

District 04 Mobility Performance Report 2012



I-880/SR92 Interchange, California Department of Transportation.



California Department of Transportation
Division of Traffic Operations
Office of Performance

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1. SUMMARY ANALYSIS

Caltrans District 4 is comprised of nine different counties, including Alameda, Contra Costa, Marin, Napa*, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma. The Bay Area is home to 7.3 million people, 19% of the overall population in California. This represents an increase of 1.1% over 2011, the largest increase in the state. In 2012, about 109,000 jobs were added in the Bay Area, roughly one in every three new jobs in California. The largest increases in employment were seen in Santa Clara County with +3.5%, or 28,000 additional jobs, and in Alameda County with +2.9%, or 20,000 additional jobs. The region-wide unemployment rate dropped from 9.6% in 2011 to 8.3% in 2012.

The economic recovery and increase in employment were factors contributing to an increase in region-wide traffic congestion. Vehicle Hours of Delay (VHD) at 35 miles per hour, a measure of severe congestion, increased by 8.7% to 25,546,771 in 2012. Vehicle Hours of Delay at 60 miles per hour, a measure of moderate congestion, increased by 8.0% to 56,529,777. Region-wide VHD at 60 measured in 2012 accounts for 25% of California's total delay.

The two counties with the largest increase in employment—Alameda and Santa Clara Counties—also represented 59% of the region's total VHD at 60. Congestion in Alameda County increased by 3.5 million VHD at 60 (+19.0%) to 21.7 million in 2012. Congestion in Santa Clara County increased by 1.0 million VHD at 60 (+8.7%) to 11.9 million in 2012. These two counties also had the largest increase in magnitude of VHD at 60 from a year ago. While Friday registered the largest increase in magnitude and percentage (+15% from 2011) with a daily average of 201,000 VHD at 60, Thursday continued to be the most congested day of the week with a daily average of 223,000 VHD at 60.

In 2012, Caltrans District 4 maintained and operated 2,872 directional mainline miles. Of those miles, 1,357 had detection, an increase of 9% compared to 2011. The number of detectors for 2012 was 7,687, representing an increase of 5% from the previous year. Of those detectors, 49% operated in good condition.

Eight out of ten top bottlenecks in both AM and PM peaks were within Alameda, Santa Clara, and Contra Costa Counties. Improvement projects in these three counties are listed below:

ALAMEDA COUNTY

- The opening of the I-880/SR-92 Interchange Reconstruction Project reduced congestion by 80% on northbound I-880 from 310,000 VHD at 60 in 2011 to 60,000 in 2012.
- The opening of the I-580/SR-84 (Isabel) Interchange Project on November 16, 2011 also reduced congestion on westbound I-580 by 26,000 VHD at 60 in 2012.
- The I-880 High Occupancy Vehicle (HOV) Lane Extension in San Leandro is scheduled to open in 2016, and will widen southbound I-880 from Hegenberger Road to Marina Boulevard. This project will extend the start of the southbound HOV lane to the north by approximately three miles. Three PM bottlenecks, including the 17th worst bottleneck were observed in 2012.

SANTA CLARA COUNTY

- The extension of HOV lanes on I-880 between SR-237 and SR-101 was scheduled for opening in 2013 and is expected to help improve the congestion and provide travel time savings. In 2012, there were four PM bottlenecks and one AM bottleneck on I-880 from SR-237 to SR-101.
- The SR-101 Auxiliary Lane project between Marsh Rd and SR-85 was scheduled to open in 2014 and is expected to improve traffic flow and relieve congestion for that stretch. In 2012, six PM bottlenecks and three AM bottlenecks were recorded on this freeway, including the 9th worst AM bottleneck at University Ave.

CONTRA COSTA COUNTY

- The fourth bore of the Caldecott Tunnels was scheduled to open toward the end of 2013 and is expected to alleviate traffic congestion in the eastbound direction during the morning hours and westbound direction during the evening hours. In 2012, eastbound at the Caldecott Tunnels was the 20th worst AM bottleneck; westbound, the 15th worst PM bottleneck.
- Scheduled to be completed in 2015, the widening of SR-4 from four lanes to eight lanes between Loveridge Rd. and SR-160 is expected to alleviate traffic congestion by adding HOV and general purpose lanes. Four AM bottlenecks and three PM bottlenecks in 2012 occurred on this stretch of freeway, including the 11th worst AM and 2nd worst PM.

**Napa County is excluded from our analysis due to insufficient detection*

2. DESCRIPTIVE STATISTICS

District Headquarters: Oakland
Counties: Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma
Counties without Detection: Napa has limited detection
Population: 7,327,626, 1.1% increase over 2011
Population as a Percentage of Statewide: 19.3%

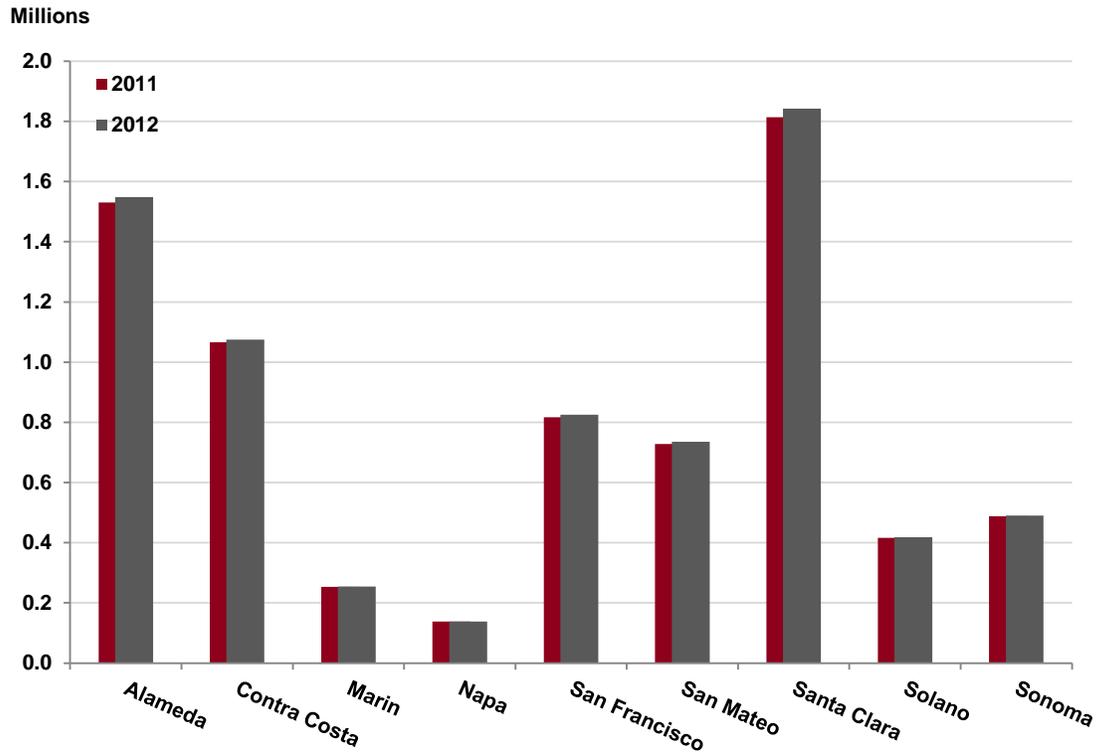
Table 1. POPULATION ESTIMATES AND ABSOLUTE AND PERCENT CHANGE, 2011–2012

County	2011	2012	Difference (2012 - 2011)	
	Population	Population	Absolute	Percent
Alameda	1,530,176	1,548,681	18,505	1.2%
Contra Costa	1,066,602	1,074,702	8,100	0.8%
Marin	253,374	254,007	633	0.2%
Napa	137,731	138,383	652	0.5%
San Francisco	816,311	825,111	8,800	1.1%
San Mateo	727,795	735,678	7,883	1.1%
Santa Clara	1,813,696	1,842,254	28,558	1.6%
Solano	415,787	418,387	2,600	0.6%
Sonoma	487,672	490,423	2,751	0.6%
Total	7,249,144	7,327,626	78,482	1.1%

Source: State of California, Department of Finance, *E-1 Population Estimates for Cities, Counties, and the State—January 1, 2012 and 2013*. Sacramento, California, May 2013.

