2. LEVEL OF SERVICE RESULTS

This section of the report describes the summary results of the surveys of the entire CMP network segments (freeway, arterial and ramp-to-ramp segments) for all time periods. Segments that are operating at LOS F (Appendices A1 and A2) and segments that have changed significantly since the 2010 survey are highlighted.

Figures 3 through 10 (Appendix B) show the results of the a.m. and p.m. peak travel-time runs and the resulting LOS for each of the segments on the CMP designated system by roadway. These figures each portray a sub-area of the county, which generally corresponds to the county planning areas. Weekend peak travel-time runs are shown in Figure 11 (Appendix B) on a countywide map.

The full listing of speed and level of service results for all CMP network segments is in Appendix G. In addition to the speed and LOS results for 2012 presented in this appendix, each entry also shows the results of the previous study (2010) to provide a comparison. Since the p.m. peak period data is used for conformity, generally p.m. peak period data is presented first followed by data from the a.m. peak period. The data are subdivided by tiers first, followed by data collection time period and type of roadway.

LOS F SEGMENTS

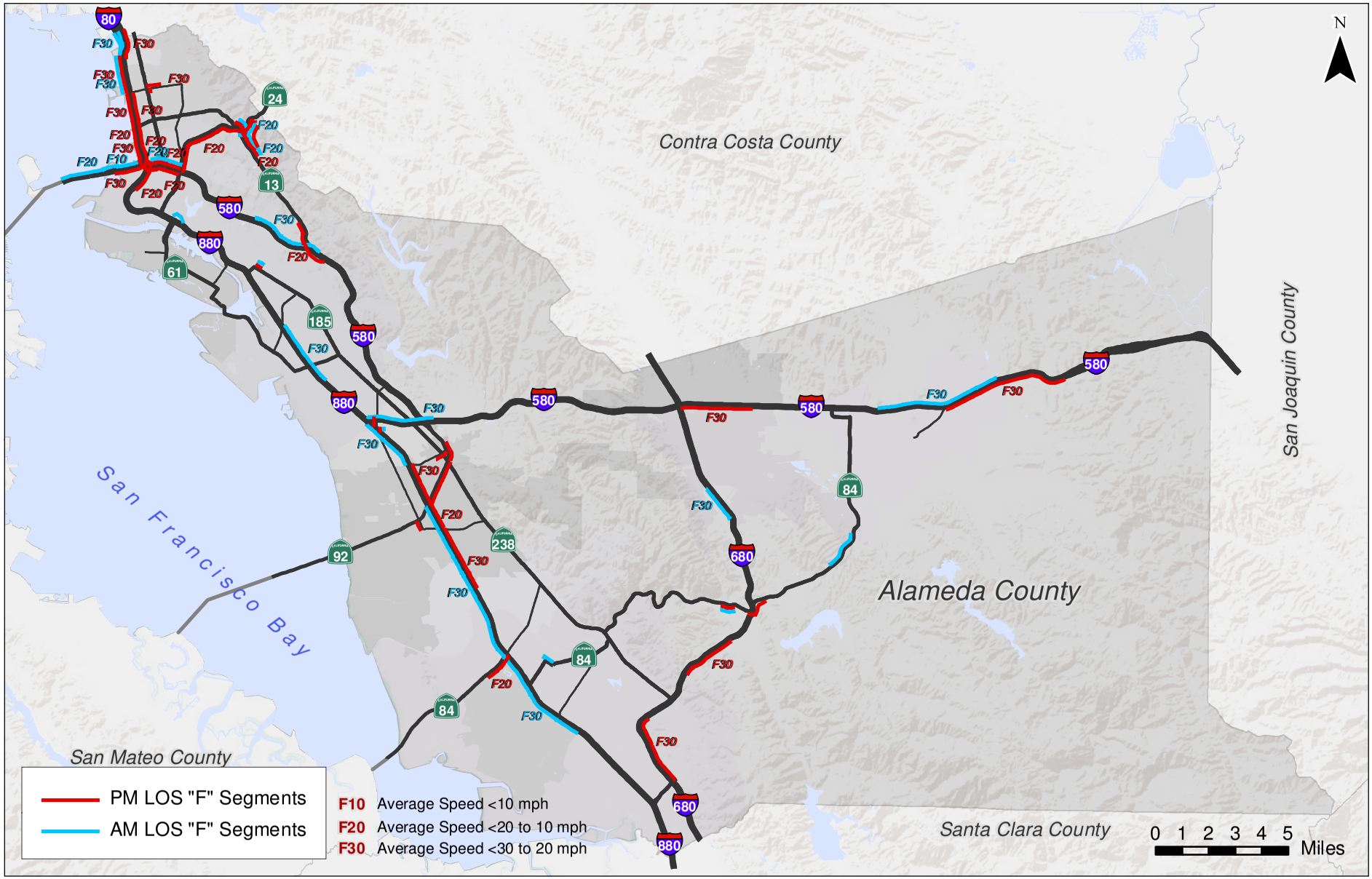
The 2012 monitoring results reported an increased number of LOS F segments and fewer improved LOS F Segments from the prior cycle compared to the 2010 results.

