

# District 04 Mobility Performance Report

**DEPARTMENT OF TRANSPORTATION**

November 16, 2020  
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

## District 04 Mobility Performance Report

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2020 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 the first quarter. The full effect of the COVID-19 Pandemic on traffic was seen during the second quarter. SIP is still widely advised during this third quarter. There was a -13.9% decrease in VMT compared to the same quarter a year ago, with VMT dropping from 8.2 billion in 2019 to 7 billion in 2020. The second quarter has shown us a drastic decrease in mobility due to SIP, however this quarter we see a significant increase of 26% in VMT from the previous quarter's VMT of 5.6 billion.

The decrease in VMT caused by the Covid-19 pandemic had a greater effect on VHD. In the third quarter, the total delay equaled 2.6 million VHD at the 35 mph speed threshold, and 7.6 million VHD at the 60 mph threshold. Compared to the same quarter the year before, there was a -77.4% decrease from 11.5 million to 2.6 million in the 35 mph total quarterly delay, and a -66.2% decrease from 22.3 million to 7.6 million VHD in the 60 mph total quarterly delay.

The average weekday delay in this quarter has decreased compared to the year before. Last year, during the same quarter, there was a delay of 143 thousand VHD at 35 mph, and 286 thousand VHD at 60 mph. Whereas this quarter, there was a delay of 35 thousand VHD at 35 mph, and 103 thousand VHD at 60 mph. Friday was the most congested day of the week versus Thursday the same quarter the year before. Thursday had the largest magnitude decrease of -68.4% since a year ago. Friday had the largest magnitude increase of 104% from last quarter.

Looking at the Average VHD at 35 mph by hour of the day for weekdays, there was a significant decrease in both the AM and PM commute period congestion compared to last year, however compared to last quarter there was an increase. The largest magnitude change compared to the same quarter a year ago occurred at 5 PM with a decrease of -72.8%. Compared to last quarter, the largest magnitude occurred at 4PM with an increase of 75.4%. The PM commute period had significantly increased compared to the previous quarter where the average VHD during the PM peak hour of 4 PM increased to 7,500 thousand VHD from 4,300 thousand VHD the quarter before. The largest single hour decrease from a year ago of -87.6% occurred on a weekend, Sunday at 2 PM. And the largest single hour increase from last quarter of 100.7% occurred on Saturday at 1 PM.

Alameda County with 890,000 vehicle hours of total delay at 35 mph during the third quarter was the most congested county in the District. Sonoma County with 420,000 vehicle hours of total delay at 35 mph was the second most congested county in the District. Santa Clara County experienced the largest magnitude decrease of -89.4% over one year ago as well as the largest increase of 129.4% from last quarter. San Francisco County experienced the largest magnitude decrease of -17.7% over the last quarter.

From the Top 10 Bottlenecks for the 3<sup>rd</sup> Quarter, all top ten locations were from the PM period. The top three locations are as follows:

- ALA I80 Eastbound at University Ave during PM period (Rank 1, previously Rank 5 in Q2 2020): 76,900 vehicle hours of delay
- ALA I580 Eastbound at 4000' E of Greenville Rd during PM period (Rank 2, previously Rank 3 in Q2 2020): 71,000 vehicle hours of delay
- SCL US101 Southbound at Burnett Ave during PM period (Rank 3, previously Rank 2 in Q2 2020): 63,800 vehicle hours of delay

