

**Southern California Priority Corridor
Showcase Program Evaluation**

**Transportation/Traveler
Information Management
Cross-Cutting Evaluation Report**

FINAL

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Disclaimer

The contents of this report reflect the views of the author who is responsible for the facts and accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of the State of California, Caltrans or the U.S. Federal Highway Administration. This report does not constitute a standard, specification, or regulation.

Abbreviations & Acronyms

ATIS	Advanced Traveler Information System
ATMIS	Advanced Traffic Management & Information System
ATMS	Advanced Transportation Management System
AVL	Automatic Vehicle Location
Caltrans	California Department of Transportation
CCTV	Closed-circuit Television surveillance camera
CEO	Chief Executive Officer
CFO	Chief Financial Officer
CHP	California Highway Patrol
CM	Configuration Management
CMP	Configuration Management Plan
CMS	Changeable Message Sign
CORBA	Common Object Request Broker Architecture
COTS	Commercial Off-the-Shelf
CTC	California Transportation Commission
CVO	Commercial Vehicle Operations
CW	Corridor-wide
CWATIS	Corridor-wide Advanced Traveler Information System Project
CWATMS	Corridor-wide Advanced Transportation Management System Project
CWCVO	Corridor-wide Commercial Vehicle Operations Project
CWSIP	Corridor-wide Systems Integration Project
CWSPP	Corridor-wide Strategic Planning Project
DOIT	Department of Information Technology
DRI	Caltrans Division of Research & Innovation (formerly NTR)
EAP	Evaluation Activity Plan
EMC	Event Management Center
EP	Evaluation Plan
FHWA	Federal Highway Administration
FSR	Feasibility Study Report
FTA	Federal Transit Administration
FTE	Full-Time Equivalent (one full-time employee)
GPRA	Government Performance and Results Act
GUI	Graphical User Interface
HP	Hewlett-Packard
HQIT	Headquarters - Information Technology (division of Caltrans)
IDL	Interface Definition Language
IPP	Implementation Phasing Plan
IPR	Intellectual Property Rights
ISP	Information Service Provider
ISSC	Information Systems Service Center (division of Caltrans)
ISTEA	Intermodal Surface Transportation Efficiency Act (of 1991)
ITS	Intelligent Transportation Systems (formerly IVHS)
IVHS	Intelligent Vehicle and Highway Systems

IWS	Integrated Workstation
LACDPW	Los Angeles County Department of Public Works
LADOT	City of Los Angeles Department of Transportation
LAN	Local Area Network
MOU	Memorandum of Understanding
MPO	Metropolitan Planning Organization
MTA	Los Angeles County Metropolitan Transportation Authority
MTBF	Mean Time Between Failure
NDA	Non-Disclosure Agreement
NET	National Engineering Technology Corporation
NTCIP	National Transportation Communications for ITS Protocol
NTR	Caltrans Division of New Technology & Research (now DRI)
OCMDI	Orange County Model Deployment Initiative
OCTA	Orange County Transportation Authority
O&M	Operations and Maintenance
OS	Operating System (such as Windows™, Unix, Linux, et. al.)
PC	Personal Computer (Windows™-based)
PoP	Period of Performance
RAMS	Regional Arterial Management System (aka. Traffic Signal Integration)
RAVL	Regional AVL (aka. Transit Management System)
RCTC	Riverside County Transportation Commission
RFP	Request for Proposals
RIWS	Regional Integrated Workstation
RTDIE	Regional Transit Database Information Exchange
RTP	Regional Transportation Plan
RTPA	Regional Transportation Planning Agency
RWS	Remote Workstation
SANBAG	San Bernardino Association of Governments
SANDAG	San Diego Association of Governments
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCPCSC	Southern California Priority Corridor Steering Committee
TANN	Traveler Advisory News Network
TEA-21	Transportation Equity Act for the 21st Century
TIC	Traveler Information Center
TMC	Transportation Management Center
TOC	Traffic/Transportation Operations Center
USDOT	United States Department of Transportation
VCTC	Ventura County Transportation Commission
VDS	Vehicle Detector Station
VMT	Vehicle Miles Traveled
VOS	Volume/Occupancy/Speed
WAN	Wide Area Network

Executive Summary

This report is one of five cross-cutting evaluation reports prepared under the Southern California Priority Corridor Showcase Evaluation. Each Showcase cross-cutting report addresses one of the Showcase Program's five evaluation goals:

- ✓ System Performance
- ✓ Costs
- ✓ Institutional Impacts
- ✓ Transportation and Traveler Information Management
- ✓ Transportation System Impacts

This cross-cutting report aggregates and summarizes the cumulative knowledge gained from the Showcase Program projects with regards to user acceptance and the usage of transportation data and information. More specifically, this report addresses the usage of transportation information by public agencies and the usage of traveler information by the general public.

Background

As required by federal law, all Intelligent Transportation System (ITS) projects that receive federal funding must undergo an evaluation to help assess the costs and benefits of ITS. This document is one of 23 reports produced as part of the Southern California ITS Priority Corridor Showcase Program Evaluation to help planners and decision-makers at the federal, state and local levels make better-informed decisions regarding future ITS deployments.

In 1993, the U.S. Department of Transportation designated Southern California as one of four Priority Corridors in which Intelligent Transportation System (ITS) could have particular benefit. Southern California suffers from extreme traffic congestion, limited room for expanding transportation facilities, and above-average air pollution levels. The Southern California Priority Corridor is one of the most populated, traveled, and visited regions in the country, and consists of four adjoining regions:

- ▶ Los Angeles/Ventura
- ▶ Orange County
- ▶ San Diego County
- ▶ Inland Empire (San Bernardino and Riverside Counties).

The ITS Showcase Program is one of several programs that have been implemented in Southern California's Priority Corridor to help aid mobility and mitigate traffic congestion and its associated environmental impacts. The Showcase Program consists of 17 ITS projects that collectively form a corridor-wide intermodal transportation management and information network between Los Angeles, Orange County, San Diego, and the Inland Empire. Each Showcase project deploys a piece of this corridor-wide ITS network, including regional Advanced Traveler Information Systems (ATIS), regional Advanced Transportation

Management Systems (ATMS), and regional and interregional communications infrastructure. Eleven of the projects develop systems specific to a particular region, while the remaining six provide Corridor-wide services and inter-regional infrastructure. The projects are listed in the table below.

PROJECT	DESCRIPTION
<i>Corridor-wide Projects (6)</i>	
Scoping & Design (Showcase Kernel)	Designs and implements four “Kernel” servers that help manage the interregional Showcase Network. One Showcase Kernel will be installed in each of the four Southern California Caltrans Districts.
Strategic Planning/System Integration (CWSP)	Works to ensure that the systems of the Priority Corridor are interoperable and sustainable by developing a Configuration Management process.
CWATIS	Will provide Concept of Operations (ConOps), System Requirements and High Level Design for an Integrated Workstation (IWS).
CWATMS	Intended to build on the high-level planning efforts of the CWATIS project and develop the IWS.
Interregional Rideshare Database	Links San Diego's transit database with the transit database at Southern California Association of Governments (SCAG) in order to make SCAG's transit based Itinerary Planning tool more robust. The change will broaden the system's coverage from the LA/Orange County area to include San Diego as well.
CWCVO	Primarily intended for Commercial Vehicle Operations (CVO), the Showcase portion of CWCVO develops a server that fuses transportation data and provides an interface for partner Information Service Providers (ISPs) to access it for value-added redistribution.
<i>San Diego Regional Projects (5)</i>	
IMTMS/C	Optimizes and coordinates freeway and surface street operations with public and private transportation systems by integration of intermodal transportation information, and intermodal transportation management systems. Creates an ITS network for the San Diego region.
InterCAD	Improves incident management by linking the Computer-Aided Dispatch (CAD) systems of law enforcement and emergency response agencies in San Diego.
Mission Valley ATMIS	Optimizes traffic and transit operations in the vicinity of Qualcomm Stadium. The project coordinates with the IMTMC/S project.
Transit Management System (RAVL)	Installs Automatic Vehicle Locator (AVL) on San Diego Transit buses, as well as provides traffic signal priority at a number of downtown intersections.
Traffic Signal Integration (RAMS)	Integrates remote management of traffic signals across multiple jurisdictions in San Diego County.
<i>Los Angeles/Ventura Regional Projects (3)</i>	
IMAJINE	Creates an integrated network comprising four transportation management systems in Los Angeles County: Caltrans District 7 freeway management system, Los Angeles County Metropolitan Transit Authority (LACMTA) fixed route transit database, Access Services Inc. (ASI) demand-based paratransit services, and the City of South Gate arterial traffic signal control system.
Integrated Mode Shift	Provides transit-related traveler information in the form of trip itineraries. Also provides driving directions for automobile trips.
LA/Ventura ATIS	Implements an ATIS for LA County and some Ventura County commuters. In the future, the system may also bundle public data from various sources and make it available to ISPs.