LOS F Segments in 2012

The 2012 surveys revealed that 39 segments were operating at Level of Service F during the p.m. peak period and 27 segments operated at LOS F during the a.m. peak period:

LOS F during the p.m. peak period..... 39
Freeway segments..... 27
Arterial segments..... 11
Ramps and special segments 1

LOS F during the a.m. peak period..... 27
Freeway segments.....21
Arterial segments..... 5
Ramps and special segments 1



ALAMEDA County Transportation Commission

2012 AM and PM Peak Period Level of Service "F" Results Countywide

Figure 2

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING/PLANNING

Coordinate System: NAD 1983 StatePlane California III FIPS 0403 Feet

C:\Work\Projects\17144 - Alameda County Model P09\gis\2012 LOS\02_2012 AM and PM Peak Period LOS F Results.mxd - ddepencier - 8:42 AM 7/16/2012

The number of segments operating at LOS F has increased from 2010 by four in the p.m. and eight in the a.m. peak periods. Figure 2 illustrates the segments observed to operate at LOS F on the entire CMP network during the a.m. and p.m. peak periods. In addition, Appendices A1 and A2 list the details of all LOS F segments including their travel-time run information.

Improved LOS F Segments from the Prior Monitoring Cycle

The total number of improved segments from the previous monitoring cycle decreased from nineteen in 2010 to fifteen in 2012.

- Improved P.M. peak period segments – 11 in 2012 (10 in 2010)
- Improved A.M. peak period segments – 4 in 2012 (9 in 2010)

Appendix C, lists the segments that performed at LOS F in 2010 and improved in 2012.

AVERAGE SPEEDS

Table 5 shows the average speed on the complete CMP network by tier for each peak period. Analyzing the county as a whole, the survey results show that the speeds on freeways appear to have generally declined since the 2010 surveys with some areas showing improvements. The overall average speeds on the freeways decreased about 0.9 to 1.1 miles per hour between 2010 and 2012 while the speed decrease on arterials is between 1 and 1.5 miles per hour. The highest decline occurred during the a.m. for both freeways and arterials.

Table 5: Average Vehicle Speeds During Peak Periods on Alameda County CMP Roadways (in mph)

	2010 Results	2012 Results
Tier 1		
Freeways p.m.	51.8	50.9
Arterials p.m.	26.1[12]	25.1
Freeways a.m.	53.4	52.5
Arterials a.m.	28.0	26.5
Weekend 1-3 p.m.	—	62.2
Tier 2		
Arterials p.m.	—	25.1
Arterials a.m.	—	24.9

CMP NETWORK PERFORMANCE

The 2012 LOS results for the CMP network are described below by type of roadway (freeways, arterials and ramps and special segments) and data collection time period. Segments that operated at LOS F conditions are highlighted (for more detailed information about these LOS F segments, see Appendices A1 and A2) under each category as well as likely impacts by construction. Also included are lists of segments that operated at LOS F in 2010 but improved in 2012 (Appendix C); potential reasons for improvements are identified. Additionally, segments showing significant changes in performance (i.e., improvement or degradation by two levels of service since 2010) between 2010 and 2012 were identified (Tables 12 and 13). Further, corridor performance was analyzed by estimating the travel-time and speed data for the entire length of a CMP route by aggregating the segments for selective major CMP routes in the county (Appendices D1 and D2).

2012 LOS Results

General analysis shows that overall congestion increased on the CMP Network

[12] Corrected computational error for the 2010 average speeds data. Results for 2010 Arterials p.m. were previously reported in the 2010 LOS Monitoring Report as 28.7 mph.

since 2010. It is shown in the increased number of LOS F segments, decreased average speeds, and reduced number of improved segments as compared to the prior 2010 LOS monitoring year. Improvements were reported in few locations and appear to be related to completed construction activities. Few new bottlenecks were also reported.

The 2012 LOS results for each category of the roadways are analyzed and presented in the respective sections below.

Since weekend peak period monitoring on the freeways was commenced in 2012, only 2012 data were analyzed for weekend performance of the freeway network; thus, there is no comparative analysis with previous performance as done for data from other time periods. Similarly, Tier 2 was monitored for the first time in 2012 and additionally did not have levels of service assigned; therefore, only 2012 speed data was analyzed for the Tier 2 network performance for 2012.

Freeways (Tier 1)

Weekday—p.m. Peak Period

The 2012 surveys revealed that 27 segments operated at LOS F during the p.m. peak period. Out of the 27, 12 segments also performed at LOS F during the 1991 CMP baseline year (and are therefore grandfathered). Four of these 27 segments were operating at LOS F for the first time in 2012. Of the remaining 23 segments, nine appeared to have been impacted by construction activities (Table 6).

