District 04 Mobility Performance Report

2023 2nd Quarter

ABBREVIATIONS

Abs   Absolute

Avg   Average

CA   California

CO   County

MPR   Mobility Performance Report

PeMS   Performance Measurement System

PM   Postmile

Q   Quarter

2023 2nd 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:

- o Vehicle Miles of Travel (VMT)

- o Vehicle Hours of Delay (VHD)

- o Lost Lane Miles (equivalent lost productivity)

- o 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

Over three years have passed since the Statewide Shelter-In-Place (SIP) took effect on March 19, 2020. To combat the pandemic, vaccinations and boosters were being administered to all eligible individuals based on state guidelines. On June 15th, 2021, California State Governor Gavin Newsom announced the reopening of California. During Q2 2023, there was a 2.1% increase in VMT compared to the same quarter a year ago, with VMT increasing from 7.5 billion in Q2 2022 to 7.6 billion in Q2 2023. In the second quarter, we see an increase of 8.2% (579 million) in VMT from the previous quarter's VMT of 7.1 billion.

Annual increases are not only seen in VMT, but also in VHD. Compared to the same quarter the year before, there was a 48% increase from 4.4 million to 6.6 million VHD in the 35 mph total quarterly delay, and a 33.1% increase from 11.2 million to 14.9 million VHD in the 60 mph total quarterly delay. A quarterly increase was seen in VHD as well as in quarterly VMT. Compared to the previous quarter, Q2 saw a 18.7% increase in VHD at 35 mph and 17.4% increase in VHD at 60 mph.

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 60 thousand VHD at 35 mph, and 151 thousand VHD at 60 mph. Whereas this quarter, there was a delay of 88 thousand VHD at 35 mph which is a 48.7% increase, and 200 thousand VHD at 60 mph which is a 32.6% increase. Thursday with 227 thousand VHD was the most congested day of the week in Q2. Thursday has also been the most congested day of the week in same quarter a year ago and last quarter. Thursday had the largest magnitude increase of 60 thousand VHD at 60 mph which was a 36.3% increase from the same quarter last year. Each day of the week observed magnitude increases in average VHD from the same quarter last year. Saturday had the largest magnitude increase of 26 thousand (39.4%) VHD at 60 mph compared to last quarter. Like the comparison between Q2 2023 with Q2 2022, each day of the week observed magnitude increases in average VHD compared to last quarter.

Looking at the Average VHD at 35 mph by hour of the day for weekdays, there was an increase in the AM commute period congestion compared to last year. The largest magnitude hourly change for AM hours compared to the same quarter a year ago occurred at 8 AM with an

increase of 40.3%. The largest magnitude hourly weekday increase over last quarter occurred at 11 AM with an increase of 34.81%. For the PM hours, the largest magnitude hourly increase of 51.8%, occurred at 5 PM when comparing with the same quarter last year, and the largest magnitude increase of 18.4% occurred at 4 PM when comparing with last quarter. The weekday peak hour average delay of 16,308 VHD for this quarter occurs at 5 PM which is the same as last quarter and a year ago. Compared to last quarter's peak hour VHD of 14,325 VHD, there was a 13.8% increase. Compared to a year ago, there was a 51.8% increase from a VHD of 10,740. There was no hourly decrease in VHD compared to a year ago on Saturday. However, there was decrease compared to the previous quarter on Saturday with the largest decrease occurring at 8 PM with a change of -3.0%. The largest single hour increase on Saturday compared to a year ago occurred at 12 PM with a change of 51.7%, and when compared with last quarter it also occurred at 12PM with an increase of 110.2%. As for the Sunday/Holidays, the largest magnitude decrease over a year ago is -5.4% at 11 AM, and over last quarter -61.7% at 7 AM. The largest magnitude increase over a year ago is 122.5% at 7 PM. The largest magnitude increase over last quarter occurred at 1 PM with a change of 126.6%.

