

District 12 Mobility Performance Report

2020 4th Quarter

DEPARTMENT OF TRANSPORTATION

January 29, 2021

District 12 Traffic Operations Northwest

DISTRICT 12 MOBILITY PERFORMANCE REPORT

2020 4th Quarter

EXECUTIVE SUMMARY

Overview

Caltrans District 12 (Orange County) is located in southern California and is neighbors with District 7 (Los Angeles), District 8 (San Bernardino), and District 11 (San Diego). As of July 2017, the total population in Orange County was 3,190,400. The jurisdictional boundaries of Orange County encompass a metropolitan area of 794 square miles, including 34 cities, and 17 state highway routes. The county has 1,059 lane miles of general purpose lanes and 226 lane miles of High-Occupancy Vehicle (HOV) lanes, which is one of California's largest HOV lane networks. Orange County is the third most populous county in California, the sixth-most populous in the United States, and more populous than twenty-one U.S. states. Its county seat is Santa Ana. It is the second most densely populated county in the state.

The Mobility Performance quarterly analysis compares information from the most recent quarter and the previous 4 quarters, involving the following performance measures:

- Vehicle Miles of Travel (VMT)
- Vehicle Hours of Delay (VHD)
- Lost Lane Miles (LLM)
- Detector Health

This information is based on data collected every day of the quarter, twenty-four hours a day, by automated vehicle detector stations deployed on urban-area freeways where congestion is regularly experienced. The MPR uses congestion at two speed thresholds: delay from vehicles traveling below 35 MPH and delay from vehicles traveling below 60 mph. The 35 MPH limit

represents severe congestion while the 60 MPH limit represents light and heavy congestion. These thresholds/limits are set by Caltrans and are based upon engineering experience and District input.

FINDINGS

In the 4th quarter, of 2020, total delay equaled to 0.64 million vehicle hours of delay (VHD) at the 35mph speed threshold and 2.85 million VHD at 60mph threshold. Compared to the second quarter, there was a 69.4 percent increase in 35mph VHD and 61.8 percent increase in 60mph VHD.

The average weekday VHD experienced in this quarter was approximately 8 thousands VHD at 35mph and 40 thousands VHD at 60mph. Compared to the third quarter, there was 37.8 percent increase in 35 mph VHD and 21.1 percent increase in 60 mph VHD.

Top 10 Bottlenecks for the 4th Quarter of 2020

Co	Shift	Fwy	Dir	Abs PM	CA PM	Latitude	Longitude	# Days Active	Avg Extent (Miles)	Total Delay (veh-hrs)	Total Duration (mins)
Ora	PM	I405	N	13.51	13.74	33.70	-117.95	51	2.24	27,199.10	5,375.00
Ora	PM	I5	N	100.35	28.1	33.72	-117.80	59	3.62	24,277.90	10,275.00
Ora	PM	I405	N	11.37	11.6	33.69	-117.92	50	0.40	16,683.90	8,630.00
Ora	AM	I5	S	105.19	33	33.77	-117.87	54	0.73	16,130.10	6,775.00
Ora	PM	I405	N	16.53	16.76	33.73	-117.99	61	0.70	13,849.10	11,450.00
Ora	PM	SR91	E	34.14	R15.793	33.87	-117.72	52	2.51	12,170.00	4,935.00
Ora	PM	SR91	W	28.55	R10.14	33.85	-117.81	57	1.03	10,910.00	6,070.00
Ora	PM	I5	N	100.35	28.1	33.72	-117.80	50	0.85	10,768.70	6,820.00
Ora	PM	I405	N	15.16	15.39	33.72	-117.97	57	0.50	10,148.20	10,060.00
Ora	PM	SR55	N	8.12	R8.12	33.71	-117.85	58	1.31	10,026.30	6,155.00

