

District 06 Mobility Performance Report

2019 Fourth Quarter

DEPARTMENT OF TRANSPORTATION

February 24, 2020
District 06 Traffic Operations

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2019 Fourth 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 mph. The delay at the 35 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 fourth quarter of 2019, total delay was approximately 310 thousand Vehicle Hours of Delay (VHD) at the 35 miles per hour (mph) speed threshold, and 1,394 thousand VHD at the 60mph threshold. The average non-holiday weekday experience was approximately 3,780 thousand VHD at 35mph. Compared to the previous quarter, there was an approximately 1.9 percent decrease in 35mph average non-holiday weekday quarterly delay and a slightly increase at 0.4 percent in 60 mph.

For the entire district, the total VHD for this fourth quarter experienced a decrease of approximately 5.5 percent when compared to the previous quarter, however the delay varied with respect to each County and route. The VHD also experienced a slight increase of approximately 1.5 percent when comparing this quarter to the same fourth quarter of 2018. Vehicle Miles Traveled (VMT) decreased approximately 5.6 percent when compared to the last quarter. Fresno County and Kern Counties still experience the largest delay among the five counties in District 6. As for comparison of VHD to the previous quarter, Fresno County experienced an increase of 79 percent, while Kern County experienced a decrease of approximately 24 percent, at the 35mph threshold; VHD at 35 mph in Madera County also decreased to approximately 33 percent compared to the same quarter of last year. Active construction activities in the area may have contributed to the fluctuations and changes in VHD fir the area.

CENTRAL REGION ONGOING PROJECTS

For Quarter 4, the following projects are considered to possibly have an impact on delay in District 6.

Fresno County

State Route 99; 06-0Y900 0619000183 Remove X-Lit Terminal & Replace with MASH System (Maintenance. Project)

State Route 99; 06-2HT10 0612000287 Route 99 Realignment for HSR (PM 23.7/26.2)

Kern County

Interstate I-5; 06-1A360 0619000241 Slab Replacement (PM 4.4/10.2 Maintenance. Project)

Interstate I-5; 06-0X820 0618000153 Pavement Rehabilitation (PM R15.9/30.8)

State Route 99; 06-0T204 0619000008 Rehab Pavement/Vertical Clearance (PM L0.0/11.2)

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

State Route 58; 06-0S470 0615000048 CRCP & HMA (PM 55.4/59.7)

State Route 58: 06-0G850 0600020167 3Rs Roadway Rehabilitation (PM R52.7/R55.5)

State Route 178: 06-48470 0600000485 Street Widening (PM 0.4/1.9)

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

State Route 58; 06-48464 0618000019 Construct Auxiliary Lane (PM 50.5/55.5)

State Route 99; 06-0T280 0615000052 Upgrade Irrigation System & Planting (PM 21.6/24.7)

Kings County

State Route 198; 06-0T290 0615000053 Roadside Safety Improvement (PM 8.3/R19.4)

State Route 198; 06-48751 0614000073 Replace Planting (PM R16.5/R17.2)

Madera County

State Route 41; 06-0V020 0616000091 Intersection Improvements (PM 5.6/6.5)

State Route 99; 06-0T210 0615000037 Pavement rehab (2R) (PM22.7/29.4)

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

State Route 99; 06-0W660 0617000247 Ramp Improvement (PM 14.01)

Tulare County

State Route 99; 06-0R170 0614000051 Roadside Safety Improvement (PM 28.9/31.0)

State Route 99; 06-33221 0616000123 Landscape Mitigation (PM 31.2/32.5)

State Route 198; 06-0S340 0614000114 Pavement Rehabilitation (PM R11.7/R19.7)

