

District 03 Mobility Performance Report

2020 Fourth Quarter

DEPARTMENT OF TRANSPORTATION

January 13, 2021
Office of Freeway Operations

District 03 Mobility Performance Report

2020 Fourth Quarter

EXECUTIVE SUMMARY

Overview

Caltrans District 3 is comprised of eleven counties located in Northern California. Most of the congestion and delay on the state highway system takes place in the urbanized areas of Sacramento, Yolo and Placer counties.

The Mobility Performance Report (MPR) quarterly analysis compares information from this quarter with information from the previous quarter and the prior year. The following performance measures were used to quantify freeway congestion in District 3 as well as to compare the different quarters:

- Bottleneck Locations
- Vehicle Miles of Travel (VMT)
- Vehicle Hours of Delay (VHD)
- Lost Lane Miles (equivalent lost productivity)
- Detector Health

This information is based on data collected by automated vehicle detector stations deployed on urban area freeways from the Caltrans Performance Measurement System (PeMS) every day of the quarter, twenty-four hours a day, where congestion is regularly experienced. The MPR presents congestion information for two speed thresholds: delay from vehicles traveling below 35 miles per hour (mph), and delay from vehicles traveling below 60 mph. The delay at the 35-mph threshold represents severe congestion while delay at 60 mph represents all congestion, both light and heavy. These thresholds are set by Caltrans and are based upon traffic engineering experience and District 3 Office of Freeway Operations input.

FINDINGS

In the fourth quarter of 2020, there is a decrease in delay due to new restrictions of the Shelter In Home order. The total delay on the freeways in District 3 equaled 0.48 million vehicle hours of delay (VHD) below the 35-mph speed threshold and 1.78 million VHD below 60-mph threshold. The average delay experienced on weekdays in this quarter was approximately 6,000 of VHD below 35-mph, and 23,000 of VHD below 60-mph. SR-51 was the worst performing freeway in District 3 with 84,010 of VHD caused by several bottlenecks and construction activities.

Vehicle Miles of Travel (VMT) decreased by 7.4% with a total of 2.06 billion miles when compared to the previous quarter (2.23 billion miles). The VHD below the 60-mph speed threshold decreased by 6.1% during the same quarter. This relationship indicates the travel demand and delay has decreased because of the new Shelter-In-Place order. See graphs on page 4 for details.

Top Ten Bottlenecks for the Fourth Quarter of 2020

County	Fwy	Name	Type	Shift	Abs PM	CA PM	Latitude	Longitude	# Days Active	Avg Extent (Miles)	Total Delay (veh-hrs)	Total Duration (mins)
Sacramento	SR51-S	EB Exposition Bl	ML	PM	3.33	3.326	38.60	-121.44	56	1.58	23,524	8,640
Placer	SR65-S	Pleasant Grove Blvd	ML	PM	66.91	R7.189	38.79	-121.29	59	1.55	18,960	9,890
El Dorado	US50-E	Missouri Flat Rd	ML	PM	43.39	14.853	38.71	-120.84	61	1.10	16,921	14,750
Yolo	I80-E	80EB at Mace Blvd	ML	PM	74.90	2.714	38.55	-121.69	45	1.96	16,812	5,640
El Dorado	US50-E	Midway Rd	ML	PM	107.96	79.801	38.95	-119.95	61	3.78	13,965	18,285
Sacramento	SR51-N	North of A St	ML	PM	2.09	2.092	38.58	-121.46	57	1.58	13,307	4,265
Yuba	SR70-E	Feather River Blvd	ML	PM	19.31	R11.064	39.12	-121.57	16	5.63	12,470	1,435
Placer	I80-W	EB Douglas Blvd	ML	PM	103.38	1.876	38.74	-121.27	55	1.06	9,950	6,265
Sacramento	SR51-N	30 & E St	ML	PM	1.50	1.5	38.58	-121.46	59	0.97	9,726	4,865
Sacramento	I5-S	55B at Laguna Blvd	ML	PM	507.49	12.193	38.43	-121.49	28	1.38	6,386	2,710

