District 08
Mobility Performance Report
2012

SR-60, SR-91 & I-215 Interchange in Riverside. Photo by Mario Maala

California Department of Transportation
Division of Traffic of Operations
Office of Performance

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

1. SUMMARY ANALYSIS

Caltrans District 8 consists of San Bernardino and Riverside Counties in southern California. These counties are both considered urban counties but have large areas of sparsely inhabited land. San Bernardino is the largest county in the United States, and both counties contain large amounts of public land. As a border district, District 8 is also a major gateway to Arizona and Nevada.

The population in District 8 accounts for 11.4 percent of the statewide population, and increased by 0.9 percent from 4,293,892 to 4,331,333 people in 2012. District 8 had a slight increase in population and a decrease in the unemployment rate in 2012 from 2011. The monthly average rate of unemployment in District 8 for 2012 was 12.1 percent, a 1.5 percent decrease over 2011. There was a 20.3 percent increase in travel demand, which was an increase of 2.6 billion Vehicle Miles of Travel (VMT) over 2011. The increase was due in part to less unemployment and an increase in detector stations in District 8.

During 2012, congestion in District 8 underwent two differing trends. Severe congestion declined from 5.2 million Vehicle Hours of Delay (VHD) at 35 in 2011 to 5.1 million VHD at 35 in 2012, a decrease of -3.1 percent. In contrast, less severe congestion increased from 14.2 million VHD at 60 in 2011 to 14.7 million VHD at 60 in 2012, an increase of 3.3 percent. The total observed VMT in District 8 grew by 20.3 percent in 2012, to 15.2 billion VMT. The district had a major increase in the amount of detection in 2012. By the end of 2012, there were 4,492 detectors in District 8, a 34 percent increase over 2011. Much of this detection was located on I-10 across the district, extending to over 550 lane miles in each direction. The average percent good for detection was 59 percent, a 7.4 percent decrease over 2011. Detection health percentage can fluctuate for various reasons. Ongoing construction projects, vandalism (wire theft, equipment theft), and damage to cabinets all contributed to the variation of the percentage. Other factors like equipment malfunction/failure, configuration issues, and fiber optic cuts can also reduce detection health percentage.

Roadway construction and increased vehicle detection were the primary contributors to the changes described above. There have been ongoing construction projects that have increased congestion on certain routes. For example, I-15 in San Bernardino County showed the most absolute difference with an 18 percent increase in congestion compared to the previous year.

More congestion data was captured for I-15 in San Bernardino County and I-10 in Riverside County due to the addition of more detector stations. There was an overall increase of 34 percent for the number of detectors in the district compared to 2011. The total number of detectors installed in District 8 by the end of 2012 was 4,492.

2. DESCRIPTIVE STATISTICS

District Headquarters: San Bernardino
Counties: Riverside, San Bernardino
Counties without Detection: None
Population: 4,331,333, 0.9% increase over 2011
Population as a Percentage of Statewide: 11%

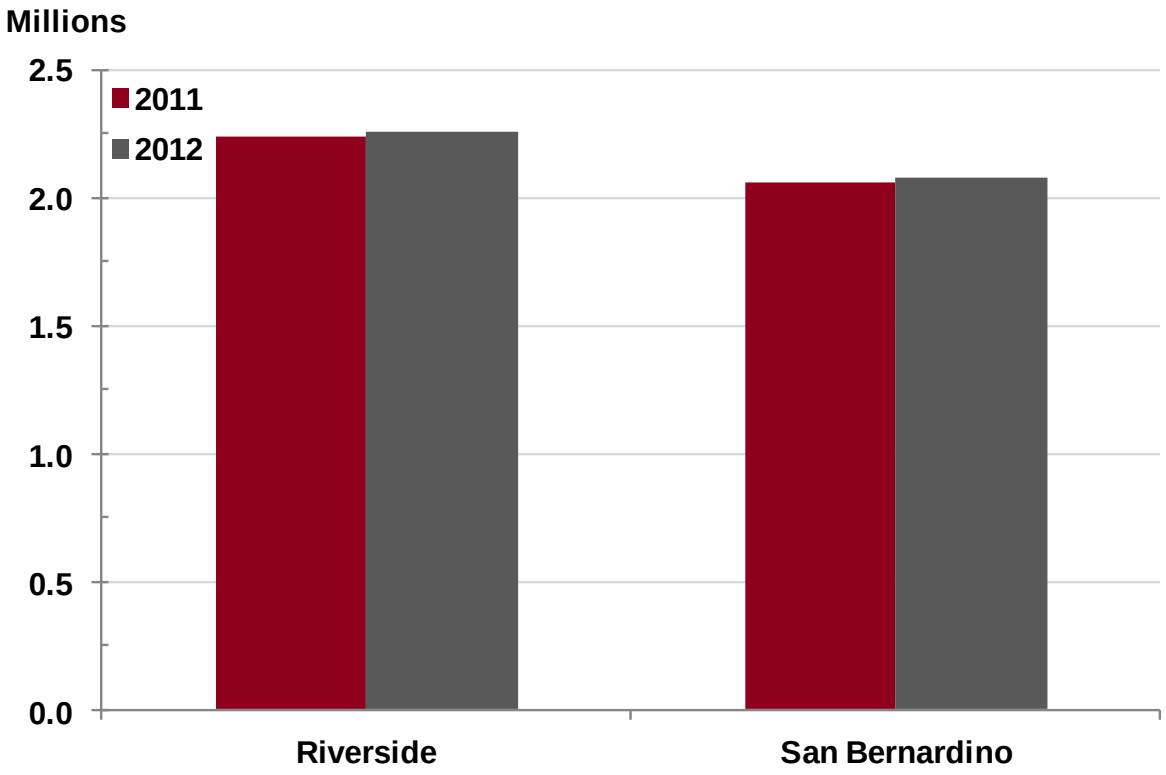
Table 1. POPULATION ESTIMATES AND ABSOLUTE AND PERCENT CHANGE, 2011-2012

	2011	2012	Difference (2012 - 2011)	
County	**Population**	**Population**	**Absolute**	**Percent**
Riverside	2,234,193	2,255,059	20,866	0.9%
San Bernardino	2,059,699	2,076,274	16,575	0.8%
Total	**4,293,892**	**4,331,333**	**37,441**	**0.9%**

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.

