

District 06 Mobility Performance Report

2023 Third Quarter

DEPARTMENT OF TRANSPORTATION

December 12, 2023
: D06 – Traffic Operations

2023 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 number of road miles 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

In the third quarter of 2023, total delay equaled approximately 384,700 vehicle hours of delay (VHD) at the 35mph speed threshold, an increase of approximately 6.4 percent compared to last quarter (second quarter of 2023). The average (non-holiday) weekday of vehicle hours of delay experienced in this quarter was approximately 4774 VHD (compares to 4564 VHD in last quarter) at 35mph speed threshold, an increase of 4.6 percent. Total delay was calculated at approximately 1.71 million (rounded off to 1.7 million) VHD at 60mph speed threshold, an increase of approximately 8.2 percent compared to second quarter (1.6 million VHD) of 2023. The average (non-holiday) weekday of vehicle hours of delay was reported as 22,670 (rounded off to 23,000) VHD at 60mph speed threshold, which also increases approximately 8 percent compare to previous quarter (20,999 VHD). Kern and Fresno Counties show the largest congestion among five counties in the District, especially on SR 41, SR 58 and SR 99. Vehicle Miles Traveled (VMT) was reported at an approximately 2.33 billion vehicle miles which slightly increase about 2.8 percent compared to the last quarter (2.27 billion). VMT for this quarter, compared to Quarter 3 of last year, is also slightly increase about 3.6 percent (2.25 billion for Quarter 3 last year). Overall, for this quarter, total vehicle-hour of delay for 35mph increases approximately 6.4 percent compared to second quarter of 2023 and the total vehicle-hour of delay at 60mph also increases approximately 8.2 percent, compared to the last quarter.

For this quarter, the total number of detectors in the district reduces to 1861 from 1866 in the last quarter. The Performance Measure System (PEMS) reported 2 percent increase in good detectors compared to the last quarter and a decrease of approximately 9 percent in bad detectors compared to last quarter. The average number of good as well as bad detectors are illustrated in the graph at the end of this report.

Top Ten Bottlenecks for Quarter 3 – 2023

County	Fwy	Locations	Type	Shift	Abs PM	CA PM	Latitude	Longitude	# Days Active	Avg Extent (Miles)	Total Delay (Veh-hrs)	Avg Duration (mins)
Fresno	41 N	Ashlan Ave	ML	PM	129.30	R27.55	36.80	-119.78	57	0.52	3393.80	5130
Fresno	41 N	Mc Kinley Ave.	ML	PM	127.09	R25.3405	36.77	-119.78	56	0.84	3102.40	2335
Fresno	41 N	Clinton Ave.	ML	PM	127.63	R25.8805	36.77	-119.78	47	1.46	5093.30	2245
Fresno	41 S	Shaw Ave	ML	PM	130.15	R28.395	36.81	-119.79	46	1.27	9059.20	4110
Fresno	99 N	N.O Nielsen Ave.	ML	PM	134.65	22.31	36.75	-119.82	42	0.63	3641.00	3645
Fresno	41 N	Ashlan Ave	ML	AM	129.30	R27.55	36.80	-119.78	42	0.50	1772.40	2725
Kern	58 W	H Street	ML	PM	110.13	R53.307	35.35	-119.02	40	1.75	2282.50	2665
Fresno	99 S	McKinley Ave.	ML	AM	136.07	23.75	36.76	-119.83	38	1.00	1985.40	1570
Kern	99 S	Rosedale Highway	ML	PM	26.35	25.532	35.38	-119.04	36	0.29	2452.80	4005
Fresno	41 N	Shields Ave	ML	PM	128.31	R26.5605	36.78	-119.78	32	2.15	9690.50	2520

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For this third quarter of 2023, PEMS reports the District’s top ten bottleneck locations as shown in the above table. The majority of district’s top bottleneck locations are mainly on SR 41, and SR 99 in the City of Fresno in Fresno County; there is one bottleneck location on SR 58 as well as one in SR 99 in the City of Bakersfield in Kern County. The listed bottleneck locations on the table are the recurrent congestion locations during peak hours and they have been occasionally

