District 04 Mobility Performance Report

2022 3rd Quarter

DEPARTMENT OF TRANSPORTATION

September 30, 2022

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

2022 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

A full two and a half years have passed since 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 Q3 2022, there was a 5.1% increase in VMT compared to the same quarter a year ago, with VMT increasing from 7.4 billion in Q3 2021 to 7.8 billion in Q3 2022. In the third quarter, we see an increase of 3.7% (276 million) in VMT from the previous quarter's VMT of 7.5 billion.

Annual increases are not only seen in VMT, but also in VHD. Compared to the same quarter the year before, there was a 10.5% increase from 4.9 million to 5.4 million in the 35 mph total quarterly delay, and a 10.6% increase from 11.8 million to 13 million VHD in the 60 mph total quarterly delay. Similar to VMT, a quarterly increase was seen in VHD. Compared to the previous quarter, Q3 saw a 20.6% increase in VHD at 35 mph and 16.6% increase for 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 61 thousand VHD at 35 mph, and 151 thousand VHD at 60 mph. Whereas this quarter, there was a delay of 71 thousand VHD at 35 mph which is a 17.6% increase, and 175 thousand VHD at 60 mph which is a 15.8% increase. Thursday was the most congested day of the week in Q3 which is similar to the previous quarter, but dissimilar to the same quarter last year where Friday was the most congested day of the week. Tuesday had the largest magnitude increase of 34 thousand VHD at 60 mph which was a 24.2% increase from the same quarter last year. Thursday had the largest magnitude increase of 31 thousand (18.7%) VHD at 60 mph compared to last quarter. No weekdays had a decrease compared to last quarter.

Looking at the Average VHD at 35 mph by hour of the day for weekdays, there was a significant increase in the AM commute period congestion compared to last year. The largest magnitude hourly change compared to the same quarter a year ago occurred at 8 AM with an increase of 49.2%. The largest magnitude hourly weekday increase over last quarter occurred at 8 AM with a increase of 23.9%. For the PM hours, the largest magnitude hourly increase of 16%

compared to the same quarter last year occurred at 5 PM, and the largest magnitude increase of 21% compared to last quarter occurred at 5 PM. The weekday peak hour average delay of 12,995 VHD for this quarter occurs at 5pm which is the same as last quarter and a year ago. Since last quarter's peak hour VHD of 10,740 VHD, there was a 21% increase. Compared to a year ago, there was a 16% increase to a total VHD of 11,190. The largest single hour decrease on Saturday compared to a year ago occurred at 4 PM with a -22.9% change, and the largest decrease over last quarter occurred at 6 AM with a change of -21.3%. The largest single hour increase on Saturday compared to a year ago occurred at 8 PM with a change of 10.7%, and over last quarter an increase of 33.4% occurred at 2 PM. As for the Sunday/Holidays, the largest magnitude decrease over a year ago is -29.3% at 3 PM, and over last quarter -6.3% at 5 PM. The largest magnitude increase over a year ago is 77.1% at 9 AM. The largest magnitude increase over last quarter occurred at 1 PM with a change of 15.9%.

Similarly to the same quarter last year and the previous quarter, Alameda County was the most congested county in the District with 2,022,000 vehicle hours of total delay at 35 mph during the third quarter. Santa Clara County was the second most congested county in the District with 1,215,000 vehicle hours of total delay at 35 mph. Contra Costa County was the third most congested county in the District with 801,000 vehicle hours of total delay at 35 mph. Santa Clara County experienced the largest magnitude increase of 37.1% compared to the same quarter last year, while San Francisco experienced the largest magnitude decrease of -29.6% compared to last quarter.

