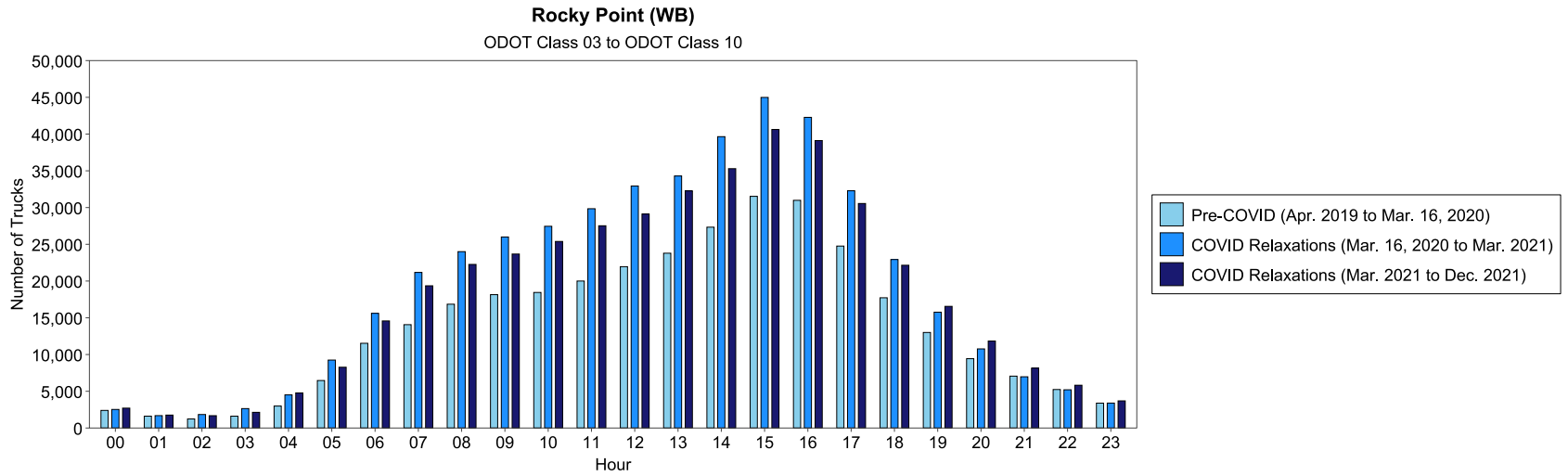


**Figure D.32: Hourly ODOT Class 12 to ODOT Class 19 Truck Counts at Cold Springs WIM Stations by Time Period**

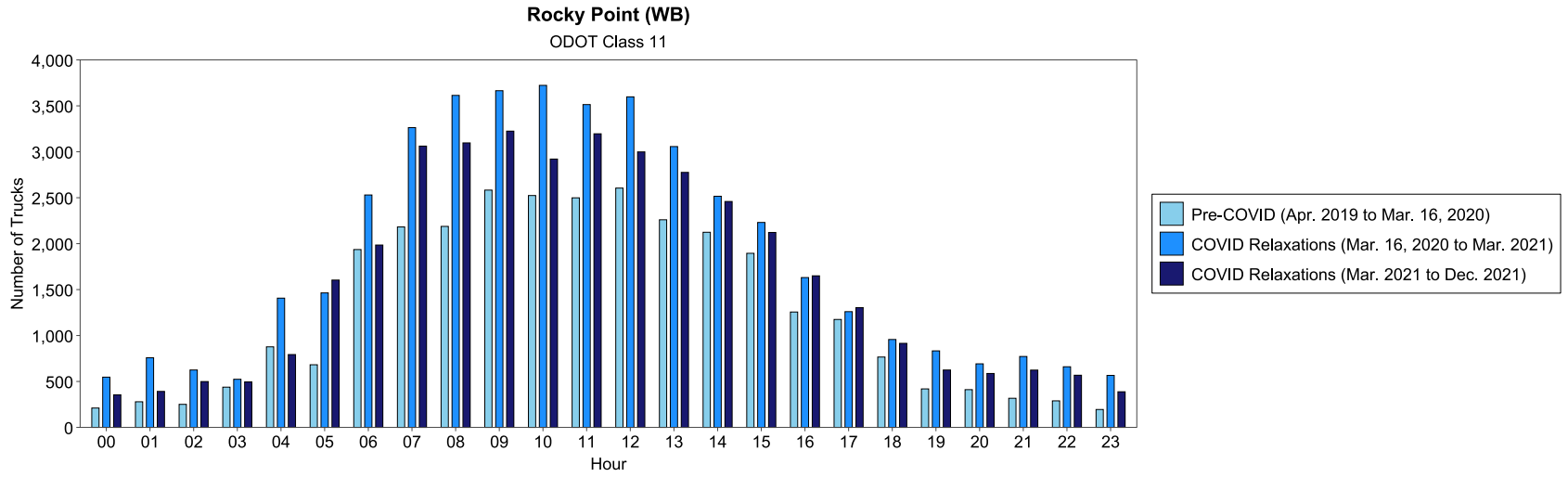


**Figure D.33: Hourly ODOT Class 12 to ODOT Class 19 Truck Counts at Umatilla WIM Station by Time Period**

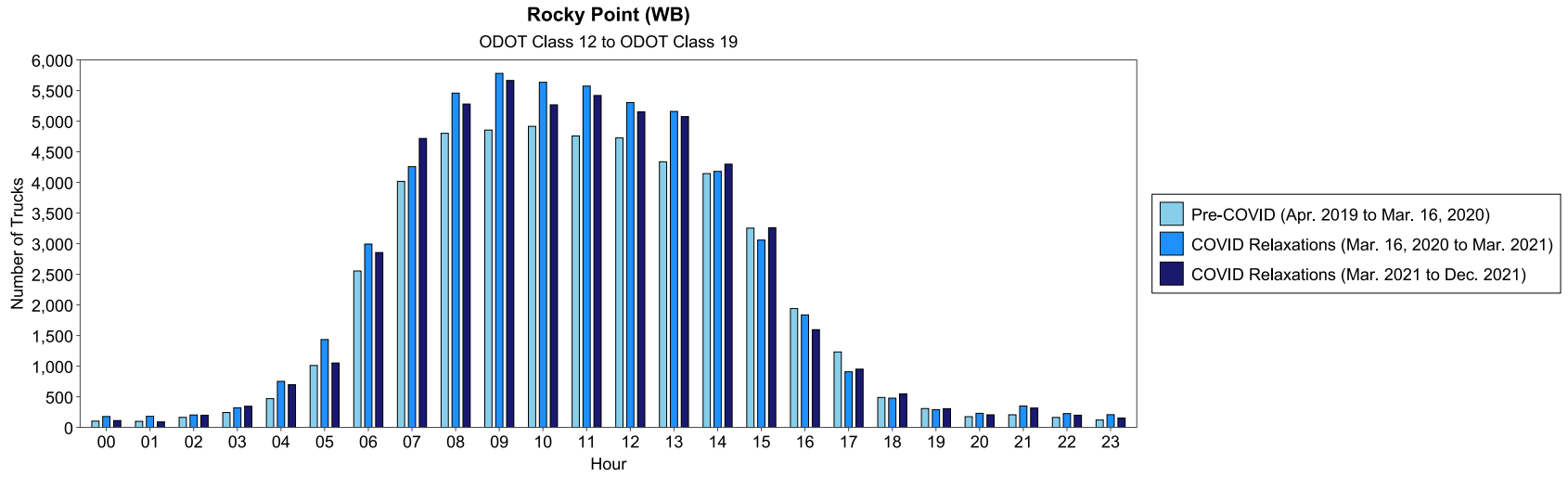
# US-30 WIM STATIONS



**Figure D.34: Hourly ODOT Class 03 to ODOT Class 10 Truck Counts at Rocky Point WIM Station by Time Period**



**Figure D.35: Hourly ODOT Class 11 Truck Counts at Rocky Point WIM Station by Time Period**



**Figure D.36: Hourly ODOT Class 03 to ODOT Class 10 Truck