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### Author

Horan, Thomas

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CALIFORNIA PATH PROGRAM  
INSTITUTE OF TRANSPORTATION STUDIES  
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# **Southern California Intelligent Transportation System Priority Corridor Action Summary**

**Thomas Horan**

*Claremont Graduate University*

**California PATH Working Paper  
UCB-ITS-PWP-99-12**

This work was performed as part of the California PATH Program of the University of California, in cooperation with the State of California Business, Transportation, and Housing Agency, Department of Transportation; and the United States Department Transportation, Federal Highway Administration.

The contents of this report reflect the views of the authors who are responsible for the facts and the accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of the State of California. This report does not constitute a standard, specification, or regulation.

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# **Southern California Intelligent Transportation System Priority Corridor Action Summary**

September 30, 1999

Prepared by



## EXECUTIVE SUMMARY

The Southern California Intelligent Transportation System (ITS) Priority Corridor (Priority Corridor) represented a unique opportunity for the region. During the course of this federally sponsored six-year program, the region was able to develop a set of cooperative plans and actions that ensured the ongoing integration of the surface transportation system in Southern California. These directions are set forth in the Southern California ITS Priority Corridor Strategic Deployment Guide (Strategic Guide) and Southern California ITS Priority Corridor Action Summary (Action Summary).

### *Strategic Guide*

The Strategic Guide provides a series of recommendations for advancing integrated ITS deployment throughout Southern California for a twenty-year period. The Strategic Guide's short-term recommendations (1993 to 2003), however, are the main focus of the planning effort. These recommendations include:

- Complete Southern California Showcase Demonstration Project (Showcase Project), a significant Intermodal Transportation Management Information System (ITMIS) demonstration aimed at optimizing and coordinating freeway and arterial operations as well as private transit systems;
- Continue the innovative interregional cooperation begun by the Southern California ITS Priority Corridor Steering Committee (Steering Committee) to ensure the timely deployment of a backbone ITS

infrastructure throughout the Interregional Corridor Network (ICN);

- Mainstream Corridor Network ITS planning, programming and operational decisions into the regional planning and operating agency processes consistent with the policy directions contained in the Transportation Equity Act for the 21st Century (TEA-21) passed in 1998; and,
- Ensure that Corridor Network ITS-related standards for services, operations, organizations, technology, and communications are developed and consistent with the National ITS Architecture and related standards efforts.

### *Action Summary*

The Action Summary specifies short-term actions to be taken to achieve the recommendations of the Strategic Guide. These actions are organized in terms that (1) emphasize short-term deployment of ITS *transportation services*; (2) emphasize the *communications/standards* needs for enhancing corridor transportation services; and (3) emphasize the *institutional* arrangements needed to facilitate Corridor Network ITS deployment. Recommended actions are summarized in Figure 1 and include the following:

#### Transportation Services

- Deploy identified high priority transportation services across the Corridor;
- Identify and integrate new Corridor Network ITS projects into regional

transportation planning and programming processes.

#### Communication/Standards Actions

- Provide technical input to ensure consistency with National ITS Architecture and emerging standards;
- Take actions to ensure the development, integration, and management of the communication network.

#### Institutional Actions

- Develop the Steering Committee to provide interregional input from the unique perspective of ICN needs and opportunities;
- Facilitate development of new public-private partnerships through mechanisms such as the Travel Advisory News Network (TANN), SmartRoute, etc.

#### *Summary*

The federally sponsored Priority Corridors program provided the foundation for ensuring a seamless ITS network throughout all of Southern California. The Strategic Guide and Action Summary provide direction for the next generation of interregional ITS facilitation, coordination, and deployment—a generation not predicated on a specific federal project but incorporated into the mainstream transportation planning, programming, and operational agencies in Southern California.