2020 Q4 Quarterly Mobility Statistics

Measure	Graph	Percentage Change									
Vehicle Miles of Travel (VMT)	<p>Miles (Billions)</p> <table border="1"> <tr><th>Year</th><th>Q4</th></tr> <tr><td>2019</td><td>3.25</td></tr> <tr><td>2020</td><td>2.82</td></tr> <tr><td>2020</td><td>2.84</td></tr> </table>	Year	Q4	2019	3.25	2020	2.82	2020	2.84	Over one year ago	Over last quarter
		Year	Q4								
2019	3.25										
2020	2.82										
2020	2.84										
		-12.6%	0.5%								
Total Vehicle Hours of Delay (VHD) at 35 mph	<p>Hours (Millions)</p> <table border="1"> <tr><th>Year</th><th>Q4</th></tr> <tr><td>2019</td><td>2.1</td></tr> <tr><td>2020</td><td>0.5</td></tr> <tr><td>2020</td><td>0.6</td></tr> </table>	Year	Q4	2019	2.1	2020	0.5	2020	0.6	Over one year ago	Over last quarter
		Year	Q4								
2019	2.1										
2020	0.5										
2020	0.6										
		-69.5%	28%								
Average Non-Holiday Weekday Vehicle Hours of Delay (VHD) at 35 mph	<p>Hours (Thousands)</p> <table border="1"> <tr><th>Year</th><th>Q4</th></tr> <tr><td>2019</td><td>31</td></tr> <tr><td>2020</td><td>6</td></tr> <tr><td>2020</td><td>8</td></tr> </table>	Year	Q4	2019	31	2020	6	2020	8	Over one year ago	Over last quarter
		Year	Q4								
2019	31										
2020	6										
2020	8										
		-72.3%	37.8%								
Total Vehicle Hours of Delay (VHD) at 60 mph	<p>Hours (Millions)</p> <table border="1"> <tr><th>Year</th><th>Q4</th></tr> <tr><td>2019</td><td>6.2</td></tr> <tr><td>2020</td><td>2.5</td></tr> <tr><td>2020</td><td>2.9</td></tr> </table>	Year	Q4	2019	6.2	2020	2.5	2020	2.9	Over one year ago	Over last quarter
		Year	Q4								
2019	6.2										
2020	2.5										
2020	2.9										
		-54.2%	15.1%								
Average Non-Holiday Weekday Vehicle Hours of Delay (VHD) at 60 mph	<p>Hours (Thousands)</p> <table border="1"> <tr><th>Year</th><th>Q4</th></tr> <tr><td>2019</td><td>88</td></tr> <tr><td>2020</td><td>33</td></tr> <tr><td>2020</td><td>40</td></tr> </table>	Year	Q4	2019	88	2020	33	2020	40	Over one year ago	Over last quarter
		Year	Q4								
2019	88										
2020	33										
2020	40										
		-55%	21.1%								

Measure	Graph	Percentage Change	
Average Vehicle Hours of Delay by Day of Week at 60 mph	<p>Hours (Thousands)</p> <p>■ 2019 Q4 ■ 2020 Q3 ■ 2020 Q4</p>	Largest Magnitude Decrease over one year ago	Largest Magnitude Decrease over last quarter
		Friday -54.6% ↓	Saturday -14.9% ↓
		Largest Magnitude Increase over one year ago	Largest Magnitude Increase over last quarter
		-	Thursday 28.8% ↑
Average Vehicle Hours of Delay by Hour of Day at 35 mph, Weekdays	<p>Hours (Thousands)</p> <p>— Weekday (2019 Q4) — Weekday (2020 Q3) — Weekday (2020 Q4)</p>	Largest Magnitude Weekday Decrease over one year ago	Largest Magnitude Weekday Decrease over last quarter
		5 PM -75.8% ↓	5 AM -23.4% ↓
		Largest Magnitude Weekday Increase over one year ago	Largest Magnitude Weekday Increase over last quarter
		3 AM 150.2% ↑	5 PM 64.7% ↑
Average Vehicle Hours of Delay by Hour of Day at 35 mph, Saturdays	<p>Hours (Thousands)</p> <p>— Saturday (2019 Q4) — Saturday (2020 Q3)</p>	Largest Magnitude Saturday Decrease over one year ago	Largest Magnitude Saturday Decrease over last quarter
		5 PM -79.7% ↓	12 PM -66% ↓
		Largest Magnitude Saturday Increase over one year ago	Largest Magnitude Saturday Increase over last quarter
		11 PM 66.5% ↑	5 PM 20.9% ↑
Average Vehicle Hours of Delay by Hour of Day at 35 mph, Sundays/Holidays	<p>Hours (Thousands)</p> <p>— Sunday/Holiday (2019 Q4) — Sunday/Holiday (2020 Q3) — Sunday/Holiday (2020 Q4)</p>	Largest Magnitude Sun./Holiday Decrease over one year ago	Largest Magnitude Sun./Holiday Decrease over last quarter
		4 PM -33.4% ↓	6 AM -4.7% ↓
		Largest Magnitude Sun./Holiday Increase over one year ago	Largest Magnitude Sun./Holiday Increase over last quarter
		11 AM 29.6% ↑	5 PM 153.3% ↑

