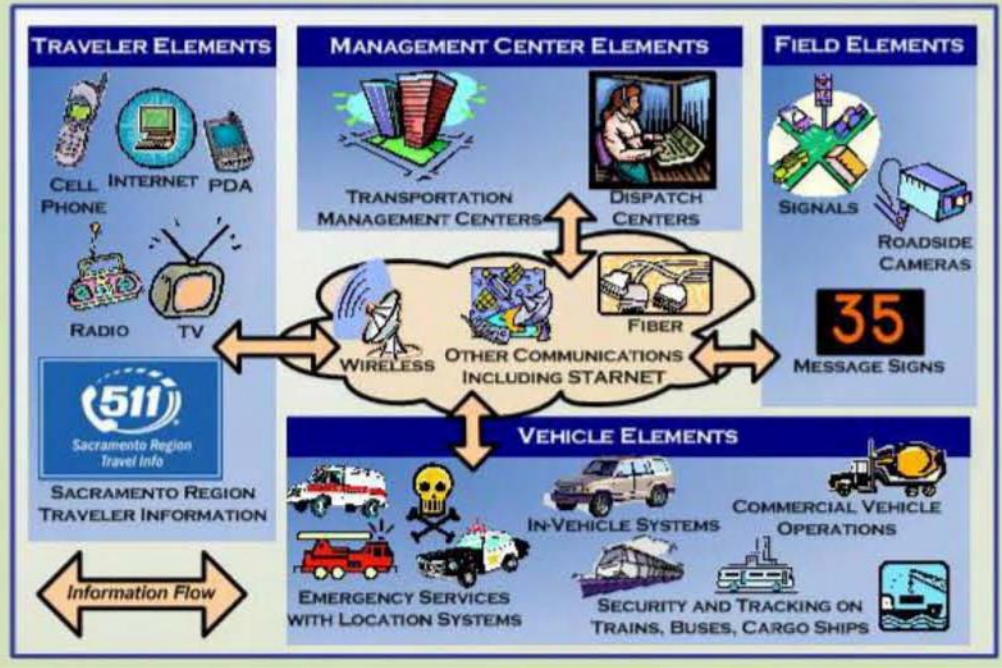


KEY RESULTS

Regional ITS Architecture

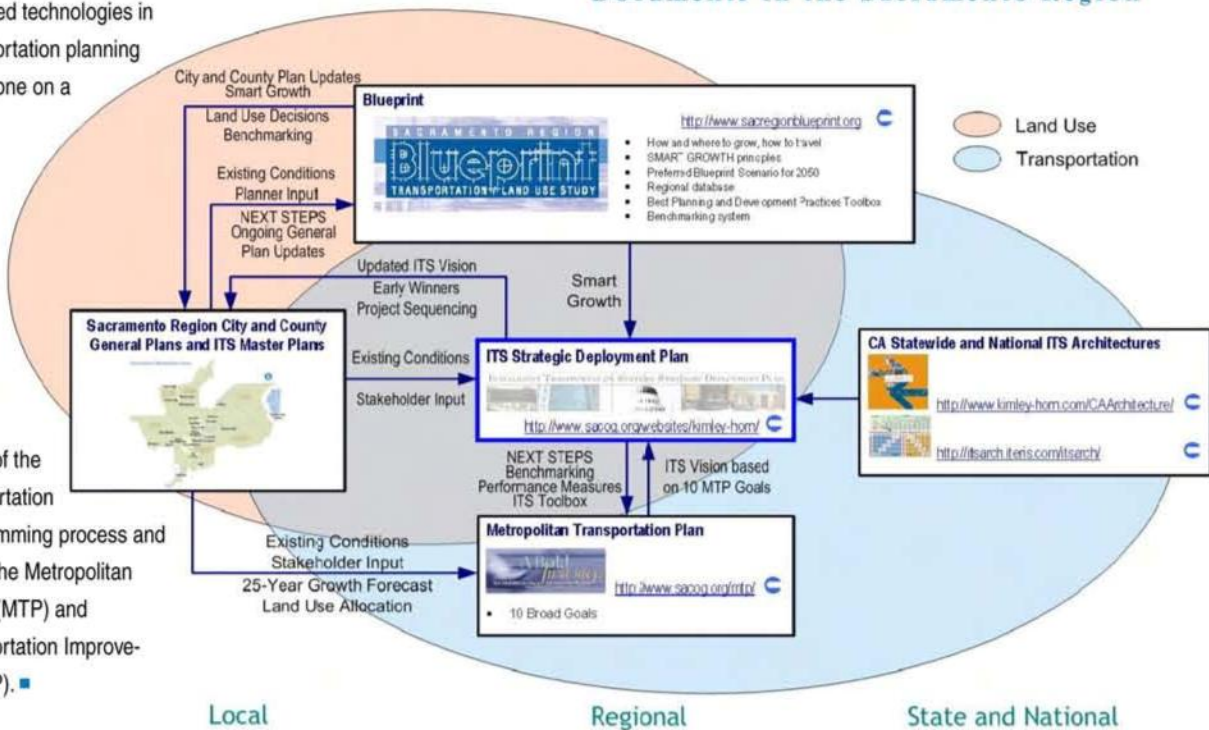
The ITS Architecture is a process that defines how agencies and systems are interrelated or interconnected. There is a national level architecture, a California statewide architecture, and regional and local architectures throughout the state. Once an ITS Architecture is defined, it helps planners and project developers ensure that a complete system is deployed, rather than just an individual component, and it helps verify that adjoining systems are compatible. Establishing and following an ITS architecture will increase the consideration for federal ITS funding. ■