FIGURE 1

POPULATION, BY COUNTY, 2011-2012



Employment, 2012 Monthly Average: 1,586,775
Unemployment Rate, 2012 Monthly Average: 12.1%, 1.5% decrease over 2011

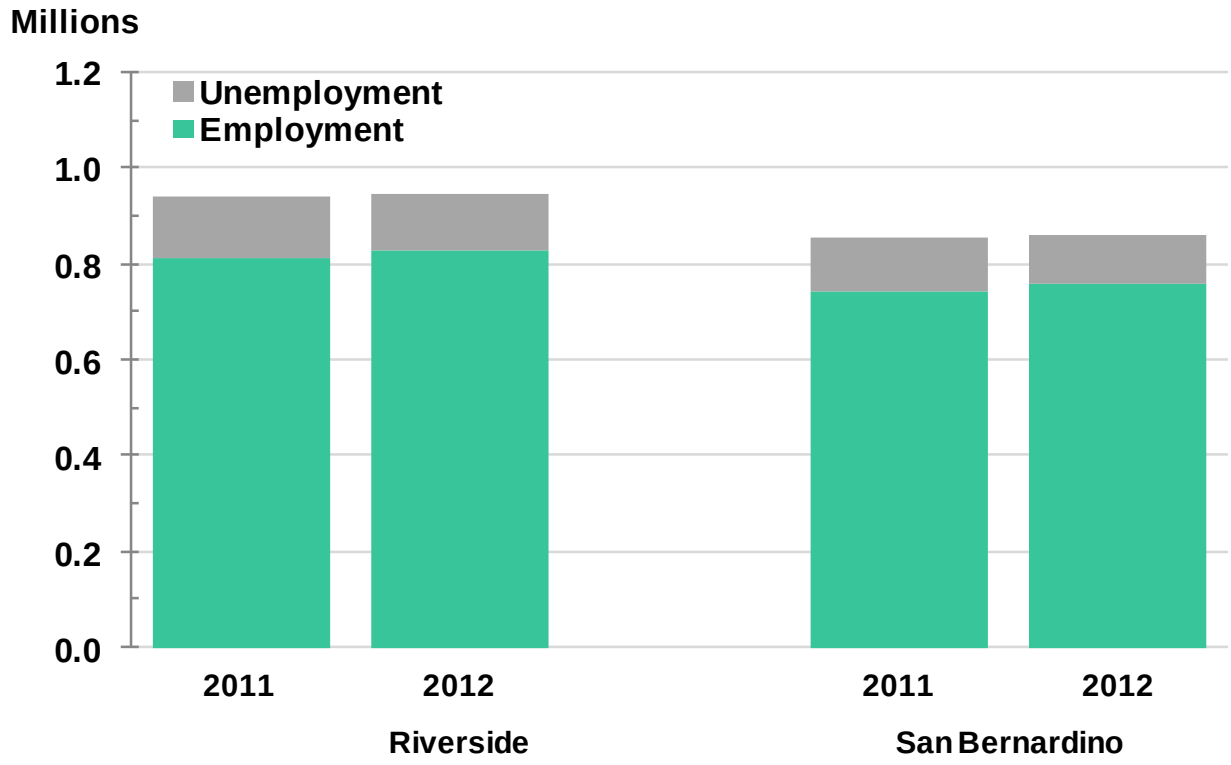
Table 2. UNEMPLOYMENT AND PERCENT CHANGE, BY COUNTY, 2011-2012

County	Unemployment Rate, 2011	Unemployment Rate, 2012	Percent Change in Rate of Unemployment (2012 - 2011)
Riverside	13.7%	12.2%	-1.5%
San Bernardino	13.4%	12.0%	-1.4%
District Total	**13.6%**	**12.1%**	**-1.5%**

Data not seasonally adjusted.
Source: State of California, Employment Development Department (EDD), Labor Market Information Division; data downloaded September 9, 2013.

FIGURE 2

EMPLOYMENT AND UNEMPLOYMENT, BY COUNTY, 2011-2012



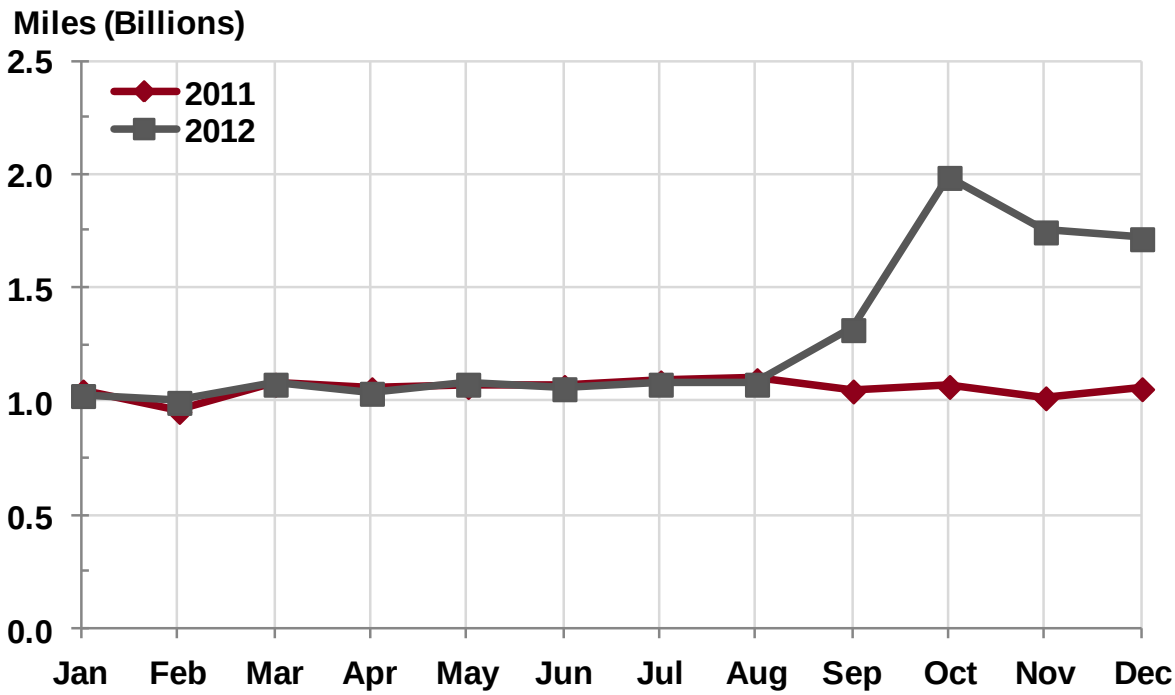
3. TRAVEL DEMAND

Vehicle Miles of Travel, 2012:	15.2 billion miles
Absolute and Percentage Change over 2011:	2.6 billion VMT increase; 20.3% increase over 2011
Peak Travel Month, Percentage Change over 2011:	October, 2 billion miles, 86.2% increase over 2011

Monthly Trend

FIGURE 3 (A)

