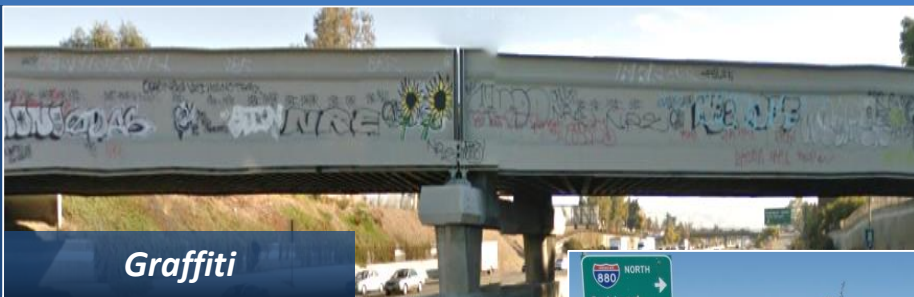




# 2014 Transportation Systems Monitoring Program Report October 2014



**Graffiti**



**Pavement & Striping**



**Litter**



**Bikeways**



**Congestion**



**Signal Controllers**



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## Why Monitor?

The residents of Santa Clara County have made significant investments in its transportation infrastructures. A concern raised by local agencies is their ability to maintain Santa Clara County’s transportations systems to acceptable standards. To address this concern, VTA’s Technical Advisory Committee initiated an effort to develop a countywide transportation system monitoring program (TSMP) that was adopted by the VTA Board of Directors in September 2008.

The primary purpose of this report is to serve as an asset management tool by providing a general assessment on the conditions and performance of selected key transportation systems in a single report on an annual basis.

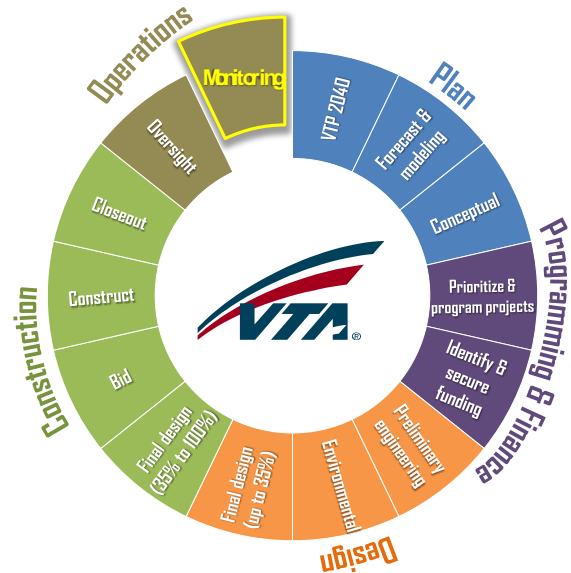
The TSMP report also has secondary beneficial uses such as the following:

- Enable the county and external stakeholders to better understand the performance of the county’s transportation system and the effectiveness of transportation investments;
- Communicate progress towards stated transportation system goals and objectives;
- Provide additional context for future funding and policy decisions.

In addition, the TSMP follows the goals of Moving Ahead for Progress in the 21<sup>st</sup> Century

(MAP-21), the federal reauthorization transportation funding program that emphasizes performance-based management of transportation infrastructure assets at the state and local levels.

**Figure 1.** Typical Transportation Project Life Cycle.



## Introduction

The 2014 TSMP Report is the fourth edition of this report since the Transportation Systems Monitoring Program (TSMP) was first released in 2010. Each new report released since then has focused on different areas of Santa Clara County’s transportation network:

- 2010 (1<sup>st</sup> ed.) introduced 13 areas to monitor and 18 performance measures
- 2011 (2<sup>nd</sup> ed.) introduced monitoring of litter and landscape conditions on the highways
- 2013 (3<sup>rd</sup> ed.) featured inventory of traffic signal systems, introduced monitoring of express lanes and included comparisons of transportation systems with peer counties in the Bay Area

New features of this edition include the following:

- Summary table of key performance measures
- Additional information on pavement conditions, bridge assets, litter and landscape monitoring, needs assessment and performance goals
- New information on traffic collisions and air quality

## ABOUT THE DATA

One of the goals established when developing the TSMP concept was to take advantage of available data from existing resources that could be consistently be tracked over time to identify trends into a single, comprehensive report. Where data was unavailable, a survey was used to fill in gaps of the information being sought such as the conditions of the county’s roadside assets (e.g. traffic signal controllers, roadway signage and streetlight poles). The performance measures and sources used for this report are summarized in the Notes Section.

## 2014 Highlights

TABLE 1 - SELECT KEY PERFORMANCE INDICATORS

Indicators	Previous Period	Current Period	Goal	Goal Met ✓ Yes ✗ No	Trend
<b>Pavement</b>					
Local Pavement Conditions (Avg. PCI scale of 0-100 points)	69 (2012)	<b>69</b> (2013)	75	✗	
<b>Bridges</b>					
Local Bridge Conditions (Avg. SR scale of 0-100 points)	78 (2012)	<b>83</b> (2013)	-	-	
<b>Freeway Maintenance</b>					
Roadway Maintenance LOS (0-100 points)	82 (2012)	<b>81</b> (2013)	-	-	
Litter/Debris Maintenance LOS (0-100 points)	58 (2012)	<b>52</b> (2013)	80	✗	
<b>Roadside Assets</b>					
Traffic Signals (% in good condition)	83 (2012)	<b>84</b> (2014)	-	-	

Pavement Markings (% in good condition)	68 (2012)	<b>72</b> (2014)	-	-	
Traffic Signs (% in good condition)	72 (2012)	<b>66</b> (2014)	-	-	
Light Poles (% in good condition)	66 (2012)	<b>73</b> (2014)	-	-	
Curb & Gutter (% in good condition)	81 (2012)	<b>77</b> (2014)	-	-	
<b>Congestion</b>					
CMP Intersections (% at LOS C or above)	51.2% (2010)	<b>54.0%</b> (2012)	-	-	
CMP Freeway – General Purpose Segments (% at LOS C or above)	51.2% (2010)	<b>54.0%</b> (2012)	-	-	
CMP Freeway – Carpool Segments (% at LOS C or above)	66.6% (2010)	<b>70.1%</b> (2012)	-	-	
<b>Express Lanes (SR 237/I-880 Connector)</b>					
Speed Monitoring (avg. minimum mph)	<b>46</b> (2013)	<b>51</b> (2014)	>45	✓	
HOV Only Mode Operation (in hours)	207.5 (2013)	<b>240.9</b> (2014)	-	-	
Number of Tolloed Vehicles (in thousands)	624.0 (2013)	<b>608.8</b> (2014)	-	-	

Transit	Previous Period	Current Period	Goal	Goal Met	Trend
Light Rail Annual Ridership (in Millions)	10.37 (2012)	<b>10.74</b> (2013)	10.21	✓	
Bus Annual Ridership (in Millions)	32.05 (2012)	<b>32.40</b> (2013)	31.79	✓	
Light Rail Annual On-time Performance	89.8% (2012)	<b>88.5%</b> (2013)	95%	✗	
Bus Annual On-time Performance	87.3% (2012)	<b>87.6%</b> (2013)	92.5%	✗	
System Annual % Scheduled Service Operated	99.72% (2012)	<b>99.73%</b> (2013)	99.55%	✓	
Air Quality	Previous Period	Current Period	Goal	Goal Met	Trend
Air Quality Index Annual Median (0-500; see Notes on Report section)	43 (2012)	<b>47</b> (2013)	-	-	
Air Quality Index Annual Unhealthy Days (Days per year where AQI>100)	3 (2012)	<b>8</b> (2013)	-	-	
General Background Information					
Population (millions)	1.84 (2012)	<b>1.86</b> (2013)			
Registered Drivers (millions) Table 8b	1.23 (2011)	<b>1.25</b> (2012)			
Registered Vehicles (millions) Table 8b	1.45 (2011)	<b>1.47</b> (2012)			

**TABLE 2 - INVENTORY OF ASSETS**

<b>Assets</b>	<b>Quantity</b>	<b>Year Collected</b>
Bridges (Local)	<b>478 NBI Bridges</b>	<b>2013 *Updated</b>
Bus – Fleet Age (avg.)	<b>10.6 Yrs.</b>	<b>2014 *Updated</b>
Bus – Fleet Size	<b>432</b>	<b>2014 *Updated</b>
Bus – Route Mileage	<b>1,236 mi</b>	<b>2014 *Updated</b>
Bus – Routes	<b>70</b>	<b>2014 *Updated</b>
Bus – Stops	<b>3,805</b>	<b>2014 *Updated</b>
Light Rail – Fleet Size	<b>99</b>	<b>2014 *Updated</b>
Light Rail – Miles of Track	<b>79.6 mi</b>	<b>2014 *Updated</b>
Light Rail – Route Mileage	<b>42.2 mi</b>	<b>2014 *Updated</b>
Light Rail – Stations	<b>62</b>	<b>2014 *Updated</b>
Pavement (Local)	<b>9,934 Lane Miles</b>	<b>2014 *Updated</b>
Traffic Signal Controllers	<b>1,181 Local Controllers</b> <b>160 State Controllers</b>	2013

## NOTES:

Table 1 - Not all Performance Indicators have established goals. In those instances, a dashed line is used to indicate that goals have not been set yet.



## Pavement

### INVENTORY

There are approximately **9,934 lane miles** of pavement in Santa Clara County maintained by local agencies. The term “lane miles” is a measure of road length which represents the number of miles in every driving lane. For example, 5 miles of a 2-lane road with 2 lanes in each direction) is equal to 20 lane miles (5 miles x 4 lanes = 20 miles). This measure is used to better reflect the total amount of pavement that needs to be maintained.

Changes in inventory from year to year can be caused by addition or reductions of new or old roads, such as widening of existing roadways, extension of lanes or removal of existing lanes (road diet projects).

### CONDITION

#### Pavement Condition Index (PCI)

The average PCI score for Santa Clara County’s roadways is **69 (Fair)**, compared with the Bay Area’s regional goal of **75 (Good)**.

PCI is a numerical index between 0 and 100 which is used to indicate the general condition of pavement. Zero is considered to be the worst or failed condition and 100 represents a roadway that is in excellent or best condition (new).

The PCI score presented here represents a weighted average based on a percentage of the roadway network by roadway category (e.g. arterial, collector and residential) over a 3-year time period. This measurement accounts for

### AT-A-GLANCE

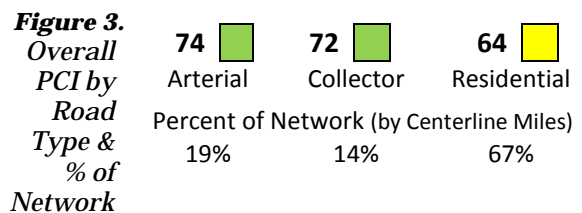
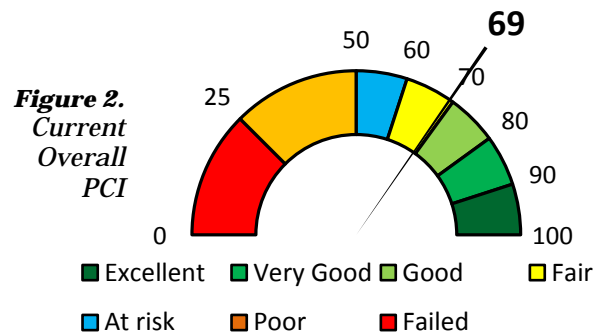
**Inventory: 9,934 lane miles**

**Condition: 69 PCI [Fair]**

**Needs: \$1,860M** (to eliminate back-log and attain PCI of 75 in 10 years),

Sources: MTC 2013 Pavement Conditions Index Report, 2013 California Statewide Local Streets and Roads Needs Assessment Report

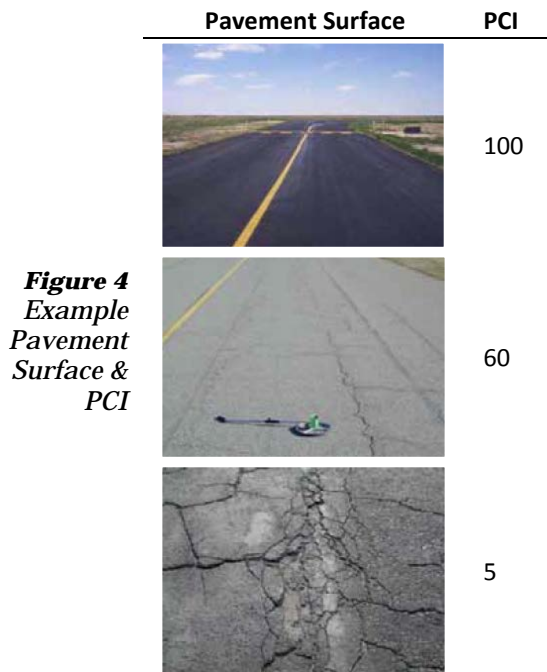
incremental changes or wearing down of the roadways over time.





**PCI Description**

PCI is based on the number and severity of pavement distresses observed during a visual inspection of a roadway. Visual examples of the PCI index scale are shown below.