In terms of specific locations where congestion occurred in 2012, while the likely reasons for congestion on all the LOS F segments could not be identified, a majority of the LOS F conditions appear to be related to construction activities combined with the effects of the recovering economy. LOS F conditions on westbound I-80 and eastbound SR 24 in North County were likely due to Bay Bridge and Caldecott Tunnel construction respectively. Congestion continues to occur on eastbound I-580 in East County. Also, in 2012, new congestion was experienced on northbound I-880 between Alvarado-Niles Road and A Street and on eastbound I-580 between 1st Street and N. Flynn Road.

Table 6: LOS F Freeways segments—p.m.

#	CMP Route	Segment Limits	Jurisdiction
Grandfathered			
1	I-80 – EB	I-80/I-580 (Merge)-Powell	Emeryville-Berkeley
2	I-80 – EB	Powell-Ashby	Emeryville-Berkeley
3	I-80 – EB	Ashby-University	Emeryville-Berkeley
4	I-80 - EB	Jct I-580 Off-ramp-Central On-Ramp	Berkeley-Albany
5	I-80 – WB*	University-Ashby	Emeryville-Berkeley
6	I-80 – WB*	Ashby - Powell	Emeryville-Berkeley
7	I-80 – WB*	Powell - I-80/I-580 (Split)	Emeryville-Berkeley
8	I-580 – EB	I-80 - I-980	Oakland
9	I-880 – NB	Tennyson - SR 92	Hayward
10	I-880 – NB	SR 92 - A St	Hayward
11	SR 24 – EB*	I-580 On-ramp - Broadway/SR 13	Oakland
12	SR 24 – EB*	Broadway/SR 13 - Caldecott (Entrance)	Oakland
Non-Grandfathered			
13	I-80 – EB*	Toll Plaza - I-580 (SB Merge)	Oakland
14	I-80 – WB*	Jct I-580 - University	Berkeley-Albany
15	I-580 – EB	I-680 - Hopyard	Pleasanton
16	I-580 – EB	Hopyard - Santa Rita	Pleasanton
17	I-580 – EB**	1st St - Greenville	Livermore-County
18	I-580 – EB**	Greenville - N. Flynn	County
19	I-580 – WB*	SH-24 On-ramp - I-80/I-580 (Split)	Oakland
20	I-680 – NB	Rt 262/Mission - Durham Rd	Fremont
21	I-680 – NB	Durham Rd - Washington Blvd	Fremont
22	I-680 – NB**	Vargas Rd - Andrade Rd	County
23	I-880 – NB	Alvarado-Niles - Tennyson	Union City-Hayward
24	I-880 – NB**	I-880/I 80 (Split) - I-880/I-80 (Merge)	Oakland
25	SR 13 – NB*	Moraga Ave - Hiller (Signal)	Oakland
26	SR 13 - SB	Redwood - Jct I-580 (EB Merge)	Oakland
27	SR 84 - EB	Newark Blvd /Ardenwood Blvd - I-880 NB Off-ramp	Newark

Note: *Construction; **New LOS F segment

Weekday—a.m. Peak Period

The 2012 surveys revealed that 21 segments were operating at LOS F during the a.m. peak period. Five of these 21 segments were operating at LOS F for the first time. Of the remaining 16 segments, seven of them appeared to have been impacted by construction activities (see Table 7).

As in the p.m. peak period, Bay Bridge and Caldecott Tunnel construction appeared to have impacted westbound I-80 and eastbound SR 24 segments, respectively. Congestion on southbound I-880, south of SR 92 to Stevenson Boulevard, appeared to have intensified from 2010 with two additional LOS F segments occurring on this stretch of the freeway.

Table 7: LOS F Freeways segments—a.m.

#	CMP Route	Segment Limits	Jurisdiction
1	I-80 – WB*	Central - Jct I-580	Berkeley – Albany
2	I-80 – WB*	Jct I-580 - University	Berkeley – Albany
3	I-80 – WB*	I-580 Split - Toll Plaza	Oakland
4	I-80 – WB*	Toll Plaza - SF County	Oakland
5	I-238 – WB	I-580 - I-880	County-San Leandro
6	I-580 – WB	Greenville Rd - 1st St	Livermore – County
7	I-580 – WB	1st St - Portola Ave	Livermore
8	I-580 – WB	SH 13 Off-ramp - Fruitvale	Oakland
9	I-580 – WB*	SH-24 On-ramp - I-80/I-580 Split	Oakland
10	I-580 – EB**	Central - I-80 Jct	Albany
11	I-680 – SB**	Bernal Ave - Sunol Blvd	County
12	I-880 – NB	Marina Blvd - SR 112/Davis	Oakland - San Leandro
13	I-880 – NB**	SR 112/Davis - Hegenberger	Oakland - San Leandro
14	I-880 - SB	I-238 (Marina before '06) - A St	San Leandro - County
15	I-880 – SB**	Rt 92 - Tennyson	Hayward
16	I-880 – SB	Tennyson - Alvarado-Niles	Hayward - Union City
17	I-880 – SB	Alvarado-Niles - Alvarado	Union City – Fremont
18	I-880 – SB**	Alvarado - Decoto	Union City – Fremont
19	I-880 – SB	Decoto - Stevenson	Fremont
20	SR 13 – NB*	Moraga Ave - Hiller (Signal)	Oakland
21	SR 24 – EB*	Broadway/SR 13 - Caldecott (Entrance)	Oakland

Note: *Construction; **New LOS F segment

Freeways – Weekend Peak Period (1:00 p.m. – 3:00 p.m.)