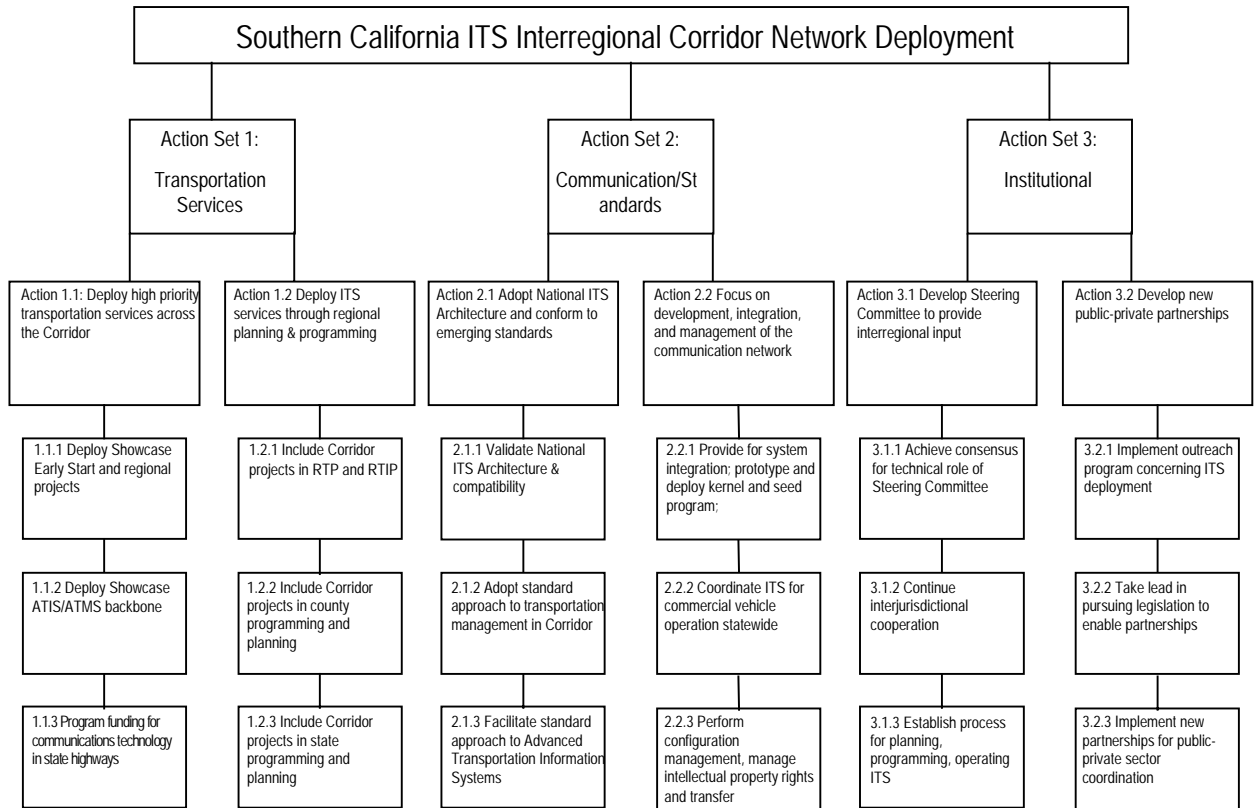


Figure 1 Action Plan Framework

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## SECTION 1: BACKGROUND

The vision for the Southern California ITS Priority Corridor emphasizes a safe, efficient, and integrated regional transportation system that addresses both environmental and economic concerns in Southern California. Building on the Strategic Guide, the Action Summary represents the next step in the realization of that vision.

### Transportation Policy in the Information Era

Prior to the early 1990s, transportation needs in the Southern California region were typically addressed through capacity improvements (e.g., additional roads, lanes, transit service) and transportation management strategies (e.g., encouraging ridesharing, constructing carpool lanes). However, in the 1990s, transportation systems were met with multiple challenges that demanded a more integrated approach than a “build our way out” perspective. Not only are the pressures more exacting (e.g., increased usage demand), but the systems themselves have increased in complexity (e.g., a multimodal approach places commensurate demands for seamless intermodal transitions).

With this increased complexity, information management demands have also expanded and become more central to the functioning of the region’s transportation systems. Thus, public policies have targeted improving management of transportation-related *information* as a means to improve the functioning of the overall system.

The collection of transportation management and information

technologies, known as Intelligent Transportation Systems (ITS), provide an integrated solution that can facilitate the efficient and safe movement of goods and people. A primary objective behind ITS is to provide transportation users and managers with better information about the transportation network. Thus, ITS does *not* seek to replace physical transportation structures but rather provides information needed to ensure smooth functioning of the region’s transportation systems.

### ISTEA and Tea-21: Foundations for the Priority Corridor

The vision of an integrated, efficient, and safe transportation system largely formed the development of the Priority Corridor, one of four identified nationwide in the Intermodal Transportation Surface Efficiency Act (ISTEA) of 1991. The purpose behind these demonstration corridors was to move beyond limited ITS tests and activities to a more complete showcase and deployment effort.

While ISTEA placed emphasis on the initial testing and deployment of ITS, the Transportation Equity Act for the 21<sup>st</sup> Century (TEA-21) focuses on ensuring interoperability of a nationwide ITS system. Conformity to the framework established under the National ITS Architecture is important to meet the funding qualifications and goals of TEA-21 (increasing system efficiency and safety, reducing adverse environmental impacts, and promoting economic goals). The Priority Corridor activities have also placed the Southern California region in an excellent position to take

advantage of TEA-21 funding opportunities aimed at supporting integrated ITS deployment.

### **Need for an Interregional Corridor Network**

Transportation policy has become increasingly complex in Southern California, an industrial hub and a major population center. Environmental issues, increasing population, and a diversity of economic issues impact transportation policy in the region.

Of continual concern is the pollution that dirties the air and poses a threat to the health of Southern California residents. According to the South Coast Air Quality Management District (AQMD is the smog control agency for Los Angeles, Orange, Riverside and San Bernardino Counties), motor vehicle emissions contribute substantially to the ozone pollution. Cars, trucks and buses are responsible for 56 percent of volatile organic compounds (VOC) emissions and 68 percent of nitrogen oxides – the two pollutants combine to form ozone, the basis for Southern California’s infamous “smog.” According to AQMD, the region’s air quality has measurably improved in the last twenty years. However, AQMD is required by federal and California law to achieve healthful air by 2010 and that means curtailing automobile emissions even more. Decreased traffic congestion is critical to realizing the clean air goal.

Predicted demographic and economic changes will also effect transportation in Southern California. According to the 1998 Regional Transportation Plan prepared by the Southern California Association of Governments (SCAG), the region will encounter significant population growth, experience a jobs-

housing imbalance, face decreased revenues from gas taxes, and face increased levels of congestion in the next 20 years. By 2020, the region will add 6.7 million people.

SCAG projects employment growth of 61 percent, bringing the total number of jobs in the region to 10.6 million by the year 2020. Job growth, however, is not forecast to take place in the same areas anticipating the greatest population growth. The imbalance between jobs and housing is expected to worsen, resulting in increased commutes as people drive from their homes to their jobs.

Improvement in the regional economy is paralleled by increased truck and rail traffic on both east/west and north/south corridors. International trade flows through the area to destinations in Southern California and the rest of the nation. Transportation demand pressures have also arisen as a consequence of Southern California’s increased centrality in international trade, which is projected to increase 200 percent in movement of goods from airports and to increase 75 percent in movement of goods from ports.

San Diego Association of Governments (SANDAG) forecasts reveal similar economic, demographic and transportation developments. Population estimates suggest substantial growth for the San Diego area – from 2.8 million in 1999 to an anticipated 3.8 million or more by 2020. SANDAG projects significant growth in employment rates with a commensurate shortage of suitable, affordable housing in areas of job growth. Consequently commute distances will increase, adding congestion to primary interregional roadways. In 1990, 105 miles of freeway were rated as congested in the San Diego

region and forecasts suggest a significant increase of 280 congested freeway miles by 2020.

