

District 04 Mobility Performance Report

2019 Fourth Quarter

DEPARTMENT OF TRANSPORTATION

February 21, 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

2019 Fourth 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

In the fourth quarter, the total delay equaled 10.5 million VHD at the 35 mph speed threshold, and 20.5 million VHD at the 60 mph threshold. Compared to the same quarter the year before, there was a 1.8% increase in the 35 mph total quarterly delay and 3.8% increase in the 60 mph total quarterly delay.

The average weekday delay experienced in this quarter was approximately 141 thousand VHD at 35 mph, and 279 thousand VHD at 60 mph. Thursday was the most congested day of the week. Thursday was also the most congested day in the same quarter a year ago and the prior quarter. Monday had the largest magnitude increase over one year ago of 21.1%.

Santa Clara County with 3.08 million vehicle hours of total delay at 35 mph during the fourth quarter was the most congested county in the District. This county experienced the largest magnitude decrease of -9.6% over the last quarter. Also, all nine counties had a decrease in vehicle hours of total delay.

Alameda County with 2.96 million vehicle hours of total delay at 35 mph was the second most congested county in the District. Alameda experienced the largest magnitude decrease of -10% over one year ago. During this quarter and the previous quarter, all detectors along SR84 were not working as they were out of commission in the first quarter of 2019; therefore, no delay was reported by PeMS. This contributed to the bigger decrease in total delay for Alameda County from a year ago.

Since last quarter, there has been a total decrease in vehicle hours of delay and vehicle miles of travel. The VHD decrease could be due to a -3% decrease in the number of good working detector and 7% increase in the number of bad detectors that are no longer able to capture the congestion.

Top Ten Bottlenecks for the 2019 Fourth 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	SCL	US101-S	N 13 th St-Oakland Rd	PM	387.3	37.61	60	6.7	239,300	4.2
2	SCL	I280-S	Bird Ave	PM	2.9	R2.85	58	7.0	223,800	3.8
3	ALA	I80-W	I-880S	AM	7.7	2.41	55	0.5	176,400	3.8
4	CC	I80-E	Pinole Valley Rd	PM	21.9	8.59	58	5.3	143,900	2.9
5	ALA	I80-E	University Ave	PM	11.0	5.7	60	3.0	126,100	3.5
6	ALA	I880-N	Tennyson Rd	PM	26.0	15.8	56	7.2	125,400	2.7
7	ALA	I880-N	Auto Mall Pkwy	PM	15.1	4.84	56	3.2	106,800	4.2
8	SCL	SR85-S	Union Ave	PM	9.1	9.10	57	2.52	101,010	3.9
9	CC	SR24-E	Pleasant Hill Rd	PM	12.3	7.91	60	2.9	88,300	3.2
10	ALA	I580-E	Lakeshore Ave	PM	59.4	43.47	50	2.10	79,600	3.7

Measure	Graph	Percentage Change									
Vehicle Miles of Travel (VMT)	<table><tr><th>Period</th><th>VMT (Billions)</th></tr><tr><td>2018 Q4</td><td>7.7</td></tr><tr><td>2019 Q3</td><td>8.2</td></tr><tr><td>2019 Q4</td><td>7.9</td></tr></table>	Period	VMT (Billions)	2018 Q4	7.7	2019 Q3	8.2	2019 Q4	7.9	Over one year ago	Over last quarter
		Period	VMT (Billions)								
		2018 Q4	7.7								
2019 Q3	8.2										
2019 Q4	7.9										
2.7%	-3%										
Total Vehicle Hours of Delay (VHD) at 35 mph	<table><tr><th>Period</th><th>VHD (Millions)</th></tr><tr><td>2018 Q4</td><td>10.3</td></tr><tr><td>2019 Q3</td><td>11.5</td></tr><tr><td>2019 Q4</td><td>10.5</td></tr></table>	Period	VHD (Millions)	2018 Q4	10.3	2019 Q3	11.5	2019 Q4	10.5	Over one year ago	Over last quarter
		Period	VHD (Millions)								
		2018 Q4	10.3								
2019 Q3	11.5										
2019 Q4	10.5										
1.8%	-9.3%										
Average Non-Holiday Weekday Vehicle Hours of Delay (VHD) at 35 mph	<table><tr><th>Period</th><th>VHD (Thousands)</th></tr><tr><td>2018 Q4</td><td>143</td></tr><tr><td>2019 Q3</td><td>143</td></tr><tr><td>2019 Q4</td><td>141</td></tr></table>	Period	VHD (Thousands)	2018 Q4	143	2019 Q3	143	2019 Q4	141	Over one year ago	Over last quarter
		Period	VHD (Thousands)								
		2018 Q4	143								
2019 Q3	143										
2019 Q4	141										
-1.4%	-0.9%										
Total Vehicle Hours of Delay (VHD) at 60 mph	<table><tr><th>Period</th><th>VHD (Millions)</th></tr><tr><td>2018 Q4</td><td>19.7</td></tr><tr><td>2019 Q3</td><td>22.3</td></tr><tr><td>2019 Q4</td><td>20.5</td></tr></table>	Period	VHD (Millions)	2018 Q4	19.7	2019 Q3	22.3	2019 Q4	20.5	Over one year ago	Over last quarter
		Period	VHD (Millions)								
		2018 Q4	19.7								
2019 Q3	22.3										
2019 Q4	20.5										
3.8%	-8.3%										
Average Non-Holiday Weekday Vehicle Hours of Delay (VHD) at 60 mph	<table><tr><th>Period</th><th>VHD (Thousands)</th></tr><tr><td>2018 Q4</td><td>276</td></tr><tr><td>2019 Q3</td><td>286</td></tr><tr><td>2019 Q4</td><td>279</td></tr></table>	Period	VHD (Thousands)	2018 Q4	276	2019 Q3	286	2019 Q4	279	Over one year ago	Over last quarter
		Period	VHD (Thousands)								
		2018 Q4	276								
2019 Q3	286										
2019 Q4	279										
1.3%	-2.4%										