Numbers may not sum to total due to rounding.

FIGURE 1
POPULATION, BY COUNTY, 2011–2012



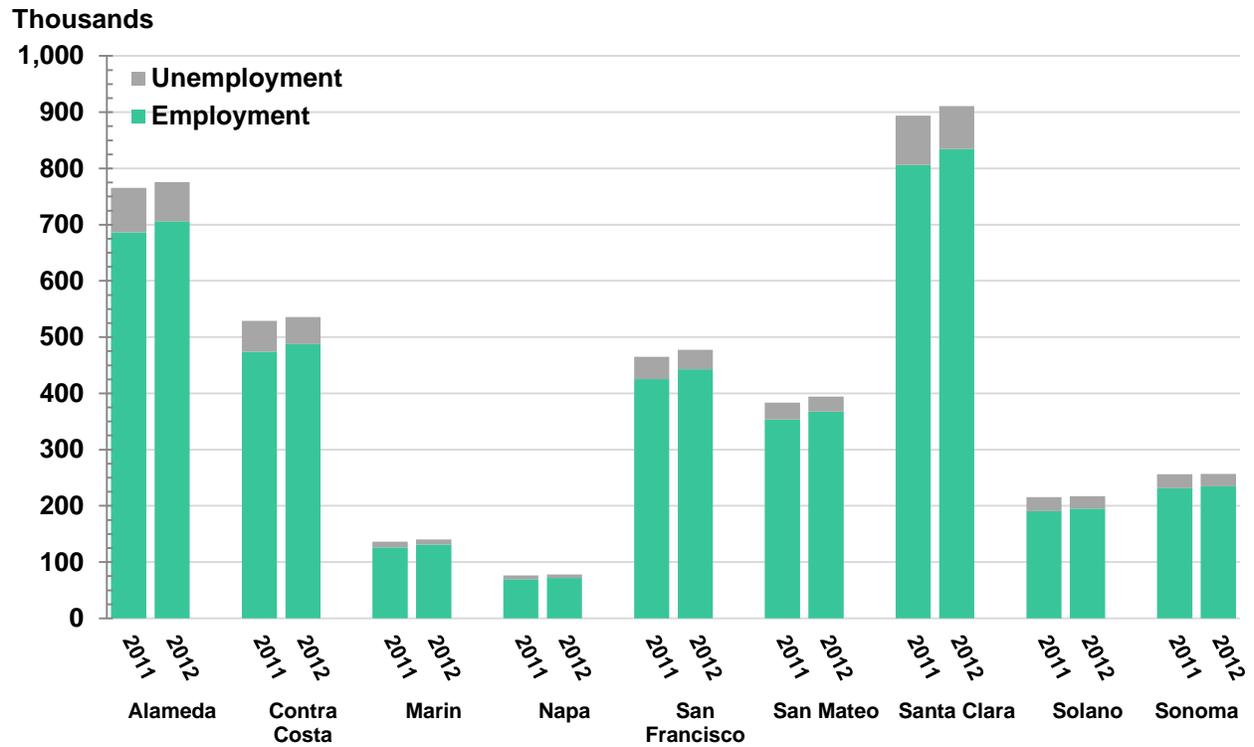
Employment, 2012 Monthly Average: 3,471,558
Unemployment Rate, 2012 Monthly Average: 8.3%, 1.3% decrease over 2011

Table 2. EMPLOYMENT, UNEMPLOYMENT, AND PERCENT CHANGE, BY COUNTY, 2011–2012

County	Unemployment Rate, 2011	Unemployment Rate, 2012	Percent Change in Rate of Unemployment (2012 - 2011)
Alameda	10.4%	9.0%	-1.3%
Contra Costa	10.4%	9.0%	-1.4%
Marin	7.4%	6.3%	-1.1%
Napa	9.1%	7.8%	-1.2%
San Francisco	8.6%	7.3%	-1.3%
San Mateo	7.9%	6.7%	-1.2%
Santa Clara	9.8%	8.4%	-1.4%
Solano	11.5%	10.1%	-1.3%
Sonoma	9.8%	8.6%	-1.3%
District Total	9.6%	8.3%	-1.3%
Data not seasonally adjusted. Source: State of California, Employment Development Department (EDD), Labor Market Information Division; data downloaded September 9, 2013.			

Numbers may not sum to total due to rounding.

FIGURE 2
EMPLOYMENT AND UNEMPLOYMENT, BY COUNTY, 2011–2012



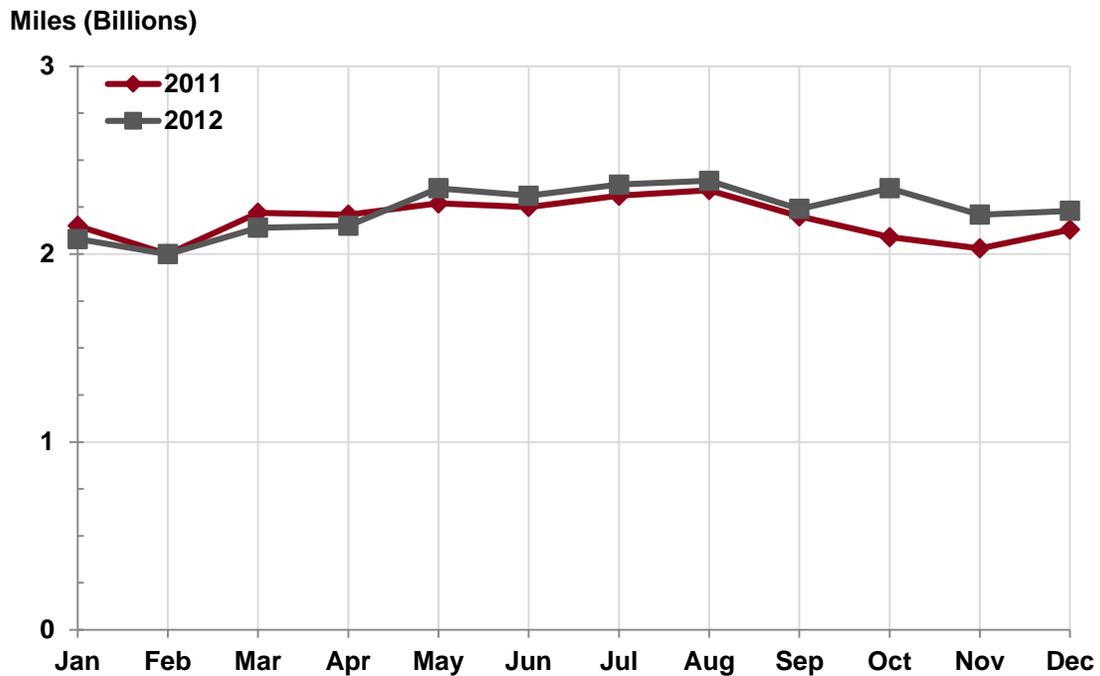
3. TRAVEL DEMAND

Vehicle Miles of Travel, 2012: 26.8 billion miles
Absolute and Percentage Change over 2011: 644.5 million VMT increase, 2.5% increase over 2011
Peak Travel Month, Percentage Change over 2011: August, 2.4 billion miles, 2.2% increase over 2011