<i>Orange County Regional Projects (2)</i>	
TravelTIP	Fuses data from multiple jurisdictions throughout Orange County and disseminates it to travelers via a website, a Highway Advisory Telephone (HAT) system, and three kiosks.
OCMDI	Extends the dissemination of traveler information in Orange County by providing data to private sector ISPs through a non-profit data broker. The data broker is called the Traveler Advisory News Network (TANN). TANN's goal is to be the single interface for traveler information in California. TANN establishes connections with public and private data sources, and then acts as a broker to provide data and/or information services to ISPs and other media outlets.
<i>Inland Empire Regional Projects (1)</i>	
Fontana-Ontario ATMIS	Built a Traffic Management Center (TMC) for the City of Fontana and a regional ATIS to help manage traffic from sources such as the Ontario Convention Center, Ontario Mills Mall, Ontario International Airport and the California Speedway in Fontana. Additionally, the project integrates the new TMC with the Showcase Network via the Inland Empire Kernel located at Caltrans District 8.

The Showcase Evaluation studied each of these 17 projects, and a project evaluation report has been prepared for each one.

This cross-cutting report summarizes the cumulative knowledge gained over all of the projects with regards to user acceptance and the usage of transportation data and information.

Evaluation Findings, Conclusions, and Recommendations

The extent of regional and inter-regional transportation and traveler information integration between agencies.

Although *inter*-regional integration (between regions) has not yet been achieved in the Southern California Priority Corridor, the Showcase Program projects have integrated a large number of agency systems within each region. The Los Angeles-Ventura and San Diego regions are each pursuing the development of their own regional ITS networks based on the architecture and standard interfaces developed by the Showcase Program.

In the Los Angeles-Ventura region, projects such as IMAJINE and LA-Ventura ATIS have helped integrate the following public agencies:

- ▶ Caltrans District 7
- ▶ Los Angeles County Department of Public Works (LACDPW)
- ▶ Los Angeles County Metropolitan Transportation Authority (MTA)
- ▶ Los Angeles (City) Department of Transportation (LADOT)
- ▶ City of South Gate

As a result of the seed planted by Showcase, the MTA is pushing forward with integration efforts in the Los Angeles region through its own (non-Showcase) Regional Integration of ITS project (RIITS). RIITS will help extend the network to additional agency partners in the Los Angeles region.

Similarly, SANDAG is utilizing the IMTMC/S project to construct an ITS network for the San Diego region. Agency partners include Caltrans District 11, SANDAG, City of San Diego, law enforcement, transit operators, and other local cities.

Because the systems in the four regions are all based on the same Showcase Architecture and interface standards, they are well positioned for eventual Corridor-wide integration.

The utilization of regional and inter-regional transportation and traveler information by agencies.

Many agencies – particularly those new to ITS – do not have the staff resources to manually operate a system on a full-time basis. As a result, the systems must be designed to run and perform the majority of their functions automatically. Those that require human intervention will tend to be underutilized.

The extent to which comprehensive and seamless traveler information was disseminated to – and used by – travelers, including the relative effectiveness of different dissemination technologies.

Several traveler information systems were installed throughout the Priority Corridor during the Showcase Program.

Data on the public's use of Los Angeles' Modeshift website is available for the system's four months of operation immediately following the completion of acceptance testing in February 2004. The average hits-per-month to Modeshift's traffic page from March 2004 to June 2004 was 149. Most of the visits are believed to be from individuals who were affiliated with the Modeshift project and who repeatedly visited Modeshift during the pre-acceptance and post-acceptance phase to assess functionality. In the month of May 2004, Modeshift averaged 2.86 unique visitors per day.

Similarly, data on the public's use of Orange County's TravelTIP traveler information website are available for the eight months following the system's media blitz on June 11, 2001. Use of the site was greatest immediately following the media blitz and decreased rapidly over the following months. The average hits-per-month to TravelTIP's Traffic page was 6,412 during the eight-month period, while the average hits-per-month to the Transit page was 504. The uneven distribution might be explained by two factors:

1. TravelTIP's transit page provides a list of links to existing local transit information web sites. Once identified, users can "bookmark" and access these sites directly without using TravelTIP.
2. The vast majority of Orange County commuters travel by automobile, which results in a greater demand for traffic information as compared to transit information.

Only summary data regarding the usage of TravelTIP's Highway Advisory Telephone (HAT) service is available at this time. The system received roughly 900 calls per month.

Online traveler information systems provide valuable information to the traveling public, but are generally underutilized unless actively marketed. As a result, macro-level analyses of historical traffic data show no before-and-after impacts to overall traffic conditions. 87% of the respondents to a TANN User Survey conducted by the Volpe Center reported that the system has saved them travel time, although highway statistics from Caltrans and California's Partnership for Advanced Transit and Highways (PATH) do not show clear evidence of any aggregate, network-wide savings or improvements.

Focus group interviews with traveler information users revealed that only a handful of users actively seek out traveler information sources without being prompted by marketing. This suggests that a small number of highly motivated commuters may actually benefit from the systems, but that this number of commuters is too small to noticeably impact overall traffic conditions. The evaluation suggests two recommendations in this regard:

- ▶ To achieve market penetration to an extent that will noticeably impact traffic conditions, agencies must continually and actively market their traveler information services.
- ▶ Outsource traveler information services to semi-private organizations such as the Traveler Advisory News Network (TANN). TANN acts as a data and information broker between public agencies and local media affiliates. In 2001, KABC Channel 7 in Los Angeles approached TANN to provide content for an on-air traffic report. Since then, TANN's traffic flowmap – produced from Caltrans data – has been available to an estimated 3 million daily viewers in the greater Los Angeles area.

1 Introduction

1.1 Purpose and Scope of this Report

As required by federal law, all ITS programs that receive federal funding must undergo an evaluation to help assess the costs and benefits of ITS. For the Showcase Program, this includes:

- ▶ 17 individual project evaluation reports that each address:
 - ✓ System Performance
 - ✓ Costs
 - ✓ Institutional Impacts
 - ✓ Transportation and Traveler Information Management
 - ✓ Transportation System Impacts

- ▶ 5 cross-cutting evaluation reports that aggregate data and lessons learned from across the individual projects for each of the five topic areas listed above.

- ▶ 1 Summary Evaluation Report to summarize the cumulative knowledge and lessons learned from the Showcase Program.

The complete collection of reports produced by the Showcase Evaluation is listed below.

Document Type/Title	Date	Document Number
17 Individual Project Evaluation Reports		
Corridor-wide ATIS Project Report	7/16/2003	65A0030/0033
Corridor-wide ATMS Project Report	10/28/2004	65A0030/0049
Corridor-wide CVO Project Report	10/29/2004	65A0030/0051
Corridor-wide Rideshare Project Report	11/1/2004	65A0030/0048
Corridor-wide Strategic Planning Project Report	10/29/2002	65A0030/0028
Fontana-Ontario ATMIS Project Report	11/30/2004	65A0030/0047
IMAJINE Project Report	3/17/2003	65A0030/0029
IMTMC Project Report	11/24/2004	65A0030/0054
InterCAD Project Report	4/2/2003	65A0030/0030
Kernel Project Report	5/30/2003	65A0030/0031
LA ATIS Project Report	3/15/2004	65A0030/0038
Mission Valley ATMIS Project Report	11/12/2004	65A0030/0050
Mode Shift Project Report	10/28/2004	65A0030/0052
OCMDI Project Report	2/20/2004	65A0030/0040
Traffic Signal Integration (RAMS) Project Report	11/23/2004	65A0030/0055
Transit Mgt System (RAVL) Project Report	11/30/2004	65A0030/0053
TravelTIP Project Report	2/16/2004	65A0030/0036
5 Cross-Cutting Evaluation Reports		
System Performance Cross-Cutting Report	11/30/2004	65A0030/0056
Costs Cross-Cutting Report	11/30/2004	65A0030/0057
Institutional Impacts Cross-Cutting Report	11/30/2004	65A0030/0058
Information Management Cross-Cutting Report	11/30/2004	65A0030/0059
Transportation System Impacts Cross-Cutting Report	11/30/2004	65A0030/0060
Final Summary Evaluation Report		
Showcase Program Evaluation Summary Report	11/30/2004	65A0030/0061

The Transportation and Traveler Information Management Evaluation assesses the extent to which the Showcase Program enhances the work of transportation system operators and provides useful traveler information to the public. The evaluation identifies the most often-used information items, assesses the system’s impact to inter- and intra-agency communications, and examines the level-of-use of traveler information by the general public.