Notes:

- For the table above, the quarterly delay calculation was based upon a 60-mph threshold, for the a.m. or p.m. weekday peak period.
- Missouri Flat Rd/US50 E near El Dorado shows up on the Top Bottleneck locations for the first time. Reason cannot be determined at this time because it is not a major traffic origin/designation area. Caltrans will investigate the cause for bottlenecking.
- In continued efforts to help relieve congestion and allow safe merging during high traffic demand periods, the California Department of Transportation (Caltrans) has updated the traffic demand and ramp metering will be activated 24/7, including holidays when

minimum traffic thresholds are met. The ramp meters will be active every day including weekends and holidays.

- SR-51 an I-80 WB (Mace Blvd to Longview Dr) ramp meter operation has been upgraded to 24/7 on-demand ramp metering.
- Caltrans District 3 has plans to construct High Occupancy Vehicle (HOV) lanes on US-50, and SR-51 in Sacramento County, I-80 in Yolo County and SR-65 in Placer County. These projects are expected to reduce delay at some of the nearby bottlenecks identified above.
- The HOV lane projects on I-5 is under construction right now.
- The project on SR 65/I-80 interchange is currently under construction for Phase 1. This phase includes reconstructing the WB I-80 connector to NB SR-65 to increase capacity and includes reconstructing the Stanford Ranch/Galleria IC improvements. The remainder of the SR 65 project is not currently funded. US-50 were nominated for SB-1 funding in 2017. The HOV project on SR 51 is currently funding for PA&ED.
- Our district is preparing to use the information in this report to prioritize funding for projects in the SHOPP mobility programs.

Quarterly Mobility Statistics

Measure	Graph	Percentage Change									
Vehicle Miles of Travel (VMT)	<p>Miles (Billions)</p> <table border="1"> <tr><th>Quarter</th><th>Value</th></tr> <tr><td>2019 Q4</td><td>2.48</td></tr> <tr><td>2020 Q3</td><td>2.23</td></tr> <tr><td>2020 Q4</td><td>2.06</td></tr> </table>	Quarter	Value	2019 Q4	2.48	2020 Q3	2.23	2020 Q4	2.06	Over one year ago	Over last quarter
		Quarter	Value								
		2019 Q4	2.48								
2020 Q3	2.23										
2020 Q4	2.06										
-16.7%	-7.4%										
		↓	↓								
Total Vehicle Hours of Delay (VHD) at 35 mph	<p>Hours (Millions)</p> <table border="1"> <tr><th>Quarter</th><th>Value</th></tr> <tr><td>2019 Q4</td><td>1.58</td></tr> <tr><td>2020 Q3</td><td>0.45</td></tr> <tr><td>2020 Q4</td><td>0.48</td></tr> </table>	Quarter	Value	2019 Q4	1.58	2020 Q3	0.45	2020 Q4	0.48	Over one year ago	Over last quarter
		Quarter	Value								
		2019 Q4	1.58								
2020 Q3	0.45										
2020 Q4	0.48										
-69.4%	7.3%										
		↓	↑								
Average Non-Holiday Weekday Vehicle Hours of Delay (VHD) at 35 mph	<p>Hours (Thousands)</p> <table border="1"> <tr><th>Quarter</th><th>Value</th></tr> <tr><td>2019 Q4</td><td>23</td></tr> <tr><td>2020 Q3</td><td>5</td></tr> <tr><td>2020 Q4</td><td>6</td></tr> </table>	Quarter	Value	2019 Q4	23	2020 Q3	5	2020 Q4	6	Over one year ago	Over last quarter
		Quarter	Value								
		2019 Q4	23								
2020 Q3	5										
2020 Q4	6										
-75.2%	10.9%										
		↓	↑								
Total Vehicle Hours of Delay (VHD) at 60 mph	<p>Hours (Millions)</p> <table border="1"> <tr><th>Quarter</th><th>Value</th></tr> <tr><td>2019 Q4</td><td>3.89</td></tr> <tr><td>2020 Q3</td><td>1.89</td></tr> <tr><td>2020 Q4</td><td>1.78</td></tr> </table>	Quarter	Value	2019 Q4	3.89	2020 Q3	1.89	2020 Q4	1.78	Over one year ago	Over last quarter
		Quarter	Value								
		2019 Q4	3.89								
2020 Q3	1.89										
2020 Q4	1.78										
-54.3%	-6.1%										
		↓	↓								
Average Non-Holiday Weekday Vehicle Hours of Delay (VHD) at 60 mph	<p>Hours (Thousands)</p> <table border="1"> <tr><th>Quarter</th><th>Value</th></tr> <tr><td>2019 Q4</td><td>56</td></tr> <tr><td>2020 Q3</td><td>23</td></tr> <tr><td>2020 Q4</td><td>23</td></tr> </table>	Quarter	Value	2019 Q4	56	2020 Q3	23	2020 Q4	23	Over one year ago	Over last quarter
		Quarter	Value								
		2019 Q4	56								
2020 Q3	23										
2020 Q4	23										
-58.7%	-1.1%										
		↓	↓								