Counts at Rocky Point WIM Station by Time Period**

## **APPENDIX E**

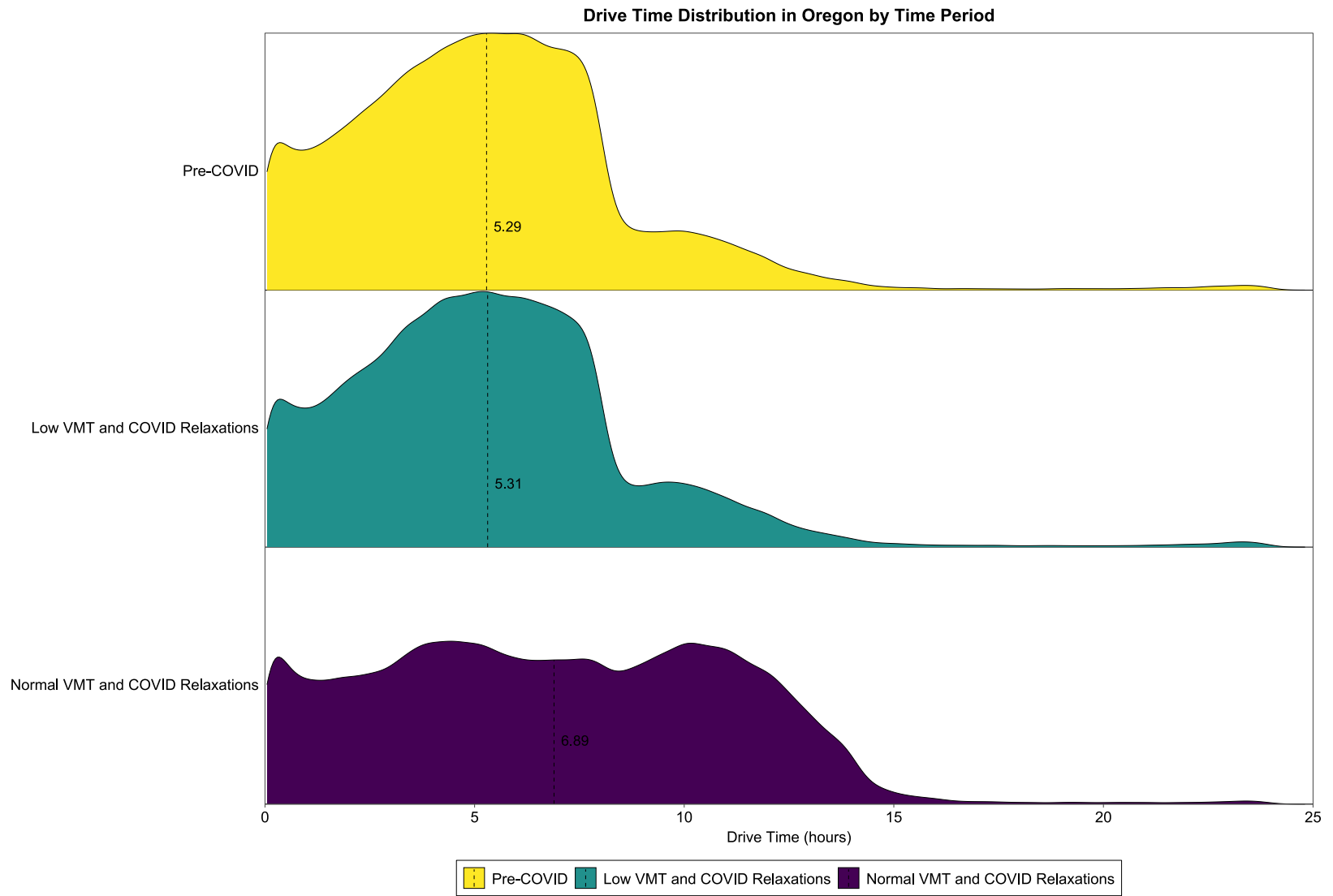
Appendix E presents the results of a descriptive analysis of drive time and remaining hours-of-service during the three time periods considered for the safety analysis. The figures provided illustrate the distribution of each metric for Oregon, in addition to Oregon's neighboring states of Washington, Idaho, and California.

For drive time, there were no notable differences in average drive time between the pre-pandemic period and the pandemic period with low VMT. In Oregon, there was a slight increase. In Washington, there