Altogether, the Southern California transportation network has evolved into an extensive and increasingly complex intermodal system that is heavily reliant upon communications management for efficiently and safely moving people and goods. The Interregional Corridor Network (ICN) has been identified to address this growing complexity in an integrated and system-wide fashion. (See Appendix A for a map of the Priority Corridor.)

### **Priority Corridor Vision and Goals**

The vision and goals for the Priority Corridor arose from recognition that these regional trends necessitate an integrated, interregional view of the transportation system. The vision places emphasis on improving “the safety, efficiency and environmental impacts of the transportation system in Southern California.” Realization of this ideal is to be achieved through the “application of advanced transportation technologies and integrated management systems to and between all modes.” Priority Corridor efforts are to promote the following multiple goals:

- Increase overall safety and efficiency of travel
- Improve performance of transit and ridesharing;
- Improve air quality and increase energy efficiency of transportation;
- Enable a competitive advantage to Southern California industry and commerce;

- Enhance transfer of passengers and goods and services from one mode to another;
- Facilitate automation in transportation facility construction and maintenance; and,
- Further develop the intelligent vehicle infrastructure (IVI) and automated highway systems (AHS).

### **Priority Corridor Development: Summary of Strategic Guide Key Elements**

The Strategic Guide thoroughly explores the unique problems, issues, and critical elements in the transportation environment that must be addressed before the Priority Corridor vision can be fully realized. Critical strategic elements are discussed below.

*Key Priority Corridor Projects:* Based on a Federal Highway Administration (FHWA) recommended process for assessing ITS user services, nineteen Priority Corridor projects were identified in the Strategic Guide. These projects will establish systems that complement individual subregional plans (e.g. Los Angeles, San Diego) and focus on building a Corridorwide capacity for communication, coordination, and seamless service to the public. A central element is the Showcase Project that targets interoperability throughout the Priority Corridor with the development of functional architecture based on Kernels and Seeds. (Kernels will provide the initial point of integration with the existing legacy systems as well as new systems; they will interface within and across the regions through the necessary interface software components known as Seeds.) Other projects include Corridorwide Advanced Transportation

Management Systems (ATMS), Corridorwide Advanced Traveler Information Systems (ATIS), Smart Bus Stops/Rail Stations, and Emergency and Event Management Systems.

*Roles and Responsibilities Review:* The Strategic Guide outlines an implementation framework to facilitate the deployment of ITS services within the region. Several institutional and leadership issues arise from the Strategic Guide. Discussions surround leadership opportunities, potential organizational structures, and plans for relating Corridorwide considerations to the mainstream transportation planning and programming functions.

The major institutional challenge for the Priority Corridor is to move the focus of the Steering Committee from an effort that was organized to develop the Strategic Guide to one that is focused on providing technical input and direction. Mainstreaming the Strategic Guide into the statewide and regional transportation planning and programming process is a principal task.

*Critical Public-private Partnerships Discussion:* Another important strategy issue surrounds the question of public partnerships with the private sector. The Strategic Guide provides the groundwork for these important ventures by detailing the institutional barriers to such partnerships and provides recommendations for public-private roles to limit evident risks and barriers. The public sector role in general revolves around the collection and integration of area-side surveillance information followed by design and implementation of control efforts. Opportunities exist for the private and non-profit sectors to participate in the packaging and dissemination of travel

information for use by the traveling public and industry. The Strategic Guide also recommends the California Alliance for Advance Transportation Systems (CAATS) to take a lead role in defining legislation to better enable public-private partnerships.

*Open Systems Architecture:* The Strategic Guide advocates developing an open architecture framework for the Priority Corridor to better enable development of the envisioned seamless transportation network. Such a step would also ensure conformance with the federal mandate to be compliant with the National ITS Architecture, thus providing access to federal funding opportunities as well as fostering continued private sector participation and innovation.

*Fiscal Opportunities:* Funding is a critical element in the realization of the Priority Corridor strategy. Opportunities outlined in the Strategic Guide include federal, state, regional, and local funding options.

*Action Summary:* Finally, the Strategic Guide provides a list of action steps that should be taken in order to accomplish integration of a regional transportation system.

## **Selected Achievements**

Concurrent with the development of the Strategic Guide, several major actions have been undertaken during the ISTEA period. These actions provide a foundation for translating the Strategic Guide into actions for regional excellence.

*Better Transportation Management:* The Southern California region has an advanced state-of-the-practice traffic management system. Overall, several

hundred million dollars is expended annually in upgrading and maintaining the traffic management systems and operations centers.

The challenge confronting transportation policymakers and managers is to ensure the continued development of this complex system in a manner that enhances regional and interregional operations and management.

In response to this challenge, the Steering Committee has provided a forum for planning and coordination at the overall regional and interregional level. In particular, it facilitated a series of regional and Corridorwide projects for developing the Advanced Traffic Management System (ATMS) and Advanced Traveler Information System (ATIS). Many of these projects were initiated under the Showcase Project and form the basis of key transportation elements to be continued under the Action Summary.

*Enabling the Traveling Public:* ITS has the potential to improve the choices available to travelers in Southern California. Providing consumers with information about the transportation system is a new and important function, one that transportation agencies are only now beginning to implement. The Priority Corridor has spearheaded an effort to provide seamlessly integrated traffic, transit, and commercial vehicle projects throughout the region. This has been accomplished through several Early Start Projects, such as TravelTIP in Orange County.

In addition to the Advanced Traveler Information System (ATIS) projects, the Priority Corridor is also developing a deployment network. For example, SCAG has taken a lead in the development of the Travel Advisory

News Network (TANN), a partnership that gathers ITS data from several sources, integrates it, and supplies it on a fee-for-use basis to seven current affiliates for distribution to the public through multiple media. Expanding the opportunities and benefits of public-private partnerships represents a key area of economic growth for the region.

