

District 06 Mobility Performance Report

DEPARTMENT OF TRANSPORTATION

May 17, 2021
District 06 Traffic Operations

District 06 Mobility Performance Report

2021 First Quarter

EXECUTIVE SUMMARY

Overview

Caltrans District 6 is geographically diverse, and the second largest of the 12 Districts statewide, stretching from the southernmost part of Yosemite National Park in the north to the Mojave Desert. Also referred to as the Central Valley, District 6 encompasses Madera, Fresno, Tulare, Kings, and Kern counties. District 6 maintains and operates 476 miles of freeway and 1,554 miles of rural and urban highway. This District has the largest portion of road miles to maintain in the state highway system with 2,030 miles. Interstate 5 and State Route 99 span District 6, connecting the Central Valley to Northern and Southern California. These two routes and many others support substantial truck traffic for the agricultural base of the region.

The Mobility Performance Report (MPR) quarterly analysis compares current data with information from the same quarter of the previous year, and from the previous quarter using the following performance measures:

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

This information is based on continuous data collected by automated vehicle detector stations deployed on urban-area freeways with recurrent congestion. The MPR presents congestion delay information at two speed thresholds: delay from vehicles traveling below 35 miles per hour (mph),

and delay from vehicles traveling below 60 miles per hour (mph). The delay at the 35 miles per hour (mph) threshold represents severe congestion while delay at 60 mph represents all congestion. The criteria for speed thresholds are set by Caltrans and are based on engineering experience and District input.

FINDINGS

For the first quarter of 2021, total delay was approximately 172.4 thousand, slightly decrease from 178.3 thousand in last quarter, but still much lower than first quarter of last year of 233 thousand Vehicle Hours of Delay (VHD) at the 35 miles per hour (mph) speed threshold. The VHD at 60mph was reported approximately at 1.2 million vehicle-hours (which is just about the same as last quarter). Thus, compare to the last quarter, the VHD at 35mph decreases slightly at 3.3 percent, but VHD at 60mph is about the same. The average non-holiday weekday was approximately 2,178 hours (versus 2,072 hours last quarter) VHD at 35mph. Compared to the previous quarter, there was an approximately 5.1 percent increase in 35mph average non-holiday weekday quarterly delay, and an increase of approximately 12.3 percent in 60 mph. Comparing for Q1 of this year to Q1 of last year, delay (VHD) for non-holiday at 35 mph and non-holiday at 60 mph decreased at about 26.6 percent and 1.7 percent respectively.

In comparison with the first quarter (Q1) of last year, the total VHD at 35 mph is reported at approximately 26 percent lower than quarter one of last year. The average non-holiday weekday VHD still experienced a drop of approximately 26.6 percent when comparing to first quarter of last year. This may be because travel restriction (shelter-in-place) was not occurred in the first two months in the first quarter of last year. Vehicle Miles Traveled (VMT) decreases slightly at about 2 percent when compared to the last quarter. VMT increases slightly at approximately 4.9 percent compared to quarter one of last year. Kern, Madera, and Tulare Counties experience a considerable delay among the five counties in District 6 for this quarter, this probably due to various construction activities (lane closure) on SR 99 in Kern, Madera and Tulare Counties as well as SR 58 in Kern County. Madera County reported an increase of 147 .2 percent in comparison to Q1 of last year. PEMS data reported that Tulare County has an increase of 50.3 percent of VHD compare to last quarter. Noted that both Madera and Tulare Counties have limited number of detectors on SR 99 freeway. Thus, any lane closure near the detection locations would tremendously affect overall delay reported by PEMS.

CENTRAL REGION ONGOING PROJECTS

The District construction activities continue to be a big contributor to the delay due to reduction of regular commute traffic in most of the state routes in the District during this quarter.

Following projects are considered to have some impact to the reported delay in this quarter due to related construction activities (mainly on I5, SR 99 and SR 41, SR 58) in District 6.

Fresno County

Interstate I-5; 06-1A940 0620000141 Replace Pavement RHMA (PM 20.0/21.0, Maint. Project)

State Route 99; 06-0S460 0615000038 Pavement Rehabilitation (PM 0.9/5.0)

State Route 180; 06-1A850 0620000084 Remove & Replace HMA & Install Loops (PM R58.4/R58.6)

Kern County

Interstate I-5; 06-1A600 0620000070 remove & Replace PCC Slab (PM 0.0/5.0)

Interstate I-5; 06-0Q820 0613000243 Repair Concrete Channels (PM 6.4/8.8)

State Route 58; 06-48460 0600000484 Construct 6/8 lanes freeway (PM 31.7/55.6)

State Route 99; 06-0Q280 0613000051 3Rs Roadway Rehabilitation (PM 23.6/28.4)

State Route 99; 06-0Q920 0614000010 Pavement Rehab. & Improve Vertical Clearance (PM 19.5.0/21.0)

Kings County

State Route 41; 06-0Y090 0619000217 Digouts and RMA (PM 16.1.5/20.0 Maint. Project)

Madera County

State Route 99; 06-47090 0600000973 Madera 99 4-L to 6-L (PM 7.5/15.1)