BOTTLENECKS REPORTED FOR QUARTER 4

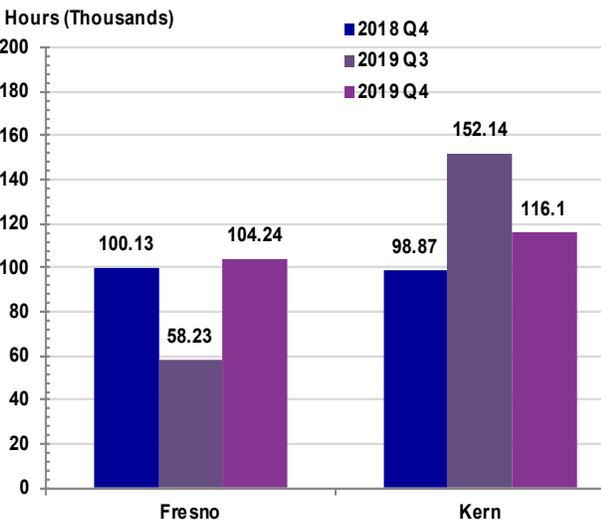
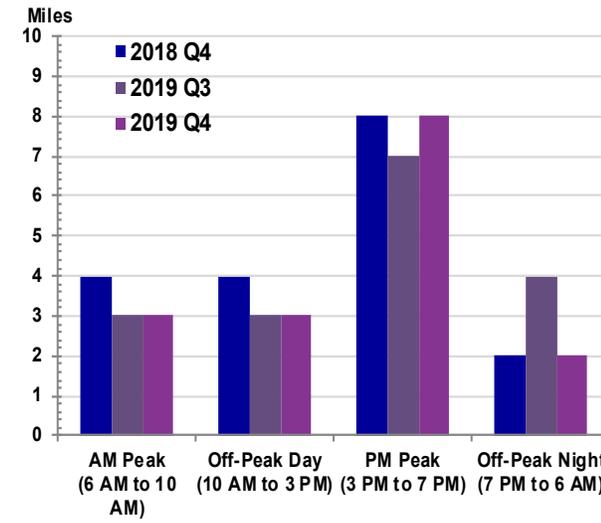
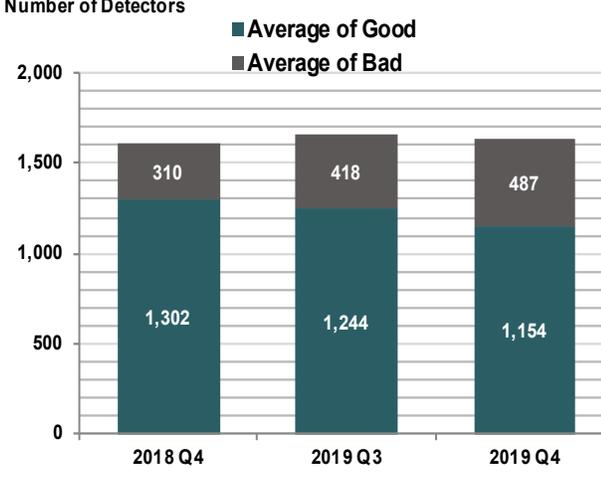
County	Fwy	Locations	Shift	VDS	CA PM	# Days Active	Avg Extent (Miles)	Avg Delay (Veh-hrs)	Avg Duration (mins)
Kern	99	S.O. California Ave. NB	PM	629993	24.357	21	1.1	240.97	146.43
Kern	99	S. O. California Ave NB	AM	629993	24.357	14	1.19	116.91	72.74
Fresno	99	Olive Ave. SB	AM	601262	23.21	18	2.51	134.89	36.11
Fresno	99	Olive Ave. SB	PM	601262	23.21	2	1.46	108.75	59.42
Madera	99	Gateway Drive SB	PM	602301	9.781	20	2.14	128.38	63.75
Madera	99	S. O Ave 12 SB	PM	602443	7.601	28	1.16	114.34	99.46
Fresno	41	Shaw Ave. SB	PM	601206	28.395	54	0.58	154.53	113.61
Kern	99	S. O Palm Ave. NB	PM	601358	24.11	46	0.8	102.1	65.76
Madera	99	Avenue 9 SB	PM	602922	3.5551	18	1.64	170.36	99.17
Fresno	99	Stanislaus St. NB	PM	601425	21.010	51	1.69	174.75	71.67
Kern	99	S.O. Rosedale Hwy SB	PM	619984	26.294	56	1.09	157.34	143.48
Kern	99	Olive Drive SB	PM	601260	27.80	34	2.38	257.94	93.68

The above bottleneck locations are reported in PeMS for quarter 4. Further investigation to confirm the bottleneck locations; it was found that more than half of the listed bottleneck locations have been associated with lane closures related in construction activities on SR 99. Seven out of the twelve listed locations above were within the construction zones; and five out of those seven construction zones had detection issues most of the time. This is due to lane shift and/or pavement removal; thus, some of the detection loops were affected. The following VDSs 629993, 602301, 601358, 619984 and 601260 were not functioned properly most of the time.