*Toward Seamless Communication:* The complexity of the surface transportation system in Southern California places it in the vanguard of developing efficient means to ensure interoperability across systems and open architecture for new system components. As part of the Showcase Project, a system of kernels and seeds is being devised as a software device to ensure that the various traffic and transportation management centers and systems can communicate with each other yet maintain each system's independence. Following the Corridorwide philosophy of "design once, deploy often," ITS interfaces will be tested and reused at various sites around the Corridor. Projects such as the Integrated Modal Shift Management System in San Diego represent early deployment of the kernel concept. Throughout the Corridor Network, these innovations will then be deployed to various systems around Southern California.

The Showcase Project intends to integrate Network Surveillance, Regional Traffic Control and Incident Management System packages throughout the Corridor Network based on infrastructure deployment from these projects in specific regions. Timely funding and completion of these and related Showcase Projects will ensure a seamless intermodal electronic information layer over the transportation system in Southern California.

*Establishing Corridorwide Cooperation:*

The institutional demands upon the Priority Corridor users and managers are immense—often a single commute trip can cross many transportation jurisdictions. The Priority Corridor has contributed to seamless transportation services by providing an innovative forum for transportation program coordination and development.

Organizationally, Caltrans and the transportation agencies, boards, and commissions in the Priority Corridor area have formed the Steering Committee to promote cooperation in Priority Corridor activities. The Steering Committee acts as coordinating manager for activities and projects under the Corridorwide planning effort. In the TEA-21 era, the Steering Committee has entered a period of transition in which the institutional focus on coordination will increasingly be reoriented toward facilitating interregional coordination and mainstreaming of projects into statewide and regional planning, programming and operational actions.

## SECTION 2: SHORT-TERM ACTIONS, MAINSTREAMING ITS

### Resting On A National Foundation: The Action Plan Framework

The TEA-21-era Action Plan addresses the implementation of actions and projects set forth in the Strategic Guide and adopted by the Steering Committee. The Action Summary details steps called for in the first five years (short-term) of the Strategic Guide's 20-year time frame and does so in the three dimensions provided by the National ITS Architecture: transportation services actions, communications/standards actions, and institutional actions. As codified in the National ITS Architecture, ITS essentially offers a electronic layer to the surface transportation network. When the National ITS Architecture framework is interposed, this layer intersects with the transportation system at three nodes. First, *transportation services* systems highlight the deployment of new user services and focuses efforts on the end user. The second intersection accents the *communications/ standards* activities that need to be addressed in order to ensure interoperability and seamless operation of the increasingly digitized transportation system. The final intersection point highlights the need for new *institutions* to provide the leadership for public and private opportunities throughout the Corridor Network.

The framework provides a method of organizing the elements of the Action Plan to maximize the realization of benefits when carrying out the Strategic Guide's recommended actions and projects. First, employing the framework

facilitates conformity to national standards in the deployment of projects Corridorwide. Such conformity is required for federal funding under TEA-21. Second, the three-part framework integrates projects and actions in a manner that demonstrates important interconnections and relationships. Identification of projects and their relationship to the whole is an essential first step in the deployment process and serves to underscore desired interoperability. Finally, use of the National ITS Architecture highlights the relationship between process and action. The order in which framework elements appear is important (see Figure 2). The figure intentionally leads with transportation services actions rather than institutions to accentuate the importance of user-focused action over institutional processes.

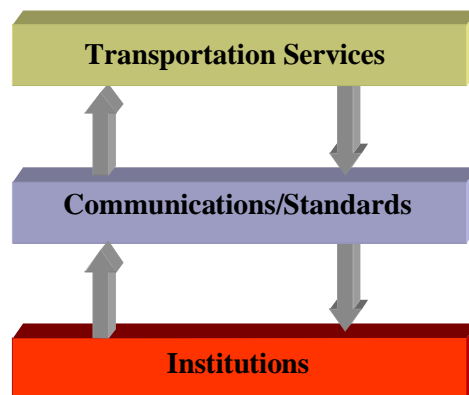


Figure 2 Action Framework Developed from National ITS Architecture

### The Action Plan

The principal purpose behind the Action Plan is to provide direction to the Steering Committee, implementation agencies, and other stakeholders while

providing for flexibility. The Action Plan assumes that implementing agencies will mainstream the recommended actions and develop work plans for deploying physical projects. During the ISTEA period several short-term projects were initiated and are presented in Table 1 below. The estimated costs of these short-term project/systems is \$XX. The implementation of these services

supports the deployment of approximately \$XX in short-term regional projects. The Corridorwide systems enable system integration and interoperability around the Corridor. (Medium to long-term projects are listed in Appendix B.) Beyond these short-term actions are a series of action steps that need to be executed to achieve the objectives of the Strategic Guide.

**Table 1 Short-term Corridorwide Projects, Services, and Systems**

Projects/Services/Systems	Project Number	User Objective	Lead
Corridorwide System Integration Project (CWSIP)	PC1	Provide integration assistance for the ITS projects to be deployed at the Corridor and regional levels. Benefits include assistance to agencies as they revise legacy system interfaces to join the ICN.	Caltrans
Interregional Corridor Network	PC2	Establish and work to implement the vision Interregional Corridor Network to ensure transportation efficiency and performance throughout the Southern California region	Steering Committee and Regional Teams
Corridorwide ATMS (Showcase Project)	PC3	Improve coordinated en-route information to travelers.	Caltrans
Corridorwide ATIS (Showcase Project)	PC5 and PC6	Disseminate information including travel mode options, location of services (commercial / hospital / public), scheduling and real-time congestion	Caltrans
Coordinated VMS/HAR Strategies	PC7	Manage freeway and surface street operations to reduce overall congestion, support management of incidents, promote public safety and reduce air emissions.	Caltrans
Corridorwide APTS (Showcase Project)	PC9	Manage freeway and surface street operations to reduce overall congestion, support management of incidents, promote public safety and reduce air emissions.	Caltrans
Interregional Rideshare Database (Showcase Project)	PC11	Facilitate real-time ride-matching for regional and interregional trips, including non-publicity-operated and ad-hoc ridesharing programs	SCAG
Smart Bus Stops/Rail Stations	PC12	Provide real-time interregional transit information (all carriers) at transit centers and stops, rail stations and in vehicles	SANDAG/SCAG
Corridorwide Transit Fare Integration & Automation	PC13	Coordinate connections/transfers, facilitate schedule adherence, provide real-time schedule information, and emplacement advanced technologies for fleet management.	SANDAG/SCAG
ATIS for scoping CVO (Showcase Project); Commercial Vehicle International Border Operating System (CVIBIOS)	PC18 and PC18	Manage commercial vehicle delays at international border crossing, inspection and weigh stations, port facilities, and intermodal yards.	Caltrans and Corridor