The Transportation and Traveler Information Management Cross-cutting Evaluation aggregates and summarizes information from the individual Showcase projects that have been completed to-date. More specifically, this evaluation aggregates and summarizes information from across the individual Showcase projects with specific regards to Evaluation Goal 4, which includes the following supporting evaluation objectives:

Objective 4.1 – Assess the extent of regional and interregional transportation and traveler information integration between agencies.

Objective 4.2 – Assess the utilization of regional and interregional transportation and traveler information by agencies.

Objective 4.3 – Assess the extent to which comprehensive and seamless traveler information was disseminated to – and used by – travelers, including the relative effectiveness of different dissemination technologies.

These objectives have been refined to the set of evaluation measures and data elements found in Exhibit 1.

Exhibit 1 – Basis of the Transportation and Traveler Information Management Evaluation

Objective 4.1 Assess the extent of regional and interregional transportation and traveler information integration between agencies

Measures	Supporting Data
4.1.1 Change in number of information exchanges	<ul style="list-style-type: none"> • Change in the number of information exchanges in the Showcase Program projects
4.1.2 Communications improvements, based on information integration, as perceived by agency personnel	<ul style="list-style-type: none"> • User perceptions of timeliness, quantity, and quality of showcase related data
4.1.3 Number of new ITS systems architecture data flows implemented	<ul style="list-style-type: none"> • Number of new flows implemented

Objective 4.2 Assess the utilization of regional and interregional transportation and traveler information by agencies

Measures	Supporting Data
4.2.1 Change in transportation agency performance due to utilization of regional and interregional transportation and traveler information, as perceived by agency personnel	<ul style="list-style-type: none"> • User perceptions of usefulness of the information as defined by the frequency of use, and compared with frequency of use of old system

Objective 4.3 Assess the extent to which comprehensive and seamless traveler information was disseminated to – and used by – travelers, including the relative effectiveness of different dissemination technologies

Measures	Supporting Data
4.3.1 Indications of seamless access and favorable response by users	<ul style="list-style-type: none"> • User acceptance of system
4.3.2 Indications of ease of access by travelers	<ul style="list-style-type: none"> • Perceived ease-of-use of the system

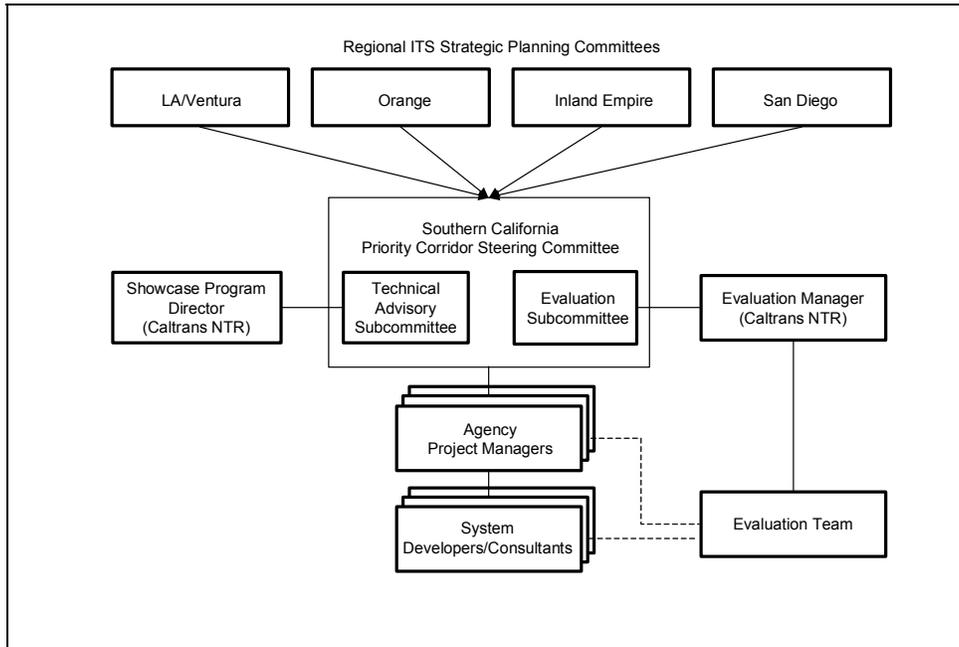
1.2 Evaluation Design and Approach

The Showcase Program’s Evaluation Design is based on a set of evaluation Goals and supporting Objectives and Measures that were developed by the Evaluation Team in partnership with federal, state and local stakeholders (shown in Exhibit 2), and documented in the “Showcase Program Evaluation Approach” in 1998. Each individual Showcase project is evaluated based on an applicable subset of these goals, objectives, and measures in order to help ensure that summary evaluation results can be aggregated from across the multiple Showcase project evaluations. The Showcase Program’s five evaluation Goals include:

- ▶ Evaluate System Performance
- ▶ Evaluate Costs
- ▶ Evaluate Institutional Issues and Impact
- ▶ Evaluate the Use and Management of Transportation/Traveler Information (i.e., Evaluate User Acceptance)
- ▶ Evaluate Transportation System Impacts.

The evaluation is responsive to the needs and suggestions of the Priority Corridor Steering Committee and Evaluation Subcommittee. As shown in Exhibit 2, both groups are comprised of stakeholders from the federal, state, and local levels.

Exhibit 2 – Management Structure and Organization of the Showcase Program



The Steering Committee’s member agencies reflect wide representation from the Southern California Priority Corridor in terms of federal and state highway agencies, public safety, cities and counties, transit, air quality and regional planning entities, including:

- ▶ California Highway Patrol (CHP)
- ▶ Caltrans, Division of Traffic Operations (headquarters)*
- ▶ Caltrans, District 7*
- ▶ Caltrans, District 8*
- ▶ Caltrans, District 11*
- ▶ Caltrans, District 12
- ▶ City of Irvine*
- ▶ City of Los Angeles Department of Transportation (LADOT)
- ▶ City of San Diego
- ▶ Federal Highway Administration (FHWA)*
- ▶ Federal Transit Administration (FTA)
- ▶ Los Angeles County Metropolitan Transportation Authority (MTA)
- ▶ Orange County Transportation Authority (OCTA)
- ▶ Riverside County Transportation Commission (RCTC)
- ▶ San Bernardino Association of Governments (SANBAG)
- ▶ San Diego Association of Governments (SANDAG)
- ▶ South Coast Air Quality Management District (SCAQMD)
- ▶ SCAG

* Indicates an Evaluation Subcommittee member

The Evaluation Subcommittee consists of Caltrans' Evaluation Contract Manager and representatives from FHWA, Caltrans headquarters, and each of the four regions of the Priority Corridor. The Evaluation Subcommittee reviews evaluation issues and products. All draft evaluation documents are submitted to the Evaluation Subcommittee for review and comment before being finalized.

1.3 Privacy Considerations

Some of the information acquired in the interview and discussion process could be considered sensitive and has been characterized in this report without attribution. The Evaluation Team has taken precautions to safeguard responses and maintain their confidentiality. Wherever possible, interview responses have been aggregated during analysis such that individual responses have become part of a larger aggregate response. The names of individuals and directly attributable quotes have not been used in this document unless the person has reviewed and expressly consented to its use.

1.4 Constraints & Assumptions

The projects that were used to develop this report include:

- ▶ CW Rideshare
- ▶ Fontana-Ontario ATMIS
- ▶ IMAJINE
- ▶ InterCAD
- ▶ Kernel
- ▶ LA/Ventura ATIS
- ▶ Mission Valley ATMIS
- ▶ Mode Shift
- ▶ OCMDI
- ▶ TravelTIP

The following projects were not used to develop this report either because they are not yet complete, or were not designed to distribute transportation data or traveler information.

- ▶ CWATIS
- ▶ CWATMS
- ▶ CWCVO
- ▶ CWSPP
- ▶ IMTMS/C
- ▶ RAMS
- ▶ RAVL

1.5 Background

1.5.1 The Southern California Priority Corridor

In 1993, the U.S. Department of Transportation designated Southern California as one of four Priority Corridors in which Intelligent Transportation Systems (ITS) could have particular benefit. The Southern California Priority Corridor, illustrated in Exhibit 3, is one of the most

populated, most traveled, and most visited regions in the country. Roughly two-thirds of the state’s population – about 20 million people – resides in or around the Southern California Priority Corridor. It suffers from extreme traffic congestion, limited room for expanding transportation facilities, and above-average air pollution levels.

