District 04 Mobility Performance Report

2020 2nd Quarter

DEPARTMENT OF TRANSPORTATION

July 31, 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

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 took effect on March 19, 2020, the last few weeks of the previous quarter. The full effect of the COVID-19 Pandemic on traffic was seen during this second quarter. There was a -30.7% decrease in VMT compared to the same quarter a year ago, with VMT dropping from 8.1 billion in 2019 to 5.6 billion in 2020. Covid-19 traffic changes only affected the last few weeks of the previous quarter, so there was also a significant decrease of -23.5% in VMT from the previous quarter's VMT of 7.3 billion.

The decrease in VMT caused by the Covid-19 pandemic had a greater effect on VHD. In the second quarter, the total delay equaled 1.5 million VHD at the 35 mph speed threshold, and 4.3 million VHD at the 60 mph threshold. Compared to the same quarter the year before, there was a -86.6% decrease of 10.9 million in the 35 mph total quarterly delay and a -79.5% decrease of 21.1 million VHD in the 60 mph total quarterly delay.

The average weekday delay experienced in this quarter was approximately 19 thousand VHD at 35 mph, and 60 thousand VHD at 60 mph. Friday was the most congested day of the week verses Thursday the same quarter the year before and Wednesday the previous quarter. Wednesday had the largest magnitude decrease of -80.2% since a year ago and -76.4% from last quarter.

Looking at the Average VHD at 35 mph by hour of the day for weekdays, there was a significant decrease in the commute period congestion. The largest magnitude changes occurred at 5 PM when compared to a year ago and the previous quarter with decreases of -86.2% and -80.8% respectively. The PM commute had the largest hourly reductions, but the AM commute period had also significantly decreased to a point where the average VHD during the AM peak hour of 7 AM had only 770 VHD. The largest single hour decrease from a year ago of -91.6% occurred on a weekend, Sunday at 1 PM.

Alameda County with 390,000 vehicle hours of total delay at 35 mph during the second quarter was the most congested county in the District. Contra Costa County with 270,000 vehicle hours of total delay at 35 mph was the second most congested county in the District. Alameda

experienced the largest magnitude decrease of -87.5% over one year ago and Santa Clara County experienced the largest magnitude decrease of -89.9% over the last quarter.

From the Top 10 Bottlenecks for the 2nd Quarter, all ten top locations were from the PM period. The top three locations are as follows:

- ALA I680 Northbound at N of Palm Ave during PM period (Rank 1, previously Rank 24 in Q1 2020): 39,100 vehicle hours of delay
- SCL US101 Southbound at Burnett Ave during PM period (Rank 2, previously Rank 8 in Q1 2020): 34,700 vehicle hours of delay
- ALA I580 Eastbound at 4000' E of Greenville Rd during PM period (Rank 3, previously Rank 34 in Q1 2020): 31,400 vehicle hours of delay

Only three locations have been on last quarter's top 10 bottleneck list. Rank 2 (previously Rank 8 in Q1 2020), US101 Southbound at Burnett Ave bottleneck, saw a -51% decrease in total delay dropping from 70,800 to 34,700 vehicle hours of delay. Rank 5 (previously Rank 6 in Q1 2020), I80 Eastbound at University Ave bottleneck, saw a -65.7% decrease in total delay dropping from 89,100 to 30,600 vehicle hours of delay. Rank 8 (previously Rank 2 in Q1 2020), SCL US101 Southbound at North 13th St-Oakland Rd bottleneck, had a decrease of -85.5% dropping from 132,800 to 19,300 vehicle hours of delay.

The remaining bottleneck locations are as follows:

- SOL SR12 Eastbound at Red Top Rd – Rte 4 during PM period (Rank 4): Was Rank 77 last quarter
- CC SR242 Northbound Olivera St OC (Reitz Ct) during PM period (Rank 6): Was Rank 16 last quarter
- CC SR4 Eastbound at Port Chicago Hwy during PM period (Rank 7): Was Rank 60 last quarter

- ALA I880 Northbound at Tennyson Rd during PM period (Rank 9): Was Rank 44 last quarter
- ALA SR24 Eastbound at Broadway during PM period (Rank 10): Was Rank 67 last quarter