## Action Set 1: Transportation Services Actions

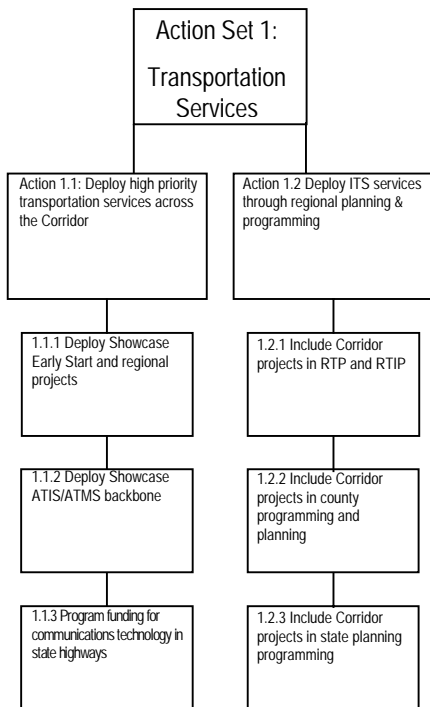


Figure 3 Transportation Services Actions

### *Action 1.1: Deploy high priority Corridorwide transportation services.*

The primary short-term deployment of corridor-related ITS user services will be through the completion of projects identified under the Showcase Project. The main purpose of the Showcase Project is to demonstrate the feasibility and the benefit of integrating all modes of transportation and all roads of travel into a “system of systems.” The heart of the Showcase Project is the development of the interface standards and prototypes. The Showcase Project and Strategic Guide identified a number of projects. These should be forwarded as high priorities to the relevant agencies.

Additionally, the integration of ICN-based communication technologies into state highway systems needs to be accomplished. Actions are outlined in Table 2.

Most of the projects listed in Table 1 provide transportation services. A few are communications oriented.

### *Action 1.2: Deploy ITS services through regional planning and programming.*

The clear intent of TEA-21 is to foster the integration of ITS services and products into the transportation planning and programming process. This is to be accomplished by having each of the planning and programming agencies review, support, and program for short-term ITS transportation and communications services. Table 1 illustrates Corridorwide project/systems. Planning and programming agencies would also be able to reference the user services as a guide, which was developed as part of the Strategic Guide process. (See Appendix C)

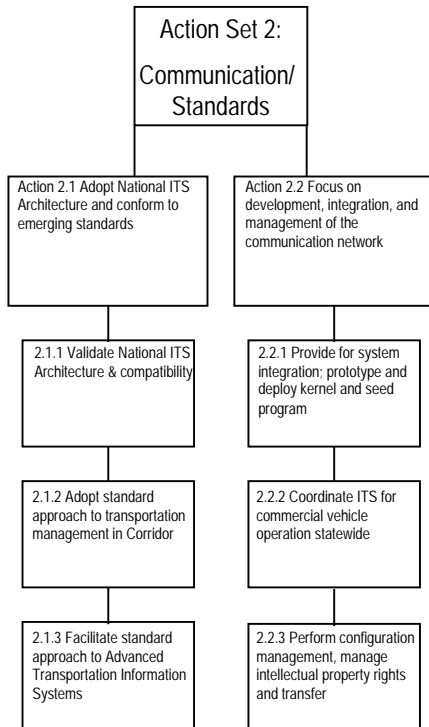
Several of Southern California counties have developed subregional ITS early deployment plans. Thus, operationalizing the Strategic Guide means incorporating recommendations from these documents into appropriate regional transportation planning and programming documents. These actions will ensure that components of ITS are implemented into the mainstream of transportation service providers as quickly as possible. This mainstream environment, while primarily planned, deployed, and managed by local agencies, will benefit from a technological and management superstructure that provides state-wide integration services to the locally

managed infrastructures. (See Table 2 for actions)

Table 2 Action Set 1:Transportation Services Actions

Action Set 1.1		
Action	User Objective	Lead
1.1.1	Deploy high priority transportation service across the Corridor	
1.1.2	Deploy Showcase ATIS/ATMS backbone	
1.1.3	Program funding for communications technology in state highways	
Action Set 1.2		
1.2.1	Deploy ITS services through regional planning and programming	
1.2.2	Include Corridor projects in county programming and planning	
1.2.3	Include Corridor projects in state programming and planning	

**Action Set 2:  
Communications/Standards  
Actions**



**Figure 4 Communications/Standards  
Actions**

*Action 2.1: Ensure consistency with National ITS Architecture and emerging standards.*

TEA-21 (Section 5206c) has mandated architectural compliance as a required element for federally funded ITS projects. The Priority Corridor has provided a service to all agencies in the region by taking a leadership role in addressing compliance of projects to the National ITS Architecture. This action will ensure the Priority Corridor provides value-added and complementary analysis to regular transportation planning and

programming activities undertaken by the Priority Corridor agencies (see Table 3).

*Action 2.2: Focus on development, integration, and management of the communication network.*

The Showcase Project contains a series of development, testing, and deployment for software, seeds and kernels that will allow for interoperability across systems in Southern California. To ensure such interoperability there is a short-term need to prototype and deploy a series of protocols and software procedures. Protocols and software procedures also need to be established to support network operation statewide such as Commercial Vehicle International Border Operating System (CVIBOS).

