

District 03 Mobility Performance Report

2021 Second Quarter

DEPARTMENT OF TRANSPORTATION

July 27, 2021
Office of Freeway Operations

District 03 Mobility Performance Report

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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 Second quarter of 2021, there is a small increase in delay due to rise of employment rate. The total delay on the freeways in District 3 equaled 0.75 million vehicle hours of delay (VHD) below the 35-mph speed threshold and 2.48 million VHD below 60-mph threshold. The average delay experienced on weekdays in this quarter was approximately 8,700 of VHD below 35-mph, and 31,000 of VHD below 60-mph. I-5 was the worst performing freeway in District 3 with 142,000 of VHD caused by diversion from the State Route 99 from 47th Avenue to the U.S. Highway 50 Connector project as well as other construction activities. It is expected that the delay of I-5 will be reduced after construction activities are over.

Vehicle Miles of Travel (VMT) increased by 22.3% with a total of 2.51 billion miles when compared to the previous quarter (2.05 billion miles). The VHD below the 60-mph speed threshold increased by 35.4% during the same quarter. See graphs on page 4 for details.

Top Ten Bottlenecks for the Second Quarter of 2021

County	Fwy	Name	Type	Shift	Abs PM	CA PM	Lat.	Longi.	# Days Active	Avg Extent (Miles)	Total Delay (veh-hrs)	Total Duration (mins)
SAC	SR51-S	EB Exposition Bl	ML	PM	3.33	3.326	38.60	-121.44	62	1.74	31,127	11,240
YOLO	I80-E	80EB at Mace Blvd	ML	PM	74.90	2.714	38.55	-121.69	62	1.87	27,139	10,705
PLA	SR65-S	Pleasant Grove Blvd	ML	PM	66.91	7.189	38.79	-121.29	64	1.59	23,166	10,755
EL DO	US50-E	Midway Rd	ML	PM	107.96	79.801	38.95	-119.95	63	3.79	20,805	18,855
SAC	SR51-N	North of A St	ML	PM	2.09	2.092	38.58	-121.46	57	1.65	16,973	4,815
YOLO	I80-W	80WB at Enterprise	ML	AM	81.30	9.11	38.57	-121.58	38	1.95	16,676	4,295
SAC	SR51-N	30 & E St	ML	PM	1.50	1.5	38.58	-121.46	62	1.02	12,958	5,165
SAC	I5-S	Elk Grove Blvd	ML	PM	506.19	10.896	38.41	-121.48	35	2.70	12,618	3,865
PLA	I80-W	EB Douglas Blvd	ML	PM	103.38	1.876	38.74	-121.27	63	0.91	11,010	7,755
SAC	SR99-S	99SB at Cosumnes	ML	PM	290.68	16.23	38.46	-121.41	56	2.10	9,044	4,840

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.
- Three of the top ten bottlenecks are located on SR 51 and SR 80, it is the most congested corridor in Sacramento, Yolo, and Placer region.
- 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 ramp metering operation hours on all major freeways in Sacramento region. The metering hours will be based on traffic demand and 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.

- Caltrans District 3 has plans to construct High Occupancy Vehicle (HOV) lanes on 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 and US-50 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. The planned 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.