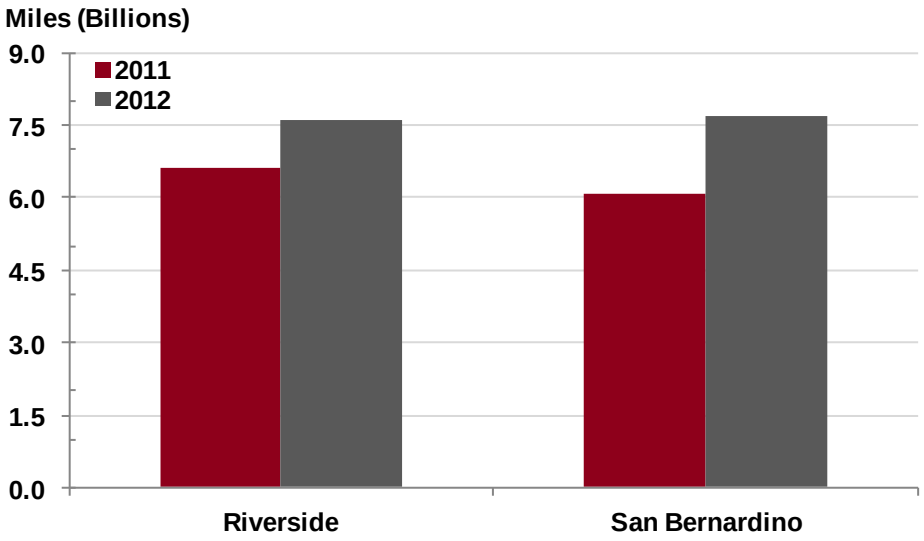
TOTAL VEHICLE MILES OF TRAVEL, BY MONTH, 2011-2012



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: 5.1 million hours, 3% decrease over 2011
Average Non-Holiday Weekday Delay, 35 mph: 17,352 hours, 3.1% decrease over 2011
Percentage of Statewide VHD at 35 mph: 5.4%, 0.6% decrease over 2011

FIGURE 4

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

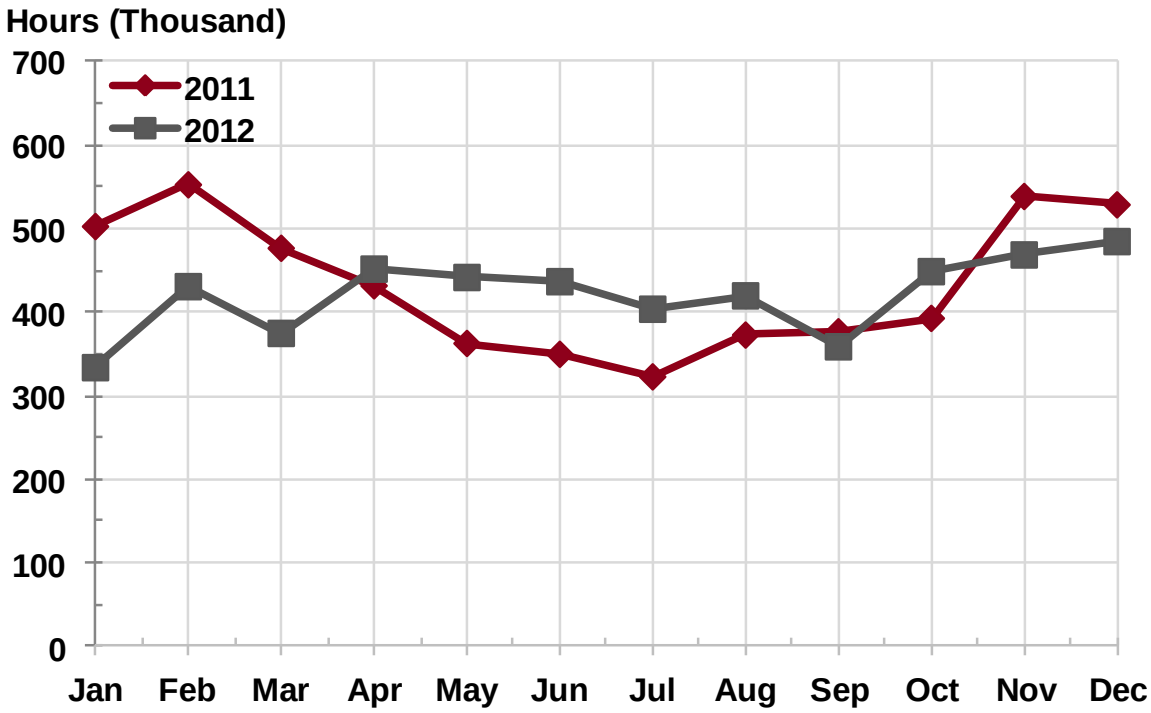
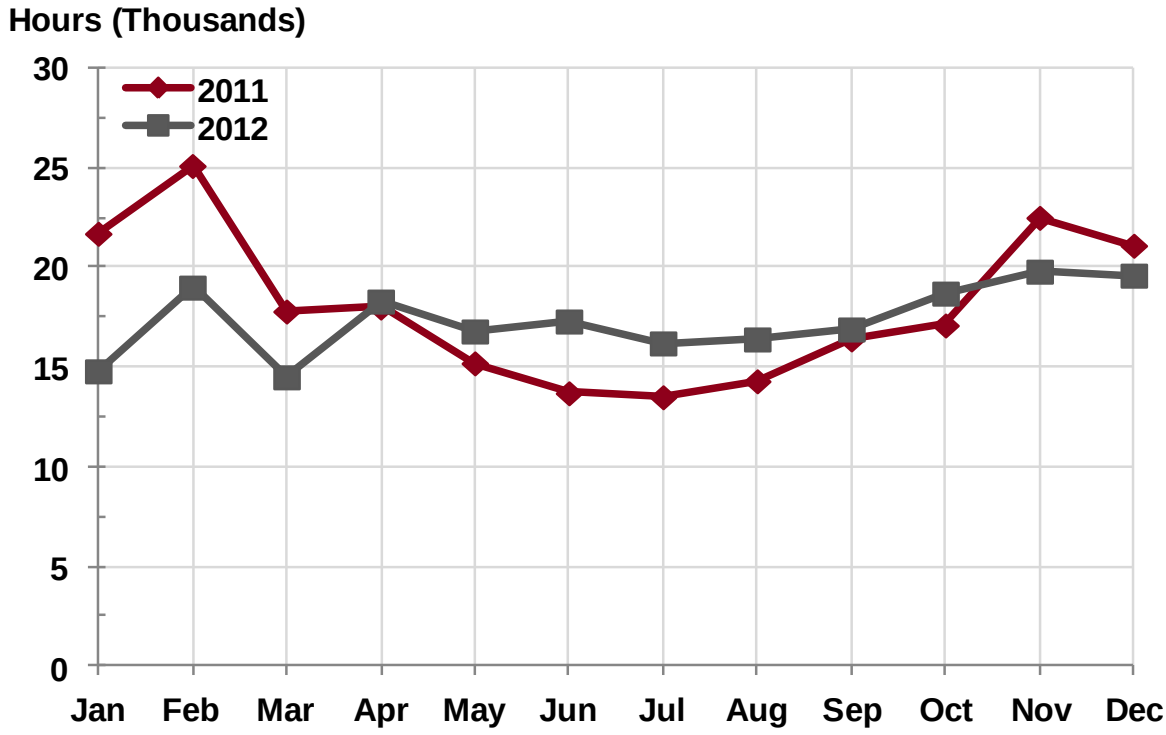