Similarly to the same quarter last year and the previous quarter, Alameda County was the most congested county in the District with 2,910,000 vehicle hours of total delay at 35 mph during the first quarter. Santa Clara County was the second most congested county in the District with 1,586,000 vehicle hours of total delay at 35 mph. Contra Costa County was the third most congested county in the District with 905,000 vehicle hours of total delay at 35 mph. Alameda County experienced the largest magnitude increase of 58.7% compared to the same quarter last year, while San Francisco County experienced the largest magnitude decrease of -3% compared to last quarter.

From the Top 10 Bottlenecks for the 2nd Quarter, eight bottleneck locations occurred during the PM, and two bottleneck locations occurred in the AM period. The top three locations are as follows:

- o CC I80 Eastbound, 1200' East of Pinole Valley Road during PM period (Rank 1, previously ranked 2 in Q1 2023): 181,645 vehicle hours of delay

- ALA I880 Northbound, North of Eldridge POC during PM period (Rank 2, previously ranked 1 in Q1 2023): 151,710 vehicle hours of delay

- SCL US101 Southbound, 5120' N of Cochrane Rd during PM period (Rank 3, previously ranked 39 in Q1 2023): 132,896 vehicle hours of delay

This quarter, seven of the ten locations have resurfaced from last quarter's top 10 bottleneck list (bottlenecks in ranks 3, 8, and 9 are new). Rank 1 (previously Rank 2 in Q1 2023), CC I80 Eastbound PM, 1200' East of Pinole Valley Road increased 57.6% from 115,258 to 181,645 VHD. Rank 2 (previously Rank 1 in Q1 2023), ALA I880 Northbound PM, North of Eldridge POC increased 16.0% from 130,729 to 151,710 VHD. Rank 3 (previously Rank 39 in Q1 2023), SCL US101 Southbound PM, 5120' N of Cochrane Rd increased 390.0% from 27,128 to 132,896 VHD. Rank 4 (previously Rank 3 in Q1 2023), CC SR4 Westbound AM, 5400' E of Willow Pass Rd increased 23.6% from 97,097 to 119,977 VHD. Rank 5 (previously ranked 9 in Q1 2023), CC I680 Northbound PM, 100' N of Oak Park Blvd increased 78.2% from 55,390 to 98,692 VHD. Rank 6 (previously Rank 8 in Q1 2023), ALA I80 Westbound AM, Gilman St, increased 56.8% from 58,686 to 92,042 VHD. Rank 7 (previously Rank 4 in Q1 2023), ALA I80 Eastbound PM, Gilman St decreased -8.0% from 86,404 to 79,489 VHD. Rank 8 (previously Rank 25 in Q1 2023), MRN US101 Northbound PM, Tamalpais Dr increased 100.6% from 37,919 to 76,047 VHD. Rank 9 (previously Rank 34 in Q1 2023), CC SR24 Eastbound PM, Risa Rd increased 125.5% from 29,703 to 66,983 VHD. Rank 10 (previously Rank 7 in Q1 2023), SCL SR85 Southbound PM, Union Ave increased 5.7% from 59,565 to 62,970 VHD.

A plurality of locations across District 4 had an increase in activity compared to a year ago. On the Congestion by Route table, 33 out of the 49 Route Counties listed have increases in congestion compared to a year ago, 3 remained unchanged, and 13 show a decrease. Compared to last quarter, most locations have increased. On the Congestion by Route table, 33 out of the 49 Route Counties listed have increased when comparing to last quarter. Several routes experienced large swings in congestion compared to this quarter last year. This is generally due to detectors being fixed, being deactivated due to a construction project, or added in places where they did not previously exist.

Regarding vehicle detector health, there was a negligible change in the number of good detectors, which are functional as well as with the number of bad detectors, which are no longer able to measure congestion, compared to last quarter.

