

District 06 Mobility Performance Report

2020 First Quarter

DEPARTMENT OF TRANSPORTATION

May 4, 2020
District 06 Traffic Operations

District 06 Mobility Performance Report

2020 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 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 first quarter of 2020, total delay was approximately 233 thousand (310 thousand last quarter) Vehicle Hours of Delay (VHD) at the 35 miles per hour (mph) speed threshold, and 1,293 (1,394 thousand last quarter) thousand VHD at the 60mph threshold. The average non-holiday weekday experience was approximately 2,967 (3,780 thousand last quarter) VHD at 35mph. Compared to the previous quarter, there was an approximately 21.5 percent decrease in 35mph average non-holiday weekday quarterly delay and a decrease approximately 3.4 percent in 60 mph.

In comparison with the last quarter and quarter one of last year, it is anticipated that both VHD and VMT will be decreased due to the State's shelter-in-place order by the governor, starting approximately at the first week of March. For the entire district, the total VHD for this fourth quarter experienced a decrease of approximately 24.7 percent when compared to the previous quarter, however the delay varied with respect to each County and route. The VHD also experienced considerable drop of approximately 31.5 percent when comparing this quarter to the first quarter of 2019. Vehicle Miles Traveled (VMT) decreased approximately 9.3 percent when compared to the last quarter, and 3 percent drop in VMT compare to quarter one of last year. Fresno County and Kern Counties still experience the largest delay among the five counties in District 6; this is because they include the two largest metropolitan cities, Fresno and Bakersfield. As for comparison of VHD to the previous quarter, Fresno County experienced a reduction of 49 percent, while Tulare County reported an increase of approximately 103 percent, at the 35mph threshold; this may have been the results from active construction activities (active lane closure) on Tulare 198 and Tulare 99 pavement rehabilitation projects (2Rs) in February and March.

CENTRAL REGION ONGOING PROJECTS

For Quarter 1 of 2020, the following projects are considered to possibly have an impact on delay in District 6.

Fresno County

State Route 99; 06-0S460 0615000035 Pavement Rehabilitation (PM 0.9/5.0)

State Route 41; 06-0V750 0616000227 Irrigation Upgrade (PM 21/31)

Kern County

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

Interstate I-5; 06-0T010 0615000004 Install Vehicle Detection System (PM 1.2/77.1)

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: 06-0G850 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)

Kings County

State Route 41; 06-0J040 0614000008 Restore Roadbed (PM R37.5/R38.1)

Madera County

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)

Tulare County

State Route 99; 06-1A070 0619000183 Pumping Plant Repair (PM 7.1)

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)

State Route 198; 06-0P320-0612000339 Minor Widening & Safety Improvement (PM16.5/17.1)

Following table lists the most active bottleneck locations in the District for the first quarter in 2020. Data from PEMS indicated bottleneck locations that were active on 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.

BOTTLENECKS REPORTED FOR QUARTER 1

County	Fwy	Locations	Shift	VDS	CA PM	# Days Active	Avg Extent (Miles)	Avg Delay (Veh-hrs)	Avg Duration (mins)
Kern	46	Jeo Kecks Road WB	PM	602467	10.08	15	2.1	137.91	96.0
Kern	46	Jeo Kecks Road WB	AM	602467	10.08	18	2.1	127.38	96.11
Kern	99	S. O. Palm Ave. NB	PM	601358	24.11	22	0.8	102.28	71.82
Fresno	99	Stanislaus St. NB	PM	601425	21.0105	28	1.80	164.5	61.61
Kern	99	S. O. Rosedale Hwy SB	PM	619984	26.294	49	1.02	105.01	111.43
Fresno	99	McKinley Ave. SB	AM	601264	23.75	44	1.73	100.08	40.23
Kern	99	Olive Drive SB	PM	601260	27.8	15	1.34	110.83	77.33
Fresno	99	Olive Ave. SB	PM	601262	23.21	16	1.58	129.67	56.56

Further investigation of data and site condition to confirm these bottleneck locations; it was found that about half of the listed bottleneck locations have been associated with lane closures related in construction activities on SR 99 and some were functioned intermittently during the quarter. For example, VDSs 601358, 619984, 601260 were within the construction zones; and had 1 or 2 directional lane nonfunctional most of the time. This may have been due to lane shift and/or pavement removal; thus, some of the detection loops were affected. VDS 602467 on SR 46 were working intermittently most of the time. Additionally, there are only 8 detectors available (on both directions) for the entire SR 46 route and they are all located at this location. This is a rural area in Kern County and it is not anticipated that daily recurrent congestion would occur here.