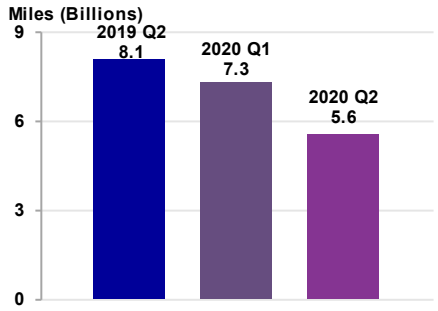
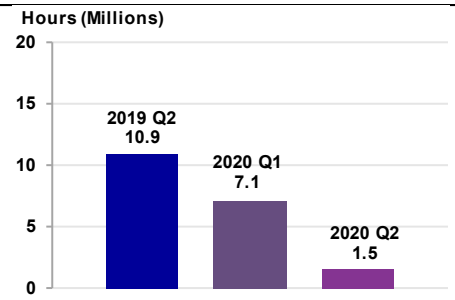
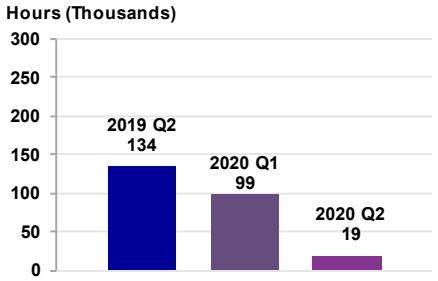
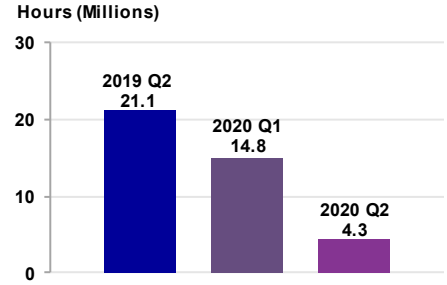
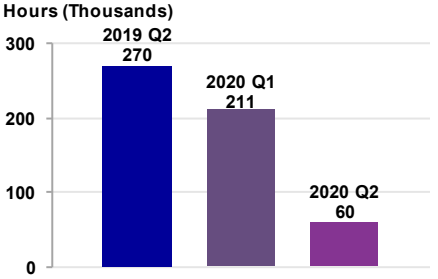
In general, the second quarter had a total decrease in vehicle hours of delay and vehicle miles of travel in all nine counties. This is due to the Coronavirus COVID-19 pandemic. Although many businesses have partially reopened toward the end of the second quarter, a lot of people are still working remotely.

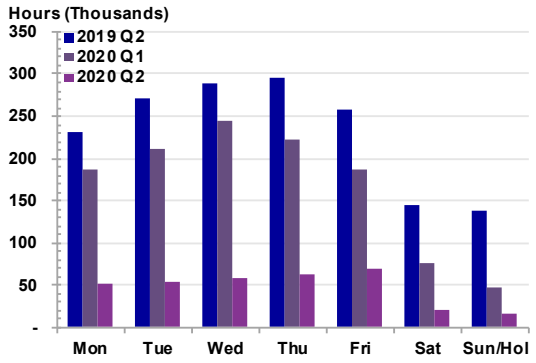
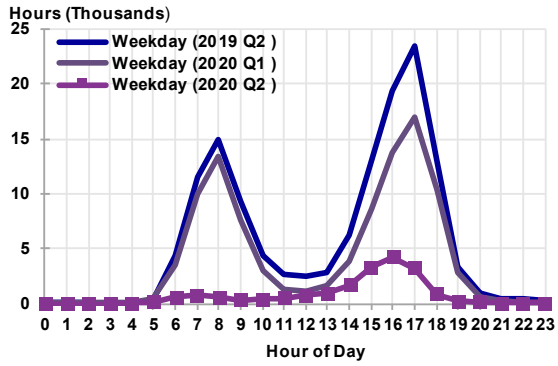
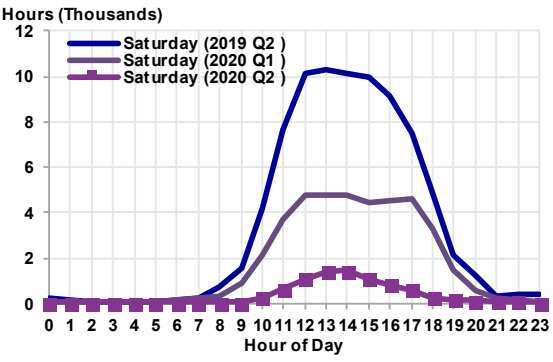
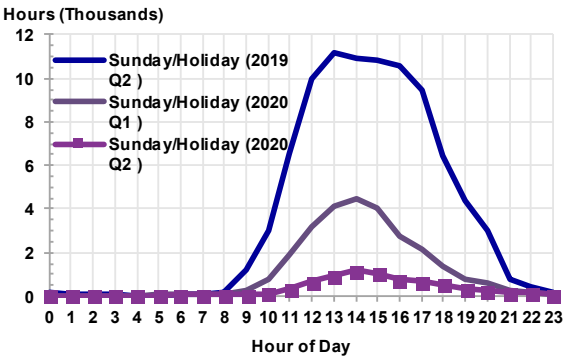
The effects of the COVID-19 shelter in place orders were seen in the decreases in delays at all locations. For example, Bird Ave had consistently been in the top 10 bottleneck rankings for the past year. In this second quarter, it had completely dropped off the list and there's no longer a bottleneck at that location. On the Congestion by Route table, 39 out of the 48 Route Counties listed had a decrease of -80% or more from the same quarter a year ago.