State Route 152; 06-1A920 0620000136 PCC Panel Replacement with HMA (PM 0.0/15.5
 Maint. Project)

Tulare County

State Route 99; 06-0Q910 0614000005 Bridge Deck & Girder Replacement (PM 19.4)

State Route 99; 06-1A960 0620000138 Cold Plane & Replace RHMA (PM 41.3/52.0)

BOTTLENECKS REPORTED FOR THE 1st QUARTER

County	Fwy	Locations	Type	Shift	Abs PM	CA PM	Latitude	Longitude	# Days Active	Avg Extent (Miles)	Avg Delay (Veh-hrs)	Avg Duration (mins)
Madera	99 S	Gateway Drive	ML	PM	153.72	9.781	36.95	-120.05	58	1.99	201.23	114.14
Fresno	41 S	Shaw Ave	ML	PM	130.15	28.395	36.81	-119.79	28	1.09	151.99	63.04
Kern	99 S	S. of Rosedale	ML	PM	26.36	25.534	35.38	-119.04	46	0.93	104.58	127.72
Fresno	41 N	McKinley	ML	PM	127.09	24.3405	36.77	-119.78	24	1.16	111.90	64.58

For this quarter, PEMS system reports four active bottleneck locations for the District. These bottleneck locations are mainly on SR 99 in Kern and Madera Counties. Further investigation at these locations, it appears that they were within the active construction zones; they are the Madera 99 Widening project (06-47090_), and Kern 99 Pavement Rehabilitation project (06-0Q280_). Bottleneck locations on SR 41 at Shaw Avenue and SR 41 at McKinley Avenue had been observed in the past years (before year 2020). Active bottleneck locations are defined (or computed by PeMS) as delay (VHD) be at least 20 percent of all weekdays during the quarter, persisted for at least 15 minutes on average, and caused more than 100 vehicle hours of delay (VHD) per weekday.

QUARTERLY MOBILITY STATISTICS

(Summary in the next 4 pages)

Measure	Graph	Percentage Change									
Vehicle Miles of Travel (VMT)	<p>Miles (Billions)</p> <table border="1"> <tr><th>Period</th><th>Value (Billions)</th></tr> <tr><td>2020 Q1</td><td>1.75</td></tr> <tr><td>2020 Q4</td><td>1.87</td></tr> <tr><td>2021 Q1</td><td>1.83</td></tr> </table>	Period	Value (Billions)	2020 Q1	1.75	2020 Q4	1.87	2021 Q1	1.83	Over one year ago	Over last quarter
		Period	Value (Billions)								
		2020 Q1	1.75								
2020 Q4	1.87										
2021 Q1	1.83										
4.9%	-2%										
Total Vehicle Hours of Delay (VHD) at 35 mph	<p>Hours (Thousands)</p> <table border="1"> <tr><th>Period</th><th>Value (Thousands)</th></tr> <tr><td>2020 Q1</td><td>233</td></tr> <tr><td>2020 Q4</td><td>178.3</td></tr> <tr><td>2021 Q1</td><td>172.4</td></tr> </table>	Period	Value (Thousands)	2020 Q1	233	2020 Q4	178.3	2021 Q1	172.4	Over one year ago	Over last quarter
		Period	Value (Thousands)								
		2020 Q1	233								
2020 Q4	178.3										
2021 Q1	172.4										
-26%	-3.3%										
Average Non-Holiday Weekday Vehicle Hours of Delay (VHD) at 35 mph	<p>Hours</p> <table border="1"> <tr><th>Period</th><th>Value</th></tr> <tr><td>2020 Q1</td><td>2967</td></tr> <tr><td>2020 Q4</td><td>2072</td></tr> <tr><td>2021 Q1</td><td>2143</td></tr> </table>	Period	Value	2020 Q1	2967	2020 Q4	2072	2021 Q1	2143	Over one year ago	Over last quarter
		Period	Value								
		2020 Q1	2967								
2020 Q4	2072										
2021 Q1	2143										
-27.8%	3.4%										
Total Vehicle Hours of Delay (VHD) at 60 mph	<p>Hours (Millions)</p> <table border="1"> <tr><th>Period</th><th>Value (Millions)</th></tr> <tr><td>2020 Q1</td><td>1.3</td></tr> <tr><td>2020 Q4</td><td>1.2</td></tr> <tr><td>2021 Q1</td><td>1.2</td></tr> </table>	Period	Value (Millions)	2020 Q1	1.3	2020 Q4	1.2	2021 Q1	1.2	Over one year ago	Over last quarter
		Period	Value (Millions)								
		2020 Q1	1.3								
2020 Q4	1.2										
2021 Q1	1.2										
-4.2%	3.9%										
Average Non-Holiday Weekday Vehicle Hours of Delay (VHD) at 60 mph	<p>Hours (Thousands)</p> <table border="1"> <tr><th>Period</th><th>Value (Thousands)</th></tr> <tr><td>2020 Q1</td><td>18</td></tr> <tr><td>2020 Q4</td><td>15</td></tr> <tr><td>2021 Q1</td><td>17</td></tr> </table>	Period	Value (Thousands)	2020 Q1	18	2020 Q4	15	2021 Q1	17	Over one year ago	Over last quarter
		Period	Value (Thousands)								
		2020 Q1	18								
2020 Q4	15										
2021 Q1	17										
-4.3%	9.2%										

