

District 06 Mobility Performance Report

DEPARTMENT OF TRANSPORTATION

November 8, 2021
District 06 Traffic Operations

District 06 Mobility Performance Report

2021 Third 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 third quarter of 2021, total delay at 35 mph was approximately 383.7 thousand vehicle-hours, which increase from 283.2 thousand vehicle-hours; this translates into an increase of approximately 35.5 percent compare to the last quarter and an increase of approximately 145 percent compare to the same quarter of last year (Q3 2020). The vehicle hour of delay (VHD) at 60mph was reported approximately at 1.7 million vehicle hours . Thus, compare to the last quarter, VHD at 60mph increases approximately 22.7 percent, and an increase of about 24.5 percent compare to the same quarter of last year. The average non-holiday weekday was approximately 4,394 vehicle-hours (versus 3,522 vehicle-hours in last quarter) VHD at 35mph. Compared to the previous quarter, there was an approximately 24.8 percent increase in 35mph average non-holiday weekday quarterly delay, and an increase of approximately 19.8 percent in 60mph. Comparison for Q3 of this year to Q3 one year ago, delay (VHD) for non-holiday at 35 mph and non-holiday at 60 mph increase at about 151.1 percent and 23.2 percent respectively.

The increase in VHD at 35mph and at 60mph for Q3 of this year compare to the previous quarter as well as the same quarter 3 in last year may have been the results of travel restriction was lifted throughout the counties (the State as a whole). Vehicle Miles Traveled (VMT) also increases slightly at approximately 4 percent when compared to the last quarter. VMT increases at approximately 19.3 percent compared to quarter 3 of last year. Kern County still experiences an increase of large magnitude of delay among the five counties in District 6, while Madera County reports a decrease in delay for this quarter, compared to last quarter. Kern County experiences an increase in delay (VHD at 35) of approximately 77.8 percent compare to last quarter. Madera County experiences a decrease in delay (VHD at 35) about 42.4 percent compare to last quarter. This may have been the results of more construction activities (lane closure) on SR 99 and SR 58 in Kern County, but less construction activities in Madera County (Madera 99 widening project was nearly completed in this quarter). Madera County also has limited number of detectors on SR 99 freeway. Thus, any lane closure near the detection locations would tremendously affect overall delay reported by PEMS. Tulare County also experience less delay this quarter due to less construction activities on SR 99.

PEMS reports the change in good detectors was approximately 5 percent for this quarter comparing to the last quarter. As far as change in percentage of bad detectors, PEMS reports approximately

17 percent drop in bad detectors compare to last quarter and a decrease of 46 percent in bad detectors compare to quarter 3 of last year. The average number of good as well as bad detectors are illustrated in the graph at the end of this report.

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)

Interstate 41; 06-0Y690 0619000207 Bridge Deck Overlay & Replace signs panels (R22.8/33.1, Maint. Project)

State Route 99; 06-0U420 0616000004 Pavement Rehabilitation 2R (PM R5.7/11.1); SHOPP

State Route 168; 06-0U450 0615000298 CAPM (PM 18.6/T25.5); SHOPP

Kern County

Interstate I-5; 06-1A900 0621000018 Cold Plane & Place HMA (PM 4.4/15.8)

Interstate I-5; 06-0U470 0615000301 Pavement Rehab. (2R) (PM 82.0/87.0)

Interstate I-5; 06-1A930 0620000137 Remove and Replace PCC (PM 56.6/58.1)

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

State Route 58; 06-1C720 0621000138 Slab Replacement (PM 76.1/76.6)

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

Interstate I-5; 06-0Y700 0619000216 Bridge Deck Repair at Various Locations (Maint. Project)

Madera County

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

State Route 99; 06-0U520 0616000003 Pavement Preservation (CAPM) (PM 15.1/19.6)

State Route 41; 06-1B010 0620000139 AC Pavement with HMA (PM 13.5/35.2 Maint. Project)

Tulare County

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

State Route 99; 06-36024 0613000005 4F to 6F (PM 30.6/35.2 STIP)

