

District 04 Mobility Performance Report

2019 First Quarter

DEPARTMENT OF TRANSPORTATION

May 22, 2019

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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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 with 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 first quarter, total delay equaled 9.5 million VHD at the 35 mph speed threshold, and 18.8 million VHD at the 60 mph threshold. Compared to the same quarter the year before, there was an 2.4% decrease in 35 mph total quarterly delay and 0.4% decrease in 60 mph total quarterly delay.

The average non-holiday weekday delay experienced in this quarter was approximately 131 thousand VHD at 35 mph, and 266 thousand VHD at 60 mph. Tuesday was the most congested day of the week. This was a change from Thursday being the most congested day in the same quarter a year ago and the prior quarter. Even though the difference between Tuesday and Thursday is small but it is unusual to see Tuesday exceed Thursday as the most congested day of the work. Further examination of the data did not provide any clear explanation for this change. We look forward to future quarters to see this trend persists over time or not.

Alameda County with 2.78 million vehicle hours of total delay at 35 mph during the first quarter was the most congested county in the District. This county experienced the largest magnitude decreases; a 21.9% decrease from a year ago and a 15.5% decrease from the previous quarter. During this quarter, all detectors along SR84 were not working; therefore, no delay was reported by PeMS. This contributed to the decrease in total delay for the Alameda County.

Santa Clara County with 2.58 million and Contra costa with 1.41 million vehicle hours of total delay at 35 mph were second and third most congested counties in the District. The top three countries Alameda, Santa Clara, and Contra Costa combine to represent approximately 71% of San Francisco Bay Area's total vehicle hours of delay at 35 mph.

Top Ten Bottlenecks for the 2019 First Quarter:

Rank	CO	Freeway	Approximate Location	Period	Abs PM	CA PM	# of Active Days	Avg Extent (miles)	Total Delay (hours)	Avg Duration (hours)
1	SCL	I280-S	Bird Ave	PM	2.85	R2.85	61	5.1	174,429	3.5
2	ALA	I880-N	Tennyson Rd	PM	26.027	15.8	61	4.7	145,761	4.0
3	SCL	US101-S	N 13 th St- Oakland Rd	PM	387.3	37.61	61	5.3	138,362	3.8
4	ALA	I80-W	I-880S	AM	7.72	2.41	58	1.0	117,708	3.6
5	CC	I80-E	Pinole Valley Rd	PM	21.9	8.59	61	5.8	117,610	3.0
6	ALA	I80-E	University Ave	PM	11.01	5.7	61	2.8	100,383	3.6
7	CC	SR24-E	Pleasant Hill Rd	PM	12.258	7.91	57	3.9	98,171	2.9
8	ALA	I880-N	Opposite 29 th Ave	AM	38.877	28.65	49	4.4	85,766	2.4
9	ALA	SR92-E	Hesperian Blvd	PM	25.367	R5.84	61	3.6	84,576	4.0
10	SOL	I80-E	North of University Ave	PM	69.477	42.01	61	2.8	82,004	3.9