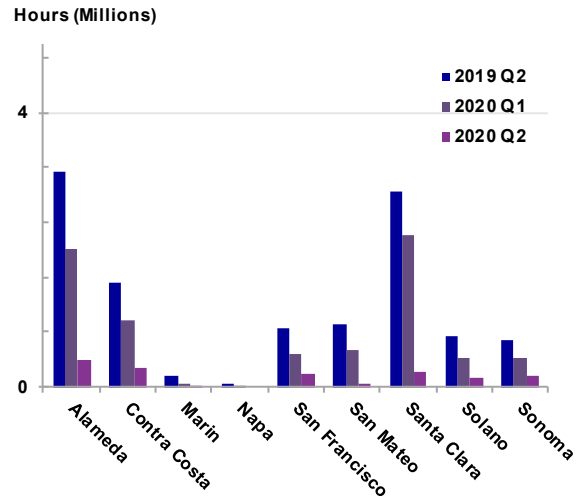
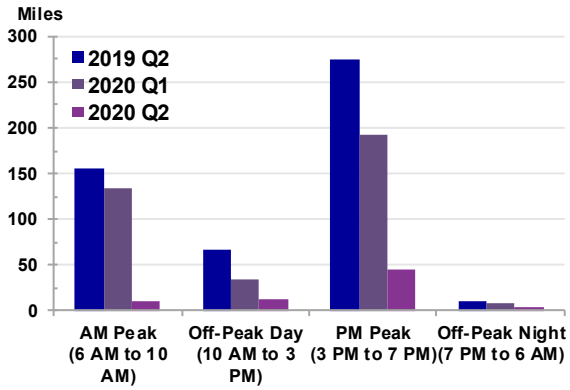
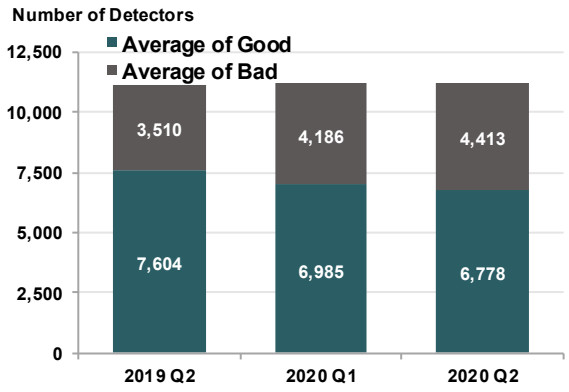
Regarding vehicle detector health, there was a -3% decrease in the number of good working detector and 5% increase in the number of bad detectors over last quarter that are no longer able to capture the congestion.

Top Ten Bottlenecks for the 2020 2nd Quarter:

Rank	CO	Freeway	Approximate Location	Period	Abs PM	CA PM	# of Active Days	Avg Extent (miles)	Total Delay (veh-hours)	Avg Duration (hours)
1	ALA	I680-N	N of Palm Ave	PM	15.9	5.96	55	2.9	39,100	2.4
2	SCL	US101-S	Burnett Ave	PM	368.1	R18.8	38	2.9	34,700	2.5
3	ALA	I580-E	4000' E of Greenville Rd	PM	23.6	R7.55	54	2.5	31,400	2.0
4	SOL	SR12-E	Red Top Rd – Rte 4	PM	38.6	2.41	37	3.2	31,300	2.1
5	ALA	I80-E	University Ave	PM	11.0	5.7	42	2.6	30,600	1.3
6	CC	SR242-N	Olivera St OC (Reitz Ct)	PM	3.1	2.81	49	1.7	25,200	2.4
7	CC	SR4-E	Port Chicago Hwy	PM	15.5	15.72	53	1.2	19,600	2.7
8	SCL	US101-S	N 13th St – Oakland Rd	PM	387.3	37.61	43	1.5	19,300	2.1
9	ALA	I880-N	Tennyson Rd	PM	25.8	15.54	62	1.1	17,400	2.6
10	ALA	SR24-E	Broadway	PM	3.8	5.63	26	2.6	12,100	2.0