Measure	Graph	Percentage Change	
Total Vehicle Hours of Delay (VHD) by County at 35 mph	<p>Hours (Millions)</p> <p>■ 2019 Q4 ■ 2020 Q3 ■ 2020 Q4</p> <p>Orange</p>	Largest Magnitude Decrease over one year ago	Largest Magnitude Decrease over last quarter
		Orange -69.5% ↓	-
Average Non-Holiday Weekday Equivalent Lost Lane Mile Hours at 35 mph	<p>Miles</p> <p>■ 2019 Q4 ■ 2020 Q3 ■ 2020 Q4</p> <p>AM Peak (6 AM to 10 AM) Off-Peak Day (10 AM to 3 PM) PM Peak (3 PM to 7 PM) Off-Peak Night (7 PM to 6 AM)</p>	Largest Magnitude Decrease over one year ago	Largest Magnitude Decrease over last quarter
		PM Peak -65.5% ↓	Off-Peak Day -3.4% ↓
		Largest Magnitude Increase over one year ago	Largest Magnitude Increase over last quarter
		Off-Peak Night 0.5% ↑	PM Peak 34.3% ↑
Average Number of Good and Bad Detectors	<p>Number of Detectors</p> <p>■ Average of Good ■ Average of Bad</p> <p>2019 Q4 2020 Q3 2020 Q4</p>	Change in Good over one year ago	Change in Good over last quarter
		-35% ↓	-32% ↓
		Change in Bad over one year ago	Change in Bad over last quarter
		-6% ↓	11% ↑

Congestion by Route

Route	County	Vehicle Hours of Delay at 35 mph			Difference 2020 Q4-2019 Q4		Difference 2020 Q4-2020 Q3		Rank		
		2019 Q4	2020 Q3	2020 Q4	Absolute	Percentage	Absolute	Percentage	2019 Q4	2020 Q3	2020 Q4
		SR91	Orange	345,495	147,772	188,132	-157,363	-45.5%	40,360	27.3%	3
I5	Orange	528,946	127,369	173,883	-355,063	-67.1%	46,514	36.5%	1	2	2
I405	Orange	471,857	59,778	93,118	-378,740	-80.3%	33,339	55.8%	2	4	3
SR55	Orange	323,434	43,058	57,826	-265,607	-82.1%	14,769	34.3%	4	5	4
SR57	Orange	152,316	62,138	53,220	-99,096	-65.1%	-8,917	-14.4%	5	3	5
SR22	Orange	106,308	33,397	40,148	-66,160	-62.2%	6,751	20.2%	6	6	6
SR73	Orange	92,510	15,031	20,844	-71,667	-77.5%	5,812	38.7%	7	7	7
SR241	Orange	36,479	3,925	5,696	-30,783	-84.4%	1,771	45.1%	8	8	8
I605	Orange	9,425	1,846	1,648	-7,777	-82.5%	-198	-10.7%	9	10	9
SR133	Orange	9,213	2,233	957	-8,257	-89.6%	-1,276	-57.2%	10	9	10
SR142	Orange	4,630	534	832	-3,797	-82.0%	298	55.8%	11	11	11
SR74	Orange	3,662	171	25	-3,637	-99.3%	-147	-85.6%	12	12	12
SR261	Orange	456	51	9	-447	-98.1%	-42	-83.3%	13	13	13
SR1	Orange	0	0	0	0		0				
TOTALS		2,084,730	497,303	636,337	-1,448,393	-69.5%	139,034	28.0%			