BOTTLENECKS REPORTED FOR THE 3rd QUARTER

County	Fwy	Locations	Type	Shift	Abs PM	CA PM	Latitude	Longitude	# Days Active	Avg Extent (Miles)	Avg Delay (Veh-hrs)	Avg Duration (mins)
Kern	58 W	H St	ML	PM	110.13	R53.307	35.35	-119.02	51	1.72	112.37	89.80
Madera	99 S	Gateway Drive	ML	PM	153.72	9.781	36.95	-120.05	33	1.86	221.59	139.39
Kern	99 S	N.O Olive	ML	PM	29.02	R28.201	35.42	-119.06	30	1.88	268.92	97.00
Fresno	41 S	Shaw Ave	ML	PM	130.15	R28.395	36.81	-119.79	49	1.09	146.54	71.22
Kern	99 S	N.O Gilmore	ML	PM	27.07	26.252	35.39	-119.04	41	1.16	168.83	144.51
Fresno	41 N	McKinley	ML	PM	127.09	R25.3405	36.77	-119.78	48	1.12	136.64	82.71

For this quarter, PEMS system reports six active bottleneck locations for the District. These bottleneck locations are mainly on SR 41 in Fresno, SR 99 in Kern, SR 99 in Madera Counties as well as SR 58 in the City of Bakersfield in Kern County. Further investigation at these locations,

it appears that bottleneck locations on SR 99 and SR 58 in Kern as well as SR 99 in Madera Counties were within the active construction zones; they are the Madera 99 Widening project (06-47090_), and Kern 99 Pavement Rehabilitation project (06-0Q280_), Kern 58 Slabs Replacement (06-1C720_) as well as Kern 58 6-lane to 8-Lane (06-48460_) projects. 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>Year</th><th>Value</th></tr> <tr><td>2020 Q3</td><td>1.89</td></tr> <tr><td>2021 Q2</td><td>2.17</td></tr> <tr><td>2021 Q3</td><td>2.26</td></tr> </table>	Year	Value	2020 Q3	1.89	2021 Q2	2.17	2021 Q3	2.26	Over one year ago	Over last quarter
		Year	Value								
		2020 Q3	1.89								
2021 Q2	2.17										
2021 Q3	2.26										
19.3%	4.1%										
Total Vehicle Hours of Delay (VHD) at 35 mph	<p>Hours (Thousands)</p> <table border="1"> <tr><th>Year</th><th>Value</th></tr> <tr><td>2020 Q3</td><td>156.6</td></tr> <tr><td>2021 Q2</td><td>283.2</td></tr> <tr><td>2021 Q3</td><td>383.7</td></tr> </table>	Year	Value	2020 Q3	156.6	2021 Q2	283.2	2021 Q3	383.7	Over one year ago	Over last quarter
		Year	Value								
		2020 Q3	156.6								
2021 Q2	283.2										
2021 Q3	383.7										
145%	35.5%										
Average Non-Holiday Weekday Vehicle Hours of Delay (VHD) at 35 mph	<p>Hours</p> <table border="1"> <tr><th>Year</th><th>Value</th></tr> <tr><td>2020 Q3</td><td>1750</td></tr> <tr><td>2021 Q2</td><td>3522</td></tr> <tr><td>2021 Q3</td><td>4394</td></tr> </table>	Year	Value	2020 Q3	1750	2021 Q2	3522	2021 Q3	4394	Over one year ago	Over last quarter
		Year	Value								
		2020 Q3	1750								
2021 Q2	3522										
2021 Q3	4394										
151.1%	24.8%										
Total Vehicle Hours of Delay (VHD) at 60 mph	<p>Hours (Millions)</p> <table border="1"> <tr><th>Year</th><th>Value</th></tr> <tr><td>2020 Q3</td><td>1.4</td></tr> <tr><td>2021 Q2</td><td>1.4</td></tr> <tr><td>2021 Q3</td><td>1.7</td></tr> </table>	Year	Value	2020 Q3	1.4	2021 Q2	1.4	2021 Q3	1.7	Over one year ago	Over last quarter
		Year	Value								
		2020 Q3	1.4								
2021 Q2	1.4										
2021 Q3	1.7										
24.5%	22.7%										
Average Non-Holiday Weekday Vehicle Hours of Delay (VHD) at 60 mph	<p>Hours (Thousands)</p> <table border="1"> <tr><th>Year</th><th>Value</th></tr> <tr><td>2020 Q3</td><td>17</td></tr> <tr><td>2021 Q2</td><td>18</td></tr> <tr><td>2021 Q3</td><td>21</td></tr> </table>	Year	Value	2020 Q3	17	2021 Q2	18	2021 Q3	21	Over one year ago	Over last quarter
		Year	Value								
		2020 Q3	17								
2021 Q2	18										
2021 Q3	21										
23.2%	19.8%										