was a slight increase. In Idaho, there was a more moderate increase. In California, there was a slight decrease. The notable differences in average drive time were in the pandemic period with normal VMT, where Oregon and Washington experienced the largest increase.

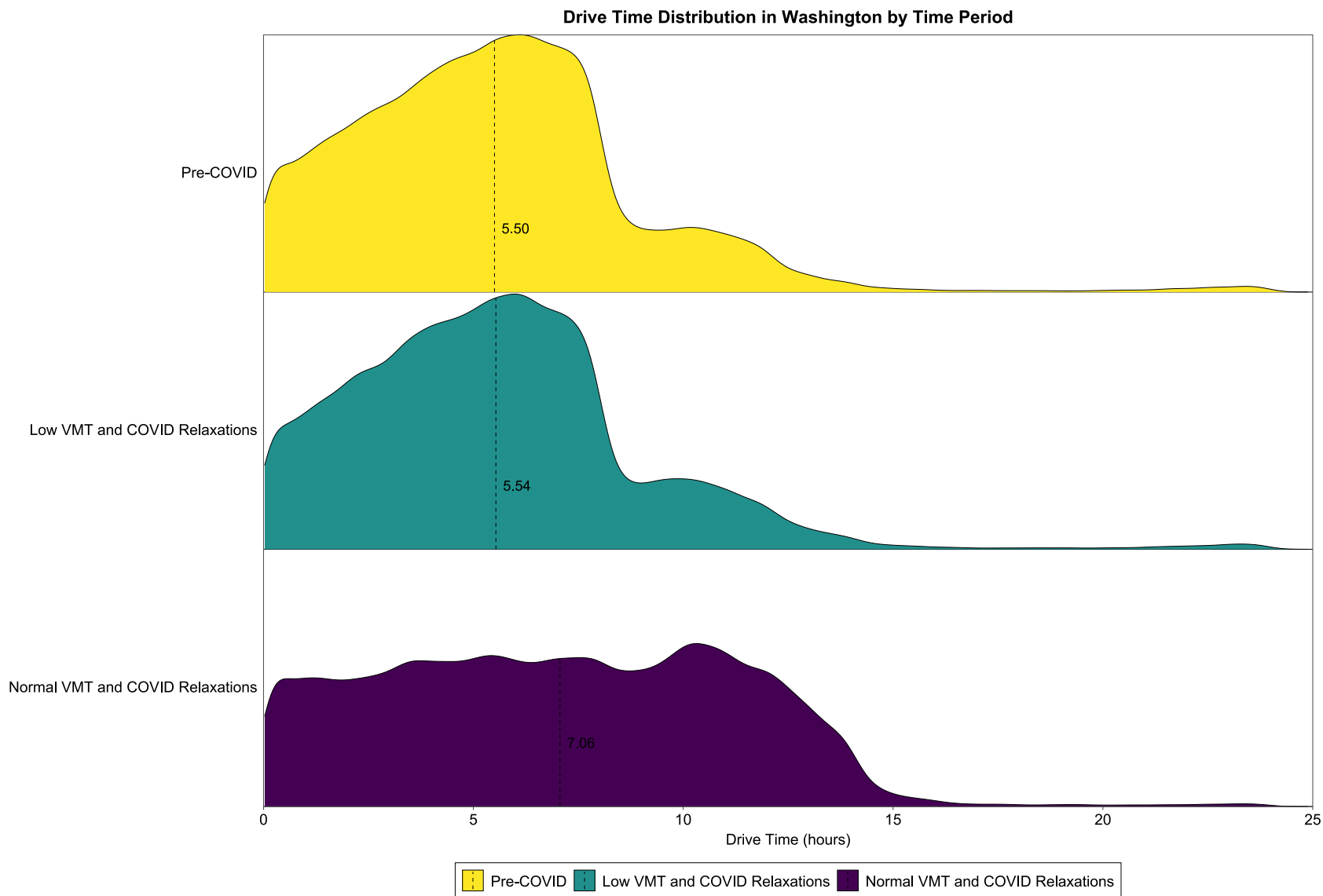
For remaining hours-of-service, trends were similar. There were no notable differences between the pre-pandemic period and the pandemic period with low VMT. In the pandemic period with normal VMT, the lowest average remaining hours-of-service was observed in Oregon (4.87), while Washington and California had the same average (5.00).