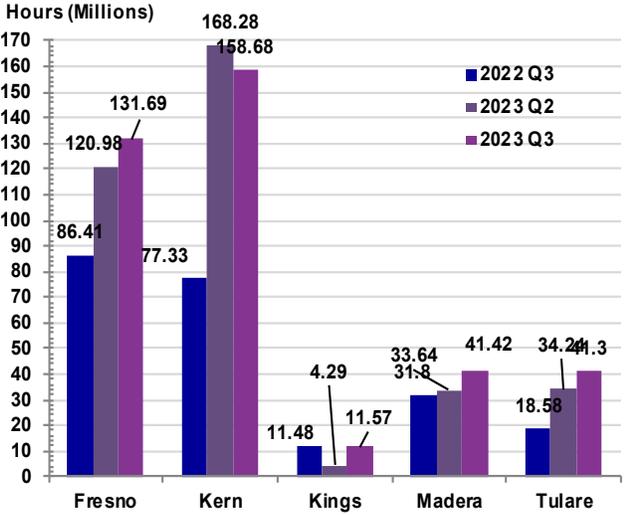
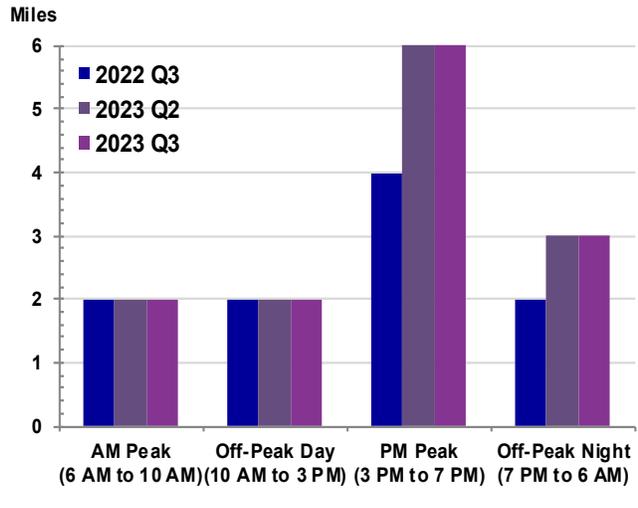
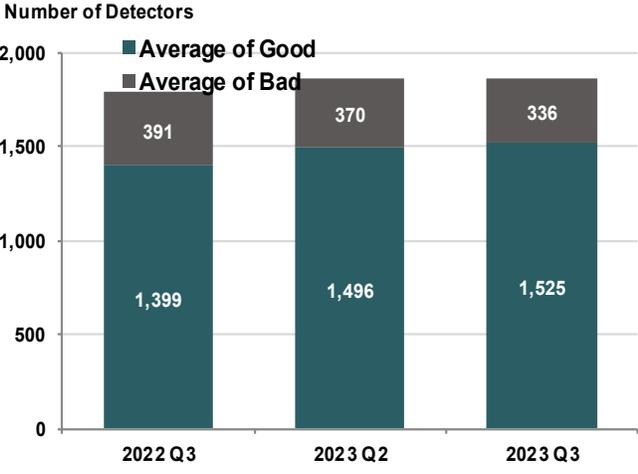
District 06

observed in the past quarters. PEMS also reported one bottleneck location on SR 99 near Avenue 9 interchange in Madera County. However, the District suspected that this bottleneck location was caused by the high-speed rail (HSR) construction project in the area. It is thus eliminated from the top ten bottleneck locations in this report. 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

Measure	Graph	Percentage Change									
Vehicle Miles of Travel (VMT)	<p>Miles (Billions)</p> <table border="1"> <tr><th>Quarter</th><th>VMT (Billions)</th></tr> <tr><td>2022 Q3</td><td>2.25</td></tr> <tr><td>2023 Q2</td><td>2.27</td></tr> <tr><td>2023 Q3</td><td>2.33</td></tr> </table>	Quarter	VMT (Billions)	2022 Q3	2.25	2023 Q2	2.27	2023 Q3	2.33	Over one year ago	Over last quarter
		Quarter	VMT (Billions)								
		2022 Q3	2.25								
2023 Q2	2.27										
2023 Q3	2.33										
3.6%	2.8%										
Total Vehicle Hours of Delay (VHD) at 35 mph	<p>Hours (Millions)</p> <table border="1"> <tr><th>Quarter</th><th>VHD (Millions)</th></tr> <tr><td>2022 Q3</td><td>225.6</td></tr> <tr><td>2023 Q2</td><td>361.4</td></tr> <tr><td>2023 Q3</td><td>384.7</td></tr> </table>	Quarter	VHD (Millions)	2022 Q3	225.6	2023 Q2	361.4	2023 Q3	384.7	Over one year ago	Over last quarter
		Quarter	VHD (Millions)								
		2022 Q3	225.6								
2023 Q2	361.4										
2023 Q3	384.7										
70.5%	6.4%										
Average Non-Holiday Weekday Vehicle Hours of Delay (VHD) at 35 mph	<p>Hours (Thousands)</p> <table border="1"> <tr><th>Quarter</th><th>VHD (Thousands)</th></tr> <tr><td>2022 Q3</td><td>2760</td></tr> <tr><td>2023 Q2</td><td>4564</td></tr> <tr><td>2023 Q3</td><td>4774</td></tr> </table>	Quarter	VHD (Thousands)	2022 Q3	2760	2023 Q2	4564	2023 Q3	4774	Over one year ago	Over last quarter
		Quarter	VHD (Thousands)								
		2022 Q3	2760								
2023 Q2	4564										
2023 Q3	4774										
72.9%	4.6%										
Total Vehicle Hours of Delay (VHD) at 60 mph	<p>Hours (Millions)</p> <table border="1"> <tr><th>Quarter</th><th>VHD (Millions)</th></tr> <tr><td>2022 Q3</td><td>1.5</td></tr> <tr><td>2023 Q2</td><td>1.6</td></tr> <tr><td>2023 Q3</td><td>1.7</td></tr> </table>	Quarter	VHD (Millions)	2022 Q3	1.5	2023 Q2	1.6	2023 Q3	1.7	Over one year ago	Over last quarter
		Quarter	VHD (Millions)								
		2022 Q3	1.5								
2023 Q2	1.6										
2023 Q3	1.7										
16.4%	8.2%										
Average Non-Holiday Weekday Vehicle Hours of Delay (VHD) at 60 mph	<p>Hours (Thousands)</p> <table border="1"> <tr><th>Quarter</th><th>VHD (Thousands)</th></tr> <tr><td>2022 Q3</td><td>19</td></tr> <tr><td>2023 Q2</td><td>21</td></tr> <tr><td>2023 Q3</td><td>23</td></tr> </table>	Quarter	VHD (Thousands)	2022 Q3	19	2023 Q2	21	2023 Q3	23	Over one year ago	Over last quarter
		Quarter	VHD (Thousands)								
		2022 Q3	19								
2023 Q2	21										
2023 Q3	23										
16.9%	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
		Monday -13.7% ↓	Friday -0.6% ↓
		Largest Magnitude Increase over one year ago	Largest Magnitude Increase over last quarter
		Tuesday 35.5% ↑	Tuesday 35.8% ↑
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
		-	1 AM -52.7% ↓
		Largest Magnitude Weekday Increase over one year ago	Largest Magnitude Weekday Increase over last quarter
		5 PM 112.4% ↑	10 AM 73.8% ↑
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
		11 PM -51.7% ↓	3 AM -81.1% ↓
		Largest Magnitude Saturday Increase over one year ago	Largest Magnitude Saturday Increase over last quarter
		9 AM 84.1% ↑	9 AM 457.8% ↑
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 AM -44.9% ↓	8 PM -26.1% ↓
		Largest Magnitude Sun./Holiday Increase over one year ago	Largest Magnitude Sun./Holiday Increase over last quarter
		10 PM 410.4% ↑	6 PM 60.9% ↑