Top Ten Bottlenecks for the 2023 2nd Quarter:

Rank	County	Fwy	Approximate Location	Shift	Absolute Postmile	Begin CA PM	Avg Extent (miles)	Total Delay (veh-hrs)	Total Duration (minutes)	# of active days	Latitude	Longitude
1	Contra Costa	I80-E	1200' E of Pinole Valley Rd	PM	22.4	9.08	6.1	181,645	147	50	38.00372	-122.27979
2	Alameda	I880-N	N of Eldridge POC	PM	26.3	16.09	5.9	151,710	174	64	37.63718	-122.08826
3	Santa Clara	US101-S	5120' N of Cochrane Rd	PM	368.1	17.16	5.2	132,896	228	63	37.16338	-121.66442
4	Contra Costa	SR4-W	5400' E of Willow Pass Rd	AM	16.4	R16.77	3.6	119,977	147	63	38.02145	-121.98179
5	Contra Costa	I680-N	100' N of Oak Park Blvd	PM	48.5	17.01	5.2	98,692	125	64	37.93565	-122.06010
6	Alameda	I80-W	Gilman St	AM	11.9	6.6	1.6	92,042	151	64	37.87741	-122.30724
7	Alameda	I80-E	Gilman St	PM	12.0	6.64	3.4	79,489	119	57	37.87816	-122.30721
8	Marin	US101-N	Tamalpais Dr	PM	448.7	7.44	3.5	76,047	172	64	37.92704	-122.51491
9	Contra Costa	SR24-E	Risa Rd	PM	9.7	5.34	2.2	66,983	172	65	37.89046	-122.13752
10	Santa Clara	SR85-S	Union Ave	PM	9.1	9.1	2.1	62,970	192	59	37.25045	-121.92823

Measure	Graph	Percentage Change	

Measure	Graph	Over one year ago	Over last quarter
Vehicle Miles of Travel (VMT)	Miles (Billions) 2022 Q2: 7.48 2023 Q1: 7.06 2023 Q2: 7.64	2.1% ⬆	8.2% ⬆
Total Vehicle Hours of Delay (VHD) at 35 mph	Hours (Millions) 2022 Q2: 4.4 2023 Q1: 5.5 2023 Q2: 6.6	48% ⬆	18.7% ⬆
Average Non-Holiday Weekday Vehicle Hours of Delay (VHD) at 35 mph	Hours (Thousands) 2022 Q2: 60 2023 Q1: 81 2023 Q2: 88	48.7% ⬆	8.8% ⬆
Total Vehicle Hours of Delay (VHD) at 60 mph	Hours (Millions) 2022 Q2: 11.2 2023 Q1: 12.7 2023 Q2: 14.9	33.1% ⬆	17.4% ⬆
Average Non-Holiday Weekday Vehicle Hours of Delay (VHD) at 60 mph	Hours (Thousands) 2022 Q2: 151 2023 Q1: 183 2023 Q2: 200	32.6% ⬆	9.4% ⬆

Measure	Graph	Percentage Change	

Measure	Graph	Percentage Change	
Average Vehicle Hours of Delay by Day of Week at 60 mph	Hours (Thousands) — 2022 Q2, 2023 Q1, 2023 Q2; Mon, Tue, Wed, Thu, Fri, Sat, Sun/Hol	**Largest Magnitude Decrease over one year ago** —	**Largest Magnitude Decrease over last quarter** —
		Largest Magnitude Increase over one year ago Thursday 36.3%	**Largest Magnitude Increase over last quarter** Saturday 39.4%
Average Vehicle Hours of Delay by Hour of Day at 35 mph, Weekdays	Hours (Thousands) — Weekday (2022 Q2), Weekday (2023 Q1), Weekday (2023 Q2); Hour of Day	**Largest Magnitude Weekday Decrease over one year ago** —	**Largest Magnitude Weekday Decrease over last quarter** 8 AM -11.9%
		Largest Magnitude Weekday Increase over one year ago 5 PM 51.8%	**Largest Magnitude Weekday Increase over last quarter** 4 PM 18.4%
Average Vehicle Hours of Delay by Hour of Day at 35 mph, Saturdays	Hours (Thousands) — Saturday (2022 Q2), Saturday (2023 Q1), Saturday (2023 Q2); Hour of Day	**Largest Magnitude Saturday Decrease over one year ago** —	**Largest Magnitude Saturday Decrease over last quarter** 8 PM -3%
		Largest Magnitude Saturday Increase over one year ago 12 PM 51.7%	**Largest Magnitude Saturday Increase over last quarter** 12 PM 110.2%
Average Vehicle Hours of Delay by Hour of Day at 35 mph, Sundays/ Holidays	Hours (Thousands) — Sunday/Holiday (2022 Q2), Sunday/Holiday (2023 Q1), Sunday/Holiday (2023 Q2); Hour of Day	**Largest Magnitude Sun./Holiday Decrease over one year ago** 11 AM -5.4%	**Largest Magnitude Sun./Holiday Decrease over last quarter** 7 AM -61.7%
		Largest Magnitude Sun./Holiday Increase over one year ago 7 PM 122.5%	**Largest Magnitude Sun./Holiday Increase over last quarter** 1 PM 126.6%