**Figure 4**  
Example  
Pavement  
Surface &  
PCI

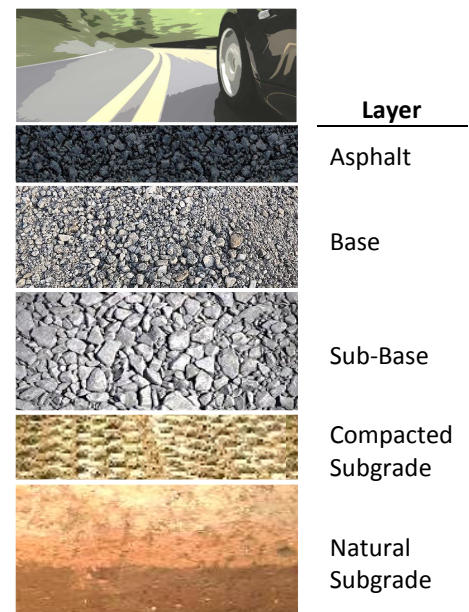
**Table 3. PCI & Condition Description**

Condition (PCI)	Description
Excellent (100 – 90)	Newly constructed or resurfaced and have few if any signs of distress.
Very Good (89 – 80)	Newly constructed or resurfaced and have few if any signs of distress.
Good (79 – 70)	Show only low levels of distress, such as minor cracks or surface damage as a result of water permeation.
Fair (69 – 60)	The low end of this range exhibit significant levels of distress and may require a combination of rehabilitation and other preventive maintenance to keep them from deteriorating rapidly.
At risk (59 – 50)	Pavements are deteriorated and require immediate attention and possibly rehabilitative work. Ride quality is significantly inferior to better pavement categories.
Poor (49 – 25)	Pavements have extensive amounts of distress and require major rehabilitation or reconstruction. Pavements in this category affect the speed and flow of traffic significantly.
Failed (24 – 0)	Pavements need reconstruction and are extremely rough and difficult to drive on.

**Condition and Pavement Evaluation**

PCI is based upon visual inspection of only of the top surface of pavement, distresses originating below the pavement will not be noticed until they “make their way up” and cause cracks or depressions on the surface. These distressed conditions can originate from underlying pavement, base, sub-base, and subgrade layers.

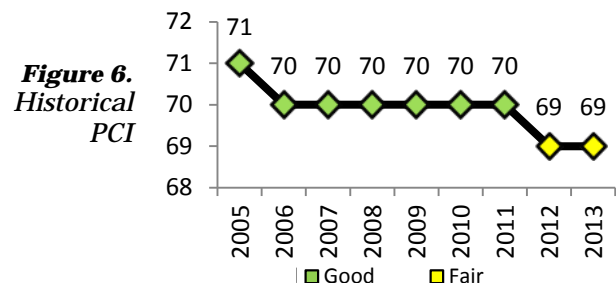
In addition to PCI, there are also numerous methods of determining pavement condition. However, many of these methods are too detailed and cost prohibitive for frequent reporting purposes.



**Figure 5.**  
Typical  
Pavement  
Section

**Historical PCI**

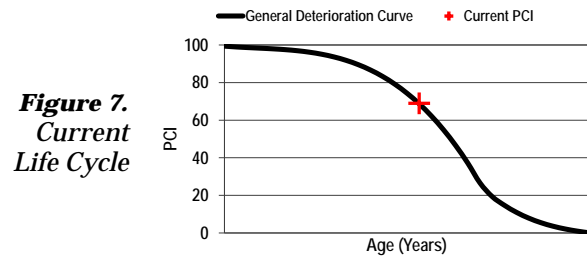
Based on historical PCI scores, this year’s score of 69 shows that there is a downward trend in average PCI for the county. PCI scores for the Bay Area are based on a 3-year moving average which means that the current PCI of the county may be worse or slightly better than the PCI of 69.



**Figure 6.**  
Historical  
PCI

### Life Cycle

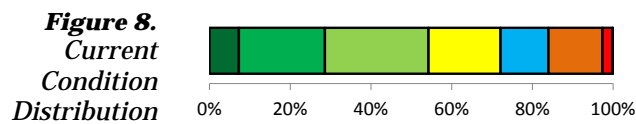
Pavement tends to deteriorate at an increasing rate over time. The current PCI is at the high end of the “Fair” range and is approaching the “At-Risk” category where a PCI of 60 warns of potential rapid deterioration.



**Figure 7.**  
Current  
Life Cycle

### Condition Type Distribution

After looking at overall conditions, it can be useful for decision making purposes to look at how conditions vary between condition categories.



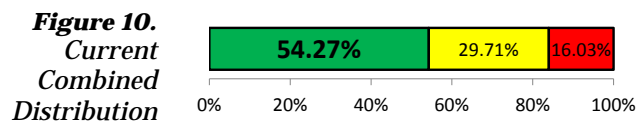
**Figure 8.**  
Current  
Condition  
Distribution

**Figure 9.**  
Current  
Distribution  
Data

	2013
Excellent	7.26%
Very Good	21.33%
Good	25.68%
Fair	17.84%
At risk	11.86%
Poor	13.39%
Failed	2.51%
No Data	0.13%

### % in Good Condition

If the condition categories are combined into “Good,” “Fair/At-Risk,” and “Poor,” a generalized “% in Good condition” can be developed. The result is **56% of pavement is in “Good” condition.**



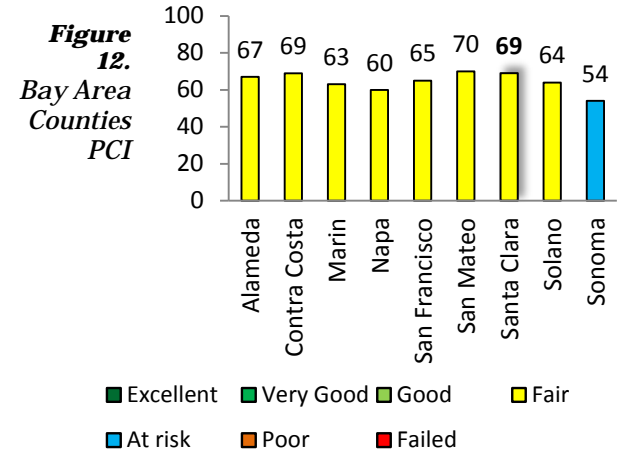
**Figure 10.**  
Current  
Combined  
Distribution

**Figure 11.**  
Current  
Combined  
Data

	2013
Good	54.27%
Fair/At-Risk	29.71%
Poor	16.03%

### Peer County Comparison

The PCI goal established for the Bay Area’s local roadways is 75. Santa Clara County has a PCI score of 69, which is slightly better than the Bay Area’s PCI average of 65 (Fair Condition).



### NEEDS

Based on the 2013 California Statewide Local Streets and Roads Needs Assessment, a bi-annual report, **Santa Clara County’s needs is \$1,860M** in order to eliminate accumulated pavement maintenance back-log and achieve a PCI of 75 (Good) within 10 years. This cost is estimated based on number of lane miles within a PCI range and cost of rehabilitation.

### Treatments and Cost

PCI helps to indicate the severity of roadway deterioration and maintenance and rehabilitation treatments needed to improve pavement conditions. Estimated treatment costs are also provided in the bi-annual statewide needs assessment report.

**Table 4. PCI and Treatment.**

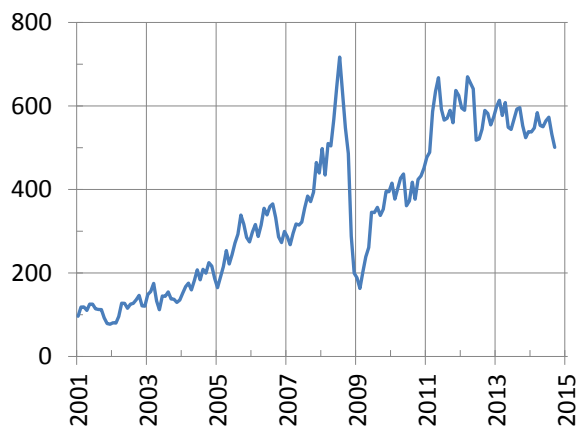
Condition (PCI)	Common Treatment	Costs (\$/sq. yard)
Excellent/ Very Good (100 – 80)	Preventative Maintenance	< \$4.75
Good (79 – 70)	Preventative Maintenance	\$4.75 (Base)
Fair (69 – 60)	Mix of Preventative Maintenance & Thin Overlay	\$18.50 (3.9*Base)
At risk (59 – 50)	Thick Overlay	\$29.00 (6.1*Base)
Poor (49 – 25)	Mix of Thick Overlay & Reconstruction	\$46.75 (9.8*Base)
Failed (24 – 0)	Reconstruction	\$64.50 (13.6*Base)

### **Caltrans Asphalt Price Index**

Asphalt is a petroleum based product that is mixed with cement, aggregate or crushed rock and sand that is used for constructing the top layer of roadways. The cost of paving asphalt can vary from year to year. One key indicator is the price of crude oil; if crude oil prices increase, so does price of paving asphalt. Caltrans tracks and maintains a price index for selected highway construction items such as paving asphalt in order to help estimate construction costs for its projects.

The graph below is a “paving asphalt price index” that shows the change in price of paving asphalt over the last 14 years. Based on historical data, the price of asphalt has tripled over the last 10 years.

**Figure 13.** *Caltrans Asphalt Price Index*





## Bridges

### INVENTORY

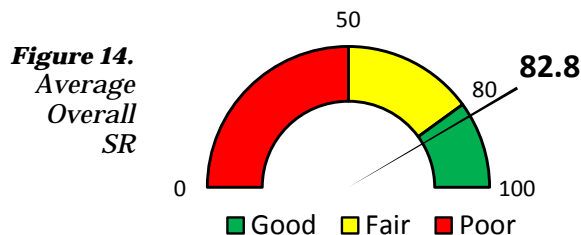
There are **478 local NBI bridges** reported for Santa Clara County based on the **National Bridge Inventory (NBI)**, a database compiled by the Federal Highway Administration (FHWA). “Local” bridges are bridges that are maintained by local agencies (not Caltrans). FHWA defines NBI bridges as 20ft or longer in length, and carry specifically automobile traffic (not pedestrians or rail roads). Caltrans also publishes a list of local bridges every year.

In order to be eligible for federal funding for bridge improvements, the bridge must meet the NBI definition of a bridge. There are many other local bridges that do not qualify under the NBI definition but which require regular maintenance and monitoring by local agencies without federal aid.

### CONDITION

#### Current Sufficiency Rating

Santa Clara County has a current average Sufficiency Rating (SR) of **82.8 (Good)**.



### AT-A-GLANCE

**Inventory: 478 local NBI bridges**

**Condition: 82.8 SR [Good]**

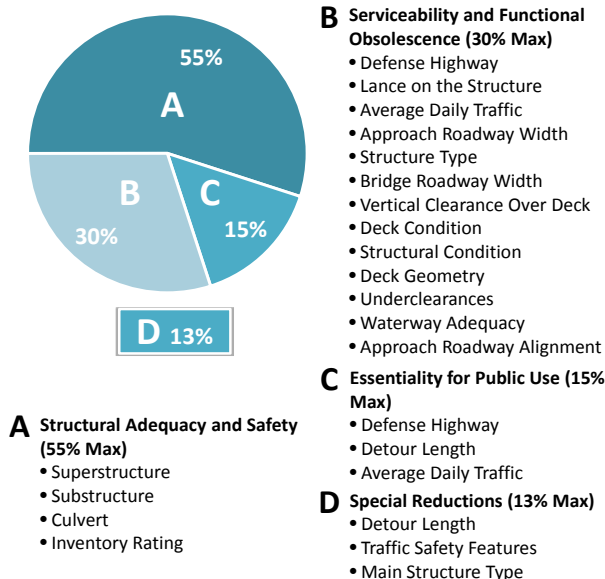
**Needs: \$204M** (to maintain SR for 10 years)

Source: 2013 California Statewide Local Streets and Roads Needs Assessment

### Sufficiency Rating (SR) Description

Similar to the pavement condition index, SR ranges from 0 to 100 (worst to best condition). Figure 15 below depicts how SR reflects four weighted categories which are “structural adequacy and safety” representing 55% of the overall score; therefore, SR, should not be solely relied upon as a measure of structural condition.

**Figure 15. Details of Sufficiency Rating**



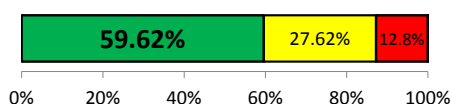
SR is a federal standard of bridge condition assessment set forth by the National Bridge Inspection Standards (NBIS) and was developed mainly as a tool for evaluating eligibility for federal funding.

After new inspections are performed, typically every 2 years, the SR for each bridge is updated in the NBI, which houses the national bridge database.