Figures begin on the following page. The vertical lines and values on the plots indicate the mean value for the metric being shown.

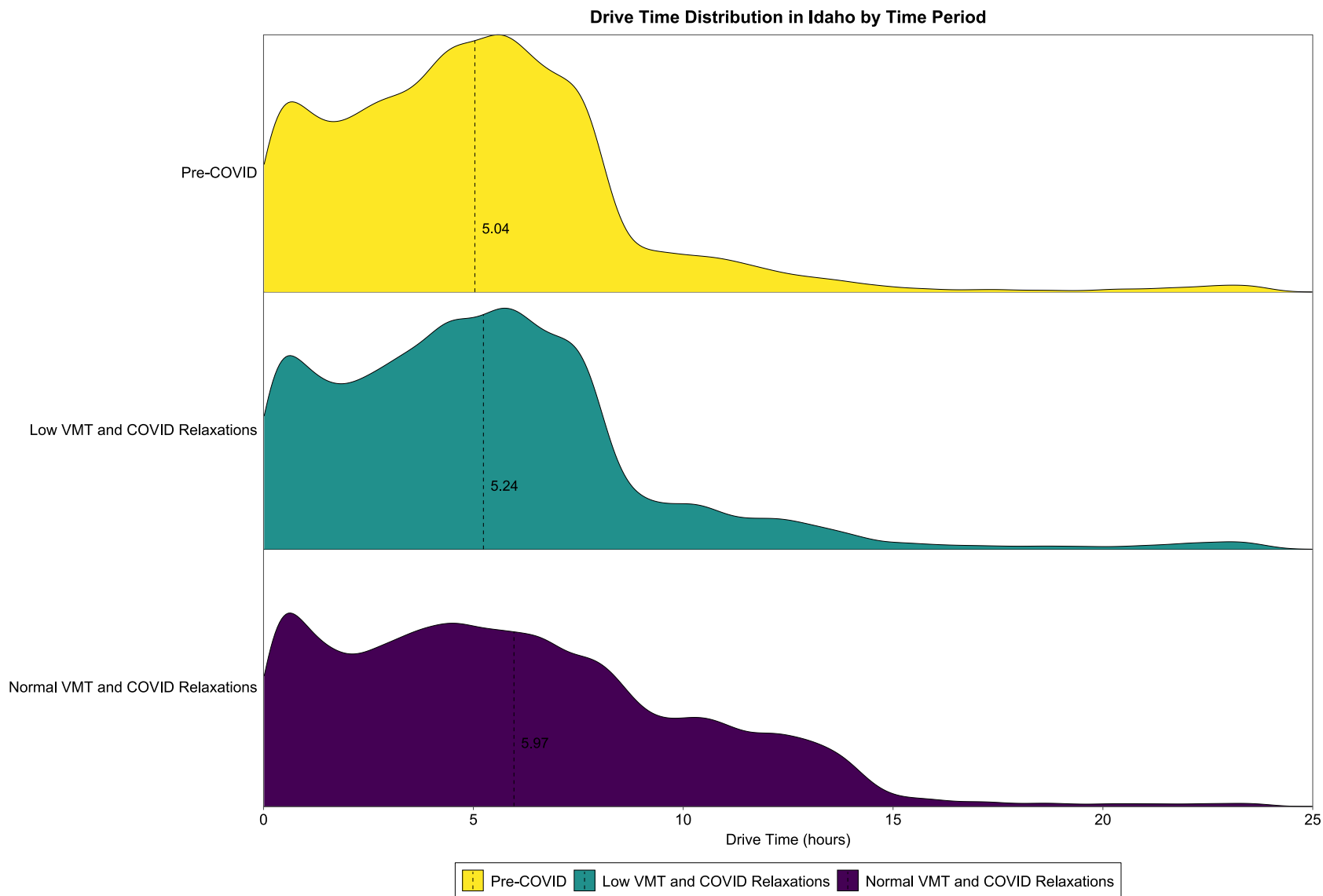