In order to monitor the congestion from the recreational trips during the weekends, the county freeways were monitored for a mid-day peak period of 1-3 p.m. during the 2012 LOS Monitoring cycle. The weekend peak period was determined to be 1-3 p.m. based on Spring 2011 traffic data from the Caltrans' Freeway Performance Management System (PeMS) database. The 2012 LOS results showed that a majority of the roadways were performing at higher speeds with mostly LOS A conditions.

- LOS F conditions were reported on I-80 segments in both directions and I-580 segments connecting with I-80
- LOS E conditions were observed on westbound I-238 between I-580 and I-880, westbound I-580 at the county line, and northbound SR 13 near SR 24 (Caldecott Tunnel)

Freeways – Improved LOS F Segments

Table 8 lists the segments that were operating at LOS F in the 2010 surveys during a.m. and p.m. peak periods, but have improved in 2012. There were eight segments in the p.m. peak period and four segments in the a.m. peak period that improved. For comparison, in the 2010 LOS Monitoring Study, there were six p.m. peak period segments that showed improvement from prior LOS F conditions. Similarly, the number of improved LOS F segments in the a.m. peak period from the previous monitoring year decreased from five in 2010 to four in 2012.

While likely reasons for all improvements were not clear, a majority appear to be due to the improvement projects completed since the 2010 LOS monitoring. Improvement on I-880 in both south and central parts of the county, SR 92 in Central County and I-580 in East County could be attributed to two projects that were completed after the 2010 LOS monitoring. It also appears to be the reason for the increased number of improved p.m. peak period segments. Improvements on I-880 and SR 92 are likely due to the completed

I-880/SR 92 Interchange construction. Similarly, improvement on eastbound I-580 in East County appeared to be due to the opening of I-580 HOV lanes. This project was under construction during 2010 LOS monitoring.

Table 8: Segments at LOS F in 2010 and not in 2012

#	CMP Route	Segment Limits	Jurisdiction
p.m. peak period			
1	I-580 - EB	San Ramon/ Foothill - I-680	County - Pleasanton
2	I-580 - EB	Santa Rita - El Charro	County - Pleasanton
3	I-580 - EB	Harrison - Lakeshore	Oakland
4	I-580 - EB	Coolidge - SH 13 Off-ramp	Oakland
5	I-880 - NB	Decoto - Alvarado Blvd	Fremont - Union City
6	I-880 - NB	Alvarado Blvd - Alvarado-Niles Blvd	Fremont - Union City
7	I-980 - EB	I-880 - SR 24 @ I-580	Oakland
8	SR 92 - EB	Clawiter - I-880	Hayward
a.m. peak period			
1	I-880 – NB	Alvaraddo Niles – Tennyson	Union City – Hayward
2	I-880 – NB	High/42nd – 23rd (1st On-ramp)	Oakland
3	I-880 – SB	A St – SR 92	Hayward
4	SR 84 – WB	Paseo Padre Pkwy – Toll Plaza	Newark - Fremont

Arterials (Tier 1)

Weekday—p.m. Peak Period

The 2012 surveys revealed that 11 arterial segments operated at LOS F during the p.m. peak period (Table 9). One LOS F segment was a grandfathered segment. Three of these 11 segments operated at LOS F for the first time, including two segments that appeared to be impacted by construction activities. Of the remaining seven segments, three of them appeared to have been impacted by construction activities.

Table 9: LOS F Arterials Segments—p.m.

#	CMP Route	Segment Limits	Jurisdiction
Grandfathered			
1	SR 92 – EB*	I-880 - Mission	Hayward
Non-Grandfathered			
2	A Street – EB***	Western - SR 238	Hayward
3	Hesperian – NB*	Grant - Lewelling	County
4	Hesperian – SB*	Springlake - Lewelling	County
5	Hesperian – SB	SR 92 – WB - Tennyson	Hayward
6	University – WB**	Sacramento - San Pablo	Berkeley
7	SR 84 - EB	Sunol Road - Pleasanton-Sunol Road	Fremont
8	SR 84 - EB	SR 84 (Off-ramp)/ I-680 - Vallecitos Lane	County
9	SR 123 San Pablo – NB	Allston - University	Berkeley
10	SR 185 (14th) – NB*	46th Street - 42nd	Oakland
11	SR 238 (Foothill) – NB***	Jackson - City Center	Hayward

Note: *Construction; **New LOS F segment; ***New LOS F segment likely impacted by construction

Construction in Central County [SR 238 (Foothill) Operational Improvements] and maintenance work on Lewelling Boulevard appeared to have impacted most of the arterials that were performing at LOS F. In addition, 42nd/High Street Improvements occurring in North County created congestion on westbound SR 185 in Oakland.