**% in Good Condition**

Since there are two federal funding categories for bridges (rehabilitation for  $80 \geq SR > 50$  and replacement for  $SR \leq 50$ ), a “good,” “fair” and “poor” metric can be developed by using SR. The result is **60% of bridges are in Santa Clara County are in “Good” condition.**

**Figure 16.**  
Current SR Distribution



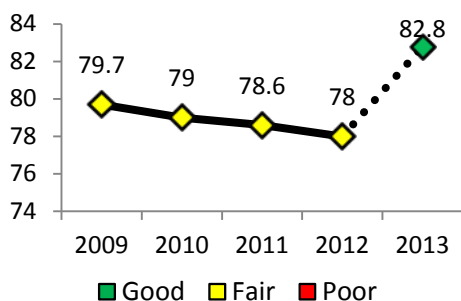
**Figure 17.**  
Current SR Distribution Data

	2013	SR
Good	59.62%	10-81
Fair	27.62%	80-51
Poor	12.76%	50-0

**Historical SR**

In the past several years, the overall average SR has been declining; however, this year has shown a dramatic increase in SR likely due to a change in Caltrans’ reporting format and reporting methods.

**Figure 18.**  
Historical SR



The change in format includes new data that provides NBI status. Bridges that used to be assumed as NBI bridges are now shown as non-NBI structures and removed from the current analysis.

The second change applies to the removal of erroneous duplicates that previously existed for certain bridges where two bridges (one for each direction of travel) were categorized as a single functional bridge.

**Other Condition Ratings**

“Structurally Deficient” (SD) is a term that is related the SR rating and generally implies that one of the categories in “Structural Adequacy and Safety” was rated below average and helps serve as an indicator to the bridge owner of needed maintenance or repairs.

“Functionally Obsolete” (FO) is also a term related SR and signifies how the bridge functionality compares to current standards for items such as traffic load, vertical clearances, alignment, and lane widths. In many cases, the only way to fix a FO rated bridge is to replace the entire bridge.

Bridge Health Index (BHI) is a single-number assessment of a bridge’s condition based on the bridge’s economic worth, determined from an element-level inspection (a detailed inspection process). The index makes it possible to determine the structural quality of a single bridge or a network of bridges.

BHI also helps to provide a quick assessment of a bridge’s condition by combining the level of severity and the extent of any defects found. Caltrans has recently begun publishing BHI for local bridges and it is anticipated that this method will attract more attention as more data becomes available.

**NEEDS**

Based upon the 2013 California Statewide Local Streets and Roads Needs Assessment, a bi-annual report, **Santa Clara County needs \$204M** in order to maintain current bridge conditions for the next 10 years. This cost is based upon estimated maintenance and construction costs and somewhat generalized condition reports which describe the condition of different substructures of each bridge.



# Freeway Litter, Landscape and Graffiti Maintenance

## BACKGROUND

The accumulation of litter and poorly maintained landscaping on the freeways throughout Santa Clara County are aesthetic and environmental problems. The cleanliness of the freeways and groomed landscaping also represents civic community pride to both local and regional travelers.

## INVENTORY

Based on the Litter Control and Landscape Maintenance Study for Santa Clara County conducted in 2005, there are approximately **295 roadside miles (shoulder length miles), 128 interchanges, and 1,193 acres of landscaped area** on the state highway system that require regular maintenance in Santa Clara County.

## MAINTENANCE



ADOPT-A-HIGHWAY

Depending on available resources allocated from the State's annual budget that varies from year to year, Caltrans may have up to 13 maintenance crews that covers several counties which consist of: 1 bridge crew, 1 vegetation spray crew, 1 special programs crew, 5 road

### AT-A-GLANCE

*Inventory:* **295 roadside miles**

*Condition:* **81 LOS [Good]**

*Needs:* **\$11.2M** (to maintain "slightly littered" condition per year)

Source: 2008 Litter Control Pilot Program, VTA.

maintenance crews, and 5 landscape maintenance crews. In addition to Caltrans crews, the non-profit Adopt-a-Highway (AAH) is utilized in many locations for litter removal.

Each crew tends to have a different schedule. The AAH crew usually has 1 or 2 pick-ups per month. The special programs crew runs about 3 vans a day 4 days a week. Road sweeping is performed on a daily basis, thereby covering the same location every 6 weeks (this has recently been made a higher priority).

Each year there are many single clean-up days.



The California Highway Patrol (CHP) organizes 4 litter clean-up days throughout the year targeting litter removal. The non-profit Beautiful Day organizes thousands of volunteers for numerous clean-up and fix-it activities for about week out of the year.

## CONDITION

### Caltrans Maintenance LOS

Caltrans monitors the overall maintenance quality of their facilities by visually inspecting random samples of roads (generally 20%) in order to relate a general condition and relate maintenance activities needed to improve the condition. They assign the overall condition a “Maintenance LOS” value which ranges from 0-100. The LOS made up of 4 weighted categories:

- Travelway (40%)
- Drainage (15%)
- Roadside (15%)
- Traffic Guidance (15%)

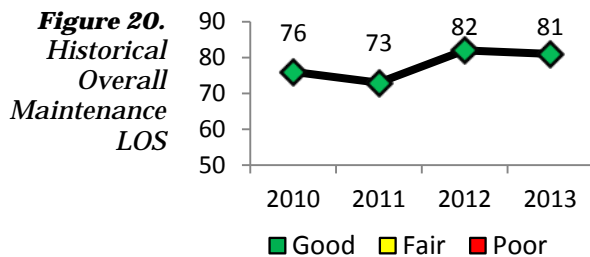
For the purposed of this report, the following scale is used to assign an overall condition to all Maintenance LOS scores:

**Figure 19. LOS Rating System**

Condition	Good	Fair	Poor
LOS	100-71	70-51	50-0

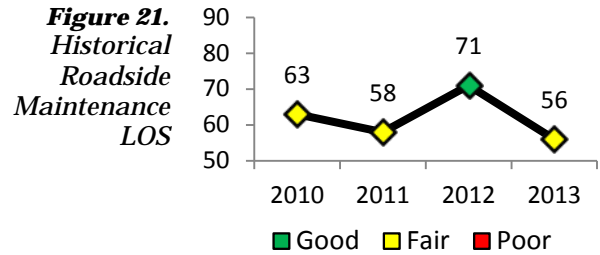
### Historical Overall Maintenance LOS

According to historical Caltrans Maintenance LOS, overall, there is not a stable trend. After 2011, there was a measureable improvement to the overall roadway maintenance in 2012, from 73 to 82, which decreased slightly to the **current Overall Maintenance LOS of 81** in 2013. An Overall Maintenance LOS statewide goal has not yet been set.



### Roadside Maintenance LOS

As a subset of the overall LOS, similarly, historical LOS records for the “Roadside” maintenance category also does not have a stable trend. LOS for this group has been oscillating widely between improvement and degeneration for the past 4 years. The current Roadside LOS is 56 out of 100.



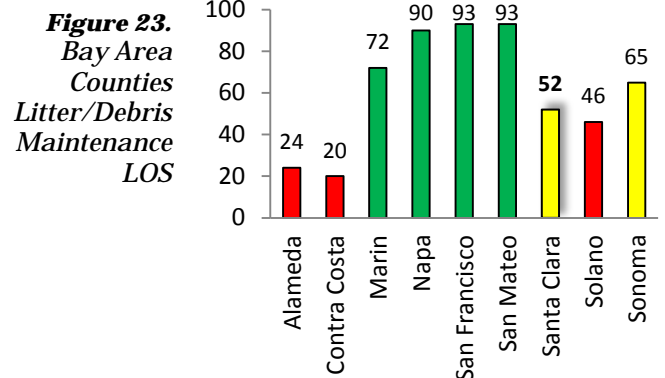
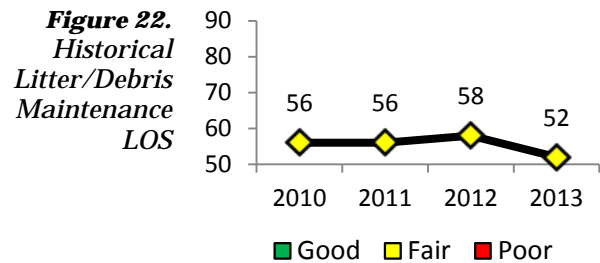
Items evaluated as part of this group are:

- Roadside Vegetation (weeds)
- Fences
- Tree/Brush Encroachment
- Litter/Debris
- Graffiti
- Ramps

At this time, Caltrans Maintenance LOS report does not include the maintenance condition of established landscape areas.

### Litter/Debris Maintenance LOS

Looking in further detail, “Litter/Debris” LOS, which is a subset of “Roadside” LOS, has a flat trend line. The current Litter/Debris LOS is 52 out of 100, which is much less than the statewide goal of 80. Many other Bay Area counties are did not attain this goal either.

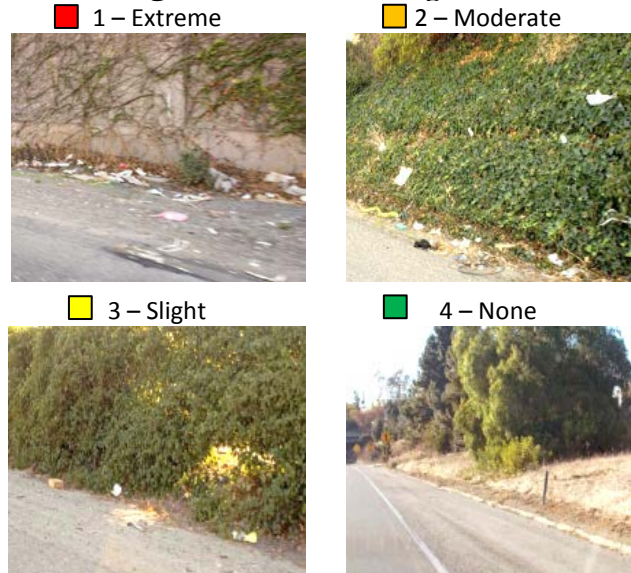


**Drive-by Visual Assessment Survey**

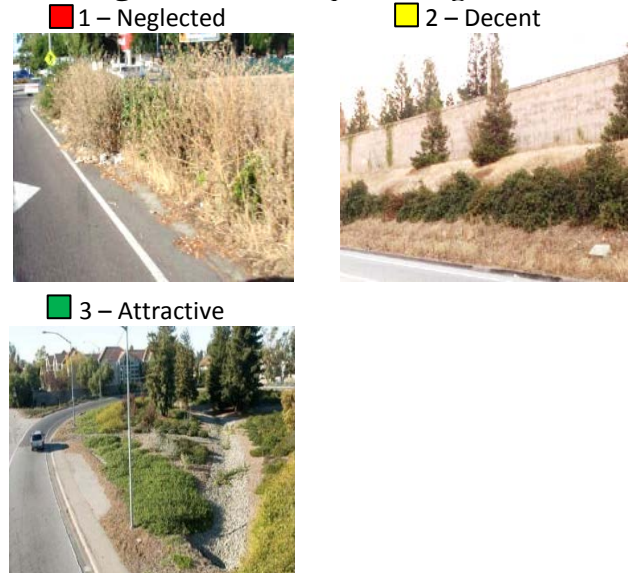
In order to provide additional perspective, TSMP performed drive-by video surveys of most of Santa Clara County’s freeways and expressways. This was done to obtain a general “snapshot” impression of current roadside maintenance conditions. The survey was then analyzed for 3 categories: litter, landscape, and graffiti. The following grading scales were used for each category:



**Figure 24. Litter Grading Scale.**



**Figure 25. Landscape Grading Scale.**



Condition (Number)	Description
Extreme (1)	Continuous litter is one of the first things noticed about the freeway. Major illegal dumpsites might be seen, requiring equipment and/or extra manpower for removal. There is a strong impression of a lack of concern about litter on the freeway.
Moderate (2)	Visible litter can readily be seen along the freeway or ramp, likely requiring an organized effort for removal. This area is “littered” and clearly needs to be addressed.
Slight (3)	A small amount of litter is obvious to the observer. The litter along the freeway could be collected by one or two individuals in a short period of time. While the freeway has a small amount of litter, the eye is not continually grabbed by litter items.
None (4)	Virtually no litter can be observed along the freeway. The observer has to look hard to see any litter, with perhaps a few occasional litter items in a 1/4-mile. Any litter seen could be quickly collected by one individual. The freeway has a generally neat and tidy appearance; nothing grabs the eye as being littered or messy.

Condition (Number)	Description
Neglected (1)	Landscaped areas appear neglected with dead/dying plants/trees and/or irrigation problems in evidence. Unlandscaped areas are overgrown with high weeds, trees, or brush and they may be presenting fire or safety hazards. Healthy landscape may be overgrown such that encroachment into the freeway presents safety concerns.
Decent (2)	Landscaped areas have generally healthy plants. Unlandscaped areas may have some weeds that are not excessively high. Trees and brush are appropriately trimmed for safety and sight clearance.
Attractive (3)	Landscaped areas are well maintained with healthy plants. Unlandscaped areas are properly trimmed for safety and sight clearance and no weeds are apparent.



**Figure 26. Graffiti Grading Scale.**



Condition (Number)	Description
Extreme (1)	Either large solitary instance or large areas of smaller instances of graffiti, and are visible and obtrusive. Solitary instances are very distracting to drivers and may hold drivers attention for more than a second. May illicit concerns of neighborhood safety.
Moderate (2)	Graffiti is present and likely medium in size and clearly visible. Distracting to most drivers and may hold drivers attention for a second. May constitute clusters of small instances of graffiti.
Slight (3)	Some graffiti is present and likely small in size and may not be clearly visible. Not likely to be distracting to most drivers.
None (4)	No graffiti currently present.

