

## 2.0 Vision Statement

**“The ITS vision for the San Joaquin Valley Strategic Deployment Plan is to enhance quality of life, mobility, and the environment through coordination, communication and the integration of ITS technologies into the Valley’s transportation systems.”**

Figure 2.1 displays the ITS vision developed for the Valley.

### 2.1 Purpose Of The Its Vision

Intelligent Transportation Systems (ITS) represent a relatively new area of transportation applications for many of the stakeholders in the transportation system. The ITS vision statement serves to provide a basic statement of the capabilities of ITS applications, as well as to focus the application of ITS within the Region.

The vision statement combines a high-level description of the intended results of ITS deployment with a summary of how those results will be achieved. The vision statement represents the highest, most encapsulated description of the purpose, objectives and strategies for ITS in the San Joaquin Valley, and is supported and expanded through the goals, objectives and user service objectives presented later in this section

### 2.2 Vision Elements

#### 2.2.1 Freeway Management

Caltrans has deployed multi-faceted freeway management systems in several major metropolitan areas within the San Joaquin Valley, including the metropolitan areas of Fresno, Modesto, Stockton and Bakersfield. These systems provide the ability to quickly identify traffic accidents and other incidents, and adverse weather and pavement conditions, and convey this information to travelers and other transportation agencies. The vision for freeway management is to expand the geographic coverage of the Caltrans traffic operations systems (TOS), enhance the Caltrans TOS by adding and upgrading equipment and capabilities, and promote closer coordination between Caltrans and local traffic management staff. This vision must include more effective utilization of equipment currently deployed. Ultimately, this vision includes deployment of an integrated corridor system, which makes more efficient utilization of the transportation network.

#### 2.2.2 Traffic Signal Systems

The urban areas of Stockton, Fresno, Modesto and Bakersfield have led the way in local agency traffic management ITS deployment in the Region. Previous efforts have focused on signal system improvements and traffic surveillance. This focus is expected to continue, but with a growing emphasis on other local traffic management technologies as well. The overall vision for traffic



management in urbanized areas of the valley focus on continued integration and coordination between key agencies in the metro areas combined with the carry-over of key ITS components to the smaller more rural cities.

### **2.2.3 Incident Management**

The incident management vision for the Valley is to enhance interagency incident response and coordination through the application of ITS technologies, and formation of on-going Traffic Safety Committees by geographic region. This vision also includes the promotion of real-time data sharing to improve all aspects of incident management. Quick and accurate verification followed by rapid dissemination of incident information to motorists by ITS will prevent secondary collisions, improve traffic flow, and reduce emissions.

### **2.2.4 Public Transportation**

The transit ITS vision for the Region focuses around increasing the capabilities and scope of the existing technology deployments at SMART, Fresno Area Express and Golden Empire Transit while building a simple, effective system for smaller fixed route and paratransit properties. The concept is to avoid duplication of agency effort by maximizing compatibility between urban and rural systems throughout the valley. This vision also incorporates enhanced cooperation and coordination between local transit agencies, which includes the potential for consolidated transit services.

### **2.2.5 Traveler Information**

The vision for traveler information in the Region is to provide some enhanced information based on the expanding capabilities of the transportation management systems. At the same time, we prepare for any proposed statewide and possibly valleywide transportation information deployment efforts. Traveler information must be timely and useful, providing traffic and weather conditions for commuters, commercial vehicles and visitors to the region. It should focus on incident and tourist information and expand on previous efforts.

### **2.2.6 Agency Coordination And Systems Integration**

The systems integration vision for the Region is based on previous successes. The concept is to utilize the national and statewide architectures as a basis, and then provide for coordinated deployments and standards within the Region. This concept is being followed in other parts of the state and is widely referred to as “build once, deploy many.” Statewide architecture alternatives were defined need to in the Statewide Deployment Initiatives Project and is discussed in Section 5.0.



Figure 2.1: Valleywide ITS Vision



### **2.2.7 Commercial Operations**

In coordination with future national and regional initiatives, commercial carriers will be able to drive from one end of the I-5/SR-99 corridor to the other with minimal delays at weigh and inspection stations. Systems will electronically collect tolls, weigh, and inspect commercial vehicles. Other systems will enable the electronic issuance and monitoring of permits from regulatory agencies. Commercial carriers will have access to traveler information systems that can assist with routing, scheduling and dispatching optimization, as well as guidance to available parking areas.