QUARTERLY MOBILITY STATISTICS

Measure	Graph	Percentage Change									
Vehicle Miles of Travel (VMT)	<p>Miles (Billions)</p> <table border="1"> <thead> <tr> <th>Quarter</th> <th>VMT (Billions)</th> </tr> </thead> <tbody> <tr> <td>2018 Q4</td> <td>1.9</td> </tr> <tr> <td>2019 Q3</td> <td>2</td> </tr> <tr> <td>2019 Q4</td> <td>1.9</td> </tr> </tbody> </table>	Quarter	VMT (Billions)	2018 Q4	1.9	2019 Q3	2	2019 Q4	1.9	Over one year ago	Over last quarter
		Quarter	VMT (Billions)								
		2018 Q4	1.9								
		2019 Q3	2								
2019 Q4	1.9										
-0.3%	-5.6%										
↓	↓										
Total Vehicle Hours of Delay (VHD) at 35 mph	<p>Hours (Thousands)</p> <table border="1"> <thead> <tr> <th>Quarter</th> <th>VHD (Thousands)</th> </tr> </thead> <tbody> <tr> <td>2018 Q4</td> <td>304.9</td> </tr> <tr> <td>2019 Q3</td> <td>327.6</td> </tr> <tr> <td>2019 Q4</td> <td>309.6</td> </tr> </tbody> </table>	Quarter	VHD (Thousands)	2018 Q4	304.9	2019 Q3	327.6	2019 Q4	309.6	Over one year ago	Over last quarter
		Quarter	VHD (Thousands)								
		2018 Q4	304.9								
		2019 Q3	327.6								
2019 Q4	309.6										
1.5%	-5.5%										
↑	↓										
Average Non-Holiday Weekday Vehicle Hours of Delay (VHD) at 35 mph	<p>Hours (Thousands)</p> <table border="1"> <thead> <tr> <th>Quarter</th> <th>VHD (Thousands)</th> </tr> </thead> <tbody> <tr> <td>2018 Q4</td> <td>3604</td> </tr> <tr> <td>2019 Q3</td> <td>3852</td> </tr> <tr> <td>2019 Q4</td> <td>3780</td> </tr> </tbody> </table>	Quarter	VHD (Thousands)	2018 Q4	3604	2019 Q3	3852	2019 Q4	3780	Over one year ago	Over last quarter
		Quarter	VHD (Thousands)								
		2018 Q4	3604								
		2019 Q3	3852								
2019 Q4	3780										
4.9%	-1.9%										
↑	↓										
Total Vehicle Hours of Delay (VHD) at 60 mph	<p>Hours (Thousands)</p> <table border="1"> <thead> <tr> <th>Quarter</th> <th>VHD (Thousands)</th> </tr> </thead> <tbody> <tr> <td>2018 Q4</td> <td>1401.5</td> </tr> <tr> <td>2019 Q3</td> <td>1420.7</td> </tr> <tr> <td>2019 Q4</td> <td>1393.6</td> </tr> </tbody> </table>	Quarter	VHD (Thousands)	2018 Q4	1401.5	2019 Q3	1420.7	2019 Q4	1393.6	Over one year ago	Over last quarter
		Quarter	VHD (Thousands)								
		2018 Q4	1401.5								
		2019 Q3	1420.7								
2019 Q4	1393.6										
-0.6%	-1.9%										
↓	↓										
Average Non-Holiday Weekday Vehicle Hours of Delay (VHD) at 60 mph	<p>Hours</p> <table border="1"> <thead> <tr> <th>Quarter</th> <th>VHD (Hours)</th> </tr> </thead> <tbody> <tr> <td>2018 Q4</td> <td>18162</td> </tr> <tr> <td>2019 Q3</td> <td>18102</td> </tr> <tr> <td>2019 Q4</td> <td>18178</td> </tr> </tbody> </table>	Quarter	VHD (Hours)	2018 Q4	18162	2019 Q3	18102	2019 Q4	18178	Over one year ago	Over last quarter
		Quarter	VHD (Hours)								
		2018 Q4	18162								
		2019 Q3	18102								
2019 Q4	18178										
0.1%	0.4%										
↓	↑										