For the purpose of this report, freeway and expressway facilities are generally segmented by other crossing freeway and expressway facilities. Other segments were created where there were noticeable differences in condition or roadway type.

Graffiti results are more typical of worst case sightings within a segment and may not

represent the entire segment or location. For example if a segment had one sighting of an “Extreme” instance at a railroad crossing, the entire segment would be classified as “Extreme.”

Litter and landscape grades represent more of an average condition. In this case, segments may have spots of neglected landscape or extreme litter but may not be apparent in the final grade due to averaging these locations with the entire segment.

Overall, there were **no cases of “Extreme” litter** for any segment or interchange, **only 4 cases of landscape “Neglect”** for both segments and interchanges, and **only 1 case of “Extreme” graffiti**. See the following tables for specific results; maps are also provided to help visualize the survey results.

During the survey it was observed that some segments had recently been cleaned of litter by AAH (or other group) and that many of the regular graffiti hot spots were painted over. It was also noted that there were several highway projects underway which were either postponing maintenance until completed or had just completed and had recently been cleaned and replanted. In addition, it was observed that locations with sound walls tended to not have any landscaping but could still be growing tall weeds from gaps in pavement. These observations serve as reminders that maintenance conditions are constantly in flux.

### NEEDS

According to a follow-up report to the initial Litter and Landscape study, “Litter Control Pilot Program, US 101 between I-880 and Blossom Hill Road, 2008,” **\$11.2 million a year** was the estimated cost needed (using probationers through the Special Persons Program) to attain acceptable levels highway litter (slightly littered) for all of Santa Clara County.

**Table 5. Interchange Conditions.**

Facility	No.	Crossing	Litter	Landscape	Graffiti
US 101	1	SR 152 East	3	2	4
	2	Story Rd	2	2	4
	3	Trimble Rd	2	2	3
	4	SR 237	3	2	4
	5	Oregon Ex	UC	UC	UC
I-680	6	Montague Ex	2	1	3
1-880	7	Montague Ex	3	1	4
	8	US 101	3	2	4
I-280	9	Page Mill Rd	3	2	4
SR 237	10	N Mathilda Av	3	2	4
SR 87	11	Capitol Ex	3	1	4
SR 85	12	Saratoga Av	3	2	4

**Table 6. Freeway Conditions.**

Facility	From	To	Litter	Landscape	Graffiti
US 101	SR 152	E Dunne Av	3	2	4
	E Dunne Av	SR 85	3	2	4
	SR 85	I-880	3	2	1
	I-880	SR 85	3	2	2
	SR 85	University Av	UC	UC	UC
I-280	Alpine Rd	SR 85	3	2	4
	SR 85	SR 17	3	2	4
	SR 17	US 101	2	2	2
1-680	US 101	Scott Crk Rd	3	2	3
I-880	Dixon Lnd Rd	US 101	3	2	3
	US 101	I-280	2	2	3
SR 17	I-280	Los Gatos Rd	2	2	2
SR 237	El Camino Real	I-680	3	2	4
SR 85	US 101	SR 17	3	2	3
	SR 17	I-280	3	2	4
	I-280	US 101	3	2	4
SR 87	SR 85	I-280	3	2	2
	I-280	US 101	3	1	3

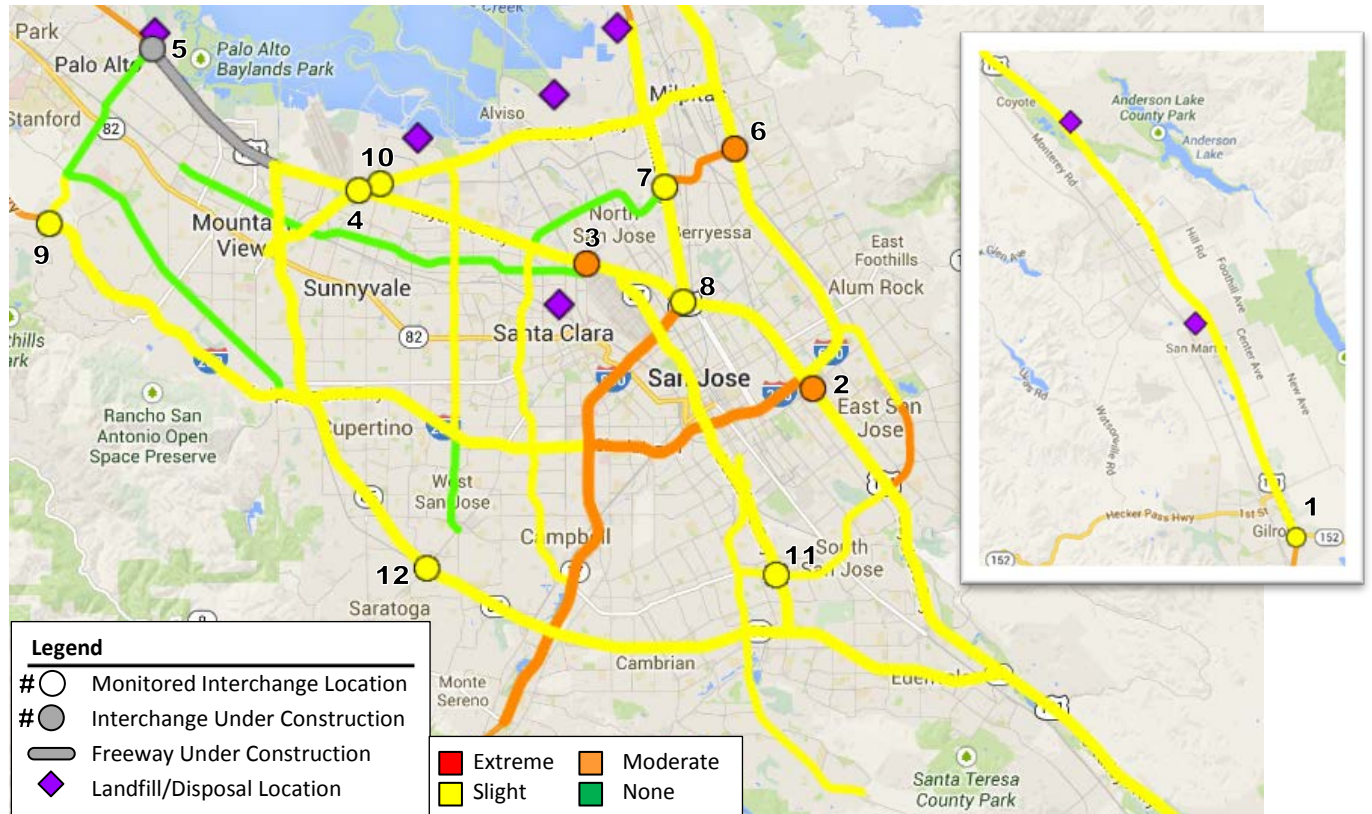
**Table 7. Expressway Conditions.**

Facility	From	To	Litter	Landscape	Graffiti
Oregon Ex	I-280	Foothill Ex	4	3	4
	Foothill Ex	US 101	3	2	4
Foothill Ex	Oregon Ex	I-280	4	3	4
Central Ex	Trimble Rd	San Antonio Rd	4	3	4
Lawrence Ex	Saratoga Av	I-280	3	2	4
	I-280	SR 237	4	2	4
San Tomas Ex	SR 17	I-280	3	3	4
	I-280	US 101	3	3	4
Montague Ex	US 101	I-880	4	3	4
	I-880	I-680	2	2	3
Alamaden Ex	Harry Rd	SR 85	3	3	4
	SR 85	W Alma Av	3	2	3
Capitol Ex	Almaden Ex	US 101	3	2	4
	US 101	Tully Rd	2	2	4
	Tully Rd	I-680	3	3	4

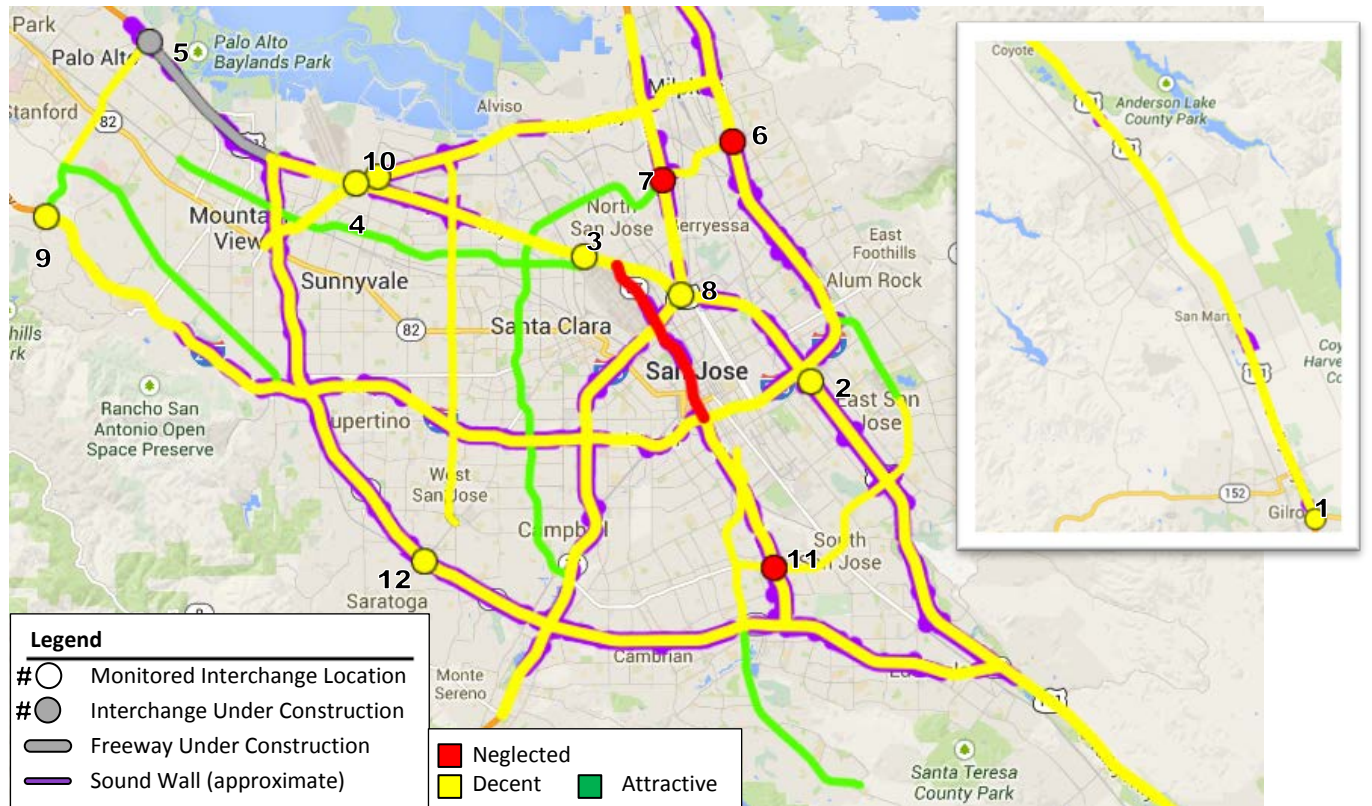
**Abbreviations**

UC Under Construction

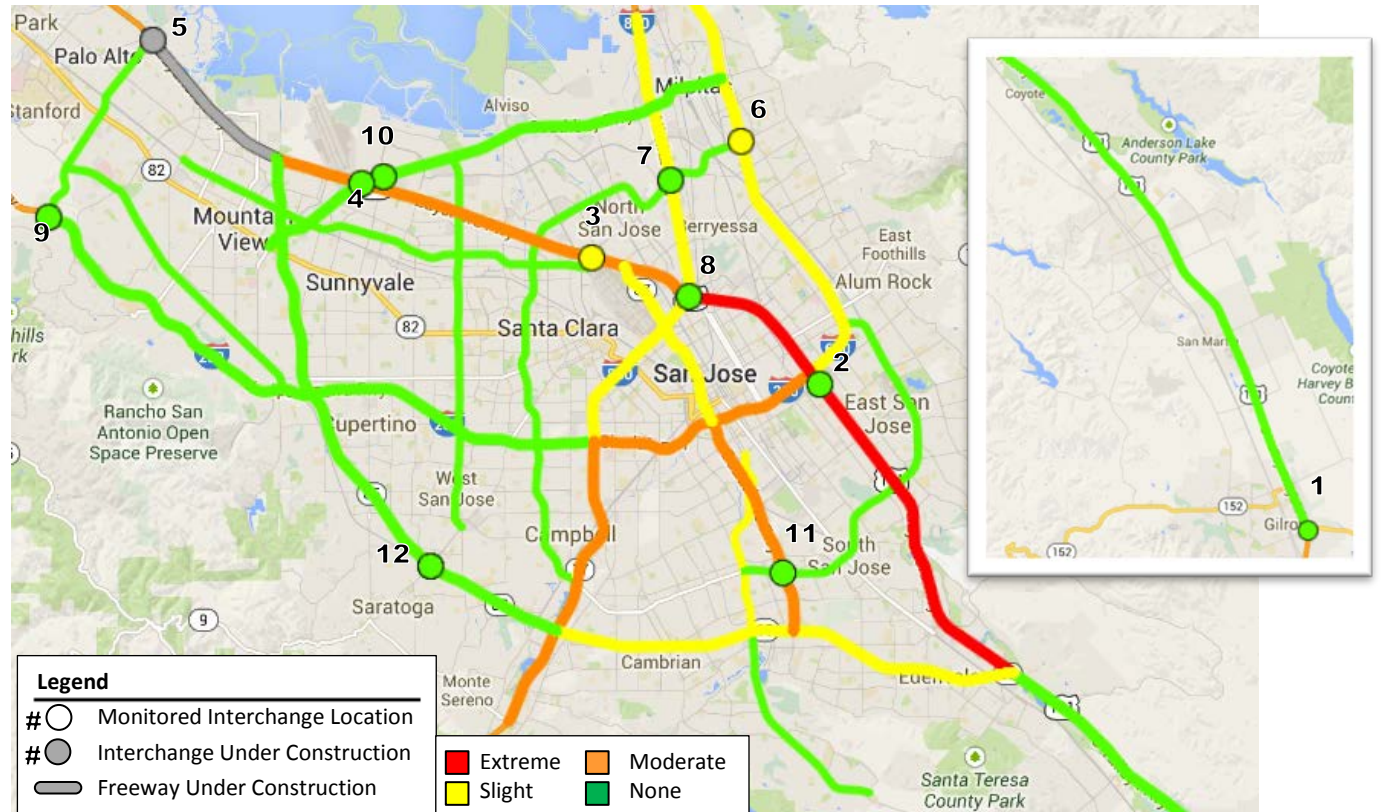
**Figure 27. Litter Conditions Assessment Map.**