Measure	Graph	Percentage Change	
<p>Average Vehicle Hours of Delay by Day of Week at 60 mph</p>		<p>Largest Magnitude Decrease over one year ago</p>	<p>Largest Magnitude Decrease over last quarter</p>
		<p>Wednesday -62% ↓</p>	<p>Sun/Hol -35.9% ↓</p>
		<p>Largest Magnitude Increase over one year ago</p>	<p>Largest Magnitude Increase over last quarter</p>
		<p>-</p>	<p>Wednesday 19.1% ↑</p>
<p>Average Vehicle Hours of Delay by Hour of Day at 35 mph, Weekdays</p>		<p>Largest Magnitude Weekday Decrease over one year ago</p>	<p>Largest Magnitude Weekday Decrease over last quarter</p>
		<p>5 PM -80.4% ↓</p>	<p>12 PM -22.5% ↓</p>
		<p>Largest Magnitude Weekday Increase over one year ago</p>	<p>Largest Magnitude Weekday Increase over last quarter</p>
		<p>-</p>	<p>5 PM 59.6% ↑</p>
<p>Average Vehicle Hours of Delay by Hour of Day at 35 mph, Saturdays</p>		<p>Largest Magnitude Saturday Decrease over one year ago</p>	<p>Largest Magnitude Saturday Decrease over last quarter</p>
		<p>5 PM -44% ↓</p>	<p>10 PM -77.6% ↓</p>
		<p>Largest Magnitude Saturday Increase over one year ago</p>	<p>Largest Magnitude Saturday Increase over last quarter</p>
		<p>10 AM 40.1% ↑</p>	<p>4 PM 101% ↑</p>
<p>Average Vehicle Hours of Delay by Hour of Day at 35 mph, Sundays/Holidays</p>		<p>Largest Magnitude Sun./Holiday Decrease over one year ago</p>	<p>Largest Magnitude Sun./Holiday Decrease over last quarter</p>
		<p>2 PM -39.8% ↓</p>	<p>12 PM -53.7% ↓</p>
		<p>Largest Magnitude Sun./Holiday Increase over one year ago</p>	<p>Largest Magnitude Sun./Holiday Increase over last quarter</p>
		<p>7 PM 46.5% ↑</p>	<p>5 PM 30.6% ↑</p>