Weekday—a.m. Peak Period

The 2012 surveys reported that five segments operated at LOS F during the p.m. peak period (Table 10). One segment out these five, westbound SR 84 south of Ruby Hill, was operating at LOS F for the first time. Also, two of them, northbound Hesperian in Central County and westbound SR 185 in North County, appeared to have been impacted by construction activities.

Table 10: LOS F Arterials Segments—a.m.

#	CMP Route	Segment Limits	Jurisdiction
1	Hesperian – NB*	Grant –Lewelling	County
2	SR 84/Fremont – WB	Peralta-Thornton	Fremont
3	SR 84 – EB	Sunol Road-Pleasanton-Sunol	Fremont
4	SR 84 – WB**	Ruby Hill /Kaithoff-Culvert (Lat/Long: 37.613854,-121.817224)	Pleasanton
5	SR 185 (E14th) – NB*	46th St – 42nd	Oakland

Note: *Construction; **New LOS F segment

Arterials (Tier 1)-Improved LOS F Segments

Two segments operated at LOS F in 2010 showed improved performance in 2012 during the p.m. peak period:

- Northbound Hesperian (La Playa-W. Winton Ave.) in Hayward
- Eastbound SR 13 Ashby (College–Domingo) in Berkeley

Performance during the a.m. peak period appeared to have not changed much in terms of congested segments between 2010 and 2012. In 2010, there were three improved arterial segments reported compared to the prior monitoring cycle in both peak periods.

Arterials (Tier 2)

Starting in the 2012 LOS Monitoring cycle, the 90-mile (193 segments) Tier 2 roadways were monitored. Free Flow Speed surveys are required to determine the classification of these arterials, which will in turn determine the service levels of the arterial segment based on the speed data. Since these surveys will be completed prior to or during the 2014 LOS Monitoring cycle, only speed data are reported and analyzed in the 2012 LOS Monitoring report instead of levels of service.

Weekday—p.m. Peak Period

Out of the total 193 Tier 2 segments monitored, over 150 segments performed in the speed range of 10 to 30 miles per hour, which were almost equally divided between the ranges of 10 to 20 miles per hour (81 segments) and 20 to 30 mph (75 segments). Reflective of the dense urban development in North County, there were more Tier 2 arterial segments operating in the lower range of speed (10 to 20 miles per hour). Regarding the number of segments operating in the middle speed range (20 to 30 miles per hour), an equal number of segments were found to be located between the North County, South County, and East County. Segments operating at the higher range of speed (30 miles per hour and above) included a larger number of segments from East County, particularly the roadways that traverse the less dense and fringe areas of the county crossing the county line.

There were four Tier 2 Arterial segments performed at the lowest speed range (10 miles per hour and below). Three were located in North County and one was located in Central County:

- Westbound Broadway between 14th Street and 5th Street (Speed - 8.3 mph)
- Southbound International Boulevard between Fruitvale Avenue and 42nd Avenue (Speed – 8.0 mph)
- Westbound High Street between Foothill Boulevard and northbound I-880 Off Ramp (Speed – 9.2 mph)
- Winton Avenue-D Street between Soto Road and Foothill Boulevard/D Street (Speed –8.8 mph)

With the exception of westbound Broadway between 14th and 5th Streets, the other three segments were impacted by construction activities. Performance of the westbound Broadway segment at the lowest speed in normal conditions appears to be consistent with traffic conditions in typical downtown areas that have multimodal characteristics.

Tier 2 segments with the highest range of speed (40 mph and above) were reported in East County, particularly the roadways that traverse the less dense and fringe areas of the county crossing the county line.

- Three segments of Vasco Road crossing the county line in both northbound and southbound directions showed speeds of over 50 miles per hour, with the highest speed being 56.4 miles per hour for the southbound Vasco Road from the county line to N. Vasco/Vasco Road.
- Other roadways with speeds ranging between 40 and 50 miles per hour were:
    - Crow Canyon Road in both directions near the county line
    - Northbound Dougherty Road near the county line

- Sunol Boulevard-1st Street-Stanley Boulevard in both directions between Bernal Avenue and SR 84

Weekday—a.m. Peak Period

Out of the total 193 Tier 2 segments monitored, over 163 segments performed at a speed range of 10 to 30 miles per hour. There were a greater number of segments (90 segments) performing in the 20 to 30 miles per hour range and slightly fewer number of segments (73) performing in the 10-20 miles per hour range. The lower speed range had more segments located in North County, while the middle speed range had segments equally distributed between all parts of the county. Similar to the p.m. peak period results, segments operating at the higher speed ranges of 30 miles per hour and above included more number of segments from East County.