**Figure 28. Landscape Conditions Assessment Map.**

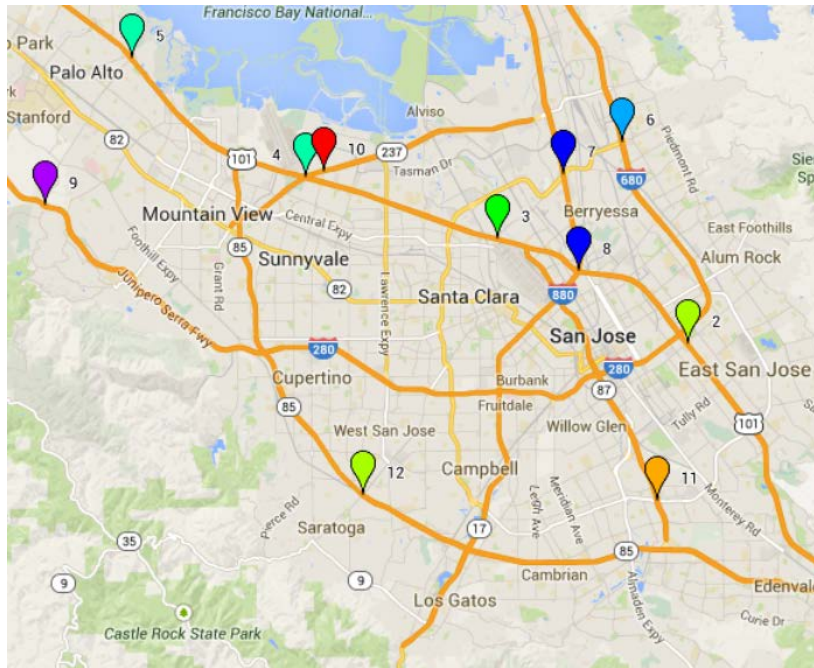


**Figure 29. Graffiti Conditions Assessment Map.**



**Figure 30. Interchange Photos.**

**Map of Interchange Monitoring Locations**



**#1 US 101/SR 152 East**



**#2 US 101/Story**



**#3 US 101/Trimble**



**#4 US 101/SR 237**



**#5 US 101/Oregon-Page Mill**



**#6 I-680/Montague**



**#7 I-880/Montague**



**#8 I-880/US 101**



**#9 I-280/Page Mill**



**#10 SR 237/Mathilda**



**#11 SR 87/Capitol**



**Landscape Problem Areas**

US 101 NB/Moffet Blvd.



I-680 NB/SR 237 Exit



SR 87 NB after Santa Clara St.



I-680 SB/Capitol Ave.



I-280 SB/King Rd.



Hwy 17/Los Gatos Exit



**Graffiti Problem Locations**

US 101 SB Railroad Trestle Bridge /Old Oakland Rd.



**Observed Graffiti at Various Locations**





## Roadside Assets

### BACKGROUND

In order to form a perspective on local transportation infrastructure that is not yet systematically inventoried and/or regularly inspected for condition, a self-assessment survey was conducted with local agencies. This survey asked general questions about the inventory, condition, and ability to maintain assets in a “good” condition. The results are shown below.

The information received from this self-assessment survey is mainly substantiated on estimates and not through documentation. The results should be treated as “snap-shot” in time.

In addition, the survey this year introduced a new section which allowed respondents to share any “local news” which would help shed light on current conditions, progress, and challenges to managing local transportation assets.

### INVENTORY

The survey asked respondents to provide total inventory of the items listed below, to the best of their ability.

- Traffic Signs: 156,966
- Street lamps: 97,194
- Sidewalks: 7,127 miles

### CONDITION

Because asset condition can be easier to approximate than inventory, conditions for a greater number of assets were requested.

### AT-A-GLANCE

Reponses: **15 responses out of 17**

Inventory: **156,966 traffic signs**

Condition: **66% traffic signs in good condition**

**Table 8. Average Local Asset Conditions.**

Local Assets	% in Good Condition (avg.)	Ability to Maintain (avg.)
Traffic Signals	84%	High
Traffic Signals Timing	-	Medium
Pavement Markings	72%	Medium
Traffic Signs	66%	Medium
Light Poles	73%	Medium
Curb & Gutter	77%	Medium
Litter Control	82%	Medium
Sidewalks	76%	Medium

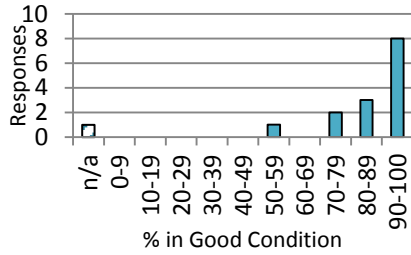
**Table 9. Caltrans Asset Conditions.**

Caltrans Assets	% in Good Condition (avg.)	Ability to Maintain (avg.)
Traffic Signals	90%	High
Traffic Signals Timing	-	Medium
Pavement Markings	60%	Medium
Traffic Signs	85%	Medium
Light Poles	70%	Medium
Curb & Gutter	n/a	n/a
Litter Control	n/a	n/a
Sidewalks	n/a	n/a

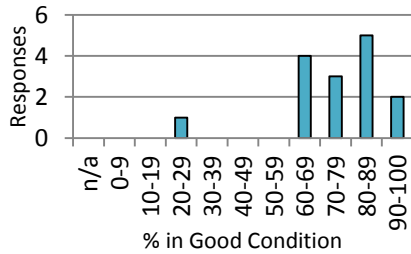
**Condition Distribution**

Below are frequency charts for the condition portion of the self-assessment survey.

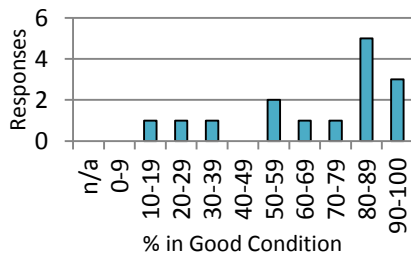
**Table 10.**  
*Traffic Signals*



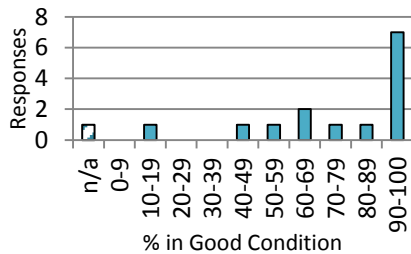
**Table 11.**  
*Pavement Markings*



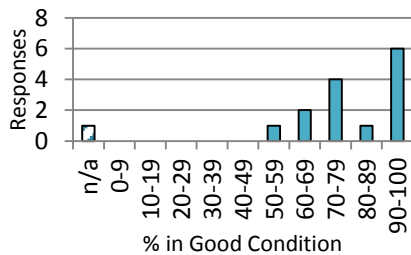
**Table 12.**  
*Traffic Signs*



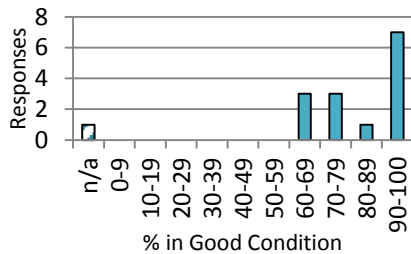
**Table 13.**  
*Light Poles*



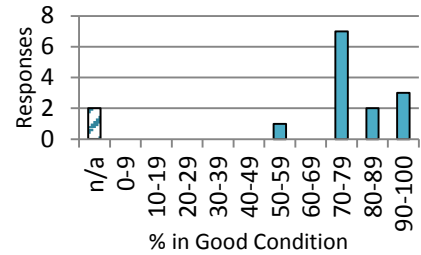
**Table 14.**  
*Curb & Gutter*



**Table 15.**  
*Litter Control*



**Table 16.**  
*Sidewalks*

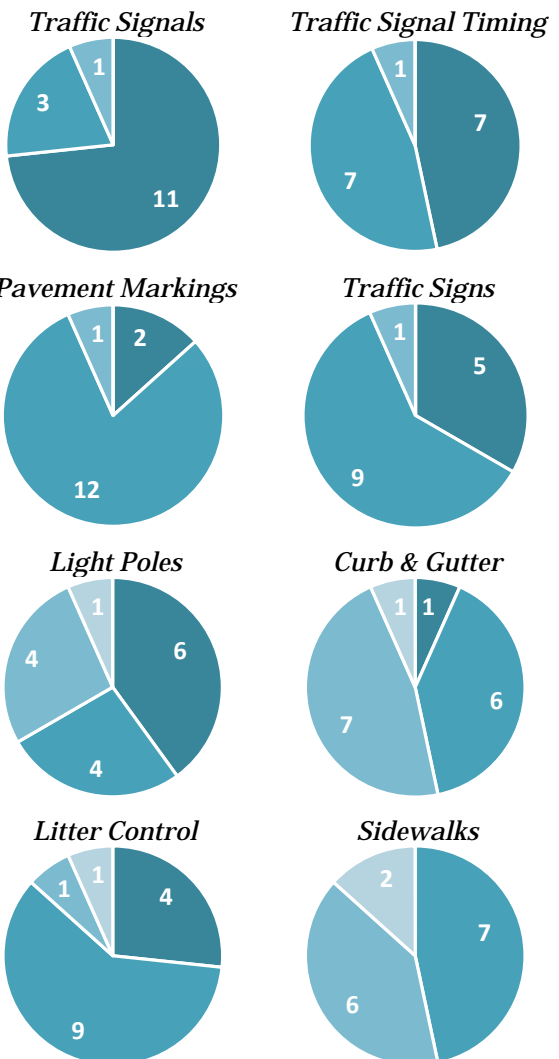


**ABILITY TO MAINTAIN**

This metric helps communicate the amount of need in maintaining a transportation asset. A low ability to maintain generally indicates that current funding is not enough to maintain a network of assets to a desired condition. The following pie charts represent the number of responses received for each category of “ability to maintain.”

**Figure 31. Ability to Maintain Responses.**

**Legend:** ■ High ■ Medium ■ Low ■ n/a  
# = Number of responses







## Roadway Safety

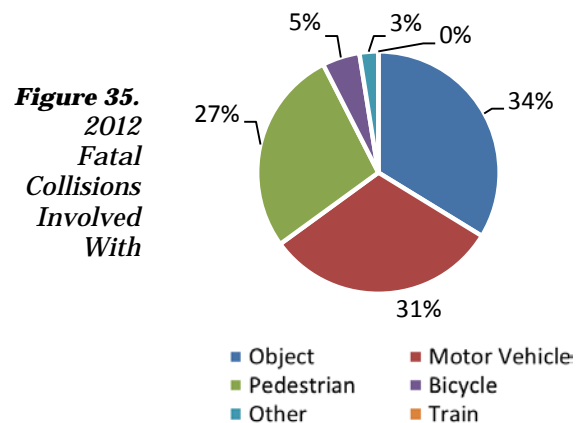
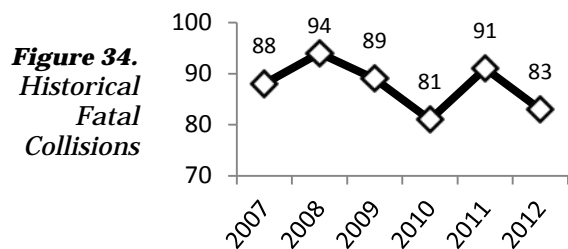
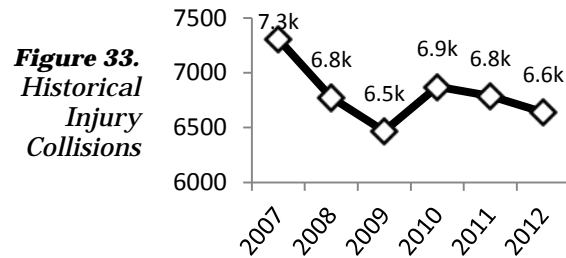
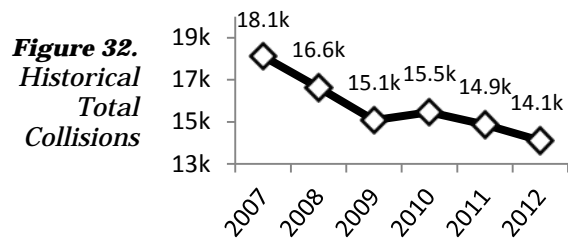
Transportation has a significant effect on public health and safety and includes concerns road user collisions, air quality, and active transportation (bicycling and walking).

