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Executive Summary

Integrated Traffic Data Collection and Management Plan for the Shasta County South Central Urban Region (SCUR)

Project Background and Purpose

The current traffic data collection system for the South Central Urban Region (SCUR) does not provide timely, reliable data that can be useful to the Shasta Regional Transportation Agency (SRTA) for planning activities. With anticipated future growth in the SCUR, the SRTA and Caltrans District 2 envision a data collection system that would provide accurate, timely, reliable, and directly applicable data to make traffic operations and planning activities more efficient. This Implementation Plan:

- details the existing data collection system and processes;
- documents stakeholder needs;
- presents an evaluation of data collection tools and technologies; and
- identifies recommended deployment strategies and approaches.

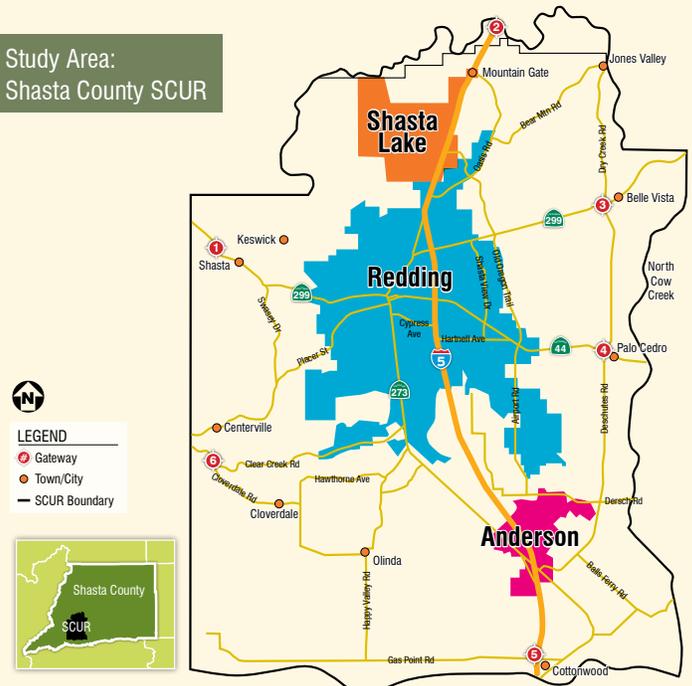
Integrated Traffic Data Collection

An integrated traffic data collection system will provide benefits that can be realized by agencies, as well as the public. For **agencies**, it provides more frequent traffic data to inform transportation planning; faster incident detection, response and clearance; the ability to monitor traffic congestion; enhanced analysis of traffic conditions; and performance monitoring. For the **public**, it means improved safety, greater mobility, and reduced congestion.

An enhanced data collection system is a crucial tool for SRTA to achieve regional transportation goals consistent with the 2010 Regional Transportation Plan (RTP):

- **Improved Safety** – Accurate and reliable traveler information reduces secondary accidents
- **Improved Emergency Response** – Detect and clear incidents quicker
- **Improved Commercial Vehicle Operations** – Through increased availability of commercial vehicle traffic data
- **Increased Traveler Information and Trip Enhancement** – An enhanced system will position the region for future dissemination of traveler information
- **Improved Interagency Communications** – Data is easily shared and accessed by partner agencies

Study Area:
Shasta County SCUR



- **Reduced Congestion** – Traveler information affects driver behavior, which can reduce fuel consumption and vehicle emissions
- **Increased Economic Activity** – Better mobility through the region will improve economic activity

Project Needs and Objectives

Stakeholders identified the following needs of an enhanced data collection system:

- Make volume data available more frequently, at more locations, and at shorter time intervals.
- Implement a tool to provide interregional, intraregional, and local Origin and Destination (O&D) trip information.
- Enhance current processes to better utilize existing traffic data.