QUARTERLY MOBILITY STATISTICS

Measure	Graph	Percentage Change									
Vehicle Miles of Travel (VMT)	<p>Miles (Billions)</p> <table border="1"> <caption>Vehicle Miles of Travel (VMT) - Billions</caption> <thead> <tr> <th>Quarter</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>2019 Q1</td> <td>1.8</td> </tr> <tr> <td>2019 Q4</td> <td>1.9</td> </tr> <tr> <td>2020 Q1</td> <td>1.7</td> </tr> </tbody> </table>	Quarter	Value	2019 Q1	1.8	2019 Q4	1.9	2020 Q1	1.7	Over one year ago	Over last quarter
		Quarter	Value								
		2019 Q1	1.8								
2019 Q4	1.9										
2020 Q1	1.7										
-3%	-9.3%										
Total Vehicle Hours of Delay (VHD) at 35 mph	<p>Hours (Thousands)</p> <table border="1"> <caption>Total Vehicle Hours of Delay (VHD) at 35 mph - Thousands</caption> <thead> <tr> <th>Quarter</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>2019 Q1</td> <td>376.3</td> </tr> <tr> <td>2019 Q4</td> <td>309.6</td> </tr> <tr> <td>2020 Q1</td> <td>233</td> </tr> </tbody> </table>	Quarter	Value	2019 Q1	376.3	2019 Q4	309.6	2020 Q1	233	Over one year ago	Over last quarter
		Quarter	Value								
		2019 Q1	376.3								
2019 Q4	309.6										
2020 Q1	233										
-38.1%	-24.7%										
Average Non-Holiday Weekday Vehicle Hours of Delay (VHD) at 35 mph	<p>Hours (Thousands)</p> <table border="1"> <caption>Average Non-Holiday Weekday Vehicle Hours of Delay (VHD) at 35 mph - Thousands</caption> <thead> <tr> <th>Quarter</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>2019 Q1</td> <td>4571</td> </tr> <tr> <td>2019 Q4</td> <td>3780</td> </tr> <tr> <td>2020 Q1</td> <td>2967</td> </tr> </tbody> </table>	Quarter	Value	2019 Q1	4571	2019 Q4	3780	2020 Q1	2967	Over one year ago	Over last quarter
		Quarter	Value								
		2019 Q1	4571								
2019 Q4	3780										
2020 Q1	2967										
-35.1%	-21.5%										
Total Vehicle Hours of Delay (VHD) at 60 mph	<p>Hours (Thousands)</p> <table border="1"> <caption>Total Vehicle Hours of Delay (VHD) at 60 mph - Thousands</caption> <thead> <tr> <th>Quarter</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>2019 Q1</td> <td>1474.2</td> </tr> <tr> <td>2019 Q4</td> <td>1393.6</td> </tr> <tr> <td>2020 Q1</td> <td>1292.7</td> </tr> </tbody> </table>	Quarter	Value	2019 Q1	1474.2	2019 Q4	1393.6	2020 Q1	1292.7	Over one year ago	Over last quarter
		Quarter	Value								
		2019 Q1	1474.2								
2019 Q4	1393.6										
2020 Q1	1292.7										
-12.3%	-7.2%										
Average Non-Holiday Weekday Vehicle Hours of Delay (VHD) at 60 mph	<p>Hours</p> <table border="1"> <caption>Average Non-Holiday Weekday Vehicle Hours of Delay (VHD) at 60 mph</caption> <thead> <tr> <th>Quarter</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>2019 Q1</td> <td>19601</td> </tr> <tr> <td>2019 Q4</td> <td>18178</td> </tr> <tr> <td>2020 Q1</td> <td>17557</td> </tr> </tbody> </table>	Quarter	Value	2019 Q1	19601	2019 Q4	18178	2020 Q1	17557	Over one year ago	Over last quarter
		Quarter	Value								
		2019 Q1	19601								
2019 Q4	18178										
2020 Q1	17557										
-10.4%	-3.4%										