## ACCIDENT COLLISIONS

Road safety is a primary concern of community leaders, transportation professionals and all users of the roadway (auto drivers, truck drivers, motorcyclists, bicyclists, or pedestrians.) There are many causes of collisions and they are generally related to: driver characteristics, weather conditions, and physical road layout.

The California Highway Patrol (CHP) collects and maintains a collision database called the Statewide Integrated Traffic Records System (SWITRS). This database is used in monitoring collision types and their severities throughout the state. Because of the nature of collision reporting, full year datasets are not usually available until 2 years later, and as a result, 2012 data is now only become available in late 2014.

2012 SWITRS reports that for Santa Clara County, there were **14,102 total collisions**, of which there were **6,640 injury collisions**, **83 fatal collisions**, and **7,379 property damage only collisions**.

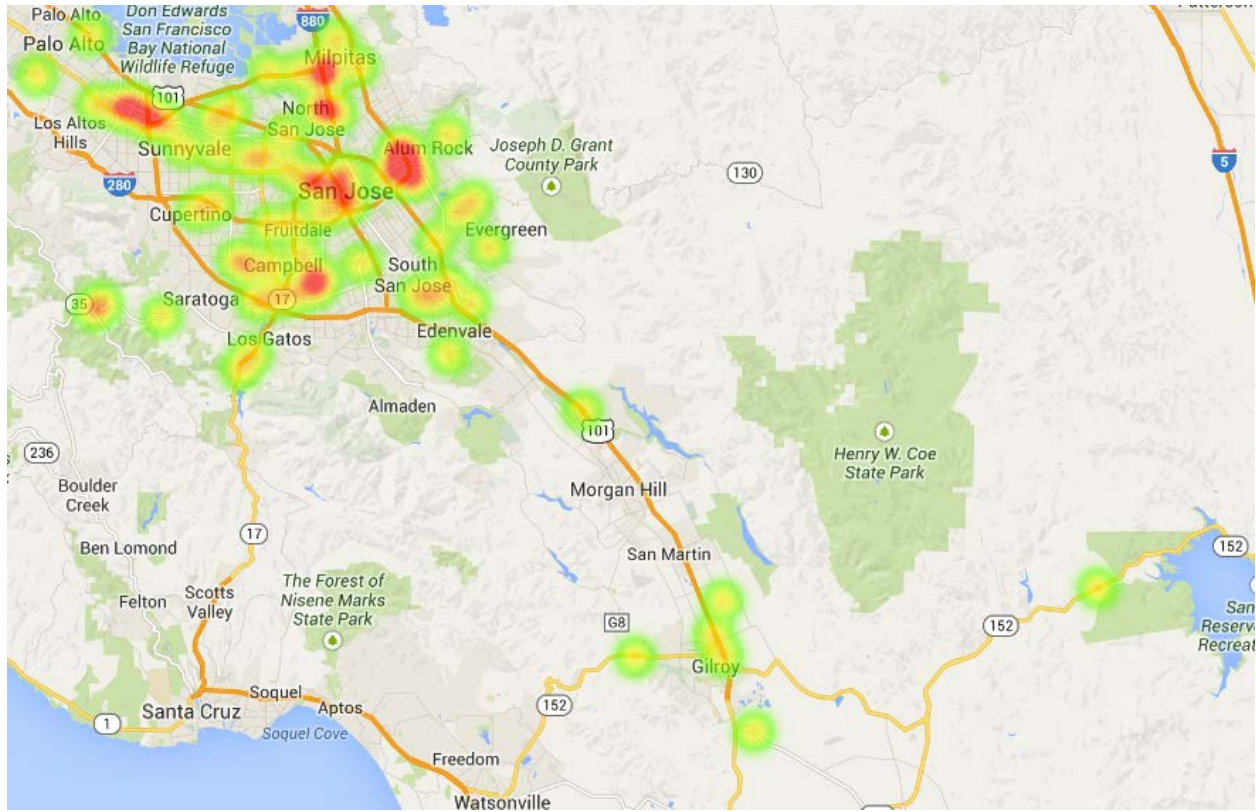


Data Source: CHP, 2012 SWITRS, Section 8 or Online Report 1 – Collisions and Victims by Motor Vehicle Involved.

### Fatal Collisions

Below is a heat map of only fatal collisions where red areas represent concentrated collision locations. Locations are approximate and this year 80 of 83 collisions (96%) are mapped. Non-mapped collisions result from incomplete information on CHP report. Also included is 2012 collision data queried from UC Berkeley’s Transportation Injury Mapping System (TIMS) and verified with 2012 SWITRS primary collision factor (PCF) data.

**Figure 36. Fatal Collisions Heat Map.**



Source: Safe Transportation Research and Education Center (SafeTrec), University of California Berkeley, TIMS.

Primary Collision Factor (PCF) Violation	#	%
01 - Driving or Bicycling Under the Influence of Alcohol or Drug	13	15.7%
02 - Impeding Traffic	0	0%
03 - Unsafe Speed	15	<b>18.1%</b>
04 - Following Too Closely	0	0%
05 - Wrong Side of Road	4	4.8%
06 - Improper Passing	0	0%
07 - Unsafe Lane Change	2	2.4%
08 - Improper Turning	12	<b>14.5%</b>
09 - Automobile Right of Way	2	2.4%
10 - Pedestrian Right of Way	3	3.6%
11 - Pedestrian Violation	7	8.4%
12 - Traffic Signals and Signs	4	4.8%
13 - Hazardous Parking	0	0%
14 - Lights	0	0%
15 - Brakes	0	0%
16 - Other Equipment	0	0%
17 - Other Hazardous Violation	0	0%
18 - Other Than Driver (or Pedestrian)	1	1.2%
19 - (Not Used)	0	0%
20 - (Not Used)	0	0%
21 - Unsafe Starting or Backing	2	2.4%
22 - Other Improper Driving	0	0%
23 - Pedestrian or Other Under the	0	0%

Influence of Alcohol or Drug		#	%
24 - Fell Asleep		0	0%
00 - Unknown		6	7.2%
-- Not Stated		12	<b>14.5%</b>

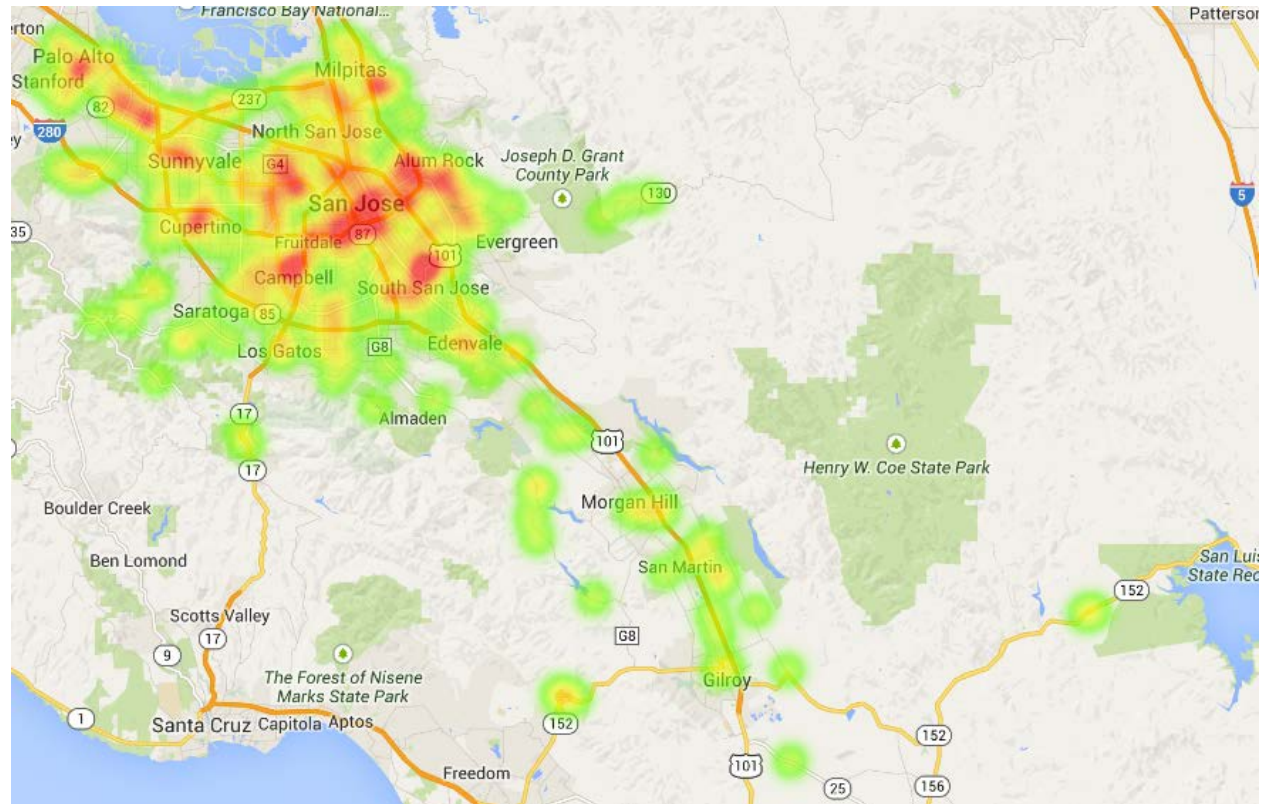
Type of Collision	#	%
A - Head-On	4	4.9%
B - Sideswipe	4	4.9%
C - Rear End	10	12.2%
D - Broadside	10	12.2%
E - Hit Object	26	<b>31.7%</b>
F - Overturned	2	2.4%
G - Vehicle/Pedestrian	21	<b>25.6%</b>
H - Other	5	6.1%
-- Not Stated	0	0%

Vehicle Involvement	#	%
Pedestrian Collision	27	<b>32.9%</b>
Bicycle Collision	4	4.9%
Motorcycle Collision	9	11.0%
Truck Collision	4	4.9%

### Severe Injury Collisions

Below is a heat map of only severe injury collisions where red areas represent concentrated collision locations. Locations are approximate and this year 298 of 397 collisions (83%) are mapped. Non-mapped collisions result from incomplete information on CHP report. Also included is 2012 collision data queried from UC Berkeley’s Transportation Injury Mapping System (TIMS) and verified with 2012 SWITRS primary collision factor (PCF) data.

**Figure 37. Severe Injury Collision Heat Map.**



Source: Safe Transportation Research and Education Center (SafeTrec), University of California Berkeley, TIMS.

Primary Collision Factor (PCF) Violation	#	%
01 - Driving or Bicycling Under the Influence of Alcohol or Drug	63	15.9%
02 - Impeding Traffic	0	0%
03 - Unsafe Speed	97	24.4%
04 - Following Too Closely	0	0%
05 - Wrong Side of Road	15	3.8%
06 - Improper Passing	3	0.8%
07 - Unsafe Lane Change	16	4.0%
08 - Improper Turning	50	12.6%
09 - Automobile Right of Way	26	6.5%
10 - Pedestrian Right of Way	18	4.5%
11 - Pedestrian Violation	22	5.5%
12 - Traffic Signals and Signs	16	4.0%
13 - Hazardous Parking	1	0.2%
14 - Lights	2	0.5%
15 - Brakes	0	0%
16 - Other Equipment	0	0%
17 - Other Hazardous Violation	1	0.2%
18 - Other Than Driver (or Pedestrian)	8	2.0%
19 - (Not Used)	0	0%
20 - (Not Used)	0	0%
21 - Unsafe Starting or Backing	1	0.2%

22 - Other Improper Driving	2	0.5%
23 - Pedestrian or Other Under the Influence of Alcohol or Drug	0	0%
24 - Fell Asleep	0	0%
00 - Unknown	25	6.3%
-- Not Stated	32	8.1%

Type of Collision	#	%
A - Head-On	24	6.7%
B - Sideswipe	28	7.8%
C - Rear End	36	10%
D - Broadside	67	18.6%
E - Hit Object	80	22.2%
F - Overturned	39	10.8%
G - Vehicle/Pedestrian	58	16.1%
H - Other	20	5.6%
-- Not Stated	8	2.2%

Vehicle Involvement	#	%
Pedestrian Collision	75	20.8%
Bicycle Collision	52	14.4%
Motorcycle Collision	64	17.8%
Truck Collision	9	2.5%

# Air Quality

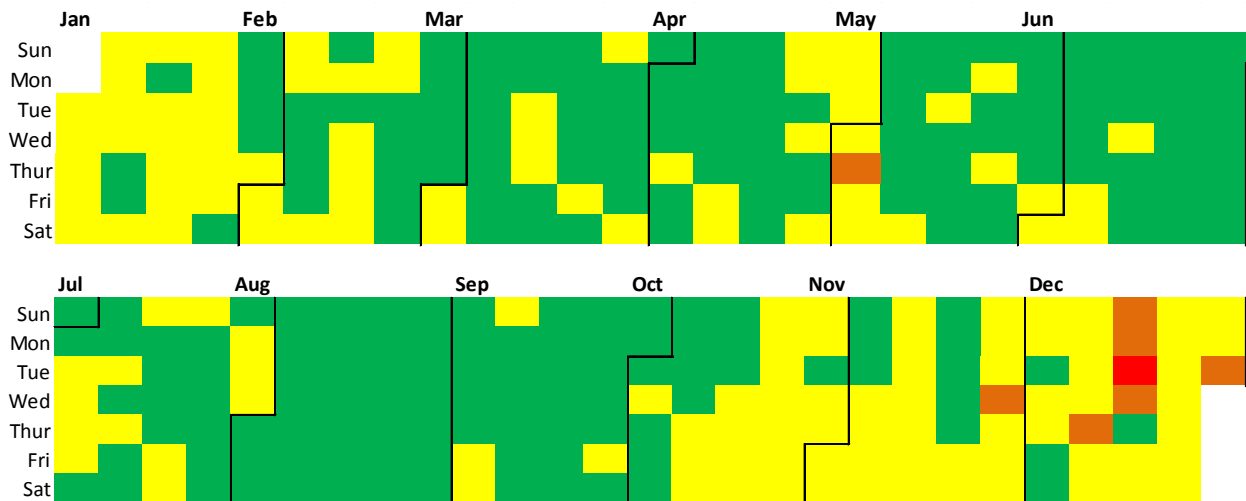
Air pollution caused by motor vehicles and land use activities is of great concern to the public and is monitored by the Federal Environmental Protection Agency (EPA).