Monthly Trend

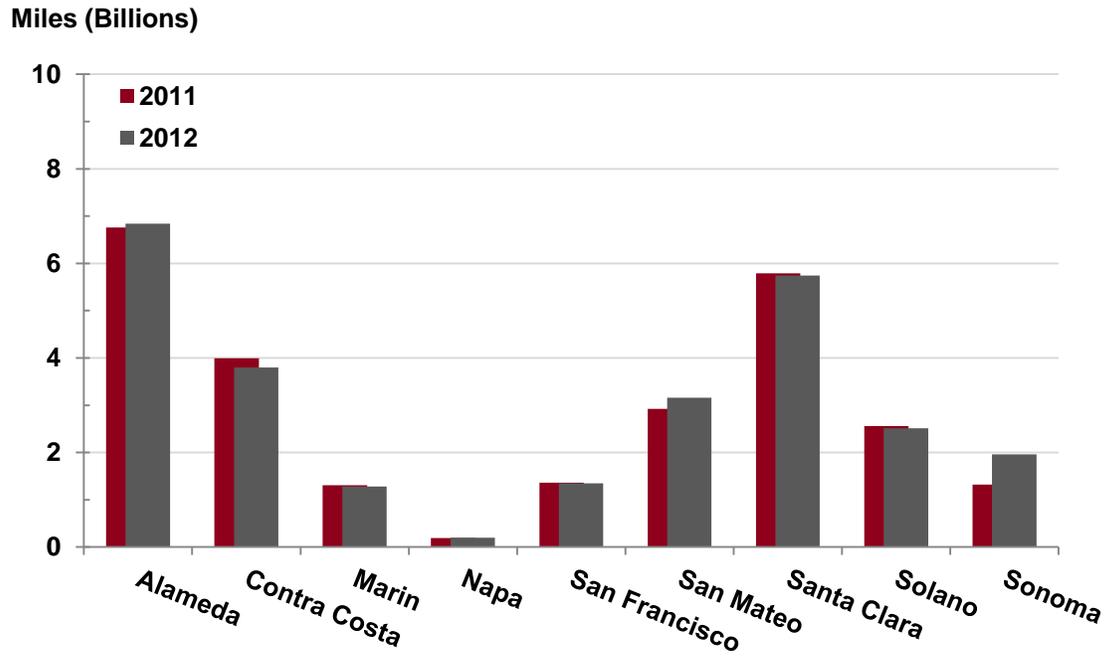
FIGURE 3 (A)

TOTAL VEHICLE MILES OF TRAVEL, BY MONTH, 2011–2012



County Trend

FIGURE 3 (B)
TOTAL VEHICLE MILES OF TRAVEL, BY COUNTY, 2011–2012



4. TRAFFIC CONGESTION

4.1. Total and Average Vehicle Hours of Delay at 35 and 60 Miles per Hour

4.1.1 Delay at 35 Miles per Hour

Vehicle Hours of Delay, 35 mph: 25.5 million hours, 8.7% increase over 2011
Average Non-Holiday Weekday Delay, 35 mph: 88,803 hours, 9.6% increase over 2011
Percentage of Statewide VHD at 35 mph: 27.3%, 0.1% increase over 2011

FIGURE 4

TOTAL VEHICLE HOURS OF DELAY AT 35 MILES PER HOUR, BY MONTH, 2011–2012

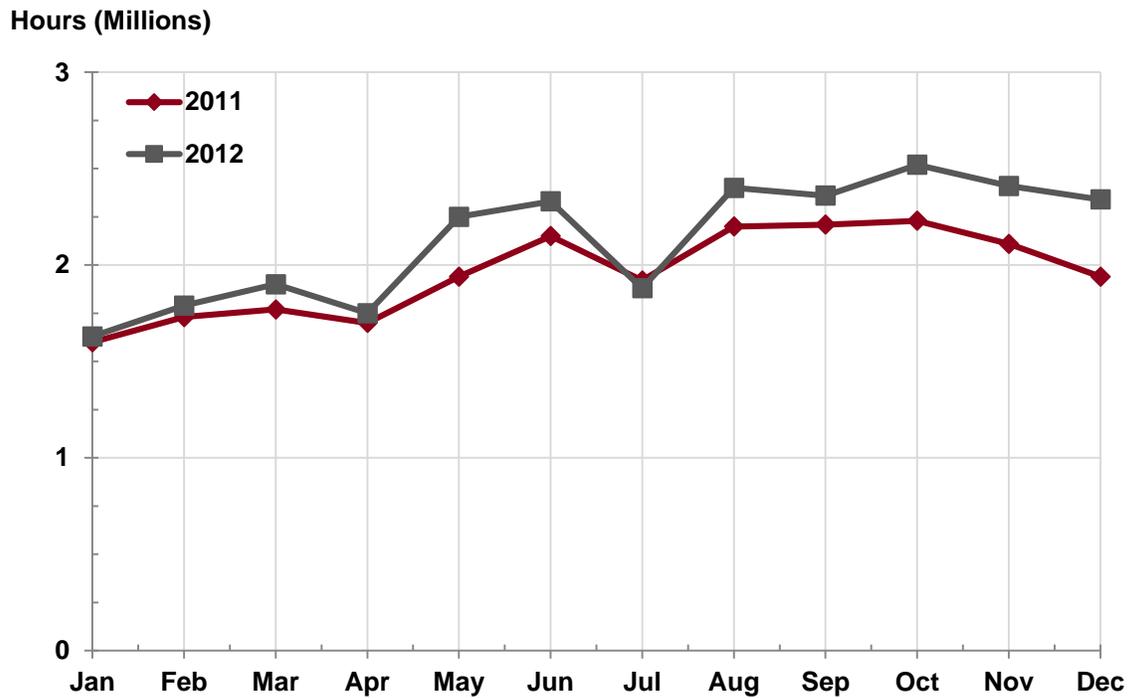
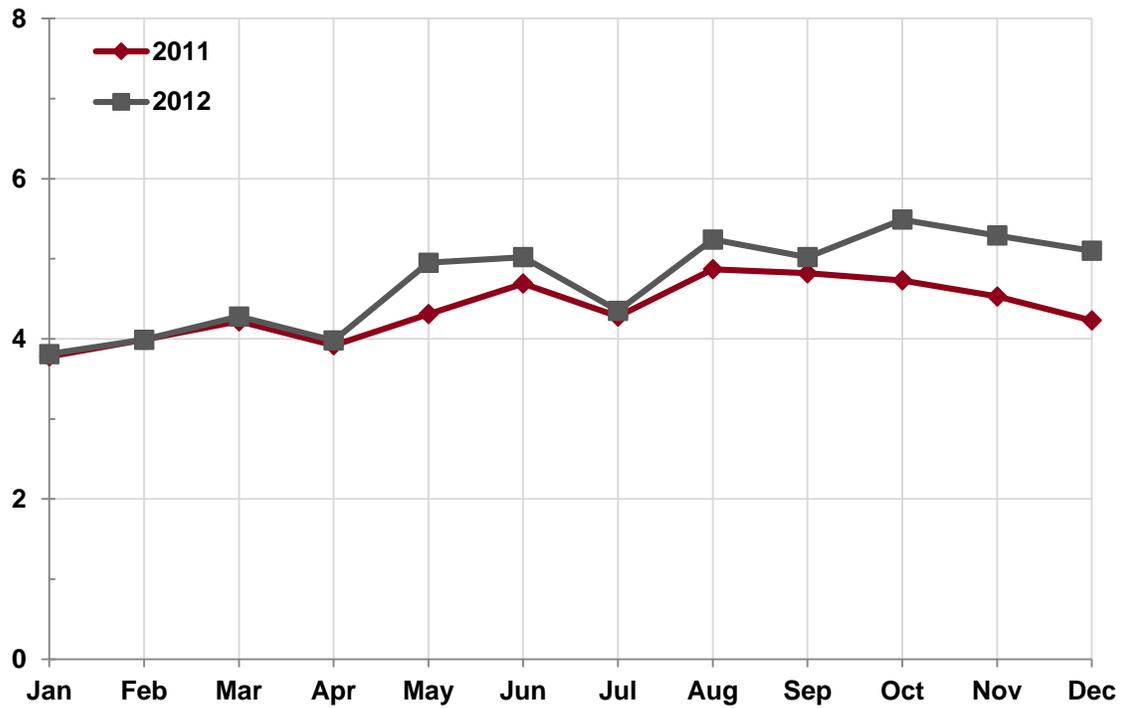