The Southern California Priority Corridor consists of four distinct regions that correspond with the four Southern California Caltrans districts:

- ▶ Los Angeles/Ventura (Caltrans District 7)
- ▶ Orange County (Caltrans District 12)
- ▶ San Diego (Caltrans District 11)
- ▶ Inland Empire (Caltrans District 8)

Exhibit 3 – The Southern California Priority Corridor and Vicinity

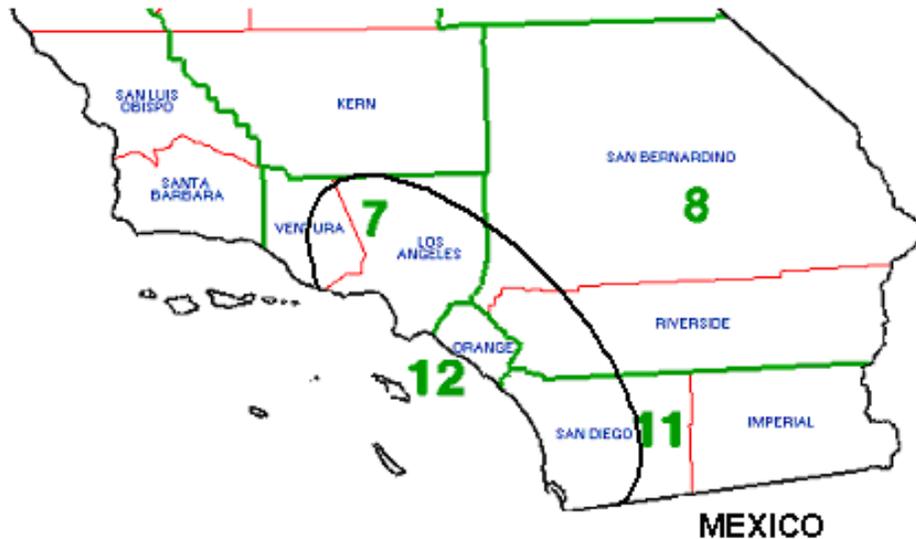


Exhibit 4 – Population and Number of Registered Vehicles by County

County	Population ⁱ (as of 1/1/2003)	Registered Vehicles ^{ii,*} (as of 12/31/2002)	Caltrans District
Los Angeles	10 million	6.7 million	7
Orange	3 million	2.2 million	12
San Diego	3 million	2.3 million	11
San Bernardino	1.8 million	1.3 million	8
Riverside	1.7 million	1.2 million	8
Ventura	0.8 million	0.7 million	7
Imperial	0.15 million	0.1 million	11
Total	20.5 million	14.5 million	

*Includes autos, trucks, and motorcycles. Trailers not included.

1.5.2 The Southern California Priority Corridor's ITS Showcase Program

The ITS Showcase Program is one of several programs that have been implemented in Southern California's Priority Corridor to help aid mobility and mitigate traffic congestion and its associated environmental impacts.

The Southern California ITS Showcase Program consists of 17 individual ITS projects that collectively form a corridor-wide intermodal transportation management and information network between Los Angeles, Orange County, San Diego, and the Inland Empire. Eleven of the projects are regional in nature, while the remaining six are corridor-wide in scope. The 17 Showcase projects are listed by region in Exhibit 5. Eight of the projects were fast-tracked and designated "Early Start" projects because of their importance as base infrastructure and potential to act as role models for the rest of the Showcase Program.

Exhibit 5 – The 17 Showcase Projects and their Status as of October 2004

Project	RFP Issued	Contractor Selected	Contract Executed	Project Underway	Project Complete
Corridor-wide					
Scoping & High Level Design (Kernel)*	✓	✓	✓	✓	✓
Strategic Planning/Systems Integration	✓	✓	✓	✓	✓
CVO					
ATIS	✓	✓	✓	✓	✓
ATMS					
Rideshare	✓	✓	✓	✓	✓
Los Angeles Region					
IMAJINE*	✓	✓	✓	✓	✓
Mode Shift*	✓	✓	✓	✓	✓
LA ATIS	✓	✓	✓	✓	✓
Inland Empire Region					
Fontana-Ontario ATMIS	✓	✓	✓	✓	✓
Orange County Region					
TravelTIP*	✓	✓	✓	✓	✓
OCMDI	✓	✓	✓	✓	✓
San Diego Region					
InterCAD*	✓	✓	✓	✓	✓
Mission Valley ATMIS*	✓	✓	✓	✓	✓
IMTMS/C (ATMSi)*	✓	✓	✓	✓	
Traffic Signal Integration (RAMS)	✓	✓	✓	✓	
Transit Management System*	✓	✓	✓	✓	

* Indicates an "Early Start" project.

☐ CWCVO and CWATMS do not yet have approved workplans.

Exhibit 6 - Projects Contributing to Cross-Cutting Evaluation

ITS Project	Cross-Cutting Evaluation/Objectives																		
	System Performance			Cost		Institutional Impacts & Issues					Transportation & Traveler Info Mgt.			Transportation System Impacts					
	System Development Process	System Reliability	Showcase Program Integration	Estimate Costs Associated w/Program's Philosophy	Estimate O&M Costs	Impact on O&M Procedures & Policies	Impact on Staffing/Skill Levels and Training	Impacts of Emerging Standards	Participation by Private Sector in Mgmt of Trans and Traveler Info	Impact on Local Planning Process, Policy Dev, & Mainstreaming of ITS Projects	Utilization of Regional/Interregional Information Integration	Utilization of Regional/Interregional Information & Traveler Information	Extent of Traveler Information Disseminated and Used by Travelers	Mode Shift & Intermodal Impacts	Safety Related Impacts	Impact on Traffic Congestion	Environmental Impacts	Impact on Transit Operations	Impact on Commercial Vehicle Operations
1.1	1.2	1.3	2.1	2.2	3.1	3.2	3.3	3.4	3.5	4.1	4.2	4.3	5.1	5.2	5.3	5.4	5.5	5.6	
CWATIS				X															
CWATMS				X															
CWCVO				X															
CW Rideshare	X			X						X	X								
CWSPP				X		X			X										
Fontana-Ontario	X	X	X	X	X	X	X		X		X	X	X						
IMAJINE	X		X	X	X		X	X			X	X							
IMTMC				X							X	X							
InterCAD	X			X	X							X							
Kernel	X		X	X	X			X			X								
LA/Ventura ATIS	X			X	X			X			X		X						
Mission Valley ATIS	X			X	X	X			X	X	X	X							
Mode Shift	X			X	X							X							
OCMDI	X	X		X	X				X	X		X							
RAMS				X															
RAVL				X															
TravelTIP	X		X	X	X	X	X	X			X	X	X	X	X			X	

2 Evaluation Findings

This chapter provides the Showcase Program’s aggregated findings regarding user acceptance and the usage of transportation data and traveler information. The findings are broken out by evaluation objective.

Objective 4.1 – Extent of Regional and Inter-regional Transportation and Traveler Information Integration between Agencies

The table below highlights the extent of regional and inter-regional information integration that was observed during the Showcase Program. Each of these is explained in more detail throughout this section.

Project	Observation	Lesson Learned
Corridor-wide Rideshare	Integrated San Diego transit data with the TranStar database	In the absence of O&M funding, these systems must be automated in order to remain operational.
Fontana-Ontario ATMIS	Integrated Caltrans District 8 with City of Fontana	Was not able to integrate with other Showcase systems due to perceived inadequacy of Showcase interface documentation.
IMAJINE	Integrated Caltrans District 7 TMC, MTA, City of South Gate, and Access Services Inc.	IMAJINE was just the first step towards the region’s goal to develop an ITS network. Software development is an ongoing process.
IMTMC/S	In the process of integrating Caltrans District 11 with several local entities within San Diego County	This task order contract plans, coordinates and begins implementation of San Diego’s regional ITS network. The Showcase Program might have benefited from utilizing a similar approach and hiring a Program-wide system integrator.
Kernel	Provided the foundation for the inter-regional or Corridor-wide “backbone”	The system was ultimately overcome by technology advancements. Agencies must budget for periodic system upgrades.
LA-Ventura ATIS	Additionally integrated LADOT and LACDPW onto the “IMAJINE” network, and refined the IMAJINE software	Software development is an ongoing, iterative process that is not limited to a single project.
Mission Valley ATMIS	Integrated Caltrans District 11 TMC with City of San Diego and Qualcomm Stadium Event Management Center (EMC)	Mission Valley ATMIS was just the first step towards the region’s goal to develop an ITS network. Software development is an ongoing process.
TravelTIP	Integrated Caltrans District 12, OCTA, and several local cities within Orange County	O&M costs can prohibit smaller agencies from participating in ITS unless larger agencies are willing to accept responsibility and subsidize these costs.