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 -5.5%	Sun/Hol -28.9%
		Largest Magnitude Increase over one year ago	Largest Magnitude Increase over last quarter
		Monday 21.1%	-
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
		7 PM -10.4%	2 PM -22.7%
		Largest Magnitude Weekday Increase over one year ago	Largest Magnitude Weekday Increase over last quarter
		9 AM 4.7%	6 PM 16.8%
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
		7 PM -19.2%	12 PM -38.6%
		Largest Magnitude Saturday Increase over one year ago	Largest Magnitude Saturday Increase over last quarter
		N/A	6 PM 29.9%
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
		9 PM -28.1%	1 PM -47.5%
		Largest Magnitude Sun./Holiday Increase over one year ago	Largest Magnitude Sun./Holiday Increase over last quarter
		2 PM 28.5%	8 AM 536.1%

Measure	Graph	Percentage Change	
Total Vehicle Hours of Delay (VHD) by County at 35 mph	Hours (Millions)	Largest Magnitude Decrease over one year ago	Largest Magnitude Decrease over last quarter
		Alameda -10% ↓	Santa Clara -9.6% ↓
		Largest Magnitude Increase over one year ago	Largest Magnitude Increase over last quarter
		Santa Clara 15.1% ↑	—
Average Non-Holiday Weekday Equivalent Lost Lane Mile Hours at 35 mph	Miles	Largest Magnitude Decrease over one year ago	Largest Magnitude Decrease over last quarter
		Off-Peak Night -1.2% ↓	Off-Peak Day -19.8% ↓
		Largest Magnitude Increase over one year ago	Largest Magnitude Increase over last quarter
		PM Peak 4.7% ↑	PM Peak 6.4% ↑
Average Number of Good and Bad Detectors	Number of Detectors	Change in Good over one year ago	Change in Good over last quarter
		-6% ↓	-3% ↓
		Change in Bad over one year ago	Change in Bad over last quarter
		10% ↓	7% ↓

