



Central Coast ITS Implementation Plan



Caltrans District 5 Traffic Management Branch Deployment Status September 16, 2010



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District 5



Introduction

The Central Coast Region has a long history of planning and designing Intelligent Transportation Systems (ITS). Beginning in 1998, stakeholder agencies from the 5-County region (Santa Cruz, San Benito, Monterey, San Luis Obispo, Santa Barbara) came together to collaboratively begin the process to determine the region's viability to apply ITS to the area's transportation challenges. From 1998 through 2000, the stakeholder agencies, later identified as the Central Coast ITS (CCITS) Coordinating Group, worked in partnership with TransCore to develop the 2000 Central Coast ITS Strategic Deployment Plan (SDP).

The results of the 2000 SDP were highly encouraging. Not only did the CCITS Coordinating Group conclude that ITS technology had tremendous potential for improving regional mobility, safety, and economic competitiveness, the effort also developed the Central Coast Regional ITS Architecture, ITS promotional publications (e.g., brochure, video tape, presentation materials, etc.), list of specific ITS projects to implement over a phased timeframe, and solidified the Group's commitment to ITS in the Central Coast. Subsequent to the development of the 2000 SDP and fully committed to the on-going implementation of ITS in the Central Coast, the CCITS Coordinating Group continued to meet to guide ITS planning and deployment activities. The CCITS Coordinating Group has since become the body to advise the Central Coast stakeholder agencies on adherence / updates to the regional ITS Architecture, advise and assist them in seeking discretionary funding for ITS projects, and finally to coordinate and share information on planned or proposed ITS projects in the region.

In late 2007, the CCITS Coordinating Group, consisting of the MPOs / RTPAs from around the region, Caltrans, Transit Operators, the CHP and FHWA completed the Central Coast ITS Implementation Plan from a Caltrans grant award under the FHWA Partnership Planning program. The 2007 CCITS Implementation Plan updates the 2000 SDP and develops new products that will help each agency to better implement, operate, and maintain their ITS projects.

The CCITS Implementation Plan consists of three sub-regional architectures, each focused within the geographic boundaries of the following MPO jurisdictions: AMBAG, SLOCOG and SBCAG. When tied together, these three sub-regional architectures reflect an interregional system with a perspective that represents the entire Caltrans District 5 Central Coast Region. The CCITS Implementation Plan will provide a more expeditious, unified, and consistent integration of ITS projects into the state and regional transportation planning and programming processes.

The CCITS Architecture has a time horizon that focuses on those systems and interfaces that are likely to be implemented in the next three to five years (2008 – 2013). The CCITS Implementation Plan covers the broad spectrum of ITS, including Traffic Management, Transit Management, Traveler Information, Emergency Management, and Emergency / Incident Management. Implementation of ITS projects will occur to the extent that lead agencies take the initiative to develop, procure, deploy, and fund specific initiatives. Since the release of the 2007 ITS implementation Plan, District 5 and our local partners have been working cooperatively to

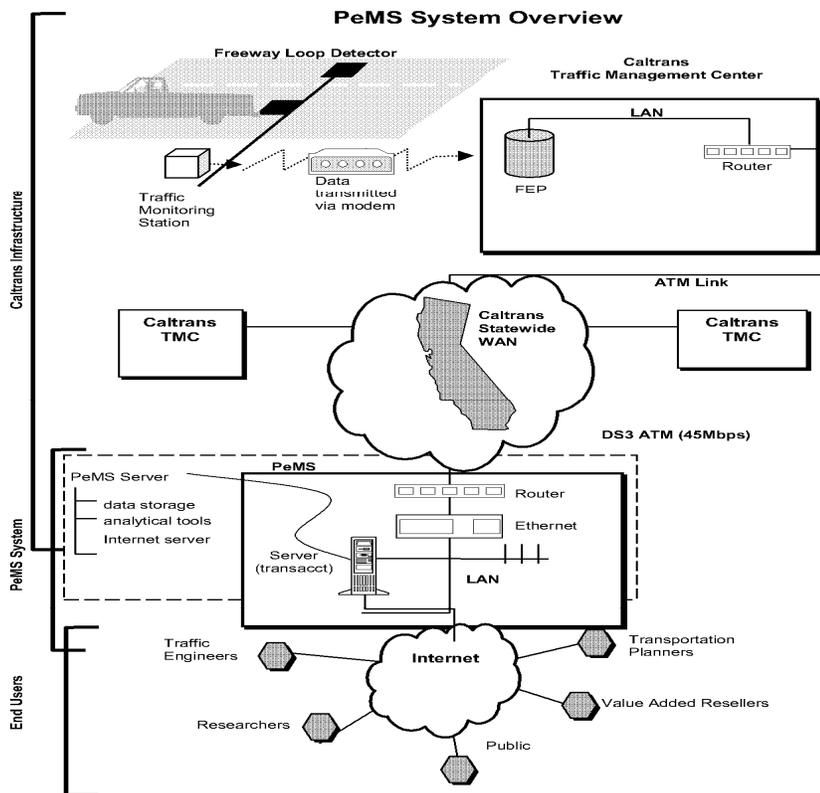
implement various components of the plan. Attachment A provides mapping that depicts the progress District 5 has made since the release of the 2007 ITS Implementation Plan. A brief summary of the progress District 5 has made is provided below.

Performance Measures System (PeMS) System/Application

The Performance Measurement System (PeMS) is a traffic data collection, processing, and analysis tool for assessing the performance of the transportation system. PeMS obtains 30-second loop detector count and occupancy data from over 26,000 individual lane detectors in real-time from the Transportation Management Centers in Caltrans Districts 3, 4, 5, 6, 7, 8, 10, 11 and 12. The result is a web-based tool that is very valuable for planners, modelers, and engineers for corridor studies, operational analyses, and many other traffic purposes. There are 5 key components of the PeMS system:

1. Automatic sensors to collect traffic data
2. TMCs to receive and process the data
3. Caltrans' wide area network (WAN) to transport data
4. Software to store traffic data and analyze it
5. The Internet to allow users access to the system

The following illustration provides a depiction of the Performance Measurement System:





The traffic data is displayed on a map in real-time. Please visit the following website for more information on PeMS: <http://pems.dot.ca.gov/?redirect=%2F%3Fdnode%3DState>

PeMS is also an Archived Data User Service (ADUS) that provides over ten years of data for historical analysis. PeMS has the capability to integrate a wide variety of information from Caltrans and other local agency systems including: traffic detectors, traffic counts, incidents, lane closures, vehicle classification, weight-in-motion, toll tags, and roadway inventory.

Transportation Management Systems (TMS) Inventory

The Office of Intelligent Transportation Systems (ITS) Projects and Standards, in partnership with Caltrans Districts, programs, local agencies and others, provides leadership and support for the development, standardization, deployment, operation, and maintenance of Transportation Management Systems (TMS) for the State of California. TMS includes, but is not limited to, advanced operational hardware, software, communications and infrastructure for integrated Advanced Transportation Management and Information Systems, and Electronic Toll Collection System.

District 5 has added 173 TMS elements since the release of the 2007 Implementation Plan. This translates to an increase from 24 elements in 2007 to 197 elements in 2010. In addition, several Regional Traveler Information Systems have been introduced within the District since the release of the 2007 Implementation Plan. Tables summarizing the implementation status and completion status are provided below. The District’s inventory list may be found in Attachments B and C.

District 5 TMS Completion Status					
TMS Elements	2007	2009	2010	Planned	Buildout
Closed Circuit Television (CCTV)	13	17	32	155	181
Changeable Message Signs (CMS)	7	12	12	18	29
Vehicle Detection Systems (VDS)	4	20	153	393	403
Total	24	49	197	566	613

District 5 TMS Implementation Status						
TMS Elements	Planned	Proposed	Design	Construction	Complete	Total
Closed Circuit Television (CCTV)	48	22	64	15	32	181
Changeable Message Signs (CMS)	10	0	6	1	12	29
Vehicle Detection Systems (VDS)	57	0	106	87	153	403
Total	115	22	176	103	197	613

State Highway Operation and Protection Plan (SHOPP) – 315 Program

Per The Transportation Management System (TMS) master plan, the statewide goal in 2007 was to add 5,900 TMS field elements and 720 miles of fiber optic cable to the system from 2008/09 through 2017/18. Thirty (30) percent of the mobility needs were projected to be funded through the constrained funding available to the SHOPP and 70 percent from other funding opportunities that exist outside the SHOPP. Opportunities that exist outside the SHOPP include the Corridor Mobility Improvement Account (CMIA) bond established under Proposition 1B and the State





Transportation Improvement Program (STIP). Currently, District 5 has five projects programmed to install TMS elements throughout the District. In addition, Project Initiation Documents (PID) for nine additional projects have been completed. Finally, 18 projects are waiting to be initiated. Construction costs to implement these components are estimated to be \$12 million, \$27 million, and \$96 million, respectively. Caltrans District 5 is committed to working cooperatively with our local partners to secure alternative sources of revenue to fund these projects. A list of the programmed, PID approved, and potential projects are provided below.

State Highway Operation and Protection Plan - 315 Program Project List						
Status	County	Route	Beg PM	End PM	Project Location	Project Description
Programmed	MON,SBT	1, 68, 101	VAR	VAR	Various Locations	Install CMS with CCTV
Programmed	SB	101	0.00	13.50	Ventura Co Line to Garden Street	Install Vehicle Detectors and CCTV
Programmed	SB	101	13.5	27.5	Garden St to Winchester Cyn Rd	Install Vehicle Detectors and CCTV
Programmed	SBT	156	0.00	18.40	Btwn the 101/156 N Jct and SCL Co. Line, near San Juan Batistia and Hollister	Install Vehicle Detectors, CCTV, and HAR
Programmed	SCR	1	8.3	16.8	Freedom Blvd to 1/17 Jct	Install Vehicle Detectors, CCTV, HAR & CMS
PID Complete	MON	1	72.28	102.0	Carmel River Bridge to SCR/MON Co Line	Install Vehicle Detectors, CCTV, and HAR
PID Complete	MON	68	4.00	18.10	Btwn the 1/68 N Jct and Spreckels Blvd	Install Vehicle Detectors, CCTV, and HAR
PID Complete	MON	101	82.00	101.3	Btwn Spence Rd near Salinas and SBT Co Line	Install Vehicle Detectors, CCTV, and HAR
PID Complete	MON	156	0.00	5.40	Btwn the 1/156 Jct and the 101/156 S Jct, near Castroville	Install Vehicle Detectors, CCTV, and HAR
PID Complete	SBT	025	51.40	60.0	Btwn the 25/156 Jct and SBT/SCL Co line, near Hollister	Install Vehicle Detectors, CCTV, and HAR
PID Complete	SCR	001	0.00	8.3	Btwn the SCR/MON Co. line and Freedom Blvd, near Watsonville	Install Vehicle Detectors, CCTV and HAR
PID Complete	SCR	17	0.0	12.5	Near Santa Cruz and Scott's Valley	Install Vehicle Detectors, CCTV, HAR & CMS
PID Complete	SLO	101	11.83	30.36	El Campo Road to northern SLO City Limit	Install VDS, CCTV and HAR
PID Complete	SLO	101	30.10	58.10	Btwn the SLO City N. City Limits and the 46E/101 Jct near Paso R.	Install Vehicle Detectors, CCTV, and HAR





State Highway Operation and Protection Plan - 315 Program Potential Candidate List						
Potential Candidate	MON	1	75.01	86.66	Near City of Monterey	Install Ramp Meters and CCTV
Potential Candidate	MON	101	85.6	101.3	Btwn Airport Rd in Salinas and SBT Co Line	Install Ramp Meters
Potential Candidate	SB	1	19.3	34.80	Btwn Lompoc and Vandenberg AFB	Install Vehicle Detectors, CCTV, HAR and CMS
Potential Candidate	SB	101	0.00	13.50	Btwn Carpenteria and Santa Barbara	Install Ramp Meters, CCTV, and HAR
Potential Candidate	SB	101	13.50	27.50	Btwn Garden St in SB and Winchester Cyn, Goleta	Install Ramp Meters, HAR, and CMSs
Potential Candidate	SB	101	18.0	66.00	Btwn Goleta and Santa Maria	Install Vehicle Detectors, CCTV Cameras, and CMS
Potential Candidate	SB	101	82.3	90.95	Btwn Clark Ave and the SB/SLO Co Line, near Santa Maria	Install Vehicle Detectors, CCTV, and CMS
Potential Candidate	SB	101	82.3	90.95	Near Santa Maria	Install Ramp Meters and CCTV
Potential Candidate	SBT	101	0.51	7.53	Near San Juan Bautista	Install Vehicle Detectors and CCTV
Potential Candidate	SCR	1	0.0	8.30	Near Watsonville	Install Ramp Meters and CCTV
Potential Candidate	SCR	1	10.10	15.90	State Park Drive to 1/17 Jct	Install Ramp Meters
Potential Candidate	SCR	1	17.2	37.50	Btwn City of Santa Cruz and Co Line	Install Vehicle Detectors, CCTV, and CMSs
Potential Candidate	SLO	1	18.0	36.80	Btwn SLO City and Cayucos	Install TMS Components
Potential Candidate	SLO	46	29.80	60.80	Btwn the 46E/101 Jct and the Kern Co Line	Install Vehicle Detectors, CCTV, and CMSs
Potential Candidate	SLO	101	0.7	11.83	Santa Maria River Bridge to El Campo Rd, near Nipomo	Install Vehicle Detectors, CCTV Cameras, and CMSs
Potential Candidate	SLO	101	0.7	8.00	Near Nipomo	Install Ramp Meters and CCTV
Potential Candidate	SLO	101	11.83	30.10	Btwn AG and SLO City	Install Ramp Meters and CCTV
Potential Candidate	SLO	101	37.5	58.10	Near Atascadero and Paso Robles	Install Ramp Meters and CCTV

Santa Barbara County Travel Time System

In January 2009, the Santa Barbara County Association of Governments (SBCAG), working in partnership with the Ventura County Transportation Commission (VCTC) and Caltrans installed 30 SpeedInfo solar-powered Doppler-radar sensors along 25 miles of Highway 101 from the City of Goleta to the Ventura County line. The SpeedInfo system is an important asset that gives transportation agencies a data tool for improving visibility to real-time traffic conditions, and the ability to generate highway performance profiles to identify and address specific congestion



areas along busy corridors. This latest installment of sensors adds to the existing Ventura County network that currently provides coverage for over 150 miles of roadways in the Southern California region. The SBCAG South Coast Travel Map may be accessed at: <http://www2.sbcag.org/programming/Speed-info/Southcoast-traffic-map.htm>

With this installation, drivers from Goleta through Los Angeles will have the most accurate and up-to-the-minute traffic information available. Real-time traffic information provided by these sensors will eventually feed into the Southern California 511 Traveler Information System. The Southern California 511 system may be accessed at: <http://www.go511.com/traffic/map.aspx>

The project consisted of installing Doppler-radar sensors along Highway 101 from the Ventura County line to Winchester Canyon Road on existing infrastructure at approximately 1-2 mile intervals. The sensors were installed on light poles, sign structures, and roadside call boxes at an approximate height of 12 to 20 feet, depending on the location. The sensors use Doppler-radar technology to gather traffic flow speed data. The data then can be mapped to show congestion levels on the highway, and disseminated via publicly accessible website. The sensors are solar-powered and transmit data via wireless network to the headquarters of SpeedInfo (supplier of the sensors) who will use an algorithmic formula to transform the raw data into usable public and technical information. One of the planned uses is to generate speed maps which show levels of congestion in different colors. The speed maps will be available for viewing on publicly accessible websites such as the website specifically prepared for the US 101/Milpas to Cabrillo Hot Springs Project www.sbroads.com

The data gathered by the speed sensors will also be useful in that it will provide a continual stream of traffic flow data that will be useful in the traffic studies being performed for other Highway 101 projects such as the 101 Widening from Mussel Shoals to Caprinteria Creek, the 101 South Coast HOV project and the Corridor System Management Plan being undertaken by Caltrans for the entire Highway 101 corridor from Rice Road in Ventura County to Winchester Canyon Road in Goleta.

1. SpeedInfo Sensors

SpeedInfo sensors update real-time traffic systems with speeds every minute and are located approximately every mile. Sensors forward data to the SpeedInfo Traffic Data Server via the AT&T Wireless[®] data network with virtually no latency. SpeedInfo servers format the data for delivery to customers via the Internet. The data is available from SpeedInfo servers in a standard XML format, or if required, specialized formats. SpeedInfo's sensors install easily and highway crews can cover as many as 15 miles of highway a day with no lane closures or disruption to traffic. The data cannot be sent to PeMS for performance evaluation.

Ramp Metering

The Basic Goal of system management is the cooperative and complementary management and operation of highways, arterials and transit to provide efficient and effective transportation of people and goods. An efficient and effective transportation system provides safe, convenient and

reliable transportation at monetary, social, and environmental costs that are acceptable to the region and the communities in the corridor. Ramp metering is a traffic management strategy which uses traffic signals, accompanying equipment, and software techniques to manage ramp traffic flow onto the freeway system based on real time or historical traffic conditions. Caltrans is committed to using ramp metering as an effective traffic management strategy to maintain an efficient freeway system and protect the investment made in constructing freeways by keeping them operating at or near capacity.

Ramp metering is typically deployed at onramps, but metering can also be installed at freeway-to-freeway connectors, or even freeway mainline. Ramp metering systems have been extremely successful in reducing congestion and increasing safety. First, ramp metering manages the onramp flow so that the mainline downstream bottleneck capacity will not be exceeded. The result is increased mainline throughput, and reduced overall congestion for both mainline and onramp traffic over the entire peak traffic period. Second, ramp metering allows only an identified number of vehicles per minute to merge with the mainline flow, which leads to smoother and safer merging operations. Finally, at some ramp metering locations, High-Occupancy Vehicle Preferential Lanes (HOVPL) are provided to encourage car pooling by allowing the carpoolers, buses and motorcycles to skip the ramp meter's queue to augment the people-carrying capacity on existing freeway facilities.

There are three types of ramp meter operations, i.e. fixed-rate, locally traffic-responsive, and corridor/system wide traffic adaptive metering. In fixed-rate metering, meters are activated based on some pre-selected schedules and metering rates. The metering rates may change based on time-of-day, but will not respond to mainline traffic conditions. In locally traffic-responsive metering, ramp meters operate at a rate proportional to the mainline traffic conditions reported by the loop detectors placed immediately upstream of the onramp. For example, if the mainline traffic operating speed is low and vehicle occupancy is high, then the ramp meter controller will automatically select a lower metering rate. In Corridor/System Wide Adaptive metering, the metering rate at an onramp is determined by considering not only the immediate upstream mainline operations, but also the conditions throughout a certain segment of freeway near the metered ramp. This is done at a central location, such as a Transportation Management Center.

Initial implementation of ramp metering is frequently opposed by our local partners and the public alike because of the perceived risk of onramp queue spillover onto the surface street network. This perception can be dispelled by educating the public on the benefits of ramp metering. Caltrans has negotiated agreements with their respective local partners to develop a plan to educate the public, dispel the perceptions and resolve the public's concerns. Local partners may include local traffic engineering departments, public works departments, transit agencies, metropolitan planning organizations, and congestion management agencies. Equity is another concern because ramp metering is sometime viewed to increase travel time. Media campaigns are very important in educating the public that ramp metering will actually shorten the travel time for everyone. Last but not least, enforcement is necessary to minimize HOVPL and red light violations. Close coordination between Caltrans and law enforcement agencies, such as the California Highway Patrol is necessary. Clearly, partnerships are crucial for the successful deployment and operations of ramp metering.

Partnership is critical for the successful implementation of a ramp metering system. The primary corridors for ITS implementation also serve as primary corridors for ramp metering. Caltrans District 5 is currently seeking local partners to advocate for the implementation of ramp metering systems within the congested corridors of Santa Barbara, San Luis Obispo, Monterey, Santa Cruz, and San Benito Counties. Ramp metering lights should not be turned on until such time as there is a formal agreement between Caltrans and the local agencies detailing the operational aspects of the project and the responsibilities and process for addressing operational concerns in the event ramp metering has impacts on the local street network.

Caltrans District 5 is committed to working cooperatively with our local partners to mitigate project generated cumulative impacts to the State Highway System. The installation of a corridor wide ramp metering system can provide our partners with a low cost nexus for the mitigation of cumulative traffic impacts on the State Highway System. The District currently has two (2) isolated ramp meters installed within the District and three (3) more currently under development. A figure depicting the District's Ramp Meter Development Plan is provided in Attachment A.

511 Systems

The three digit 511 phone number has been designated for use throughout the United States as a uniform way to provide the public with current information about travel conditions. The special 511 phone number was set aside for this purpose by the Federal Communications Commission (FCC) in 2000. In 2005, the federal bill authorizing six-years of transportation funding, known as SAFETEA-LU, set the goal of making traveler information available through the 511 phone number nationwide by the year 2010. A 511 Traveler Information System generally has two components - a voice recognition-based phone system and a website component. By making travel information easy to access, it is understood that people can make more informed choices about when to travel, what type of transportation to use, and what route to take. Typically, fully implemented regional 511 systems include detailed information about: roadway conditions including traffic speeds, travel times, incidents and construction delays; transit schedules, delays, routes, fares, and changes in service; assistance finding a carpool or vanpool; bicycle routes and safety information; and, telecommuting.

1. Santa Cruz & Monterey Counties - 511 Grants

In August 2010, the Department awarded a \$259,210 Partnership Planning Grant to the Santa Cruz Regional Transportation Commission (SCCRTC) and the Transportation Agency for Monterey County (TAMC) to jointly develop a 511 system. The preparation of a feasibility and implementation plan for the Monterey Bay 511 Traveler Information System is a joint effort between the SCCRTC, TAMC, and Caltrans. These agencies hope to develop a plan by the end of 2011.

The partners are also coordinating the 511 Feasibility and Implementation Plan effort with the Council of San Benito County Governments (SBtCOG) on its transit information project. County planners have begun researching how to best configure the new system, like sending

motorists daily text messages about conditions on their morning commute or tweets when traffic eases on their route home. The proposed 511 system will provide a real-time look at traffic, and offer alternative routes to various locations. Bus schedules, public transit delays, and carpools options will also be included. County Planners are now surveying commuters at <http://511montereybay.org>

2. San Luis Obispo County - 511 System

In November 2009, the San Luis Obispo Regional Rideshare (Rideshare), a division of the San Luis Obispo Council of Governments (SLOCOG) received notice to proceed on the Cycle 3 New Freedom Grant Program, which will fund the next two years of the 511 Telephone and Website Application. The current status of the San Luis Obispo County 511 system is provided below.

A. 511 Telephone Application Status

A soft-launch of the Telephone Application is slated for fall 2010, pending final testing of the Road Conditions portion of the menu tree. This feature connects to the CHP CAD system and reports incidents and traffic delays. The project consultant, ICX Transportation has encountered issues with the connection to CHP's CAD system, but hopes to have the issues resolved by fall, 2010. In addition, the limited amount of incidents and traffic delays on San Luis Obispo County's major roads and highways makes the feature hard to test. Aside from the Road Conditions menu option, the Public Transportation, Rideshare, and Roadside Assistance options are fully functional and updated. The Floodgate Feature allows Rideshare and SLOCOG staff to interject announcements and messages into any location of the 511 menu tree. This feature is ideal for special events, large traffic delays or emergencies.