Although *inter*-regional integration (between regions) has not yet been achieved in the Southern California Priority Corridor, Showcase Program projects have integrated a large number of agency systems on an *intra*-regional (within region) basis. The accomplishments of each region are discussed below.

Los Angeles-Ventura Region

In the Los Angeles-Ventura region, projects such as IMAJINE and LA-Ventura ATIS helped bring together information from Caltrans District 7, City of Los Angeles, Los Angeles County MTA, Los Angeles County Department of Public Works, City of South Gate, and Access Services Incorporated (ASI, a paratransit provider). Prior to IMAJINE, there was no interagency integration of transportation management systems in Los Angeles County. IMAJINE laid the foundation for the expanded exchange and use of transportation data among the LA-Ventura regional partners. To facilitate data exchange among the partner agencies, a Frame Relay Network has been implemented as the communications backbone for the region.

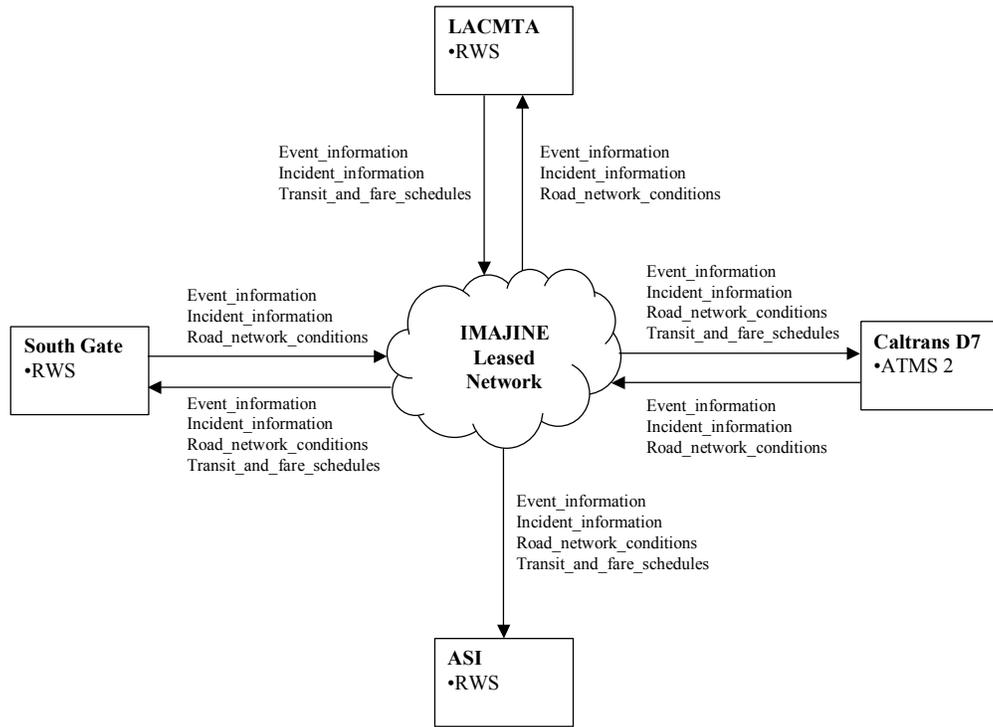
Exhibit 7 is a simple depiction of the ITS architecture flows implemented by IMAJINE (see definition of ‘architecture flow’ in the National ITS Architecture).

Road_network_conditions consisting of a real-time color-coded traffic flow map, CCTV images, and current CMS messages are made available to the partner agencies.

Incident_information provided by Caltrans District 7 is utilized by the City of South Gate to select and implement alternate traffic signal timing plans (primarily in response to freeway incidents and the resulting traffic diverting onto local arterials). Static

Transit_and_fare_schedules from MTA are made available to the partner agencies, and primarily utilized by ASI to coordinate service and better advise patrons. The partner agencies (except ASI) also have the capability to manually enter and share textual *Event_information*.

Exhibit 7 – ITS Architecture Flows Implemented by IMAJINE



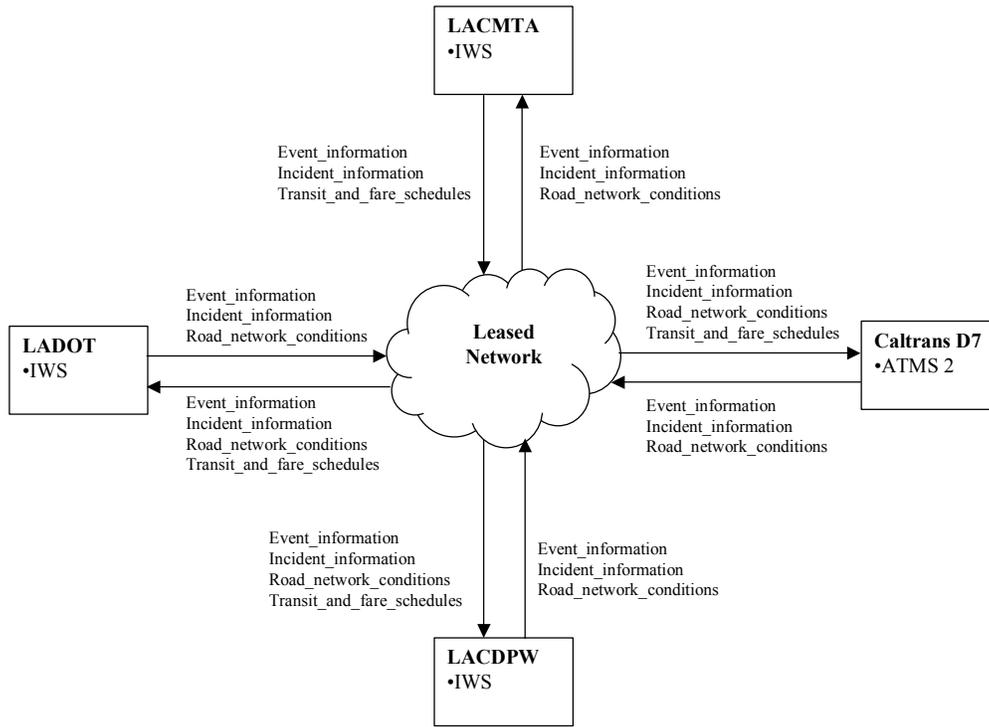
The four IMAJINE project partners in Los Angeles County are the first agencies to integrate with Kernel version 1.0.

The Kernel is an enabling technology that provides “common services,” as well as an inter-regional communications “backbone.” As of the writing of this report, only the four IMAJINE project partners (MTA, Access Services Inc., City of South Gate, and Caltrans District 7) are integrated with the Kernel version 1.0 and the Showcase Network. While the Kernel has been proven effective for meeting the data sharing needs of these agencies, it was designed with ample capacity to support the needs of the entire Priority Corridor.

LA-Ventura ATIS continued the integration efforts of the IMAJINE project, and was the next step in the region’s ITS evolution.

The LA-Ventura ATIS project built upon the IMAJINE system by adding functionality to the workstation software and integrating additional agencies to the regional network, including LADOT and LACDPW. The ITS Architecture Flows implemented by the LA-Ventura ATIS project are shown in Exhibit 8.