Two segments operated at 10 miles per hour and below speed conditions, and both were impacted by construction activities:

- Southbound High Street between Foothill Boulevard and northbound I-880 Off Ramp
- Westbound A Street between Redwood Road/Grove Way and Foothill Boulevard/A Street

Regarding the roadways that performed at the highest speed range of 40 miles per hour and above, a majority of the roads identified in the a.m. peak period also performed at this speed in the p.m. peak period. There were nine segments operating at these conditions, and one Vasco Road segment crossing the county line showed the highest speed of 53 miles per hour.

Listed below are the roadways some contain more than one segment that performed at speeds between 40 and 50 miles per hour:

- Northbound Vasco Road between Dalton Avenue to county line
- Crow Canyon Road in both directions near the county line
- Northbound Dougherty Road near the county line
- Southbound Tassajara Road near the county line
- Northbound Sunol Boulevard-1st Street-Stanley Boulevard between Bernal Avenue and SR 84

Ramps and Special Segments (Tier 1)

Weekday—a.m. and p.m. Peak Periods

The 2012 surveys revealed that one ramp or special segment each is operating at LOS F during both the a.m. and p.m. peak periods. The p.m. segment located on SR 13/SR 24 interchange appears to be impacted by Caldecott Tunnel construction activities. (see Table 11).

Table 11: LOS F Ramps and Special Segments—p.m. and a.m.

#	CMP Route	Segment Limits	Jurisdiction
p.m. peak period			
1	SR13/SR 24 Interchange*	SR-13 NB - SR-24 EB	Oakland
a.m. peak period			
2	I-880/SR 260 Connection	SR-260 EB - I-880 NB	Oakland

Note: *Construction

Ramps and Special Segments (Tier 1) – Improved LOS F Segments

One segment, the connection between eastbound SR 260 (Posey Tube) and northbound I-880, showed improvement in the p.m. peak period:

- I-880/SR 260 Connection (eastbound SR-260 – northbound I-880) in Oakland

However, the same segment appeared to have degraded from LOS E to F in the a.m. peak period between 2010 and 2012. In both cases, the speed increase and decrease were relatively marginal.

Segments with Notable Changes in the Last Two Years

Tables 12 and 13 show the roadways and segments for which the surveys of the 2012 a.m. and p.m. peak periods reported significant changes (i.e., a change of two or more LOS grades between 2010 and 2012) in

the travel-time results as compared to previous monitoring cycle.

Table 12: Segments with Significant Changes from Previous Year—p.m. Peak Period

#	CMP Route	Segment Limits	LOS (Speed) 2010	LOS (Speed) 2012
Segments with Decrease in Speed Resulting in Level of Service Change of 2 or More Grades				
1	I-238 - EB	I-880 - I-580	A (62.3)	E (38.7)
2	I-238 - WB	I-580 - I-880	A (61.8)	C (52.1)
3	I-580 - EB	Grove - Eden Canyon	A (72.9)	C (54.3)
4	I-580 – WB*	SH-24 On-ramp - I-80/580 Split	B (56.7)	**F20** (14.2)
5	I-580/I-680 Interchange	I-680 NB - I-580 EB	A (58.2)	C (47.5)
6	I-580/I-680 Interchange	I-580 WB - I-680 SB	B (31.3)	D (25.1)
7	I-80/I-580 Interchange	I-580 WB - I-80 NB	A (40.1)	D (26.3)
8	I-880 - NB	A St - I-238	A (62.7)	D (45.1)
9	I-880 - NB	Dixon Landing - SR 262/Mission	C (52.1)	E (32.9)
10	I-880 - SB	Alvarado - Decoto	B (58.9)	D (42.2)
11	I-880 – SB*	23rd St - High/42nd	A (67.9)	E (37.3)
12	Hesperian - NB	Hacienda - Grant	B (29.4)	D (16.6)
13	Hesperian - NB	W. Winton Ave - A St	C (18.1)	E (13.9)
14	Park/23rd – EB*	Encinal - Santa Clara	B (21.3)	D (11.2)
15	SR 123 San Pablo - NB	35th - Park	C (18.4)	E (12.3)
16	SR 123 San Pablo- SB	Dwight - Ashby	C (20.2)	E (13.6)
17	SR 123 San Pablo - SB	Stanford - 53rd	B (26.3)	D (17.1)
18	SR 13 Ashby - EB	I-80 - San Pablo	C (19.8)	E (13.9)
19	SR 185 (14th) - NB	98th Ave - 73rd Ave	C (18.2)	E (13.9)
20	SR 238 (Foothill) – NB*	Jackson - City Center	C (17.3)	**(F)** (6.4)
21	SR 238 (Foothill) – SB*	City Center - Jackson	C (16.2)	E 8.9
22	SR 84 - EB	Thornton - Newark Blvd/ Ardenwood Blvd	A (65.8)	D (45.9)
23	SR 92 – EB*	I-880 - Mission	D (15.4)	**(F)** (6.9)
24	SR 92 - EB	San Mateo Cty Line - Toll Plaza	A (65.9)	D (47.4)
25	University - EB	I-80 SB - 6th	B (26.7)	D (16.9)
26	I-880/I-238 Interchange	I-880 NB - I-238 EB	A (59.3)	E (17.5)
27	SR13/SR 24 Interchange*	SR-24 WB - SR-13 SB	A (32.7)	C (24.0)
Segments with Increase in Speed Resulting in Level of Service Change of 2 or More Grades				
28	I-580 – EB**	SR 84/Airway Blvd. - Portola	C (53.5)	A (61.0)
29	I-580 – EB**	El Charro - SR 84/Airway Blvd.	D (41.1)	B (56.1)
30	I-580 - EB	Coolidge - SH 13 Off	**(F30)** (31.4)	C (52.1)
31	I-880 - NB	Decoto - Alvarado Blvd	**(F30)** (28.6)	D (42.8)
32	I-880 - SB	Hegenberger - SR 112/Davis	E (37.6)	C (51.7)
33	I-880 - SB	I-238 - A St	E (32.3)	C (53.9)
36	Park/23rd - EB	Kennedy - E 11th	E (13.9)	C (19.8)
37	SR 112 (Davis) - EB	I-880 - San Leandro	D (17.2)	B (26.2)
34	SR 92 – EB***	Toll Plaza - Clawiter	E (37.6)	C (49.7)
35	SR 92 – EB***	Clawiter - I-880	**(F20)** (10.0)	C (54.4)
38	University - EB	San Pablo - Sacramento	E (11.5)	C (18.4)