FIGURE 5

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



4.1.2 Delay at 60 Miles per Hour

Vehicle Hours of Delay, 60 mph: 14.7 million hours, 3.3% increase over 2011
Average Non-Holiday Weekday Delay, 60 mph: 49,939 hours, 2.7% increase over 2011
Percentage of Statewide VHD at 60 mph: 6.6%, 0.4% decrease over 2011

FIGURE 6

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

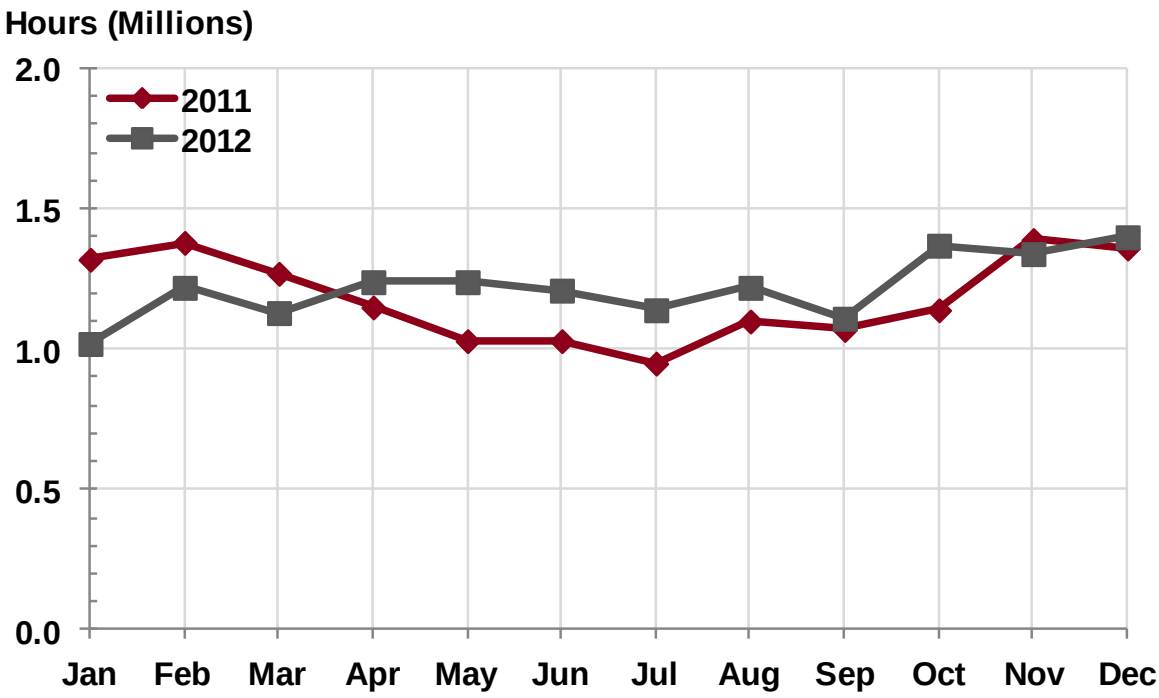
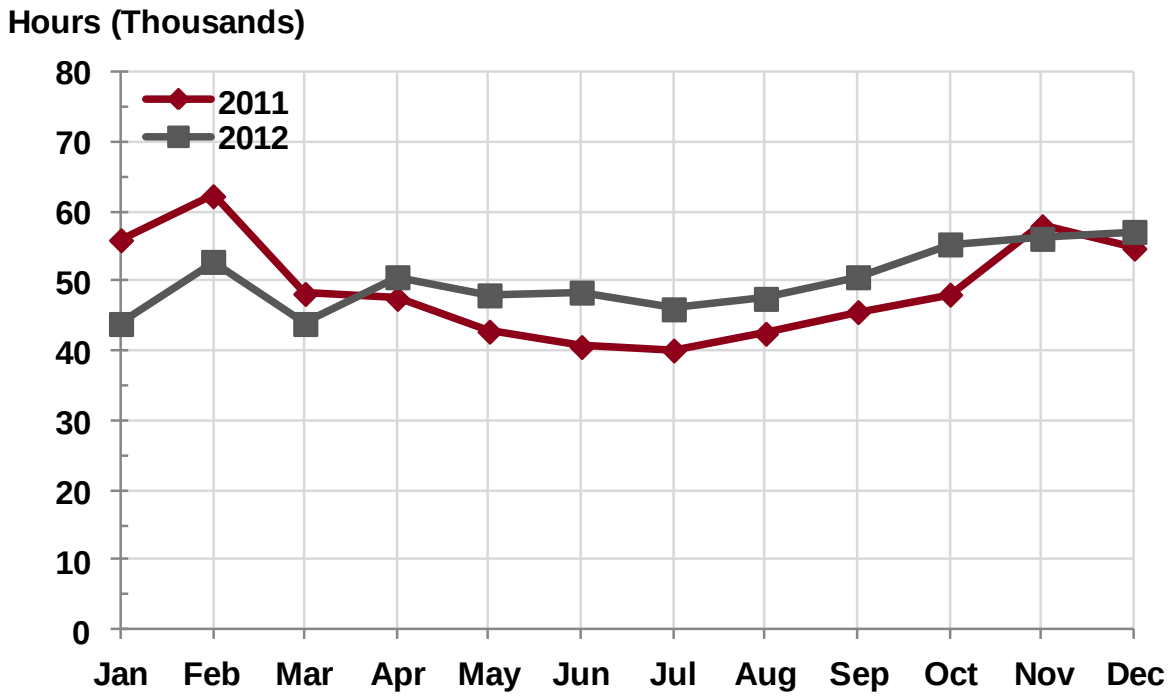