Exhibit 8 – ITS Architecture Flows Implemented by LA/Ventura ATIS



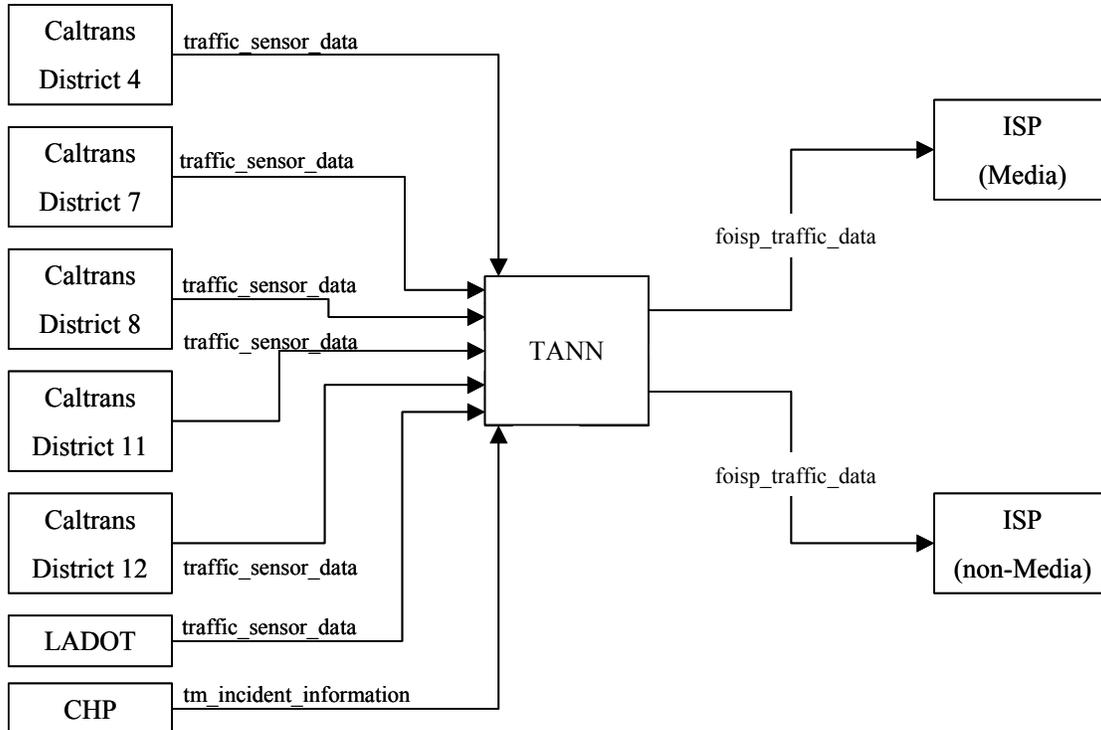
The Traveler Advisory News Network (TANN) was created through a public-private partnership with SCAG, and participated in OCTA’s Orange County Model Deployment Initiative (OCMDI).

TANN’s initial business model was to act as the single interface and data broker between public agencies and private sector Information Service Providers (ISPs). This would free agencies from having to manage multiple relationships and systems for providing transportation data, as well as provide ISPs a single interface from which to obtain the data for value-added processing and resale. However, as the traveler information market has evolved, several ISPs have gone out of business, and TANN has developed business relationships with more traditional media outlets. TANN’s business model now includes its original “data publishing” service, as well as a “map publishing” service which delivers real-time traffic flowmaps to local media affiliates for use on their websites and in their television news broadcasts.

Although TANN does not utilize the Showcase Network, it uses the Internet and other leased services to implement its ITS Architecture. Exhibit 8 is a simple depiction of the ITS data flows implemented by TANN in California (see definition of ‘data flow’ in the National ITS Architecture). TANN obtains similar data from other markets as well, including Seattle, Phoenix, Atlanta, and others. Traffic_sensor_data from several Caltrans districts and the City of Los Angeles include inputs from traffic sensors (primarily loop detectors) around the road network. Tm_incident_information contains

filtered information regarding current incidents that is suitable for distribution and use by media systems. Foisp_traffic_data indicates a set of traffic data (including incident information) that has been created through fusion of available data sources and redistributed for use by other ISPs. In this case, foisp_traffic_data is being used to represent both TANN’s processed “map publishing” and unprocessed “data publishing” data flows.

Exhibit 9 – ITS Data Flows Implemented by TANN



The Corridor-wide Rideshare project extended the reach of SCAG’s TranStar transit database to include San Diego and cover virtually all of Southern California.

Prior to Rideshare, there was no coordinated interagency effort to import transit data from San Diego into the SCAG transit database, but Rideshare demonstrated that it is feasible to import transit data files from transit agencies outside the SCAG region.

During the Rideshare demonstration, the connection between TranStar and San Diego (specifically SANDAG) was via the Internet and did not use Showcase interfaces, although the system might be modified in the future to fit the Showcase Architecture.

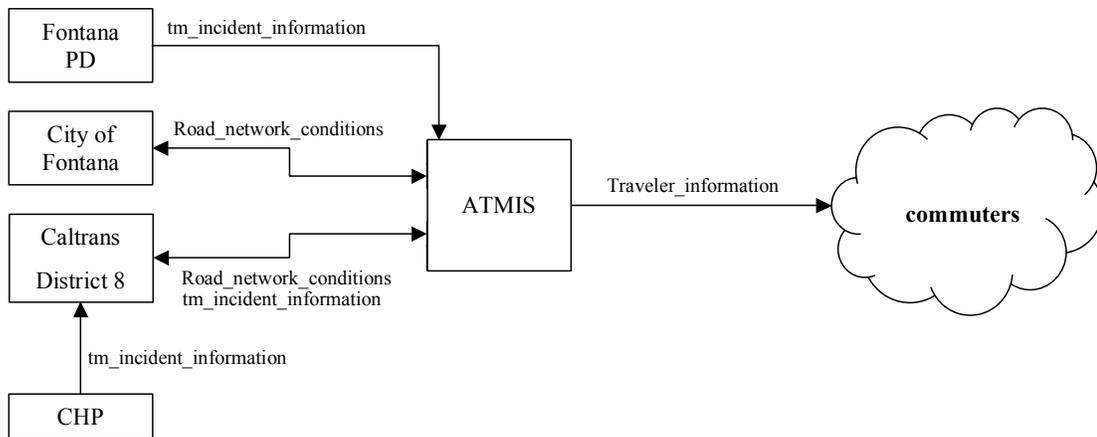
Since the discontinuation of the Rideshare Services program at SCAG, The Partnership (a.k.a. TANN) acquired the TranStar trip itinerary planner and the RTDIE database and is responsible for monitoring the performance of the hardware/software and providing service, when necessary.

Inland Empire

Although the Fontana-Ontario ATMIS is not integrated with the Showcase Network, it uses the Internet and other leased services to connect regional partners.

Exhibit 10 is a simple depiction of the ITS data flows implemented by the Fontana-Ontario ATMIS (see definition of ‘data flow’ in the National ITS Architecture). *Traffic_sensor_data* from Caltrans District 8 and the City of Fontana include inputs from roadway traffic sensors (primarily loop detectors). *Tm_incident_information* is passed to the system from the California Highway patrol (CHP) through Caltrans District 8, and contains filtered information regarding current incidents that is suitable for distribution and use by media systems.

Exhibit 10 – ITS Data Flows Implemented by Fontana-Ontario ATMIS



The Fontana Police Department has an ATMIS workstation in their dispatch facility, and are able to view and control traffic cameras. Fontana PD reports that it likes having the video available to verify calls regarding traffic incidents and to help estimate the level of response necessary.

Orange County Region

Prior to TravelTIP, there was no interagency integration of transportation management systems in Orange County. TravelTIP lays the foundation for the expanded exchange and use of transportation data among the regional partners.

Prior to TravelTIP, there was no interagency integration of transportation management systems in Orange County. Although TravelTIP is primarily designed to be a regional traveler information system, it lays the foundation for the expanded exchange and use of data among the regional partners.