Measure	Graph	Percentage Change	
Average Vehicle Hours of Delay by Day of Week at 60 mph		Largest Magnitude Decrease over one year ago	Largest Magnitude Decrease over last quarter
		-	-
		Largest Magnitude Increase over one year ago	Largest Magnitude Increase over last quarter
		Monday ↑ 43.3%	Monday ↑ 37.1%
Average Vehicle Hours of Delay by Hour of Day at 35 mph, Weekdays		Largest Magnitude Weekday Decrease over one year ago	Largest Magnitude Weekday Decrease over last quarter
		-	3 PM ↓ -27.4%
		Largest Magnitude Weekday Increase over one year ago	Largest Magnitude Weekday Increase over last quarter
		5 PM ↑ 128.5%	8 PM ↑ 163.7%
Average Vehicle Hours of Delay by Hour of Day at 35 mph, Saturdays		Largest Magnitude Saturday Decrease over one year ago	Largest Magnitude Saturday Decrease over last quarter
		8 PM ↓ -35.3%	5 PM ↓ -26.9%
		Largest Magnitude Saturday Increase over one year ago	Largest Magnitude Saturday Increase over last quarter
		11 AM ↑ 85.2%	11 AM ↑ 104.7%
Average Vehicle Hours of Delay by Hour of Day at 35 mph, Sundays/Holidays		Largest Magnitude Sun./Holiday Decrease over one year ago	Largest Magnitude Sun./Holiday Decrease over last quarter
		8 AM ↓ -6.9%	12 PM ↓ -24.2%
		Largest Magnitude Sun./Holiday Increase over one year ago	Largest Magnitude Sun./Holiday Increase over last quarter
		4 PM ↑ 696.2%	5 PM ↑ 89%

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
		Madera -2.4%	Madera -42.4%
Congestion by Route		Largest Magnitude Increase over one year ago	Largest Magnitude Increase over last quarter
		Kern 210.9%	Kern 77.8%
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
		-	PM Peak -7.4%
Average Number of Good and Bad Detectors		Change in Good over one year ago	Change in Good over last quarter
		29%	5%
		Change in Bad over one year ago	Change in Bad over last quarter
		-46%	-17%

Congestion by Route											
Route	County	Vehicle Hours of Delay at 35 mph			Difference 2021 Q3-2020 Q3		Difference 2021 Q3-2021 Q2		Rank		
		2020 Q3	2021 Q2	2021 Q3	Absolute	Percentage	Absolute	Percentage	2020 Q3	2021 Q2	2021 Q3
SR99	Kern	26177.4	46308.1	113345	87167.6	333%	67,037	145%	3	2	1
I5	Kern	46692.5	71061.8	82167.3	35474.8	76%	11,106	16%	1	1	2
SR58	Kern	839	16246.6	42602.1	41763.1	4978%	26,356	162%	13	8	3
I5	Kings	1898.5	5280.4	25948.3	24049.8	1267%	20,668	391%	11	10	4
SR99	Madera	26239.2	43942.1	25049	-1190.2	-5%	(18,893)	-43%	2	3	5
SR41	Fresno	6076.5	17093	21783.2	15706.7	258%	4,690	27%	7	7	6
SR99	Fresno	11470.4	19674	18290	6819.6	59%	(1,384)	-7%	5	6	7
SR99	Tulare	11990.8	20495.9	16352.7	4361.9	36%	(4,143)	-20%	4	5	8
SR180	Fresno	5095.3	11014.2	13833.5	8738.2	171%	2,819	26%	8	9	9
I5	Fresno	3346.1	21799.4	13281.6	9935.5	297%	(8,518)	-39%	9	4	10
SR41	Kings	11436.9	4408.1	7091.7	-4345.2	-38%	2,684	61%	6	11	11
SR168	Fresno	1564.5	3664.8	2591.8	1027.3	66%	(1,073)	-29%	12	12	12
SR41	Madera	2.4	849.4	805.3	802.9	33454%	(44)	-5%	17	13	13
SR198	Tulare	25.8	668.2	419	393.2	1524%	(249)	-37%	16	14	14
SR198	Kings	648.2	320.6	144.6	-503.6	-78%	(176)	-55%	14	15	15
SR46	Kern	2877	312.3	18.9	-2858.1	-99%	(293)	-94%	10	16	16
SR178	Kern	0.8	2.9	13	12.2	1525%	10	348%	18	18	17
SR152	Madera	246.9	87.3	0.3	-246.6	-100%	(87)	-100%	15	17	18
TOTALS		156,381	283,142	383,737	227,356	145.4%	100,595	35.5%			

Vehicle Hours of Delay is in Hours