District 04 Mobility Performance Report

2022 4th Quarter

DEPARTMENT OF TRANSPORTATION

December 31, 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 4th 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

Over two and a half 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 Q4 2022, there was a 2.3% increase in VMT compared to the same quarter a year ago, with VMT increasing from 7.2 billion in Q4 2021 to 7.4 billion in Q4 2022. In the fourth quarter, we see a decrease of 4.5% (350 million) in VMT from the previous quarter's VMT of 7.8 billion.

Annual increases are not only seen in VMT, but also in VHD. Compared to the same quarter the year before, there was a 4.0% increase from 5.0 million to 5.2 million in the 35 mph total quarterly delay, and a 3.8% increase from 12.1 million to 12.6 million VHD in the 60 mph total quarterly delay. Similarly to VMT, a quarterly decrease was seen in VHD. Compared to the previous quarter, Q3 saw a 3.3% decrease in VHD at 35 mph and 3.5% decrease 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 65 thousand VHD at 35 mph, and 157 thousand VHD at 60 mph. Whereas this quarter, there was a delay of 72 thousand VHD at 35 mph which is a 9.8% increase, and 171 thousand VHD at 60 mph which is a 9.4% increase. Thursday was the most congested day of the week in Q4 which is similar to the previous quarter, as well as the same quarter last year. Tuesday had the largest magnitude increase of 32 thousand VHD at 60 mph which was a 21.4% increase from the same quarter last year. Saturday had the largest magnitude decrease of 18 thousand VHD at 60 mph which was a 20.5% decrease from the same quarter last year. Tuesday had the largest magnitude increase of 11 thousand (21.4%) VHD at 60 mph compared to last quarter. Monday had the largest magnitude decrease of 23 thousand (15.1%) VHD at 60 mph 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 compared to the same quarter a year ago occurred at 8 AM with an increase of 21.2%. The largest magnitude hourly weekday change compared to last quarter occurred at 9

AM with a decrease of 16.3%. For the PM hours, the largest magnitude hourly change compared to the same quarter last year was a decrease of 14.9%, which occurred at 2 PM, and the largest magnitude hourly change compared to last quarter was a increase of 17.4%, which occurred at 6 PM. The weekday peak hour average delay of 13,882 VHD for this quarter occurs at 5pm which is the same as last quarter and a year ago. Compared to last quarter's peak hour VHD of 12,995 VHD, there was a 6.8% increase. Compared to a year ago, there was a 11% increase from a VHD of 12,995. The largest single hour decrease on Saturday compared to a year ago occurred at 6 PM with a -36.2% change, and the largest decrease over last quarter occurred at 12 PM with a change of -42.91%. The largest single hour increase on Saturday compared to a year ago occurred at 11 PM with a change of 7.8%, and over last quarter an increase of 19.6% occurred at 5 PM. As for the Sunday/Holidays, the largest magnitude decrease over a year ago is -14.8% at 5 PM, and over last quarter -26.6% at 1 PM. The largest magnitude increase over a year ago is 14.2% at 3 PM. The largest magnitude increase over last quarter occurred at 5 PM with a change of 65.8%.

Similarly to the same quarter last year and the previous quarter, Alameda County was the most congested county in the District with 2,179,000 vehicle hours of total delay at 35 mph during the fourth quarter. Santa Clara County was the second most congested county in the District with 1,183,000 vehicle hours of total delay at 35 mph. Contra Costa County was the third most congested county in the District with 711,000 vehicle hours of total delay at 35 mph. Santa Clara County experienced the largest magnitude increase of 33.0% compared to the same quarter last year, while Contra Costa County experienced the largest magnitude decrease of -22.2% compared to last quarter.