# DRIVE TIME



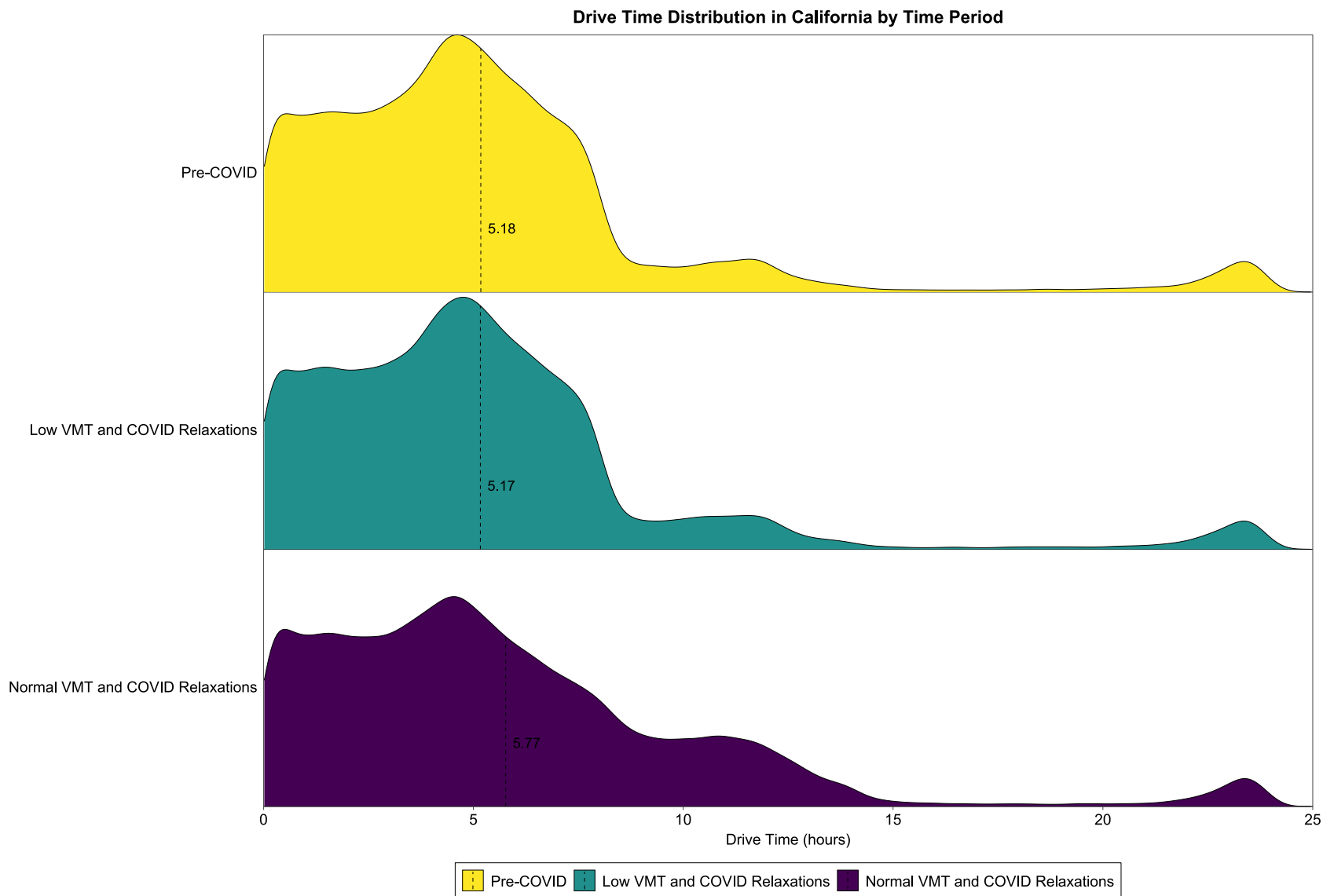
**Figure E.1: Drive Time Distribution and Mean Drive Time in Oregon by Time Period**