This quarter, there are seven locations that have resurfaced from last quarters top 10 bottleneck list. Rank 1 (previously Rank 5 in Q2 2020), I80 Eastbound at University Ave bottleneck, saw a 151% increase in total delay, increasing from 30,600 to 76,900 vehicle hours of delay. Rank 2 (previously Rank 3 in Q2 2020), I580 Eastbound at 4000' E of Greenville Rd bottleneck, saw a 126% increase in total delay, increasing from 31,400 to 71,000 vehicle hours of delay. Rank 3 (previously Rank 2 in Q2 2020), SCL US101 Southbound at Burnett Ave bottleneck, saw a 84% increase in total delay, increasing from 34,700 to 63,800 vehicle hours of delay. Rank 5 (previously Rank 4 in Q2 2020), SOL SR12 Eastbound at Red Top Rd-Rte 4 bottleneck, saw a 64% increase in total delay, increasing from 31,300 to 51,200 vehicle hours of delay. Rank 6 (previously Rank 8 in Q2 2020), SCL US101 Southbound at N 13<sup>th</sup> St-OaklandRd bottleneck, saw a 154% increase in total delay, increasing from 19,300 to 49,000 vehicle hours of delay. Rank 8 (previously Rank 10 in Q2 2020), ALA SR24 Eastbound at Broadway bottleneck, saw a 245% increase in total delay, increasing from 12,100 to 41,700 vehicle hours of delay. Rank 9 (previously Rank 6 in Q2 2020), CC SR242 Northbound at Olivera St OC

(Reitz Ct) bottleneck, saw a 54% increase in total delay, increasing from 25,200 to 38,700 vehicle hours of delay.

The remaining bottleneck locations are as follows:

- SON US101 Northbound at 9000' NW of Washington St during PM period (Rank 4): Was Rank 34 last quarter.
- CC I80 Eastbound Pinole Valley Rd during PM period (Rank 7): Was Rank 48 last quarter.
- CC I680 Northbound at Buskirk during PM period (Rank 10): Was Rank 19 last quarter.

In general, the third quarter had a total increase in vehicle hours of delay and vehicle miles of travel in all nine counties. This is due to the COVID-19 partial reopening of businesses and facility across California.

The effects of the partial reopening during this third quarter were seen in the increases in delays at almost all locations. On the Congestion by Route table, 24 out of the 48 Route Counties listed had an increase of 80% or more from a quarter ago.

Regarding vehicle detector health, there was a -4% decrease in the number of good working detector and 7% increase in the number of bad detectors over last quarter that are no longer able to capture the congestion.

### Top Ten Bottlenecks for the 2020 3rd Quarter:

Rank	County	Freeway	Approximate Location	Shift	Abs PM	CA PM	Avg Extent (miles)	Total Delay (veh-hrs)	Total Duration (mins)	# of active days	Latitude	Longitude
1	Alameda	I80-E	University Ave	PM	11.0	5.7	2.93	76,900	5,900	65	37.86489	-122.30302
2	Alameda	I580-E	4000' E of Greenville Rd	PM	23.6	R7.55	3.52	71,000	7,400	61	37.72043	-121.68748
3	Santa Clara	US101-S	Burnett Ave	PM	368.1	R18.8	2.98	63,800	11,400	61	37.16338	-121.66442
4	Sonoma	US101-N	9000' NW of Washington St	PM	474.3	5.58	15.71	61,200	5,700	60	38.25347	-122.64031
5	Solano	SR12-E	Red Top Rd-Rte 4	PM	38.6	2.41	4.05	51,200	9,500	62	38.20766	-122.15707
6	Santa Clara	US101-S	N 13th St-Oakland Rd	PM	387.3	37.61	2.17	49,000	15,600	65	37.36271	-121.88943
7	Contra Costa	I80-E	Pinole Valley Rd	PM	21.9	8.59	2.77	43,800	6,200	62	37.99801	-122.28511
8	Alameda	SR24-E	Broadway	PM	3.8	5.63	2.78	41,700	10,000	64	37.85316	-122.22165
9	Contra Costa	SR242-N	Olivera St oc (Reitz Ct)	PM	3.1	2.81	1.58	38,700	12,300	64	37.99810	-122.03823
10	Contra Costa	I680-N	Buskirk Ave	PM	48.3	16.8	3.42	36,800	4,300	61	37.93261	-122.06009