From the Top 10 Bottlenecks for the 4th Quarter, eight bottleneck locations occurred during the PM, and two bottleneck locations occurred in the AM period. The top three locations are as follows:

- CC I80 Eastbound at Pinole Valley Rd during PM period (Rank 1, previously ranked 2 in Q2 2022): 127,938 vehicle hours of delay
- ALA I880 Northbound North of Eldridge POC during PM period (Rank 2, previously ranked 1 in Q2 2022): 121,298 vehicle hours of delay

- SCL I280 Southbound 5400' east of Willow Pass Rd. during PM period (Rank 3, previously ranked 4 in Q2 2022): 89,363 vehicle hours of delay

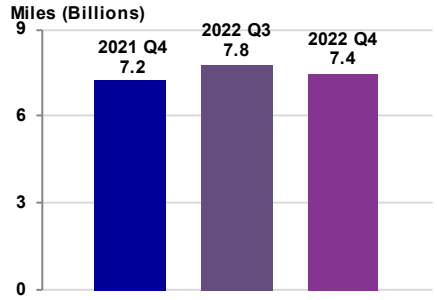
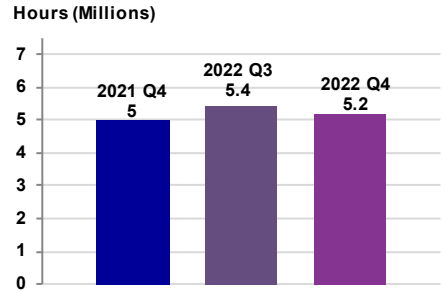
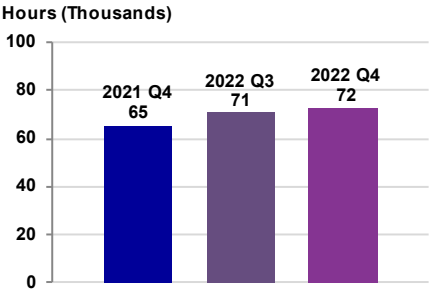
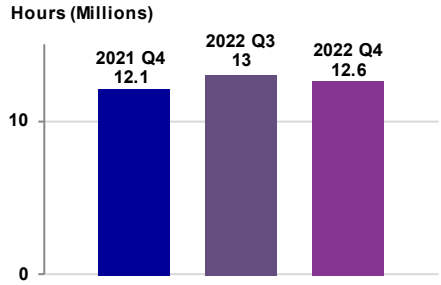
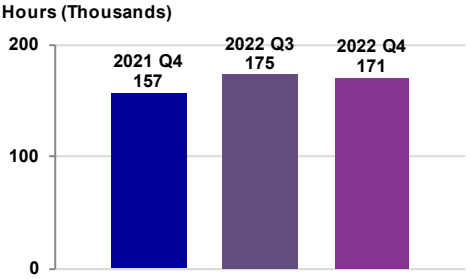
This quarter, nine of the ten locations have resurfaced from last quarter's top 10 bottleneck list (with the exception of number 10, which did not appear on the top 20 last quarter). Rank 1 (previously Rank 2 in Q3 2022), CC I80 Eastbound PM at Pinole Valley Rd increased 8.0% from 118,459 to 127,938 VHD. Rank 2 (previously Rank 1 in Q3 2022), ALA I880 Northbound PM North of Eldridge POC decreased 5.1% from 127,858 to 121,298 VHD. Rank 3 (previously Rank 4 in Q3 2022), SCL I280 Southbound PM at Bird Ave decreased 4.7% from 93,803 to 89,363 VHD. Rank 4 (previously rank 6 in Q3 2022), ALA I80 Eastbound PM at Gilman St increased 3.1% from 80,450 to 82,923 VHD. Rank 5 (previously Rank 3 in Q3 2022), CC SR 4 Westbound AM at 5400' E of Willow Pass Rd decreased 37.4% from 116,663 to 73,024 VHD. Rank 6 (previously Rank 8 in Q3 2022), SCL US101 Southbound PM N 13th St-Oakland Rd. increased 8.6% from 61,966 to 67,312 VHD. Rank 7 (previously Rank 5 in Q3 2022), SCL US101 Southbound PM at 1.75 mi S of Coyote Creek Golf Dr (previously E. Dunne Ave.) decreased 21.7% from 85,443 to 66,933 VHD. Rank 8 (previously Rank 7 in Q3 2022), ALA I80 Westbound AM decreased 25.2% from 76,559 to 57,294. Rank 9 (previously Rank 10 in Q3 2022), ALA I80 Westbound PM at Powel St. decreased 8.2% from 59,554 to 54,651 VHD. Rank 10, ALA I880 Southbound PM at 66th Ave. is new on the list this quarter.

