

District 04 Mobility Performance Report

2021 3rd Quarter

DEPARTMENT OF TRANSPORTATION

October 29, 2021
District 4-Office of Highway Operations

ABBREVIATIONS

Abs	Absolute
Avg	Average
CA	California
CO	County
MPR	Mobility Performance Report
PeMS	Performance Measurement System
PM	Postmile
Q	Quarter

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2021 3rd Quarter

EXECUTIVE SUMMARY

Overview

Caltrans District 4 is comprised of nine counties that border the San Francisco Bay: Alameda (ALA), Contra Costa (CC), Marin (MRN), Napa (NAP), San Francisco (SF), San Mateo (SM), Santa Clara (SCL), Solano (SOL), and Sonoma (SON) Counties. Although these are urban counties, they do contain a large amount of sparsely populated land.

The Mobility Performance quarterly analysis compares information from over a year ago and over last quarter in 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 data collected every day of the quarter, twenty-four hours a day, by automated vehicle detector stations deployed on urban-area freeways where congestion is regularly experienced. The MPR presents congestion 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, both light and heavy. These thresholds are set by Caltrans and are based upon engineering experience and District input.

FINDINGS

Statewide Shelter-In-Place (SIP) took effect on March 19, 2020, the last few weeks of Q1 2020. The full effect of the COVID-19 Pandemic on traffic wasn't seen until Q2 2020. During Q3 2020 businesses were allowed to reopen if their county's COVID-19 reopening criteria were met, but it was still the early stages of the COVID-19 Pandemic. A full year and six months has passed since SIP took effect. To combat the pandemic, vaccinations are being administered to all eligible individuals based on state guidelines. On June 15th, 2021, California State Governor Gavin Newsom announced the reopening of California. There was a 12.3% increase in VMT compared to the same quarter a year ago, with VMT increasing from 6.6 billion in Q3 2020 to 7.4 billion in Q3 2021. In the third quarter, we see an increase of 2.3% (164 million) in VMT from the previous quarter's VMT of 7.2 billion.

Increases are not only seen in VMT, but also in VHD. Compared to the same quarter the year before, there was a 113% increase from 2.3 million to 4.9 million in the 35 mph total quarterly delay, and a 72.2% increase from 6.8 million to 11.8 million VHD in the 60 mph total quarterly delay.

The average weekday delay in this quarter has increased compared to the year before. Last year, during the same quarter, there was a delay of 34 thousand VHD at 35 mph, and 101 thousand VHD at 60 mph. Whereas this quarter, there was a delay of 61 thousand VHD at 35 mph, and 151 thousand VHD at 60 mph. Friday was the most congested day of the week in Q3 similarly to the same quarter a year ago and the previous quarter. Thursday had the largest magnitude increase of 58 thousand which was a 54% increase from the same quarter last year. Monday had the largest magnitude increase of 13 thousand (11%) compared to last quarter.

Looking at the Average VHD at 35 mph by hour of the day for weekdays, there was a significant increase in the AM commute period congestion compared to last year. The largest magnitude change compared to the same quarter a year ago occurred at 8 AM with an increase of 380%. The largest magnitude weekday decrease over last quarter occurred at 4 AM with a decrease of -25.7%. For the PM hours, the largest magnitude increase of 76% occurred at 5 PM compared to the same quarter last year, and the largest magnitude increase of 19% occurred at 6 PM compared to last quarter. The PM commute period has increased compared to the previous

quarter where the average VHD during the PM peak hour of 5 PM increased to 11,200 thousand VHD from 10,700 thousand VHD the quarter before. The largest single hour decrease on Saturday compared to a year ago occurred at 4 AM of -31.9%, over last quarter occurred at 4 AM of -26%. The largest single hour increase on Saturday compared to a year ago occurred at 4 PM of 190%, and over last quarter an increase of 21.8% occurred at 5 PM. As for the Sunday/Holidays, the largest magnitude decrease over a year ago is -23.4% at 11 PM, and over last quarter -6.93% at 5 PM. The largest magnitude increase over a year ago is 147.4% at 1 PM, over last quarter occurred at 3 PM of 13%.

Alameda County with 1,970,000 vehicle hours of total delay at 35 mph during the third quarter was the most congested county in the District. Santa Clara County with 886,000 vehicle hours of total delay at 35 mph was the second most congested county in the District. Contra Costa County with 807,000 vehicle hours of total delay at 35 mph was the third most congested county in the District. Alameda County experienced the largest magnitude increase of 121% compared to the same quarter last year, and Alameda County experienced the largest magnitude increase of 12% compared to last quarter.