Measure	Graph	Percentage Change									
Vehicle Miles of Travel (VMT)	<p>Miles (Billions)</p> <table border="1"> <tr><th>Year/Quarter</th><th>Value (Billions)</th></tr> <tr><td>2019 Q3</td><td>8.2</td></tr> <tr><td>2020 Q2</td><td>5.6</td></tr> <tr><td>2020 Q3</td><td>7</td></tr> </table>	Year/Quarter	Value (Billions)	2019 Q3	8.2	2020 Q2	5.6	2020 Q3	7	Over one year ago	Over last quarter
		Year/Quarter	Value (Billions)								
		2019 Q3	8.2								
2020 Q2	5.6										
2020 Q3	7										
-13.9%	26%										
Total Vehicle Hours of Delay (VHD) at 35 mph	<p>Hours (Millions)</p> <table border="1"> <tr><th>Year/Quarter</th><th>Value (Millions)</th></tr> <tr><td>2019 Q3</td><td>11.5</td></tr> <tr><td>2020 Q2</td><td>1.5</td></tr> <tr><td>2020 Q3</td><td>2.6</td></tr> </table>	Year/Quarter	Value (Millions)	2019 Q3	11.5	2020 Q2	1.5	2020 Q3	2.6	Over one year ago	Over last quarter
		Year/Quarter	Value (Millions)								
		2019 Q3	11.5								
2020 Q2	1.5										
2020 Q3	2.6										
-77.4%	79.1%										
Average Non-Holiday Weekday Vehicle Hours of Delay (VHD) at 35 mph	<p>Hours (Thousands)</p> <table border="1"> <tr><th>Year/Quarter</th><th>Value (Thousands)</th></tr> <tr><td>2019 Q3</td><td>143</td></tr> <tr><td>2020 Q2</td><td>35</td></tr> <tr><td>2020 Q3</td><td>35</td></tr> </table>	Year/Quarter	Value (Thousands)	2019 Q3	143	2020 Q2	35	2020 Q3	35	Over one year ago	Over last quarter
		Year/Quarter	Value (Thousands)								
		2019 Q3	143								
2020 Q2	35										
2020 Q3	35										
-75.7%	79.4%										
Total Vehicle Hours of Delay (VHD) at 60 mph	<p>Hours (Millions)</p> <table border="1"> <tr><th>Year/Quarter</th><th>Value (Millions)</th></tr> <tr><td>2019 Q3</td><td>22.3</td></tr> <tr><td>2020 Q2</td><td>4.3</td></tr> <tr><td>2020 Q3</td><td>7.6</td></tr> </table>	Year/Quarter	Value (Millions)	2019 Q3	22.3	2020 Q2	4.3	2020 Q3	7.6	Over one year ago	Over last quarter
		Year/Quarter	Value (Millions)								
		2019 Q3	22.3								
2020 Q2	4.3										
2020 Q3	7.6										
-66.2%	74.4%										
Average Non-Holiday Weekday Vehicle Hours of Delay (VHD) at 60 mph	<p>Hours (Thousands)</p> <table border="1"> <tr><th>Year/Quarter</th><th>Value (Thousands)</th></tr> <tr><td>2019 Q3</td><td>286</td></tr> <tr><td>2020 Q2</td><td>60</td></tr> <tr><td>2020 Q3</td><td>103</td></tr> </table>	Year/Quarter	Value (Thousands)	2019 Q3	286	2020 Q2	60	2020 Q3	103	Over one year ago	Over last quarter
		Year/Quarter	Value (Thousands)								
		2019 Q3	286								
2020 Q2	60										
2020 Q3	103										
-64%	71.6%										