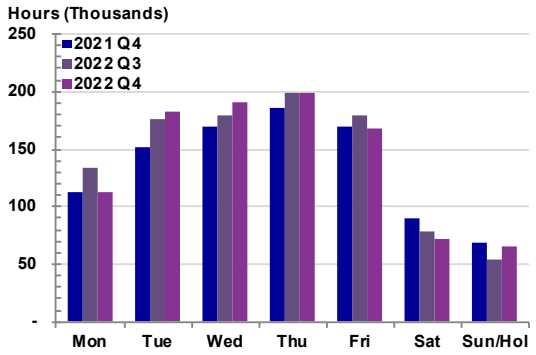
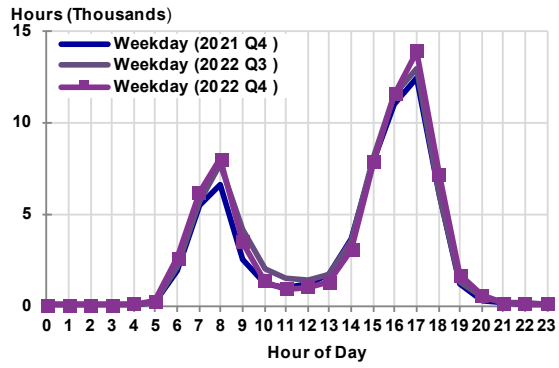
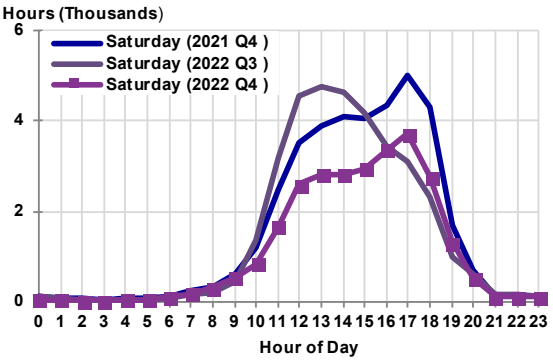
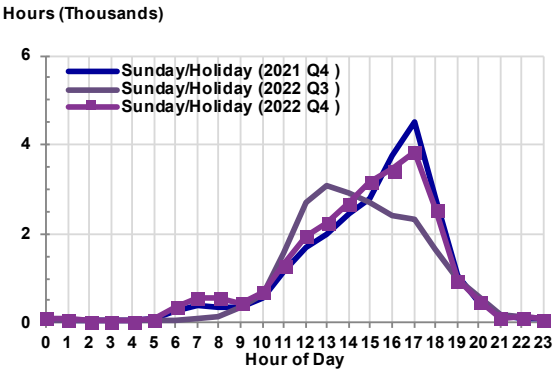
A plurality of locations across district 4 had a decrease in activity compared to a year ago. On the Congestion by Route table, 20 out of the 49 Route Counties listed have increases in congestion compared to a year ago, 3 remained unchanged, and 26 show a decrease. Compared to last quarter, most locations have decreased. On the Congestion by Route table, 16 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.