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
		-	Kern  -5.7%
		Largest Magnitude Increase over one year ago	Largest Magnitude Increase over last quarter
		Kern  105.2%	Fresno  8.9%
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 Day  -20.6%	PM Peak  -10%
		Largest Magnitude Increase over one year ago	Largest Magnitude Increase over last quarter
		Off-Peak Night  81.8%	Off-Peak Night  13.9%
Average Number of Good and Bad Detectors		Change in Good over one year ago	Change in Good over last quarter
		9% 	2% 
		Change in Bad over one year ago	Change in Bad over last quarter
		-14% 	-9% 

Congestion by Route

Route	County	Vehicle Hours of Delay at 35 mph			Difference 2023 Q3-2022 Q3		Difference 2023 Q3-2023 Q2		Rank		
		2022 Q3	2023 Q2	2023 Q3	Absolute	Percentage	Absolute	Percentage	2022 Q3	2023 Q2	2023 Q3
		SR99	Kern	42,866	109,431	84,008	41,142	96.0%	-25,424	-23.2%	1
I5	Kern	24,027	49,763	60,491	36,464	151.8%	10,727	21.6%	4	3	2
SR41	Fresno	21,018	50,221	44,271	23,252	110.6%	-5,950	-11.8%	5	2	3
SR99	Madera	31,783	33,603	39,390	7,607	23.9%	5,787	17.2%	3	5	4
SR99	Fresno	33,861	34,659	34,903	1,041	3.1%	244	0.7%	2	4	5
SR99	Tulare	15,133	25,129	33,529	18,397	121.6%	8,401	33.4%	6	6	6
SR180	Fresno	8,231	20,336	25,846	17,614	214.0%	5,510	27.1%	11	7	7
I5	Fresno	14,759	13,146	21,522	6,764	45.8%	8,376	63.7%	7	8	8
SR58	Kern	10,407	9,040	14,163	3,756	36.1%	5,123	56.7%	8	10	9
SR41	Kings	9,362	1,265	8,268	-1,094	-11.7%	7,002	553.4%	9	13	10
SR198	Tulare	3,445	9,107	7,767	4,321	125.4%	-1,341	-14.7%	12	9	11
SR168	Fresno	8,544	2,616	5,152	-3,392	-39.7%	2,537	97.0%	10	11	12
I5	Kings	1,904	489	2,603	699	36.7%	2,114	432.0%	13	14	13
SR41	Madera	21	27	2,030	2,009	9564.8%	2,003	7389.3%	16	16	14
SR198	Kings	214	2,534	700	486	227.5%	-1,835	-72.4%	14	12	15
SR46	Kern	1	41	14	13	1250.0%	-28	-67.4%	17	15	16
SR178	Kern	25	0	3	-22	-86.7%	3		15		17
SR152	Madera	1	11	0	0	-60.0%	-11	-98.2%	18	17	18
TOTALS		225,601	361,408	384,657	159,056	70.5%	23,249	6.4%			