Measure	Graph	Percentage Change	
Total Vehicle Hours of Delay (VHD) by County at 35 mph	Hours (Millions) — 2022 Q2, 2023 Q1, 2023 Q2; counties: Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma	**Largest Magnitude Decrease over one year ago** San Francisco -12.1%	**Largest Magnitude Decrease over last quarter** San Francisco -3.4%
		Largest Magnitude Increase over one year ago Alameda 58.7%	**Largest Magnitude Increase over last quarter** Santa Clara 28.8%
Average Non-Holiday Weekday Equivalent Lost Lane Mile Hours at 35 mph	Miles — 2022 Q2, 2023 Q1, 2023 Q2; AM Peak (6 AM to 10 AM), Off-Peak Day (10 AM to 3 PM), PM Peak (3 PM to 7 PM), Off-Peak Night (7 PM to 6 AM)	**Largest Magnitude Decrease over one year ago** –	**Largest Magnitude Decrease over last quarter** AM Peak -5.5%
		Largest Magnitude Increase over one year ago PM Peak 33.8%	**Largest Magnitude Increase over last quarter** PM Peak 16.2%
Average Number of Good and Bad Detectors	Number of Detectors — Average of Good, Average of Bad; 2022 Q2 (5,471 / 6,121), 2023 Q1 (4,900 / 6,728), 2023 Q2 (4,896 / 6,732)	**Change in Good over one year ago** 10%	**Change in Good over last quarter** 0%
		Change in Bad over one year ago -11%	**Change in Bad over last quarter** 0%