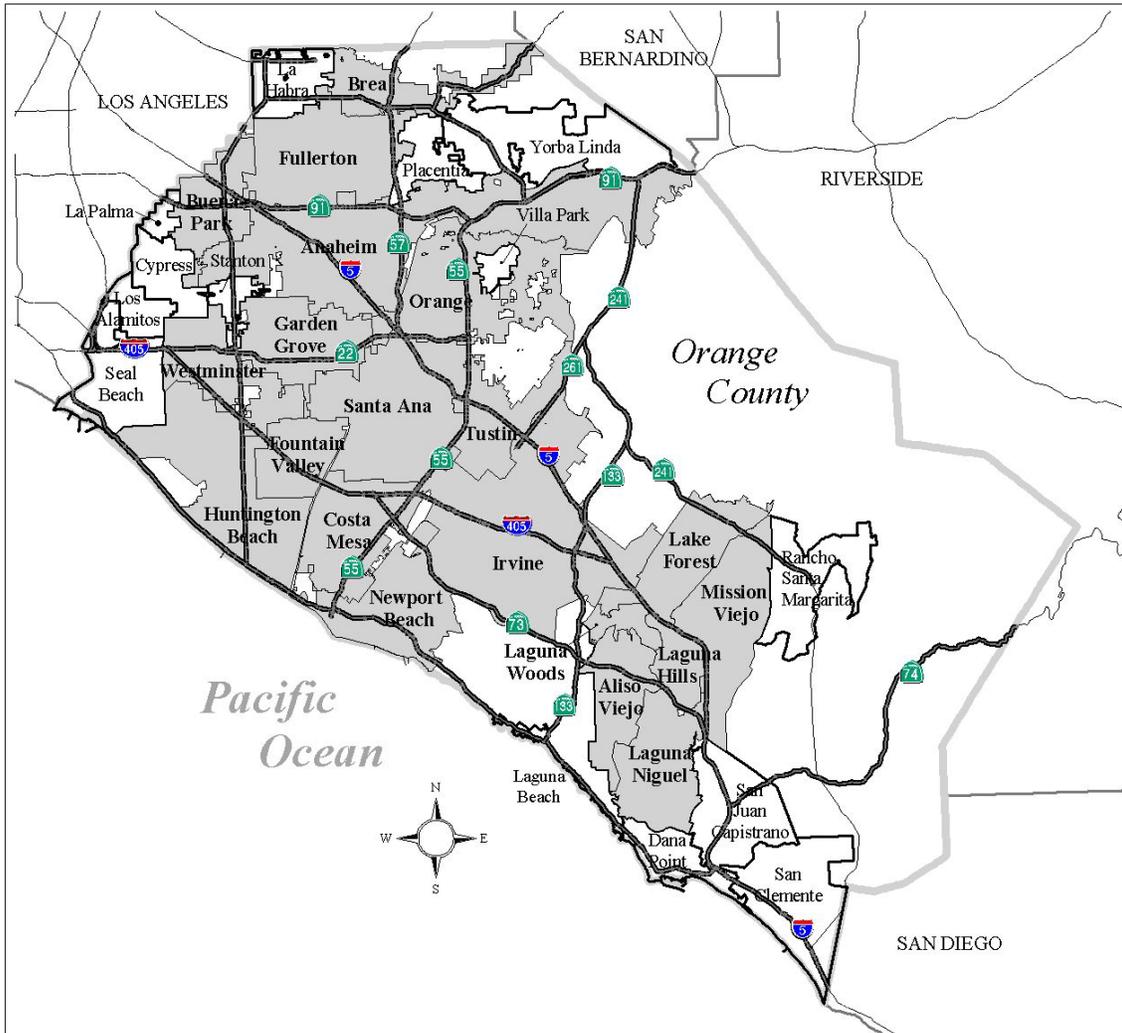
TravelTIP worked to integrate Caltrans District 12 and 16 other local transportation agencies to obtain and exchange real-time traffic sensor data and advisories. TravelTIP's partner agencies include:

- ▶ Anaheim
- ▶ Brea
- ▶ Buena Park
- ▶ Caltrans District 12
- ▶ Costa Mesa
- ▶ Fountain Valley
- ▶ Fullerton
- ▶ Garden Grove
- ▶ Huntington Beach
- ▶ Irvine
- ▶ Mission Viejo
- ▶ Newport Beach
- ▶ OCTA
- ▶ Orange (city)
- ▶ Orange (county)
- ▶ Santa Ana
- ▶ Tustin
- ▶ Westminster

The County of Orange provides data from the unincorporated areas of the county, as well as for the cities of Aliso Viejo, Laguna Beach, Laguna Hills, Laguna Niguel, Laguna Woods, and Lake Forest.

As Exhibit 11 shows, these partner agencies (shaded) geographically make up the majority of Orange County and provide TravelTIP with extensive coverage of the county's highways and arterials.

Exhibit 11 – Geographic Coverage of Orange County’s TravelTIP System

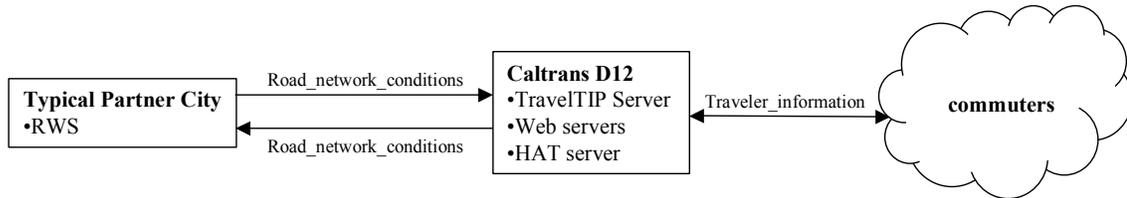


These agencies also represent a diverse cross-section in terms of previous ITS experience and the amount of ITS infrastructure they had in place prior to TravelTIP. Anaheim, Caltrans District 12, Irvine, and Santa Ana have been active in ITS for many years and had various legacy ITS in place. The remaining agencies did not. This diversity in legacy systems added a layer of complexity (and cost) to the TravelTIP implementation in that some customization was required for each partner in order to successfully integrate all of the systems.

Exhibit 11 is a simple depiction of the ITS architecture flows implemented by TravelTIP. Although only the “typical partner cities” are represented, additional data of a similar nature is also exchanged with the TMC-equipped agencies of Anaheim, Caltrans District 12, Irvine, and Santa Ana.

Road_network_conditions consisting of VDS data and textual event information are exchanged between the partner agencies and the TravelTIP server. Processed information (*traveler_information*) is disseminated to the traveling public via the TravelTIP website, HAT, and four strategically placed kiosks.

Exhibit 12 – ITS Architecture Flows Implemented by TravelTIP



San Diego Region

The Mission Valley ATMIS has demonstrated the potential for regional transportation information integration between project partners and future agencies that choose to integrate with the IMTMS network through the use of the Regional Integrated Workstation (RIWS).

This project demonstrated the integration of three agency partners (San Diego City, Caltrans District 11, and the Qualcomm Stadium Event Management Center) on a common network, sharing a common interface, for the purpose of sharing transportation management information between them. This project went one step further in that it also developed protocols for and implemented shared field device control capability between the project partners. The San Diego region’s vision includes the integration of nearly all transportation management agencies on the region’s IMTMS network sharing transportation information and developing a regional protocol for shared control of field devices. Thus, the vision of the Mission Valley project, and the San Diego region, is essentially a microcosm of the vision of the Southern California Priority Corridor Showcase Program. Regional integration in San Diego has become a first step toward inter-regional integration in Southern California. The Mission Valley project has provided a demonstration of the Showcase-intended capabilities within a regional implementation.

Objective 4.2 – Utilization of Regional and Inter-regional Transportation and Traveler Information by Agencies

The table below highlights the utilization of regional and inter-regional information by agencies during the Showcase Program. Each of these is explained in more detail throughout this section.

Project	Observation	Lesson Learned
Corridor-wide Rideshare	System was demonstrated, but later discontinued due to insufficient O&M funds.	Agencies should estimate an ITS project’s O&M cost requirements up front as part of a ConOps. This may help reveal additional functional requirements of the system.
Fontana-Ontario ATMIS	Fontana Police Dispatch adjoins the TMC facility. After hours, the ATMIS is monitored by Fontana PD.	Fontana police use the system’s CCTV cameras to identify and confirm the location and severity of reported incidents.
IMAJINE	MTA’s IMAJINE workstation was installed in Planning Department as a demo.	Many agencies still view ITS as experimental. They are willing to build a system to see what it can do, but it must prove its worth in order to receive ongoing O&M funding.
IMTMC/S	Initial deployment of Regional Integrated Workstation in Caltrans TMC as a demo.	Many agencies still view ITS as experimental. They are willing to build a system to see what it can do, but it must prove its worth in order to receive ongoing O&M funding.
InterCAD	System was demonstrated but not put into day-to-day operation.	Many agencies still view ITS as experimental. They are willing to build a system to see what it can do, but it must prove its worth in order to receive ongoing O&M funding.
Mission Valley ATMIS	Initial use of the system has been light and periodic.	The project developed the ETMOP to provide guidance on the proper use of the system. This should help encourage use and limit liability.
TravelTIP	Agencies input advisories but do not use it to monitor traffic conditions in surrounding jurisdictions.	Many agencies find out about incidents through incoming cellular calls from motorists.

Los Angeles-Ventura Region

MTA Bus Operations wants an IMAJINE workstation because they anticipate real performance benefits.

MTA’s IMAJINE workstation was installed in the Planning Department to demonstrate its capabilities. Now that MTA Bus Operations staff have had an opportunity to visit and view the workstation, they indicate that they want one of their own in order to obtain and use the Caltrans data that is provided by the system.

MTA's Bus Operations reports that this information could be used to detour buses around incidents and events (e.g., road maintenance, parades) to maintain timely service. This could also help stage buses to pick up passengers at stops downstream from the incident or event location. In the future, MTA Bus Operations would like to disseminate this incident and event information to passengers.

This case exemplifies that many agencies still view ITS projects as experiments and will commit to the new systems only after the systems have shown themselves to be of value during a demonstration period.

Local TMCs report that access to highway, arterial and traffic advisory information will enable local jurisdictions to be more responsive in adapting signal timing and other operational strategies to real-time traffic events and conditions.