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
		Wednesday -12.9%	Monday -22.8%
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
		9 AM -28.6%	9 PM -66.6%
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
		9 AM -52.8%	10 AM -62.2%
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
		12 PM -46.6%	10 PM -81.5%
		Largest Magnitude Increase over one year ago	Largest Magnitude Increase over last quarter
		Monday 18.4%	Friday 13.1%
		Largest Magnitude Weekday Increase over one year ago	Largest Magnitude Weekday Increase over last quarter
		7 AM 29.9%	5 PM 58.7%
		Largest Magnitude Saturday Increase over one year ago	Largest Magnitude Saturday Increase over last quarter
		2 PM 84.4%	2 PM 216.5%
		Largest Magnitude Sun./Holiday Increase over one year ago	Largest Magnitude Sun./Holiday Increase over last quarter
		2 PM 48.5%	2 PM 69%

Measure	Graph	Percentage Change	
Total Vehicle Hours of Delay (VHD) by County at 35 mph	<p>Hours (Thousands)</p> 	Largest Magnitude Decrease over one year ago	Largest Magnitude Decrease over last quarter
		Madera -33.3% 	Kern -23.7% 
		Largest Magnitude Increase over one year ago	Largest Magnitude Increase over last quarter
		Kern 17.4% 	Fresno 79% 
Average Non-Holiday Weekday Equivalent Lost Lane Mile Hours at 35 mph	<p>Miles</p> 	Largest Magnitude Decrease over one year ago	Largest Magnitude Decrease over last quarter
		 AM Peak -32.6%	 Off-Peak Night -51.3%
		Largest Magnitude Increase over one year ago	Largest Magnitude Increase over last quarter
			PM Peak 13.6% 
Average Number of Good and Bad Detectors	<p>Number of Detectors</p> 	Change in Good over one year ago	Change in Good over last quarter
		-11% 	-7% 
		Change in Bad over one year ago	Change in Bad over last quarter
		57% 	16% 

Congestion by Route

Route	County	Vehicle Hours of Delay at 35 mph			Difference 2019 Q4-2018 Q4		Difference 2019 Q4-2019 Q3		Rank		
		2018 Q4	2019 Q3	2019 Q4	Absolute	Percentage	Absolute	Percentage	2018 Q4	2019 Q3	2019 Q4
		SR99	Kern	37058.4	62424.3	90357.4	53299	144%	27,933	45%	3
SR99	Madera	65212.5	59608.6	43207.7	-22004.8	-34%	(16,401)	-28%	1	4	2
SR99	Fresno	23517.2	16503.2	39081.1	15563.9	66%	22,578	137%	6	7	3
SR41	Fresno	33329.1	23316.1	31384.6	-1944.5	-6%	8,069	35%	4	5	4
I5	Fresno	20142.6	6608	21013.4	870.8	4%	14,405	218%	7	9	5
I5	Kern	48964.1	66936.8	20016.7	-28947.4	-59%	(46,920)	-70%	2	2	6
SR180	Fresno	7130.6	7124.9	10950.3	3819.7	54%	3,825	54%	11	8	7
SR198	Kings	7504.9	4918.5	4349.7	-3155.2	-42%	(569)	-12%	10	10	8
SR58	Kern	8212.5	2296.7	4040.6	-4171.9	-51%	1,744	76%	9	13	9
SR198	Tulare	1286.6	608.6	3641.2	2354.6	183%	3,033	498%	16	16	10
SR99	Tulare	28834.6	76621.7	3328.7	-25505.9	-88%	(73,293)	-96%	5	1	11
SR41	Kings	1388.9	4702.8	2099.7	710.8	51%	(2,603)	-55%	15	11	12
SR46	Kern	4637.8	20483.2	1677	-2960.8	-64%	(18,806)	-92%	13	6	13
SR168	Fresno	0	0	1196.6	1196.6		1,197				14
I5	Kings	1628.7	2048.3	950.2	-678.5	-42%	(1,098)	-54%	14	15	15
SR168S	Fresno	10336.1	2609.3	363.4	-9972.7	-96%	(2,246)	-86%	8	12	16
SR41	Madera	0	37.6	283.6	283.6		246	654%		17	17
SR180S	Fresno	5674.8	2067.2	249.6	-5425.2	-96%	(1,818)	-88%	12	14	18
SR152	Madera	10.3	0.8	11.8	1.5	15%	11	1375%	17	18	19
SR178	Kern	0	0	9.9	9.9		10				20
TOTALS		304,859	358,916	278,192	-26,668	-8.7%	-80,724	-22.5%			

Vehicle Hours of Delay is in Hours