From the Top 10 Bottlenecks for the 3rd Quarter, eight bottleneck locations occurred during the PM, and two bottleneck location occurred in the AM period. The top three locations are as follows:

- ALA I880 Northbound North of Eldridge POC during PM period (Rank 1, previously ranked 1 in Q2 2022 as Winton Ave.): 127,858 vehicle hours of delay
- CC I80 Eastbound at Pinole Valley Rd during PM period (Rank 2, previously ranked 2 in Q2 2022): 118,459 vehicle hours of delay

- CC SR4 Westbound 5400' east of Willow Pass Rd. during AM period (Rank 3, previously ranked 4 in Q2 2022): 116,663 vehicle hours of delay

This quarter, nine of the ten locations have resurfaced from last quarter's top 10 bottleneck list (with the exception of number 8, which just failed to make the list last quarter, at rank 11), although some have different names due the beginning location shifting slightly. Rank 1 (previously Rank 1 in Q2 2022), ALA I880 Northbound PM North of Eldridge POC (previously Winton Ave) increased 4.2% from 122,706 to 127,858 VHD. Rank 2 (previously Rank 2 in Q2 2022), CC I80 Eastbound PM at Pinole Valley Rd increased 1.5% from 116,713 to 118,459 VHD. Rank 3 (previously Rank 4 in Q2 2022), CC SR 4 Westbound AM at 5400' E of Willow Pass Rd increased 13.8% from 102,546 to 116,663 VHD. Rank 4 (previously rank 9 in Q2 2022), SCL I280 Southbound PM at Bird Ave. increased 88.9% from 49,658 to 93,803 VHD. Rank 5 (previously Rank 7 in Q1 2022), SCL US101 Southbound PM E Dunne Ave. (previously 1.78 mi S of Coyote Creek Golf Dr.) increased 46.7% from 58,237 to 85,443 VHD. Rank 6 (previously Rank 3 in Q2 2022), ALA I80 Eastbound PM at Gilman St decreased 22.6% from 103,981 to 80,450 VHD. Rank 7 (previously Rank 5 in Q2 2022), ALA I80 Westbound AM at Gilman St decreased 8.9% from 84,009 to 76,559 VHD. Rank 8 (previously Rank 11 in Q2 2022), SCL US101 Southbound PM at North 13th St. is new on the list this quarter, having increased 27.5% from 48,617 to 61,966. Rank 9 (previously Rank 10 in Q2 2022), CC SR4 Eastbound PM at Kinne Blvd (previously Port Chicago Hwy) increased 21.0% from 49,293 to 59,641 VHD. Rank 10 (previously Rank 6 in Q2 2022), ALA I80 Westbound PM at Powel St. decreased 23.7% from78,088 to 59,554 VHD.

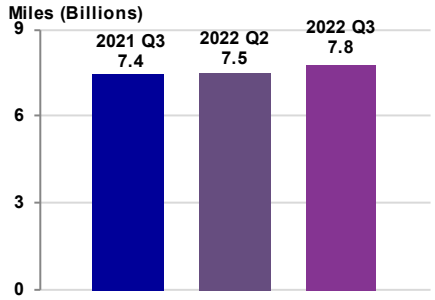
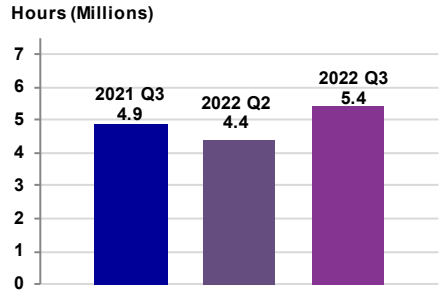
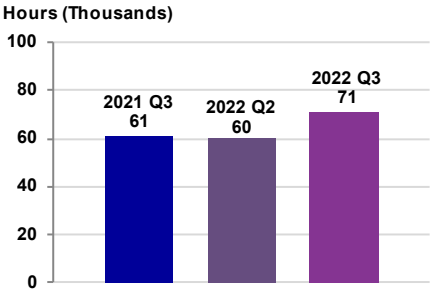
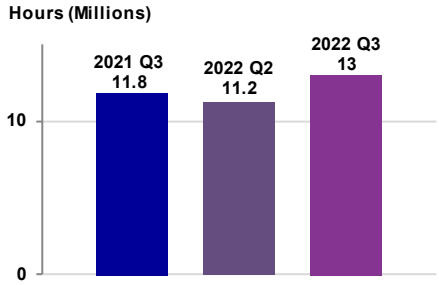
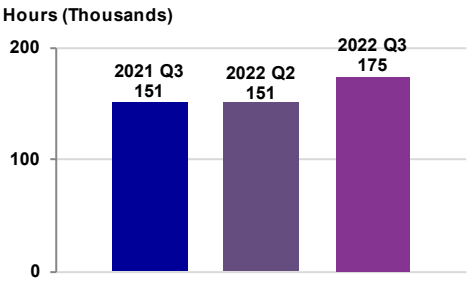
A plurality of locations across district 4 had an increase in activity compared to a year ago. On the Congestion by Route table, 25 out of the 49 Route Counties listed have increases in congestion compared to a year ago, 3 remained unchanged, and 21 show a decrease. Compared to last quarter, most locations have increased. On the Congestion by Route table, 37 out of the 49 Route Counties listed have increased. Several routes experienced large swings in congestion due to this quarter last year. This is generally due to detectors being fixed, no longer being deactivated due to a construction project, or added in places where they did not previously exist.