FIGURE 5
AVERAGE NON-HOLIDAY WEEKDAY VEHICLE HOURS OF DELAY AT 35 MILES PER HOUR,
BY MONTH, 2011–2012

Hours (Millions)



4.1.2 Delay at 60 Miles per Hour

Vehicle Hours of Delay, 60 miles per hour: 56.5 million hours, 8.0% increase over 2011
Average Non-Holiday Weekday Delay, 60 mph: 195,972 hours, 8.3% increase over 2011
Percentage of Statewide VHD at 60 mph: 25.5%, 0.2% decrease over 2011

FIGURE 6

TOTAL VEHICLE HOURS OF DELAY AT 60 MILES PER HOUR, BY MONTH, 2011–2012

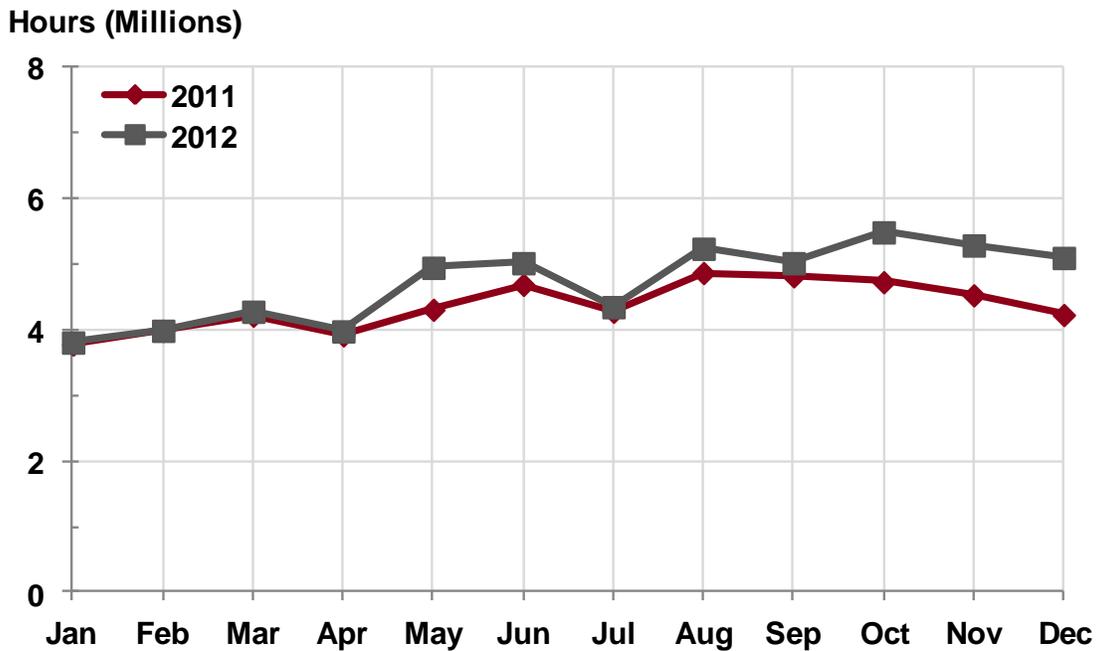
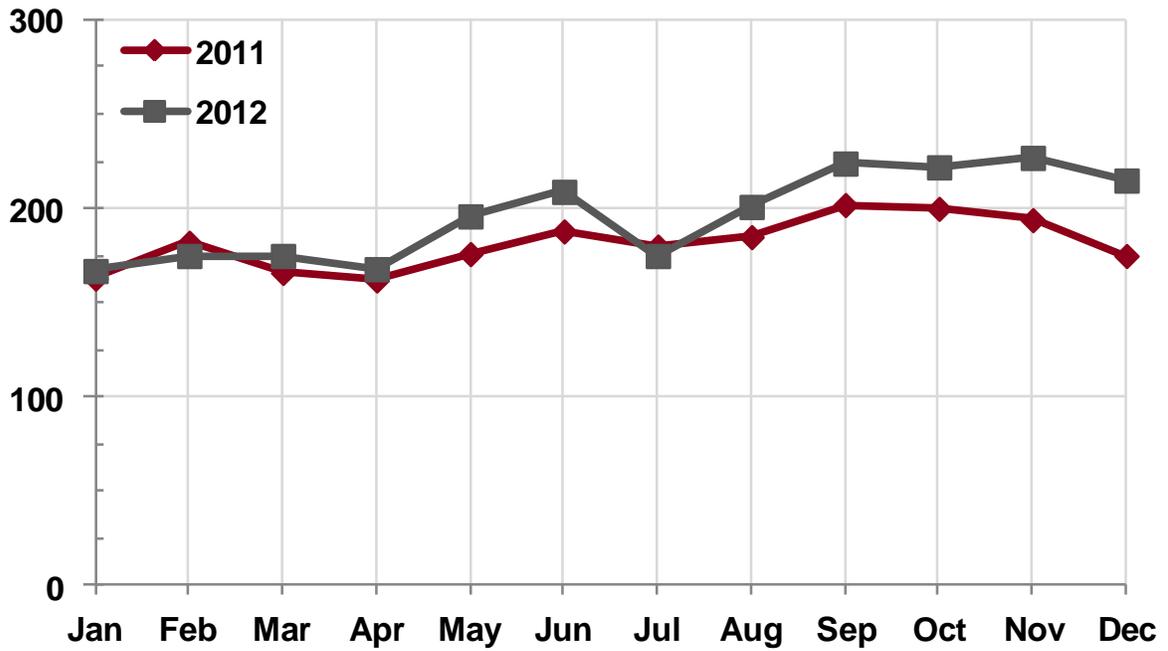


FIGURE 7
AVERAGE NON-HOLIDAY WEEKDAY VEHICLE HOURS OF DELAY AT 60 MILES PER HOUR,
BY MONTH, 2011-2012

Hours (Thousands)