Congestion by Route											
Route	County	Vehicle Hours of Delay at 35 mph			Difference 2019 Q4-2018 Q4		Difference 2019 Q4-2019 Q3		Rank		
		2018 Q4	2019 Q3	2019 Q4	Absolute	Percentage	Absolute	Percentage	2018 Q4	2019 Q3	2019 Q4
I580	Alameda	756785.9	1014451.5	917040.3	160254.4	21%	(97,411)	-10%	4	1	1
US101	Santa Clara	764328.6	1012743.3	914742.6	150414	20%	(98,001)	-10%	3	2	2
I880	Alameda	932041.9	794778.6	807477.7	-124564.2	-13%	12,699	2%	1	4	3
I80	Alameda	878850.9	700754.9	694502	-184348.9	-21%	(6,253)	-1%	2	6	4
SR85	Santa Clara	533237	579400.4	651403.8	118166.8	22%	72,003	12%	6	7	5
US101	Sonoma	376698.9	730251.5	533258.4	156559.5	42%	(196,993)	-27%	9	5	6
I280	Santa Clara	536472.5	859646.7	494711.4	-41761.1	-8%	(364,935)	-42%	5	3	7
US101	San Mateo	500718	453582.5	462573.9	-38144.1	-8%	8,991	2%	7	9	8
SR237	Santa Clara	300451.5	366856.6	361923.7	61472.2	20%	(4,933)	-1%	12	11	9
US101	San Francisco	291715.9	387253.8	359928	68212.1	23%	(27,326)	-7%	13	10	10
I80	Contra Costa	249749.4	304552	357230.2	107480.8	43%	52,678	17%	15	16	11
I680	Contra Costa	377545.7	352877.1	355498.8	-22046.9	-6%	2,622	1%	8	12	12
I80	Solano	301598.2	477478.1	314385.8	12787.6	4%	(163,092)	-34%	11	8	13
SR24	Contra Costa	365511.2	319075.9	294270.4	-71240.8	-19%	(24,806)	-8%	10	15	14
I280	San Mateo	192712.4	322216.1	271671.4	78959	41%	(50,545)	-16%	21	14	15
SR4	Contra Costa	264804.8	323951.1	262255.4	-2549.4	-1%	(61,696)	-19%	14	13	16
SR92	San Mateo	204771.8	250574.1	260671.3	55899.5	27%	10,097	4%	19	17	17
I880	Santa Clara	232041.7	171553.9	215034.8	-17006.9	-7%	43,481	25%	17	19	18
SR92	Alameda	170377.8	159749.6	195658.5	25280.7	15%	35,909	22%	22	22	19
I680	Santa Clara	131160.6	135972.4	172420.5	41259.9	31%	36,448	27%	25	24	20
I80	San Francisco	233907.7	160133.1	150117.5	-83790.2	-36%	(10,016)	-6%	16	21	21
I680	Alameda	199152.5	195162.5	137070.3	-62082.2	-31%	(58,092)	-30%	20	18	22
SR87	Santa Clara	99709.3	118341.9	136858.3	37149	37%	18,516	16%	29	27	23
SR1	San Francisco	218804.5	148536.3	132171.6	-86632.9	-40%	(16,365)	-11%	18	23	24
SR37	Solano	141669.3	87813.8	130238.7	-11430.6	-8%	42,425	48%	23	31	25
SR238	Alameda	104381.2	168889.3	129597.3	25216.1	24%	(39,292)	-23%	26	20	26
US101	Marin	135339.5	109268.2	111276.3	-24063.2	-18%	2,008	2%	24	28	27
I280	San Francisco	100255.3	94604.5	98848.7	-1406.6	-1%	4,244	4%	28	30	28
SR24	Alameda	103269	99130.7	84122	-19147	-19%	(15,009)	-15%	27	29	29
SR242	Contra Costa	78640.4	82986.7	80321.6	1681.2	2%	(2,665)	-3%	32	33	30
SR17	Santa Clara	48323.5	122285.6	78141.4	29817.9	62%	(44,144)	-36%	34	25	31
SR12	Solano	86324.1	84454.4	65637.9	-20686.2	-24%	(18,817)	-22%	30	32	32
I580	Contra Costa	80736.2	71492	55281.3	-25454.9	-32%	(16,211)	-23%	31	34	33
SR37	Sonoma	23330.9	118469.3	53807.6	30476.7	131%	(64,662)	-55%	36	26	34
SR152	Santa Clara	19050.4	25035.5	43681.8	24631.4	129%	18,646	74%	38	37	35
SR12	Napa	21031.8	29542.9	29231.9	8200.1	39%	(311)	-1%	37	36	36
I680	Solano	36004	60967.2	19619.6	-16384.4	-46%	(41,348)	-68%	35	35	37
I980	Alameda	5929.2	15390.9	12498	6568.8	111%	(2,893)	-19%	42	39	38
SR37	Marin	17461.9	10188.1	11472.1	-5989.8	-34%	1,284	13%	39	41	39
SR25	Santa Clara	7497.7	11627.2	7990	492.3	7%	(3,637)	-31%	41	40	40
I580	Marin	7689.1	23492	6939.4	-749.7	-10%	(16,553)	-70%	40	38	41
I780	Solano	0.4	2201.2	1658.8	1658.4	414600%	(542)	-25%	48	42	42
I80	Napa	192	139.7	294.6	102.6	53%	155	111%	43	43	43
SR29	Napa	0	97.4	62.5	62.5		(35)	-36%		45	44
SR13	Alameda	5.6	18.2	18.2	12.6	225%	-	0%	47	46	45
SR160	Contra Costa	5.8	5.1	15	9.2	159%	10	194%	46	48	46
SR156	Santa Clara	27.6	117.8	12.5	-15.1	-55%	(105)	-89%	44	44	47
I880S	Alameda	7.2	11.7	11.7	4.5	63%	-	0%	45	47	48
SR84	Alameda	52929.9	0	0	-52929.9	-100%	-		33		
TOTALS		10,183,251	11,558,123	10,473,656	290,405	2.9%	-1,084,468	-9.4%			