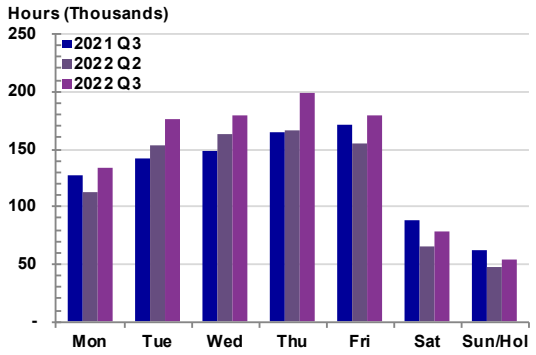
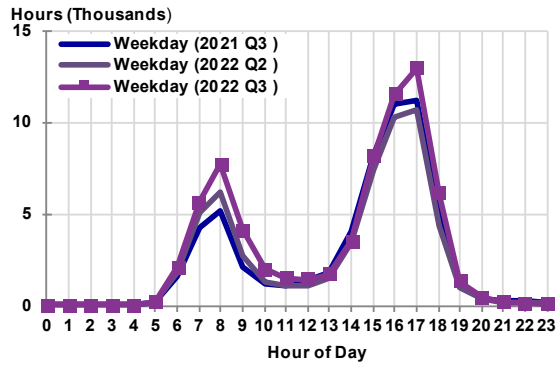
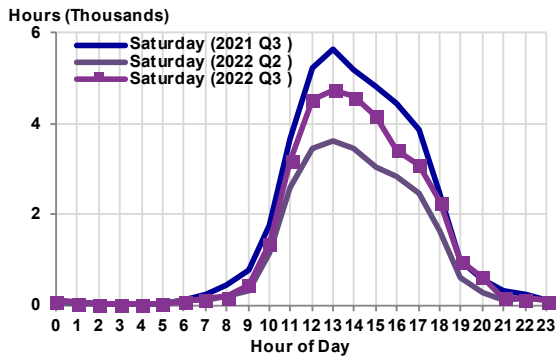
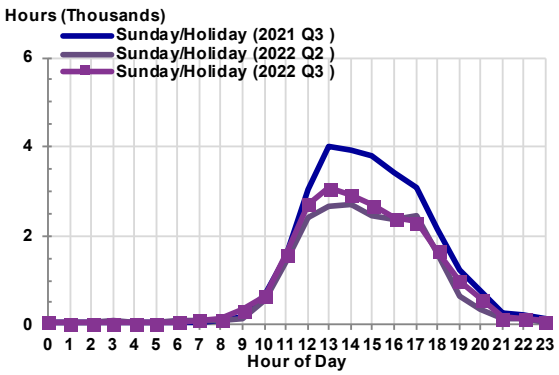
Regarding vehicle detector health, there was a 4% increase in the number of good detectors, which are functional, and 4% decrease in the number of bad detectors, which are no longer able to measure congestion, compared to last quarter.