FIGURE 7

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



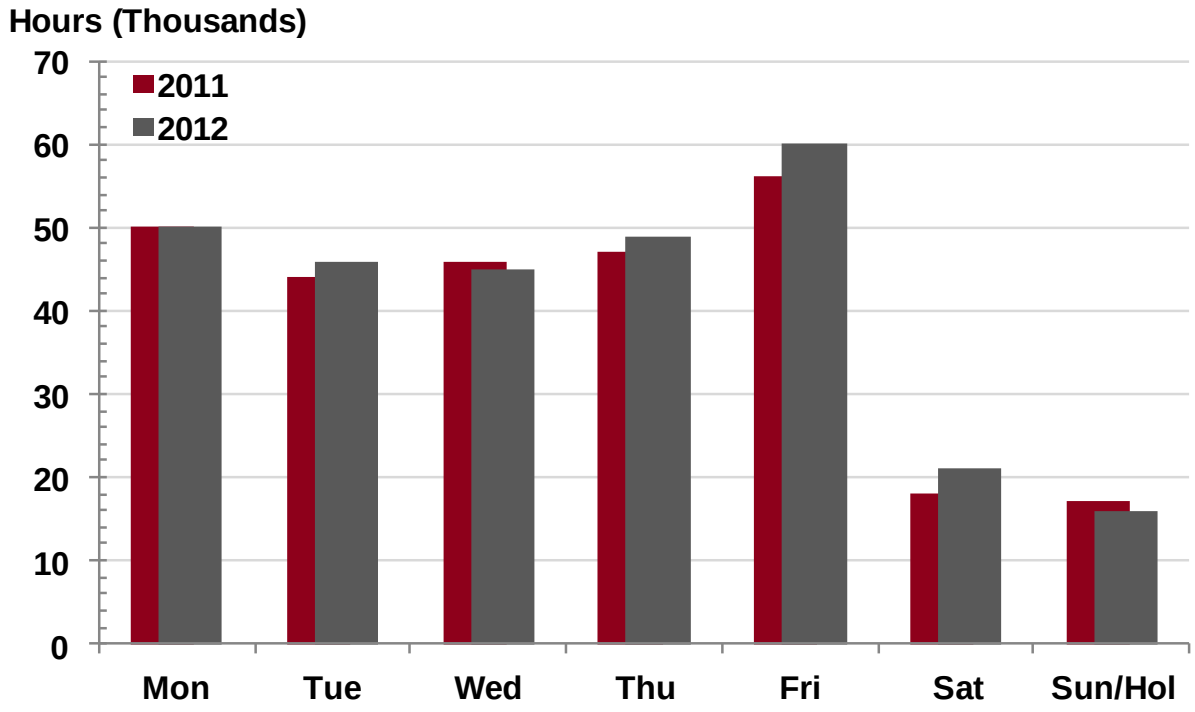
4.2. Average Vehicle Hours of Delay by Day of Week

Most Congested Day of the Week, 60 mph:	Friday, 59,538 hours, 6% increase over 2011
Highest Absolute Change in Delay, 60 mph:	Friday, 3,290, 6% increase over 2011
Highest Percentage Change in Delay:	Saturday, 2,810, 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



4.3. Average Vehicle Hours of Delay by Hour of Day

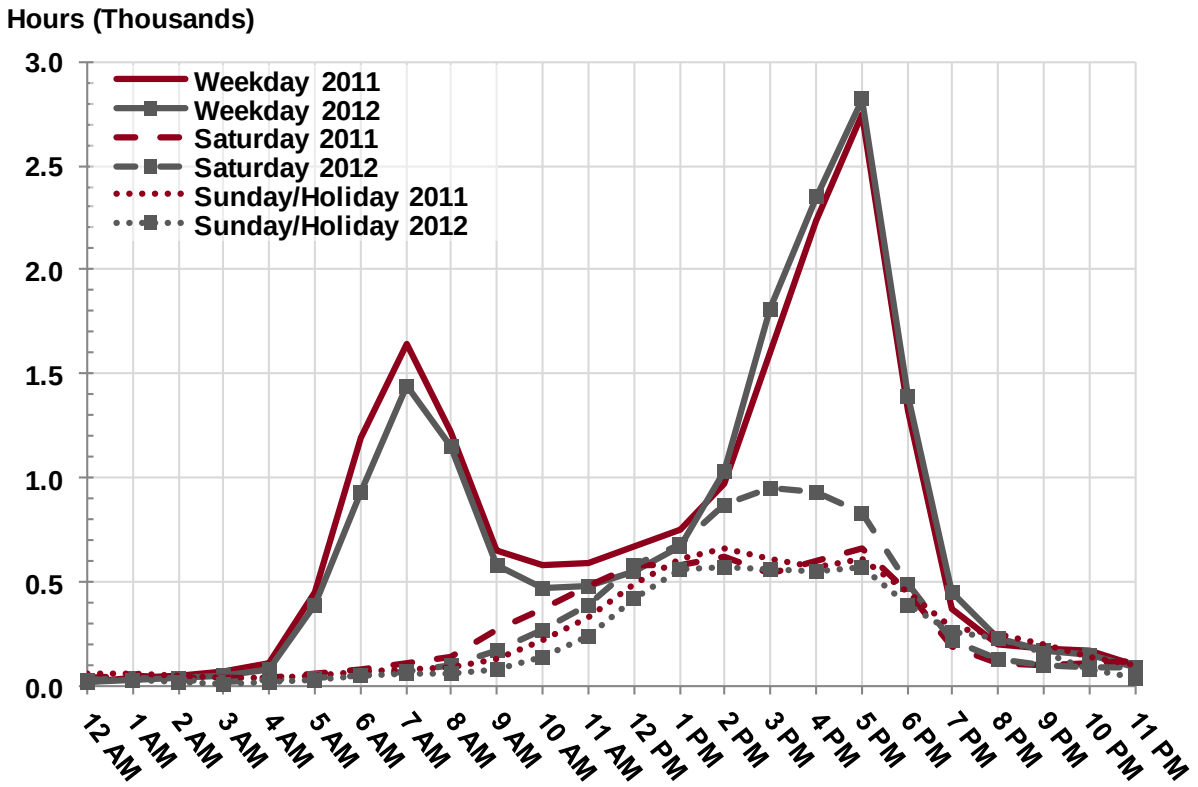
4.3.1 Delay at 35 Miles per Hour

Weekday PM Peak Hour, 35 mph: 5 PM, 2,820 hours, 2% increase over 2011
Weekday AM Peak Hour, 35 mph: 7 AM, 1,444 hours, 12% decrease over 2011
Saturday Peak Hour, 35 mph: 3 PM, 950 hours, 75% increase over 2011
Sunday/Holiday Peak Hour, 35 mph: 2 PM, 573 hours, 14% 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