Measure	Graph	Percentage Change																																									
Total Vehicle Hours of Delay (VHD) by County at 35 mph	<p>Hours (Thousands)</p> <table border="1"> <caption>Total Vehicle Hours of Delay (VHD) by County at 35 mph</caption> <thead> <tr> <th>County</th> <th>2019 Q4</th> <th>2020 Q3</th> <th>2020 Q4</th> </tr> </thead> <tbody> <tr><td>Butte</td><td>~10</td><td>~10</td><td>~10</td></tr> <tr><td>Colusa</td><td>~10</td><td>~10</td><td>~10</td></tr> <tr><td>El Dorado</td><td>~100</td><td>~100</td><td>~100</td></tr> <tr><td>Nevada</td><td>~100</td><td>~100</td><td>~100</td></tr> <tr><td>Placer</td><td>~100</td><td>~100</td><td>~100</td></tr> <tr><td>Sacramento</td><td>~1100</td><td>~250</td><td>~250</td></tr> <tr><td>Sierra</td><td>~10</td><td>~10</td><td>~10</td></tr> <tr><td>Sutter</td><td>~10</td><td>~10</td><td>~10</td></tr> <tr><td>Yolo</td><td>~200</td><td>~100</td><td>~100</td></tr> </tbody> </table>	County	2019 Q4	2020 Q3	2020 Q4	Butte	~10	~10	~10	Colusa	~10	~10	~10	El Dorado	~100	~100	~100	Nevada	~100	~100	~100	Placer	~100	~100	~100	Sacramento	~1100	~250	~250	Sierra	~10	~10	~10	Sutter	~10	~10	~10	Yolo	~200	~100	~100	Largest Magnitude Decrease over one year ago	Largest Magnitude Decrease over last quarter
		County	2019 Q4	2020 Q3	2020 Q4																																						
Butte	~10	~10	~10																																								
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Nevada 46% ↑	Sacramento 13.9% ↑																																										
Average Non-Holiday Weekday Equivalent Lost Lane Mile Hours at 35 mph	<p>Miles</p> <table border="1"> <caption>Average Non-Holiday Weekday Equivalent Lost Lane Mile Hours at 35 mph</caption> <thead> <tr> <th>Time Period</th> <th>2019 Q4</th> <th>2020 Q3</th> <th>2020 Q4</th> </tr> </thead> <tbody> <tr><td>AM Peak (6 AM to 10 AM)</td><td>~28</td><td>~4</td><td>~6</td></tr> <tr><td>Off-Peak Day (10 AM to 3 PM)</td><td>~14</td><td>~11</td><td>~10</td></tr> <tr><td>PM Peak (3 PM to 7 PM)</td><td>~40</td><td>~15</td><td>~19</td></tr> <tr><td>Off-Peak Night (7 PM to 6 AM)</td><td>~7</td><td>~5</td><td>~8</td></tr> </tbody> </table>	Time Period	2019 Q4	2020 Q3	2020 Q4	AM Peak (6 AM to 10 AM)	~28	~4	~6	Off-Peak Day (10 AM to 3 PM)	~14	~11	~10	PM Peak (3 PM to 7 PM)	~40	~15	~19	Off-Peak Night (7 PM to 6 AM)	~7	~5	~8	Largest Magnitude Decrease over one year ago	Largest Magnitude Decrease over last quarter																				
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PM Peak -68.2% ↓	Off-Peak Day -15.2% ↓	Largest Magnitude Increase over one year ago	Largest Magnitude Increase over last quarter																																								
Off-Peak Night 12.9% ↑	PM Peak 30.6% ↑																																										
Average Number of Good and Bad Detectors	<p>Number of Detectors</p> <table border="1"> <caption>Average Number of Good and Bad Detectors</caption> <thead> <tr> <th>Quarter</th> <th>Average of Good</th> <th>Average of Bad</th> </tr> </thead> <tbody> <tr><td>2019 Q4</td><td>1,971</td><td>734</td></tr> <tr><td>2020 Q3</td><td>1,957</td><td>688</td></tr> <tr><td>2020 Q4</td><td>1,968</td><td>678</td></tr> </tbody> </table>	Quarter	Average of Good	Average of Bad	2019 Q4	1,971	734	2020 Q3	1,957	688	2020 Q4	1,968	678	Change in Good over one year ago	Change in Good over last quarter																												
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0%	1% ↑	Change in Bad over one year ago	Change in Bad over last quarter																																								
-8% ↓	-1% ↓																																										

Note: As is identified by the detector health graph above, the District’s detector health has improved. The graphs indicate a 1% increase in the number of Good detectors, comparing with previous quarter. Caltrans has a Traffic Monitoring Station project (EA: 3F840)

completed to help improve detector health. Two other projects will cover locations that were missed by this and other previous projects.