Measure	Graph	Percentage Change	
<p><b>Average Vehicle Hours of Delay by Day of Week at 60 mph</b></p>		<p>Largest Magnitude Decrease over one year ago</p>	<p>Largest Magnitude Decrease over last quarter</p>
		<p>Thursday -68.4% ↓</p>	<p>-</p>
		<p>Largest Magnitude Increase over one year ago</p>	<p>Largest Magnitude Increase over last quarter</p>
		<p>-</p>	<p>Friday 104% ↑</p>
<p><b>Average Vehicle Hours of Delay by Hour of Day at 35 mph, Weekdays</b></p>		<p>Largest Magnitude Weekday Decrease over one year ago</p>	<p>Largest Magnitude Weekday Decrease over last quarter</p>
		<p>5 PM -72.8% ↓</p>	<p>-</p>
		<p>Largest Magnitude Weekday Increase over one year ago</p>	<p>Largest Magnitude Weekday Increase over last quarter</p>
		<p>-</p>	<p>4 PM 75.4% ↑</p>
<p><b>Average Vehicle Hours of Delay by Hour of Day at 35 mph, Saturdays</b></p>		<p>Largest Magnitude Saturday Decrease over one year ago</p>	<p>Largest Magnitude Saturday Decrease over last quarter</p>
		<p>3 PM -80.2% ↓</p>	<p>3 AM -19.5% ↓</p>
		<p>Largest Magnitude Saturday Increase over one year ago</p>	<p>Largest Magnitude Saturday Increase over last quarter</p>
		<p>-</p>	<p>1 PM 100.7% ↑</p>
<p><b>Average Vehicle Hours of Delay by Hour of Day at 35 mph, Sundays/Holidays</b></p>		<p>Largest Magnitude Sun./Holiday Decrease over one year ago</p>	<p>Largest Magnitude Sun./Holiday Decrease over last quarter</p>
		<p>2 PM -87.6% ↓</p>	<p>-</p>
		<p>Largest Magnitude Sun./Holiday Increase over one year ago</p>	<p>Largest Magnitude Sun./Holiday Increase over last quarter</p>
		<p>5 AM 2.9% ↑</p>	<p>4 PM 62.9% ↑</p>

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
		Santa Clara -89.4%	San Francisco -17.7%
		Largest Magnitude Increase over one year ago	Largest Magnitude Increase over last quarter
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 -64.6%	-
		Largest Magnitude Increase over one year ago	Largest Magnitude Increase over last quarter
Average Number of Good and Bad Detectors		Change in Good over one year ago	Change in Good over last quarter
		-11%	-4%
		Change in Bad over one year ago	Change in Bad over last quarter
		25%	7%