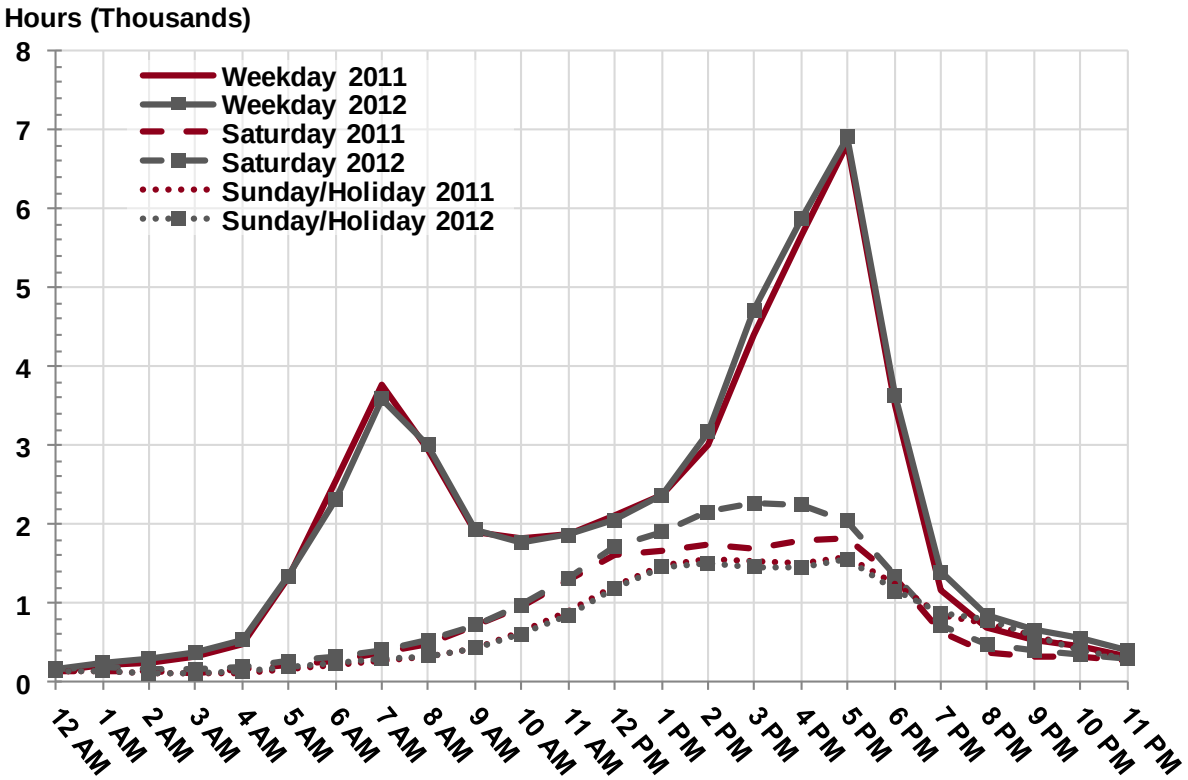
4.3.2 Delay at 60 Miles per Hour

Weekday PM Peak Hour, 60 mph: 5 PM, 6,909 hours, 1% increase over 2011
Weekday AM Peak Hour, 60 mph: 7 AM, 3,585 hours, 5% decrease over 2011
Saturday Peak Hour, 60 mph: 3 PM, 2,264 hours, 35% increase over 2011
Sunday/Holiday Peak Hour, 60 mph: 5 PM, 1,551 hours, 1% 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



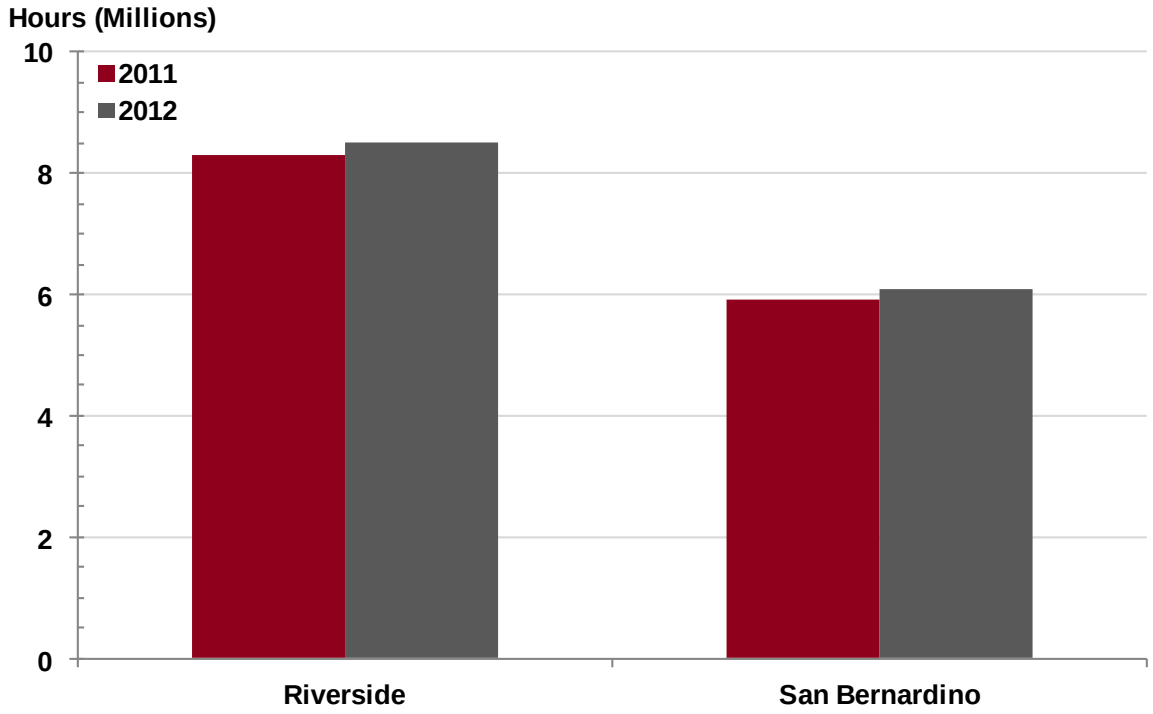
4.4. Total Vehicle Hours of Delay by County

County with Largest Delay, 60 mph:	Riverside, 8.5 million hours, 3.1 % increase over 2011 VHD, 58% of District total VHD
County with 2nd Largest Delay, 60 mph:	San Bernardino, 6.1 million hours, 3.5 % increase over 2011 VHD, 42% of District total VHD
County with Largest Increase in Delay, 60 mph:	Riverside, 256,751 hours, 3.1 % increase over 2011
County with Largest Decrease in Delay, 60 mph:	None

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: 16.1 miles, 0.3 % increase over 2011