Measure	Graph	Percentage Change	
Vehicle Miles of Travel (VMT)		Over one year ago -30.7%	Over last quarter -23.5%
Total Vehicle Hours of Delay (VHD) at 35 mph		Over one year ago -86.6%	Over last quarter -79.6%
Average Non-Holiday Weekday Vehicle Hours of Delay (VHD) at 35 mph		Over one year ago -85.6%	Over last quarter -80.5%
Total Vehicle Hours of Delay (VHD) at 60 mph		Over one year ago -79.5%	Over last quarter -70.8%
Average Non-Holiday Weekday Vehicle Hours of Delay (VHD) at 60 mph		Over one year ago -77.7%	Over last quarter -71.5%

Measure	Graph	Percentage Change	
Average Vehicle Hours of Delay by Day of Week at 60 mph		Largest Magnitude Decrease over one year ago Wednesday -80.2% Largest Magnitude Increase over one year ago –	Largest Magnitude Decrease over last quarter Wednesday -76.4% Largest Magnitude Increase over last quarter –
Average Vehicle Hours of Delay by Hour of Day at 35 mph, Weekdays		Largest Magnitude Weekday Decrease over one year ago 5 PM -86.2% Largest Magnitude Weekday Increase over one year ago –	Largest Magnitude Weekday Decrease over last quarter 5 PM -80.8% Largest Magnitude Weekday Increase over last quarter –
Average Vehicle Hours of Delay by Hour of Day at 35 mph, Saturdays		Largest Magnitude Saturday Decrease over one year ago 12 PM -89.1% Largest Magnitude Saturday Increase over one year ago 4 AM 19.3%	Largest Magnitude Saturday Decrease over last quarter 5 PM -87% Largest Magnitude Saturday Increase over last quarter 4 AM 10.8%
Average Vehicle Hours of Delay by Hour of Day at 35 mph, Sundays/ Holidays		Largest Magnitude Sun./Holiday Decrease over one year ago 1 PM -91.6% Largest Magnitude Sun./Holiday Increase over one year ago –	Largest Magnitude Sun./Holiday Decrease over last quarter 2 PM -73.8% Largest Magnitude Sun./Holiday Increase over last quarter –

Measure	Graph	Percentage Change	
Total Vehicle Hours of Delay (VHD) by County at 35 mph		Largest Magnitude Decrease over one year ago Alameda -87.5%	Largest Magnitude Decrease over last quarter Santa Clara -89.9%
		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 PM Peak -83.1%	Largest Magnitude Decrease over last quarter PM Peak -75.9%
		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 -11%	Change in Good over last quarter -3%
		Change in Bad over one year ago 26%	Change in Bad over last quarter 5%