Note:
* Construction
** Completed HOV lane
*** Completed improvements

Table 13: Segments with Significant Changes from Previous Year—a.m. Peak Period

#	CMP Route	Segment Limits	LOS (Speed) 2010	LOS (Speed) 2012
Segments with Decrease in Speed Resulting in Level of Service Change of 2 or More Grades				
1	I-580 - WB	Grant Line - N Flynn	A (65.6)	D (45.9)
2	I-580 - WB	N Flynn - Greenville Rd	A (65.1)	E (36.6)
3	I-580 - WB	Tassajara Rd - I-680	A (66.3)	C (49.1)
4	I-580 - WB	Fallon Rd/El Charro - Tassajara	B (57.5)	D (45.1)
5	I-580 - WB	Center - I-580/238	B (57.4)	D (47.5)
6	I-580 - WB	SR 84/Airway Blvd - Fallon Rd/El Charro	C (50.9)	E (40.9)
7	I-680 - NB	I-580 - Alcosta	A (60.6)	D (47.9)
8	I-680 - SB	Washington Blvd - Durham Rd	A (60.6)	C (51.0)
9	I-680 - SB	Durham Rd - Rt 262/ Mission	A (62.4)	C (51.3)
10	I-680 SB	I-580 - Stoneridge Dr	A (61.9)	D (44.5)
11	I-680 SB	Stoneridge Dr - Bernal	B (55.8)	E (40.5)
12	I-680 SB	Bernal Ave. - Sunol Blvd	D (43.9)	**(F30)** (27.5)
13	I-80 - WB	Central - Jct I-580	D (44.1)	**(F30)** (22.7)
14	Adeline - NB	MLK Jr – South - MLK Jr - North	C (18.6)	E (12.9)
15	Hesperian - NB	La Playa - W. Winton Ave.	B (25.8)	D (15.7)
16	Park/23rd – WB*	Santa Clara - Encinal	B (22.0)	D (12.4)
17	SR 112 (Davis) - EB	Doolittle - I-880	A (31.2)	C (23.5)
18	SR 238 (Foothill) – NB*	City Center - I-580	A (30.9)	C (19.5)
19	SR 260 (Tubes) - NB	Atlantic - 7th/Web	A (34.7)	C (18.0)
20	SR 61 (Doolittle) - NB	Island Dr - High/Otis	C (21.6)	E (12.3)
21	SR 61 (Doolittle) - SB	Airport - Davis	A (40.6)	C (27.6)
22	SR 84 - EB	Sunol Rd - Plea-Sunol Rd	D (19.2)	**(F)** (9.3)
23	SR 84 - WB	Ruby Hill /Kaithoff - Culvert (Lat/Long: 37.613854,-121.817224)	B (47.4)	**(F)** (18.1)
24	University - EB	ML King - Shattuck Pl	A (25.6)	C (18.0)
25	I-880/I-238 Interchange	I-238 WB - I-880 SB	A (47.2)	D (36.8)
26	SR13/SR 24 Interchange	SR-24 WB - SR-13 SB	A (32.0)	C (23.5)
Segments with Increase in Speed Resulting in Level of Service Change of 2 or More Grades				
27	I-580 - WB	Foothill/ MacArthur - SH 13 Off	E (36.2)	A (61.4)
28	I-880 - NB	Tennyson - SR 92	D (44.9)	A (64.5)
29	I-880 - SB	I-880/I-80 merge - Jct 980	D (46.5)	A (83.0)
30	I-880 - SB	I-980 - 23rd	D (46.2)	A (60.7)
31	SR 123 San Pablo - NB	Gilman - Marin	C (26.4)	A (32.5)
32	Tennyson - WB	I-880 - Hesperian	E (16.0)	C (22.3)
33	University - EB	San Pablo - Sacramento	E (12.7)	C (19.6)
34	I-880/I-238 Interchange	I-238 WB - I-880 NB	D (32.7)	A (51.7)