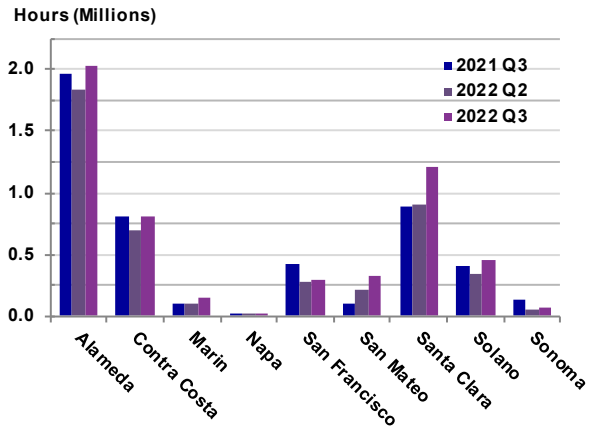
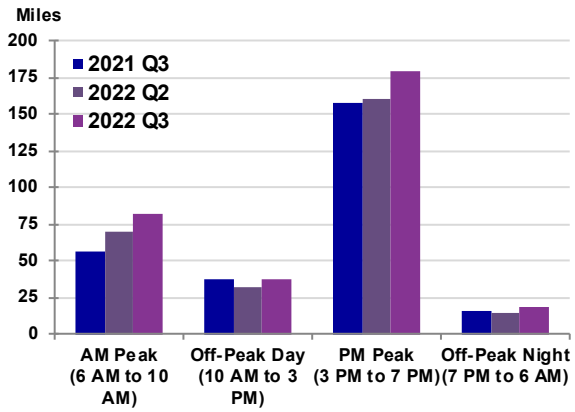
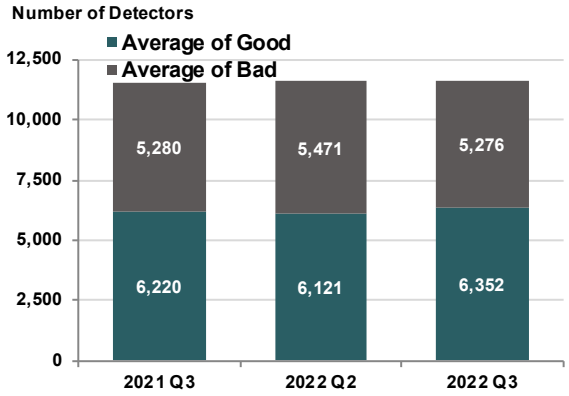
An issue with the PeMS assigned length per VDS affected 55 out of 108 VDSs on NB 101 between postmile 0.21 to 21.23 in Sonoma County prior to 6/24/2021 (2021 Qtr 2). The error was resolved and adjustments are no longer needed for data starting 2021 Qtr 3 and onward, which means it no longer effects this quarter's report.

Top Ten Bottlenecks for the 2022 3rd Quarter:

Rank	County	Fwy	Approximate Location	Shift	Absolute Postmile	Begin CA PM	Avg Extent (miles)	Total Delay (veh-hrs)	Total Duration (mins)	# of active days	Latitude	Longitude
1	Alameda	I880-N	N of Eldridge POC	PM	26.3	16.09	4.7	127,858	12,460	63	37.63718	-122.08826
2	Contra Costa	I80-E	Pinole Valley Rd	PM	21.9	8.59	4.7	118,459	11,640	62	37.99801	-122.28511
3	Contra Costa	SR4-W	5400' E of Willow Pass Rd	AM	15.8	R16.18	6.2	116,663	8,250	60	38.01195	-122.00948
4	Santa Clara	I280-S	Bird Ave	PM	2.9	R2.85	3.2	93,803	10,105	62	37.32236	-121.8978
5	Santa Clara	US101-S	E Dunne Ave	PM	365.5	R16.24	6.5	85,443	1356.24	63	37.17155	-121.67191
6	Alameda	I80-E	Gilman St	PM	12.0	6.64	3.3	80,450	6,545	56	37.87816	-122.30721
7	Alameda	I80-W	Gilman St	AM	11.9	6.6	3.4	76,559	8,355	63	37.87741	-122.30724
8	Santa Clara	US101-S	N 13th St-Oakland Rd	PM	387.3	37.61	2.1	61,966	14,135	63	37.36271	-121.88943
9	Contra Costa	SR4-E	Kinne Blvd	PM	15.8	R16.1	3.0	59,641	14,585	63	38.0103	-122.01744
10	Alameda	I80-W	Powell St	PM	9.2	3.9	2.1	59,554	12,720	63	37.83967	-122.297