From the Top 10 Bottlenecks for the 3rd Quarter, nine bottleneck locations occurred during the PM, and one bottleneck location occurred in the AM period. The top three locations are as follows:

- CC I80 Eastbound at Pinole Valley Rd during PM period (Rank 1, previously ranked 1 in Q2 2021): 147,100 vehicle hours of delay
- ALA I80 Eastbound at W of Buchanan St during PM period (Rank 2, previously ranked 2 in Q2 2021): 103,500 vehicle hours of delay
- SCL US101 Southbound at Burnett Ave during PM period (Rank 3, previously ranked 3 in Q2 2021): 78,500 vehicle hours of delay

This quarter, there are eight locations that have resurfaced from last quarter's top 10 bottleneck list. Rank 1 (previously Rank 1 in Q2 2021), ALA I80 Eastbound at Pinole Valley Rd increased 11.5% from 131,900 to 147,100 VHD. Rank 2 (previously Rank 2 in Q2 2021), ALA I80 Eastbound at W of Buchanan St decreased 13% from 119,100 to 103,500 VHD. Rank 3

(previously Rank 3 in Q2 2021), SCL US101 Southbound at Burnett Ave decreased 33% from 117,200 to 78,500 VHD. Rank 4 (previously Rank 5 in Q2 2021), ALA I580 Eastbound at 2.34 miles E of Greenville Rd decreased 8% from 81,100 to 74,600 VHD. Rank 6 (previously Rank 6 in Q2 2021), CC I680 Northbound at Buskirk Ave decreased 5% from 66,100 to 62,900 VHD. Rank 7 (previously Rank 10 in Q2 2021), ALA I80 Westbound at Powell St increased 3% from 57,700 to 59,200 VHD. Rank 8 (previously Rank 8 in Q2 2021), SOL SR12 Eastbound at Red Top Rd decreased 17% from 63,000 to 52,100 VHD. Rank 9 (previously Rank 9 in Q2 2021), CC SR4 Westbound at 2500' W of Bailey Rd decreased 24% from 62,200 to 47,100 VHD.

The remaining bottleneck locations are as follows:

- ALA I880 Northbound at N of Eldridge POC during PM period (Rank 5): Was ranked 13 last quarter.
- CC SR242 Northbound at Olivera St during PM period (Rank 10): Was ranked 17 last quarter.

The activity across our counties during this third quarter were seen to have increases in delays at most locations. On the Congestion by Route table, 35 out of the 48 Route Counties listed had increases in congestion compared to a quarter ago.

Regarding vehicle detector health, there was a -2.8% decrease in the number of good working detector and 3% increase in the number of bad detectors over last quarter that are no longer able to capture the congestion.

An issue with the PeMS assigned length per VDS affected 55 out of 108 VDSs on NB 101 between postmile 0.21 to 21.23 in Sonoma County prior to 6/24/2021 (2021 Qtr 2). The affected VDSs had an average PeMS assigned length of 2.52 miles versus 0.40 miles for the Average Calculated VDS length for the same section. The adjustments to VMT and VHD were only made to correct the Sonoma 101 freeway totals, Sonoma County totals, and District total. The error was resolved and adjustments are no longer needed for data starting 2021 Qtr 3 and onward.

Top Ten Bottlenecks for the 2021 3rd Quarter:

Rank	County	Fwy	Approximate Location	Shift	Abs PM	CA PM	Avg Extent (miles)	Total Delay (veh-hrs)	Total Duration (mins)	# of active days	Latitude	Longitude
1	Contra Costa	I80-E	Pinole Valley Rd	PM	21.9	8.59	5.6	147,122	11,980	63	37.99801	- 122.28511
2	Alameda	I80-E	W of Buchanan St	PM	12.3	R6.98	3.4	103,474	8,420	64	37.88481	- 122.30862
3	Santa Clara	US101-S	Burnett Ave	PM	368.1	R18.8	4.1	78,479	7,440	41	37.16338	- 121.66442
4	Alameda	I580-E	2.34 miles E of Greenville Rd	PM	21.0	R4.91	6.0	74,582	6,840	53	37.72043	- 121.68748
5	Alameda	I880-N	N of Eldridge POC	PM	26.3	16.09	4.7	71,592	8,600	57	37.63718	- 122.08826
6	Contra Costa	I680-N	Buskirk Ave	PM	48.3	16.8	3.4	62,939	6,390	64	37.93261	- 122.06009
7	Alameda	I80-W	Powell St	PM	9.2	3.9	2.1	59,231	13,880	65	37.83967	-122.297
8	Solano	SR12-E	Red Top Rd-Rte 4	PM	38.6	2.41	3.0	52,094	12,730	65	38.20766	- 122.15707
9	Contra Costa	SR4-W	2500' W of Bailey Rd	AM	19.1	R19.39	1.4	47,108	9,485	63	38.02093	- 121.95461
10	Contra Costa	SR242-N	Olivera St OC (Reitz Ct)	PM	3.1	R2.81	1.9	42,791	13,095	63	37.9981	- 122.03823