4.2. Average Vehicle Hours of Delay by Day of Week

Most Congested Day of the Week, 60 mph: Thursday, 222,682 hours, 6% increase over 2011

Highest Absolute Change in Delay, 60 mph: Friday, 25,654 VHD increase, 15% increase over 2011

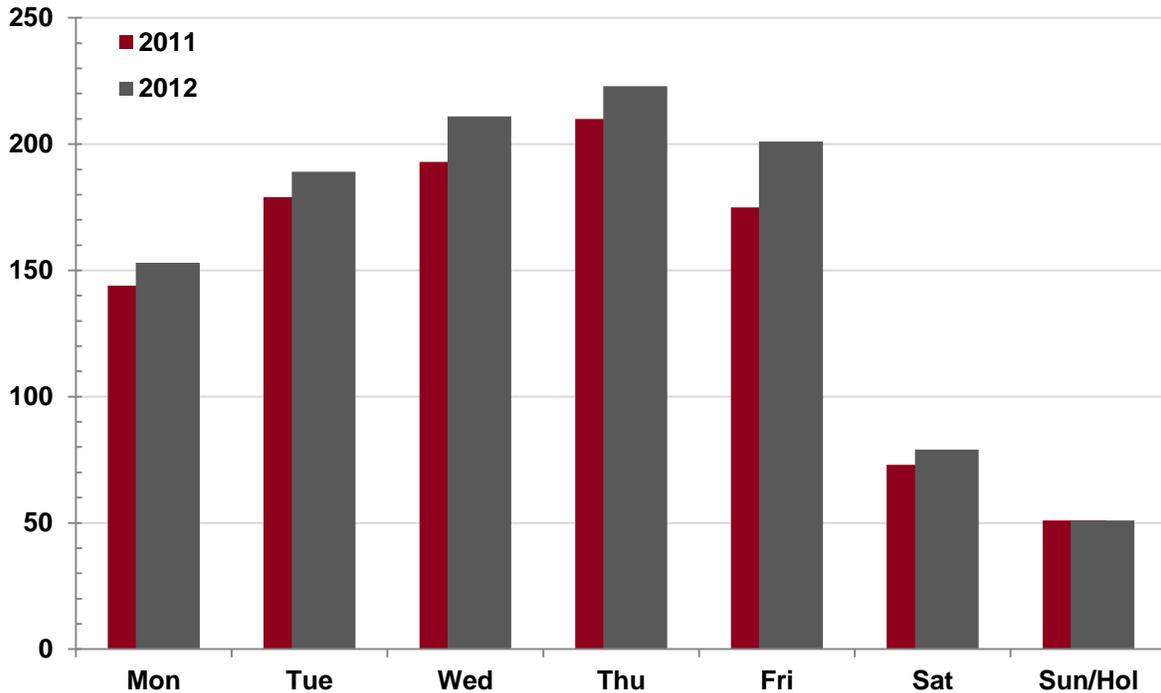
Highest Percentage Change in Delay: Friday, 25,654 VHD increase, 15% increase over 2011

Delay at 60 miles per hour

FIGURE 8

AVERAGE VEHICLE HOURS OF DELAY AT 60 MILES PER HOUR, BY DAY OF WEEK, 2011–2012

Hours (Thousands)



4.3. Average Vehicle Hours of Delay by Hour of Day

4.3.1 Delay at 35 Miles per Hour

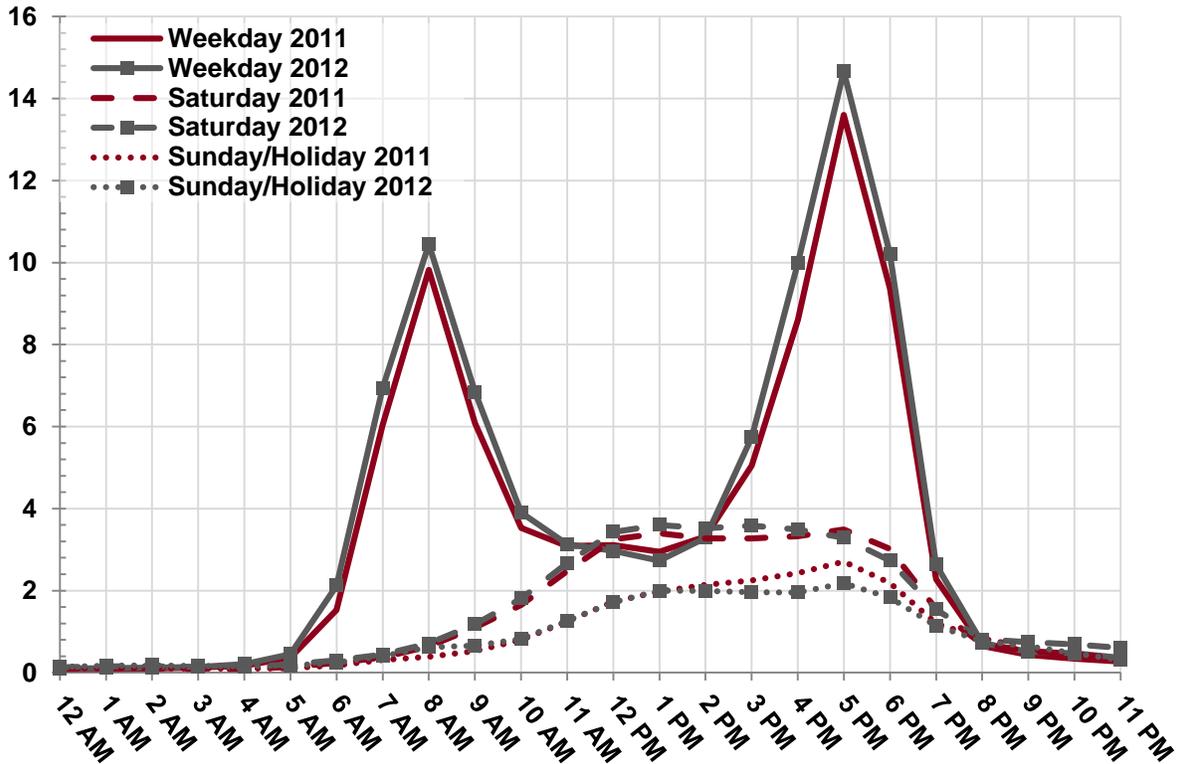
- Weekday PM Peak Hour, 35 mph:** 5 PM, 14,664 hours, 8% increase over 2011
- Weekday AM Peak Hour, 35 mph:** 8 AM, 10,452 hours, 6% increase over 2011
- Saturday Peak Hour, 35 mph:** 1 PM, 3,595 hours, 6% increase over 2011
- Sunday/Holiday Peak Hour, 35 mph:** 5 PM, 2,182 hours, 19% decrease over 2011

Delay at 35 miles per hour

FIGURE 9

AVERAGE VEHICLE HOURS OF DELAY AT 35 MILES PER HOUR, BY HOUR OF DAY, 2011–2012

Hours (Thousands)