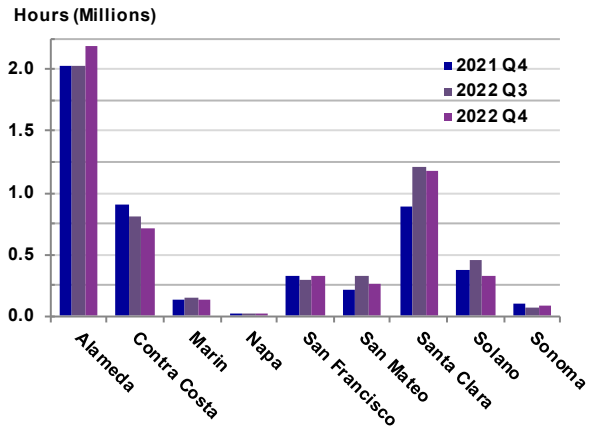
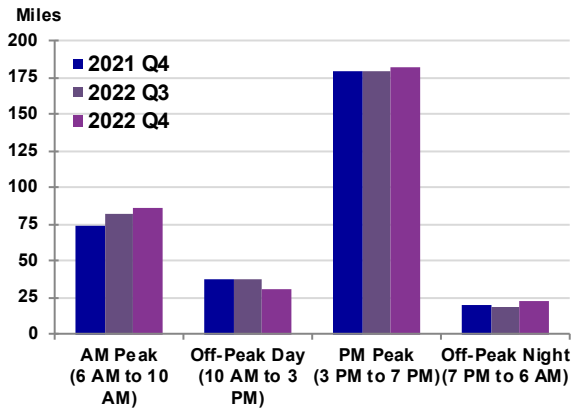
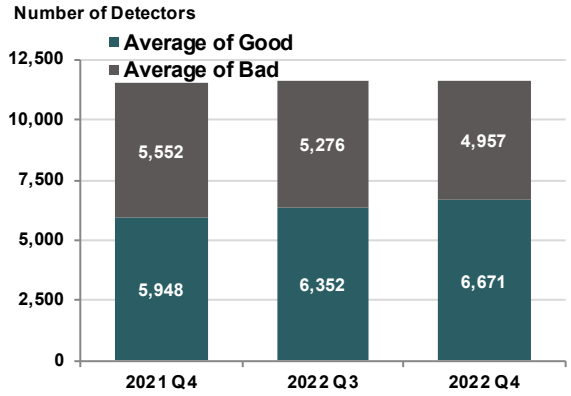
Regarding vehicle detector health, there was a 5% increase in the number of good detectors, which are functional, and 6% decrease in the number of bad detectors, which are no longer able to measure congestion, compared to last quarter.

Top Ten Bottlenecks for the 2022 4th 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	Contra Costa	I80-E	Pinole Valley Rd	PM	17.4	8.59	6.9	127,938	8,640	54	37.99801	-122.28511
2	Alameda	I880-N	N of Eldridge POC	PM	26.3	16.09	4.9	121,298	11,170	58	37.63718	-122.08826
3	Santa Clara	I280-S	Bird Ave	PM	7.2	R2.85	2.8	89,363	11,485	60	37.32236	-121.8978
4	Alameda	I80-E	Gilman St	PM	12.0	6.64	3.2	82,923	5,350	54	37.87816	-122.30721
5	Contra Costa	SR4-W	5400' E of Willow Pass Rd	AM	17.5	17.85	2.9	73,024	4445.00	43	38.02145	-121.98179
6	Santa Clara	US101-S	N 13th St-Oakland Rd	PM	387.3	37.61	2.1	67,312	13,105	61	37.36271	-121.88943
7	Santa Clara	US101-S	1.75 Mi S of Coyote Creek Golf Drive	PM	368.8	R19.5	2.6	66,933	9,825	54	37.17155	-121.67191
8	Alameda	I80-W	Gilman St	AM	11.9	6.6	2.7	57,295	7,295	58	37.87741	-122.30724
9	Alameda	I80-W	W of Powell St	PM	9.0	3.68	2.5	54,651	11,285	63	37.83657	-122.29614
10	Alameda	I880-S	66th Ave	PM	36.6	26.33	3.5	53,513	10,050	58	37.75061	-122.20529

Measure	Graph	Percentage Change	
		Over one year ago	Over last quarter
Vehicle Miles of Travel (VMT)		2.3%	-4.5%
Total Vehicle Hours of Delay (VHD) at 35 mph		4%	-3.3%
Average Non-Holiday Weekday Vehicle Hours of Delay (VHD) at 35 mph		9.8%	0.2%
Total Vehicle Hours of Delay (VHD) at 60 mph		3.8%	-3.5%
Average Non-Holiday Weekday Vehicle Hours of Delay (VHD) at 60 mph		9.4%	-2%