Measure	Graph	Percentage Change									
Vehicle Miles of Travel (VMT)	<p>Miles (Billions)</p> <table border="1"> <tr><th>Year</th><th>Q3</th></tr> <tr><td>2020</td><td>6.6</td></tr> <tr><td>2021</td><td>7.2</td></tr> <tr><td>2021</td><td>7.4</td></tr> </table>	Year	Q3	2020	6.6	2021	7.2	2021	7.4	Over one year ago	Over last quarter
		Year	Q3								
		2020	6.6								
2021	7.2										
2021	7.4										
12.3%	2.3%										
Total Vehicle Hours of Delay (VHD) at 35 mph	<p>Hours (Millions)</p> <table border="1"> <tr><th>Year</th><th>Q3</th></tr> <tr><td>2020</td><td>2.3</td></tr> <tr><td>2021</td><td>4.2</td></tr> <tr><td>2021</td><td>4.9</td></tr> </table>	Year	Q3	2020	2.3	2021	4.2	2021	4.9	Over one year ago	Over last quarter
		Year	Q3								
		2020	2.3								
2021	4.2										
2021	4.9										
113%	15.9%										
Average Non-Holiday Weekday Vehicle Hours of Delay (VHD) at 35 mph	<p>Hours (Thousands)</p> <table border="1"> <tr><th>Year</th><th>Q3</th></tr> <tr><td>2020</td><td>34</td></tr> <tr><td>2021</td><td>57</td></tr> <tr><td>2021</td><td>61</td></tr> </table>	Year	Q3	2020	34	2021	57	2021	61	Over one year ago	Over last quarter
		Year	Q3								
		2020	34								
2021	57										
2021	61										
79%	6.4%										
Total Vehicle Hours of Delay (VHD) at 60 mph	<p>Hours (Millions)</p> <table border="1"> <tr><th>Year</th><th>Q3</th></tr> <tr><td>2020</td><td>6.8</td></tr> <tr><td>2021</td><td>10.6</td></tr> <tr><td>2021</td><td>11.8</td></tr> </table>	Year	Q3	2020	6.8	2021	10.6	2021	11.8	Over one year ago	Over last quarter
		Year	Q3								
		2020	6.8								
2021	10.6										
2021	11.8										
72.2%	10.8%										
Average Non-Holiday Weekday Vehicle Hours of Delay (VHD) at 60 mph	<p>Hours (Thousands)</p> <table border="1"> <tr><th>Year</th><th>Q3</th></tr> <tr><td>2020</td><td>101</td></tr> <tr><td>2021</td><td>147</td></tr> <tr><td>2021</td><td>151</td></tr> </table>	Year	Q3	2020	101	2021	147	2021	151	Over one year ago	Over last quarter
		Year	Q3								
		2020	101								
2021	147										
2021	151										
49.2%	3.1%										

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 Thursday 54%	Friday -6.8% Largest Magnitude Increase over last quarter Monday 11.3%
Average Vehicle Hours of Delay by Hour of Day at 35 mph, Weekdays		Largest Magnitude Weekday Decrease over one year ago 3 AM -28.4%	Largest Magnitude Weekday Decrease over last quarter 2 PM -16.4%
		Largest Magnitude Weekday Increase over one year ago 5 PM 76%	Largest Magnitude Weekday Increase over last quarter 8 AM 69.5%
Average Vehicle Hours of Delay by Hour of Day at 35 mph, Saturdays		Largest Magnitude Saturday Decrease over one year ago 4 AM -31.9%	Largest Magnitude Saturday Decrease over last quarter 2 PM -8.2%
		Largest Magnitude Saturday Increase over one year ago 4 PM 189.7%	Largest Magnitude Saturday Increase over last quarter 5 PM 21.8%
Average Vehicle Hours of Delay by Hour of Day at 35 mph, Sundays/Holidays		Largest Magnitude Sun./Holiday Decrease over one year ago 11 PM -23.4%	Largest Magnitude Sun./Holiday Decrease over last quarter 5 PM -6.9%
		Largest Magnitude Sun./Holiday Increase over one year ago 1 PM 147.4%	Largest Magnitude Sun./Holiday Increase over last quarter 3 PM 13%

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
		Alameda 120.5% ↑	Marin -1.1% ↓
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 63.9% ↑	Off-Peak Day -9.5% ↓
Average Number of Good and Bad Detectors		Change in Good over one year ago	Change in Good over last quarter
		-4% ↓	-1.2% ↓
		Change in Bad over one year ago	Change in Bad over last quarter
		12% ↑	3% ↑