B. 511 Website Status

Rideshare is in the final stages of developing a new www.rideshare.org website, funded through a Cycle 3 New Freedom Grant. The remaining tasks include graphic design and content generation. Rideshare is working with a graphic designer to develop a new Rideshare logo, which will depict the design of the new website. In addition, a photographer is taking photos of SLOCOG staff using alternative modes of transportation, which will be prominently displayed on the homepage. Features of the new website, which will be available in English and Spanish, will include:

- A real-time mapping feature depicting traffic flow throughout the county
- ADA compliant with the option to increase text size
- Online bus trip planner, using Google Transit
- User interaction including polls, Really Simple Syndication (RSS) feeds, news feeds a blog and newsletter

C. 511 Highway Signs Status

Under the original 2008 Job Access Reverse Commute Grant to develop the 511 Telephone Applications, funding was also allocated for the fabrication of highway signs. Rideshare worked with Caltrans to develop the signs and Caltrans designed three different signs of various sizes depending upon the location. Staff fabricated eleven 511 signs to replace the already existing 541-CARS signs. Rideshare submitted an encroachment permit application to Caltrans in April 2010 for the installation of the eleven signs.

3. San Benito County - 511 Ridematch

The Bay Area Metropolitan Transportation Commission 511 Ridematch System Database contains addresses and contact information for commuters interested in receiving carpool and vanpool matchlists. A memorandum of understanding between the Metropolitan Transportation Commission and Council of San Benito County Governments was executed on March 18, 2010 granting San Benito County Rideshare access to the Database to support local and regional ridesharing efforts.

The Council of San Benito County Governments, through the San Benito County Rideshare Program, operates a county-wide Transportation Demand Management (TDM) program to facilitate the formation of carpools and vanpools within its communities and to perform outreach to county employers to promote commuters' use of alternatives to the Single Occupant Vehicle.

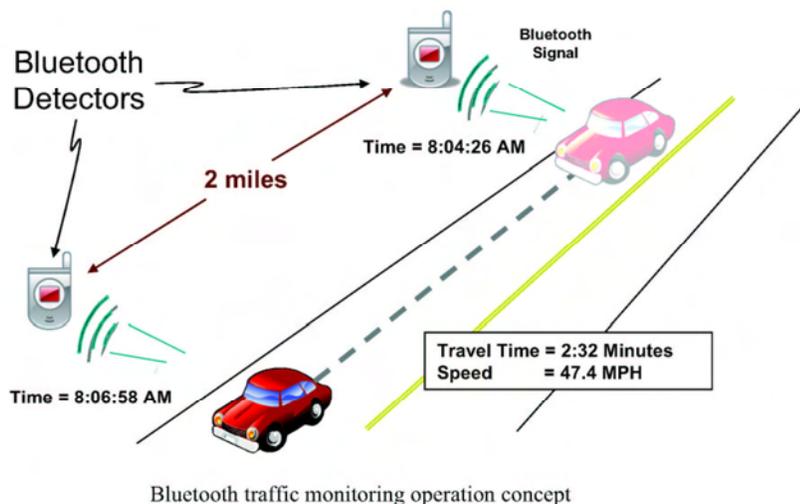
Alternative Technologies

Caltrans' Division of Research and Innovation, in cooperation with its partners, has developed a comprehensive program to research, develop, test, and evaluate transportation innovations. These innovations enable Caltrans to provide the most effective management of the State's transportation facilities. The goal is to find low-cost solutions that will substantially increase the value taxpayer dollars invest in present and future transportation facilities.

One such low cost innovative technology currently under development is the Bluetooth Travel Time Project. Using Bluetooth Technology, the travel time of vehicles can be determined in real time by re-identifying bluetooth devices in vehicles between multiple sites. Bluetooth technology connects and exchanges information for cell phones, hands-free headsets, wireless keyboards, Internet access for personal digital assistants, and wireless networks for laptops and personal computers.

These new travel-time estimation procedures will detect and record "Media Access Control," or MAC identification signals, every time a Bluetooth device passes a detector. MAC addresses are unique 48-bit addresses that are assigned by manufacturers of consumer electronic wireless devices such as cell phones, laptops, hands-free headsets, MP3 players and GPS devices that have either Wi-Fi or Bluetooth® capability. By mounting a simple whip antenna adjacent to the roadway, MAC addresses for visible devices can be easily logged and time-stamped. If these

MAC addresses are simultaneously logged at multiple locations, the unique MAC addresses can be matched, and the difference in time stamps can be used to estimate the travel time. A single Bluetooth reader mounted on the side of the road can be used to determine travel time in both directions. The re-identification rate is high enough to differentiate HOV travel time from mixed flow in both directions across an 8 lane freeway. The Bluetooth travel time data can be made available across the web and fully integrated into PeMS. The following illustration provides a depiction of a bluetooth travel time system.



Conventionally, travel time has been extrapolated from individual speed detectors. Often, these detectors are not accurately calibrated, and even when they are, speed distribution in congestion is not uniform, and simple extrapolations of speed to travel time are known to be invalid. Travel time derived from tracking cell phones, license plates, or toll tags involves a potential for invasion of privacy.

With the Bluetooth Travel Time Project, there is no connection between the MAC address of a Bluetooth device and the actual person's identity. The anonymous nature of this technique is due to the use of MAC addresses as identifiers. MAC addresses are not associated with any specific user account (as is the case with cell phone probes) or any specific vehicle (as with automated toll tags). The MAC address is not linked to a specific person through any type of central database, thus minimizing privacy concerns. MAC address are assigned at the Bluetooth electronic chip manufacturers, and not tracked through the sales chain. This low cost technology would be beneficial to District 5 and our local partners due to the rural characteristics and chronic funding shortfalls. Bluetooth Traffic Monitoring would provide an opportunity to collect high quality, high density travel times by anonymously sampling a portion of actual travel times from the traffic stream. By matching MAC addresses at two different locations, not only is accurate travel time measured, but privacy concerns typically associated with probe systems are minimized. Bluetooth traffic monitoring is estimated to be 500 to 2500 times more economical than drive testing on a cost per data point basis.

Recommendations

- Assign a single point of contact within the District to coordinate the Central Coast ITS Implementation effort.
- Partner with local agencies to build a responsive transportation system that will effectively and efficiently move people and goods within the Santa Barbara-Santa Cruz Region.

Attachments

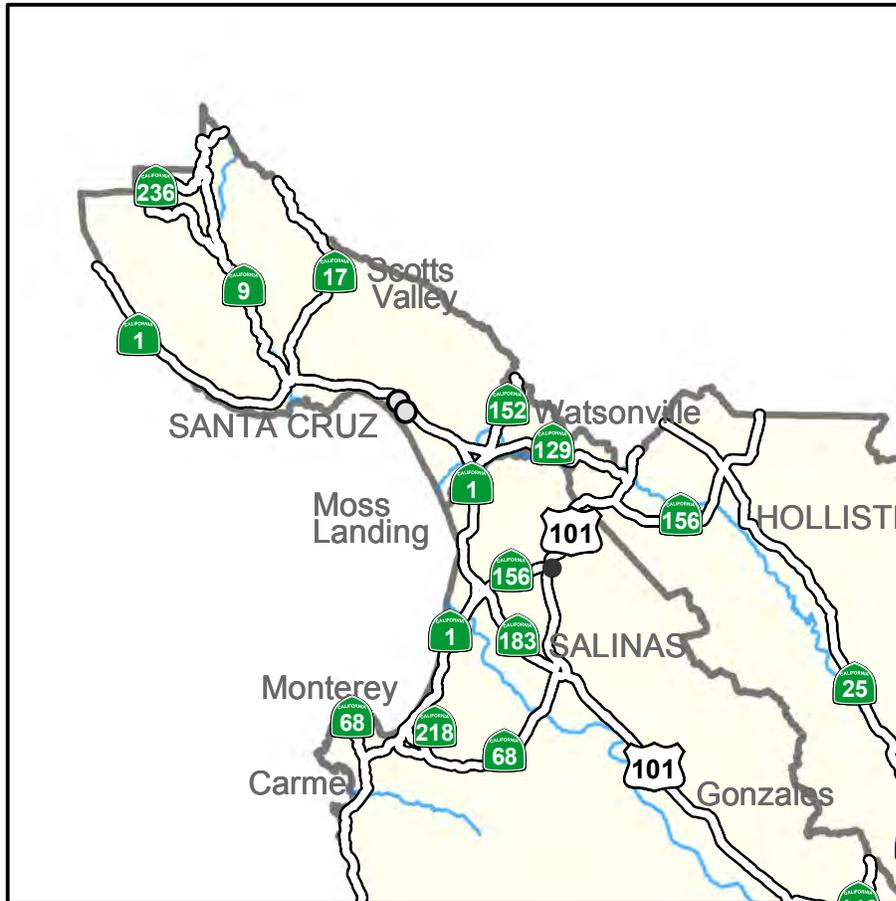
The following attachments are provided to support the District's deployment status for the ITS Implementation Plan.

1. Attachment A - District ITS/TMS Element Maps
2. Attachment B - Statewide TMS Inventory
3. Attachment C - District ITS Deployment Status List

ATTACHMENT A

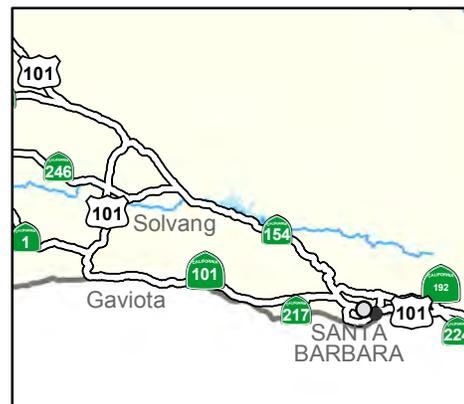
MAPS

- DISTRICT 5 RAMP METERS
- MONTEREY COUNTY TMS
- SAN BENITO COUNTY TMS
- SAN LUIS OBISPO COUNTY TMS
- SANTA BARBARA COUNTY TMS
- SANTA CRUZ COUNTY TMS



Ramp Meter Status

- EXISTING
- PROPOSED



While the data on this map has been examined for accuracy, Caltrans disclaims any responsibility for the accuracy or correctness of the data.



Department of Transportation
 Division of Traffic Operations GIS
 May 2009

Ramp Meter Development Plan District 5

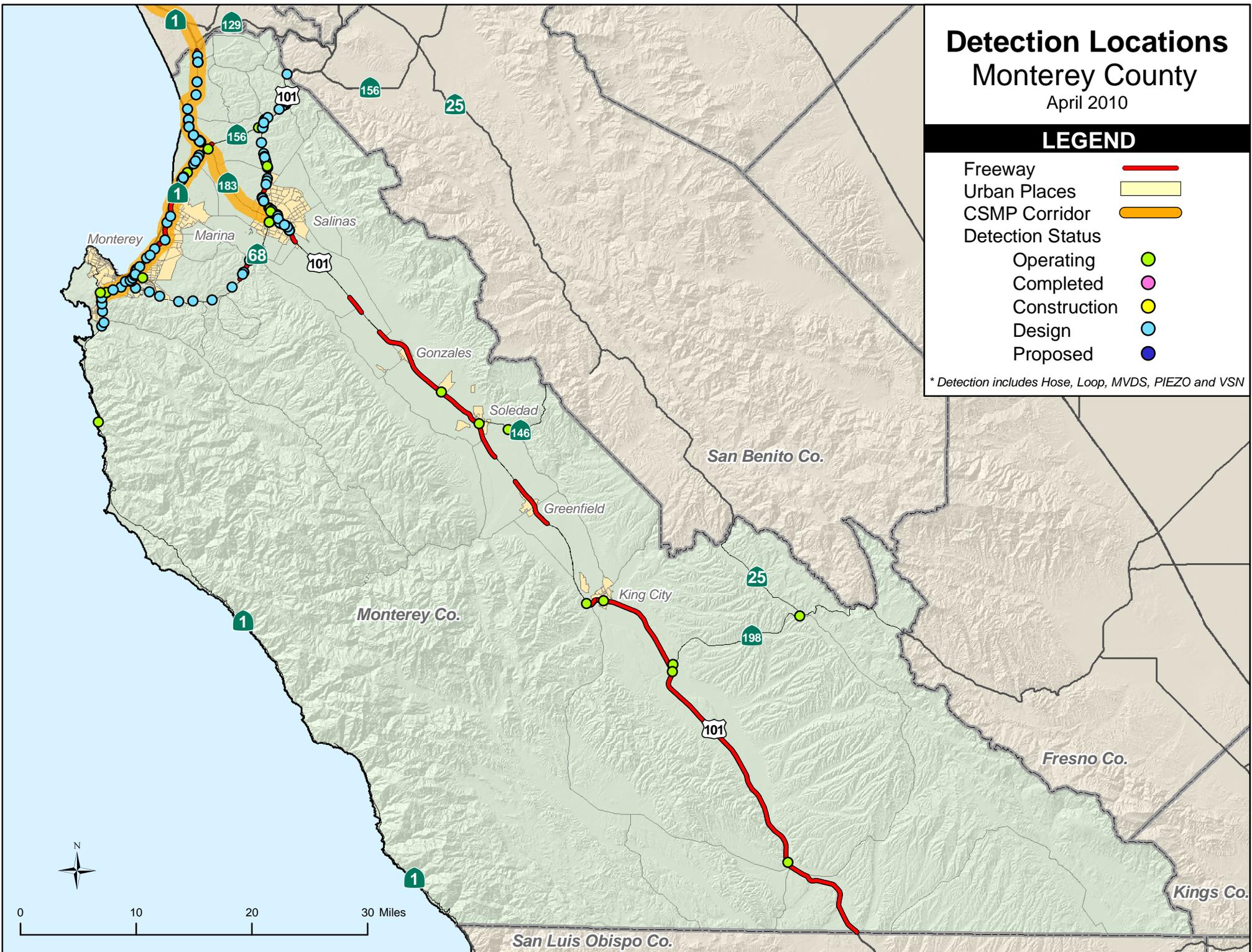
Detection Locations Monterey County

April 2010

LEGEND

Freeway	
Urban Places	
CSMP Corridor	
Detection Status	
Operating	
Completed	
Construction	
Design	
Proposed	

* Detection includes Hose, Loop, MVDS, PIEZO and VSN



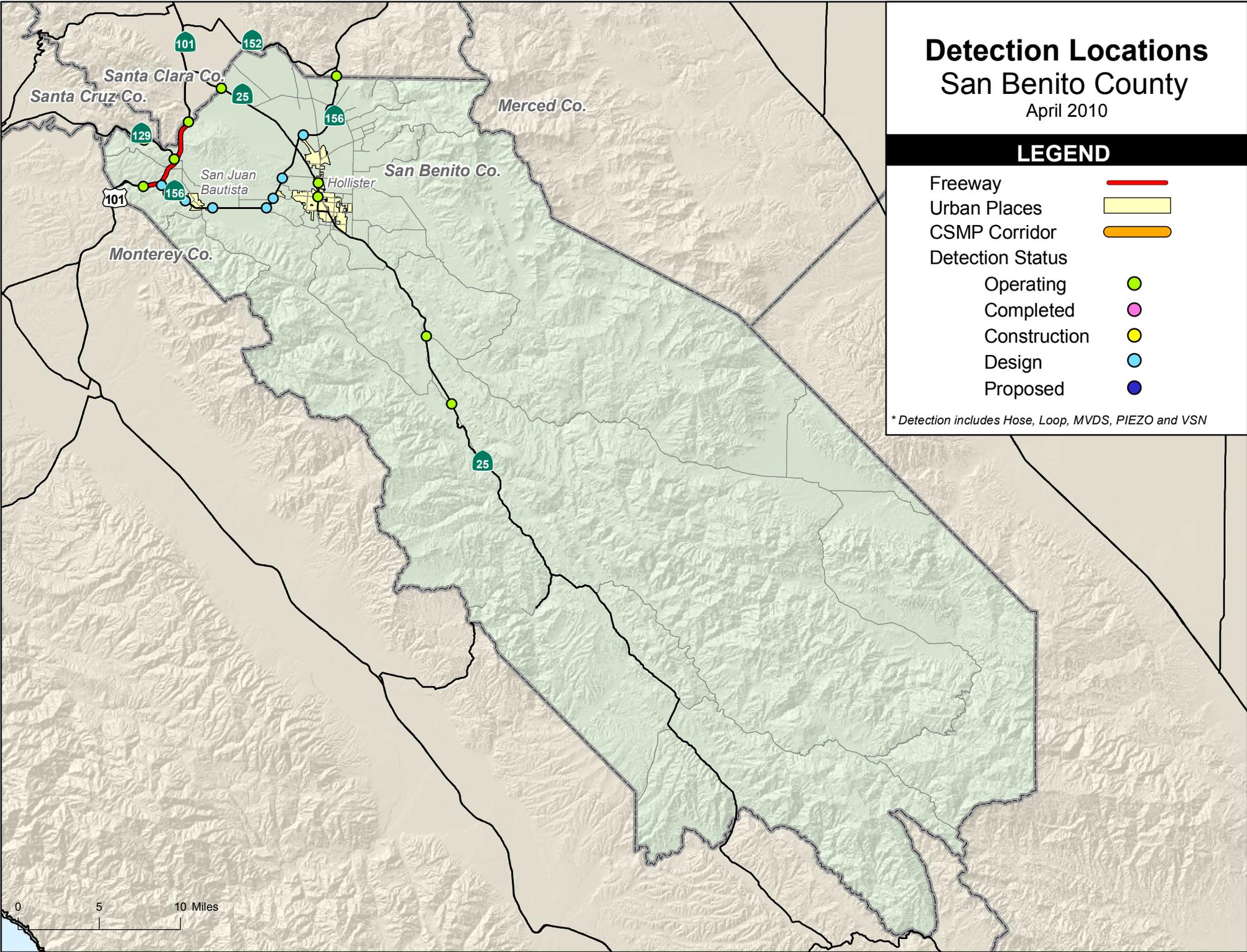
Detection Locations San Benito County

April 2010

LEGEND

- Freeway 
- Urban Places 
- CSMP Corridor 
- Detection Status
 - Operating 
 - Completed 
 - Construction 
 - Design 
 - Proposed 

* Detection includes Hose, Loop, MVDS, PIEZO and VSN



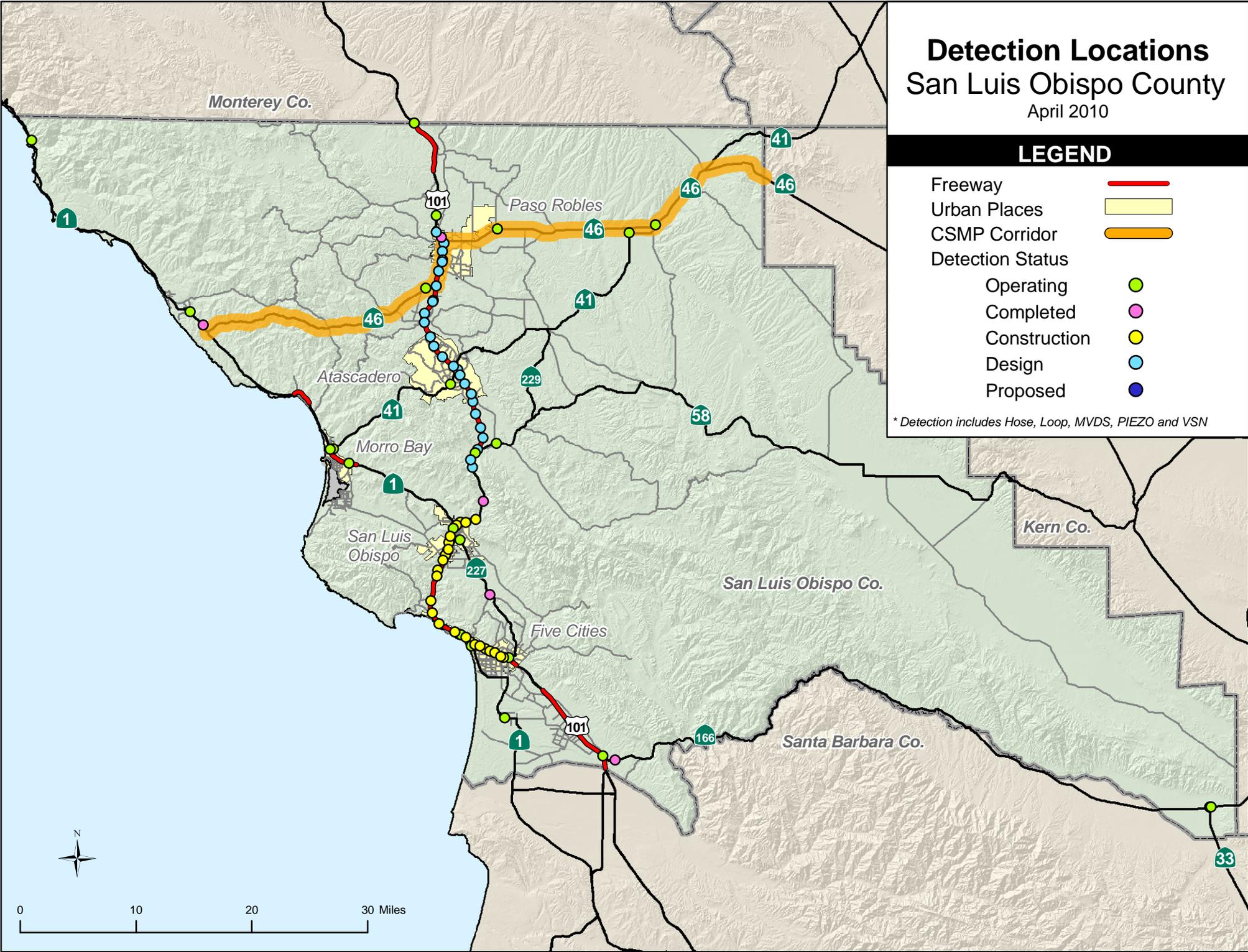
Detection Locations San Luis Obispo County

April 2010

LEGEND

- Freeway —
- Urban Places
- CSMP Corridor
- Detection Status
 - Operating ●
 - Completed ●
 - Construction ●
 - Design ●
 - Proposed ●