The EPA receives air quality data from state and local agencies and provides this data to the public. The EPA monitors levels of chemicals and toxins such as: ground-level ozone, particle pollution (also known as particulate matter), carbon monoxide, sulfur dioxide, and nitrogen dioxide. Each compound has been linked to various human health risks and is monitored separately. In order to incorporate monitoring of separate compounds into a single scoring system the “Air Quality Index” (AQI) was created.

The AQI is an index for general reporting on how clean or polluted the air is and what health effects may be experienced in a few hours or days after breathing the current air in your area. AQI ranges from 0 [Good] to 500 [Hazardous]. See below table for more information.

According to EPA, in 2013, Santa Clara County experienced **8 days of AQI>100 [pollution>moderate]** (where pollution was unhealthy, or unhealthy for Sensitive Groups). See below for AQI for each day for 2013. Additionally, the county also had a **median AQI of 45 [good]**.

**Figure 38. Air Quality Tile Plot.**



Data Source: Environmental Protection Agency, 2013 Tile Plot by AirData.

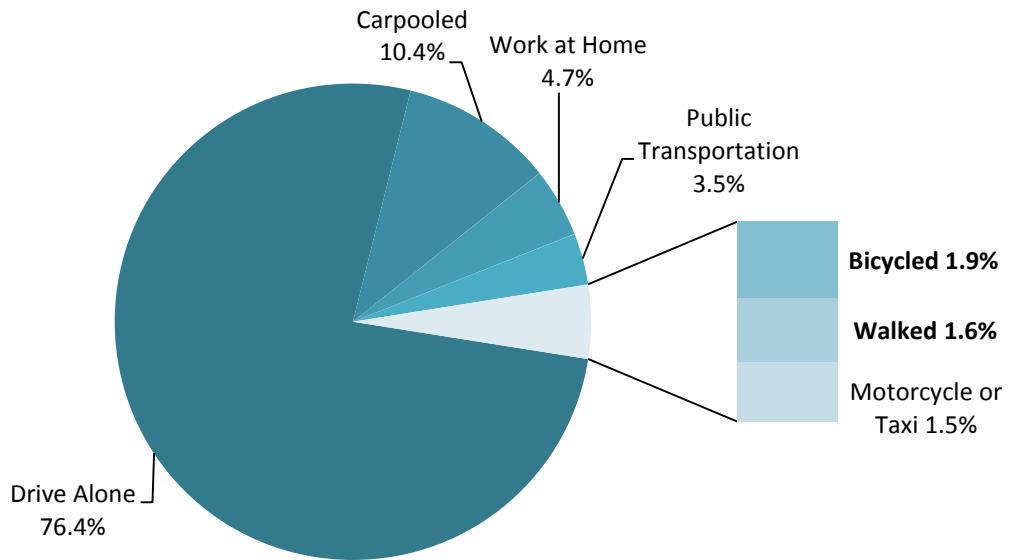
AQI	Condition	Description
0-50	Good	Air quality is considered satisfactory, and air pollution poses little or no risk.
51-100	Moderate	Air quality is acceptable; however, for some pollutants there may be a moderate health concern for a very small number of people. For example, people who are unusually sensitive to ozone may experience respiratory symptoms.
101-150	Unhealthy for Sensitive Groups	Although general public is not likely to be affected at this AQI range, people with lung disease, older adults and children are at a greater risk from exposure to ozone, whereas persons with heart and lung disease, older adults and children are at greater risk from the presence of particles in the air.
151-200	Unhealthy	Everyone may begin to experience some adverse health effects, and members of the sensitive groups may experience more serious effects.
201-300	Very Unhealthy	This would trigger a health alert signifying that everyone may experience more serious health effects.
301-500	Hazardous	This would trigger health warnings of emergency conditions. The entire population is more likely to be affected.

## Mode Share

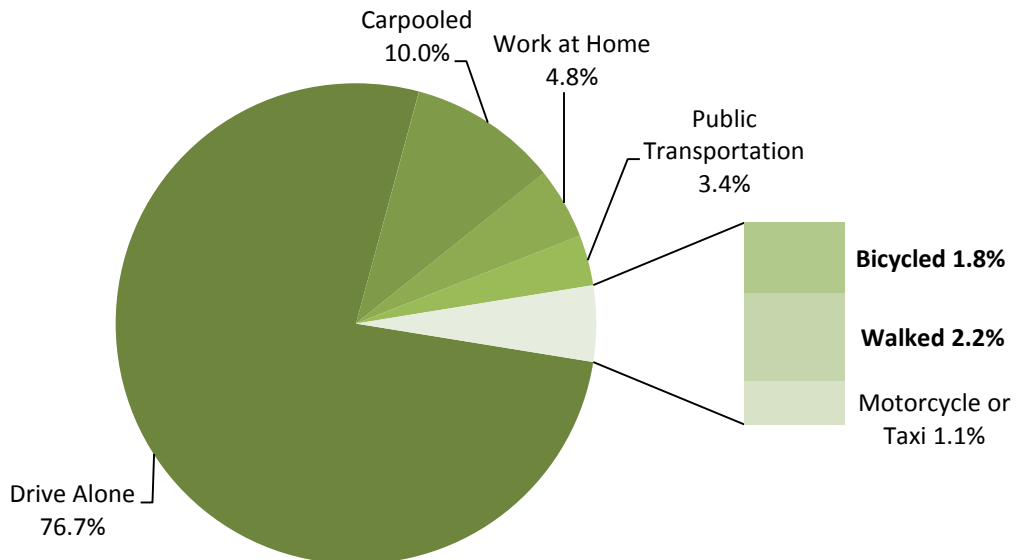
Balancing mode share and encouraging use of alternate modes of transportation to single occupant auto driving is one strategy of managing traffic congestion. Promoting active transportation—bicycling and walking—is also good for personal health and good for the environment. It is also encouraged to use transportation that has less impact on the environment, such as carpooling and using public transportation.

Every year, the US Census Bureau surveys United States Citizens and asks about their “Means of Transportation to Work.” In 2012, Santa Clara County respondents polled that about **3.5% used active transportation** (bicycling and walking) to get to work. This is a **decrease from the 2011** survey where respondents polled at about 4.0% using active transportation.

**Figure 39**  
2012 Means of Transportation to Work in Santa Clara County



**Figure 40**  
2011 Means of Transportation to Work in Santa Clara County



Data Source: Census Bureau, 2012 and 2011 American Community Survey 1-Year Estimates.

## Bikeways

In 2008, a County-wide Bicycle Plan was created to both define a regional bicycle system and identify ways to improve both safety and convince. As a result, numerous improvements were identified and categorized in to various projects lists; some of these categories include: On-street Projects, Off-street Projects, and Across Barrier Connections (ABCs).

ABCs enable bicyclists and pedestrians to conveniently and safely cross freeways, waterways and railroad tracks rather than make circuitous detours to existing roadway crossings.

For the purpose of the TSMP, the monitoring of planned bicycle projects compared with the number of miles and projects completed is used to measure the county's progress towards achieving its vision for bike mobility in Santa

Clara County. The below tables present the areas measured and the progress made through 2014 on the planned bike improvements identified in the 2008 Countywide Bicycle Plan.

The first two tables present the number of planned and completed bicycle on and off street projects by miles. Bike on-street projects are bike projects along roadways shared with autos; and bike off-street projects are bike projects along trails or paths shared with pedestrians.

From 2008 to 2014, approximately **113 miles of the on-street projects, 198 miles of off-street projects, and 24 across boundary connections were completed.** A map showing the total completed cross-county on-street bicycle projects is included on the next page.

**Table 17.** Cross-County Bicycle Network On-street.

Cross-County Bicycle Network On-street	2008	2010	2012	2014
Total length planned to construct	514	584	584	<b>584</b>
Completed miles to-date	263	325	330	<b>376</b>
Planned miles left to complete	251	259	254	<b>208</b>
Overall Percent complete	51%	56%	57%	<b>64%</b>

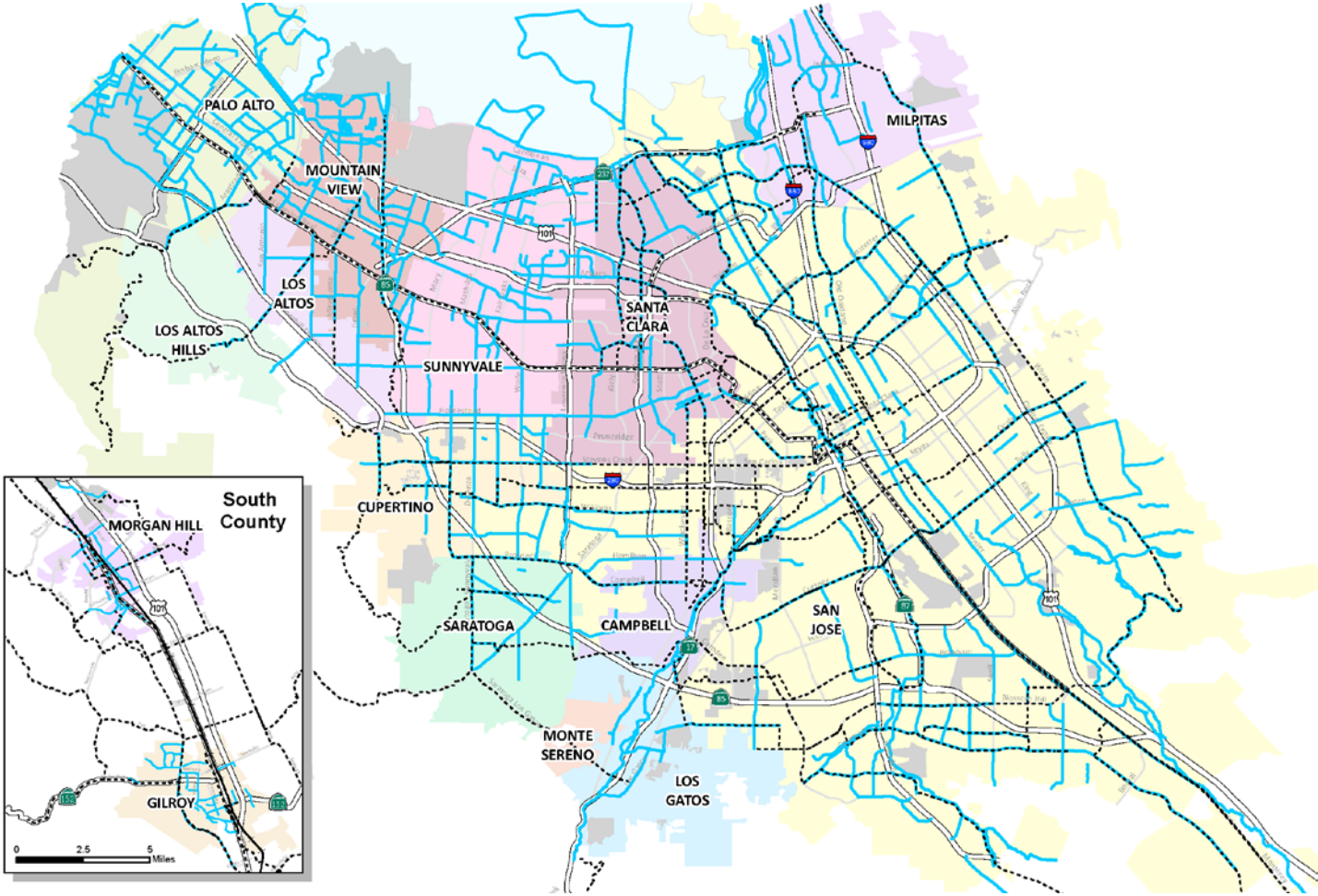
**Table 18.** Cross-County Bicycle Network Off-street.