Measure	Graph	Percentage Change	
		Over one year ago	Over last quarter
Vehicle Miles of Travel (VMT)		5.1%	3.7%
Total Vehicle Hours of Delay (VHD) at 35 mph		10.5%	20.6%
Average Non-Holiday Weekday Vehicle Hours of Delay (VHD) at 35 mph		17.6%	20%
Total Vehicle Hours of Delay (VHD) at 60 mph		10.6%	16.6%
Average Non-Holiday Weekday Vehicle Hours of Delay (VHD) at 60 mph		15.4%	15.8%

Measure	Graph	Percentage Change	
Average Vehicle Hours of Delay by Day of Week at 60 mph		Largest Magnitude Decrease over one year ago Saturday -10.6%	Largest Magnitude Decrease over last quarter –
		Largest Magnitude Increase over one year ago Tuesday 24.2%	Largest Magnitude Increase over last quarter Thursday 18.7%
Average Vehicle Hours of Delay by Hour of Day at 35 mph, Weekdays		Largest Magnitude Weekday Decrease over one year ago 2 PM -12.7%	Largest Magnitude Weekday Decrease over last quarter 10 PM -14.1%
		Largest Magnitude Weekday Increase over one year ago 8 AM 49.2%	Largest Magnitude Weekday Increase over last quarter 5 PM 21%
Average Vehicle Hours of Delay by Hour of Day at 35 mph, Saturdays		Largest Magnitude Saturday Decrease over one year ago 4 PM -22.9%	Largest Magnitude Saturday Decrease over last quarter 6 AM -21.3%
		Largest Magnitude Saturday Increase over one year ago 8 PM 10.7%	Largest Magnitude Saturday Increase over last quarter 2 PM 33.4%
Average Vehicle Hours of Delay by Hour of Day at 35 mph, Sundays/ Holidays		Largest Magnitude Sun./Holiday Decrease over one year ago 3 PM -29.3%	Largest Magnitude Sun./Holiday Decrease over last quarter 5 PM -6.3%
		Largest Magnitude Sun./Holiday Increase over one year ago 9 AM 77.1%	Largest Magnitude Sun./Holiday Increase over last quarter 1 PM 15.9%

Measure	Graph	Percentage Change	
Total Vehicle Hours of Delay (VHD) by County at 35 mph		Largest Magnitude Decrease over one year ago San Francisco -29.6%	Largest Magnitude Decrease over last quarter –
		Largest Magnitude Increase over one year ago Santa Clara 37.1%	Largest Magnitude Increase over last quarter Santa Clara 34.3%
Average Non-Holiday Weekday Equivalent Lost Lane Mile Hours at 35 mph		Largest Magnitude Decrease over one year ago Off-Peak Day -4.4%	Largest Magnitude Decrease over last quarter –
		Largest Magnitude Increase over one year ago AM Peak 46.6%	Largest Magnitude Increase over last quarter PM Peak 11%
Average Number of Good and Bad Detectors		Change in Good over one year ago 2%	Change in Good over last quarter 4%
		Change in Bad over one year ago –	Change in Bad over last quarter -4%