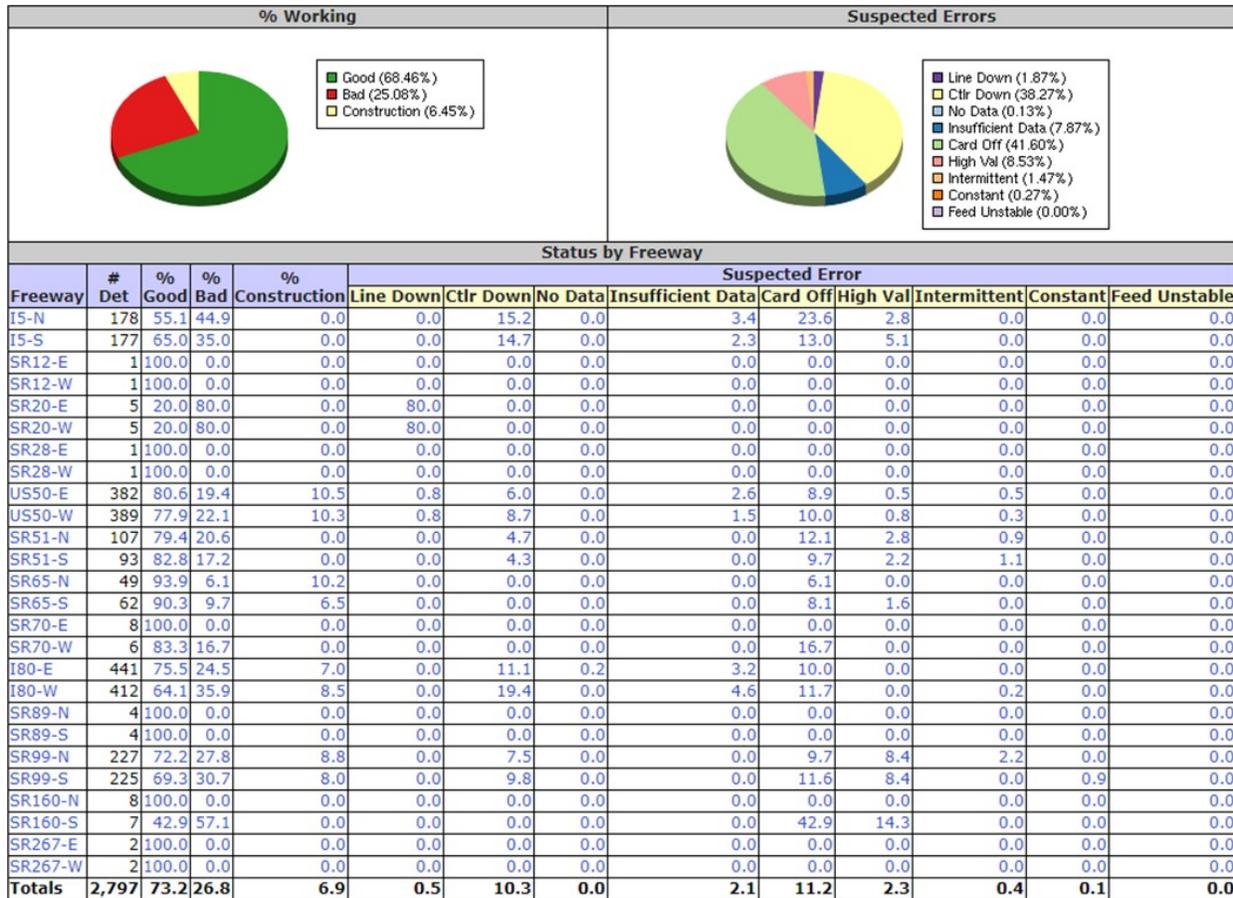
Quarterly Mobility Statistics

Measure	Graph	Percentage Change									
Vehicle Miles of Travel (VMT)	<p>Miles (Billions)</p> <table border="1"> <tr><th>Quarter</th><th>Value (Billions)</th></tr> <tr><td>2020 Q2</td><td>1.84</td></tr> <tr><td>2021 Q1</td><td>2.05</td></tr> <tr><td>2021 Q2</td><td>2.51</td></tr> </table>	Quarter	Value (Billions)	2020 Q2	1.84	2021 Q1	2.05	2021 Q2	2.51	Over one year ago	Over last quarter
		Quarter	Value (Billions)								
		2020 Q2	1.84								
2021 Q1	2.05										
2021 Q2	2.51										
36.3%	22.3%										
Total Vehicle Hours of Delay (VHD) at 35 mph	<p>Hours (Thousands)</p> <table border="1"> <tr><th>Quarter</th><th>Value (Thousands)</th></tr> <tr><td>2020 Q2</td><td>297</td></tr> <tr><td>2021 Q1</td><td>487</td></tr> <tr><td>2021 Q2</td><td>747</td></tr> </table>	Quarter	Value (Thousands)	2020 Q2	297	2021 Q1	487	2021 Q2	747	Over one year ago	Over last quarter
		Quarter	Value (Thousands)								
		2020 Q2	297								
2021 Q1	487										
2021 Q2	747										
151.1%	53.4%										
Average Non-Holiday Weekday Vehicle Hours of Delay (VHD) at 35 mph	<p>Hours</p> <table border="1"> <tr><th>Quarter</th><th>Value (Hours)</th></tr> <tr><td>2020 Q2</td><td>3,454</td></tr> <tr><td>2021 Q1</td><td>5,310</td></tr> <tr><td>2021 Q2</td><td>8,692</td></tr> </table>	Quarter	Value (Hours)	2020 Q2	3,454	2021 Q1	5,310	2021 Q2	8,692	Over one year ago	Over last quarter
		Quarter	Value (Hours)								
		2020 Q2	3,454								
2021 Q1	5,310										
2021 Q2	8,692										
151.7%	63.7%										
Total Vehicle Hours of Delay (VHD) at 60 mph	<p>Hours (Millions)</p> <table border="1"> <tr><th>Quarter</th><th>Value (Millions)</th></tr> <tr><td>2020 Q2</td><td>1.23</td></tr> <tr><td>2021 Q1</td><td>1.83</td></tr> <tr><td>2021 Q2</td><td>2.48</td></tr> </table>	Quarter	Value (Millions)	2020 Q2	1.23	2021 Q1	1.83	2021 Q2	2.48	Over one year ago	Over last quarter
		Quarter	Value (Millions)								
		2020 Q2	1.23								
2021 Q1	1.83										
2021 Q2	2.48										
102%	35.4%										
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 (Thousands)</th></tr> <tr><td>2020 Q2</td><td>16</td></tr> <tr><td>2021 Q1</td><td>23</td></tr> <tr><td>2021 Q2</td><td>31</td></tr> </table>	Quarter	Value (Thousands)	2020 Q2	16	2021 Q1	23	2021 Q2	31	Over one year ago	Over last quarter
		Quarter	Value (Thousands)								