* Detection includes Hose, Loop, MVDS, PIEZO and VSN



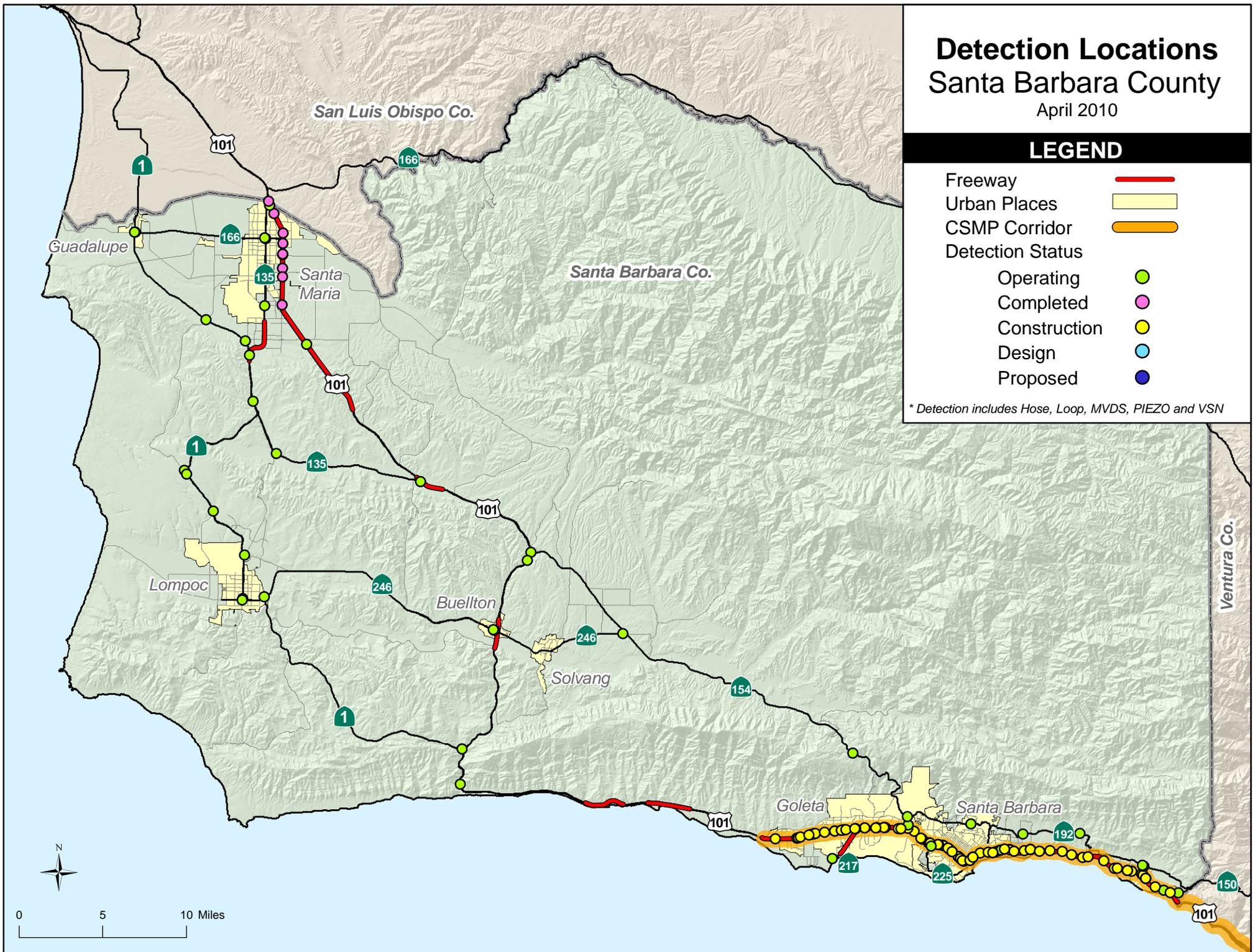
Detection Locations Santa Barbara County

April 2010

LEGEND

Freeway	
Urban Places	
CSMP Corridor	
Detection Status	
Operating	
Completed	
Construction	
Design	
Proposed	

* Detection includes Hose, Loop, MVDS, PIEZO and VSN



Detection Locations Santa Cruz County

April 2010

LEGEND

Freeway	
Urban Places	
CSMP Corridor	
Detection Status	
Operating	
Completed	
Construction	
Design	
Proposed	

* Detection includes Hose, Loop, MVDS, PIEZO and VSN



ATTACHMENT B

STATEWIDE TMS INVENTORY

- PLANNED TMS INVENTORY
- BUILDOUT TMS INVENTORY
- 2009 TMS INVENTORY
- 2007 TMS INVENTORY

Transportation Management Systems (Planned)

(PROGRAMMED + PROPOSED)

ELEMENTS	DISTRICTS	1	2	3	4	5	6	7	8	9	10	11	12
	Total Planned												
Closed Circuit TV Cameras	1537	11	84	87	361	155	69	107	324	6	39	260	34
Fixed CMSs	597	1	74	63	67	18	114	53	72	3	94	29	9
Fixed HAR	150	0	23	20	21	8	29	9	11	7	8	10	4
Weather Information Sys *	169	0	35	12	0	0	47	0	5	10	60	0	0
Fiber Optics Communications (Miles)	1757	0	0	144	544	31	71	246	213	0	249	183	77
Ramp Meter Locations	1637	0	17	197	620	4	103	143	238	0	169	142	4
Detection Stations	4097	6	82	270	1262	393	316	228	411	0	729	389	11
Detection- mainline + ramps	1638	0	17	197	620	4	103	143	238	0	169	142	4
Detection- mainline only	2459	0	65	73	642	389	213	85	173	0	560	247	7

Transportation Management Systems (Buildout)

(EXISTING + PLANNED)

ELEMENTS	DISTRICTS	1	2	3	4	5	6	7	8	9	10	11	12
	Total Buildout												
Closed Circuit TV Cameras	3240	39	138	166	781	181	122	534	533	7	66	350	321
Fixed CMSs	1307	36	104	108	202	29	203	168	135	9	152	81	80
Fixed HAR	303	8	39	44	62	11	48	28	17	8	18	14	6
Weather Information Sys	332	12	53	70	1	0	61	8	23	13	85	6	0
Fiber Optics Communications (Miles)	2605	0	0	192	578	31	85	606	346	0	340	228	200
Metered Ramp Locations Total	4007	0	17	338	1011	6	156	1143	434	0	171	425	306
Detection Stations Total	9251	6	90	644	2223	403	454	1596	1171	0	982	1040	605
Detection- mainline + ramps	4045	0	17	338	1011	6	156	1143	434	0	171	425	306
Detection- mainline only	5206	0	73	306	1212	397	298	453	737	0	811	615	299

2009

Element	D1 Completed	D2 Completed	D3 Completed	D4 Completed	D5 Completed	D6 Completed	D7 Completed	D8 Completed	D9 Completed	D10 Completed	D11 Completed	D12 Completed	Units Completed
Layer 1 - Field Elements													
Intersection Traffic Signal (Total)	60	114	290	1005	311	367	716	600	28	253	483	482	4709
Int. Traffic Signal - Delegated				420		2	628					26	1076
Veh. Detection Stat. (Total)	33	48	179	1504	20	90	1339	502	80	319	468	292	4874
Veh. Detection Stat. - Urban (Total)	1	3	136	1504			1339	307		273	248		3811
Veh. Detection Stat. - Rural (Total)	32	45	43		20			195	81	46	220		682
Freeway Ramp Meter (Total)			141	267	2	49	974	182		2	283	308	2208
Freeway Connector Meters				17			29				10		56
Video Cameras (Total)	32	58	89	408	17	53	454	191	1	27	88	285	1703
Changeable Message Sign (Total)	33	33	54	135	12	88	118	58	9	54	52	67	713
Reversible Lane Elements											1		1
Extinguish. Message Sign	20	47	68	87	5	43	37		4	12	22	2	347
Highway Advisory Radio	8	17	26	29	1	23	16	6	1	10	4	2	143
Roadway Weather Info. Sys.	12	19	17	1		14		18	3	25	6		115
Visibility Sensor			39			1							40
Weigh In Motion (WIM)	2	10	14	37	4	11	25	23	1	12	22	12	173

Element	D1 Completed	D2 Completed	D3 Completed	D4 Completed	D5 Completed	D6 Completed	D7 Completed	D8 Completed	D9 Completed	D10 Completed	D11 Completed	D12 Completed	Units Completed
Layer 2 - Communications													
Fiber Optics													
Miles		3	37	52		16	400	141.04		12.467	47	174.04	883
Drops		5	7	40		75	613	537			150	171	1598
Non-Leased Comm.													
Microwave	6	29	4	6				4		24			73
Backbone Hops	8	3											11
Wireless			27										
Twisted Pair	1	57		40			898	496	17	54		365	1928
Leased Comm.													
Analog 3002			36				690		1	27	27	7	788
A.D.N.										3			3
T1			2	7		3	10				1	1	24
ISDN		53	19	298	1	15					3	4	393
POTS	95	220	124	135	9	88	40			85	306	36	1138
CDPD													0
CDMA						104			85				
GPRS			261	1150	18		16	77	1	329		1	1853
Satellite									1	1			2
DSL			85	20	18	6	1	1		3	36		170
Frame Relay				2			1	1					4
DS3 - ATM				1							2		3
Cable			2		1								3
Communications Hub													
mini hub			3			4	139	22		7	17	12	204
mid-size hub		3	1	2				7			7	4	24
full-size hub							6					4	10
central hub			1	1		1	1	1			1	1	7
Front End Processor			2	4		1	2	2			4	2	17
Central Infrast.													
Network	1	1		2	1	1	1	3		1	1	1	13
Video Display Sys. - Urban			1	1			1	1			1	1	6
Video Display Sys. - Rural	1	1	1		1	1				1			6

Element	D1 Completed	D2 Completed	D3 Completed	D4 Completed	D5 Completed	D6 Completed	D7 Completed	D8 Completed	D9 Completed	D10 Completed	D11 Completed	D12 Completed	Units Completed
<u>Layer 3 - Central Applications</u>													
Arterial Mgt. System													
Commercial (Legacy)	0	0	0	0	0	0	1	1	0	1	0	0	3
CTNET	1	1		1	1		2			1		1	8
Commercial						1					2		3
Chang. Mess. Sign Control	1		1	1		1	1	1	1	2	4	1	14
District 3			1										1
District 4				1									1
District 6						1							1
District 7							1						1
District 8								1					1
District 11											1		1
District 12												1	1
Support Environment													1
Ramp Meter Central Sys.													
Legacy													0
SDRMIS			1			1					1		3
Planned Lane Closure Sys.	1	1		1		1	1	1	1	1	1	1	10
Reversible Lane Control											1		1
Caltrans. Autom. Warning		3								1			4
RWIS Central System	1	1	1			1		1	1	1			7
HAR Central System	1	1	1	1		1	1	1		1	1		9
SOC Command System	1	9	1	1	2	2				1			17

Element	D1 Completed	D2 Completed	D3 Completed	D4 Completed	D5 Completed	D6 Completed	D7 Completed	D8 Completed	D9 Completed	D10 Completed	D11 Completed	D12 Completed	Units Completed
<u>Layer 4 - Info Delivery Systems</u>													
PeMS						1				1			2
Traffic Websites													0
Hardware_District 1	1												
Hardware_District 2		3											
Hardware_District 3			1										
Hardware_District 4				1									1
Hardware_District 5					1								
Hardware_District 8								1					1
Hardware_District 10										1			1
Hardware_District 11											1		
Hardware_District 12												1	1
Media Video feeds			1	1		2	1	1		2	1	1	10
Regional Traveler Information													
D4				1							1		2
D5					1								
D7													0
D11											1		1
WAN Devices	1	1	1	1	1		1	1				1	8

**2007 TMS Inventory
District Quantities**

	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D51	Units
Element	Completed													
Layer 1 - Field Elements														
Intersection Traffic Signal	60	110	266	993	324	333	716	625	28	220	466	445		4586
Int. Traffic Signal - Delegated	0	0	114	420	0	2	628	0	0	0	0	32		1196
Veh. Detection Stat. - Urban	1	0	111	1214	0	65	412	100	92	68	156	273		2492
Veh. Detection Stat. - Rural	32	44	43	0	4	0	0	66	0	52	140	25		406
Freeway Ramp Meter	0	0	139	248	2	47	928	169	0	0	276	316		2125
Mainline Metering	0	0	0	3	0	0	0	0	0	0	3	0		6
Freeway Connector Meters	0	0	0	17	0	0	19	0	0	0	10	0		46
Video Cameras	25	44	77	326	13	50	395	166	0	17	69	183		1365
Changeable Message Sign	33	27	47	96	7	84	109	56	7	41	45	54		606
Reversible Lane Elements	0	0	0	0	0	0	0	0	0	0	1	0		1
Extinguish. Message Sign	20	5	30	63	5	43	37	0	0	4	22	2		231
Highway Advisory Radio	8	13	24	23	2	18	19	6	1	8	4	2		128
Roadway Weather Info. Sys.	12	15	19	1	0	13	0	18	3	17	6	0		104
Visibility Sensor	0	0	39	0	0	1	0	0	0	0	0	0		40
Weigh In Motion (WIM)	2	10	16	37	4	11	25	28	1	12	22	12		180

2007 TMS Inventory District Quantities

	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D51	Units
Element	Completed													
Layer 2 - Communications														
Fiber Optics														
Miles	0	0	31	52	0	11	340	141.04	0	0	47	109.74		732
Drops	0	0	5	40	0	60	413	455	0	0	150	171		1294
Non-Leased Comm.														
Microwave	4	15	4	6	1	0	0	4	0	24	0	0		58
Backbone Hops	0	6	0	0	0	0	0	0	0	0	0	0		6
Twisted Pair	1	42	0	40	0	0	770	496	0	54	0	365		1768
Leased Comm.														
Analog 3002	0	0	63	0	0	43	931	0	1	27	263	240		1568
A.D.N.	0	0	0	61	0	4	0	0	0	3	0	0		68
T1	0	0	2	13	0	1	8	0	0	0	2	4		30
ISDN	0	31	28	273	7	24	8	0	0	0	16	14		401
POTS	95	166	61	128	9	108	40	0	106	85	339	36		1173
CDPD	0	0	0	20	0	0	4	0	0	0	0	0		24
GPRS	0	0	212	840	3	74	13	77	0	10	0	6		1235
Satellite	0	0	0	0	0	0	0	0	1	1	0	0		2
DSL	1	0	16	10	6	5	1	1	0	0	11	0		51
Frame Relay	0	0	0	0	0	1	2	1	0	0	0	0		4
DS3 - ATM	0	0	1	1	0	0	0	0	0	0	1	0		3
Communications Hub														
mini hub	0	0	0	0	0	4	121	21	0	0	17	12		175
mid-size hub	0	0	0	2	0	0	0	7	0	0	7	1		17
full-size hub	0	0	0	0	0	0	5	0	0	0	0	4		9
central hub	0	0	1	1	0	1	1	1	0	0	1	1		7
									0	0	0	0		
Front End Processor	0	0	1	4	1	1	2	2	0	0	2	2		15
Central Infrast.														
Network	1	1	1	2	1	1	1	3	0	1	1	1		14
Video Display Sys. - Urban	0	0	1	1	0	0	1	1	0	0	1	1		6
Video Display Sys. - Rural	1	1	0	0	1	1	0	0	0	1	0	0		5

2007 TMS Inventory District Quantities

Element	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D51	Units
	Completed													
Layer 3 - Central Applications												0		
Arterial Mgt. System												0		
CTNET	1	1	1	1	1	0	2	0	0	1	0	1		9
Commercial	0	0	1	0	0	0	0	0	0	0	1	0		2
					0	0	0	0	0	0	0	0		
Chang. Mess. Sign Control	1	2	1	1	0	1	1	1	1	2	2	1		14
Freeway Mgt. System														
District 3	0	0	1	0	0	0	0	0	0	0	0	0		1
District 4	0	0	0	1	0	0	0	0	0	0	0	0		1
District 6	0	0	0	0	0	1	0	0	0	0	0	0		1
District 7	0	0	0	0	0	0	1	0	0	0	0	0		1
District 8	0	0	0	0	0	0	0	1	0	0	0	0		1
District 11	0	0	0	0	0	0	0	0	0	0	1	0		1
District 12	0	0	0	0	0	0	0	0	0	0	0	1		1
Support Environment	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Ramp Meter Central Sys.														
Legacy	0	0	1	0	0	0	0	0	0	0	0	0		1
SDRMIS	0	0	0	0	0	1	0	0	0	0	1	0		2
Planned Lane Closure Sys.	1	1	1	1	0	1	1	1	1	1	1	1		11
					0	0	0	0	0	0	0	0		
Reversible Lane Control	0	0	0	0	0	0	0	0	0	0	1	0		1
Caltrans. Autom. Warning	0	0	0	0	0	0	0	0	0	1	0	0		1
					0	0	0	0	0	0	0	0		
RWIS Central System	1	1	1	0	0	1	0	1	1	1	0	0		7
HAR Central System	1	1	1	0	0	0	1	1	0	0	0	0		5
SOC Command System	1	1	1	1	2	2	0	0	0	1	0	0		9

2007 TMS Inventory District Quantities

	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D51	Units
Element	Completed													
Layer 4 - Info Delivery Systems														
PeMS	0	0	0	0	0	0	0	0	0	0	0	0	0	1
								0	0	0	0	0		
Traffic Websites	1	3	1	1	1	0	0	1	0	0	1	0		9
Hardware_District 4	0	0	0	1	0	0	0	0	0	0	0	0		1
Hardware_District 8	0	0	0	0	0	0	0	1	0	0	0	0		1
Hardware_District 10	0	0	0	0	0	0	0	0	0	1	0	0		1
Hardware_District 12	0	0	0	0	0	0	0	0	0	0	0	1		1
Media Video feeds	0	0	1	1	0	0	1	1	0	0	1	1		6
Regional Traveler Information														
D4	0	0	0	1	0	0	0	0	0	0	0	0		1
D7	0	0	0	0	0	0	0	0	0	0	0	0		0
D11	0	0	0	0	0	0	0	0	0	0	0	0		0
WAN Devices	1	1	1	1	1	0	1	1	0	0	0	1		8

ATTACHMENT C

DISTRICT 5 ITS ELEMENTS DEPLOYMENT STATUS

- MONTEREY COUNTY
- SAN BENITO COUNTY
- SAN LUIS OBISPO COUNTY
- SANTA BARBARA COUNTY
- SANTA CRUZ COUNTY
- NEEDS LIST

**District 5 ITS Elements
Monterey County**

ITS Type	County	Route	Dir. Of Travel	Cross Street or Route	Post Mile	Type of Installation (N/E Travel Descrip for cens.)	Location (S/W Travel Description for census.)	Comm Type	Power Source	Status
LOOP	MON	1	NB/SB	BIG SUR, 100' S OF GARRAPATA CREEK BRIDGE	62.93	100' BEFORE BRDG	100' AFTER BRDG	NONE	battery	operating
CMS	MON	1	SB	Carmel River Bridge	72.30	Model 520, butterfly base.	SB shoulder north of bridge.	CELL	utility	construction
MVDS	MON	1	NB/SB	South of Oliver Rd	72.43	Existing overhead flashing beacon.	NB side.	CELL	utility	design
MVDS	MON	1	NB/SB	South of Carmel Valley Rd	72.79	New VDS 30 pole.	NB side.	CELL	PV	design
MVDS	MON	1	NB/SB	South of Ocean Avenue	73.76	New VDS 30 pole.	NB side.	CELL	PV	design
MVDS	MON	1	NB/SB	South of Carpenter St	74.44	Existing overhead flashing beacon.	NB side.	CELL	utility	design
LOOP	MON	1	NB/SB	DIRECTLY AT GORE POINT AT THE DIVIDED HIGHWAY	74.62	300' NORTH OF CARPENTER	JUST NORTH OF SAN LUIS AVE	NONE	battery	operating
RP-VSN	MON	1	NB	North of Carpenter St (Route 68)	74.95	Existing luminaire and in pavement.	NB off ramp.	RF	PV/ battery	design
AP, CCTV, MVDS	MON	1	SB	North of Carpenter St (Route 68)	75.00	New CCTV 40 pole.	SB on ramp.	DSL	PV	design
LOOP	MON	1	NB/SB	MUNRAS AVE I.C., 1 LP NB OFF, 1 LP SB ON, 4 LPS MAINLINE (ALL IN A LINE), JUST NORTH OF PACIFIC GROVE/68 INTERCHANGE JUST AT THE UPCOMING OFF RAMP SOLEDAD/MUNRAS N/B OFF	75.60	FWY LANES COUNT BEFORE NB OFF RAMP	FWY LANES COUNT AFTER SB ON RAMP	NONE	battery	operating
MVDS	MON	1	NB/SB	South of Munras Avenue	75.60	New VDS 30 foot pole.	SB on ramp.	CELL	PV	design
CCTV, MVDS	MON	1	SB	North of Munras Avenue	76.23	New CCTV 40 pole.	SB off ramp.	DSL	PV	design
MVDS	MON	1	NB/SB	South of Aquajito Rd	76.98	New VDS 30 pole.	NB side.	CELL	utility	design
CCTV, MVDS	MON	1	SB	Aquajito Rd	77.63	Existing cantilever sign.	SB off ramp.	DSL	PV	design
RP-VSN	MON	1	SB	South of Fremont St (Route 68)	77.89	Existing luminaire and in pavement.	SB on ramp.	RF	PV/ battery	design
CCTV, MVDS	MON	1	NB	South of Fremont St	78.05	New CCTV 40 pole.	NB off ramp.	DSL	PV	design
VSN	MON	1	NB	South of Fremont St (Route 68)	78.05	In pavement.	NB off ramp.	RF	battery	design
VSN	MON	1	NB	South of Fremont St (Route 68)	78.05	In pavement.	NB off ramp.	RF	battery	design
VSN	MON	1	NB	South of Fremont St (Route 68)	78.05	In pavement.	NB off ramp.	RF	battery	design
RP-VSN	MON	1	NB	South of Casa Verde Way (Route 68)	78.34	Existing luminaire and in pavement.	NB on ramp.	RF	PV/ battery	design
AP, MVDS	MON	1	NB/SB	South of Casa Verde Way	78.38	New VDS 30 pole.	SB on ramp.	CELL	PV	design
AP, MVDS	MON	1	NB/SB	North of Casa Verde Way	78.63	New VDS 30 pole.	SB off ramp.	CELL	PV	design
RP-VSN	MON	1	NB	North of Casa Verde Way	78.75	Existing luminaire and in pavement.	NB off ramp.	RF	PV/ battery	design
VSN	MON	1	SB	North of Casa Verde Way	78.75	In pavement.	SB on ramp.	RF	battery	design
RP-VSN	MON	1	NB	Del Monte Avenue	78.97	1) Existing luminaire 2) In pavement.	1) North side of UC. 2) NB mainline.	RF	PV/ battery	design
AP, CCTV, MVDS	MON	1	SB	North of Del Monte Avenue	79.03	New CCTV 30 pole.	SB off ramp.	DSL	PV	design
LOOP	MON	1	NB/SB	SEASIDE, JCT. RTE.218 UC, 1 LP NB OFF, 1 LP SB ON, 4 LPS MAIN LINE (IN A LINE)	79.10	FREEWAY LANES COUNT BEFORE NB OFF	FWY LANE COUNT AFTER SB ON	NONE	battery	operating
RP-VSN	MON	1	SB	South of Auto Center Parkway (Route 218)	79.16	Existing luminaire and in pavement.	SB on ramp.	RF	PV/ battery	design