MAINSTREAMING ADVANCED TECHNOLOGIES

"Mainstreaming" refers to an intentional process to systematically and strategically include advanced technologies in all aspects of transportation planning whether it is being done on a local, corridor or regional level, or specifically tied to projects. The goal of mainstreaming is to ensure that technology strategies are an integral component of the metropolitan transportation planning and programming process and is incorporated into the Metropolitan Transportation Plan (MTP) and Metropolitan Transportation Improvement Program (MTIP). ■

Figure 3-Interrelationships of Planning Documents in the Sacramento Region



Contents:

- Introduction
- Key Project Stakeholders
- Growth Principles
- Key Results
- Mainstreaming Advanced Technology

INTRODUCTION

The *Intelligent Transportation Systems Strategic Deployment Plan for the Sacramento Region* is a planning document that defines how advanced technologies can support the transportation and land use planning initiatives in the region to help planners achieve the region's planning objectives. Results of the Strategic Deployment Plan will help determine how and when to incorporate advanced technology in transportation projects, and which technologies to use. By integrating the Strategic Deployment Plan with other regional planning initiatives such as the **Sacramento Region Blueprint** and the **Metropolitan Transportation Plan**, the planning partners can realize the benefits from coordination,



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shared investments, and multimodal integration while working towards common regional smart growth goals. Transportation and land use planning are ultimately concerned with region-wide effectiveness in achieving broad standard-of-living goals related to growth, mobility, accessibility, convenience, and safety. ITS is concerned with these same goals. Alternate mode mobility enhancements in every development create a more pedestrian-friendly community. Advanced technologies can take on many forms including travel information, safety, integrated transit services, walkability/bikeability, and transportation management. *Some examples of advanced technologies are shown on the next page.* ■

What is ITS?

Intelligent Transportation Systems (ITS) are a collection of roadway, transit, communications, and computer technologies that are used to improve the operation of roadway and transit systems. ITS makes real-time traveler information available to the public so that better decisions can be made about when and how to travel. Freight and business services are improved with the ability to monitor roadways and re-route vehicles. ITS also improves mobility and safety for pedestrians and bicyclists using technologies that detect and adapt intersection signals for these travelers. While much of the ITS technologies are "behind the scenes," some examples that can be seen around the region include: ramp meters on highway on-ramps, message signs, video cameras, enhanced bus service, and 511.

STAKEHOLDERS

Throughout this project, numerous stakeholders were solicited to provide input on regional needs and initiatives. The wide range of stakeholders included cities, counties, SACOG, Caltrans, transit agencies, environmental groups, bicycle and pedestrian coalitions, citizen groups, transportation and



Stakeholders Workshop

STAKEHOLDERS continued from Page 1

land use planners, engineers, consultants and concerned residents. Anyone having an interest in deployment of technology in transportation projects participated in the project.

that can be achieved by including advanced technology in planning and development activities as a way to achieve the smart growth objectives of the region. ■

- LIST OF CURRENT STAKEHOLDERS**
- Sacramento County
 - Caltrans District 3
 - Federal Highway Administration
 - SACOG
 - City of Sacramento
 - City of Roseville
 - City of Citrus Heights
 - City of Elk Grove
 - City of West Sacramento
 - City of Rancho Cordova
 - City of Folsom
 - Placer County Transportation Planning Agency (PCTPA)
 - El Dorado County Transportation Commission (EDCTC)
 - Sacramento Regional Transit
 - Yuba-Sutter Transit Authority
 - California Highway Patrol (CHP)
 - Sacramento Metropolitan AQMD
 - Yolo County Transportation District

This project raised the awareness among non-ITS stakeholders of the benefits

Figure 1—Example of ITS Technologies

Bicycle & Pedestrian Solutions

- Pedestrian Crossing Signal Head
- Pedestrian Crossing Detection
- Bicycle Video Detection

Traveler Information

- Sacramento Region 511 Traveler Information
- Changeable Message Sign
- Real-Time Train Arrival & Departure Times

Transit

- Queue Jumper Lane
- Electronic Fare Collection
- Bus Rapid Transit

Freeway Management

- CCTV Camera
- Transportation Management Center (TMC)
- Ramp Metering

PRINCIPLES FOR REGIONAL GROWTH

As part of the Metropolitan Transportation Plan, the region has already developed ten overarching transportation-related goals which were used as the basis for the region's ITS Vision developed by the ITS Partnership. The goals emphasize quality of life, which in the context of transportation and advanced technologies pertains to improving air quality, enhancing transit service, improving alternate mode opportunities (bicycles, walking, transit), and improving mobility and safety along major corridors.