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
		Tuesday -31.8%	Thursday -21.1%
		Largest Magnitude Increase over one year ago	Largest Magnitude Increase over last quarter
		Wednesday 8.7%	Wednesday 19.8%
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
		4 PM -31.4%	5 PM -45%
		Largest Magnitude Weekday Increase over one year ago	Largest Magnitude Weekday Increase over last quarter
		-	3 AM 207.5%
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 -68.3%	1 PM -60.2%
		Largest Magnitude Saturday Increase over one year ago	Largest Magnitude Saturday Increase over last quarter
		-	10 AM 59.5%
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 -84.8%	2 PM -68.3%
		Largest Magnitude Sun./Holiday Increase over one year ago	Largest Magnitude Sun./Holiday Increase over last quarter
		3 PM 3.5%	10 AM 82.7%

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
		Fresno -62.3% ↓	Fresno -48.9% ↓
		Largest Magnitude Increase over one year ago	Largest Magnitude Increase over last quarter
		Tulare 15.9% ↑	Tulare 102.9% ↑
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
		PM Peak -43.6% ↓	PM Peak -46.6% ↓
		Largest Magnitude Increase over one year ago	Largest Magnitude Increase over last quarter
		Off-Peak Night 15.4% ↑	
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
		-9% ↓	2% ↓
		Change in Bad over one year ago	Change in Bad over last quarter
		32% ↑	-7% ↓

Congestion by Route											
Route	County	Vehicle Hours of Delay at 35 mph			Difference 2020 Q1-2019 Q1		Difference 2020 Q1-2019 Q4		Rank		
		2019 Q1	2019 Q4	2020 Q1	Absolute	Percentage	Absolute	Percentage	2019 Q1	2019 Q4	2020 Q1
SR99	Tulare	65777.4	34675.9	57426.1	-8351.3	-13%	22,750	66%	2	4	1
I5	Kern	38919.6	20016.7	36657.7	-2261.9	-6%	16,641	83%	4	7	2
SR99	Kern	37287.4	90357.4	24030.9	-13256.5	-36%	(66,327)	-73%	5	1	3
SR198	Tulare	1319.5	3641.2	20335.6	19016.1	1441%	16,694	458%	14	11	4
SR41	Fresno	21844.3	31384.6	18807.6	-3036.7	-14%	(12,577)	-40%	6	5	5
SR99	Madera	62249.7	43207.7	17157.9	-45091.8	-72%	(26,050)	-60%	3	2	6
SR99	Fresno	16422.5	39081.1	16871.3	448.8	3%	(22,210)	-57%	7	3	7
SR46	Kern	11909.5	1677	16837	4927.5	41%	15,160	904%	8	13	8
I5	Fresno	96982.6	21013.4	8842.7	-88139.9	-91%	(12,171)	-58%	1	6	9
SR180	Fresno	4106.6	10950.3	7489.1	3382.5	82%	(3,461)	-32%	11	8	10
I5	Kings	3840.5	950.2	3311.3	-529.2	-14%	2,361	248%	12	15	11
SR58	Kern	7680.6	4040.6	1539.2	-6141.4	-80%	(2,501)	-62%	9	10	12
SR198	Kings	1120.8	4349.7	1357.4	236.6	21%	(2,992)	-69%	15	9	13
SR168	Fresno	0	1196.6	1223.9	1223.9		27	2%		14	14
SR41	Kings	463.9	2099.7	1114.5	650.6	140%	(985)	-47%	17	12	15
SR152	Madera	25.2	11.8	20.2	-5	-20%	8	71%	18	19	16
SR168S	Fresno	1400	363.4	0	-1400	-100%	(363)	-100%	13	16	
SR178	Kern	4347.3	9.9	0	-4347.3	-100%	(10)	-100%	10	20	
SR180S	Fresno	608.7	249.6	0	-608.7	-100%	(250)	-100%	16	18	
SR41	Madera	0.4	283.6	0	-0.4	-100%	(284)	-100%	19	17	
TOTALS		375,697	309,027	233,022	-142,675	-38.0%	-76,005	-24.6%			

Vehicle Hours of Delay is in Hours