**District 5 ITS Elements
Monterey County**

ITS Type	County	Route	Dir. Of Travel	Cross Street or Route	Post Mile	Type of Installation (N/E Travel Descrip for cens.)	Location (S/W Travel Description for census.)	Comm Type	Power Source	Status
RP-VSN	MON	1	NB	South of Auto Center Parkway (Route 218)	79.20	Existing luminaire and in pavement.	NB off ramp.	RF	PV/ battery	design
MVDS	MON	1	NB/SB	North of Auto Center Parkway (Route 218)	79.55	New VDS 30 pole.	NB on ramp.	CELL	PV	design
MVDS	MON	1	NB/SB	South of Fremont Boulevard	80.53	New VDS 30 pole.	NB off ramp.	CELL	PV	design
MVDS	MON	1	NB/SB	North of Fremont Boulevard	80.92	New VDS 30 pole.	NB on ramp.	CELL	PV	design
MVDS	MON	1	NB/SB	North of Fremont Boulevard	81.60	New VDS 30 pole.	NB mainline.	CELL	PV	design
MVDS	MON	1	NB/SB	South of Fort Ord Main Entrance Rd (Light Fighter Drive)	82.81	New VDS 30 pole.	NB off ramp.	CELL	PV	design
MVDS	MON	1	NB/SB	South of 12th St	84.36	New VDS 30 pole.	NB off ramp.	CELL	PV	design
MVDS	MON	1	NB/SB	South of Reservation Rd	85.00	New VDS 30 pole.	NB off ramp.	CELL	PV	design
MVDS	MON	1	NB/SB	North of Reservation Rd	86.73	New VDS 30 pole.	NB on ramp.	CELL	PV	design
RP-VSN	MON	1	SB	South of Del Monte Boulevard	88.38	Existing luminaire and in pavement.	SB on ramp.	RF	PV/ battery	design
RP-VSN	MON	1	NB	South of Del Monte Boulevard	88.44	Existing luminaire and in pavement.	NB off ramp.	RF	PV/ battery	design
AP, MVDS	MON	1	NB/SB	South of Del Monte Boulevard	88.60	New VDS 30 pole.	NB on ramp.	CELL	PV	design
RP-VSN	MON	1	SB	North of Del Monte Boulevard	88.68	1) Existing luminaire 2) In pavement	1) SB on ramp. 2) SB off ramp.	RF	PV/ battery	design
HOSE	MON	1	NB/SB	CASTROVILLE S, SALINAS RIVER BRIDGE	89.18	NB HOSE- S SIDE OF BRIDGE	SB HOSE- N SIDE OF BRDG	NONE	battery	operating
CMS	MON	1	NB	Salinas River Bridge	89.45	Model 500, cantilver base	NB shoulder north of the bridge.	CELL	utility	design
RP-VSN	MON	1	SB	South of Nashua Rd	90.11	Existing luminaire and in pavement.	SB on ramp.	RF	PV/ battery	design
RP-VSN	MON	1	NB	South of Nashua Rd	90.22	Existing luminaire and in pavement.	NB off ramp.	RF	PV/ battery	design
AP, MVDS	MON	1	NB/SB	South of Nashua Rd	90.38	New VDS 30 pole.	NB on ramp.	CELL	PV	design
CMS	MON	1	SB	Molera Rd	90.50	Model 500, cantilver base	SB on ramp.	CELL	utility	design
MVDS	MON	1	NB/SB	Route 156	90.75	New VDS 30 pole.	Route 156 East connector.	CELL	PV	design
CCTV, MVDS	MON	1	SB	Route 156	90.98	New CCTV 30 pole.	Route 156 West connector.	DSL	PV	design
AP, CCTV, MVDS	MON	1	NB	South of Route 183	92.16	New CCTV 30 pole.	NB side.	DSL	PV	design
RP-VSN	MON	1	NB	Route 183	92.25	Existing luminaire and in pavement.	NB side.	RF	PV/ battery	design
VSN	MON	1	SB	Route 183	92.25	In pavement.	SB side.	RF	battery	design
AP, MVDS	MON	1	NB/SB	Molera Rd	94.21	New VDS 30 pole.	NB side.	CELL	PV	design
VSN	MON	1	NB	Molera Rd	94.21	In pavement.	NB side.	RF	battery	design
VSN	MON	1	NB	Molera Rd	94.21	In pavement.	NB side.	RF	battery	design
AP, MVDS	MON	1	NB/SB	Potero Rd/Moss Landing Rd	95.01	New VDS 30 pole.	NB side.	CELL	PV	design
VSN	MON	1	NB	Potero Rd/Moss Landing Rd	95.01	In pavement.	NB side.	RF	battery	design
VSN	MON	1	NB	Potero Rd/Moss Landing Rd	95.01	In pavement.	NB side.	RF	battery	design
AP, CCTV, MVDS	MON	1	NB	South of Moss Landing Rd	95.60	New CCTV 30 pole.	NB side.	DSL	PV	design
RP-VSN	MON	1	NB	Moss Landing Rd	95.63	Existing luminaire and in pavement.	NB side.	RF	PV/ battery	design
VSN	MON	1	NB	Moss Landing Rd	95.63	In pavement.	SB side.	RF	battery	design
MVDS	MON	1	NB/SB	North end of Eikhorn Slough Bridge	96.55	New VDS 30 pole.	SB side.	CELL	PV	design
MVDS	MON	1	NB/SB	North Struve Rd	98.17	New VDS 30 pole.	SB side.	CELL	PV	design
MVDS	MON	1	NB/SB	South of Jensen Rd	99.30	New VDS 30 pole.	SB side.	CELL	PV	design
AP, CCTV, MVDS	MON	1	SB	Salinas Rd	101.01	New CCTV 30 pole.	SB side.	DSL	PV	design
VSN	MON	1	NB	Salinas Rd	101.01	In pavement.	NB side.	RF	battery	design

**District 5 ITS Elements
Monterey County**

ITS Type	County	Route	Dir. Of Travel	Cross Street or Route	Post Mile	Type of Installation (N/E Travel Descrip for cens.)	Location (S/W Travel Description for census.)	Comm Type	Power Source	Status
VSN	MON	1	NB	Salinas Rd	101.01	In pavement.	NB side.	RF	battery	design
VSN	MON	1	NB	Salinas Rd	101.01	In pavement.	NB side.	RF	battery	design
MVDS	MON	1	NB/SB	North of Trafton Rd	101.56	New VDS 30 pole.	SB side.	CELL	PV	design
LOOP	MON	68	EB/WB	SOUTHEAST OF JCT RTE 1 AND FREEMONT	3.95	AFTER JCT RTE 1 AFTER SEPERATION	JUST BEFORE SEPARATION	NONE	battery	operating
CCTV, MVDS	MON	68	EB/WB	Fairgrounds Rd/Mark Thomas Dr	4.08	Existing cantilever sign and new CCTV 15 pole.	WB connector to Route 1 South/North Fremont St.	DSL	utility	design
HOSE	MON	68	EB/WB	1/8 MI W OF JCT RTE 1 SOUTH CARMEL-PACIFIC GROVE	4.20	AFTER BEVERLY MANOR ENT.	1/8 MI AFTER JCT RTE 1	NONE	battery	operating
MVDS	MON	68	EB/WB	West of Josselyn Canyon Rd	4.95	Existing flashing beacon.	EB side.	CELL	utility	design
CCTV	MON	68	EB	Josselyn Canyon Rd	5.22	Existing signal pole.	EB side, southeast quadrant.	CELL	utility	design
CCTV	MON	68	WB	Olmsted Rd	5.56	Existing signal pole.	WB side, northwest quadrant.	DSL	utility	design
MVDS	MON	68	EB/WB	West of Route 218/Canyon Del Rey Rd	6.19	New VDS 30 pole.	WB side.	CELL	utility	design
CCTV	MON	68	WB	Route 218/Canyon Del Rey Rd	6.83	Existing signal pole.	WB side, northeast quadrant.	DSL	utility	design
MVDS	MON	68	EB/WB	East of Ragsdale Dr	7.28	New VDS 30 pole.	WB side.	CELL	utility	design
CCTV	MON	68	WB	York Rd	8.35	Existing signal pole.	WB side, northwest quadrant.	DSL	utility	design
MVDS	MON	68	EB/WB	West of Pasadera Rd	9.03	New VDS 30 pole.	WB side.	CELL	utility	design
CCTV	MON	68	WB	Pasadera/Boots Rd	9.90	Existing signal pole.	WB side, northwest quadrant.	DSL	utility	design
MVDS	MON	68	EB/WB	East of Pasadera Rd	10.38	New VDS 30 pole.	WB side.	CELL	utility	design
CCTV	MON	68	WB	Laguna Seca Main Entrance/ B Rd	10.90	New CCTV 30 pole.	WB side, northwest quadrant.	DSL	utility	design
CCTV	MON	68	WB	Laureles Grade Rd	11.22	Existing signal pole.	WC side, northwest quadrant	DSL	utility	design
MVDS	MON	68	EB/WB	East of Laurles Grade Rd	12.05	New VDS 30 pole.	EB side.	CELL	utility	design
CCTV	MON	68	WB	Corral de Tierra Rd	12.95	Existing signal pole.	WB side, northwest quadrant.	DSL	utility	design
CCTV	MON	68	WB	San Benancio Rd	13.32	Existing signal pole.	WB side, northwest quadrant.	DSL	utility	design
MVDS	MON	68	EB/WB	East of San Benancio Rd	14.20	TBD	WB side.	CELL	utility	design
AP, MVDS	MON	68	EB/WB	Toro Park	15.66	TBD	EB off ramp.	CELL	utility	design
RP-VSN	MON	68	EB	Portola Dr/Toro Park	15.86	TBD	EB on ramp.	RF	PV	design
RP-VSN	MON	68	WB	Portola Dr/Toro Park	15.86	TBD	WB off ramp.	RF	PV	design
CMS	MON	68	WB	East of Portola Dr	16.30	Model 500, cantilever base	WB off ramp.	CELL	utility	design
AP, CCTV, MVDS	MON	68	EB/WB	Reservation/River Rd	16.99	TBD	WB on ramp.	DSL	utility	design
RP-VSN	MON	68	EB	Reservation/River Rd	17.30	TBD	EB on ramp.	RF	PV	design
RP-VSN	MON	68	WB	Reservation/River Rd	17.30	TBD	WB off ramp.	RF	PV	design
AP, CCTV, MVDS	MON	68	EB/WB	Spreckles Blvd	17.91	TBD	EB off ramp.	DSL	utility	design
LOOP	MON	68	EB/WB	AT SPRECKLES BLVD U.C. BTWN SALINAS RIVER BRIDGE & SPRECKLE O.C.	18.08	JUST AFTER EB OFF RAMP	AFTER WB OFF, BEFORE WB ON	NONE	battery	operating
RP-VSN	MON	68	EB	Spreckles Blvd	18.28	TBD	EB on ramp.	RF	PV	design
RP-VSN	MON	68	WB	Spreckles Blvd	18.28	TBD	WB off ramp.	RF	PV	design
HOSE	MON	68	EB/WB	SALINAS, W OF JOHN/MAIN STREETS	21.07	JUST BEFORE JOHN/MAIN ST	JUST AFTER JOHN/MAIN ST	NONE	battery	operating
HOSE	MON	68	EB/WB	SALINAS, E OF JOHN/MAIN STREETS	21.08	JUST AFTER JOHN/MAIN ST	JUST BEFORE JOHN/ MAIN ST	NONE	battery	operating
LOOP	MON	101	NB/SB	1/2 MI N OF JOLON ROAD NB ON-RAMP	10.00	1/2 AFTER JOLON RD	JUST BEFORE JOLON RD SB OFF-RAMP	NONE	battery	operating
LOOP	MON	101	NB/SB	SAN LUCAS, S OF JCT 198, N OF SALINAS RIVER BRIDGE	31.50	S OF NB OFF RAMP	S OF SB ON RAMP	NONE	battery	operating
LOOP	MON	101	NB/SB	KING CITY, S OF CANAL STREET, COUNT MAINLINE ONLY	40.60	MIDDLE OF NB OFF RAMP (MAINLINE ONLY)	MIDDLE OF SB ON RAMP (MAINLINE ONLY)	NONE	battery	operating
HOSE	MON	101	NB/SB	1/4 MI N OF JOLON ROAD, NORTH JCT.	42.30	N OF NB ON RAMP	N OF SB OFF RAMP	NONE	battery	operating
BP	MON	101	NB/SB	1/4 MI N OF TEAGUE AVE	47.98	1/4 MI AFTER TEAGUE AVE	3/4 MI AFTER HOBSON	POTS	utility	operating

**District 5 ITS Elements
Monterey County**

ITS Type	County	Route	Dir. Of Travel	Cross Street or Route	Post Mile	Type of Installation (N/E Travel Descrip for cens.)	Location (S/W Travel Description for census.)	Comm Type	Power Source	Status
LOOP	MON	101	NB/SB	S OF SOLEDAD PRISON	66.05	100' S OF NB OFF RAMP	100'S OF SB ON RAMP	NONE	battery	operating
AP, CCTV, MVDS	MON	101	NB/SB	Abbott St/Hartnell Rd	82.24	New CCTV 40 pole.	NB on ramp	DSL	utility	design
VSN	MON	101	NB	Abbott St/Hartnell Rd	82.24	In pavement.	NB off ramp.	RF	battery	design
HOSE	MON	101	NB/SB	SALINAS, 300' S OF AIRPORT BOULEVARD	85.62	S OF NB OFF RAMP	S OF SB ON RAMP	NONE	battery	operating
RP-VSN	MON	101	NB	Airport Blvd	85.64	Existing luminaire and in pavement.	NB off ramp.	RF	utility/ battery	design
RP-VSN	MON	101	SB	Airport Blvd	85.69	Existing luminaire and in pavement.	SB on ramp.	RF	utility/ battery	design
AP, CCTV, MVDS	MON	101	NB/SB	Airport Blvd	85.77	Existing cantilever sign with new CCTV 10 pole.	SB off ramp.	DSL	utility	design
AP, MVDS	MON	101	NB/SB	Fairview Ave	85.98	New VDS 30 pole.	NB side between off ramp and on ramp.	CELL	utility	design
VSN	MON	101	NB	Fairview Ave	85.98	In pavement.	NB off ramp.	RF	battery	design
VSN	MON	101	NB	Fairview Ave	85.98	In pavement.	NB on ramp.	RF	battery	design
AP, CCTV	MON	101	NB	Sanborn Rd	86.17	Existing two post sign with new CCTV 10 pole.	NB off ramp	DSL	utility	design
VSN	MON	101	NB	Sanborn Rd	86.17	In pavement.	NB off ramp	RF	battery	design
RP-VSN	MON	101	SB	Sanborn Rd	86.30	Existing luminaire and in pavement.	SB off ramp.	RF	utility/ battery	design
AP-VSN	MON	101	NB	Route 68/John St	86.57	Existing luminaire and in pavement.	NB off ramp.	CELL	utility/ battery	design
RP-VSN	MON	101	SB	Route 68/John St	86.73	Existing luminaire and in pavement.	SB on ramp.	RF	utility/ battery	design
RP-VSN	MON	101	NB	Route 68/John St	86.75	Existing luminaire and in pavement.	NB on ramp.	RF	utility/ battery	design
CCTV, MVDS	MON	101	NB/SB	Route 68/John St	86.99	New CCTV 40 pole.	SB off ramp.	DSL	utility	design
RP-VSN	MON	101	SB	E. Market St	87.15	Existing luminaire and in pavement.	SB on ramp.	RF	utility/ battery	design
AP, CCTV, MVDS	MON	101	NB/SB	E. Market St	87.37	New CCTV 40 pole.	NB off ramp.	DSL	utility	design
RP-VSN	MON	101	SB	E. Market St	87.50	1) Existing two post sign and in pavement. 2) In pavement.	1) SB off ramp. 2) NB on ramp.	RF	utility/ battery	design
MVDS	MON	101	NB/SB	Route 183/N. Main St	88.13	New VDS 30 pole.	NB off ramp.	CELL	utility	design
LOOP	MON	101	NB/SB	SALINAS, 300' N OF JCT 183, NORTH MAIN STREET	88.34	N OF NB ON RAMP	N OF SB OFF RAMP	NONE	battery	operating
AP-VSN	MON	101	NB/SB	Route 183/N. Main St	88.46	1) Existing luminaire and in pavement. 2) In pavement.	1) SB off ramp. 2) NB on ramp.	CELL	utility/ battery	design
AP, CCTV, MVDS	MON	101	NB/SB	Laurel Lane	89.21	New CCTV 40 pole.	NB side.	DSL	utility	design
VSN	MON	101	NB	Laurel Lane	89.21	In pavement.	NB off ramp.	RF	battery	design
VSN	MON	101	NB	Laurel Lane	89.21	In pavement.	NB on ramp.	RF	battery	design
AP-VSN	MON	101	NB	Laurel Lane	89.45	New VDS 30 pole and in pavement.	1) SB off ramp. 2) NB on ramp.	CELL	utility/ battery	design
AP-VSN	MON	101	SB	Laurel Lane	89.55	1) Existing luminaire and in pavement. 2) In pavement.	1) SB off ramp. 2) NB on ramp.	CELL	utility/ battery	design
MVDS	MON	101	NB/SB	Boronda Rd	90.73	New VDS 30 pole.	SB side.	CELL	utility	design
AP, CCTV	MON	101	NB	Boronda Rd	91.03	New CCTV 40 pole.	NB on ramp.	DSL	utility	design
VSN	MON	101	SB	Boronda Rd	91.03	In pavement.	SB on ramp.	RF	battery	design
MVDS	MON	101	NB/SB	Boronda Rd	91.25	New VDS 30 pole.	NB side.	CELL	utility	design
CCTV, MVDS	MON	101	SB	Espinosa Rd/Russell Rd	91.88	New CCTV 40 pole.?	SB side.	DSL	utility	design

**District 5 ITS Elements
Monterey County**

ITS Type	County	Route	Dir. Of Travel	Cross Street or Route	Post Mile	Type of Installation (N/E Travel Descrip for cens.)	Location (S/W Travel Description for census.)	Comm Type	Power Source	Status
HOSE	MON	101	NB/SB	SALINAS, 500' N OF ESPINOSA/RUSSELL ROADS	92.00	500' AFTER ESPINOSA RD	.8 MI AFTER WHITE RD	NONE	battery	operating
RP-VSN	MON	101	NB	Sala Rd (White Rd)	92.36	New 30 pole and in pavement.	NB off ramp.	RF	utility	design
RP-VSN	MON	101	NB	Sala Rd (White Rd)	92.56	New 15 pole and in pavement.	SB on ramp on O.C.	RF	utility	design
RP-VSN	MON	101	NB	Sala Rd (White Rd)	92.80	1) New 30 pole and in pavement. 2) In pavement.	1) SB off ramp. 2) NB on ramp.	RF	utility	design
AP, MVDS	MON	101	NB/SB	White Rd	92.87	New Cantilever sign.	SB side.	CELL	utility	design
MVDS	MON	101	NB/SB	Ralph Ln	93.13	New VDS 30 pole.	SB side.	CELL	utility	design
CCTV	MON	101	SB	Blackie Rd/Reese Circle	94.10	New CCTV 40 pole.?	SB side at west end of OC.	DSL	utility	design
MVDS	MON	101	NB/SB	Blackie Rd/Reese Circle	94.10	New VDS 30 pole.?	SB side.	CELL	utility	design
CCTV	MON	101	NB	Pesante Rd	94.52	Existing flashing beacon and lighting pole.	NB side.	DSL	utility	design
RP-VSN	MON	101	NB	Route 156	95.40	Existing luminaire and in pavement.	NB on ramp.	RF	utility/ battery	design
RP-VSN	MON	101	SB	Route 156	95.41	Existing luminaire and in pavement.	SB on ramp.	RF	utility/ battery	design
CCTV, RP, VSN	MON	101	SB	Route 156	95.43	Existing CCTV 40 pole and in pavement.	SB side at west end of OC and in SB on ramp.	DSL	utility/ battery	design
AP, MVDS, VSN	MON	101	NB/SB	Route 156	95.54	Existing cantilever sign and in pavement.	SB connector.	CELL	utility	design
RP-VSN	MON	101	NB	San Miguel Canyon Rd	95.85	Existing luminaire and in pavement.	NB off ramp.	RF	utility/ battery	design
RP-VSN	MON	101	NB	San Miguel Canyon Rd	96.04	Existing luminaire and in pavement.	NB on ramp.	RF	utility/ battery	design
VSN	MON	101	SB	San Miguel Canyon Rd	96.15	In pavement.	SB on ramp.	RF	battery	design
CCTV, RP	MON	101	SB	San Miguel Canyon Rd	96.16	New CCTV 40 pole.	SB side on west end of OC.	DSL	utility	design
AP, MVDS, VSN	MON	101	NB/SB	San Miguel Canyon Rd	96.46	Existing cantilever sign and in pavement.	SB off ramp.	RF	utility/ battery	design
CCTV	MON	101	NB	Tustin Rd	96.91	New CCTV 40 pole.	NB side.	DSL	utility	design
CMS	MON	101	SB	Mallory Canyon Rd	97.70	Model 500, cantilever base.	SB shoulder.	CELL	utility	design
MVDS	MON	101	NB/SB	Mallory Canyon Rd	97.70	design CMS.	SB shoulder.	CELL	utility	design
RP-VSN	MON	101	NB	Crazy Horse Canyon Rd	98.08	New 30 pole and in pavement.	NB off ramp.	RF	utility/ battery	design
RP-VSN	MON	101	SB	Crazy Horse Canyon Rd	98.35	New 30 pole and in pavement.	SB on ramp.	RF	utility/ battery	design
RP-VSN	MON	101	NB	Crazy Horse Canyon Rd	98.40	New 30 pole and in pavement.	NB on ramp.	RF	utility/ battery	design
CCTV, MVDS	MON	101	SB	Crazy Horse Canyon Rd	98.64	design cantilever sign.	SB off ramp.	DSL	utility	design
AP-VSN	MON	101	NB/SB	Crazy Horse Canyon Rd	98.64	Proposed cantilever sign and in pavement.	SB off ramp.	CELL	utility/ battery	design
CCTV	MON	101	SB	Dunbarton Rd	100.40	New CCTV 40 pole.	SB side.	DSL	utility	design
CCTV	MON	101	SB	San Juan Rd	101.14	Existing lighting standard type 32.	SB side in gore between off ramp and at grade crossing.	DSL	utility	design
MVDS	MON	101	NB/SB	Ballantree Ln (County line)	101.26	New VDS 30 pole.	NB side.	CELL	PV	design
HOSE	MON	146	EB/WB	SOLEDAD, 1/4 MILE EAST OF JCT. RTE. 101	0.25	.1 MI AFTER NESTLES RD	.1 MI AFTER OAKS ST	NONE	battery	operating
HOSE	MON	146	EB/WB	E OF METZ ROAD SPLIT. WEST OF FABRY ROAD	3.48	AFTER SPLIT WITH METZ RD	BEFORE JOINT WITH METZ RD	NONE	battery	operating
HOSE	MON	156	EB/WB	PRUNEDALE, .4 MI W OF S JCT 101	4.85	500' AFTER MCGUFFIE	.4 MI AFTER JCT 101	NONE	battery	operating
CCTV	MON	156	EB	Route 101	5.16	CCTV 40 pole.	EB side, west side of OC.	ISDN	utility	operating
CCTV	MON	183	NB	Route 101	0.01	CCTV 25 Pole.	N. Main/Route 183 OC on the north side.	CELL	utility	operating

**District 5 ITS Elements
Monterey County**

ITS Type	County	Route	Dir. Of Travel	Cross Street or Route	Post Mile	Type of Installation (N/E Travel Descrip for cens.)	Location (S/W Travel Description for census.)	Comm Type	Power Source	Status
HOSE	MON	183	NB/SB	SALINAS, N OF JCT 101, B/T CASENTINI & BRIDGE	0.22	100' AFTER CASENTINI ST	100' AFTER BRIDGE ST	NONE	battery	operating
CCTV	MON	183	WB	E. Market St	0.70	CCTV 25 pole.	South east corner of intersection.	DSL	utility	completed
HOSE	MON	183	NB/SB	CASTROVILLE, .1 MI S OF JCT 156	8.96	200' AFTER WOOD & HARO ST	.1 MI AFTER JCT 156	NONE	battery	operating
HOSE	MON	183	NB/SB	NORTH CASTROVILLE 1/8 MI S OF JCT RTE 1	9.83	300' N OF WASHINGTON ST	1/8 MI AFTER JCT 1	NONE	battery	operating
HOSE	MON	198	EB/WB	SAN LUCAS, 1/4 MI E OF JCT 101	0.32	1/8 MI AFTER LOCKWOOD	1/4 MI AFTER CATTLEMAN RD	NONE	battery	operating
HOSE	MON	198	EB/WB	300' W OF JCT RTE 25 N	13.94	AFTER SAN LORENZO BRDG	300' AFTER JCT 25 N	NONE	battery	operating
HOSE	MON	218	EB/WB	SEASIDE, 300' E OF JCT 1, IN FRONT OF KMART	0.06	300' AFTER JCT 1	300' AFTER ROBERTS AVE	NONE	battery	operating

TMS ELEMENT TYPES AND DEFINITIONS:

Locations in bold have more than one type of TMS element at that location. (AP,RP, and VSN are parts of one type of system.)