		2020 Q2	16								
2021 Q1	23										
2021 Q2	31										
95.8%	33.8%										

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>-</p>	<p>Largest Magnitude Decrease over last quarter</p> <p>-</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>7 PM -50.1% ↓</p>	<p>Largest Magnitude Weekday Decrease over last quarter</p> <p>-</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>12 AM -61.1% ↓</p>	<p>Largest Magnitude Saturday Decrease over last quarter</p> <p>5 PM -56.4% ↓</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>1 AM -79.4% ↓</p>	<p>Largest Magnitude Sun./Holiday Decrease over last quarter</p> <p>5 PM -38.1% ↓</p>
		<p>Largest Magnitude Increase over one year ago</p> <p>Friday 135.4% ↑</p>	<p>Largest Magnitude Increase over last quarter</p> <p>Thursday 40.4% ↑</p>
		<p>Largest Magnitude Weekday Increase over one year ago</p> <p>4 PM 232.3% ↑</p>	<p>Largest Magnitude Weekday Increase over last quarter</p> <p>3 PM 51.6% ↑</p>
		<p>Largest Magnitude Saturday Increase over one year ago</p> <p>11 AM 355% ↑</p>	<p>Largest Magnitude Saturday Increase over last quarter</p> <p>11 AM 45.6% ↑</p>
		<p>Largest Magnitude Sun./Holiday Increase over one year ago</p> <p>1 PM 364.2% ↑</p>	<p>Largest Magnitude Sun./Holiday Increase over last quarter</p> <p>12 PM 208.8% ↑</p>

Measure	Graph	Percentage Change	
Total Vehicle Hours of Delay (VHD) by County at 35 mph		Largest Magnitude Decrease over one year ago	Largest Magnitude Decrease over last quarter
			El Dorado -38.2% ↓
		Largest Magnitude Increase over one year ago	Largest Magnitude Increase over last quarter
		Sacramento 106.9% ↑	Sacramento 84.5% ↑
Average Non-Holiday Weekday Equivalent Lost Lane Mile Hours at 35 mph		Largest Magnitude Decrease over one year ago	Largest Magnitude Decrease over last quarter
		Off-Peak Night -6.8% ↓	Off-Peak Night -48% ↓
		Largest Magnitude Increase over one year ago	Largest Magnitude Increase over last quarter
		PM Peak 279.5% ↑	Off-Peak Day 56.2% ↑
Average Number of Good and Bad Detectors		Change in Good over one year ago	Change in Good over last quarter
		-7% ↓	2% ↑
		Change in Bad over one year ago	Change in Bad over last quarter
		66% ↑	26% ↑

Figure below is the screen shot on 4/1/2021, beginning of the Q2. This Figure illustrates the percentage of detector health per route to determine which detectors are measuring the performance of our state highways.