Measure	Graph	Percentage Change									
Vehicle Miles of Travel (VMT)	<p>Miles (Billions)</p> <table border="1"> <tr><th>Period</th><th>Value</th></tr> <tr><td>2018 Q1</td><td>7.6</td></tr> <tr><td>2018 Q4</td><td>7.7</td></tr> <tr><td>2019 Q1</td><td>7.6</td></tr> </table>	Period	Value	2018 Q1	7.6	2018 Q4	7.7	2019 Q1	7.6	Over one year ago	Over last quarter
		Period	Value								
		2018 Q1	7.6								
2018 Q4	7.7										
2019 Q1	7.6										
-0.1%	-1.7%										
Total Vehicle Hours of Delay (VHD) at 35 mph	<p>Hours (Millions)</p> <table border="1"> <tr><th>Period</th><th>Value</th></tr> <tr><td>2018 Q1</td><td>9.7</td></tr> <tr><td>2018 Q4</td><td>10.3</td></tr> <tr><td>2019 Q1</td><td>9.5</td></tr> </table>	Period	Value	2018 Q1	9.7	2018 Q4	10.3	2019 Q1	9.5	Over one year ago	Over last quarter
		Period	Value								
		2018 Q1	9.7								
2018 Q4	10.3										
2019 Q1	9.5										
-2.4%	-7.6%										
Average Non-Holiday Weekday Vehicle Hours of Delay (VHD) at 35 mph	<p>Hours (Thousands)</p> <table border="1"> <tr><th>Period</th><th>Value</th></tr> <tr><td>2018 Q1</td><td>131</td></tr> <tr><td>2018 Q4</td><td>144</td></tr> <tr><td>2019 Q1</td><td>131</td></tr> </table>	Period	Value	2018 Q1	131	2018 Q4	144	2019 Q1	131	Over one year ago	Over last quarter
		Period	Value								
		2018 Q1	131								
2018 Q4	144										
2019 Q1	131										
0.1%	-9%										
Total Vehicle Hours of Delay (VHD) at 60 mph	<p>Hours (Millions)</p> <table border="1"> <tr><th>Period</th><th>Value</th></tr> <tr><td>2018 Q1</td><td>18.9</td></tr> <tr><td>2018 Q4</td><td>19.7</td></tr> <tr><td>2019 Q1</td><td>18.8</td></tr> </table>	Period	Value	2018 Q1	18.9	2018 Q4	19.7	2019 Q1	18.8	Over one year ago	Over last quarter
		Period	Value								
		2018 Q1	18.9								
2018 Q4	19.7										
2019 Q1	18.8										
-0.4%	-4.7%										
Average Non-Holiday Weekday Vehicle Hours of Delay (VHD) at 60 mph	<p>Hours (Thousands)</p> <table border="1"> <tr><th>Period</th><th>Value</th></tr> <tr><td>2018 Q1</td><td>260</td></tr> <tr><td>2018 Q4</td><td>277</td></tr> <tr><td>2019 Q1</td><td>266</td></tr> </table>	Period	Value	2018 Q1	260	2018 Q4	277	2019 Q1	266	Over one year ago	Over last quarter
		Period	Value								
		2018 Q1	260								
2018 Q4	277										
2019 Q1	266										
2.3%	-4.2%										

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
		Monday -7.9%	Thursday -16.5%
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
		2 PM -9.9%	6 PM -17%
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
		6 PM -28.1%	6 PM -37.7%
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
		5 PM -17.7%	8 AM -91.5%
		Largest Magnitude Increase over one year ago	Largest Magnitude Increase over last quarter
		Tuesday 9.9%	Monday 22.3%
			N/A
			12 PM 35.5%
		Largest Magnitude Sun./Holiday Increase over one year ago	Largest Magnitude Sun./Holiday Increase over last quarter
		1 PM 19.3%	1 PM 81.4%

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 -21.9%	Alameda -15.5%
		Largest Magnitude Increase over one year ago	Largest Magnitude Increase over last quarter
Contra Costa 18.3%	San Mateo 5%		
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
		Off-Peak Night -0.8%	PM Peak -4.1%
		Largest Magnitude Increase over one year ago	Largest Magnitude Increase over last quarter
PM Peak 9.5%	AM Peak 2.8%		
Average Number of Good and Bad Detectors		Change in Good over one year ago	Change in Good over last quarter
		3%	4%
		Change in Bad over one year ago	Change in Bad over last quarter
-4%	-8%		