4.3.2 Delay at 60 Miles per Hour

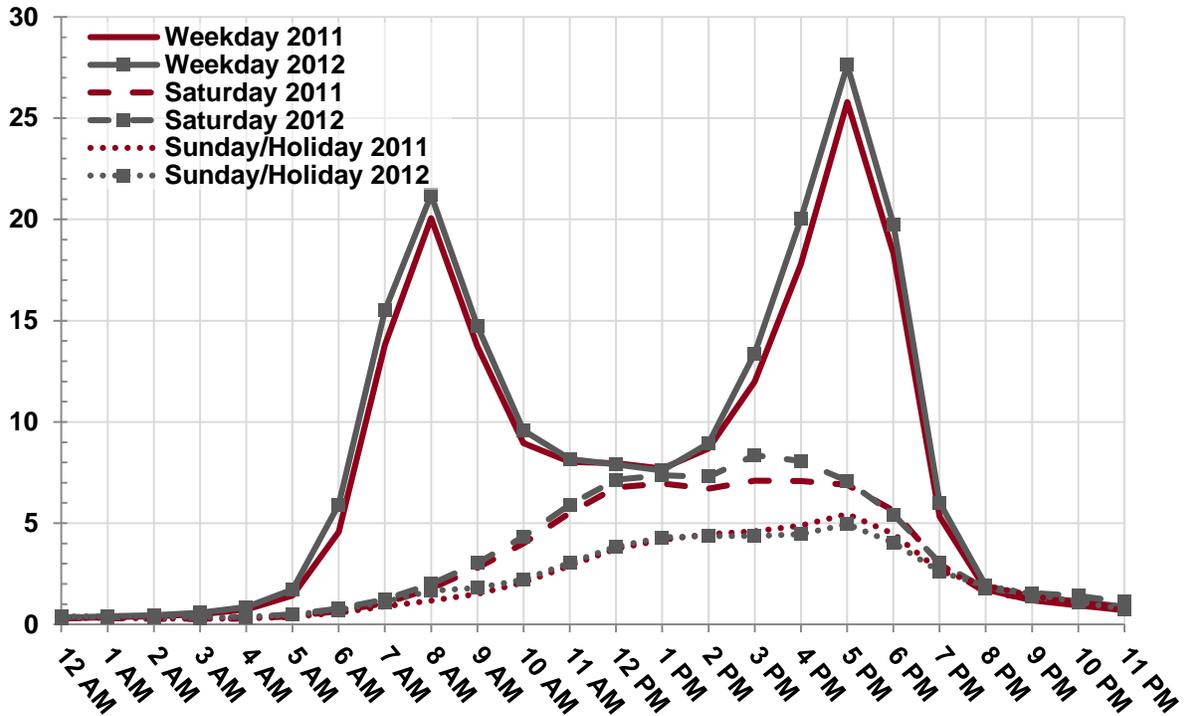
Weekday PM Peak Hour, 60 mph: 5 PM, 27,622 hours, 7% increase over 2011
Weekday AM Peak Hour, 60 mph: 8 AM, 21,199 hours, 6% increase over 2011
Saturday Peak Hour, 60 mph: 3 PM, 8,361 hours, 9% decrease over 2011
Sunday/Holiday Peak Hour, 60 mph: 5 PM, 4,952 hours, 9% decrease over 2011

Delay at 60 miles per hour

FIGURE 10

AVERAGE VEHICLE HOURS OF DELAY AT 60 MILES PER HOUR, BY HOUR OF DAY, 2011–2012

Hours (Thousands)



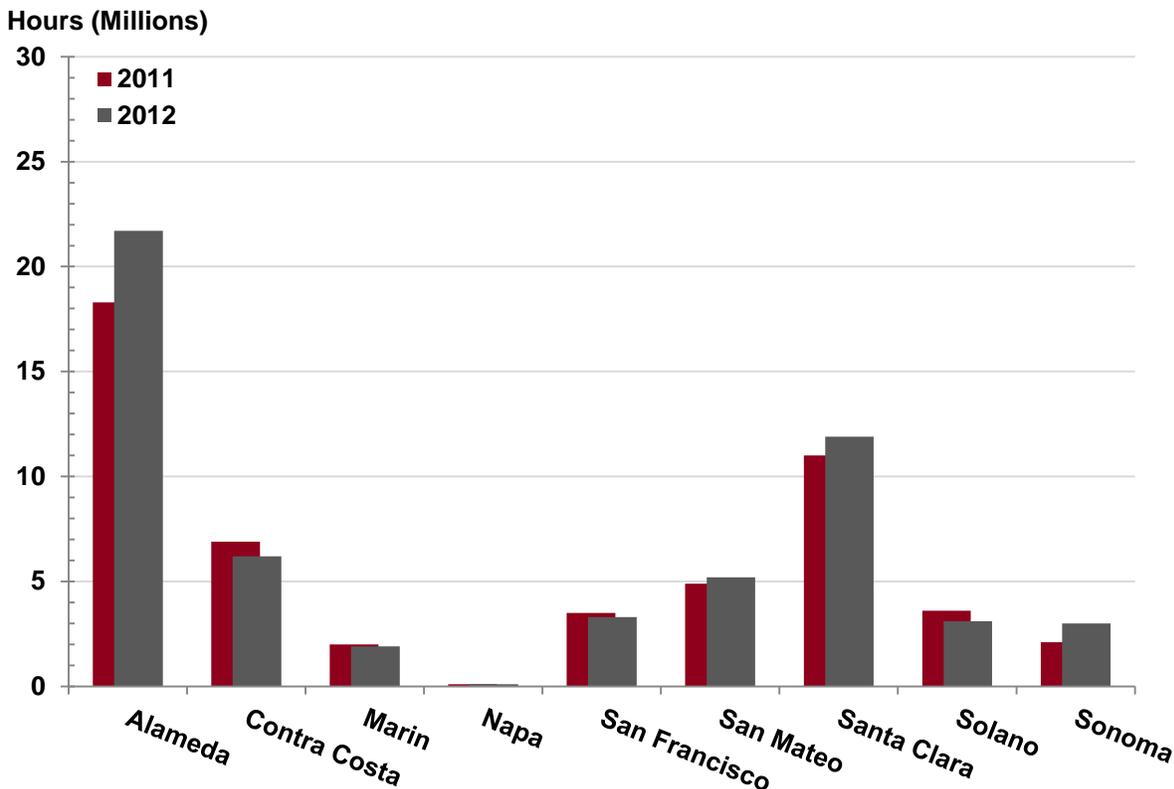
4.4. Total Vehicle Hours of Delay by County

County with Largest Delay, 60 mph:	Alameda, 21.7 million hours, 19.0% increase over 2011 VHD, 38% of District total VHD
County with 2nd Largest Delay, 60 mph:	Santa Clara, 11.9 million hours, 8.7% increase over 2011 VHD, 21% of District total VHD
County with Largest Increase in Delay, 60 mph:	Alameda, 3.5 million hours, 19.0% increase over 2011
County with Largest Decrease in Delay, 60 mph:	Contra Costa, -733,826 hours, 10.6% decrease over 2011