A related action is to provide ongoing oversight on configuration management and intellectual property issues associated with ICN projects. It is vital that the Steering Committee and represented agencies develop a comprehensive plan for managing the intellectual property rights of software products developed throughout the Corridor Network. As part of this process, technology transfers from the Priority Corridor to the state should be considered.

Actions are outlined in Table 3.

**Table 3 Action Set 2: Communication/Standards Actions**

Action 2.1			
Action	User Objective	Lead	
2.1.1	Validate National ITS Architecture & compatibility	Ensure compliance with National ITS Architecture	Steering Committee
2.1.2	Adopt standard approach to transportation management	Ensure consistency in service delivery across jurisdictional boundaries.	Steering Committee
2.1.3	Facilitate standard approach to Advanced Transportation Information Systems	Ensure seamless integration	Steering Committee
Action 2.2			
2.2.1	Provide for system integration; prototype and deploy kernel and seed program	Ensure interoperability among the components of the Priority Corridor ITS.	Steering Committee
2.2.2	Coordinate ITS for commercial vehicle operation statewide	Ensure consistency in service delivery across jurisdictional boundaries.	Steering Committee
2.2.3	Perform configuration management, manage intellectual property rights and transfer	Ensure interoperability and create efficiency	Steering Committee

### Action Set 3: Institutional Actions

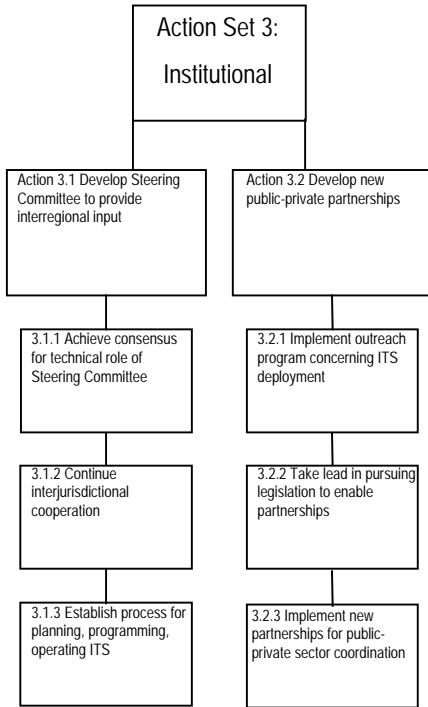


Figure 5 Institutional Actions

#### *Action 3.1: Obtain stakeholder endorsement of Steering Committee.*

The Strategic Guide highlights a number of institutional recommendations to support implementation of the Interregional Corridor Network. The most central action is the need to define and support the evolving mission of the Steering Committee for the implementation of the Corridorwide ITS deployment guide. The Steering Committee will continue to be a cooperative partnership that represents its authorizing agencies rather than becoming another transportation planning entity in Southern California.

The Steering Committee continues to represent a unique forum for addressing a number of major technical,

institutional, and programming complexities associated with the deployment of ITS across the Corridor Network. However, the structure and nature of activities needs to recognize that the principal source of funds for both regional and interregional ITS programs will be through the MPOs and related state and county planning and programming activities. Consequently, the Steering Committee needs to develop from one which had planning and programming oversight of federal Priority Corridor funds to one which is focused on facilitating input into the mainstream regional planning and programming authorities. Greater emphasis would be placed on technical input, such as on the configuration and intellectual property management. Table 4 provides actions consistent with a transition from a planning-oriented to a deployment-oriented committee.

#### *Action 3.2: Develop new public-private partnerships.*

Public-private partnerships are vital to the efficient and successful deployment of ITS, yet such partnerships have lagged in the Priority Corridor. For example, according to ITS America, up to eighty percent of ITS products and services could be supplied by the private sector with appropriate public agency investments. Some of the required actions needed to realize effective partnerships in the Priority Corridor include: support expansion of programs such as the TANN and other private sector initiatives (e.g. SmartRoute), participation by the private sector in the Steering Committee, and outreach through related CAATS activities (see Table 4).

Table 4 Action Set 3: Institutional Actions

Action 3.1			
Action	User Objective	Lead	
3.1.1	Achieve consensus for evolved role of Steering Committee	Develop interjurisdictional cooperation and consensus within Priority Corridor regarding ITS deployment.	Steering Committee
3.1.2	Continue interjurisdictional cooperation	Develop interjurisdictional cooperation and consensus with Corridor regarding ITS deployment.	Steering Committee
3.1.3	Establish processes for planning, programming, and operating ITS	Provide for efficient and effective transition from Priority Corridor to mainstream operating environment.	Steering Committee
Action 3.2			
3.2.1	Implement outreach program concerning ITS deployment	Develop local, state and federal legislative environment friendly to public-private ITS cooperation.	Steering Committee
3.2.2	Take lead in pursuing legislation to enable partnerships	Develop local, state and federal legislative environment friendly to public-private ITS cooperation.	Steering Committee
3.2.3	Implement new partnerships for public-private sector coordination	Establish partnerships with non-public entities to fund and deploy ITS via support TANN and other measures	Steering Committee

## SECTION 3: MANAGEMENT AND FISCAL REQUIREMENTS

### **Institutional Requirements of Recommended Actions**

As the bulk of deployment passes into a mainstream transportation planning, programming and management environment, leadership roles will move more to regional and local agencies. These leadership roles involve the integration of ITS deployment and operations planning and programming into the regional and local transportation planning process and the coordination of ITS planning and programming on a statewide level.

As this change occurs most ITS deployment and operation efforts must be considered within the responsibilities and constraints of local transportation programs. The actions noted earlier necessitate that relevant agencies fund and deploy ITS services as they assist with their local transportation situation and in a manner that facilitates regional integration and coordination. It is this latter function that most necessitates institutional integration across the Interregional Corridor Network.

### **Priority Corridor Operations through Caltrans, Cities, and Private Sector Roles**

The roles of various transportation agencies in executing the Action Plan tasks cut across the planning and program spectrum in Southern California. The Steering Committee plays a vital role in coordinating the transportation, standards, and institutional interface of ITS projects across the Interregional Corridor Network. No other existing organizational structure is equipped to perform this role.