Implementation Plan

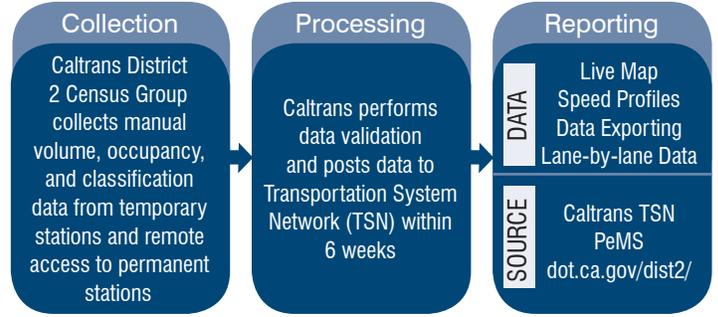
Within the industry, there are many solutions for collecting, processing, reporting, and disseminating traffic data. Data collection varies by the type of information collected, accessible formats, and granularity. Through an evaluation of the current data collection system and consideration of project needs, there are data collection enhancements that need to be implemented within the region to enhance the current Caltrans District 2 Data Collection Process shown to the right.

An alternatives analysis evaluated individual projects based on strategic corridors and feasible technologies that meet the needs of SRTA and Caltrans District 2. The projects are manageable, modular projects that enhance Caltrans' existing data collection infrastructure while considering the priorities and goals of both SRTA and Caltrans District 2. These projects can be deployed as funding becomes available. The table below highlights a \$4.3 million program of preferred alternatives that will meet the data collection needs of SRTA and Caltrans District 2.

The following summary highlights project recommendations to deploy an Integrated Traffic Data Collection System:

- Expand the network of permanent detector count stations through the installation of new detection stations or the upgrading of temporary detection stations at every interchange throughout the SCUR.
- Provide permanent communications and detection equipment to automatically collect data on a more frequent basis.
- Conduct a Bluetooth Pilot Test to evaluate the performance and data samples for origin-destination data.
- If the Caltrans Headquarters' project to automate the interface between the Transportation System Network (TSN) and the Performance Measurement System (PeMS) is not scheduled for the near future, SRTA should work with Caltrans to deploy third party software with data processing and reporting capabilities.
- SRTA and Caltrans District 2 should pursue multiple funding sources for the deployment of the recommended integrated data collection system.

Current Caltrans District 2 Data Collection Process



Project Benefits

By implementing the recommended projects, SRTA, Caltrans and local jurisdictions will receive the following traffic data collection benefits:

- New Origin-Destination (O&D) stations will provide interregional, intraregional, and local trip information to assist with calibrating and validating traffic models. Furthermore, O&D traffic data will allow for tracking and showing progress toward meeting passenger vehicle greenhouse emission reduction targets.
- Expanded traffic detection system will provide greater data granularity for evaluation of traffic patterns and trends.
- Installs the necessary vehicle detection infrastructure for future ramp metering implementation as well as positions the region for future congestion monitoring and traffic management.
- Recommended detection stations will be connected to a communication network that allows for quicker collection and dissemination of data. Data can be acquired quarterly or monthly and possibly be shared in "real-time" as future needs arise.
- The extended detection system will reduce field work hours for Caltrans Census staff.

Needs	Project Recommendations	Estimated Capital Cost	Estimate Annual O&M Cost
1. Make volume data more frequently available, at more locations, and at shorter time intervals	Upgrade existing temporary stations to permanent stations and install new permanent stations at locations without existing detection	\$3,096,000	\$139,000
	Deploy Global Packet Radio System in the short-term to bring detector stations online		
	Implement Traffic Monitoring Stations by installing detection equipment, controllers and communications equipment at permanent stations	\$290,000	\$197,000
2. Implement a tool to provide interregional, intraregional, and local Origin and Destination (O&D) trip information	Conduct Bluetooth pilot project and permanent system at County and SCUR gateways	\$510,000	\$58,000
	Integrate commercial off-the-shelf system to existing Caltrans system		
3. Create and implement tools to best utilize the existing traffic data collection system	Support Caltrans to upgrade existing functionality and process of Transportation System Network (TSN) and Performance Measurement System (PeMS)	Varies depending on features and scale.	Varies depending on features and scale.
	Support Caltrans to upgrade PeMS to automatically download census data from TSN. If the project for the PeMS upgrade is not anticipated in the near future, install third-party software data processing and reporting tool.		