### **2.2.8 Travel Demand**

Users who wish to rideshare can immediately determine potential candidates and dynamically create carpools. Devices such as smart cards, public kiosks and personal digital assistants will allow users to communicate with each other and work together to reduce the number of vehicles on the roadway. ITS technologies will allow for detailed traffic data collection and analysis. This information can support demand management techniques.

### **2.2.9 Emergency Management**

Devices will notify authorities of the need for dispatching emergency vehicles to the site of collisions or incidents. Systems will coordinate the response from fire, police and medical agencies for fast response in the most appropriate manner. There is an inherent overlap between incident management and emergency management related to responding to accidents involving personal injury. However, other systems will coordinate the removal of incidents to promote the timely return of the travel network to optimal performance.

### **2.2.10 Air Quality**

Air quality will be improved through the increased efficiency and use of transportation systems including demand management strategies. Dynamic ride sharing systems will encourage the use of high occupancy vehicles. Traveler information systems will decrease the amount of vehicle miles traveled through better planning. Public transportation systems will improve the information available to users and enhance the visibility and flexibility of transit, thereby increasing the use of transit. Traffic management systems will smooth the flow of vehicles and reduce the level of pollution. Detection systems will monitor vehicle emissions and support inspection/maintenance efforts.

### **2.2.11 Intermodal And Multi-Modal Cooperation**

The future of the San Joaquin Valley region starts with the mutual cooperation between transportation agencies within the Valley. All agencies and transportation providers will work together to promote



and encourage safe and efficient operation of the transportation network.

### 2.2.12 Configuration Management/Systems Integration

The systems integration vision for the Region is based on making productive use of past efforts. The concept is to utilize the national and proposed statewide architectures as a basis, and then provide for coordinated deployments and standards within the Region.

## 2.3 San Joaquin Valley ITS Principles

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### Valleywide ITS Principles:

- Support goals and objectives of RTP's
  - Address regional needs
  - Support and integrate into Fresno and Kern County ITS Plans
  - Promote solutions across jurisdictional boundaries
  - Promote efficient use of existing transportation systems
  - Provide a living document
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This section identifies a number of over-arching principles that guided the development of the San Joaquin Valley ITS Strategic Deployment Plan and that in the future will guide subsequent ITS activities. Whereas the vision statement, goals, objectives, user services and user service objectives focus on what is to be accomplished relative to specific user needs, transportation problems and issues, and ITS applications, the ITS principles more generally describe how the SDP will be used and the overall role for ITS.

The following principles have been developed to guide the development of the SDP and subsequent ITS activities in the San Joaquin Valley.

The San Joaquin Valley ITS Strategic Deployment Plan, and the ITS activities that follow it, shall:

- RTP Enhancement/Support – Support and advance the goals and objectives of existing Regional Transportation Plans. Intelligent Transportation Systems should be viewed as another set of tools to address transportation problems. Generally, ITS should not be viewed as a separate area of activity with a separate agenda. The SDP acknowledges Regional Transportation Plans, and the other elements of the traditional transportation planning and programming process as the primary instruments for identifying and addressing transportation problems and issues. The SDP should be viewed as a supplemental element of an overall transportation improvement strategy. It should also support and advance Caltrans goals and objectives including Caltrans Interregional Transportation Strategic Plan and the State Transportation Improvement Plan.
- Specific Problem Solutions – Address the specific problems and issues identified as part of the development of the SDP. In addition to supporting the previously identified transportation problems and strategies identified through Regional Transportation Plans and the traditional transportation planning and programming process, the SDP should provide



strategies to address the specific problems identified as part of the SDP effort.