### **Funding**

Funding is currently available for many of the initial planning, testing, and early deployment projects outlined in the Action Summary. However, current funding does not allow for robust deployment of several elements of the Showcase Project and does not include the overall deployment costs of the Corridor Network. In keeping with the new policy objectives of TEA-21, Corridor Network testing and deployment needs will be evaluated in light of other competing demands for transportation funds.

### **Showcase as a Foundation-**

ISTEA authorized approximately \$29 million for Showcase projects—Corridorwide and regional—that provide the foundation for short-term, medium-term and long-term projects of the Strategic Guide. See Appendix D for a summary of Showcase Project funding.

### **Short-term Deployment Funding**

While overall deployment costs for ITS in the Southern California region are difficult to calculate, various subregional plans have been completed, and these suggest an overall estimated cost of several hundred million per year.

The costs for Corridor Network project deployment—that is, over and above deployments within regions—can roughly be estimated at about \$10 to \$20 million per year, based on Corridor Network projects totaling upward to \$125 million dollars in the short-term planning horizon. Securing funding sources and appropriate contracting

mechanisms for projects is a major challenge confronting the Steering Committee.

### **Possible Funding Sources**

*Federal TEA-21 Funding:* One key funding source for project and systems integration is TEA-21. But, unlike ISTEA, TEA-21 did not specifically authorize the Priority Corridors program. Rather, TEA-21 provides deployment support funding for all ITS projects at approximately \$100 million nationwide per year. The Los Angeles/Ventura Regional Integration of Systems Effort Early Action Plan estimates that 4.5 percent to 7 percent of the \$100 million nationwide per year for the next 5 years is a reasonable amount to anticipate for one of the nation's most congested regions. This figure translates to approximately \$4.5 million to \$7 million for the Priority Corridor per year or up to \$35 million spread over five years. This funding is not guaranteed, because annual congressional earmarking has severely curtailed availability of these funds. Consequently, the principal funding for the Corridorwide projects will be through the major federal aid categories, such as Surface Transportation Program (STP) and Congestion Mitigation and Air Quality funds (CMAQ). These funds were increased under TEA-21 to approximately \$70 billion over the six years, providing a major funding source for transportation projects in Southern California. In order to use these funds for ITS, Priority Corridor programs will need to be included in the Regional Transportation Plans and Improvement Programs. Early adoption of the transportation services actions is vital in order for Corridor Network projects to be competitive for TEA-21 funds.

Federal policy is explicit in its interest in providing incentives to collaboration with private sector in transportation facility development. For example, ISTEA Section 1012 loan program as amended by the National Highway System Designation Act of 1995 (NHSDA) provided enhanced opportunities for public-private partnerships. Section 1012 allowed states to make loans to both toll and non-toll facilities with revenue-generating potential, negotiate interest rates with project sponsors at subsidized levels, offer favorable repayment terms, take loan repayments, and make new loans to other transportation projects with revenue potential. TEA-21 continues the commitment to partnerships.

*State and Regional Funding:* Under SB 45, Caltrans will be responsible for programming improvement projects funded through the new Interregional Improvement Program (IIP), which accounts for about 25 percent of the State Transportation Improvement Program (STIP). About 75 percent of the STIP will be Regional Improvement Program (RIP) projects, selected by regions in their Regional Transportation Improvement Programs (RTIPs).

In terms of Corridorwide funding, Caltrans is in a position to support interregional Priority Corridor projects through the state program. However, the majority of monies for local and regional ITS projects need to be funded through the 75 percent of funding made available for regional programming of transportation projects.

Several bills are pending in the California legislature that could provide significant resources for the deployment of Corridorwide activities. Senate Resolution 8 would provide up to \$16



billion in bonding authority for transportation improvements. The Governor's Infrastructure Commission is considering a related initiative. A State Infrastructure Bank is also being funded and would be available for project funding.

## **SECTION 4: CONCLUSION**

The Southern California ITS Priority Corridor is in a critical transition period. Begun under the auspices and funding support of the federal ITS program, it is now undergoing a transition to a Corridor Network ITS deployment support and technical coordination program. Consequently, the majority of funds for enacting agreed upon ICN priorities will need to come from transportation funds dedicated to a multi-billion dollar transportation investment plan for the Southern California region.

The adoption of the Action Plan recommendations for incorporating ITS user services into regional transportation planning and programming, will ensure that ITS is appropriately deployed to support the Interregional Corridor Network.

The adoption of Corridorwide standards actions will ensure that these projects are integrated across the region and promote seamless transportation management and travel.

The adoption of the Corridorwide institutional actions will ensure that appropriate organizational forms are devised to manage the deployment challenges inherent in a system as complex as that which services Southern California residents and businesses.

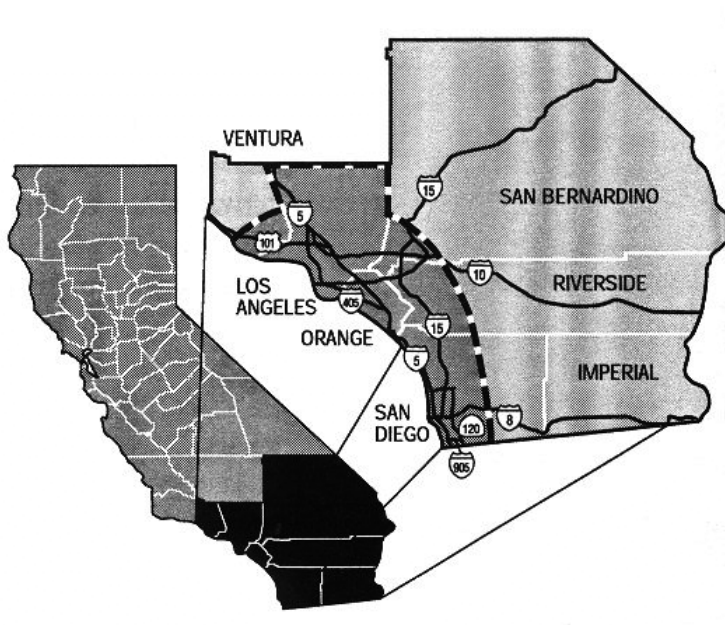
Priority Corridor member agencies have played a critical role in the initial success of the Priority Corridor. Their involvement in supporting the Steering Committee continues to be critical to the successful execution of the Strategic Guide and Action Summary and, consequently, to the successful integration

of regional ITS programs into an Internregional Corridor Network.