Congestion by Route											
		Vehicle Hours of Delay at 35 mph			Difference 2020 Q2-2019 Q2		Difference 2020 Q2-2020 Q1		Rank		
Route	County	2019 Q2	2020 Q1	2020 Q2	Absolute	Percentage	Absolute	Percentage	2019 Q2	2020 Q1	2020 Q2
I580	Alameda	916307.1	656078.7	200316.3	-715990.8	-78%	(455,762)	-69%	1	2	1
US101	Sonoma	578539.2	403512.5	167032.2	-411507	-71%	(236,480)	-59%	6	6	2
US101	San Francisco	329314.9	248537.9	139433.2	-189881.7	-58%	(109,105)	-44%	11	10	3
SR24	Contra Costa	355489	192892	117444.2	-238044.8	-67%	(75,448)	-39%	9	15	4
US101	Santa Clara	860749.4	664198.3	113648.9	-747100.5	-87%	(550,549)	-83%	2	1	5
I880	Alameda	839769.3	550837.6	75038.9	-764730.4	-91%	(475,799)	-86%	3	3	6
I80	Alameda	702411.5	457262.2	65524.1	-636887.4	-91%	(391,738)	-86%	4	5	7
SR4	Contra Costa	297800.5	212329.9	60522.2	-237278.3	-80%	(151,808)	-71%	12	14	8
SR85	Santa Clara	540502.9	507723.4	55490.8	-485012.1	-90%	(452,233)	-89%	7	4	9
I80	Solano	292692.7	214471	51950.4	-240742.3	-82%	(162,521)	-76%	13	13	10
SR12	Solano	131156	63914.8	43825.3	-87330.7	-67%	(20,090)	-31%	27	28	11
US101	San Mateo	485901.6	300151.6	37765.3	-448136.3	-92%	(262,386)	-87%	8	8	12
SR242	Contra Costa	83812.6	70169.3	31162.6	-52650	-63%	(39,007)	-56%	34	27	13
SR37	Solano	223947.8	111941.3	30968.9	-192978.9	-86%	(80,972)	-72%	18	21	14
I80	Contra Costa	267747.4	228363.3	29875.8	-237871.6	-89%	(198,488)	-87%	15	11	15
I80	San Francisco	218177.9	74693	27169	-191008.9	-88%	(47,524)	-64%	19	26	16
I680	Contra Costa	351788.1	221229.9	24978.9	-326809.2	-93%	(196,251)	-89%	10	12	17
I280	San Francisco	127361.5	101367	20228.7	-107132.8	-84%	(81,138)	-80%	28	23	18
SR152	Santa Clara	18118.2	10057.4	19190.2	1072	6%	9,133	91%	38	37	19
I680	Alameda	253770.1	93572.4	17050.3	-236719.8	-93%	(76,522)	-82%	16	24	20
SR24	Alameda	114721.3	52617.1	15361	-99360.3	-87%	(37,256)	-71%	30	29	21
US101	Marin	126196.3	52386.4	14123.8	-112072.5	-89%	(38,263)	-73%	29	30	22
SR1	San Francisco	191016	51482.4	13184.9	-177831.1	-93%	(38,298)	-74%	21	31	23
SR92	San Mateo	229091.6	129136.4	13031.2	-216060.4	-94%	(116,105)	-90%	17	17	24
I680	Santa Clara	157550.5	125544.9	11264.6	-146285.9	-93%	(114,280)	-91%	24	19	25
SR92	Alameda	153383.1	127134.8	10592	-142791.1	-93%	(116,543)	-92%	26	18	26
SR238	Alameda	155085	89741.5	9525.6	-145559.4	-94%	(80,216)	-89%	25	25	27
SR17	Santa Clara	110662	43711.9	8554.3	-102107.7	-92%	(35,158)	-80%	31	32	28
I580	Contra Costa	163362.9	34086.5	5973.4	-157389.5	-96%	(28,113)	-82%	23	33	29
I880	Santa Clara	171058.9	138074.6	4246	-166812.9	-98%	(133,829)	-97%	22	16	30
SR37	Sonoma	95301.7	26357.1	4024.7	-91277	-96%	(22,332)	-85%	33	34	31
I280	San Mateo	209957.4	106765.5	3975.6	-205981.8	-98%	(102,790)	-96%	20	22	32
I280	Santa Clara	587093.9	337196.1	3959	-583134.9	-99%	(333,237)	-99%	5	7	33
SR237	Santa Clara	291729.6	270471.1	3362.7	-288366.9	-99%	(267,108)	-99%	14	9	34
I980	Alameda	14218.8	7253.2	2877.7	-11341.1	-80%	(4,376)	-60%	40	38	35
SR87	Santa Clara	108033.1	120414.8	2413	-105620.1	-98%	(118,002)	-98%	32	20	36
I580	Marin	23101.4	2920.9	2401.4	-20700	-90%	(520)	-18%	37	40	37
SR12	Napa	34630.1	24954.6	2067.8	-32562.3	-94%	(22,887)	-92%	36	35	38
SR25	Santa Clara	9300.8	6256.7	1761.1	-7539.7	-81%	(4,496)	-72%	41	39	39
I680	Solano	77437.2	16484.4	1035.7	-76401.5	-99%	(15,449)	-94%	35	36	40
SR37	Marin	17618.6	276.1	103.3	-17515.3	-99%	(173)	-63%	39	41	41
I80	Napa	523.5	46.7	50.4	-473.1	-90%	4	8%	43	43	42
SR156	Santa Clara	100.8	0	34.2	-66.6	-66%	34		47		43
SR13	Alameda	18.2	17.6	18.2	0	0%	1	3%	48	44	44
I880S	Alameda	116.9	11.7	11.7	-105.2	-90%	-	0%	46	45	45
I780	Solano	530.8	249.4	1.3	-529.5	-100%	(248)	-99%	42	42	46
SR160	Contra Costa	207.6	0	0	-207.6	-100%	-		44		
SR29	Napa	169.6	0	0	-169.6	-100%	-		45		
TOTALS		**10,917,575**	**7,146,896**	**1,462,571**	**-9,455,005**	**-86.6%**	**-5,684,325**	**-79.5%**			