Off-Peak Day: 8.1 miles, 1.7 % increase over 2011

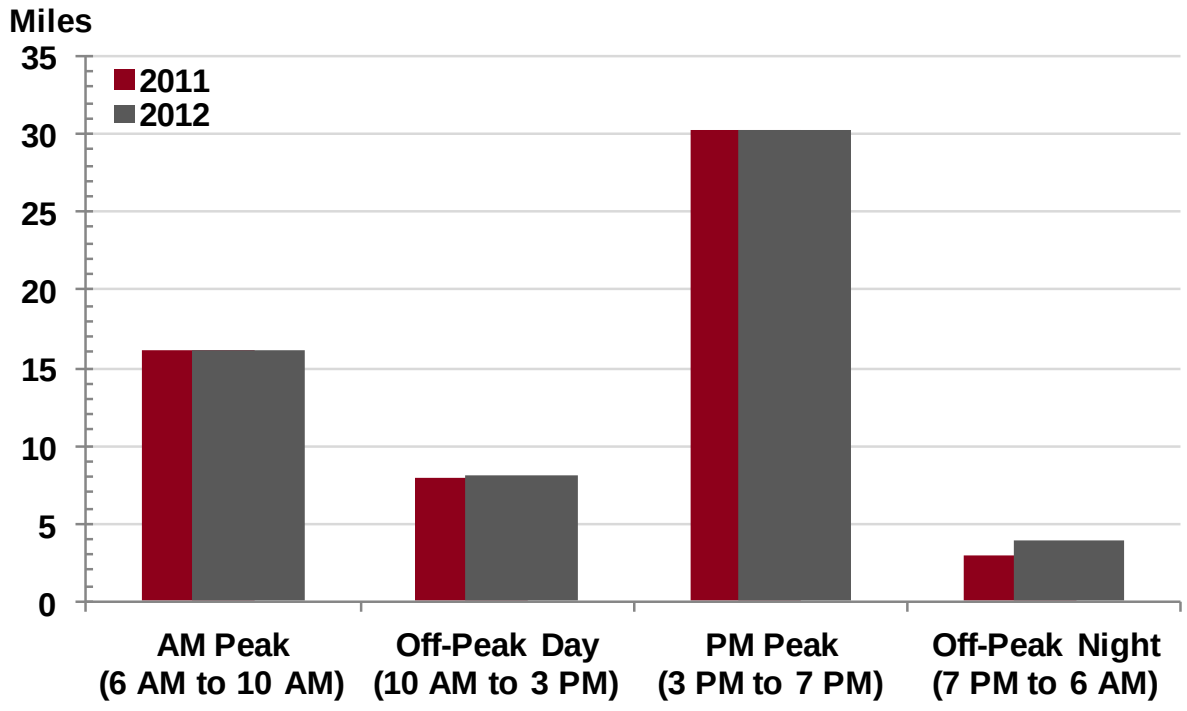
PM Peak: 30.3 miles, 0.02% decrease over 2011

Off-Peak Night: 3.9, 36% increase over 2011

Lost Lane Miles at 35 miles per hour

FIGURE 12

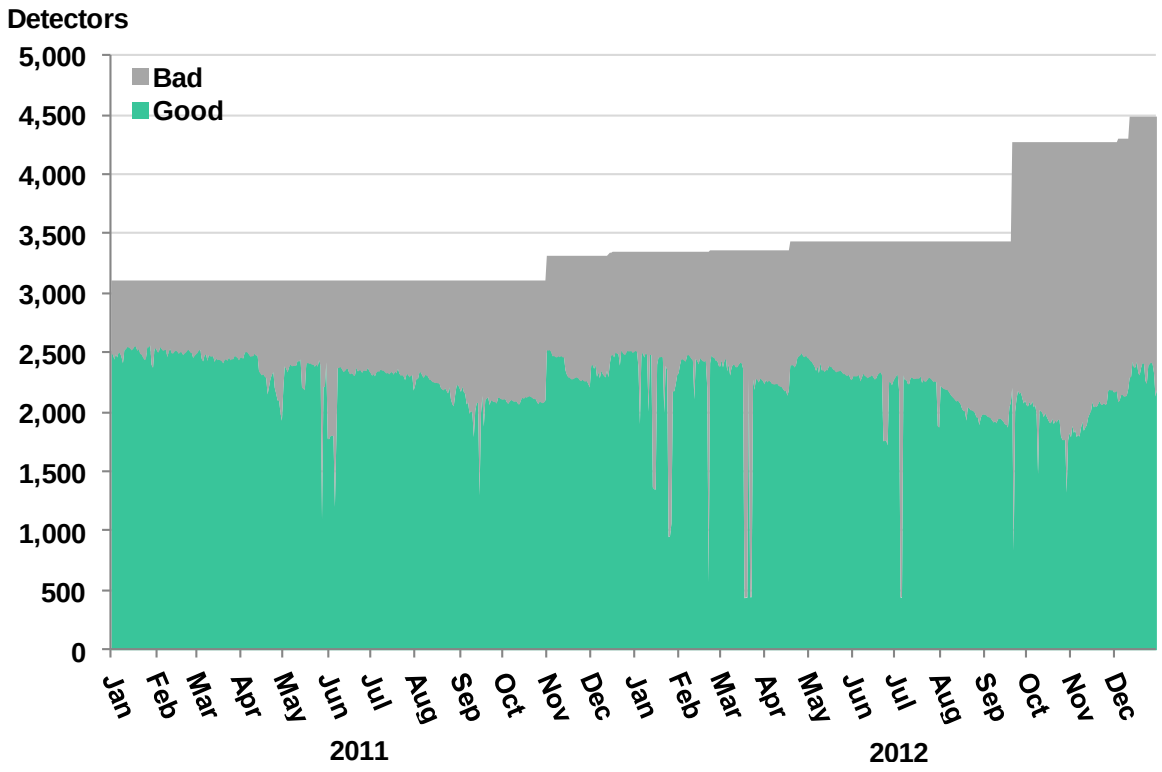
AVERAGE NON-HOLIDAY WEEKDAY EQUIVALENT LOST LANE MILES



5. DETECTOR HEALTH AND DATA QUALITY

Directional Mainline Miles:	3,852 miles
Directional Mainline Miles with Detection:	977 miles
Number of Detectors at End of 2012:	4,492, 34% increase over 2011
Average Percentage of Good and Bad Detection:	59 % good, 7.4% decrease over 2011; 41% bad, 83% increase over 2011
Number of Days Reporting less Than 50% Working Detection:	88

FIGURE 13
DETECTOR HEALTH BY DAY, 2011-2012



6. FREEWAY CONGESTION AND BOTTLENECK LOCATIONS

6.1. Congestion by Freeway

Congestion Contributed by Top Ten Congested Freeways: 14,557,637 hours, 99.3% of total VHD in 2012

Table 3. TOP TEN CONGESTED FREEWAYS, 2011-2012

Route	County	Vehicle Hours of Delay at 60 mph		Difference (2012 - 2011)		Rank	
		2011	2012	Absolute	Percent	2011	2012
SR–91	Riverside	3,595,668	3,967,746	372,078	10%	1	1
I–10	San Bernardino	2,426,202	2,107,459	-318,744	-13%	2	2
I–215	Riverside	2,025,724	1,870,771	-154,953	-8%	3	3
I–15	Riverside	1,602,800	1,633,739	30,938	2%	4	4
SR–60	San Bernardino	1,297,909	1,554,445	256,536	20%	5	5
I–15	San Bernardino	1,119,114	1,319,966	200,852	18%	6	6
SR–60	Riverside	888,458	861,892	-26,565	-3%	7	7
I–215	San Bernardino	376,842	582,028	205,186	54%	9	8
I–210	San Bernardino	563,406	503,600	-59,806	-11%	8	9
I–10	Riverside	113,341	155,993	42,652	38%	11	10
TOTALS		**14,009,462**	**14,557,637**	**548,175**	**4%**		