Congestion by Route

Route	County	Vehicle Hours of Delay at 35 mph			Difference 2023 Q2-2022 Q2		Difference 2023 Q2-2023 Q1		Rank		
		2022 Q2	2023 Q1	2023 Q2	Absolute	Percentage	Absolute	Percentage	2022 Q2	2023 Q1	2023 Q2
I580	Alameda	513,778	996,947	1,033,577	519,799	101.2%	36,630	3.7%	2	1	1
I880	Alameda	555,432	672,788	703,084	147,652	26.6%	30,296	4.5%	1	2	2
US101	Santa Clara	433,103	534,459	702,526	269,423	62.2%	168,067	31.4%	3	3	3
I80	Alameda	432,454	348,733	465,786	33,332	7.7%	117,053	33.6%	4	4	4
I80	Contra Costa	188,372	195,704	263,793	75,421	40.0%	68,089	34.8%	5	6	5
I680	Alameda	51,711	184,289	244,636	192,925	373.1%	60,346	32.7%	25	8	6
I80	Solano	165,215	148,672	223,738	58,524	35.4%	75,066	50.5%	6	12	7
SR85	Santa Clara	120,075	206,625	218,170	98,095	81.7%	11,545	5.6%	12	5	8
I280	Santa Clara	97,473	156,023	209,710	112,237	115.1%	53,687	34.4%	14	9	9
SR24	Alameda	34,755	115,220	200,863	166,108	477.9%	85,643	74.3%	30	15	10
SR4	Contra Costa	157,987	150,496	194,464	36,477	23.1%	43,968	29.2%	8	11	11
I680	Contra Costa	120,982	151,619	164,461	43,479	35.9%	12,842	8.5%	11	10	12
SR92	Alameda	102,915	138,895	153,760	50,846	49.4%	14,865	10.7%	13	13	13
SR37	Solano	132,086	101,523	151,966	19,880	15.1%	50,443	49.7%	10	18	14
US101	San Francisco	142,344	193,898	150,344	8,000	5.6%	-43,554	-22.5%	9	7	15
I880	Santa Clara	62,812	102,277	148,502	85,690	136.4%	46,225	45.2%	22	17	16
US101	Marin	73,278	106,286	139,275	65,997	90.1%	32,990	31.0%	18	16	17
US101	San Mateo	159,041	128,511	130,977	-28,064	-17.6%	2,467	1.9%	7	14	18
SR24	Contra Costa	78,970	96,728	125,546	46,576	59.0%	28,818	29.8%	16	19	19
I980	Alameda	2,187	1,786	1,170	-1,017	-46.5%	-616	-34.5%	41	40	40
SR237	Santa Clara	60,839	87,540	103,942	43,103	70.8%	16,402	18.7%	23	20	20
US101	Sonoma	48,426	74,580	91,047	42,621	88.0%	16,466	22.1%	27	24	21
SR242	Contra Costa	66,457	85,513	90,005	23,548	35.4%	4,492	5.3%	21	21	22
I80	San Francisco	69,491	36,841	85,549	16,058	23.1%	48,707	132.2%	19	29	23
I680	Santa Clara	28,468	62,297	75,966	47,497	166.8%	13,668	21.9%	32	27	24
I280	San Mateo	31,919	81,133	72,372	40,453	126.7%	-8,762	-10.8%	31	23	25
I580	Contra Costa	82,685	84,928	66,233	-16,453	-19.9%	-18,695	-22.0%	15	22	26
SR87	Santa Clara	35,953	63,384	61,351	25,398	70.6%	-2,033	-3.2%	29	26	27
SR84	Alameda	68,793	68,915	56,014	-12,779	-18.6%	-12,901	-18.7%	20	25	28
SR238	Alameda	75,131	50,560	51,119	-24,012	-32.0%	559	1.1%	17	28	29
SR17	Santa Clara	49,900	8,999	44,192	-5,708	-11.4%	35,193	391.1%	26	34	30
I680	Solano	5,286	15,982	42,225	36,939	698.8%	26,243	164.2%	40	32	31
SR92	San Mateo	24,204	36,636	37,880	13,677	56.5%	1,244	3.4%	33	30	32
SR12	Napa	14,549	12,790	20,579	6,029	41.4%	7,788	60.9%	36	33	33
I280	San Francisco	17,014	26,488	12,707	-4,307	-25.3%	-13,781	-52.0%	35	31	34
SR37	Sonoma	7,696	8,169	11,145	3,449	44.8%	2,976	36.4%	38	36	35
SR152	Santa Clara	10,146	6,031	10,951	805	7.9%	4,920	81.6%	37	37	36
SR25	Santa Clara	5,947	3,942	10,752	4,806	80.8%	6,810	172.8%	39	38	37
I580	Marin	22,444	8,294	8,257	-14,188	-63.2%	-37	-0.5%	34	35	38
SR12	Solano	47,320	3,131	4,212	-43,108	-91.1%	1,081	34.5%	28	39	39
SR37	Marin	236	853	318	82	34.9%	-535	-62.7%	44	41	41
I80	Napa	303	467	200	-104	-34.1%	-268	-57.3%	43	43	42
SR29	Napa	1	792	121	120	13300.0%	-672	-84.8%	48	42	43
I780	Solano	482	69	78	-404	-83.9%	9	13.6%	42	44	44
SR13	Alameda	18	18	18	0	0.0%	0	0.0%	46	46	45
I880S	Alameda	12	12	12	0	0.0%	0	0.0%	47	47	46
SR156	Santa Clara	52	22	11	-41	-79.4%	-11	-50.5%	45	45	47
SR1	San Francisco	53,881	9	9	-53,872	-100.0%	0	0.0%	24	48	48
SR160	Contra Costa	0	0	0	0		0				
TOTALS		**4,452,621**	**5,559,872**	**6,583,609**	**2,130,988**	**47.9%**	**1,023,736**	**18.4%**			