Measure	Graph	Percentage Change	
Average Vehicle Hours of Delay by Day of Week at 60 mph		Largest Magnitude Decrease over one year ago Saturday -20.5%	Largest Magnitude Decrease over last quarter Monday -15.1%
		Largest Magnitude Increase over one year ago Tuesday 21.4%	Largest Magnitude Increase over last quarter Sun/Hol 21.4%
Average Vehicle Hours of Delay by Hour of Day at 35 mph, Weekdays		Largest Magnitude Weekday Decrease over one year ago 2 PM -14.9%	Largest Magnitude Weekday Decrease over last quarter 9 AM -16.3%
		Largest Magnitude Weekday Increase over one year ago 8 AM 21.2%	Largest Magnitude Weekday Increase over last quarter 6 PM 17.4%
Average Vehicle Hours of Delay by Hour of Day at 35 mph, Saturdays		Largest Magnitude Saturday Decrease over one year ago 6 PM -36.2%	Largest Magnitude Saturday Decrease over last quarter 12 PM -42.9%
		Largest Magnitude Saturday Increase over one year ago 11 PM 7.8%	Largest Magnitude Saturday Increase over last quarter 5 PM 19.6%
Average Vehicle Hours of Delay by Hour of Day at 35 mph, Sundays/ Holidays		Largest Magnitude Sun./Holiday Decrease over one year ago 5 PM -14.8%	Largest Magnitude Sun./Holiday Decrease over last quarter 1 PM -26.6%
		Largest Magnitude Sun./Holiday Increase over one year ago 3 PM 14.2%	Largest Magnitude Sun./Holiday Increase over last quarter 5 PM 65.8%

Measure	Graph	Percentage Change	
Total Vehicle Hours of Delay (VHD) by County at 35 mph		Largest Magnitude Decrease over one year ago Contra Costa -22.2%	Largest Magnitude Decrease over last quarter Solano -29.7%
		Largest Magnitude Increase over one year ago Santa Clara 33%	Largest Magnitude Increase over last quarter Alameda 7.7%
Average Non-Holiday Weekday Equivalent Lost Lane Mile Hours at 35 mph		Largest Magnitude Decrease over one year ago Off-Peak Day -17.2%	Largest Magnitude Decrease over last quarter Off-Peak Day -16.3%
		Largest Magnitude Increase over one year ago AM Peak 16.9%	Largest Magnitude Increase over last quarter AM Peak 5%
Average Number of Good and Bad Detectors		Change in Good over one year ago 12%	Change in Good over last quarter 5%
		Change in Bad over one year ago -11%	Change in Bad over last quarter -6%