Measure	Graph	Percentage Change	
<p>Average Vehicle Hours of Delay by Day of Week at 60 mph</p>	<p>Hours (Thousands)</p>	<p>Largest Magnitude Decrease over one year ago</p> <p>Wednesday -29%</p> <p>Largest Magnitude Increase over one year ago</p> <p>Friday 26.3%</p>	<p>Largest Magnitude Decrease over last quarter</p> <p>Sun/Hol -18.4%</p> <p>Largest Magnitude Increase over last quarter</p> <p>Friday 13.3%</p>
<p>Average Vehicle Hours of Delay by Hour of Day at 35 mph, Weekdays</p>	<p>Hours</p>	<p>Largest Magnitude Weekday Decrease over one year ago</p> <p>7 AM -62.2%</p> <p>Largest Magnitude Weekday Increase over one year ago</p> <p>8 PM 47.2%</p>	<p>Largest Magnitude Weekday Decrease over last quarter</p> <p>5 PM -19.8%</p> <p>Largest Magnitude Weekday Increase over last quarter</p> <p>2 PM 36.6%</p>
<p>Average Vehicle Hours of Delay by Hour of Day at 35 mph, Saturdays</p>	<p>Hours</p>	<p>Largest Magnitude Saturday Decrease over one year ago</p> <p>10 AM -62.5%</p> <p>Largest Magnitude Saturday Increase over one year ago</p> <p>1 PM 185.1%</p>	<p>Largest Magnitude Saturday Decrease over last quarter</p> <p>10 AM -79.5%</p> <p>Largest Magnitude Saturday Increase over last quarter</p> <p>12 PM 247.5%</p>
<p>Average Vehicle Hours of Delay by Hour of Day at 35 mph, Sundays/Holidays</p>	<p>Hours</p>	<p>Largest Magnitude Sun./Holiday Decrease over one year ago</p> <p>3 PM -54%</p> <p>Largest Magnitude Sun./Holiday Increase over one year ago</p> <p>-</p>	<p>Largest Magnitude Sun./Holiday Decrease over last quarter</p> <p>5 PM -76.5%</p> <p>Largest Magnitude Sun./Holiday Increase over last quarter</p> <p>10 AM 76.3%</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
		Tulare -44.8% ↓	Kern -39.5% ↓
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
		AM Peak -52.7% ↓	PM Peak -9.6% ↓
Average Number of Good and Bad Detectors		Change in Good over one year ago	Change in Good over last quarter
		19% ↑	2% ↑
		Change in Bad over one year ago	Change in Bad over last quarter
		-24% ↓	1% ↑

Congestion by Route

Route	County	Vehicle Hours of Delay at 35 mph			Difference 2021 Q1-2020 Q1		Difference 2021 Q1-2020 Q4		Rank		
		2020 Q1	2020 Q4	2021 Q1	Absolute	Percentage	Absolute	Percentage	2020 Q1	2020 Q4	2021 Q1
		SR99	Madera	17,158	32,340	42,234	25,076	146.1%	9,894	30.6%	6
SR99	Tulare	57,426	26,980	40,595	-16,831	-29.3%	13,615	50.5%	1	3	2
I5	Kern	36,658	56,749	22,787	-13,870	-37.8%	-33,962	-59.8%	2	1	3
SR99	Kern	24,031	22,435	21,327	-2,704	-11.3%	-1,109	-4.9%	3	4	4
SR99	Fresno	16,871	12,494	13,584	-3,288	-19.5%	1,089	8.7%	7	5	5
SR41	Fresno	18,808	6,707	11,301	-7,507	-39.9%	4,594	68.5%	5	6	6
SR58	Kern	1,539	1,262	4,167	2,628	170.7%	2,905	230.2%	12	12	7
SR180	Fresno	7,489	3,657	3,918	-3,571	-47.7%	261	7.1%	10	9	8
SR41	Kings	1,115	927	3,520	2,405	215.8%	2,593	279.7%	15	14	9
I5	Fresno	8,843	6,177	2,801	-6,042	-68.3%	-3,376	-54.7%	9	7	10
SR198	Tulare	20,336	1,561	2,303	-18,033	-88.7%	742	47.6%	4	11	11
I5	Kings	3,311	1,931	1,250	-2,061	-62.3%	-681	-35.3%	11	10	12
SR168	Fresno	1,224	3,922	1,242	18	1.4%	-2,680	-68.3%	14	8	13
SR46	Kern	16,837	946	977	-15,860	-94.2%	31	3.3%	8	13	14
SR41	Madera	0	0	212	212		212	212000.0%		18	15
SR198	Kings	1,357	166	176	-1,182	-87.1%	9	5.7%	13	15	16
SR152	Madera	20	28	15	-5	-24.8%	-13	-45.7%	16	16	17
TOTALS		233,022	178,282	172,406	-60,616	-26.0%	-5,875	-3.3%			

Vehicle Hours of Delay is in Hours