Throughout the Strategic Deployment Plan development, these transportation-related goals, along with the region's long-term smart growth principles emphasized in the Sacramento Region Blueprint: Transportation and Land Use Study, helped assess the status of the region's current planning outlook and guided the prioritization of projects. The smart growth principles include:

- SMART GROWTH PRINCIPLES**
- Provide a variety of transportation choices
 - Take advantage of compact development
 - Use existing assets
 - Mixed land uses especially near transit
 - Encourage distinctive, attractive communities with quality design

KEY RESULTS OF THE STRATEGIC DEPLOYMENT PLAN

Strategic deployment of advanced technology will help the Sacramento region realize its long-term smart growth objectives and goals. While advanced technologies can be deployed as stand-alone projects, the greatest benefits can be seen when they are deployed in conjunction with other capital improvement projects. There are five key elements of the Strategic Deployment Plan that provide tools to assist the stakeholders in deploying advanced technologies to facilitate the smart growth initiatives of the region.

Gap Assessment
 As part of the Strategic Deployment Plan, the prior state of ITS in Sacramento was assessed. With a focus on the ITS Vision and existing, planned, and programmed projects, there are several key observations that became the emphasis of the deployment plan.

- Additional opportunities need to be identified to include ITS solutions in more bicycle and pedestrian projects.
- New projects have been defined for ITS Vision objectives that do not currently have an existing, planned, or programmed project that matches that objective.
- New projects have been defined for elements of the ITS Architecture where projects have not been defined in the Sacramento region including areas of transit maintenance, railroad grade crossings, HAZMAT, transportation infrastructure protection, and work zone safety monitoring.

Project Prioritization and Sequencing
 Based on prioritization input from the stakeholders, a list of high, medium, and low priority projects were defined. The following is a select list of high-priority projects (planned for deployment in the next 5 years) for the Sacramento Region.

- Develop interagency communications via STARNET
- Expand existing 511 traveler information system
- Expand Caltrans Traffic Operations System with ramp meters, closed-circuit television cameras, changeable message signs, and vehicle detection along strategic freeway corridors
- Enhance transit safety and operations through increased surveillance and improved services by deploying queue jumper lanes, automatic vehicle locating, and transit priority
- Improve pedestrian and bicycle safety and mobility by deploying equipment to raise awareness of pedestrian presence
- Expand local fiber and copper communications infrastructure
- Construct traffic management centers
- Commercial Vehicle Operations - Goods Movement

Early Winner Projects
 "Early Winners" are projects that can be implemented almost immediately if funding is available; or projects that have recently been completed that offer benefits to the region.

- STARNET Systems Engineering Report and Implementation
- Elk Grove communication connection to future STARNET
- Folsom communication connection to future STARNET
- Roseville backbone connection to Citrus Heights
- Extension of Regional Transit Backbone
- Arden Way ITS
- Watt Avenue Smart Corridor
- Caltrans Fiber Interconnect Project to future STARNET
- Stockton Enhanced Bus

ITS Solutions Toolbox

The ITS Solutions Toolbox was developed to be used as a quick reference tool for planning and programming decision-makers. This reference guide offers possible technology solutions, descriptions, and deployment considerations; and planning level cost estimates for installation, operations, and maintenance for every type of advanced technology. A sample of the Toolbox is shown in Figure 2.

Figure 2 – Sample of ITS Solutions Toolbox

Bicycle Detection Solution				
Project Types	Solution Descriptions	Deployment Considerations	Unit Cost	O&M Cost Per Year
<ul style="list-style-type: none"> • Bicycle Lanes • At-Grade Trail Crossings • Traffic Signal • Traffic Signal Modifications 	Detection device, cabling to signal cabinet, power to detect bicycles at intersections	<ul style="list-style-type: none"> • Detection technology (in-pavement vs. non-intrusive) 	\$3,000-\$10,000 per location	\$1,000 per location
Cost Considerations		Benefits to Project or Agency (of concurrent ITS Deployment)		Benefits to Public (of ITS Deployment)
Depends on technology and installation/mounting requirements		<ul style="list-style-type: none"> • If added to another project, disruption to traffic is minimized • Reliable source of traffic data 		<ul style="list-style-type: none"> • Real-time traffic flow data could be available • No privacy issues compared with other technologies