**Congestion by Route**

Route	County	Vehicle Hours of Delay at 35 mph			Difference 2020 Q3-2019 Q3		Difference 2020 Q3-2020 Q2		Rank		
		2019 Q3	2020 Q2	2020 Q3	Absolute	Percentage	Absolute	Percentage	2019 Q3	2020 Q2	2020 Q3
		US101	Sonoma	730251.5	167032.2	411558.3	-318693.2	-44%	244,526	146%	5
I580	Alameda	1014451.5	200316.3	335949.9	-678501.6	-67%	135,634	68%	1	1	2
US101	Santa Clara	1012743.3	113648.9	256667	-756076.3	-75%	143,018	126%	2	5	3
I80	Alameda	700754.9	65524.1	213213.1	-487541.8	-70%	147,689	225%	6	7	4
I80	Solano	477478.1	51950.4	210891.5	-266586.6	-56%	158,941	306%	8	10	5
I880	Alameda	794778.6	75038.9	203109.3	-591669.3	-74%	128,070	171%	4	6	6
US101	San Francisco	387253.8	139433.2	111785.8	-275468	-71%	(27,647)	-20%	10	3	7
I80	Contra Costa	304552	29875.8	97074.6	-207477.4	-68%	67,199	225%	16	15	8
SR4	Contra Costa	323951.1	60522.2	84615.7	-239335.4	-74%	24,094	40%	13	8	9
US101	San Mateo	453582.5	37765.3	69407.7	-384174.8	-85%	31,642	84%	9	12	10
I680	Alameda	195162.5	17050.3	69113.5	-126049	-65%	52,063	305%	18	20	11
SR12	Solano	84454.4	43825.3	61599.7	-22854.7	-27%	17,774	41%	32	11	12
I680	Contra Costa	352877.1	24978.9	61251.8	-291625.3	-83%	36,273	145%	12	17	13
SR24	Contra Costa	319075.9	117444.2	49658.5	-269417.4	-84%	(67,786)	-58%	15	4	14
SR242	Contra Costa	82986.7	31162.6	49362.6	-33624.1	-41%	18,200	58%	33	13	15
I80	San Francisco	160133.1	27169	34304.7	-125828.4	-79%	7,136	26%	21	16	16
SR24	Alameda	99130.7	15361	33891.2	-65239.5	-66%	18,530	121%	29	21	17
SR92	Alameda	159749.6	10592	32910.8	-126838.8	-79%	22,319	211%	22	26	18
SR17	Santa Clara	122285.6	8554.3	29737.4	-92548.2	-76%	21,183	248%	25	28	19
SR85	Santa Clara	579400.4	55490.8	29257.4	-550143	-95%	(26,233)	-47%	7	9	20
I580	Contra Costa	71492	5973.4	22140.6	-49351.4	-69%	16,167	271%	34	29	21
SR238	Alameda	168889.3	9525.6	19857.4	-149031.9	-88%	10,332	108%	30	27	22
I580	Marin	23492	2401.4	17048.6	-6443.4	-27%	14,647	610%	38	37	23
SR1	San Francisco	148536.3	13184.9	14589.5	-133946.8	-90%	1,405	11%	23	23	24
US101	Marin	109268.2	14123.8	14253.6	-95014.6	-87%	130	1%	28	22	25
SR92	San Mateo	250574.1	13031.2	12522.7	-238051.4	-95%	(509)	-4%	17	24	26
I280	Santa Clara	859646.7	3959	10200.9	-849445.8	-99%	6,242	158%	3	33	27
I880	Santa Clara	171553.9	4246	8544.4	-163009.5	-95%	4,298	101%	19	30	28
I680	Solano	60967.2	1035.7	7995.3	-52971.9	-87%	6,960	672%	35	40	29
SR12	Napa	29542.9	2067.8	7408.8	-22134.1	-75%	5,341	258%	36	38	30
SR37	Sonoma	118469.3	4024.7	7266.4	-111202.9	-94%	3,242	81%	26	31	31
SR152	Santa Clara	25035.5	19190.2	5621.5	-19414	-78%	(13,569)	-71%	37	19	32
I680	Santa Clara	135972.4	11264.6	5540.6	-130431.8	-96%	(5,724)	-51%	24	25	33
SR25	Santa Clara	11627.2	1761.1	5003.1	-6624.1	-57%	3,242	184%	40	39	34
SR87	Santa Clara	118341.9	2413	4612.4	-113729.5	-96%	2,199	91%	27	36	35
SR237	Santa Clara	366856.6	3362.7	3932.6	-362924	-99%	570	17%	11	34	36
I280	San Francisco	94604.5	20228.7	3862.3	-90742.2	-96%	(16,366)	-81%	30	18	37
I280	San Mateo	322216.1	3975.6	2599.7	-319616.4	-99%	(1,376)	-35%	14	32	38
SR37	Solano	87813.8	30968.9	1106.8	-86707	-99%	(29,862)	-96%	31	14	39
I780	Solano	2201.2	1.3	968.6	-1232.6	-56%	967	74408%	42	46	40
SR37	Marin	10188.1	103.3	566	-9622.1	-94%	463	448%	41	41	41
I980	Alameda	15390.9	2877.7	338.5	-15052.4	-98%	(2,539)	-88%	39	35	42
I80	Napa	139.7	50.4	67.2	-72.5	-52%	17	33%	43	42	43
SR156	Santa Clara	117.8	34.2	42.3	-75.5	-64%	8	24%	44	43	44
SR29	Napa	97.4	0	18.7	-78.7	-81%	19		45		45
SR13	Alameda	18.2	18.2	18.2	0	0%	-	0%	46	44	46
I880S	Alameda	11.7	11.7	11.7	0	0%	-	0%	47	45	47
SR160	Contra Costa	5.1	0	0	-5.1	-100%	-		48		
<b>TOTALS</b>		<b>11,558,123</b>	<b>1,462,571</b>	<b>2,621,499</b>	<b>-8,936,624</b>	<b>-77.3%</b>	<b>1,158,928</b>	<b>79.2%</b>			