Cross-County Bicycle Network Off-street	2008	2010	2012	2014
Total length planned to construct	682	813	813	<b>813</b>
Completed miles to-date	242	361	365	<b>440</b>
Planned miles left to complete	440	452	448	<b>373</b>
Overall Percent complete	35%	44%	45%	<b>54%</b>

**Table 19.** Across Barrier Connections.

Across Barrier Connections	2008	2010	2012	2014
Total Planned/Potential ABC's (CBP 2008)	115	115	115	<b>115</b>
Under Construction	3	1	0	<b>0</b>
Completed ABCs	0	3	6	<b>24</b>
Remaining to be completed	111	113	109	<b>91</b>
Percent complete	0%	3%	5%	<b>21%</b>

Figure 41. Map of Completed On-Street Bicycle Projects.



**Legend**

- Cross County Bicycle Corridor-Proposed in 2008 Bike Plan
- Existing Class I and II Bicycle Corridor
- County Land

# Notes on Report

## 2014 SUMMARY

### Key Performance Indicators

#### *Pavement*

See Pavement section.

#### *Bridges*

See Bridges section.

#### *Maintenance*

See Roadside Maintenance section.

#### *Air Quality*

See health & safety section

#### *Congestion*

Intersection and freeway LOS data retrieved from VTA 2012 Congestion Monitoring Program (CMP) Monitoring and Conformance Report available at <http://www.vta.org/cmp/monitoring-report>. For the sake of this report, AM and PM freeway lane miles of LOS were combined. Freeway LOS is normally analyzed every year but intersection LOS is usually only analyzed every 2 years, therefore, for the purposed of this report, only every other year is reported every 2 years when both freeway and intersection data are available at the same time.

#### *Express Lanes Program*

Current information was taken from the SR 237 Express Lanes FY (fiscal year) 2014 Report which was reported to the VTA board of directors on August 28<sup>th</sup> 2014, available on VTA website: <http://www.vta.org/sfc/servlet.shepherd/document/download/069A0000001dlmaIAA> or <http://www.vta.org/get-involved/board-of-directors>. Previous data was taken from prior annual reports.

#### *Transit*

Statistics on transit ridership were obtained from Santa Clara Valley Transportation Authority's FY2013 Comprehensive Annual Financial Report, and found in Table 21 Operating Information – Operating Indicators. This and previous reports can be accessed at: <http://www.vta.org/about-us/financial-and-investor-information-accepted>.

#### *Population*

Population data from United States Census Bureau provided on their website at State & County Quick Facts page <http://quickfacts.census.gov/qfd/states/06/06085.html> and by reviewing the Santa Clara County Quick Facts Database [http://quickfacts.census.gov/qfd/download\\_data.html](http://quickfacts.census.gov/qfd/download_data.html).

### Recent Inventory

#### *Pavement*

See pavement section.

#### *Bridges*

See bridges section.

#### *Bus*

Current bus data was retrieved from internal VTA report called “VTA Facts, Current Bus System Data, April 2013. Bus fleet includes all the following bus types: articulated (40), standard (258), hybrid 40-ft (70), community bus (44), and Express (20, also hybrid engines). Bus route mileage is reported as the total round trip. Although this report is not published on the website, much of this information can be found in other reports such as the Annual Service Transit Plan (fleet size, number of routes & stops, and weekly ridership) which can be found on VTA's website here: <http://www.vta.org/reports-and-studies>. Additionally, a Bus System Overview fact sheet is provided periodically on VTA's website here: <http://www.vta.org/news-and-media/resources/vta-newsroom-fact-sheets-vta-information>.

#### *Light Rail*

Current light rail data was retrieved from internal VTA report called “VTA Facts, Current Light Rail System Data, April 2013. In addition to the fleet of 99 standard vehicles, there are also 4 historic trollies that operate during the Christmas holiday season. Route miles define the extent of the operational network and represent the total extent of routes available for trains to operate. Track miles takes into account multiple track routes (e.g. for each route mile where there is double track, there are two track miles; where there are four tracks, there are four track miles). Although this report is not published on the website, much of this information can be found in other reports such as the Annual Service Transit Plan (fleet size, number of routes & stops, and total ridership) which can be found on VTA's website here: <http://www.vta.org/reports-and-studies>.

#### *Signal Controllers*

See 2013 Transportation Systems Monitoring Report <http://www.vta.org/tsmp>.



## PAVEMENT

Current (2013) pavement condition data, was provided by MTC staff prior to official publication, and is likely to be available on their website by October 2014. For 2012 pavement condition data, see MTC website at [http://www.mtc.ca.gov/news/press\\_releases/rel624.htm](http://www.mtc.ca.gov/news/press_releases/rel624.htm); for 2011 data: [http://www.mtc.ca.gov/news/press\\_releases/rel586.htm](http://www.mtc.ca.gov/news/press_releases/rel586.htm); for 2010 data: <http://mtc.ca.gov/library/potholereport/index.htm>. MTC reports on pavement conditions yearly and TSMP has collected and stored this data year to year in order to show trends in the data. This data relates the overall PCI and total number of lanes miles for each city and county. By MTC's lead, the overall PCI is reported as a 3-year rolling average. It is worth repeating that PCI starts with human observation and interpretation; therefore, it is possible to receive different results year to year for the same condition. Prior to 2012 no raw network values were published and no county wide PCI values were regularly published by MTC; therefore, 3-year rolling averages were used to develop a county-wide weighted average PCI prior to 2012.

Caltrans Paving Asphalt price index was access from Caltrans' website: [http://www.dot.ca.gov/hq/esc/oe/ac\\_index.html](http://www.dot.ca.gov/hq/esc/oe/ac_index.html). Caltrans uses this index to adjust compensation according to the projects special provisions section called "Adjustments for Price Index Fluctuations." The index is used to illustrate how paving costs have changed over time; however, TSMP staff is not yet able to equate a change in this price index with a dollar cost.

## BRIDGES

Caltrans provides a list of individual local NBI bridges and their condition which is updated at least once a year. This list is provided on their website <http://www.dot.ca.gov/hq/LocalPrograms/hbrr99/hbrr99a.htm> and <http://www.dot.ca.gov/hq/structur/strmaint/local/localbrlist.pdf>. Unfortunately, as the list is updated, records from previous years are removed from website which makes it difficult to observe long-term trends, and TSMP staff must rely on previously downloaded records. This year in addition to a pdf file of the list, Caltrans also published an excel file (called 2013-05-02-Local-Agency-Bridge-List.xlsx) which has been very helpful. The only challenge is that no county-wide condition is provided and TSMP staff must account for every local bridge in order to calculate an average SR for the entire county. NBI does provide a county-wide count of bridges along with a county of structurally deficient and functionally obsolete bridge; however, this includes both local and state owned bridges, and because of the nature of this report, a count of local assets and SR is preferred at this time. Other sources that were consulted to verify or clarify Caltrans data were NBI 2013 ASCII Files <http://www.fhwa.dot.gov/bridge/nbi/ascii.cfm?year=2013> and [NationalBridges.com](http://NationalBridges.com). These sources are mainly used to obtain the SR of a particular bridge, which as stated in the report, is a combined structural/functional metric and is therefore not solely a measure of bridge structural integrity. As Caltrans continues to publish BHI (bridge health index) data for local bridges, SR may eventually be replaced with BHI as TSMP's measure of bridge condition.

## FREEWAY LITTER, LANDSCAPING AND GRAFFITI MAINTENANCE

Caltrans Maintenance LOS is not distributed to the public but is provided on a request only basis. Through yearly requests, TSMP has received enough data to begin showing trend graphs. Litter LOS goal is found in Caltrans' FY 2011 Statewide LOS Report. No Overall Roadway Maintenance LOS goal is currently provided in their LOS reports. Information on current highway maintenance crews and their schedules is based on prior TSMP communication with Caltrans District 4 regional manager in 2012. To find more information or volunteer with Beautiful Day visit [BeautifulDay.org](http://BeautifulDay.org).

Initial identification of haul routes, gateways, and landfills/disposal sites, and definition of litter and landscape scales are referenced from: Litter Control and Landscape Maintenance Study for Freeways in Santa Clara County, T. Y. Lin International, Final Report, December 20, 2005. Monitoring locations were then selected by proximity to gateways, landfill/disposal site, and having a history of litter problems. Graffiti scale was created by TSMP staff based initially from Western Australia's graffiti management toolkit, Appendix D Graffiti Grading System, provided on their website here: <http://goodbye graffiti.wa.gov.au/local-councils/graffiti-management-toolkit>.

Estimate of \$11.2 million (using probationers) for annual freeway roadside maintenance for Santa Clara County is referenced from: Litter Control Pilot Program, US 101 between I-880 and Blossom Hill Road, Santa Clara Valley Transportation Authority, California Department of Transportation, August 2008. This estimate was created by applying the actual annual costs incurred during the pilot study

## ROADSIDE ASSETS

A brief survey was designed by TSMP staff and sent to 17 local agencies of which 2 did not respond. Some questions did not apply to some agencies and there for the some agencies answered with “n/a”. For instance, some agencies do not own their own streetlights, instead local utility companies, such as PG&E, own and operate them. No significant amount of local news was provided so this section of the survey was not included in the final report.

## ROADWAY SAFETY

2012 collision data was taken from 2012 CHP SWITRS 2012 Annual Report of Fatal and Injury Motor Vehicle Traffic Collisions accessed from CHP website: <http://www.chp.ca.gov/switrs/switrs2012.html> and requested from the iSWITRS system: <http://iswitrs.chp.ca.gov/Reports/jsp/CollisionReports.jsp>. Total collisions, injury collisions, fatal collisions, and property damage only collisions show in the TSMP report are taken from iSWITRS system Report 1 – Collisions and Victims By Motor Vehicle Involved and limited to Santa Clara County. The majority of this information can be obtained the 2012 Annual Report from Table 8F – Injury Collisions by County and Table 8D – Injury Collisions by County. It has been noticed that the iSWITRS system is continually updated while the SWITRS Annual Reports are not retroactively corrected; for example, 2012 SWITRS Annual Report Table 8A shows 82 fatal collisions and 6,639 injury collisions in Santa Clara county, whereas the iSWITRS Report 1 shows 83 fatal collisions and 6,640 injury collision.

Heat mapping and preliminary table data are provided by Safe Transportation Research and Education Center, University of California Berkeley, Transportation Injury Mapping System (TIMS) <http://tims.berkeley.edu/index.php>. TIMS was given preliminary 2012 data from the CHP but has yet to update their system with the final 2012 data which was just published; therefore, some TIMS information is slightly out of date but is not likely to be significantly incorrect. For the TSMP report, TIMS data was updated with iSWITR Report 1 and Report 3. Because of the limited reports available (from the CHP SWITRS system) that are limited on a county basis, there are currently no SWITR reports for “Type of Collision” on a county basis. According to CHP’s SWITR Glossary (<http://www.chp.ca.gov/switrs/pdf/2012-glossary.pdf>) a collision resulting in a “severe wound” is defined as an injury which prevents the injured party from walking, driving, or performing activities he/she was normally capable of before the collision.

## AIR QUALITY

Annual Air Quality Index (AQI) annual median data from <http://www.epa.gov/airdata/>. The AirData-Air Quality Index Summary Report displays an annual summary of Air Quality Index (AQI) values for Santa Clara County. Air Quality Index is an indicator of overall air quality, because it takes into account all of the criteria air pollutants measured within a geographic area. Although AQI includes all available pollutant measurements, users should be aware that many areas have monitoring stations for some, but not all, of the pollutants. Air quality data is received from state agencies. Interactive maps of monitoring stations are available here: [http://www.epa.gov/airdata/ad\\_maps.html](http://www.epa.gov/airdata/ad_maps.html).

## MODE SHARE

2012 1-year estimates journey to work mode data was taken from US Census Bureau’s website: [http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS\\_12\\_1YR\\_S0801&prodType=table](http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_12_1YR_S0801&prodType=table) using their “FactFinder” search tool. 2011 can be found on US Census Bureau’s website: [http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS\\_11\\_1YR\\_S0801&prodType=table](http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_11_1YR_S0801&prodType=table).

## BIKEWAYS

This information was researched by VTA planning staff by contacting local agencies and reviewing existing information. The information provided helps illustrate the progress being made to complete the goals set forth in the 2008 county bicycle plan. Over time, the goals and projects planned in the 2008 plan have changed and therefore a shifting target is experienced which could result in a decrease in percent complete calculations

# Acknowledgements

## **PARTICIPATING AGENCIES:**

California Department of Transportation (Caltrans District 4)  
City of Campbell  
City of Cupertino  
City of Gilroy  
City of Los Altos  
Town of Los Altos Hills  
Town of Los Gatos  
City of Milpitas  
City of Monte Sereno  
City of Morgan Hill  
City of Palo Alto  
City of San Jose  
City of Santa Clara  
City of Saratoga  
City of Sunnyvale  
County of Santa Clara

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