Delay at 60 miles per hour

FIGURE 11

TOTAL ANNUAL VEHICLE HOURS OF DELAY AT 60 MILES PER HOUR, BY COUNTY, 2011–2012



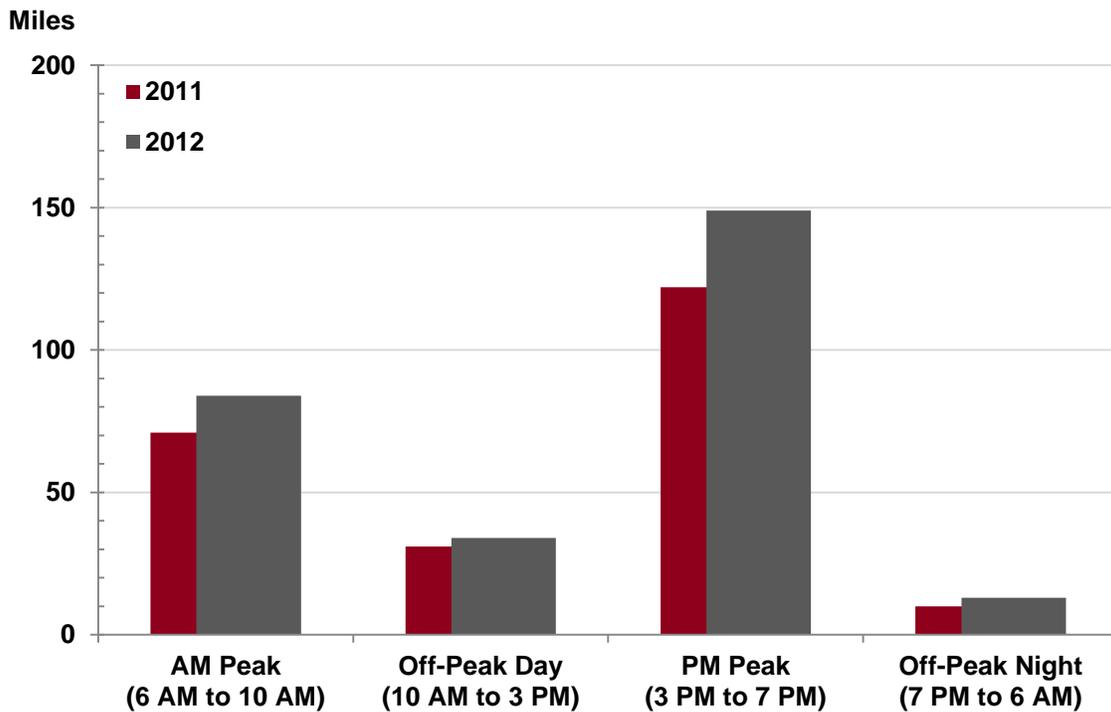
4.5. Lost Productivity

- AM Peak:** 84 miles, 18.9% increase over 2011
- Off-Peak Day:** 34 miles, 10.8% increase over 2011
- PM Peak:** 149 miles, 21.4% increase over 2011
- Off-Peak Night:** 13 miles, 34% increase over 2011

Lost Lane Miles at 35 miles per hour

FIGURE 12

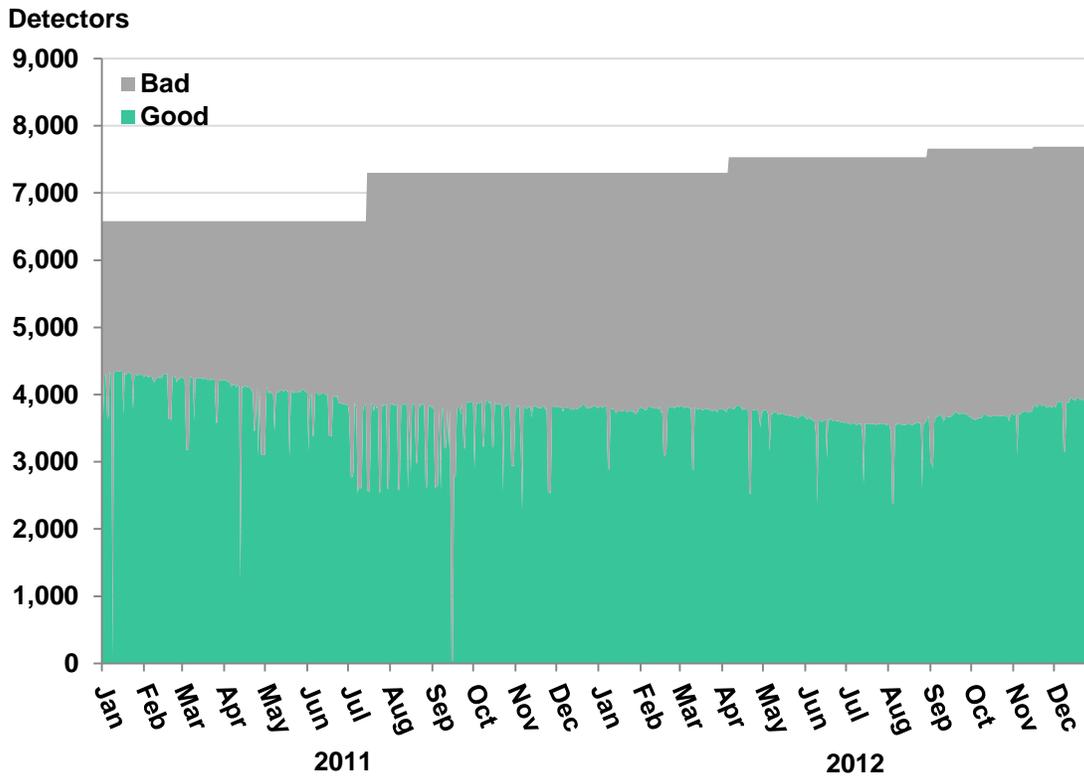
AVERAGE NON-HOLIDAY WEEKDAY EQUIVALENT LOST LANE MILES



5. DETECTOR HEALTH AND DATA QUALITY

Directional Mainline Miles:	2,872 miles
Directional Mainline Miles with Detection:	1,357 miles
Number of Detectors at End of 2012:	7,687, 5% increase over 2011
Average Percentage of Good and Bad Detection:	49% good, 2.5% decrease over 2011; 51% bad, 22.1% increase over 2011
Number of Days Reporting less Than 50% Working Detection:	229

FIGURE 13
DETECTOR HEALTH BY DAY, 2011–2012



6. FREEWAY CONGESTION AND BOTTLENECK LOCATIONS

6.1. Congestion by Freeway

Congestion Contributed by Top Congested Freeways: 35,921,687 hours,
64% of total VHD in 2012

Table 3. TOP CONGESTED FREEWAYS, 2011–2012

Route	County	Vehicle Hours of Delay at 60 mph		Difference (2012 - 2011)		Rank	
		2011	2012	Absolute	Percent	2011	2012
I-580	Alameda	6,175,539	6,630,988	455,450	7%	1	1
I-880	Alameda	5,065,271	5,340,761	275,489	5%	2	2
US-101	Santa Clara	5,050,585	5,034,740	-15,845	0%	3	3
US-101	San Mateo	4,029,135	3,855,674	-173,461	-4%	4	4
I-80	Alameda	2,804,222	3,607,965	803,743	29%	6	5
I-80	Solano	3,399,152	2,890,420	-508,732	-15%	5	6
US-101	Sonoma	1,997,664	2,875,059	877,395	44%	11	7
US-101	Marin	2,000,121	1,912,732	-87,389	-4%	10	8
SR-238	Alameda	1,422,616	1,899,563	476,948	34%	14	9
SR-4	Contra Costa	2,027,503	1,873,785	-153,718	-8%	9	10
TOTALS		33,971,806	35,921,687	1,949,881	5.7%		

6.2. Bottleneck Locations

Total Delay, All AM Bottlenecks, 2012: 4,270,590 hours
Top Bottleneck Delay, AM, 2012: 1,345,727 hours
Percentage Top Bottleneck Delay of Total Bottleneck Delay, AM, 2012: 32%