**Figure E.2: Drive Time Distribution and Mean Drive Time in Washington by Time Period**

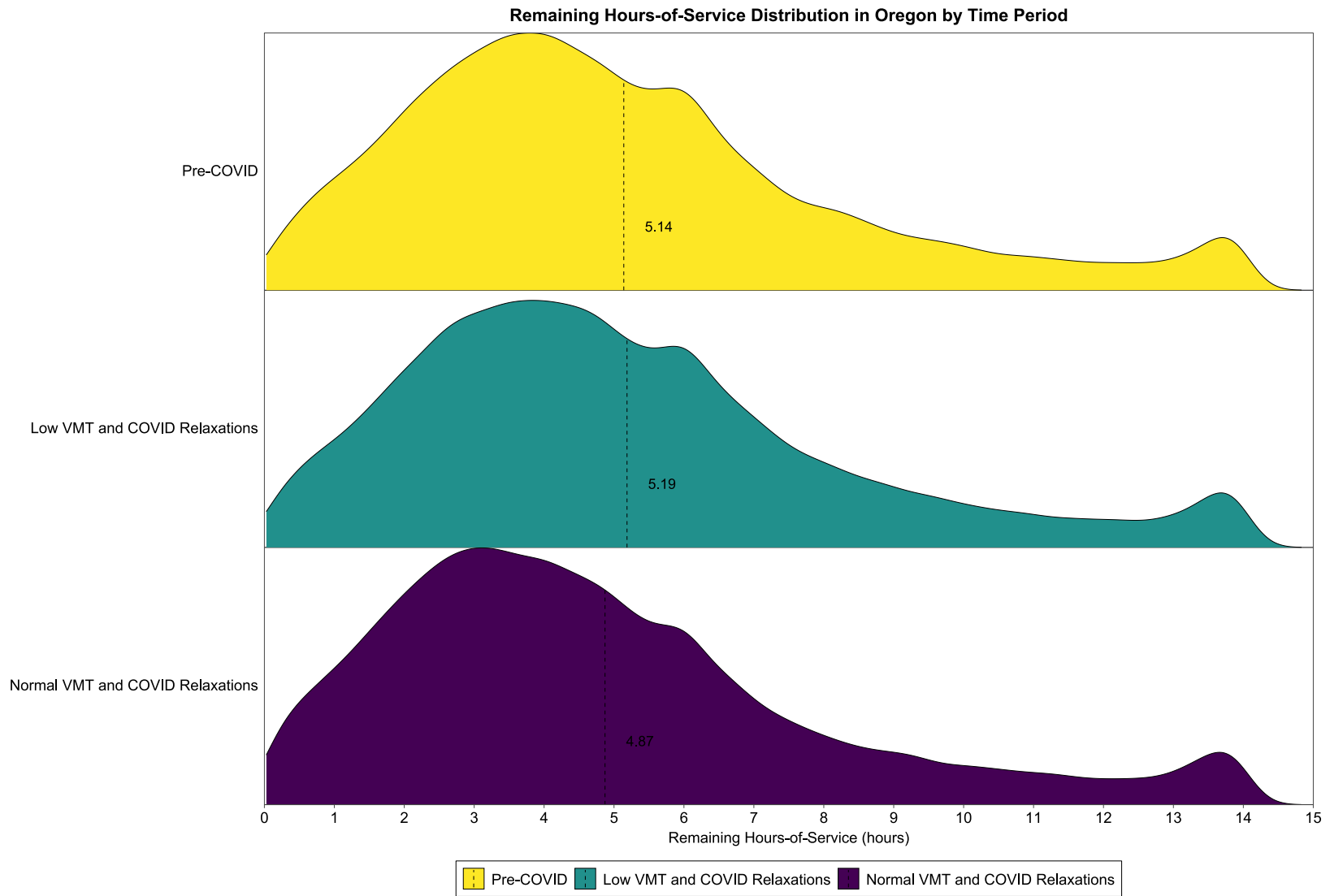


**Figure E.3: Drive Time Distribution and Mean Drive Time in Idaho by Time Period**

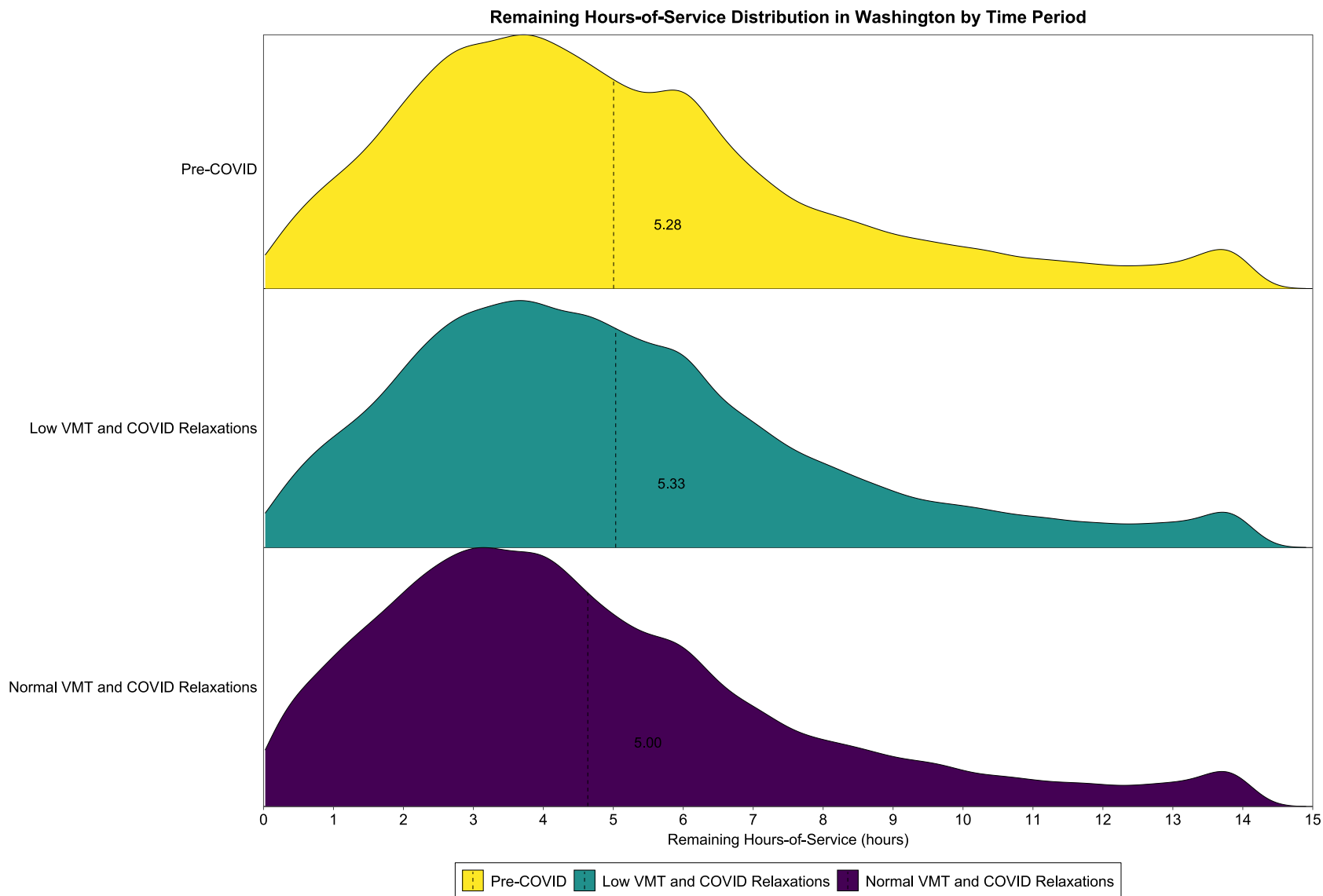


**Figure E.4: Drive Time Distribution and Mean Drive Time