Congestion by Route											
		Vehicle Hours of Delay at 35 mph			Difference 2022 Q4-2021 Q4		Difference 2022 Q4-2022 Q3		Rank		
Route	County	2021 Q4	2022 Q3	2022 Q4	Absolute	Percentage	Absolute	Percentage	2021 Q4	2022 Q3	2022 Q4
I880	Alameda	729,488	644,987	555,432	-174,056	-24%	-89,554	-14%	1	1	1
I580	Alameda	480,419	529,042	513,778	33,359	7%	-15,264	-3%	3	2	2
US101	Santa Clara	416,170	497,091	511,785	95,615	23%	14,694	3%	4	3	3
I80	Alameda	480,428	486,236	432,454	-47,974	-10%	-53,782	-11%	2	4	4
US101	San Francisco	169,781	159,182	211,939	42,158	25%	52,756	33%	8	11	5
I80	Solano	180,023	250,942	206,748	26,726	15%	-44,194	-18%	7	5	6
I80	Contra Costa	264,680	196,354	188,372	-76,308	-29%	-7,982	-4%	5	8	7
SR85	Santa Clara	104,662	161,742	171,270	66,608	64%	9,527	6%	14	10	8
SR4	Contra Costa	161,740	203,223	157,987	-3,753	-2%	-45,236	-22%	9	7	9
US101	San Mateo	136,058	234,766	148,100	12,042	9%	-86,666	-37%	10	6	10
I280	Santa Clara	119,549	157,387	137,625	18,077	15%	-19,762	-13%	11	12	11
I880	Santa Clara	56,910	126,400	123,474	66,564	117%	-2,926	-2%	25	14	12
I680	Contra Costa	188,850	156,386	120,982	-67,868	-36%	-35,404	-23%	6	13	13
SR92	Alameda	90,852	116,339	102,915	12,062	13%	-13,425	-12%	16	15	14
SR37	Solano	116,516	162,122	99,105	-17,411	-15%	-63,017	-39%	12	9	15
SR237	Santa Clara	42,560	100,239	84,099	41,539	98%	-16,140	-16%	29	17	16
I580	Contra Costa	100,780	99,251	82,685	-18,095	-18%	-16,566	-17%	15	18	17
US101	Sonoma	90,124	63,384	79,330	-10,794	-12%	15,946	25%	17	24	18
SR24	Contra Costa	113,565	75,923	78,970	-34,594	-30%	3,047	4%	13	21	19
SR238	Alameda	73,599	65,060	75,131	1,532	2%	10,071	15%	21	23	20
I280	San Mateo	38,317	48,157	74,558	36,241	95%	26,401	55%	32	28	21
US101	Marin	90,032	104,780	73,278	-16,754	-19%	-31,502	-30%	18	16	22
SR84	Alameda	61,943	82,253	68,793	6,850	11%	-13,460	-16%	24	19	23
I80	San Francisco	80,681	61,910	68,325	-12,356	-15%	6,415	10%	20	25	24
SR242	Contra Costa	84,458	79,173	66,457	-18,001	-21%	-12,716	-16%	19	20	25
SR87	Santa Clara	38,293	45,991	65,724	27,431	72%	19,733	43%	33	30	26
I680	Santa Clara	52,435	40,536	57,478	5,044	10%	16,942	42%	27	31	27
I680	Alameda	72,898	67,049	51,711	-21,187	-29%	-15,338	-23%	22	22	28
SR24	Alameda	47,119	37,358	34,755	-12,364	-26%	-2,603	-7%	28	33	29
SR92	San Mateo	39,269	38,276	33,462	-5,807	-15%	-4,815	-13%	30	32	30
I280	San Francisco	16,605	17,689	31,080	14,475	87%	13,391	76%	37	35	31
I580	Marin	38,639	46,404	22,444	-16,195	-42%	-23,960	-52%	31	29	32
SR152	Santa Clara	22,216	15,915	16,395	-5,822	-26%	479	3%	35	37	33
SR12	Solano	64,353	30,869	13,020	-51,334	-80%	-17,849	-58%	23	34	34
SR12	Napa	16,789	17,502	12,752	-4,037	-24%	-4,750	-27%	36	36	35
SR17	Santa Clara	32,252	61,039	9,993	-22,259	-69%	-51,046	-84%	34	26	36
SR25	Santa Clara	4,295	8,310	4,726	431	10%	-3,584	-43%	40	39	37
SR37	Sonoma	8,014	7,685	4,569	-3,444	-43%	-3,116	-41%	39	40	38
SR1	San Francisco	56,564	60,922	4,176	-52,388	-93%	-56,746	-93%	26	27	39
I680	Solano	8,261	9,365	2,697	-5,565	-67%	-6,668	-71%	38	38	40
I980	Alameda	81	165	2,187	2,106	2613%	2,022	1229%	45	43	41
SR37	Marin	235	167	236	1	1%	69	42%	41	42	42
SR29	Napa	0	92	188	188		96	104%		44	43
I80	Napa	142	22	126	-16	-11%	103	462%	42	46	44
I780	Solano	113	4,053	22	-91	-81%	-4,031	-99%	43	41	45
SR13	Alameda	18	18	18	0	0%	0	0%	46	47	46
I880S	Alameda	12	12	12	0	0%	0	0%	47	48	47
SR156	Santa Clara	108	35	10	-99	-91%	-26	-73%	44	45	48
SR160	Contra Costa	0	0	0	0		0				
TOTALS		4,990,894	5,371,800	4,801,370	-189,525	-3.8%	-570,431	-10.6%			