- **Augmentation of Existing ITS Plans In the Region – Support and advance the goals and objectives of existing ITS plans within the San Joaquin Valley, and to the extent that mutually beneficial outcomes can be achieved, also support the goals and objectives of the ITS plans prepared for neighboring regions. The SDP should support, enhance and extend the ITS direction that has been established through the Fresno and Kern County ITS plans. Also, as appropriate given the unique circumstances and conditions of the San Joaquin Valley, the SDP and subsequent ITS activities should seek to build upon, reinforce and extend the successes of ITS activities in bordering regions. These regions include the Central Coast (Monterey, San Benito, San Luis Obispo, Santa Barbara and Santa Cruz Counties), the San Francisco Bay Area, Sierra Nevada, the Tahoe gateways and Los Angeles-Ventura Counties regions.**
- **Interjurisdictional ITS Enhancements – Promote overall transportation problem solving across jurisdictions, both within the San Joaquin Valley and with bordering regions. In that much of ITS deals with operational issues that span jurisdictions, inter-agency coordination is essential to the success of many ITS efforts. Further, ITS planning and implementation represents a new and important opportunity to promote inter-jurisdictional cooperation and coordination. The ITS planning and implementation process constitutes a forum and mechanism to strengthen and extend existing cooperative problem solving efforts, and to encourage new ones. An important part of the overall benefit of preparing the SDP, in addition to the specific ITS projects and activities it will precipitate, is that it helps organizations and individuals who may not normally coordinate with one another to appreciate their shared concerns and the advantages for cooperative solutions.**
- **Optimization of Existing Infrastructure – Promote problem solving through maximization of the efficiency and effectiveness of existing transportation infrastructure and services, rather than through extensive new capital investments (e.g., new roads). Although most ITS applications do require supporting capital investment, overall, the intent of the SDP is to promote improve the management and operations of existing transportation systems, as opposed to physical expansion of the transportation system.**
- **Ongoing Maintenance of Document – Serve as a living document, to be revised as necessary into the future. The SDP identifies a recommended course of action given an analysis of**



past and current conditions, and expectations for the future. However, changes in technology, experience gained in the actual implementation of recommended ITS projects, and other considerations will warrant updates to plan.

- The ITS Vision should be forward thinking but at the same time realistic.

## **2.4 San Joaquin Valley ITS Goals and Objectives**

Table 2.1 presents the ITS goals and objectives for the San Joaquin Valley. A total of 34 objectives have been identified, reflecting the 38 identified problems, organized under seven goals.

These goals and objectives are integral to the development of the ITS Vision, Vision Elements, and ITS Principles. They directly correlate with the results of our User Service Analysis formed in Working Paper No. 2.



Table 2.1: San Joaquin Valley ITS Goals and Objectives

Goal	Objectives
1.0 Reduce Traffic Congestion	1.1 Reduce the number and duration of accidents and incidents
	1.2 Minimize the congestion and delays imposed by trucks on other traffic, including those related to the differences between truck and auto speeds, and designation and compliance with truck routes
	1.3 Reduce the delays at traffic signals by improving signal coordination, especially across jurisdictions
	1.4 Provide local and long-distance travelers with the traffic and weather information they need to avoid congestion, or to anticipate it
	1.5 Reduce the delays and congestion at railroad crossings, especially for emergency vehicles
	1.6 Improve the management of traffic at incident scenes, and in incident-related traffic diversions
	1.7 Minimize the congestion concerns associated with outdated roadway designs
	1.8 Reduce the congestion and delays associated with agricultural vehicles
	1.9 Minimize the congestion caused by gaps in the roadway system (i.e., lack of connecting segments that displaces traffic to other congested areas)
2.0 Reduce the number and severity of accidents and incidents	2.1 Reduce the number and severity of accidents and incidents: due to weather conditions, between trucks and autos, involving agricultural vehicles, and involving pedestrians and bicycles
	2.2 Improve monitoring and enforcement of speed limits
	2.3 Improve red light running monitoring and enforcement
	2.4 Provide local and long-distance travelers with the information they need to avoid adverse weather conditions, or to anticipate them
	2.5 Improve the ability to quickly locate incident scenes, especially in rural areas
	2.6 Minimize the safety concerns associated with outdated roadway design
	2.7 Improve coordination among emergency responders, including getting the right equipment to incident scenes quickly
	2.8 Improve the ability of travelers to find help quickly in highway emergencies
3.0 Improve transportation planning and operations	3.1 Promote coordination of transit services among providers
	3.2 Promote coordination of traffic management among jurisdictions, including traffic signals, construction management and incident management
	3.3 Increase the amount, accessibility and quality of data for planning and analysis, and improve planning and analysis tools
	3.4 Promote long-term coordination among agencies in solving transportation problems, beyond just the planning phase
	3.5 Improve the operation of existing traveler information systems, including greater responsiveness and consistency
4.0 Minimize the environmental impacts of transportation	4.1 Reduce air pollution associated with transportation
5.0 Promote the efficiency, safety, convenience and use of alternative travel modes	5.1 Facilitate trips requiring transfers between transit services, including local and intercity or regional, and between fixed-route and demand-responsive
	5.2 Improve the quality, availability and utilization of fixed-route and demand-responsive transit service, and pedestrian, bicycle and carpooling facilities and services
	5.3 Improve the safety and security on transit vehicles and at stations and stops, and on pedestrian, bicycle and carpooling facilities