6.2. Bottleneck Locations

Total Delay, All AM Bottlenecks: 673,275 hours
Top Bottlenecks Delay, AM: 567,063 hours
Percentage Top Bottlenecks Delay of Total Bottleneck Delay, AM: 84%

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	Riverside	Corona	SR91–W	5.89	Grand Blvd	2.48	236,730	1,101	3.5	86%
2	Riverside	Corona	SR91–W	R3.555	Serfas Club Dr	1.43	67,862	414	2.3	65%
3	Riverside	Moreno Valley	I215–N	R37.6	Eucalyptus Ave	0.60	58,125	233	3.0	99%
4	Riverside	Riverside	SR91–E	18.522	Central Ave	2.62	34,215	496	1.6	27%
5	Riverside	Riverside	I215–N	R36.5	Alessandro Blvd	0.89	32,505	168	1.8	77%
6	San Bernardino	Chino	SR60–W	R1.169	Ramona Ave	1.33	32,075	238	1.6	54%
7	Riverside	Corona	SR91–W	R.995	Green River Rd	0.80	29,349	151	1.4	77%
8	Riverside	Riverside	SR60–W	13.392	Day St	1.29	27,727	197	1.8	56%
9	Riverside	Corona	SR91–W	5.28	Lincoln Ave	0.40	25,090	172	3.2	58%
10	Riverside	Corona	SR91–W	4.2	East of Maple St	0.54	23,385	131	2.1	71%

Total Delay, All PM Bottlenecks: 1,607,173 hours
Top Bottlenecks Delay, PM: 803,144 hours
Percentage Top Bottlenecks Delay of Total Bottleneck Delay, PM: 50%

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	San Bernardino	Ontario	I15–S	0.969	Jurupa St	1.84	112,775	600	2.6	75%
2	Riverside	Riverside	I215–S	42.144	Blaine St	1.20	110,074	464	3.5	94%
3	Riverside	Temecula	I15–N	6.8	Winchester Rd	1.60	98,169	633	2.6	62%
4	Riverside	Corona	SR91–E	9.23	McKinley St	1.81	98,059	460	2.9	85%
5	Riverside	Corona	SR91–E	4.731	100 Feet east of Smith Ave	0.89	86,255	409	3.0	84%
6	Riverside	Corona	SR91–E	R2.542	East of Route 71	1.46	69,882	384	2.3	73%
7	San Bernardino	Unincorporated	I15–N	13.7	1.0 mile south of Glen Helen	1.82	68,716	1,026	2.9	27%
8	Riverside	Corona	I15–S	38.926	Ontario Ave	1.03	58,282	312	2.8	75%
9	Riverside	Riverside	SR60–E	11.815	Main St	1.06	51,978	309	2.2	67%
10	Riverside	Murrieta	I215–N	R9.5	Murrieta Hot Springs Rd	1.10	48,955	256	2.9	76%

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

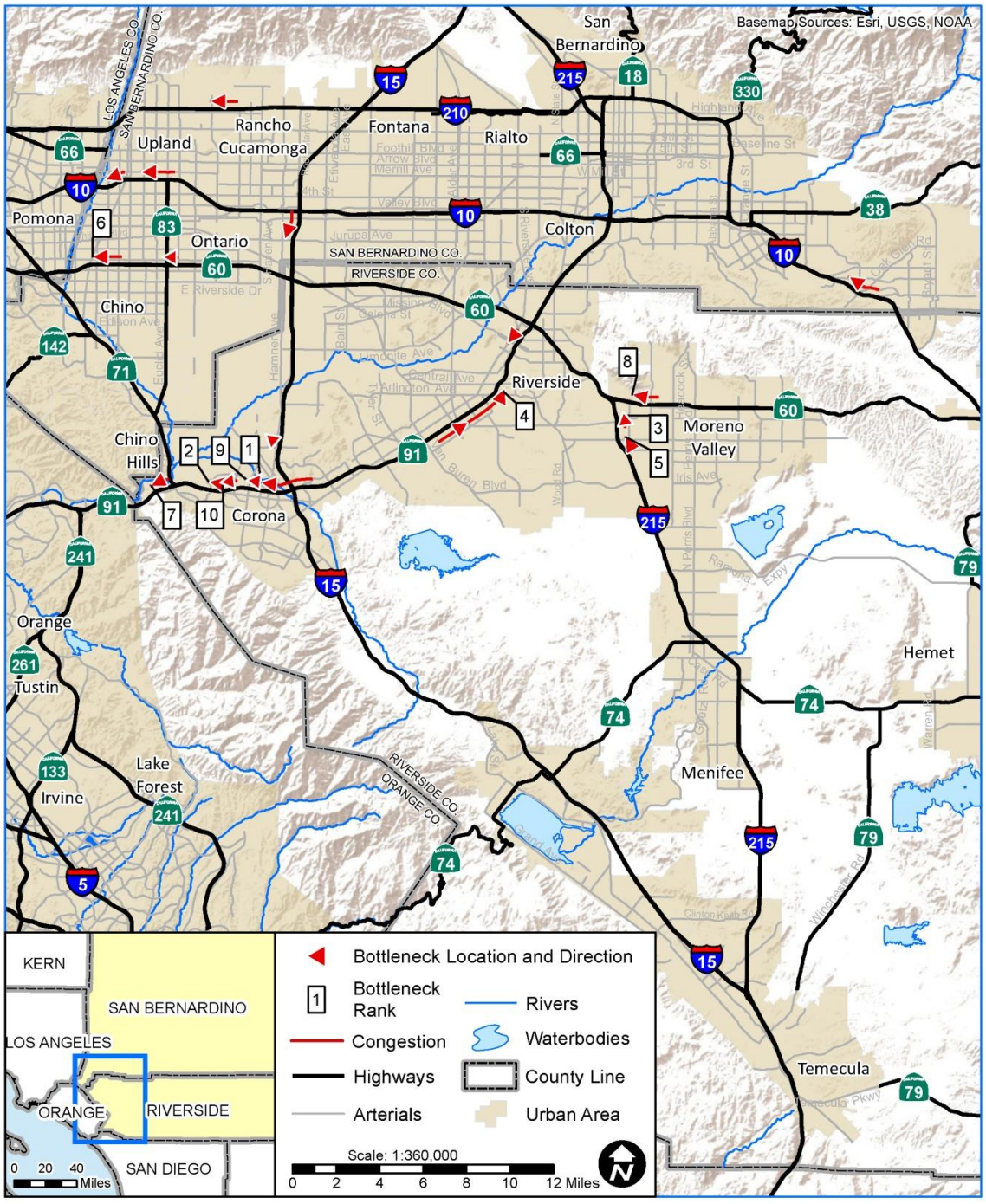


Figure 14 (B)

BOTTLENECKS AND CONGESTED SEGMENTS, PM PEAK PERIOD