Congestion by Route											
		Vehicle Hours of Delay at 35 mph			Difference 2022 Q3-2021 Q3		Difference 2022 Q3-2022 Q2		Rank		
Route	County	2021 Q3	2022 Q2	2022 Q3	Absolute	Percentage	Absolute	Percentage	2021 Q3	2022 Q2	2022 Q3
I880	Alameda	606,630	555,432	644,987	38,357	6%	89,554	16%	1	1	1
I580	Alameda	605,700	513,778	529,042	-76,658	-13%	15,264	3%	2	2	2
US101	Santa Clara	475,305	433,103	497,091	21,786	5%	63,988	15%	4	3	3
I80	Alameda	494,460	432,454	486,236	-8,225	-2%	53,782	12%	3	4	4
I80	Contra Costa	224,562	188,372	196,354	-28,208	-13%	7,982	4%	6	5	8
I80	Solano	173,539	165,215	250,942	77,403	45%	85,727	52%	8	6	5
US101	San Mateo	80,943	159,041	234,766	153,822	190%	75,725	48%	20	7	6
SR4	Contra Costa	187,416	157,987	203,223	15,807	8%	45,236	29%	7	8	7
US101	San Francisco	236,500	142,344	159,182	-77,317	-33%	16,839	12%	5	9	11
SR37	Solano	114,467	132,086	162,122	47,655	42%	30,036	23%	11	10	9
I680	Contra Costa	144,310	120,982	156,386	12,076	8%	35,404	29%	9	11	13
SR85	Santa Clara	83,510	120,075	161,742	78,233	94%	41,667	35%	18	12	10
SR92	Alameda	95,591	102,915	116,339	20,749	22%	13,425	13%	13	13	15
I280	Santa Clara	86,111	97,473	157,387	71,276	83%	59,914	61%	17	14	12
I580	Contra Costa	89,909	82,685	99,251	9,342	10%	16,566	20%	15	15	18
SR24	Contra Costa	82,101	78,970	75,923	-6,178	-8%	-3,047	-4%	19	16	21
SR238	Alameda	76,053	75,131	65,060	-10,993	-14%	-10,071	-13%	23	17	23
US101	Marin	79,428	73,278	104,780	25,352	32%	31,502	43%	21	18	16
I80	San Francisco	91,590	69,491	61,910	-29,680	-32%	-7,581	-11%	14	19	25
SR84	Alameda	0	68,793	82,253	82,253		13,460	20%		20	19
SR242	Contra Costa	78,203	66,457	79,173	970	1%	12,716	19%	22	21	20
I880	Santa Clara	42,657	62,812	126,400	83,743	196%	63,588	101%	27	22	14
SR237	Santa Clara	26,076	60,839	100,239	74,163	284%	39,400	65%	32	23	17
SR1	San Francisco	88,393	53,881	60,922	-27,471	-31%	7,041	13%	16	24	27
I680	Alameda	51,627	51,711	67,049	15,423	30%	15,338	30%	26	25	22
SR17	Santa Clara	68,320	49,900	61,039	-7,281	-11%	11,139	22%	24	26	26
US101	Sonoma	117,542	48,426	63,384	-54,158	-46%	14,958	31%	10	27	24
SR12	Solano	112,321	47,320	30,869	-81,452	-73%	-16,451	-35%	12	28	34
SR87	Santa Clara	38,591	35,953	45,991	7,400	19%	10,037	28%	28	29	30
SR24	Alameda	54,964	34,755	37,358	-17,606	-32%	2,603	7%	25	30	33
I280	San Mateo	2,526	31,919	48,157	45,631	1807%	16,238	51%	39	31	28
I680	Santa Clara	27,004	28,468	40,536	13,533	50%	12,068	42%	31	32	31
SR92	San Mateo	27,832	24,204	38,276	10,445	38%	14,073	58%	29	33	32
I580	Marin	18,123	22,444	46,404	28,281	156%	23,960	107%	34	34	29
I280	San Francisco	9,371	17,014	17,689	8,318	89%	675	4%	37	35	35
SR12	Napa	22,604	14,549	17,502	-5,102	-23%	2,953	20%	33	36	36
SR152	Santa Clara	27,630	10,146	15,915	-11,715	-42%	5,770	57%	30	37	37
SR37	Sonoma	12,814	7,696	7,685	-5,129	-40%	-11	0%	35	38	40
SR25	Santa Clara	10,389	5,947	8,310	-2,079	-20%	2,363	40%	36	39	39
I680	Solano	5,263	5,286	9,365	4,102	78%	4,078	77%	38	40	38
I980	Alameda	339	2,187	165	-174	-51%	-2,022	-92%	41	41	43
I780	Solano	7	482	4,053	4,046	59501%	3,571	741%	46	42	41
I80	Napa	312	303	22	-289	-93%	-281	-93%	42	43	46
SR37	Marin	129	236	167	38	29%	-69	-29%	43	44	42
SR156	Santa Clara	426	52	35	-390	-92%	-17	-32%	40	45	45
SR13	Alameda	20	18	18	-1	-7%	0	0%	44	46	47
I880S	Alameda	13	12	12	-1	-7%	0	0%	45	47	48
SR29	Napa	0	1	92	92		91	10122%		48	44
SR160	Contra Costa	0	0	0	0		0				
TOTALS		**4,871,616**	**4,452,621**	**5,371,800**	**500,184**	**10.3%**	**919,180**	**20.6%**			