Overall, congestion and delay has increase due to the new Shelter-In-Place order, when compared with the previous quarter and Q4 2019. See table below for reference.

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
SR51	Sacramento	317,667	60,064	84,010	-233,658	-73.6%	23,946	39.9%	1	3	1
I5	Sacramento	226,103	66,141	80,781	-145,322	-64.3%	14,640	22.1%	4	1	2
US50	El Dorado	85,757	57,470	69,062	-16,696	-19.5%	11,592	20.2%	6	4	3
SR99	Sacramento	233,485	64,235	63,072	-170,413	-73.0%	-1,163	-1.8%	3	2	4
I80	Placer	66,925	34,051	36,692	-30,233	-45.2%	2,642	7.8%	7	7	5
US50	Sacramento	261,781	33,239	31,507	-230,274	-88.0%	-1,732	-5.2%	2	8	6
I80	Yolo	133,754	40,268	30,872	-102,882	-76.9%	-9,396	-23.3%	5	5	7
SR65	Placer	47,495	15,165	29,819	-17,676	-37.2%	14,654	96.6%	11	9	8
I80	Nevada	12,800	40,110	18,692	5,892	46.0%	-21,418	-53.4%	13	6	9
I80	Sacramento	63,284	14,350	14,385	-48,899	-77.3%	35	0.2%	8	10	10
SR70	Yuba	48,005	5,004	12,387	-35,618	-74.2%	7,383	147.5%	10	13	11
SR267	Placer	919	8,098	3,882	2,962	322.2%	-4,216	-52.1%	18	11	12
US50	Yolo	56,628	5,626	2,715	-53,913	-95.2%	-2,911	-51.7%	9	12	13
SR99	Butte	8,414	328	2,534	-5,879	-69.9%	2,207	673.6%	14	18	14
SR12	Sacramento	1,639	3,681	1,484	-155	-9.5%	-2,197	-59.7%	15	14	15
I5	Yolo	15,510	2,477	1,358	-14,153	-91.2%	-1,119	-45.2%	12	15	16
SR28	Placer	3	8	502	500	19223.1%	494	5881.0%	21	21	17
SR89	El Dorado	0	386	457	457		71	18.3%		17	18
SR89	Placer	1,151	823	316	-835	-72.5%	-506	-61.6%	17	16	19
SR99	Sutter	217	308	293	76	34.9%	-15	-4.7%	19	19	20
SR20	Colusa	0	0	3	3		3				21
I80	Sierra	0	0	0	0		0				
SR113	Yolo	138	26	0	-138	-100.0%	-26	-100.0%	20	20	
SR160	Sacramento	1,595	1	0	-1,595	-100.0%	-1	-100.0%	16	22	
SR275	Yolo	0	0	0	0		0				
TOTALS		1,909,279	487,537	575,531	-1,333,748	-69.9%	87,994	18.0%			

As indicated by the table above the Total Delay for all monitored routes has increased by 87, 994 hours, a rise of 18.0% when compared with previous quarter.

Based on the total delay by route, SR 51 was the worst performing freeway in District 3 due to construction activity. The top two most congested routes are in Sacramento County, which is due to the increasing travel demand associated with Sacramento County’s high population, regional employment and educational centers. As identified on pages 2 and 3 of this document, Caltrans is continuing the process of implementing HOV lanes and 24/7 ramp meter operations for Sacramento’s freeway system. HOV lane projects on SR-51, I-5, and US-50 are planned to mitigate congestion on these routes. Further congestion mitigation can be achieved by Work at

Home and increasing mode shift away from single occupancy vehicles to higher occupancy vehicles such as carpooling, vanpooling, and higher utilization of mass transit options. The District continues to explore the best possible ways to reduce delay in the impacted areas of District 3.