AP - Access Point for VSN.

BP - Weigh-In-Motion(WIM) Bending Plate type census station.

CCTV - Closed Circuit Television Camera.

CMS - Changeable Message Sign.

HOSE - pneumatic Hose type census station.

LOOP - inductive Loop type census station.

MVDS - Microwave Vehicle Detection System.

PIEZO - Weigh-In-Motion(WIM) Piezoelectric sensor and inductive loop type census station.

RP - Repeater for VSN.

VSN - Vehicle Sensor Node.

WAPB - Wireless Access Point Bridge.

WDSC - Wireless Data Communication System consisting of a WAPB configured as a repeater.

WCB - Wireless Client Bridge.

TMS ELEMENT COUNTS:

	Total	Proposed	Design	Construction	Complete
Number of AP sites:	29	0	29	0	0
Number of BP stations:	1	0	0	0	1
Number of CCTV sites:	40	0	37	0	3
Number of CMS sites:	5	0	4	1	0
Number of HOSE stations:	16	0	0	0	16
Number of LOOP stations:	11	0	0	0	11
Number of MVDS sites:	63	0	63	0	0
Number of PIEZO stations:	0	0	0	0	0
Number of RP sites:	39	0	39	0	0
Number of VSN sites:	66	0	66	0	0
Number of WAPB sites:	0	0	0	0	0
Number of WDSC sites:	0	0	0	0	0

TMS ELEMENT COMMUNICATION TYPES:

CABLE - Cable Broadband Service

CAT5E - CAT5e cable Ethernet Link

CELL - Cellular Modem Broadband Service Ethernet or Serial.

DSL - Digital Subscriber Line Broadband Service

ISDN - Integrated Services Digital Network Broadband Service

NONE - No communications.

POTS - Plain Old Telephone Service

RF - Radio Frequency Wireless Link

WIFI - Wireless Ethernet Link

TMS ELEMENT COMMUNICATION COUNTS:

Number of CABLE connections:	0
Number of CAT5E connections:	0
Number of CELL connections:	55
Number of DSL connections:	37
Number of ISDN connections:	1
Number of POTS connections:	1
Number of RF connections:	59
Number of WIFI connections:	0
Number with no communications:	27

**District 5 ITS Elements
San Benito County**

ITS Type	County	Route	Dir. Of Travel	Cross Street or Route	Post Mile	Type of Installation (N/E Travel Descrip for cens.)	Location (S/W Travel Description for census.)	Comm Type	Power Source	Status
HOSE	SBT	25	NB/SB	B/T OLD AIRLINE HWY & CIENGA RD	35.00	3/4 MI AFTER OLD AIRLINE HWY	3 MI AFTER CIENGA RD	NONE	battery	operating
HOSE	SBT	25	NB/SB	PAICINES, 100' N OF PANOCHÉ ROAD	39.56	100' AFTER PANOCHÉ RD	1/2 MI AFTER WILLOW SCHOOL	NONE	battery	operating
LOOP	SBT	25	NB/SB	HOLLISTER, N OF SAN FELIPE RD & BOLSA "Y"	51.50	AFTER FLORA RD	AFTER WRIGTH RD	NONE	battery	operating
HOSE	SBT	25	NB/SB	HOLLISTER, 4TH ST (JCT 146U)	51.44	500' AFTER 5TH ST	500' AFTER 3RD ST	NONE	battery	operating
LOOP	SBT	25	NB/SB	SAN BENITO / SANTA CLARA COUNTY LINE	60.08	JUST AFTER (N/O) RR CROSSING	JUST BEFORE (N/O) RR CROSSING	NONE	battery	operating
CMS	SBT	101	NB	North of Rocks Rd	2.00	Model 500, cantilver base	NB shoulder north of Rocks Rd.	CELL	utility	design
PIEZO	SBT	101	NB/SB	1 MILE S OF N JCT 156 TO SAN JUAN, B/T JCT AND ROCKS RD	2.00	.4 MI AFTER ROCKS RD	1 MI AFTER N JCT 156	POTS	utility	operating
CMS	SBT	101	SB	Anzar Rd	4.25	Model 500, cantilver base	Next to UC.	CELL	utility	design
LOOP	SBT	101	NB/SB	SAN BENITO / SANTA CLARA COUNTY LINE	7.55			NONE	battery	operating
HOSE	SBT	129	EB/WB	SAN BENITO / SANTA CLARA COUNTY LINE	0.00			NONE	battery	operating
HOSE	SBT	129	EB/WB	150' WEST OF JCT. RTE. 101	2.50	BEFORE EB OFF RAMP	150' AFTER JCT RTE 101	NONE	battery	operating
MVDS	SBT	156	EB/WB	Junction of Routes 156/101	0.16	New VDS 30 foot pole.	EB connector.	CELL	PV	design
LOOP	SBT	156	EB/WB	E OF N JCT 101, 300'E OF ROCKS RD	0.81	300' AFTER ROCKS RD	300' BEFORE ROCKS RD	NONE	battery	operating
MVDS	SBT	156	EB/WB	Rocks Rd	0.82	New VDS 30 foot pole.	EB side.	CELL	PV	design
MVDS	SBT	156	EB/WB	West of Monterey St	1.96	New VDS 30 foot pole.	WB side.	CELL	PV	design
CCTV	SBT	156	EB	Alameda St	3.03	New CCTV 30 foot pole.	EB side.	DSL	utility	design
MVDS	SBT	156	EB/WB	West of Mission Vineyard & Breen Rds	3.80	New VDS 30 foot pole.	WB side.	CELL	PV	design
MVDS	SBT	156	EB/WB	West of Union & Mitchell	7.13	New VDS 30 foot pole.	WB side.	CELL	PV	design
CCTV	SBT	156	WB	Union & Mitchell Rds	7.26	New CCTV 30 foot pole.	WB side.	DSL	utility	design
MVDS	SBT	156	EB/WB	Business Route 156 Connector	7.88	New VDS 30 foot pole.	WB side.	CELL	PV	design
CCTV	SBT	156	EB	Business Route 156	8.04	New CCTV 30 foot pole.	EB side.	DSL	utility	design
MVDS	SBT	156	EB/WB	East of Buena Vista Rd	9.27	New VDS 30 foot pole.	EB side.	CELL	PV	design
CCTV	SBT	156	EB	Intersection of Routes 156/25	11.39	New CCTV 30 foot pole.	EB side.	DSL	utility	design
MVDS	SBT	156	EB/WB	West of San Felipe Rd	12.36	New VDS 30 foot pole.	EB side.	CELL	PV	design
CCTV	SBT	156	EB	San Felipe Rd	13.23	New CCTV 30 foot pole.	EB side.	DSL	utility	design
MVDS	SBT	156	EB/WB	West of Fairview Rd	16.33	New VDS 30 foot pole.	WB side.	CELL	PV	design
CCTV	SBT	156	EB	Fairview Rd	16.56	New CCTV 30 foot pole.	EB side.	DSL	utility	design
LOOP	SBT	156	EB/WB	SAN BENITO / SANTA CLARA COUNTY LINE	18.43			NONE	battery	operating

TMS ELEMENT TYPES AND DEFINITIONS:

Locations in bold have more than one type of TMS element at that location. (AP,RP, and VSN are parts of one type of system.)

AP - Access Point for VSN.

BP - Weigh-In-Motion(WIM) Bending Plate type census station.

CCTV - Closed Circuit Television Camera.

CMS - Changeable Message Sign.

HOSE - pneumatic Hose type census station.

LOOP - inductive Loop type census station.

MVDS - Microwave Vehicle Detection System.

PIEZO - Weigh-In-Motion(WIM) Piezoelectric sensor and inductive loop type census station.

RP - Repeater for VSN.

VSN - Vehicle Sensor Node.

WAPB - Wireless Access Point Bridge.

WDSC - Wireless Data Communication System consisting of a WAPB configured as a repeater.

WCB - Wireless Client Bridge.

TMS ELEMENT COUNTS:

	Total	Proposed	Design	Construction	Complete
Number of AP sites:	0	0	0	0	0
Number of BP stations:	0	0	0	0	0
Number of CCTV sites:	6	0	6	0	0
Number of CMS sites:	2	0	2	0	0
Number of HOSE stations:	4	0	0	0	4
Number of LOOP stations:	5	0	0	0	5
Number of MVDS sites:	9	0	9	0	0
Number of PIEZO stations:	1	0	0	0	1
Number of RP sites:	0	0	0	0	0
Number of VSN sites:	0	0	0	0	0
Number of WAPB sites:	0	0	0	0	0
Number of WDSC sites:	0	0	0	0	0

TMS ELEMENT COMMUNICATION TYPES:

CABLE - Cable Broadband Service

CAT5E - CAT5e cable Ethernet Link

CELL - Cellular Modem Broadband Service Ethernet or Serial.

DSL - Digital Subscriber Line Broadband Service

ISDN - Integrated Services Digital Network Broadband Service

NONE - No communications.

POTS - Plain Old Telephone Service

RF - Radio Frequency Wireless Link

WIFI - Wireless Ethernet Link

TMS ELEMENT COMMUNICATION COUNTS:

Number of CABLE connections:	0
Number of CAT5E connections:	0
Number of CELL connections:	11
Number of DSL connections:	6
Number of ISDN connections:	0
Number of POTS connections:	1
Number of RF connections:	0
Number of WIFI connections:	0
Number with no communications:	9

**District 5 ITS Elements
San Luis Obispo County**

ITS Type	County	Route	Dir. Of Travel	Cross Street or Route	Post Mile	Type of Installation (N/E Travel Descrip for cens.)	Location (S/W Travel Description for census.)	Comm Type	Power Source	Status
HOSE	SLO	1	NB/SB	1/4 MILE S. OF UNION OIL COKING PLANT	6.10	200' AFTER WINTERHAVEN WY	1/4 MI AFTER OIL COKING PLANT	NONE	battery	operating
LOOP	SLO	1	NB/SB	PISMO BEACH, AT VILLA CREEK BRIDGE	15.27	AT BRDG	AT BRDG	NONE	battery	operating
LOOP	SLO	1	NB/SB	SLO, N. JCT RTE 101 AT SLO P.D. SANTA ROSA ST.	16.77	AT SLO PD - B/T WALNUT / OLIVE INT. ON BRIDGE	AT SLO PD - B/T WALNUT / OLIVE INT. ON BRIDGE	NONE	battery	operating
LOOP	SLO	1	NB/SB	1/4 MILE N OF BAYWOOD PARK ROAD I.C.	28.10	AFTER NB ON RAMP	BEFORE SB OFF RAMP	NONE	battery	operating
LOOP	SLO	1	NB/SB	JCT. RTE. 41 NORTHEAST, BEFORE SB OFF RAMP (COUNTS MAINLINE ONLY)	30.27	AFTER NB ON RAMP	BEFORE SB OFF RAMP	NONE	battery	operating
CCTV	SLO	1	NB	46W	45.72	Fixed base, inside CMS cabinet.	South of 46W on NB shoulder.	CELL	utility	operating
CMS	SLO	1	NB	46W	45.72	Model 520, butterfly base.	South of 46W on NB shoulder.	CELL	utility	operating
LOOP	SLO	1	NB/SB	46W	46.72	Existing in pavement.	TMS site on NB shoulder	NONE	utility	completed
HOSE	SLO	1	NB/SB	500'N OF ARDATH DRIVE/ MAIN STREET	48.35	500' AFTER ARDATH DR	1/2 MI AFTER BURTON DR	NONE	battery	operating
HOSE	SLO	1	NB/SB	SAN CARPOFORO CREEK AT BRIDGE	71.34	AT BRIDGE	AT BRIDGE	NONE	battery	operating
HOSE	SLO	33	NB/SB	JCT RTE 166 WEST, BEFORE 166 INT	2.77	AFTER I/S	BEFORE I/S	NONE	battery	operating
HOSE	SLO	33	NB/SB	JCT RTE 166 WEST, AFTER 33 & 166 JOIN	2.90	.1 MI AFTER JCT RTE 166	BEFORE JCT 166	NONE	battery	operating
HOSE	SLO	41	NB/SB	MORRO BAY, N OF JCT RTE 1	0.30	500' AFTER HILL ST	400' AFTER IRONWOOD AVE	NONE	battery	operating
HOSE	SLO	41	NB/SB	ATASCADERO, B/T SANTA ROSA RD & SAN GABRIEL	14.40	.2 MI AFTER SAN GABRIEL	1/8 MI AFTER SANTA ROSA RD	NONE	battery	operating
HOSE	SLO	41	NB/SB	100' S OF MC MILLAN CANYON ROAD	41.14	1 MILE PAST STARKEY RD	100' AFTER MC MILLAN CYN RD	NONE	battery	operating
HOSE	SLO	41	NB/SB	100' S OF JCT RTE 46	43.75	1/2 MI AFTER SAN JUAN RD	100' AFTER JCT RTE 46	NONE	battery	operating
HOSE	SLO	46	EB/WB	250' E OF ARBOR RD	20.99	250' AFTER ARBOR RD	250' BEFORE ARBOR RD	NONE	battery	operating
CCTV	SLO	46	WB	101	21.75	Fixed base, inside CMS cabinet.	WB shoulder.	CELL	utility	proposed
CMS	SLO	46	WB	101	21.75	Model 520, butterfly base.	WB shoulder.	CELL	utility	operating
LOOP	SLO	46	EB/WB	EAST OF AIRPORT ROAD @ GOLF COURSE ENTRANCE.	34.25	2 MI AFTER AIRPORT RD	1/2 MI AFTER JARDIN RD	NONE	battery	operating
BP	SLO	46	EB/WB	100' W OF MC MILLAN CANYON ROAD	45.45	100' BEFORE MC MILLAN CYN RD	100' AFTER MC MILLAN CYN RDV	POTS	utility	operating
CCTV	SLO	46	EB	Near Cholame	54.28	New CCTV 40 pole.	EB shoulder.	CELL	utility	proposed
CMS	SLO	46	EB	Near Cholame	54.28	Model 500, cantilver base	EB shoulder.	POTS	utility	operating
HOSE	SLO	58	EB/WB	SANTA MARGARITA, 100' E OF J STREET	1.90	100' AFTER J ST	~1.5 MI PAST POZO RD, 100' E OF J ST	NONE	battery	operating
LOOP	SLO	101	NB/SB	N OF JCT 166 EAST	1.10	300' AFTER NB ON RAMP	300' BEFORE SB OFF RAMP	NONE	battery	operating
CCTV	SLO	101	TBD	Teft St	4.85	TBD	TBD	DSL	utility	proposed
CCTV, MVDS	SLO	101	SB	Grand Ave	13.47	Cantilever sign.	SB off ramp.	DSL	utility	construction
MVDS	SLO	101	NB/SB	Halcyon Rd	13.73	New 15TS pole.	NB off ramp.	WIFI	utility	construction
CCTV, MVDS	SLO	101	NB/SB	Camino Mercado	14.34	New CCTV 40 pole.	NB in island between off-ramp and on-ramp.	DSL	utility	construction
MVDS	SLO	101	NB/SB	Oak Park Blvd	14.78	New 15TS pole.	NB on ramp.	WIFI	utility	construction
MVDS	SLO	101	NB/SB	4 th St	15.23	New 15TS pole.	Before NB off ramp.	WIFI	PV	construction
CCTV	SLO	101	NB	4 th St	15.65	Existing signal pole.	4th Street OC next to NB on ramp.	DSL	utility	operating
MVDS	SLO	101	NB/SB	4 th St	15.75	New 15TS pole.	NB on ramp.	WIFI	utility	construction
MVDS	SLO	101	NB/SB	Price St	16.21	Cantilever sign.	NB off ramp.	WIFI	utility	construction
MVDS	SLO	101	NB/SB	Price St	16.71	New 15TS pole.	SB 101 next to OC structure.	WIFI	utility	construction
CCTV	SLO	101	NB	Route 1 Jct SB Exit	17.24	CCTV 40 pole.	NB Bello on ramp.	DSL	utility	operating
MVDS	SLO	101	NB	Route 1 Jct SB Exit	17.24	CCTV 40 pole.	NB Bello on ramp.	DSL	utility	construction
LOOP	SLO	101	NB/SB	PISMO BEACH, S OF MATTIE RD OC, WHERE 101 AND 1 MEET	17.70	AFTER NB OFF RAMP	AFTER SB SHELLBEACH OFF RAMP	NONE	battery	operating
MVDS	SLO	101	NB/SB	Shell Beach Rd	17.92	New 15TS pole.	NB on ramp.	WIFI	utility	construction
CCTV	SLO	101	NB	Mattie Rd	18.05	Fiberglass hinge base CCTV 20 pole.	NB side 30' off of ETW.	DSL	utility	operating

**District 5 ITS Elements
San Luis Obispo County**

ITS Type	County	Route	Dir. Of Travel	Cross Street or Route	Post Mile	Type of Installation (N/E Travel Descrip for cens.)	Location (S/W Travel Description for census.)	Comm Type	Power Source	Status
MVDS	SLO	101	NB/SB	Mattie Rd	18.30	New 15TS pole.	NB side 30' off of ETW.	WIFI	utility	construction
CCTV, MVDS	SLO	101	SB	Spyglass Dr	19.86	New CCTV 20 pole.	SB side at end of bridge rail.	WIFI	utility	construction
CCTV, MVDS	SLO	101	NB	Avila Beach Dr	20.96	New CCTV 40 pole.	NB side 30' from ETW.	WIFI	utility	construction
WAPB	SLO	101	SB	Avila Beach Dr	21.22	New CCTV 40 pole.	SB off ramp.	DSL	utility	construction
CCTV, MVDS	SLO	101	SB	San Luis Bay Dr	22.07	New CCTV 40 pole.	SB on ramp 30' from ETW.	DSL	utility	construction
CCTV, MVDS	SLO	101	NB	South Higuera St	24.32	New CCTV 40 pole.	NB side near OC.	WIFI	utility	construction
MVDS	SLO	101	NB/SB	South Higuera St	24.86	New VDS 30 pole.	At NB on ramp.	WIFI	utility	construction
SC Repe	SLO	101	NB	South of Los Osos Valley Rd	25.37	Two DAA's on a VDS30 pole (one aimed at MVDS PM 24.86 and the other aimed at MVDS PM 25.88.)	NB side.	WIFI	PV	construction
MVDS	SLO	101	NB/SB	Los Osos Valley Rd	25.88	New VDS 30 pole	At SB on ramp.	WIFI	utility	construction
CCTV	SLO	101	SB	Los Osos Valley Rd	25.97	New CCTV 40 pole	SB side next to OC structure.	WIFI	utility	construction
CCTV	SLO	101	NB	Between LOVR and Prado Rd	26.36	Fixed base, inside CMS cabinet.	South of NB off ramp.	CELL	utility	operating
LOOP	SLO	101	NB/SB	Between LOVR and Prado Rd	26.36	Existing in pavement.	TMS site on NB mainline.	NONE	utility	completed
CMS	SLO	101	NB	Between LOVR and Prado Rd	26.36	Model 500, cantilever base	South of NB off ramp.	CELL	utility	operating
MVDS	SLO	101	NB/SB	Between LOVR and Prado Rd	26.37	New VDS 30 pole.	At existing CMS site on NB 101.	WIFI	utility	construction
PIEZO	SLO	101	NB/SB	S OF MADONNA RD, BTWN PRADO INCLUDES OFF RAMP VOLTS.	26.80	AFTER NB OFF , S OF NB ON RAMP (COUNTS RAMP)	BTWN MADONNA RD SB ON & LOVR SB OFF	POTS	utility	operating
LOOP	SLO	101	NB/SB	N OF LOVR, BTWN PRADO RAMP, ONLY MAINLINE VOLTS, AFTER PRADO RD OFF RAMP	26.80	AFTER NB OFF RAMP S OF NB ON RAMP	BTWN MADONNA RD SB ON & LOVR SB OFF	NONE	battery	operating
MVDS	SLO	101	NB/SB	Prado Rd	26.92	New VDS 30 pole.	At NB on ramp.	WIFI	utility	construction
CCTV, MVDS	SLO	101	SB	Madonna Rd	27.53	New CCTV 40 pole.	SB side next to south-side of the OC structure.	CAT5E	utility	construction
SC Repe	SLO	101	SB	North of Madonna Rd	27.55	Two DAA's on a CCTV 40 pole (one aimed at MVDS PM 27.53 and the other aimed at the D05 TMC at 50 Higuera St in SLO.	SB side near Madonna Rd OC.	WIFI	utility	construction
CCTV, MVDS	SLO	101	SB	Marsh St	28.06	New CCTV 40 pole.	SB side next to new Maintenance Vehicle Pullout installed in this 0H1901 project.	WIFI	utility	construction
CCTV, MVDS	SLO	101	SB	Broad St	28.79	CCTV 40 pole.	Next to location where new Maintenance Vehicle Pullout on SB on ramp to be installed in this 05-0H190 project.	DSL	utility	operating
MVDS	SLO	101	NB/SB	Toro St	29.20	New VDS 30 pole.	At NB off ramp.	CELL	utility	construction
MVDS	SLO	101	NB/SB	Grand Ave	29.63	New VDS 30 pole.	Next to existing cantilever sign at the NB Grand Ave off ramp (across 101 from new CCTV to be installed on SB 101 hillside on EA 05-0H8901).	CELL	utility	construction
CCTV	SLO	101	SB	Grand St	29.63	Fiberglass hinge base CCTV 20 pole.	Across 101 from existing cantilever sign at the NB Grand St off.	WIFI	utility	completed
CCTV, MVDS	SLO	101	NB	Monterey St	30.08	New CCTV 40 pole.	NB side.	CABLE	utility	construction
SC Repe	SLO	101	NB	North of Monterey St	30.27	Two DAA's on a VDS30 pole (one aimed at MVDS PM 30.08 and the other aimed at WDGS Repeater PM 30.46)	NB side	WIFI	PV	construction
SC Repe	SLO	101	SB	South of Fox Hollow Rd across from Cuesta County Park	30.46	Two DAA's on a VDS30 pole (one aimed at WDGS Repeater PM 30.27 and the other aimed at MVDS PM 31.02.)	SB side.	WIFI	PV	construction
CCTV, MVDS	SLO	101	NB	Between Fox Hollow Rd and Reservoir Canyon Rd	31.02	New CCTV 40 pole	NB side in existing pullout area.	WIFI	utility	construction
LOOP	SLO	101	NB/SB	Old Stage Coach Rd	32.82	Existing in pavement.	TMS site on NB Old Stagecoach Rd.	NONE	utility	completed
CCTV	SLO	101	SB	North of TV Tower Rd/Stagecoach Rd entrance	35.13	New fiberglass hinge base CCTV pole.	SB side above retaining wall.	CELL	PV	proposed