*Table 2.1: San Joaquin Valley ITS Goals and Objectives*

Goal	Objectives
	5.4 Increase the availability, quality and ease-of-use of transit route and schedule information, and information regarding bicycle, pedestrian and carpooling facilities and services 5.5 Improve transit on-time performance 5.6 Support the provision of the transit amenities that are necessary to attract riders who have other options
6.0 Promote funding of needed, cost-effective ITS investments	6.1 Inform the public, policy makers and transportation planners, designers and operators of the need and benefits of funding appropriate ITS investments
7.0 Improve the safety and efficiency of goods movement and reduce the impacts of commercial vehicles on other traffic and roadways	7.1 Improve truck routing and enforcement to minimize damage to roadways 7.2 Improve the availability and awareness of truck parking 7.3 Improve the availability and promote the awareness and use of information for truckers on traffic and weather conditions, truck routes, and other services 7.4 Reduce delays at commercial vehicle facilities, such as weigh stations

**XXXXXX** = An objective that reflects at least one Priority 1 problem

XXXXXX = An objective that reflects at least one Priority 2 problem

XXXXXX = An objective that reflects at least one Priority 3 problem



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ITS applications will be considered as part of a comprehensive set of initiatives that may involve traditional improvements as well as technological ones.

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## 2.5 Interregional Relationships

Deployment of ITS is occurring throughout the San Joaquin Valley, as well as the State. There are numerous neighboring regions that have strong transportation relationships with the San Joaquin Valley Region. These include Central Coast, Los Angeles, Bay Area, Sierra Nevada, and the Sacramento regions. It is important that ITS deployments within the Region consider the implications of deployments in neighboring regions. This consideration begins with a review of the ITS visions of these neighboring regions:

- **Central Coast Region** – The following represents the ITS vision statement for the Central Coast Region:

*“ITS will be integrated into the transportation system on a strategic basis to address congestion and safety problems, to enhance emergency preparedness, to provide trip planning and en-route information to all travelers, to improve the efficiency and effectiveness of operational and maintenance functions of all transportation modes and to support transportation planning and system management functions.”*

- **Los Angeles Region** – The Los Angeles region defines its ITS vision in a somewhat more complex manner than central counties. The Los Angeles/Ventura Region ITS Strategic Deployment Plan describes that region’s vision as:

- To use intelligent and advanced transportation technologies to:

*increase mobility and accessibility throughout the region, improve air quality, use the existing infrastructure more efficiently and effectively, and maximize the Federal, State, and local funding opportunities for transportation improvements -*

- By identifying, evaluating, and recommending a deployment plan:

*to advance available and emerging ITS technologies within a short, medium, and long term integration window, that satisfy local, region and intermodal transportation needs while fostering institutional partnerships, whether public/private or public/public, necessary to successfully implement, operate, and maintain technologies throughout the life cycle of the identified projects.*

- **Priority Corridor Showcase** – Within the Southern California Priority Corridor (Los Angeles, Ventura, Orange, San Diego,



and parts of Riverside and San Bernardino Counties), a vision has been defined for the Showcase project. The Showcase project is basically a standardization and integration effort that encompasses all of the Priority Corridor. It is important in that it may provide resources upon which the Fresno Region can draw at some future point. As indicated in the Showcase Final Implementation Plan (March 1997), the vision for Showcase is, *“to demonstrate the feasibility and benefit of integrating all modes of transportation and all roads of travel into a system of systems.”*

- **Sierra Nevada Region** – The Sierra Nevada region is moving forward with its ITS planning process. It will incorporate the information and findings of the ITS plans with new information from the rest of the regions. While a vision has yet to be defined for the entire Sierra Nevada, it is likely that it will hold much in common with the vision defined for San Joaquin Valley region.

It is clear from the three ITS visions outlined above that the Los Angeles region has defined the most complex vision for ITS deployment. This is not surprising given the complexities and extent of transportation problems within the Los Angeles region.

It is important to consider the vision statements of neighboring regions for two reasons: 1) the vision provides insight into the direction ITS deployment is likely to take within the region; and (2) it allows the region to consider what opportunities exist for cooperation with neighboring regions.

The Region should seek to maximize the effectiveness of its deployment dollars. In terms of the Los Angeles region and Showcase ITS efforts, this means that the Region may choose to draw upon certain architecture and system efforts that support the Region's goals.