## APPENDIX A: LOCATION OF INTERREGIONAL CORRIDOR NETWORK

The Interregional Corridor Network is bounded on the

- North by State Route 126, the northern boundary of Los Angeles County, and Interstate 10;
- South by the United States border with Mexico including the Otay Mesa Border crossing and State Route 905;
- East by State Route 71 and Interstate 15, 210, 215, 805; and,
- West by the Pacific Ocean.



## APPENDIX B: CORRIDORWIDE MEDIUM- TO LONG-TERM PROJECTS, SERVICES, AND SYSTEMS

Project Name	Project Number	Phasing Priority	Project Management	Programming Lead
ATMS: Corridorwide Decision Support/Expert Systems	PC4(99)	medium	Corridor	Caltrans
ATIS: Rural ATIS Deployment	PC8(127)	low	Corridor	Caltrans, County Transportation Commissions (CTCs), Metropolitan Planning Organizations (MPOs)
APTS: Inter-regional Transit Connection (En-Route)	PC10(131)	high	Corridor	CTCs, MPOs
EmM/EvM: Emergency and Event Management System	PC14(134)	high	CHP/Caltrans	Caltrans, CTCs, MPOs
AVSS: Infrastructure Support	PC15(142)	medium	SANDAG/SCAG	Caltrans, CTCs, MPOs
AVSS: Integrated Intelligent Vehicle Highways & Arterials	PC16(143)	medium	SANDAG/SCAG	Caltrans, CTCs, MPOs
AVSS: Automated Highway Maintenance & Construction	PC17(141)	high	Caltrans	Caltrans

## APPENDIX C: PRIORITY CORRIDOR SHORT-TERM USER SERVICES

	Objectives	Phasing Priority
Automated Roadside Safety Inspection (On-Board Safety Monitoring)	Implement internal safety/operator monitoring systems for commercial fleets and independent operators.	Short-term
Commercial Fleet Management	Facilitate Corridorwide communication between drivers, dispatchers and intermodal transportation providers.	Short-term (Showcase Project)
Commercial Vehicle Administration Processes	Implement automated credentials procurement, fuel and mileage recording capabilities for commercial fleets and independent contractors.	Short-term
CVO Electronic Clearance	Manage commercial vehicle delays at international border crossing, inspection and weigh stations, port facilities, and intermodal yards.	Short-term
Demand Management and Operations	Facilitate provision of HOV facilities, implementation of congestion pricing on new facilities, and trip substitution / and advanced strategies.	Short-term
Emergency notification and personal security	Provide Corridorwide integrated response capability for in-vehicle or automated emergency service requests	Short-term
Emergency Vehicle Management	Encourage coordinated emergency vehicle fleet to provide faster coordinated response regardless of jurisdiction.	Short-term (Showcase Project)
Emissions Testing & Mitigation	Provide testing systems and implement strategies to reduce overall emissions.	Short-term
En-Route Driver Information	Improve coordinated en-route information to travelers.	Short-term
En-Route Transit Information	Provide real-time inter-regional transit information (all carriers) at transit centers and stops, rail stations and in vehicles	Short-term (Showcase Project)
Hazardous Material Incident response	Provide Corridorwide electronic tracking (registration/location) of Hazmat shipments and disseminate this information to law enforcement and emergency services.	Short-term (Showcase Project)
Incident Management	Manage non-recurring congestion by reducing frequency, responsive, duration and severity of incidents.	Short-term (Showcase Project)
Public Transportation Management	Coordinate connections/transfers, facilitate schedule adherence, provide real-time schedule information, and emplacement advanced technologies for fleet management.	Short-term (Showcase Project)
Ridematching and reservation	Facilitate real-time ride-matching for regional and inter-regional trips, including non-publicity-operated and ad-hoc ridesharing programs	Short-term (Showcase Project)
Traffic Control	Manage freeway and surface street operations to reduce overall congestion, support management of incidents, promote public safety and reduce air emissions.	Short-term (Showcase Project)
Traveler Service Information	Disseminate information including travel mode options, location of services (commercial / hospital / public), scheduling and real-time congestion	Short-term

## APPENDIX D: SHOWCASE FUNDING

	Funding Source	Federal	State	Local
	Activity/Project			
Scoping and Design	Showcase Phase I "Scoping"	672	168	
	Showcase Phase II HLD of the interface related to the Early Starts	1164	291	
	Showcase PhaseIIA	166	42	
	Showcase Phase III HLD of the remaining interfaces	2130	533	
Early Starts	Kernel Early Start (HW/SW)	408	102	
	TravelTIP Early Start	3428	508	429
	Integrated Mode Shift Management Early Start	1056	264	
	IMAJINE Early Start	2400	300	300
	San Diego InterCad Early Start	600	150	
	Mission Valley Stadium ATMIS Early Start	540	68	68
	San Diego Transit Management and Information System Early Start	2400	300	300
	San Diego IMTMIS Early Start	1460	365	
FHWA FY 1997/8	LA/Venture Regional ATIS	1300	163	163
	Fontana/Ontario ATMIS	2302	288	288
	Orange County MDI	2100	263	263
	San Diego Signal integration	1100	138	138
	Corridorwide System Integration	500	125	
	Corridorwide ATMS	2300	575	
	Corridorwide ATIS	500	125	
	Corridorwide CVO	600	150	
	Corridorwide Rideshare	100		25
	Evaluation	1360	340	
	Total	28586	5258	1974