Table 4 (A). TOP BOTTLENECKS, AM PEAK PERIOD, 2012

Rank	County	City	Freeway	CA Postmile	Approximate Location	Average Extent (miles)	Total Delay (hours)	Average Daily Delay (hours)	Average Duration (hours)	Percent of Days Active
1	Alameda	Berkeley	I80-W	6.6	Gilman St.	2.79	220,233	921	2.7	95%
2	Alameda	Ashland	SR238-N	15.41	E. 14th St.	0.90	166,336	781	2.4	85%
3	Santa Clara	San Jose	SR237-W	8.03	Zanker Rd.	1.28	147,609	620	3.3	95%
4	Alameda	Livermore	I580-W	12.57	Livermore Ave.	2.15	129,129	595	2.3	86%
5	San Mateo	San Mateo	US101-S	11.06	Hillsdale Blvd.	1.98	124,631	574	1.7	86%
6	Alameda	Fremont	I880-S	11.42	Alvarado Blvd./Fremont Blvd.	2.36	118,147	671	1.9	70%
7	Santa Clara	San Jose	US101-N	40.81	Trimble Rd.	1.83	118,067	516	2.4	91%
8	Alameda	Albany	I80-W	7.26	Buchanan St.	2.20	108,861	652	1.2	67%
9	San Mateo	East Palo Alto	US101-S	0.93	University Ave.	2.49	108,768	492	1.9	88%
10	Contra Costa	Orinda	SR24-W	1.11	Wilder Rd.	2.58	103,946	497	1.6	83%

Total Delay, All PM Bottlenecks, 2012: 8,951,472 hours
Top Bottleneck Delay, PM, 2012: 2,404,787 hours
Percentage Top Bottleneck Delay of Total Bottleneck Delay, PM, 2012: 27%

Table 4 (B). TOP BOTTLENECKS, PM PEAK PERIOD, 2012

Rank	County	City	Freeway	CA Postmile	Approximate Location	Average Extent (miles)	Total Delay (hours)	Average Daily Delay (hours)	Average Duration (hours)	Percent of Days Active
1	Alameda	Oakland	SR24-E	R5.75	Caldecott Tunnel	3.17	402,552	1,670	3.0	96%
2	Contra Costa	Pittsburg	SR4-E	24.32	Loveridge Rd.	2.00	357,728	1,431	4.7	100%
3	Alameda	Berkeley	I80-E	4.91	Ashby Ave.	1.94	284,747	1,207	3.9	94%
4	Alameda	Newark	SR84-E	5.76	I-880	2.63	240,013	1,004	4.9	95%
5	San Mateo	San Mateo	US101-N	11.35	Hillsdale Blvd.	5.32	236,033	1,022	2.0	92%
6	San Francisco	San Francisco	US101-N	3.8	Cesar Chavez St.	1.72	229,361	1,119	3.5	82%
7	Alameda	Hayward	I880-N	17.48	Winton Ave.	4.02	193,172	819	1.7	94%
8	Alameda	Pleasanton	I580-E	17.2	El Charro Rd.	2.08	162,711	687	2.1	94%
9	Alameda	Hayward	I880-N	17.82	Winton Ave.	5.19	152,742	804	1.1	76%
10	Contra Costa	Pinole	I80-E	8.59	Pinole Valley Rd.	2.38	145,728	631	2.6	92%

FIGURE 14 (A)
BOTTLENECKS AND CONGESTED SEGMENTS, AM PEAK PERIOD, 2012

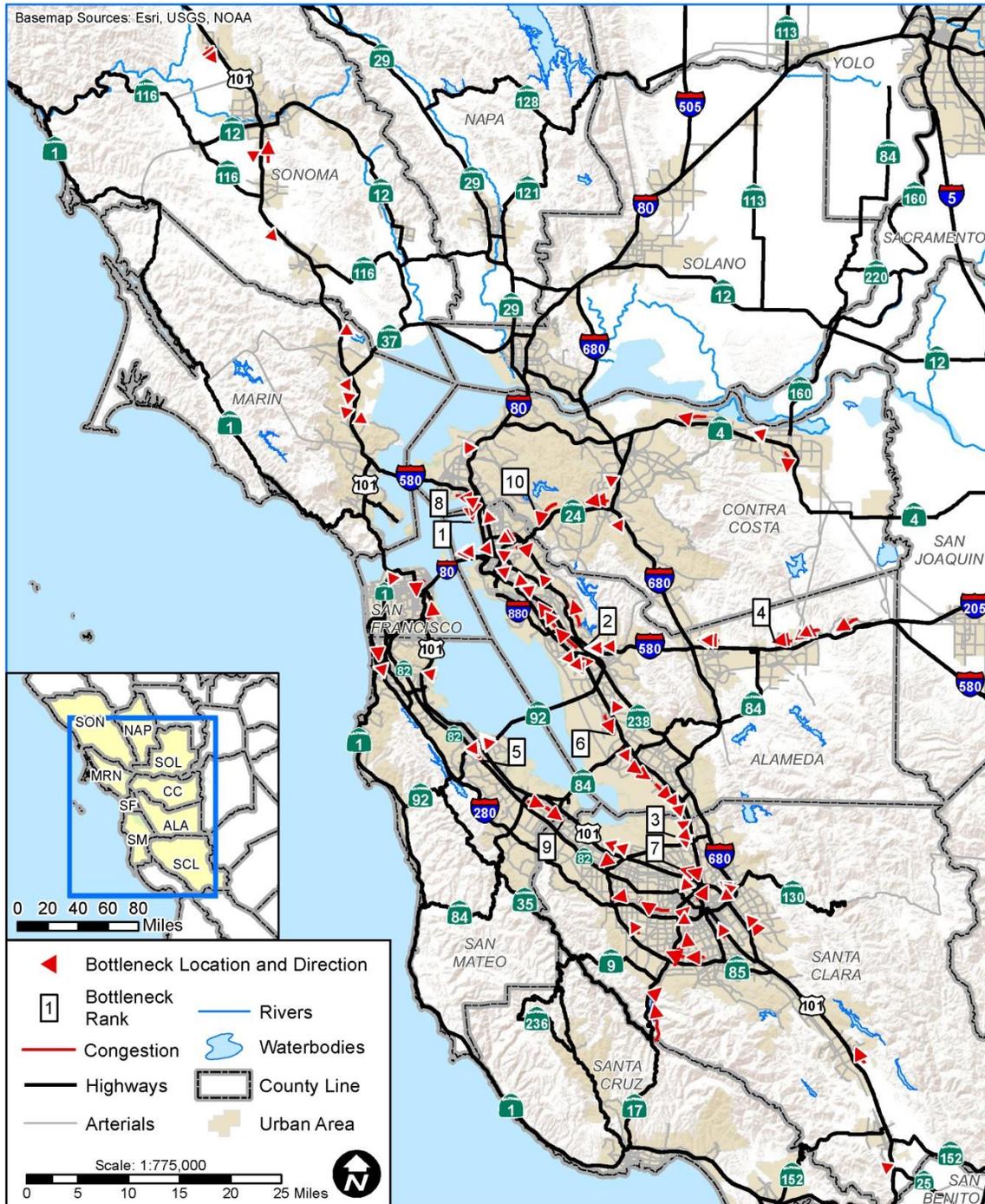


FIGURE 14 (B)
BOTTLENECKS AND CONGESTED SEGMENTS, PM PEAK PERIOD, 2012