District 5 ITS Elements
San Luis Obispo County

ITS Type	County	Route	Dir. Of Travel	Cross Street or Route	Post Mile	Type of Installation (N/E Travel Descrip for cens.)	Location (S/W Travel Description for census.)	Comm Type	Power Source	Status
MVDS	SLO	101	NB/SB		36.08	New 15TS pole.	By existing guardrail on NB side right shoulder	CELL	utility	design
MVDS	SLO	101	NB/SB		36.77	New 15TS pole.	NB side right shoulder 30' from ETW.	CELL	utility	design
LOOP	SLO	101	NB/SB	S OF JCT 58 EAST, SANTA MARGARITA	37.50	1/4 MILE BEFORE NB OFF RAMP	100' AFTER SB ON RAMP	NONE	battery	operating
CCTV	SLO	101	NB	Hwy 58	37.86	CCTV 40 pole.	NB side right shoulder 30' from ETW.	WIFI	utility	operating
MVDS	SLO	101	NB	Hwy 58	37.86	CCTV 40 pole.	NB side right shoulder 30' from ETW.	CELL	utility	design
MVDS	SLO	101	NB/SB		38.98	New 15TS pole.	SB side right shoulder 30' from ETW.	CELL	utility	design
MVDS	SLO	101	NB/SB		39.87	New 15TS pole.	SB side right shoulder 30' from ETW.	CELL	utility	design
MVDS	SLO	101	NB/SB		41.15	New 15TS pole.	NB side right shoulder 30' from ETW.	CELL	utility	design
MVDS	SLO	101	NB/SB	Santa Barbara Rd	42.24	New 15TS pole.	NB side right shoulder 30' from ETW.	CELL	utility	design
CCTV	SLO	101	TBD	Santa Barbara Rd	42.40	TBD	TBD	DSL	utility	design
MVDS	SLO	101	NB/SB	San Diego Way	42.92	New 15TS pole.	NB side right shoulder 30' from ETW.	CELL	utility	design
MVDS	SLO	101	NB/SB	Santa Rosa Rd	43.96	New 15TS pole.	NB side right shoulder 30' from ETW.	CELL	utility	design
CCTV	SLO	101	TBD	Santa Rosa Rd	44.16	TBD	TBD	DSL	utility	design
CCTV	SLO	101	NB	Curbaril	44.75	CCTV 40 pole.	North side of OC next to NB on ramp.	DSL	utility	operating
MVDS	SLO	101	NB/SB	Curbaril Ave	44.81	New 15TS pole.	NB side right shoulder 30' from ETW.	CELL	utility	design
MVDS	SLO	101	NB/SB	Hwy 41	45.33	Existing "Morro Rd 41" off cantilever sign.	NB side.	CELL	utility	design
CCTV	SLO	101	SB	Hwy 41	45.43	New CCTV 40 pole.	SW corner of new 41-101 interchange	DSL	utility	construction
MVDS	SLO	101	NB/SB	Traffic Way	45.80	New 15TS pole.	NB side on right shoulder at end of existing guardrail.	CELL	utility	design
CCTV	SLO	101	TBD	Traffic Way	46.20	TBD	TBD	DSL	utility	design
CCTV	SLO	101	TBD	San Anselmo	46.77	TBD	TBD	DSL	utility	design
MVDS	SLO	101	NB/SB	San Anselmo	47.04	TBD	TBD	CELL	utility	design
CCTV	SLO	101	TBD	Del Rio Rd	48.21	TBD	TBD	DSL	utility	design
MVDS	SLO	101	NB/SB	Del Rio Rd	48.23	TBD	TBD	CELL	utility	design
MVDS	SLO	101	NB/SB	San Ramon Rd	49.12	TBD	TBD	CELL	utility	design
CCTV	SLO	101	TBD	San Ramon Rd	49.25	TBD	TBD	DSL	utility	design
BP	SLO	101	NB/SB	1000' N OF SAN RAMON RD O.C.	49.50	400' AFTER GRAVES CREEK - AFTER ONRAMP	1/8 MI AFTER PASO ROBLES CREEK BRDG	POTS	utility	operating
MVDS	SLO	101	NB/SB	Vineyard Dr	50.51	TBD	TBD	CELL	utility	design
CCTV	SLO	101	TBD	Vineyard Dr	50.77	TBD	TBD	DSL	utility	design
MVDS	SLO	101	NB/SB	Las Tablas Rd	51.35	TBD	TBD	CELL	utility	design
CCTV	SLO	101	TBD	Las Tablas Rd	51.60	TBD	TBD	DSL	utility	design
CCTV	SLO	101	TBD	Main St	52.35	TBD	TBD	DSL	utility	design
MVDS	SLO	101	NB/SB	Main St	52.59	TBD	TBD	DSL	utility	design
LOOP	SLO	101	NB/SB	TEMPLETON, N OF MAIN STREET	52.70	500' AFTER NB ON RAMP	500' BEFORE SB OFF RAMP	NONE	battery	operating
MVDS	SLO	101	NB/SB	46W	53.98	TBD	TBD	CELL	utility	design
CCTV	SLO	101	TBD	46W	54.27	TBD	TBD	CELL	utility	design
MVDS	SLO	101	NB/SB	Spring / 1st St	55.29	TBD	TBD	CELL	utility	design
CCTV	SLO	101	TBD	Niblick Rd	55.96	TBD	TBD	DSL	utility	design
MVDS	SLO	101	NB/SB	Pine / Riverside	56.17	TBD	TBD	CELL	utility	design
MVDS	SLO	101	NB/SB	Paso Robles St	56.32	TBD	TBD	CELL	utility	design
CCTV	SLO	101	TBD	13th St	57.07	TBD	TBD	DSL	utility	design
MVDS	SLO	101	NB/SB	13th St	57.07	TBD	TBD	CELL	utility	design
MVDS	SLO	101	NB/SB	46E	57.79	TBD	TBD	CELL	utility	design
CCTV	SLO	101	NB/SB	46E	57.89	Fiberglass hinge base CCTV 20 pole.	Median strip next to south end of OC.	DSL	utility	operating
CCTV	SLO	101	SB	North of 46E	58.35	Fixed base, inside CMS cabinet.	North of the SB off ramp.	CELL	utility	operating
LOOP	SLO	101	NB/SB	North of 46E	58.35	Existing in pavement.	TMS site on SB mainline.	CELL	utility	completed
CMS	SLO	101	SB	North of 46E	58.35	Model 500, cantilever base	North of the SB off ramp.	CELL	utility	operating
CCTV	SLO	101	SB	Spring St	59.02	Existing overhead sign	SB exit ramp.	DSL	utility	design
MVDS	SLO	101	NB/SB	Spring St	59.02	TBD	TBD	CELL	utility	design
CMS	SLO	101	SB	Stockdale Rd	60.13	Model 500, cantilever base, to be relocated from PM 58.35	SB shoulder	CELL	utility	construction
CCTV	SLO	101	SB	Stockdale Rd	60.13	Fixed base, inside CMS cabinet.	SB shoulder	CELL	utility	construction
LOOP	SLO	101	NB/SB	S OF HUEY-EXLINE ROAD	60.50	1/2 MI AFTER MONTEREY RD	1/2 MI AFTER EXLINE	NONE	battery	operating
LOOP	SLO	101	NB/SB	SLO / MONTEREY COUNTY LINE. THIS IS A PROFILE IT'S COUNTED ONCE EVERY THREE YEARS	69.32	N/O SOUTHMOST ON FROM CAMP ROBERTS	N/O SOUTHMOST OFF TO CAMP ROBERTS	NONE	battery	operating
PIEZO	SLO	166	EB/WB	SANTA MARIA, 1 MI E OF JCT RTE 101	9.90	1 MI AFTER JCT RTE 101	1 MI AFTER WINEMAN RD	NONE	utility	completed
HOSE	SLO	166	EB/WB	MARICOPA, 200' W OF JCT RTE 33	74.70	BEFORE JCT	200' AFTER JCT RTE 33	NONE	battery	operating

ITS Type	County	Route	Dir. Of Travel	Cross Street or Route	Post Mile	Type of Installation (N/E Travel Descrip for cens.)	Location (S/W Travel Description for census.)	Comm Type	Power Source	Status
HOSE	SLO	227	NB/SB	ARROYO GRANDE, N OF JCT 101, 300'N OF TRAFFIC WAY	0.20	300' AFTER TRAFFIC WAY	500' AFTER BRIDGE ST	NONE	battery	operating
PIEZO	SLO	227	NB/SB	EDNA, 1/4 MI N OF PRICE CANYON ROAD. TREND STATION CNTD QTR EVERY YEAR	7.20	AFTER CORBETT CANYON RD	AFTER BRDG , BEFORE PRICE CANYON RD	NONE	battery	completed
HOSE	SLO	227	NB/SB	ON SOUTH STREET W OF BROAD STREET	12.95	AFTER BROAD-SOUTH I/S	AFTER LAWTON BEFORE BROAD	NONE	battery	operating
LOOP	SLO	227	NB/SB	SLO, S OF JCT RTE 101, IN FRONT OF D.O. ON MADONNA RD	14.01	AFTER HIGUERA-MADONNA I/S	AFTER MADONNA OC	NONE	battery	operating

TMS ELEMENT TYPES AND DEFINITIONS:

Locations in bold have more than one type of TMS element at that location. (AP,RP, and VSN are parts of one type of system.)

AP - Access point for VSN.

BP - Weigh-In-Motion(WIM) Bending Plate type census station.

CCTV - Closed Circuit Television Camera.

CMS - Changeable Message Sign.

HOSE - pneumatic Hose type census station.

LOOP - inductive Loop type census station.

MVDS - Microwave Vehicle Detection System.

PIEZO - Weigh-In-Motion(WIM) Piezoelectric sensor and inductive loop type census station.

RP - Repeater for VSN.

VSN - Vehicle Sensor Node.

WAPB - Wireless Access Point Bridge.

WDSC - Wireless Data Communication System consisting of a WAPB configured as a repeater.

WCB - Wireless Client Bridge.

TMS ELEMENT COUNTS:

	Total	Proposed	Design	Construction	Complete
Number of AP sites:	1	0	0	1	0
Number of BP stations:	2	0	0	0	2
Number of CCTV sites:	41	4	13	13	11
Number of CMS sites:	6	0	0	1	5
Number of HOSE stations:	14	0	0	0	14
Number of LOOP stations:	17	0	0	0	17
Number of MVDS sites:	51	0	25	25	1
Number of PIEZO stations:	3	0	0	0	3
Number of RP sites:	0	0	0	0	0
Number of VSN sites:	0	0	0	0	0
Number of WAPB sites:	1	0	0	1	0
Number of WDSC sites:	4	0	0	4	0

TMS ELEMENT COMMUNICATION TYPES:

CABLE - Cable Broadband Service

CAT5E - CAT5e cable Ethernet Link

CELL - Cellular Modem Broadband Service Ethernet or Serial.

DSL - Digital Subscriber Line Broadband Service

ISDN - Integrated Services Digital Network Broadband Service

NONE - No communications.

POTS - Plain Old Telephone Service

RF - Radio Frequency Wireless Link

WIFI - Wireless Ethernet Link

TMS ELEMENT COMMUNICATION COUNTS:

Number of CABLE connections:	1
Number of CAT5E connections:	1
Number of CELL connections:	40
Number of DSL connections:	26
Number of ISDN connections:	0
Number of POTS connections:	4
Number of RF connections:	0
Number of WIFI connections:	24
Number with no communications:	32

**District 5 ITS Elements
Santa Barbara County**

ITS Type	County	Route	Dir. Of Travel	Cross Street or Route	Post Mile	Type of Installation (N/E Travel Description for cens.)	Location (S/W Travel Description for census.)	Comm Type	Power Source	Status
LOOP	SB	1	NB/SB	LAS CRUCES, 1/4 MI NORTH OF GAVIOTA CREEK BRDG, BOX ON N SIDE OF ROAD	0.41	1/4 MI AFTER GAVIOTA CREEK BRDG ON	1/4 MI AFTER SAN JULIAN RD	NONE	battery	operating
LOOP	SB	1	NB/SB	LOMPOC, 350' N OF 246 / OCEAN AVE	20.63	350' PAST JCT 246/OCEAN AVE	185' AFTER WALNUT	NONE	battery	operating
LOOP	SB	1	NB/SB	LOMPOC, 200' S. OF CASMALIA ROAD I/S	23.25	200' BEFORE CASMALIA RD I/S	200' AFTER CASMALIA RD I/S	NONE	battery	operating
LOOP	SB	1	NB/SB	.18 MILE NORTH OF PINE CANYON ROAD	26.87	.18 MI AFTER SAN LUCHIA / PINE CANYON RD	.18 MI BEFORE PINE CANYON RD	NONE	battery	operating
HOSE	SB	1	NB/SB	1/4 MI S OF VANDENBERG AIR FORCE BASE I/S	29.62	1/4 MI AFTER TIMBER LANE	1/4 MI AFTER VAFB I/S, AT W41 SIGN	NONE	battery	operating
HOSE	SB	1	NB/SB	200' N OF VANDENBERG AIR FORCE BASE I/S	29.93	200' N OF I/S, AT MT VIEW SIGN	50' S OF MT VIEW BLVD, AT VAFB/ LOMPOC SIGN	NONE	battery	operating
HOSE	SB	1	NB/SB	VANDENBERG, UNDER RTE 1 O.C., JUST N. OF GRACIOSA RD.	31.80	VANDENBERG, UNDER RTE 1 O.C., JUST N. OF GRACIOSA RD., NEAR THE CALL BOX	UNDER RTE 1 O.C.	NONE	battery	operating
LOOP	SB	1	NB/SB	S OF RTE. 1, TOWARDS VANDENBERG AFB, 3 MI AFTER SAN ANTONIO CREEK BRDG	35.50	3 MI BEFORE SAN ANTONIO CREEK BRDG	AFTER SB JCT 135	NONE	battery	operating
HOSE	SB	1	NB/SB	CASMALIA ROAD NORTH	41.81	500' AFTER BLACK RD	500' BEFORE BLACK RD	NONE	battery	operating
LOOP	SB	1	NB/SB	GUADALUPE, 150' N OF JCT. RTE. 166	49.20	AT JCT 166 E	AT JCT 166 E	NONE	battery	operating
MVDS	SB	101	NB/SB	Route 150	0.74	New 15TS pole.	NB on ramp.	CELL	PV	construction
LOOP	SB	101	NB/SB	S OF BAILARD AVE, B/T BAILARD AND JCT 150 E	1.30	1/2 MI AFTER JCT 150 E	1/8 MI AFTER BAILARD AVE	NONE	battery	operating
MVDS	SB	101	NB/SB	Bailard Ave	1.84	New 15TS pole.	NB on ramp.	CELL	PV	construction
AP, MVDS, RP	SB	101	NB	Casitas Pass Rd	2.64	New CCTV 40 pole.	NB side on west side of the bridge abutment.	DSL	PV	construction
CCTV	SB	101	NB	Casitas Pass Rd	2.64	New CCTV 40 pole.	NB side on west side of the bridge abutment.	DSL	utility	proposed
RP	SB	101	NB	Casitas Pass Rd	2.64	New 15 pole.	SB side on the west side of the bridge abutment.	RF	PV	construction
VSN	SB	101	SB	Casitas Pass Rd	2.64	In pavement.	SB off ramp.	RF	battery	construction
VSN	SB	101	SB	Casitas Pass Rd	2.64	In pavement.	SB on ramp.	RF	battery	construction
VSN	SB	101	NB	Casitas Pass Rd	2.64	In pavement.	NB off ramp.	RF	battery	construction
AP, MVDS	SB	101	NB	Linden Ave	2.89	New CCTV 45 pole.	NB side behind existing bridge abutment guardrail.	DSL	PV	construction
RP-VSN	SB	101	SB	Linden Ave	3.00	New 30 pole and in pavement.	SB off ramp.	RF	PV/ battery	construction
MVDS	SB	101	NB/SB	Reynolds Ave	3.62	New 15TS pole	SB off ramp.	CELL	PV	construction
AP, MVDS	SB	101	NB	Santa Monica Rd	3.88	New 15TS pole.	NB side.	DSL	PV	construction
VSN	SB	101	NB	Santa Monica Rd	3.88	In pavement.	NB off ramp.	RF	battery	construction
VSN	SB	101	NB	Santa Monica Rd	3.88	In pavement.	NB on ramp.	RF	battery	construction
AP, MVDS	SB	101	NB/SB	Santa Claus Lane	4.50	Existing 30 pole.	SB on ramp behind existing guardrail next to existing luminaire.	CELL	PV	construction
RP-VSN	SB	101	SB	Santa Claus Lane	4.67	New 1A pole and in pavement.	SB on ramp.	RF	PV/ battery	construction
MVDS	SB	101	NB/SB	South Padaro Lane	5.46	New 15TS pole.	NB on ramp.	CELL	PV	construction
MVDS	SB	101	NB/SB	Padaro Lanes Mid-Point	6.50	New 15TS pole.	NB behind the existing guardrail, near the south end of recently installed sound wall.	CELL	PV	construction

**District 5 ITS Elements
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MVDS	SB	101	NB/SB	North Padaro Lane	6.83	New 15TS pole.	NB on ramp.	CELL	PV	construction
AP	SB	101	NB/SB	Evans Ave	7.50	New 1A pole.	NB off ramp.	CELL	PV	construction
RP-VSN	SB	101	NB/SB	Evans Ave	7.51	Existing 30 pole and in pavement.	SB on ramp.	RF	PV/ battery	construction
MVDS	SB	101	NB/SB	Evans Ave	8.10	New 15TS pole.	NB off ramp.	CELL	PV	construction
MVDS	SB	101	NB/SB	Sheffield Dr	8.86	New CCTV 45 pole.	NB off ramp.	DSL	PV	construction
CCTV	SB	101	NB	Sheffield Dr	8.86	Existing CCTV 45 pole.	NB off ramp.	DSL	utility	proposed
AP-VSN	SB	101	SB	Posilipo Lane	9.49	New 1A pole and in pavement.	SB on ramp.	CELL	PV/ battery	construction
AP, MVDS, RP	SB	101	NB	San Ysidro Rd	10.05	New 15TS pole.	NB side behind existing bridge abutment.	DSL	PV	construction
VSN	SB	101	NB	San Ysidro Rd	10.05	In pavement.	NB off ramp.	RF	battery	construction
VSN	SB	101	NB	San Ysidro Rd	10.05	In pavement.	NB on ramp.	RF	battery	construction
RP-VSN	SB	101	SB	San Ysidro Rd	10.05	Existing 15 pole and in pavement.	SB off ramp.	RF	PV/ battery	construction
MVDS	SB	101	NB/SB	Olive Mill Rd	10.44	New 15TS pole.	NB off ramp.	CELL	PV	construction
MVDS	SB	101	NB/SB	Hermosillo Dr	11.10	New 15TS pole.	NB off ramp.	CELL	PV	construction
LOOP	SB	101	NB	Cabrillo Blvd	11.34	Existing in pavement.	Sta 101+50 (for NB mainline).	???	utility	construction
MVDS	SB	101	SB	Cabrillo Blvd	11.39	New cantilever sign.	SB side at Sta 1+00.	CELL	utility	construction
CCTV, MVDS	SB	101	NB	Los Patos	11.69	New cantilever sign with CCTV 10 pole.	NB side at Sta 5+80.	DSL	utility	construction
LOOP	SB	101	NB/SB	SANTA BARBARA, N OF SALINAS ROAD	11.90	BTWN CABRILLO NB ON AND SALINAS RD OFF	BTWN MILPUS SB ON AND CABRILLO OFF	NONE	battery	operating
MVDS	SB	101	NB/SB	Salinas St	12.00	New cantilever sign.	NB side at Sta 10+40.	CELL	utility	construction
MVDS	SB	101	NB/SB	Salinas St	12.25	New cantilever sign.	NB side at Sta 14+00.	CELL	utility	construction
MVDS	SB	101	NB/SB	Milpas St	12.42	New cantilever sign.	NB side at Sta 17+60.	CELL	utility	construction
MVDS	SB	101	NB/SB	Milpas St	12.70	New cantilever sign.	SB side at Sta 22+40.	CELL	utility	construction
CCTV	SB	101	NB	Milpas	12.77	CCTV 40 pole.	NB on ramp.	DSL	utility	operating
MVDS	SB	101	NB/SB	Milpas St	13.18	New cantilever sign.	SB side at Sta 30+00.	CELL	utility	construction
CCTV	SB	101	NB	Laguna St	13.34	Existing cantilever sign with CCTV 10 pole.	NB off ramp.	DSL	utility	completed
RP-VSN	SB	101	SB	Garden St	13.71	Existing 15 pole and in pavement.	SB off ramp.	RF	PV/ battery	construction
VSN	SB	101	NB	Garden St	13.71	In pavement.	NB on ramp.	RF	battery	construction
AP, MVDS	SB	101	NB/SB	Garden St	13.72	Existing cantilever sign.	SB off ramp.	CELL	utility	construction
AP, MVDS	SB	101	NB/SB	Castillo St	13.96	Existing cantilever sign.	NB off ramp.	CELL	utility	construction
RP-VSN	SB	101	NB	Castillo St	13.96	Existing luminaire and in pavement.	NB off ramp.	RF	utility/ battery	construction
VSN	SB	101	SB	Castillo St	13.96	In pavement.	SB on ramp.	RF	battery	construction
CCTV	SB	101	SB	Castillo St	14.31	New CCTV 35 pole.	SB off ramp.	DSL	utility	proposed
RP-VSN	SB	101	NB	Castillo St	14.36	Existing luminaire and in pavement.	NB on ramp.	RF	utility/ battery	construction
RP-VSN	SB	101	SB	Castillo St	14.36	Existing luminaire and in pavement.	SB off ramp.	RF	utility/ battery	construction
AP, MVDS	SB	101	NB/SB	Castillo St	14.44	Existing cantilever sign.	SB off ramp.	CELL	utility	construction
RP-VSN	SB	101	NB	Carrillo St	14.62	Existing luminaire and in pavement.	NB off ramp.	RF	utility/ battery	construction
RP-VSN	SB	101	SB	Carrillo St	14.62	Existing luminaire and in pavement.	SB on ramp.	RF	utility/ battery	construction
AP, MVDS	SB	101	NB/SB	Carrillo St	14.79	Existing cantilever sign.	SB side.	CELL	utility	construction
VSN	SB	101	SB	Carrillo St	14.79	In pavement.	SB off ramp.	RF	battery	construction
VSN	SB	101	SB	Carrillo St	14.79	In pavement.	SB off ramp.	RF	battery	construction
CCTV	SB	101	NB	Carrillo St	15.00	New CCTV 35 pole.	NB side next to Anapamu Ped OC.	CELL	utility	construction
AP, MVDS	SB	101	NB/SB	Arrellaga St	15.26	Existing cantilever sign.	NB off ramp.	CELL	utility	construction
VSN	SB	101	NB	Arrellaga St	15.26	In pavement.	NB off ramp.	RF	battery	construction