Congestion by Route											
Route	County	Vehicle Hours of Delay at 35 mph			Difference 2019 Q1-2018 Q1		Difference 2019 Q1-2018 Q4		Rank		
		2018 Q1	2018 Q4	2019 Q1	Absolute	Percentage	Absolute	Percentage	2018 Q1	2018 Q4	2019 Q1
I880	Alameda	953,025	932,042	830,745	-122,280	-12.8%	-101,297	-10.9%	2	1	1
I580	Alameda	592,551	756,786	784,028	191,477	32.3%	27,242	3.6%	4	4	2
US101	Santa Clara	710,969	764,329	767,594	56,625	8.0%	3,265	0.4%	3	3	3
I80	Alameda	1,053,256	878,851	565,978	-487,278	-46.3%	-312,873	-35.6%	1	2	4
US101	San Mateo	409,359	500,718	541,315	131,956	32.2%	40,597	8.1%	8	7	5
SR85	Santa Clara	415,797	533,237	495,426	79,628	19.2%	-37,811	-7.1%	7	6	6
I280	Santa Clara	461,686	536,473	464,498	2,813	0.6%	-71,974	-13.4%	5	5	7
SR24	Contra Costa	332,274	365,511	372,234	39,960	12.0%	6,723	1.8%	9	10	8
US101	Sonoma	432,907	376,699	370,089	-62,818	-14.5%	-6,610	-1.8%	6	9	9
I680	Contra Costa	267,664	377,546	315,964	48,300	18.0%	-61,582	-16.3%	12	8	10
US101	San Francisco	287,681	291,716	310,657	22,977	8.0%	18,942	6.5%	11	13	11
SR4	Contra Costa	256,493	264,805	297,428	40,935	16.0%	32,623	12.3%	13	14	12
SR237	Santa Clara	251,365	300,452	276,117	24,751	9.8%	-24,335	-8.1%	14	12	13
I80	Solano	143,723	301,598	259,881	116,157	80.8%	-41,718	-13.8%	24	11	14
I80	Contra Costa	212,117	249,749	252,154	40,038	18.9%	2,405	1.0%	16	15	15
I680	Alameda	248,765	199,153	234,890	-13,875	-5.6%	35,737	17.9%	15	20	16
I280	San Mateo	182,483	192,712	219,306	36,823	20.2%	26,593	13.8%	21	21	17
I880	Santa Clara	187,656	232,042	196,691	9,036	4.8%	-35,350	-15.2%	20	17	18
SR92	San Mateo	206,994	204,772	182,478	-24,516	-11.8%	-22,294	-10.9%	19	19	19
I680	Santa Clara	144,777	131,161	161,206	16,429	11.3%	30,046	22.9%	23	25	20
SR92	Alameda	154,791	170,378	139,291	-15,500	-10.0%	-31,087	-18.2%	22	22	21
SR1	San Francisco	1,612	218,805	139,215	137,603	8537.8%	-79,590	-36.4%	43	18	22
SR37	Solano	119,074	141,669	138,486	19,413	16.3%	-3,183	-2.2%	27	23	23
SR238	Alameda	134,432	104,381	134,072	-359	-0.3%	29,691	28.4%	25	26	24
I280	San Francisco	86,237	100,255	132,492	46,255	53.6%	32,237	32.2%	30	28	25
SR87	Santa Clara	93,474	99,709	128,635	35,160	37.6%	28,926	29.0%	29	29	26
US101	Marin	132,415	135,340	108,844	-23,572	-17.8%	-26,496	-19.6%	26	24	27
I80	San Francisco	207,406	233,908	105,159	-102,248	-49.3%	-128,749	-55.0%	18	16	28
SR24	Alameda	111,157	103,269	100,431	-10,726	-9.6%	-2,838	-2.7%	28	27	29
SR242	Contra Costa	67,184	78,640	88,300	21,116	31.4%	9,660	12.3%	33	32	30
SR12	Solano	210,707	86,324	79,256	-131,451	-62.4%	-7,068	-8.2%	17	30	31
I580	Contra Costa	49,413	80,736	78,385	28,972	58.6%	-2,351	-2.9%	35	31	32
SR17	Santa Clara	81,008	48,324	71,438	-9,570	-11.8%	23,115	47.8%	31	34	33
SR37	Sonoma	56,293	23,331	69,648	13,354	23.7%	46,317	198.5%	34	36	34
SR12	Napa	22,794	21,032	26,155	3,362	14.7%	5,123	24.4%	36	37	35
I580	Marin	8,445	7,689	16,552	8,107	96.0%	8,863	115.3%	39	40	36
I680	Solano	22,042	36,004	13,870	-8,172	-37.1%	-22,134	-61.5%	37	35	37
I980	Alameda	8,264	5,929	12,076	3,813	46.1%	6,147	103.7%	40	42	38
SR37	Marin	21,227	17,462	10,820	-10,407	-49.0%	-6,642	-38.0%	38	39	39
SR152	Santa Clara	68,048	19,050	8,724	-59,324	-87.2%	-10,327	-54.2%	32	38	40
SR25	Santa Clara	4,428	7,498	8,151	3,723	84.1%	653	8.7%	41	41	41
SR160	Contra Costa	3,374	6	1,002	-2,372	-70.3%	997	17181.0%	42	46	42
I780	Solano	760	0	280	-480	-63.1%	280	69925.0%	44	48	43
I80	Napa	68	192	241	174	256.4%	49	25.7%	45	43	44
I880S	Alameda	0	7	23	23		16	225.0%		45	45
SR13	Alameda	0	6	18	18		13	225.0%		47	46
SR156	Santa Clara	0	28	10	10		-18	-64.1%		44	47
SR29	Napa	2	0	0	-2	-100.0%	0		46		
SR84	Alameda	305,162	52,930	0	-305,162	-100.0%	-52,930	-100.0%	10	33	
TOTALS		9,721,358	10,183,251	9,510,251	-211,107	-2.2%	-672,999	-6.6%			