Overall, congestion and delay have a large increase due to rise of employment rate, when compared with the previous quarter and Q1 2021. See table below for reference.

Congestion by Route											
Route	County	Vehicle Hours of Delay at 35 mph			Difference 2021 Q2-2020 Q2		Difference 2021 Q2-2021 Q1		Rank		
		2020 Q2	2021 Q1	2021 Q2	Absolute	Percentage	Absolute	Percentage	2020 Q2	2021 Q1	2021 Q2
I5	Sacramento	44519.9	28639.8	141550.4	97030.5	2	112910.6	4	2	8	1
SR51	Sacramento	29684.6	91690.8	122827.9	93143.3	3	31137.1	0	4	1	2
I80	Yolo	21695	52969.7	121611.4	99916.4	5	68641.7	1	6	4	3
SR99	Sacramento	106416.2	58957.7	110358.1	3941.9	0	51400.4	1	1	3	4
US50	Sacramento	26469.4	51654.6	62911.7	36442.3	1	11257.1	0	5	5	5
SR65	Placer	5427.5	33252.4	53843.7	48416.2	9	20591.3	1	9	7	6
US50	El Dorado	9209.3	67111.1	38763.1	29553.8	3	-28348	0	8	2	7
I80	Placer	31602.8	48277	32735.3	1132.5	0	-15541.7	0	3	6	8
I80	Nevada	4039.6	21360.9	16626.3	12586.7	3	-4734.6	0	10	9	9
SR70	Yuba	1254.5	3167.1	10219.1	8964.6	7	7052	2	13	14	10
I80	Sacramento	9437.8	11147.2	9542.2	104.4	0	-1605	0	7	10	11
US50	Yolo	2945.3	3443.4	9504.3	6559	2	6060.9	2	11	13	12
I5	Yolo	1997.6	753.1	5598.2	3600.6	2	4845.1	6	12	18	13
SR12	Sacramento	899.1	1917.2	3467.1	2568	3	1549.9	1	15	15	14
SR89	El Dorado	1146.3	1044.7	3381.6	2235.3	2	2336.9	2	14	17	15
SR20	Colusa	0	57.8	1354.4	1354.4		1296.6	22		20	16
SR89	Placer	8.9	4809.3	1078.3	1069.4	120	-3731	-1	20	12	17
SR267	Placer	471.4	4917.9	755.7	284.3	1	-4162.2	-1	16	11	18
SR28	Placer	2.6	428	462.6	460	177	34.6	0	22	19	19
SR99	Butte	28.3	1270.2	458.7	430.4	15	-811.5	-1	19	16	20
SR99	Sutter	4.3	36.2	137.4	133.1	31	101.2	3	21	21	21
SR162	Butte	0	0	124.4	124.4		124.4				22
SR20	Nevada	0	9.1	41.6	41.6		32.5	4		22	23
SR113	Yolo	73.2	0	36	-37.2	-1	36		17		24
SR160	Sacramento	50.9	0.6	21.2	-29.7	-1	20.6	34	18	23	25
I5	Colusa	0	0	15.7	15.7		15.7				26
I505	Yolo	0	0	12.5	12.5		12.5				27
SR70	Sutter	0	0.4	3.5	3.5		3.1	8		24	28
SR49	Nevada	0	0	1.2	1.2		1.2				29
SR45	Colusa	0	0	0.8	0.8		0.8				30
SR20	Yuba	0	0	0	0		0				
Total:		297,385	486,916	747,444	450,060	39.8%	260,528	65.1%			

As indicated by the table above the Total Delay for all monitored routes has increased by 260,528 hours, a rise of 65.1% when compared with previous quarter.

Based on the total delay by route, SR 51 was the worst performing freeway in District 3 due to its bottleneck locations. The top three out of ten most congested routes are in Sacramento County, which is due to its travel demand associated with Sacramento County’s high population, regional employment and educational centers. As identified on pages 2 and 3 of this report, 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, I-80, and US-50 are planned or under construction 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.