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RP-VSN	SB	101	NB	Arrellaga St	15.44	Existing luminaire and in pavement.	NB on ramp.	RF	utility/battery	construction
AP, MVDS	SB	101	NB/SB	Mission St	15.53	Existing cantilever sign.	NB off ramp.	CELL	utility	construction
VSN	SB	101	SB	Mission St	15.53	In pavement.	SB on ramp.	RF	battery	construction
RP-VSN	SB	101	NB	Mission St	15.59	Existing luminaire and in pavement.	NB off ramp.	RF	utility	construction
CCTV	SB	101	NB	Mission St	15.75	Existing cantilever sign.	NB side.	DSL	utility	proposed
RP-VSN	SB	101	NB	Mission St	15.90	Existing luminaire and in pavement.	NB on ramp.	RF	utility	construction
AP-VSN	SB	101	NB	Mission St	15.96	Existing cantilever sign and in pavement.	NB off ramp to Pueblo St.	CELL	utility/battery	construction
VSN	SB	101	SB	Mission St	15.96	In pavement.	SB off ramp.	RF	battery	construction
BP	SB	101	NB/SB	SANTA BARBARA, S OF JUNIPERO PED O.C.	16.10	.1 MI AFTER NB OFF TO PUEBLO	.1 MI AFTER JUNIPERO PED OC	CELL	utility	operating
LOOP	SB	101	NB/SB	N OF LOS POSITAS RD. OVERCROSSING	16.80	AFTER NB ON RAMP	BEFORE SB OFF RAMP	POTS	battery	operating
AP, MVDS	SB	101	NB/SB	Las Positas Rd	16.22	Existing cantilever sign.	SB side at Junipero St Ped Bridge.	CELL	utility	construction
RP-VSN	SB	101	NB	Las Positas Rd	16.27	Existing luminaire and in pavement.	NB off ramp.	RF	utility/battery	construction
VSN	SB	101	SB	Las Positas Rd	16.27	In pavement.	SB on ramp.	RF	battery	construction
CCTV	SB	101	NB	Route 225/Las Positas	16.50	New CCTV 40 pole.	Las Positas OC.	DSL	utility	completed
CMS	SB	101	NB	Route 225/Las Positas	16.50	Model 500, cantilever base	Las Positas OC.	CELL	utility	operating
RP-VSN	SB	101	SB	Las Positas Rd	16.74	Existing luminaire and in pavement.	SB off ramp.	RF	utility	construction
RP-VSN	SB	101	NB	Las Positas Rd	16.83	Existing luminaire and in pavement.	NB on ramp.	RF	utility	construction
AP, MVDS	SB	101	NB/SB	Las Positas Rd	16.85	Existing cantilever sign.	SB off ramp.	CELL	utility	construction
AP, MVDS	SB	101	NB/SB	Hope Ave	17.28	Existing cantilever sign.	NB off ramp.	CELL	utility	construction
RP-VSN	SB	101	NB	Hope Ave	17.38	Existing luminaire and in pavement.	NB off ramp.	RF	utility	construction
CCTV	SB	101	SB	La Cumbre Rd	17.76	Existing signal pole.	SB on ramp.	DSL	utility	proposed
MVDS	SB	101	NB/SB	State St	17.96	Existing cantilever sign.	NB exit ramp.	CELL	utility	construction
CMS	SB	101	NB	State St/154	18.02	Model 520, butterfly base.	NB exit	CELL	utility	operating
CCTV	SB	101	NB	Route 154	18.39	New CCTV 40 pole.	NB shoulder next to east side of Route 154 - San Marcos Pass bridge structure.	DSL	utility	proposed
MVDS	SB	101	NB	Route 154	18.39	New CCTV 40 pole.	NB shoulder next to east side of Route 154 - San Marcos Pass bridge structure.	DSL	utility	construction
RP-VSN	SB	101	NB	El Sueno Rd	18.81	Existing luminaire and in pavement.	NB El Sueno Rd off ramp.	RF	utility/battery	construction
VSN	SB	101	SB	El Sueno Rd	18.81	In pavement.	SB State St 154 off ramp.	RF	battery	construction
CCTV	SB	101	SB	El Sueno Rd	18.96	Existing cantilever sign.	SB side before State St 154 exit ramp.	DSL	utility	proposed
AP, MVDS	SB	101	SB	El Sueno Rd	18.96	Existing cantilever sign.	SB side before State St 154 exit ramp.	DSL	utility	construction
AP, MVDS	SB	101	NB/SB	Turnpike Rd	19.75	Existing cantilever sign.	NB off ramp.	CELL	utility	construction
RP-VSN	SB	101	NB	Turnpike Rd	19.83	Existing luminaire and in pavement.	NB off ramp.	RF	utility/battery	construction
VSN	SB	101	SB	Turnpike Rd	19.83	In pavement.	SB on ramp.	RF	battery	construction
CCTV	SB	101	SB	Turnpike Rd	20.01	Fiberglass CCTV 30 pole.	SB off ramp next to south end of OC.	DSL	utility	completed
RP-VSN	SB	101	SB	Turnpike Rd	20.27	Existing luminaire and in pavement.	SB off ramp.	RF	utility/battery	construction
VSN	SB	101	NB	Turnpike Rd	20.27	In pavement.	NB on ramp.	RF	battery	construction
AP, MVDS	SB	101	NB/SB	Turnpike Rd	20.32	Existing cantilever sign.	SB off ramp.	CELL	utility	construction

**District 5 ITS Elements
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AP, MVDS	SB	101	NB/SB	Patterson Ave	20.99	Existing cantilever sign.	NB off ramp.	CELL	utility	construction
VSN	SB	101	NB	Patterson Ave	20.99	In pavement.	NB off ramp.	RF	battery	construction
CCTV	SB	101	SB	Patterson Ave	21.08	Existing signal pole.	SB on ramp next to south end of OC.	DSL	utility	operating
RP-VSN	SB	101	SB	Patterson Ave	21.54	Existing luminaire and in pavement.	SB off ramp.	RF	utility/ battery	construction
VSN	SB	101	NB	Patterson Ave	21.54	In pavement.	NB on ramp.	RF	battery	construction
AP, MVDS	SB	101	NB/SB	Patterson Ave	21.59	Existing cantilever sign.	SB off ramp.	CELL	utility	construction
AP, MVDS	SB	101	NB/SB	Fairview Ave	22.13	Existing cantilever sign.	NB off ramp.	CELL	utility	construction
RP-VSN	SB	101	SB	Fairview Ave	22.26	Existing cantilever sign and in pavement.	SB on ramp.	RF	utility/ battery	construction
VSN	SB	101	NB	Fairview Ave	22.26	In pavement.	NB off ramp.	RF	battery	construction
CCTV	SB	101	NB	Fairview Ave	22.39	Existing signal pole with mast arm.	NB on ramp.	DSL	utility	completed
RP	SB	101	NB	Fairview Ave	22.39	Existing signal pole with mast arm.	NB on ramp.	RF	utility	construction
VSN	SB	101	NB	Fairview Ave	22.39	In pavement.	NB on ramp.	RF	battery	construction
VSN	SB	101	NB	Fairview Ave	22.39	In pavement.	NB on ramp.	RF	battery	construction
AP, MVDS	SB	101	NB/SB	Fairview Ave	22.79	Existing cantilever sign.	SB off ramp.	CELL	utility	construction
VSN	SB	101	SB	Fairview Ave	22.79	In pavement.	SB off ramp.	RF	battery	construction
MVDS	SB	101	NB/SB	Los Carneros	23.40	Existing cantilever sign.	NB off ramp	CELL	utility	construction
CCTV	SB	101	NB	Los Carneros Rd	23.67	Fiberglass hinge base CCTV 20 pole.	NE side of the Los Carneros OC.	CELL	utility	completed
RP-VSN	SB	101	NB/SB	Los Carneros	23.97	Existing luminaire and in pavement.	SB off ramp.	RF	utility/ battery	construction
LOOP	SB	101	NB/SB	N OF LOS CANEROS RD. OVERCROSSING	24.00	AFTER NB ON RAMP	BEFORE SB OFF RAMP	NONE	battery	operating
AP, MVDS	SB	101	NB/SB	Los Carneros	24.06	Existing cantilever sign.	SB off ramp.	CELL	utility	construction
AP-VSN	SB	101	NB	Glen Annie Rd	24.21	Existing cantilever sign and in pavement.	NB off ramp.	CELL	utility/ battery	construction
RP-VSN	SB	101	SB	Glen Annie Rd	24.35	Existing cantilever sign and in pavement.	SB on ramp.	RF	utility/ battery	construction
CCTV	SB	101	SB	Glen Annie/Storke Rd	24.70	Fiberglass hinge base CCTV 20 pole.	SB off ramp next to south end of OC.	DSL	utility	completed
RP-VSN	SB	101	NB	Glen Annie Rd	24.88	Existing luminaire and in pavement.	NB on ramp.	RF	utility/ battery	construction
RP-VSN	SB	101	SB	Glen Annie Rd	25.01	Existing luminaire and in pavement.	SB off ramp.	RF	utility/ battery	construction
AP, MVDS	SB	101	NB/SB	Glen Annie Rd	25.10	Existing cantilever sign.	SB off ramp.	CELL	utility	construction
AP, MVDS, VSN	SB	101	NB/SB	Hollister Ave	26.40	New 15TS pole and in pavement.	NB off ramp.	CELL	PV/ battery	construction
LOOP	SB	101	NB/SB	S OF NB REST STOP, B/T REST STOP AND GAVIOTA BEACH STATE PARK	46.50	BEFORE NB REST AREA	AFTER SB REST AREA	NONE	battery	operating
LOOP	SB	101	NB/SB	ZACA, 1/2 MILE S OF JCT 154 EAST	62.12	1/2 MI BEFORE JCT 154 E	1/2 AFTER JCT 154 E	NONE	battery	operating
CMS	SB	101	SB	Route 154	62.67	Model 520, butterfly base.	SB exit at Los Olivos.	CELL	utility	operating
CCTV	SB	101	SB	Route 154	65.20	New CCTV 40 pole.	SB shoulder.	CELL	utility	operating
CMS	SB	101	SB	Route 154	65.20	Model 500, cantilver base	SB shoulder.	CELL	utility	operating
LOOP	SB	101	NB/SB	SANTA MARIA, N OF CLARK AVENUE	81.80	AFTER NB ON RAMP	BEFORE SB OFF RAMP	NONE	battery	operating
MVDS	SB	101	NB/SB	Santa Maria Way	84.61	New cantilever sign.	SB off ramp.	CELL	utility	completed
MVDS	SB	101	NB	Betteravia Rd	86.28	Existing signal pole.	NE side of the Betteravia OC.	DSL	utility	completed
CCTV	SB	101	NB	Betteravia Rd	86.28	Existing signal pole.	NE side of the Betteravia OC.	DSL	utility	proposed
MVDS	SB	101	NB/SB	Betteravia Rd	86.79	New cantilever sign.	SB off ramp.	CELL	utility	completed

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LOOP	SB	101	NB/SB	AT OC, N SIDE OF BRIDGE (MIANLINE ONLY)	87.60	JUST AFTER NB OFF RAMP (X LEG)	AFTER SB OFF RAMP (X LEG)	NONE	battery	construction
MVDS	SB	101	NB/SB	Stowell Rd	87.63	New cantilever sign.	SB off ramp.	CELL	utility	completed
MVDS	SB	101	NB	Main St	88.27	New cantilever sign.	NB off ramp.	DSL	utility	completed
CCTV	SB	101	NB	Main St	88.27	New cantilever sign.	NB off ramp.	DSL	utility	proposed
MVDS	SB	101	NB/SB	Main St	88.89	Existing cantilever sign.	SB off ramp.	CELL	utility	completed
MVDS	SB	101	NB	Donovan Rd	90.18	New cantilever sign.	NB side across from the SB off ramp.	DSL	utility	completed
CCTV	SB	101	NB	Donovan Rd	90.18	New cantilever sign.	NB side across from the SB off ramp.	DSL	utility	proposed
MVDS	SB	101	SB	Route 135/Broadway	90.98	Existing cantilever sign.	SB off ramp.	DSL	utility	completed
CCTV	SB	101	SB	Route 135/Broadway	90.98	Existing cantilever sign.	SB off ramp.	DSL	utility	proposed
HOSE	SB	135	NB/SB	LOS ALAMOS, JCT. RTE. 101, BEGINNING OF 135	0.05	BEGINNING OF 135	VERY END OF 135	NONE	battery	operating
HOSE	SB	135	NB/SB	150' S OF HARRIS GRADE ROAD, OLD RTE 1	9.05	AFTER SAN ANTONIO CR	150' AFTER HARRIS GRADE RD	NONE	battery	operating
HOSE	SB	135	NB/SB	ORCUTT, N OF N JCT 1, AFTER 135 AND 1 SPLIT	9.15	1/8 MI AFTER N JCT 1	BEFORE GRACIOSA CANYON CR	NONE	battery	operating
HOSE	SB	135	NB/SB	JUST SOUTH OF HWY 1 O.C.	11.70	JUST AFTER HWY 1 O.C.	BEFORE O.C.	NONE	battery	operating
LOOP	SB	135	NB/SB	SANTA MARIA, JCT 166, 150' S OF MAIN STREET	15.73	100' AFTER CHURCH ST	150' AFTER MAIN ST	NONE	battery	operating
LOOP	SB	135	NB/SB	SANTA MARIA, S OF JCT. 101, END OF 135	17.81	BEFORE NB OFF	AFTER SB ON	NONE	battery	operating
HOSE	SB	150	EB/WB	CARPINTERIA, 1/4 MILE EAST OF JCT. RTE. 101	0.40	1/4 MI AFTER JCT RTE 101	.1 MI AFTER RINCON HILL RD	NONE	battery	operating
LOOP	SB	154	EB/WB	E OF SAN MARCOS PASS & CAMINO CIELO	24.80	.4 MI AFTER CAMINO CIELO	.3 MI AFTER KIVEVAN RD S	NONE	battery	operating
HOSE	SB	154	EB/WB	SOUTH JCT 101/154 SANTA BARBARA, W OF JCT 101, AT COLINA RD UC (RTE 192)	32.07	AT BRIDGE UC	AT BRIDGE UC	NONE	battery	operating
HOSE	SB	154	EB/WB	NORTH JCT 101/154 ZACA, W OF JCT RTE 101 AND ZACA STATION RD	0.10	BEFORE ZACA STATION RD & RTE 101	AFTER ZACA STATION RD & RTE 101	NONE	battery	operating
LOOP	SB	166	EB/WB	GUADALUPE, E OF JCT 1, 150' E OF RR XING	0.05	150' AFTER RR XING	150' BEFORE RR XING	NONE	battery	operating
LOOP	SB	166	EB/WB	SANTA MARIA, 500' W OF JCT 135/BROADWAY	7.83	300' AFTER LINCOLN ST	500' AFTER JCT 135	NONE	battery	operating
HOSE	SB	192	EB/WB	.1 MI E OF JCT RTE 154	0.12	.1 MI AFTER JCT 154	500' AFTER CIENGITAS AVE	NONE	battery	operating
HOSE	SB	192	EB/WB	SANTA BARBARA, BTWN MTN DR & MISSION RIDGE	4.30	1/8 MI AFTER MOUNTAIN DR	.2 MI AFTER MISSION RIDGE	NONE	battery	operating
HOSE	SB	192	EB/WB	200' E OF HOT SPRINGS RD	8.32	200' AFTER HOT SPRINGS RD	.1 MI AFTER COTA	NONE	battery	operating
HOSE	SB	192	EB/WB	1/8 MI E OF FREEHAVEN DR	11.95	1/8 MI AFTER FREEHAVEN	300' AFTER LADERA LN	NONE	battery	operating
HOSE	SB	192	EB/WB	CARPINTERIA, 150' W OF LINDEN AVE	17.40	AFTER THE JR HIGH	150' AFTER LINDEN	NONE	battery	operating
HOSE	SB	192	EB/WB	CARPINTERIA, 1/8 MI E OF LINDEN AVE	17.54	1/8 MI AFTER LINDEN AVE	BEFORE LINDEN AVE	NONE	battery	operating
LOOP	SB	217	NB/SB	ENTRANCE, 500' S OF UCSB	0.35	500' BEFORE UCSB	500' AFTER UCSB	NONE	battery	operating
HOSE	SB	225	NB/SB	SANTA BARBARA, 200' N OF MODOC ROAD	0.22	200' AFTER MODOC RD	1/4 MI AFTER LAS POSITAS PL	NONE	battery	operating
HOSE	SB	246	EB/WB	LOMPOC, 100' W OF H ST / JCT RTE 1 W, BTWN H & I ST	9.52	AFTER I ST, BEFORE H ST	AFTER H ST, BEFORE I ST	NONE	battery	operating
HOSE	SB	246	EB/WB	LOMPOC, 200' E OF JCT RTE 1 E	9.60	AFTER E JCT RTE 1	BEFORE E JCT RTE 1	NONE	battery	operating
HOSE	SB	246	EB/WB	150' W OF AVE OF THE FLAGS	25.97	20' AFTER CENTRAL AVE	150' AFTER AVE OF THE FLAGS	NONE	battery	operating
HOSE	SB	246	EB/WB	100' E OF AVE OF THE FLAGS	26.08	100' AFTER AVE OF THE FLAGS	700' AFTER US 101 SB OFF RAMP	NONE	battery	operating
HOSE	SB	246	EB/WB	SANTA YNEZ, 1/4 MI W OF JCT. RTE 154	34.40	700' AFTER MEADOWLARK RANCH RD	1/4 MI AFTER JCT 154	NONE	battery	operating

TMS ELEMENT TYPES AND DEFINITIONS:

Locations in bold have more than one type of TMS element at that location. (AP,RP, and VSN are parts of one type of system.)

AP - Access Point for VSN.

BP - Weigh-In-Motion(WIM) Bending Plate type census station.

CCTV - Closed Circuit Television Camera.

CMS - Changeable Message Sign.

HOSE - pneumatic Hose type census station.

LOOP - inductive Loop type census station.

MVDS - Microwave Vehicle Detection System.

PIEZO - Weigh-In-Motion(WIM) Piezoelectric sensor and inductive loop type census station.

RP - Repeater for VSN.

VSN - Vehicle Sensor Node.

WAPB - Wireless Access Point Bridge.

WDSC - Wireless Data Communication System consisting of a WAPB configured as a repeater.

WCB - Wireless Client Bridge.

TMS ELEMENT COUNTS:

	Total	Proposed	Design	Construction	Complete
Number of AP sites:	28	0	0	28	0
Number of BP stations:	1	0	0	0	1
Number of CCTV sites:	22	11	0	2	9
Number of CMS sites:	4	0	0	0	4
Number of HOSE stations:	23	0	0	0	23
Number of LOOP stations:	21	0	0	2	19
Number of MVDS sites:	52	0	0	44	8
Number of PIEZO stations:	0	0	0	0	0
Number of RP sites:	30	0	0	30	0
Approx. Number of VSN sites:	54	0	0	54	0
Number of WAPB sites:	0	0	0	0	0
Number of WDSC sites:	0	0	0	0	0

TMS ELEMENT COMMUNICATION TYPES:

CABLE - Cable Broadband Service

CAT5E - CAT5e cable Ethernet Link

CELL - Cellular Modem Broadband Service Ethernet or Serial.

DSL - Digital Subscriber Line Broadband Service

ISDN - Integrated Services Digital Network Broadband Service

NONE - No communications.

POTS - Plain Old Telephone Service

RF - Radio Frequency Wireless Link

WIFI - Wireless Ethernet Link

TMS ELEMENT COMMUNICATION COUNTS:

Number of CABLE connections:	0
Number of CAT5E connections:	0
Number of CELL connections:	52
Number of DSL connections:	30
Number of ISDN connections:	0
Number of POTS connections:	1
Number of RF connections:	52
Number of WIFI connections:	0
Number with no communications:	42

**District 5 ITS Elements
Santa Cruz County**

ITS Type	County	Route	Dir. Of Travel	Cross Street or Route	Post Mile	Type of Installation (N/E Travel Descrip for cens.)	Location (S/W Travel Description for census.)	Comm Type	Power Source	Status
CCTV, MVDS	SCR	1	NB/SB	South of Riverside Drive & 129/152	0.47	Existing cantilever sign.	NB off ramp.	DSL	utility	design
LOOP	SCR	1	NB/SB	500' SOUTH OF JCT. RTE. 129	0.62	1/2 MI AFTER PAJARO BRDGD	500' AFTER JCT RTE 129	NONE	battery	operating
RP-VSN	SCR	1	NB	North of Riverside Drive & 129/152	0.88	New 15 pole and in pavement.	NB on ramp.	RF	utility/ battery	design
AP, CCTV, MVDS	SCR	1	NB/SB	North of Riverside Drive & 129	1.00	Existing cantilever sign.	SB off ramp.	DSL	utility	design
AP, CCTV, MVDS	SCR	1	NB/SB	South of Green Valley & Harkins Slough Rds	2.05	Existing cantilever sign.	NB off ramp.	DSL	utility	design
VSN	SCR	1	NB	South of Green Valley & Harkins Slough Rds	2.05	In pavement.	NB off ramp.	RF	battery	design
VSN	SCR	1	SB	South of Green Valley & Harkins Slough Rds	2.05	In pavement.	SB on ramp.	RF	battery	design
LOOP	SCR	1	NB/SB	JUST N OF JCT. RTE. 152	2.68	AFTER NB ON RAMP	BEFORE SB OFF RAMP	NONE	battery	operating
RP-VSN	SCR	1	NB	South of Airport Boulevard	2.96	Existing luminaire and in pavement.	NB on ramp.	RF	utility/ battery	design
AP, CCTV, MVDS	SCR	1	NB/SB	South of Airport Boulevard	3.03	Existing cantilever sign.	SB off ramp.	DSL	utility	design
RP	SCR	1	NB	South of Airport Blvd	3.20	Existing bridge-mounted sign.	NB mainline.	RF	utility	design
VSN	SCR	1	NB	South of Airport Blvd	3.20	In pavement.	NB off ramp.	RF	battery	design
VSN	SCR	1	SB	South of Airport Blvd	3.20	In pavement.	SB on ramp.	RF	battery	design
RP-VSN	SCR	1	NB	South of Buena Vista Dr	4.01	Existing luminaire and in pavement.	NB on ramp.	RF	utility/ battery	design
VSN	SCR	1	NB	South of Buena Vista Dr	4.01	In pavement.	NB off ramp.	RF	battery	design
RP	SCR	1	SB	North of Buena Vista Drive	4.11	Existing luminaire.	SB off ramp.	RF	utility	design
VSN	SCR	1	SB	North of Buena Vista Drive	4.11	In pavement.	SB off ramp.	RF	battery	design
VSN	SCR	1	SB	North of Buena Vista Drive	4.11	In pavement.	SB off ramp.	RF	battery	design
VSN	SCR	1	SB	North of Buena Vista Drive	4.11	In pavement.	SB on ramp.	RF	battery	design
VSN	SCR	1	SB	North of Buena Vista Drive	4.11	In pavement.	SB on ramp.	RF	battery	design
AP, CCTV, MVDS	SCR	1	NB/SB	North of Buena Vista Drive	4.13	Existing cantilever sign.	SB mainline.	DSL	utility	design
CCTV, MVDS	SCR	1	NB/SB	North of Buena Vista Drive	4.92	Existing cantilever sign.	SB mainline.	DSL	utility	design
AP, CCTV, MVDS	SCR	1	NB/SB	South of Mar Monte Avenue	6.30	Existing cantilever sign.	NB mainline.	DSL	utility	design
RP-VSN	SCR	1	NB	South of Mar Monte Avenue	6.39	Existing luminaire and in pavement.	NB off ramp.	RF	utility/ battery	design
RP-VSN	SCR	1	SB	South of Mar Monte Avenue	6.50	Existing luminaire and in pavement.	SB on ramp.	RF	utility/ battery	design
VSN	SCR	1	SB	South of Mar Monte Avenue	6.50	In pavement.	SB off ramp.	RF	battery	design
RP-VSN	SCR	1	NB	North of Mar Monte Avenue	7.14	Existing luminaire and in pavement.	NB on ramp.	RF	utility/ battery	design
AP, CCTV, MVDS	SCR	1	NB/SB	North of Mar Monte Avenue	7.19	Existing cantilever sign.	SB mainline.	DSL	utility	design
AP, CCTV, MVDS	SCR	1	NB/SB	South of San Andreas & Larkin Valley Rds	7.63	Existing cantilever sign.	NB off ramp.	DSL	utility	design
VSN	SCR	1	NB	South of San Andreas & Larkin Valley Rds	7.63	In pavement.	NB off ramp.	RF	battery	design
RP-VSN	SCR	1	SB	South of San Andreas & Larkin Valley Rds	7.63	Existing luminaire and in pavement.	SB on ramp.	RF	utility/ battery	design
RP-VSN	SCR	1	SB	North of San Andreas & Larkin Valley Rds	7.71	Existing luminaire and two in pavement.	SB off ramp.	RF	utility/ battery	design
AP, MVDS	SCR	1	NB/SB	Freedom Blvd	8.12	Existing cantilever sign.	NB off ramp.	CELL	utility	construction
RP-VSN	SCR	1	NB	Freedom Blvd	8.17	New 30 pole and in pavement. (In place of existing luminaire.)	NB off ramp.	RF	utility/ battery	construction
RP-VSN	SCR	1	SB	Freedom Blvd	8.32	New 30(MOD) pole and in pavement. (In place of existing luminaire.)	SB on ramp.	RF	utility/ battery	construction
CCTV	SCR	1	TBD	Freedom Blvd	8.36	TBD	TBD	DSL	utility	proposed