in California by Time Period**

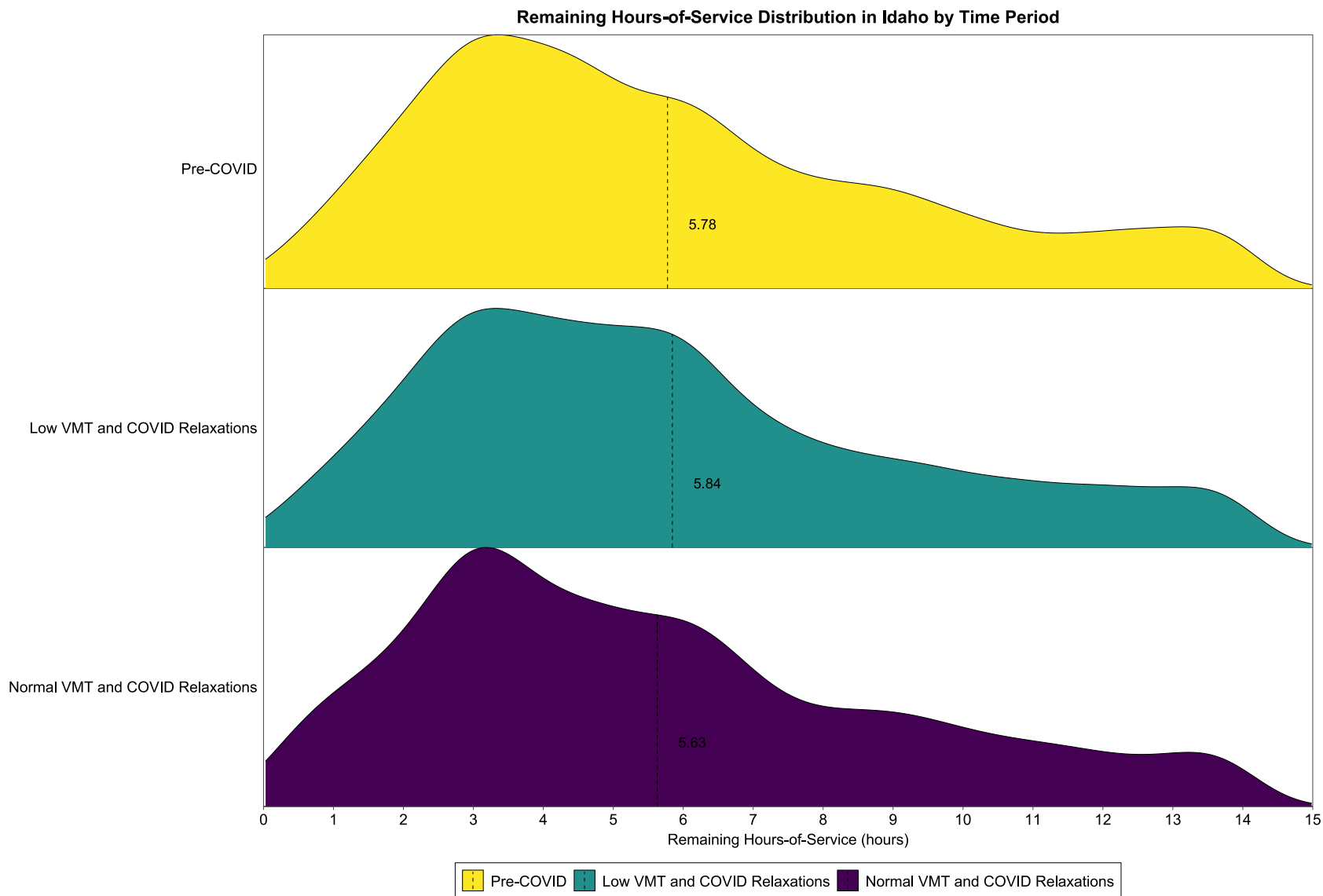
# REMAINING HOURS-OF-SERVICE



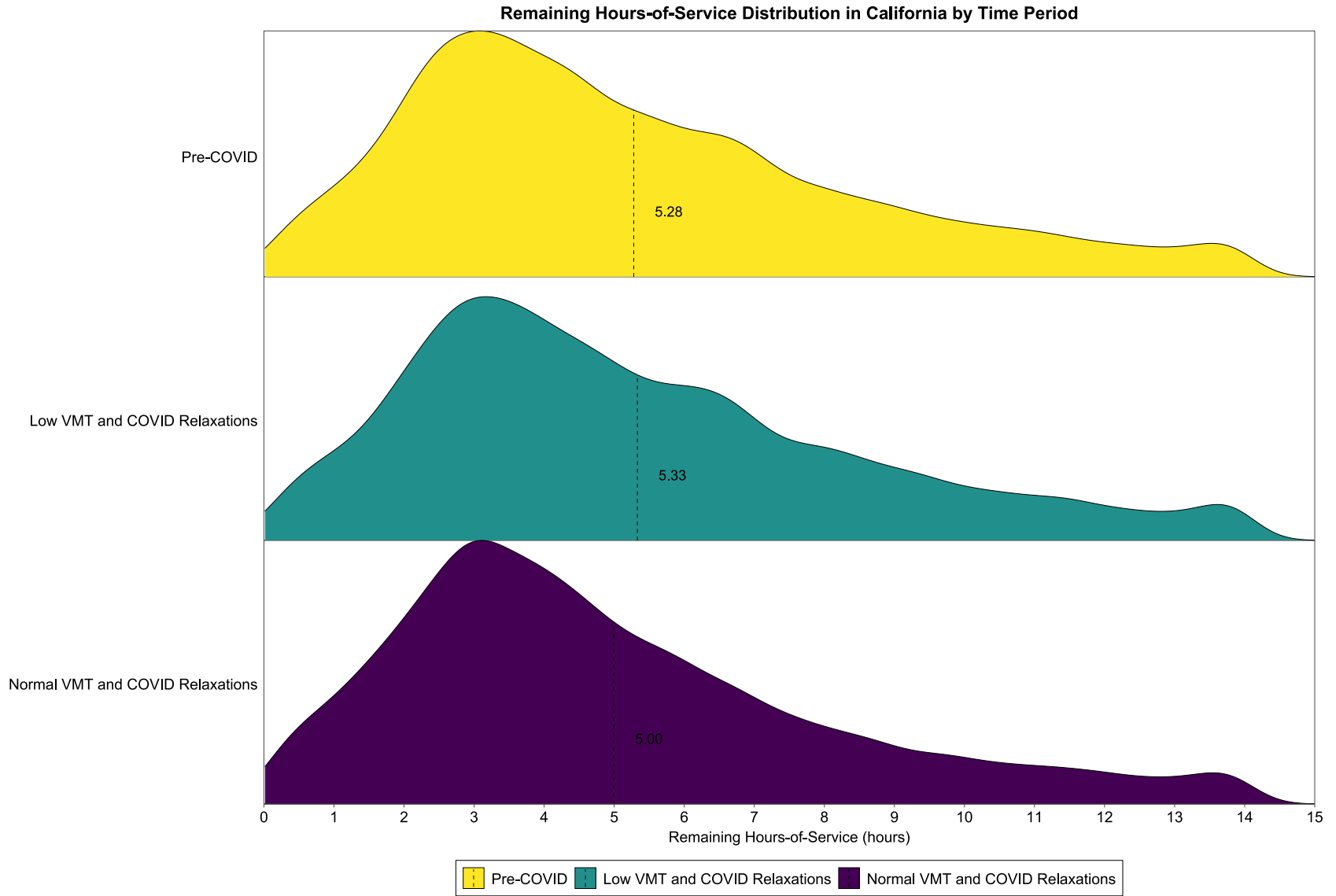
**Figure E.5: Distribution of Remaining Hours-of-Service and Mean Remaining Hours-of-Service in Oregon by Time Period**



**Figure E.6: Distribution of Remaining Hours-of-Service and Mean Remaining Hours-of-Service in Washington by Time Period**



**Figure E.7: Distribution of Remaining Hours-of-Service and Mean Remaining Hours-of-Service in Idaho by Time Period**



**Figure E.8: Distribution of Remaining Hours-of-Service and Mean Remaining Hours-of-Service in California by Time Period**