Note:
* Construction

Tables 12 and 13 show that overall there are more segments showing a decrease in speed compared to the number of segments showing an increase in speed between 2010 and 2012.

Although the potential reasons for all significant changes identified are not clear, a majority of improvements appear to be due to the projects completed since the 2010 monitoring period and congestion appears to be attributable to construction activities across the county combined with the effects of the improving economy. Tables 12 and 13 also identify the segments impacted by construction activities.

As mentioned previously, projects completed on I-880 (I-880/SR 92 Interchange Improvements) and I-580 (eastbound I-580 HOV Lane) appeared to have resulted in improved segments on eastbound SR 92, northbound I-880 and eastbound I-580 near the I-580/I-680 interchange, respectively.

On northbound I-880, a new congested segment was reported in 2012 between Tennyson Road and A Street while the

segment between Alvarado-Niles and Tennyson continued to be congested as in 2010. A new bottleneck was reported between 1st Street and N. Flynn Road on eastbound I-580. On southbound I-680, decreased speeds were reported from I-580 interchange to Sunol Boulevard in 2012 during the a.m. peak period. The segment between Bernal and Sunol Boulevards was reported as operating at LOS F.

Reasons for the new congestion on northbound I-880 in Central County and eastbound I-580 in East County in the p.m. peak periods will be studied further. The Express Lane Evaluation (After) Study that is currently underway will investigate the potential causes of congestion on southbound I-680 in the a.m. peak period between I-580/I-680 Interchange and Sunol Blvd. This is discussed in Chapter 6 in detail.

CORRIDOR PERFORMANCE ANALYSIS

The 2012 p.m. peak period travel-time and speed survey results were compared to the survey results from 1991 to 2010 on the major routes on the Alameda County CMP network. Only p.m. peak period data were analyzed since they are used for Conformity. Appendix D-1 shows these results for freeway corridors, while Appendix D-2 lists the major arterial corridors. For each route, the segments have been aggregated to show the entire length of the route in Alameda County.

Freeways

Average speeds on two freeway corridors increased notably in 2012 compared to 2010, while two freeway corridors experienced significant drop in speed. The freeways that experienced a significant increase in speed are:

- Eastbound I-580 from SR 238/Foothill to 1-205: This 30.3-mile corridor operated at LOS E (30.8 mph) in 2010. The 2012 surveys showed average speeds increase of 9.6 mph to 40.4 mph, an increase of 31.2 percent, although it was still operating at LOS E.
- Southbound SR 13 from Hiller to Jct. I-580: This corridor is 5.5 miles long, and had a travel speed of 57.2 mph in 2012, and was at LOS B. This shows an improvement of 17.8 mph over the 2010 speed of 39.4 mph (LOS E).

Conversely, average speeds dropped in two corridors as noted below:

- Eastbound I-80 from Tollgate to Central: Average speeds on this 6.4 mile corridor have degraded from 28.5 mph in 2010 to 22.0 mph in 2012; it remains operating at LOS F.
- Northbound SR 13 between Mountain and Hiller: This 5.4 mile corridor experienced a drop in speed from 35.1 mph (LOS E) in 2012 compared to 41.3 mph (LOS D) in 2010.

Other corridors either showed modest increases or decreases in speeds.

Arterials

Average speeds remained mostly steady with notable decreases on four arterial routes along with modest increases on six arterial routes between 2010 and 2012.

The four notable decreases in speeds occurred on:

1) Southbound SR 123: speeds decreased 2.4 mph from 18.6 mph (LOS C) in 2010 to 16.2 mph (LOS D) in 2012.
2) Northbound SR 123: speeds decreased 2.5 mph from 18.2 mph (LOS C) in 2010 to 15.7 mph (LOS D) in 2012.
3) Northbound SR 238 (Mission) from I-680 to Jackson: average speeds decreased from 26.8 mph in 2010 to 23.6 mph in 2012, remaining at LOS C.
4) Westbound University Avenue from Shattuck to I-80 Off Ramp: average speeds decreased from 17.3 mph in 2010 to 14.2 mph in 2012, remaining at LOS D.

This page intentionally left blank