**District 5 ITS Elements
Santa Cruz County**

ITS Type	County	Route	Dir. Of Travel	Cross Street or Route	Post Mile	Type of Installation (N/E Travel Descrip for cens.)	Location (S/W Travel Description for census.)	Comm Type	Power Source	Status
RP-VSN	SCR	1	SB	Freedom Blvd	8.58	New 30 pole and in pavement. (In place of existing luminaire.)	NB on ramp.	RF	utility/battery	construction
RP-VSN	SCR	1	SB	Freedom Blvd	8.65	New 30 pole and in pavement. (In place of existing luminaire.)	SB off ramp.	RF	utility/battery	construction
AP, MVDS	SCR	1	NB/SB	Freedom Blvd	8.73	Existing cantilever sign.	SB off ramp.	CELL	utility	construction
MVDS	SCR	1	NB/SB	Rio Del Mar	9.01	Existing cantilever sign.	NB off ramp.	CELL	utility	construction
LOOP	SCR	1	NB/SB	RIO DEL MAR N/O FREEDOM BOULEVARD	9.15	BEFORE RIO DEL MAR NB ON-RAMP	AFTER RIO DEL MAR SB OFF-RAMP	NONE	battery	operating
CCTV	SCR	1	TBD	Rio Del Mar	9.15	TBD	TBD	CELL	utility	proposed
RP-VSN	SCR	1	NB	Rio Del Mar	9.36	Existing luminaire and in pavement.	NB on ramp.	RF	utility/battery	construction
RP-VSN	SCR	1	SB	Rio Del Mar	9.53	Existing luminaire and in pavement.	SB off ramp.	RF	utility/battery	construction
AP, MVDS	SCR	1	NB/SB	Rio Del Mar	9.56	Existing cantilever sign.	SB exit ramp.	CELL	utility	construction
AP, MVDS	SCR	1	NB/SB	State Park Dr	10.32	Existing cantilever sign.	NB exit ramp.	CELL	utility	construction
RP-VSN	SCR	1	NB	State Park Dr	10.37	Existing luminaire and in pavement.	NB off ramp.	RF	utility/battery	construction
CCTV	SCR	1	TBD	State Park Dr	10.54	TBD	TBD	DSL	utility	proposed
RP	SCR	1	NB	State Park Dr	10.62	New 15TS pole. (In place of existing luminaire.)	NB on ramp.	RF	utility	construction
VSN	SCR	1	NB	State Park Dr	10.62	In pavement.	NB on ramp.	RF	battery	construction
VSN	SCR	1	NB	State Park Dr	10.62	In pavement.	NB on ramp.	RF	battery	construction
AP-VSN	SCR	1	SB	State Park Dr	10.63	New 15TS(MOD) pole and in pavement. (In place of existing luminaire.)	SB on ramp.	CELL/RF	utility/battery	construction
RP-VSN	SCR	1	SB	State Park Dr	10.80	Existing luminaire and in pavement.	NB off ramp.	RF	utility/battery	construction
AP, MVDS	SCR	1	NB/SB	State Park Dr	10.86	Existing cantilever sign.	SB exit ramp.	CELL	utility	construction
MVDS	SCR	1	NB/SB	Mar Vista Drive	11.50	Existing cantilever sign.	NB side.	CELL	PV	construction
LOOP	SCR	1	NB/SB	CAPITOLA, 1/4 MILE S OF PARK AVE BRDG	11.88	BEFORE PARK AVE NB OFF	AFTER PARK AVE SB ON-RAMP	NONE	battery	operating
AP, MVDS	SCR	1	NB/SB	Park Ave	11.90	Existing cantilever sign.	NB exit ramp.	CELL	utility	construction
RP-VSN	SCR	1	SB	Park Ave	11.92	Existing luminaire and in pavement.	SB on ramp.	RF	utility/battery	construction
RP-VSN	SCR	1	NB	Park Ave	11.94	Existing luminaire and in pavement.	NB off ramp.	RF	utility/battery	construction
CCTV	SCR	1	TBD	Park Ave	12.09	TBD	TBD	DSL	utility	proposed
RP-VSN	SCR	1	SB	Park Ave	12.44	Existing luminaire and in pavement.	SB off ramp.	RF	utility/battery	construction
VSN	SCR	1	NB	Park Ave	12.44	In pavement.	NB on ramp.	RF	battery	construction
AP, MVDS	SCR	1	NB/SB	Park Ave	12.49	Existing cantilever sign.	SB exit ramp.	CELL	utility	construction
AP, MVDS	SCR	1	NB/SB	Bay Ave	13.05	Existing cantilever sign.	NB exit ramp.	CELL	PV	construction
RP-VSN	SCR	1	SB	Bay Ave	13.08	Existing luminaire and in pavement.	SB on ramp.	RF	utility/battery	construction
VSN	SCR	1	NB	Bay Ave	13.08	In pavement.	NB off ramp.	RF	battery	construction
CCTV	SCR	1	TBD	Bay Ave	13.20	TBD	TBD	DSL	utility	proposed
MVDS	SCR	1	NB/SB	Bay Ave	13.37	Existing cantilever sign.	SB exit ramp.	CELL	utility	construction
RP-VSN	SCR	1	SB	41 st Ave	13.40	Existing luminaire and in pavement.	SB on ramp.	RF	PV/battery	construction
VSN	SCR	1	NB	41 st Ave	13.40	In pavement.	NB off ramp.	RF	battery	construction
LOOP	SCR	1	NB/SB	CAPITOLA, JUST S OF O.C. AT 41ST AVENUE	13.53	AFTER 41ST AVE NB OFF-RAMP	AFTER O.C. AT 41ST AVE, BEFORE 41ST AVE SB ON-RAMPS	NONE	battery	operating
AP, MVDS	SCR	1	NB/SB	41 st Ave	13.57	New CCTV 35 pole.	SB on ramp.	CELL	PV	construction
CCTV	SCR	1	NB/SB	41 st Ave	13.57	New CCTV 35 pole.	SB on ramp.	CELL	PV	proposed
RP-VSN	SCR	1	NB	41 st Ave	13.89	Existing luminaire and in pavement.	NB on ramp.	RF	utility/battery	construction
VSN	SCR	1	SB	41 st Ave	13.89	In pavement.	SB off ramp.	RF	battery	construction
CCTV	SCR	1	NB/SB	41st Ave	13.92	CCTV 45 pole.??	SB off ramp.	ISDN	utility	operating
AP, MVDS	SCR	1	NB/SB	41 st Ave	13.98	Existing cantilever sign.	SB exit ramp.	CELL	utility	construction
CMS	SCR	1	NB	41st Street	14.15	Model 500, cantilever base.	NB shoulder north of 41st street.	POTS	utility	operating
MVDS	SCR	1	NB/SB	Soquel Ave	14.42	Existing cantilever sign.	1	CELL	PV	construction

**District 5 ITS Elements
Santa Cruz County**

ITS Type	County	Route	Dir. Of Travel	Cross Street or Route	Post Mile	Type of Installation (N/E Travel Descrip for cens.)	Location (S/W Travel Description for census.)	Comm Type	Power Source	Status
RP-VSN	SCR	1	NB	Soquel Ave	14.84	New 30(MOD) pole and in pavement. (In place of existing luminaire.)	NB on ramp.	RF	utility/ battery	construction
VSN	SCR	1	NB	Soquel Ave	14.84	In pavement.	NB off ramp.	RF	battery	construction
CCTV	SCR	1	TBD	Soquel Ave	14.86	TBD	TBD	DSL	utility	proposed
AP-VSN	SCR	1	SB	Soquel Ave	14.91	New 30 pole and in pavement.	SB on ramp.	CELL/ RF	utility/ battery	construction
AP, MVDS	SCR	1	NB/SB	Soquel Ave	15.06	Existing cantilever sign.	SB exit ramp.	CELL	utility	construction
CCTV, MVDS	SCR	1	NB/SB	Morrissey Blvd	15.66	Existing Cantilever sign/new CCTV 15 pole.	NB off ramp.	DSL	utility	completed
CCTV, MVDS	SCR	1	NB/SB	Morrissey Blvd	15.96	New CCTV 45 pole.	NB on ramp	DSL	utility	completed
MVDS	SCR	1	NB/SB	N Branciforte Ave	16.35	New Cantilever sign.	NB Emeline Ave off ramp.	CELL	utility	completed
CCTV, MVDS	SCR	1	NB/SB	Emeline Ave	16.73	Relocated CCTV 45 pole.	NB connector shoulder.	CABLE	utility	operating
MVDS	SCR	1	NB/SB	Ocean St	17.09	Existing two post sign.	SB connector.	CELL	PV	construction
LOOP	SCR	1	NB		17.29	Existing in pavement.	TMS site on NB mainline.	NONE	utility	design
LOOP	SCR	1	NB/SB	JCT. RTE. 9 N, AT SAN LORENZO RIVER BRIDGE	17.41	AT BRIDGE	AT BRIDGE	NONE	battery	operating
HOSE	SCR	1	NB/SB	SANTA CRUZ, 300' S OF KING ST	19.56	.1 MI AFTER FAIR AVE	300' AFTER KING ST	NONE	battery	operating
HOSE	SCR	9	NB/SB	SANTA CRUZ, N JCT RTE 1 B/T CORAL & FERN	0.15	100' AFTER CORAL	100' AFTER FERN	NONE	battery	operating
HOSE	SCR	9	NB/SB	SANTA CRUZ, NORTH CITY LIMITS	0.63	.1 MI AFTER VERNON ST	1/4 MI AFTER CAMP CYCAMORE RD	NONE	battery	operating
HOSE	SCR	9	NB/SB	BEN LOMOND, .2MI S OF GLEN ARBOR ROAD	8.00	100' AFTER SUNNYCROFT AVE	.2 MI AFTER GLEN ARBOR RD	NONE	battery	operating
HOSE	SCR	9	NB/SB	BOULDER CREEK, 500' S JCT RTE 236	12.98	500' AFTER FOREST ST	500' AFTER JCT RTE 236	NONE	battery	operating
HOSE	SCR	9	NB/SB	300' S JCT RTE 35	27.00	300' BEFORE END OF COUNTY	300' AFTER JCT RTE 35	NONE	battery	operating
CCTV	SCR	17	NB	Ocean Street	0.00	Existing CCTV 45 pole.	South of fishhook bridge structure.	DSL	utility	completed
MVDS	SCR	17	NB/SB	Fishhook Interchange	0.08	New VDS 30 pole.	NB shoulder.	CELL	utility	completed
LOOP	SCR	17	NB/SB	SANTA CRUZ, B/T JCT RTE 1 & PASATIEMPO DR	0.10	500' AFTER JCT RTE 1 (AFTER NB 1 ON RAMP)	1/4 MI AFTER PASATIEMPO DR	NONE	battery	completed
CCTV	SCR	17	NB	Pasatiempo Dr	0.24	New Cantilever sign.	NB side.	DSL	utility	completed
MVDS	SCR	17	NB/SB	Pasatiempo Dr	0.47	New Cantilever sign.	NB off ramp.	CELL	utility	completed
CCTV	SCR	17	SB	Glen Canyon Rd	4.27	CCTV 45 pole.??	SB side, North of Glen Canyon Rd.	ISDN	utility	operating
CMS	SCR	17	NB	Glen Canyon Rd	4.46	Model 500, cantilever base.	NB shoulder, north of Glen Canyon Rd.	POTS	utility	operating
LOOP	SCR	17	NB/SB	GRANITE CREEK ROAD	5.40	BEFORE NB OFF RAMP	BEFORE SB ON RAMP	NONE	battery	operating
HOSE	SCR	17	NB/SB	GRANITE CREEK ROAD	5.60	JUST N. OF NB GRANITE CREEK O.C. ON-RAMP	JUST N. OF SB GRANITE CREEK OFF-RAMP	NONE	battery	operating
CCTV, MVDS	SCR	17	NB/SB	Laurel Rd	9.45	CCTV 25 pole	SB shoulder, north of Laurel Rd	CELL	utility	completed
CMS	SCR	17	SB	Summit Rd	12.38	Model 500, butterfly base.	SB shoulder.	POTS	utility	operating
CCTV	SCR	17	SB	Summit Rd	12.46	CCTV 45 pole.??	SB side, south of Summit Rd.	ISDN	utility	operating
LOOP	SCR	17	NB/SB	S OF SANTA CLARA COUNTY LINE, S OF SUMMIT RD	12.55	200' BEFORE COUNTY LINE	200' AFTER COUNTY LINE	NONE	battery	operating
HOSE	SCR	35	NB/SB	200' S OF BEAR CREEK ROAD	2.83	1/8 MI AFTER ZAYANTE RD	200' AFTER BEAR CR RD	NONE	battery	operating
HOSE	SCR	129	EB/WB	.3 MI E OF JCT. RTE. 1	0.30	.3 MI AFTER JCT RTE 1	100' AFTER FIRST ST	NONE	battery	operating
HOSE	SCR	129	EB/WB	1/2 MI WEST OF LAKEVIEW ROAD	0.90	1/2 MI AFTER SALSIPUEDES CR BRDG	1/2 MI AFTER LAKEVIEW RD	NONE	battery	operating
HOSE	SCR	129	EB/WB	1.5 MI EAST OF ROGGIE LANE	8.50	1.5 MI AFTER ROGGIE LN	1 MI AFTER CHITTENDEN	NONE	battery	operating
HOSE	SCR	152	EB/WB	WATSONVILLE, E OF JCT RTE 1, 200' W OF GREENVALLEY RD.	0.63	3/4 MI AFTER JCT RTE 1	200' AFTER GREENVALLEY	NONE	battery	operating
HOSE	SCR	152	EB/WB	W OF HOLOHAN/COLLEGE ROAD, JUST W OF CORROLITOS BRIDGE	1.95	.1 MI AFTER BEVERLY DR	100' AFTER CORROLITOS BRDG	NONE	battery	operating
HOSE	SCR	152	EB/WB	WATSONVILLE, E OF FREEDOM, W OF FORD	2.52	100' AFTER FREEDOM BLVD	100' AFTER FORD ST	NONE	battery	operating
HOSE	SCR	236	NB/SB	BOULDER CREEK, N OF JCT RTE 9	0.07	AFTER PINE ST BEFORE OAK	AFTER OAK ST BEFORE PINE	NONE	battery	operating
HOSE	SCR	236	NB/SB	250' S OF JCT RTE 9, WATERMANS GAP	17.70	5 MILES PAST CHINA GRADE	250' AFTER JCT. RTE 9	NONE	battery	operating

TMS ELEMENT TYPES AND DEFINITIONS:

Locations in bold have more than one type of TMS element at that location. (AP,RP, and VSN are parts of one type of system.)

AP - Access Point for VSN.

BP - Weigh-In-Motion(WIM) Bending Plate type census station.

CCTV - Closed Circuit Television Camera.

CMS - Changeable Message Sign.

HOSE - pneumatic Hose type census station.

LOOP - inductive Loop type census station.

MVDS - Microwave Vehicle Detection System.

PIEZO - Weigh-In-Motion(WIM) Piezoelectric sensor and inductive loop type census station.

RP - Repeater for VSN.

VSN - Vehicle Sensor Node.

WAPB - Wireless Access Point Bridge.

WDSC - Wireless Data Communication System consisting of a WAPB configured as a repeater.

WCB - Wireless Client Bridge.

TMS ELEMENT COUNTS:

	Total	Proposed	Design	Construction	Complete
Number of AP sites:	20	0	7	13	0
Number of BP stations:	0	0	0	0	0
Number of CCTV sites:	24	7	8	0	9
Number of CMS sites:	3	0	0	0	3
Number of HOSE stations:	15	0	0	0	15
Number of LOOP stations:	10	0	1	0	9
Number of MVDS sites:	31	0	8	16	7
Number of PIEZO stations:	0	0	0	0	0
Number of RP sites:	26	0	10	16	0
Number of VSN sites:	43	0	19	24	0
Number of WAPB sites:	0	0	0	0	0
Number of WDSC sites:	0	0	0	0	0

TMS ELEMENT COMMUNICATION TYPES:

CABLE - Cable Broadband Service

CAT5E - CAT5e cable Ethernet Link

CELL - Cellular Modem Broadband Service Ethernet or Serial.

DSL - Digital Subscriber Line Broadband Service

ISDN - Integrated Services Digital Network Broadband Service

NONE - No communications.

POTS - Plain Old Telephone Service

RF - Radio Frequency Wireless Link

WIFI - Wireless Ethernet Link

TMS ELEMENT COMMUNICATION COUNTS:

Number of CABLE connections:	1
Number of CAT5E connections:	0
Number of CELL connections:	24
Number of DSL connections:	17
Number of ISDN connections:	3
Number of POTS connections:	3
Number of RF connections:	46
Number of WIFI connections:	0
Number with no communications:	25

**District 5
ITS Detection Need
(2011 10-year SHOPP)**

Santa Cruz County

ITS Type	County	Route	Post Miles	Location	Station Quantity	Corridor	Priority
MVDS	SCR	17	3.44	Scotts Valley O.C.	2	Urban Freeway	1
MVDS	SCR	17	5.45	Granite Creek Road O.C.	2	Urban Freeway	1

San Benito County

ITS Type	County	Route	Post Miles	Location	Station Quantity	Corridor	Priority
MVDS	SBt	101	2.00	North of Rocks Rd	1	Urban Freeway	1
MVDS	SBt	101	4.25	Anzar Rd	1	Urban Freeway	1
MVDS	SBt	101	7.55	San Benito/Santa Clara County Line	1	Urban Freeway	1
MVDS	SBt	25	60.08	San Benito/Santa Clara County Line	1	Urban Non-Freeway	1
MVDS	SBt	25	51.63 to 55.05	Jct. Rte. 156/25	2	Urban Non-Freeway	1
MVDS	SBt	25	48.2	Southern Hollister City Limit Line	1	Urban Non-Freeway	1

Monterey County

ITS Type	County	Route	Post Miles	Location	Station Quantity	Corridor	Priority
MVDS	MON	68	4.08	Fair Grounds Road/Mark Thomas Drive	1	Urban Freeway	1
MVDS	MON	68	4.95	West of Josselyn Canyon Road	1	Urban Freeway	1
MVDS	MON	68	6.19	West of Route 218/Canyon Del Rey Road	1	Urban Freeway	1
MVDS	MON	68	7.28	East of Ragsdale Drive	1	Urban Non-Freeway	1
MVDS	MON	68	9.03	West of Pasadera Road	1	Urban Non-Freeway	1
MVDS	MON	68	10.38	East of Pasadera Road	1	Urban Non-Freeway	1
MVDS	MON	68	12.05	East of Laurels Grade	1	Urban Non-Freeway	1
MVDS	MON	68	14.2	East of Benancio Road	1	Urban Non-Freeway	1
MVDS	MON	68	15.66	Toro Park	1	Urban Non-Freeway	1
MVDS	MON	68	16.99	Reservation/River Road	1	Urban Non-Freeway	1
MVDS	MON	68	17.91	Spreckles Blvd.	1	Urban Freeway	1
MVDS	MON	101	82.24	Abbot Street/Hartnell Road	1	Urban Freeway	1
MVDS	MON	101	85.77	Airport Road	1	Urban Freeway	1
MVDS	MON	101	85.98	Fairview Avenue	1	Urban Freeway	1
MVDS	MON	101	86.99	Route 68/John Street	1	Urban Freeway	1
MVDS	MON	101	87.37	E. Market Street	1	Urban Freeway	1
MVDS	MON	101	89.21	Laurel Lane	1	Urban Freeway	1
MVDS	MON	101	89.01	Boronda O.C	2	Urban Freeway	1
MVDS	MON	101	91.90	Russell Road/Espinoaa Road	1	Urban Freeway	1
MVDS	MON	101	92.55	White Road	1	Urban Non-Freeway	1
MVDS	MON	101	93.13	Ralph Lane	1	Urban Non-Freeway	1
MVDS	MON	101	94.28	Blackie Road/Reese Circle	1	Urban Non-Freeway	1
MVDS	MON	101	95.44	Jct. Rte. 156/101	1	Urban Non-Freeway	1
MVDS	MON	101	96.14	San Miguel Canyon Road	1	Urban Non-Freeway	1
MVDS	MON	101	98.38	Crazy Horse Canyon Road	1	Urban Non-Freeway	1
MVDS	MON	101	99.75 to 100.36	Dunbarton Road	1	Urban Non-Freeway	1

San Luis Obispo County

ITS Type	County	Route	Post Miles	Location	Station Quantity	Corridor	Priority
MVDS	SLO	46	29.76 to 34.64	Buena Vista Rd. to Jardine Rd., one between each intersection: Buena Vista Dr., Golden Hill Rd., Union Rd., Airport Rd., Jardine Rd.	6	CSMP Corridor	1
MVDS	SLO	46	54.10 to 56.10	Jct. Rte. 41/46	1	CSMP Corridor	1
MVDS	SLO	101	0.80	North Jct. Rte. 101/166	2	Urban Freeway	1
MVDS	SLO	101	4.85	Teft Street O.C.	2	Urban Freeway	1
MVDS	SLO	101	7.84	Los Berros Road U.C.	2	Urban Non-Freeway	1
MVDS	SLO	101	45.80	Traffic Way	1	Urban Freeway	1
MVDS	SLO	101	47.04	San Anselmo	1	Urban Freeway	1
MVDS	SLO	101	48.23	Del Rio Road	1	Urban Freeway	1
MVDS	SLO	101	49.12	San Ramon Road	1	Urban Freeway	1
MVDS	SLO	101	50.51	Vineyard Drive	1	Urban Freeway	1
MVDS	SLO	101	51.35	Las Tablas Road	1	Urban Freeway	1
MVDS	SLO	101	52.59	Main Street	1	Urban Freeway	1
MVDS	SLO	101	53.98	46 West	1	Urban Freeway	1
MVDS	SLO	101	55.29	Spring/1st Street	1	Urban Freeway	1
MVDS	SLO	101	56.17	Pine/Riverside	1	Urban Freeway	1
MVDS	SLO	101	56.32	Paso Robles Street	1	Urban Freeway	1
MVDS	SLO	101	57.07	13th Street	1	Urban Freeway	1
MVDS	SLO	101	57.79	46 East	1	Urban Freeway	1
MVDS	SLO	101	59.02	Spring Street	1	Urban Freeway	1

Santa Barbara County

ITS Type	County	Route	Post Miles	Location	Station Quantity	Corridor	Priority
MVDS	SB	101	83.1 to 83.90	Union Valley Parkway	2	Urban Freeway	1
MVDS	SB	101	82.18	Clark Avenue O.C.	2	Urban Freeway	1
MVDS	SB	101	70.93	Jct. Rte. 135/101 U.C.	2	Urban Freeway	1
MVDS	SB	101	R48.85	Jct. Rte. 01/101 Sep.	2	Expressway	2
MVDS	SB	101	26.91	Hollister Avenue O.C.	2	CSMP Corridor	1
MVDS	SB	246	25.27 to 27.30	Jct. Rte. 101/246 Sep.	2	Urban Non-Freeway	1

Total Stations: 77