The scalability of the LA-Ventura ATIS system, which will allow additional local TMCs throughout Los Angeles and Ventura counties to join the network in the future – at no additional cost – will enhance the long-term value of the system as the traffic information coverage area increases. According to traffic managers interviewed, the benefit of LA-Ventura ATIS is the regional integration of traffic information, which will enable local jurisdictions to adapt traffic operations to real-time highway information. This will place more pressure to ensure effective communications between TMCs and the owner/operator and among local jurisdictions.

TranStar is a valuable source of online traveler information, used regularly by end users and public agencies for transit trip itinerary purposes.

TranStar currently receives transit data from all major transit carriers in Los Angeles, Ventura, Orange and Riverside counties, including Metrolink and Amtrak. The Rideshare project successfully demonstrated the process of importing updated transit data from the San Diego region, but this process currently must be performed manually, which is costly and time-consuming. As a result, SANDAG discontinued the operation and does not provide San Diego transit data to TranStar.

However, because TranStar is the only online transit trip itinerary system of its kind in Southern California, it has recently been identified as a critical transit source database in the development of advanced multimodal travel planning services. In February 2004, Caltrans District 7 completed acceptance testing of the Modeshift project, a trip itinerary planning system that enables the end user to obtain and compare real-time information about the estimated travel time and cost of a given trip when taken via either automobile or transit.

Inland Empire Region

Fontana's partner agencies, such as the Fontana Police Department report that they are still learning the benefits of the system.

Traffic management is provided by the Fontana TMC Monday through Friday, 9am-5pm. Outside these hours, traffic management functions are handled remotely from the Fontana Police Dispatch Center by the Fontana Police Department. In an interview, the Fontana PD Dispatch Center indicated that it was still getting accustomed to the new system and experimenting with its usefulness. The ability to view incidents on CCTV in order to assess severity and respond appropriately seemed to be a key benefit.

Orange County Region

TravelTIP's partner agencies report that they do not utilize the system at this time.

Those agencies that have functioning workstations report that they rarely, if ever, use TravelTIP to monitor traffic conditions or input advisories because they are typically under-staffed and usually have higher-priority issues to handle. The systems are usually left to automatically process traffic data (volumes, occupancies, speeds) for the website's color-coded traffic flowmap. Some agencies have addressed the staffing issue by assigning the duty of inputting advisories to student interns, under the oversight of a full-time traffic engineer.

Public agencies report that the TANN website is a useful tool.

TANN obtains its raw data with very little if any disruption or demands on agency operations. In fact, TANN obtains much of its data by "scrubbing" existing public traffic websites, which is undetectable by the host agencies.

One Caltrans TMC operator reports that he uses TANN to obtain incident information from other jurisdictions. Speaking specifically about TANN's traffic website he reported, "We really don't have ATMS tied in to our adjacent Districts yet, so the Internet maps are useful. I really just like the way it looks, and the way it works."

San Diego Region

InterCAD is an Incident Management system project, and included agency partners from Transportation as well as Law Enforcement/Public Safety/First Response.

Overall, the introduction of InterCAD as a means of communicating transportation information was well received by agency management and staff. Prior to the installation of the InterCAD system in participating agency operations centers, various types of regional and interregional transportation information were exchanged by communicating agencies based on need, availability, and each agency's information dissemination policy.

During the period of the Mission Valley ATMIS evaluation, the utilization of transportation information by the personnel at the City's TOC, Qualcomm Stadium EMC, and Caltrans District 11 was light and periodic.

CMS system usage logs indicate the frequency of use of the system and the types of messages that were displayed. Most of the system usage during the evaluation period was related to system testing, with a minor number of uses related to stadium events, or a special traffic condition. Communication between the TOC and the Qualcomm Stadium EMC were also hindered during the evaluation period by fiber optic cable damage and repairs, which limited the use and testing of the system in the vicinity of the stadium. The TOC manager and Caltrans representatives performed weekly tests of the system where messages were displayed and changed on CMSs and CCTV images were viewed and controlled by each agency. Logs of CMS usage indicated the type of messages displayed and when tests were conducted. A summary of the CMS usage during the evaluation period in 2003 is provided in Exhibit 13. This data has been provided to indicate the light and periodic level of usage during the evaluation period.

Exhibit 13 – Mission Valley ATMIS CMS Usage Summary

Month	Number of Uses	Display Type %
June	15	71% Test Messages; 23% Blank Default; 6% Advisory Messages
July	77	51% Test Messages; 45% Blank Default; 5% Advisory Message
August	16	94% Blank Default; 6% Test Messages
September	6	50% Test Messages; 50% Blank Default
October	0	No usage logged for this month
November	15	50% Test Messages; 50% Blank Default
December	15	55% Test Messages; 45% Blank Default

Objective 4.3 – Extent to which Comprehensive and Seamless Traveler Information was Disseminated to – and Used by – Travelers, Including the Relative Effectiveness of Different Dissemination Technologies

The table below highlights the extent to which traveler information was disseminated to – and used by – travelers during the Showcase Program. Each of these is explained in more detail throughout this section.

Project	Observation	Lesson Learned
Fontana-Ontario ATMIS	Very little data exists to ascertain the extent of the public’s use of the system.	
LA-Ventura ATIS	This site has not yet been made available to the public.	
Mission Valley ATMIS	Information provided via CMS and HAR, but operation is sporadic.	
Modeshift	The site receives modest usage.	Needs more marketing.
OCMDI	Provided seed money for TANN, which reaches many travelers but does not make a profit.	ATIS and software development is better handled by the private sector.
TravelTIP	Usage peaked early, then dropped off due to sporadic operation.	

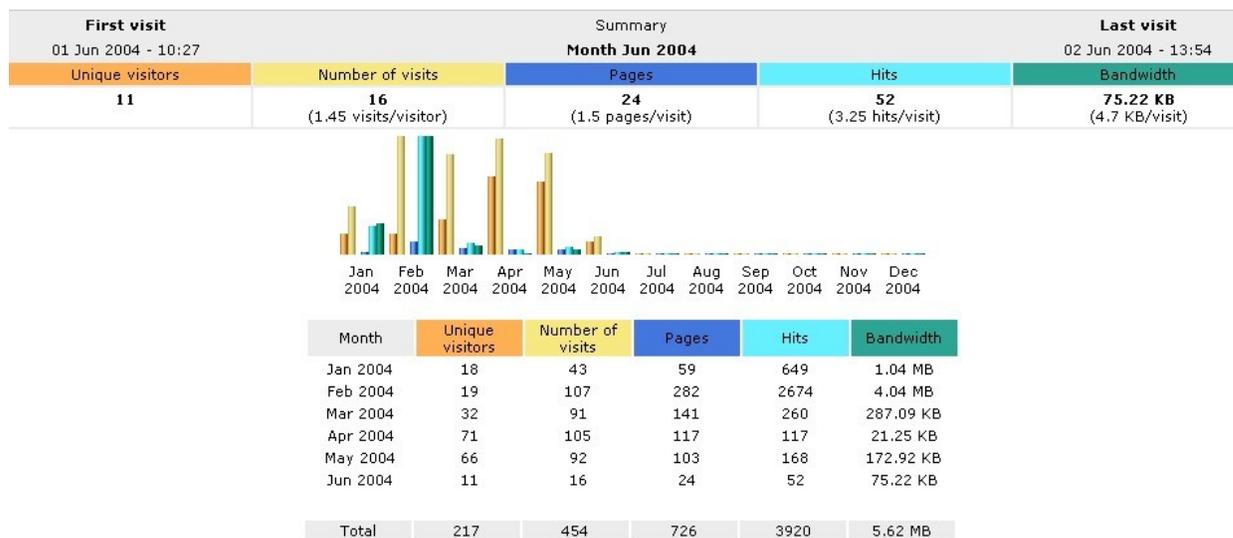
Los Angeles-Ventura Region

The Modeshift system interfaces with Transtar and the Caltrans District 7 ATMS to provide an online travel-planning tool.

Visitors to the Modeshift website can use the tool to plan trips either by private automobile or public transit. For those using private automobile, the system provides turn-by-turn driving directions between the specified origin and destination. For those using public transit, the system indicates which bus or train routes to take and the times of departure and arrival for each leg of travel.

Data on the public’s use of the Modeshift website is available for the system’s four months of operation immediately following completion of acceptance testing in February 2004, as shown in Exhibit 14. The usage data is drawn from automatically collected server statistics and is based on the number of web pages requested. These statistics provide both the number of unique users and the number of distinct user sessions. Modeshift’s traffic map refreshes automatically approximately every 60 seconds, and each refreshed page is counted as a new page request or “hit.” In the month of March 2004, for example, Modeshift received 260 hits and had 32 unique visitors.

Exhibit 14 – Modeshift Website Usage, by Month

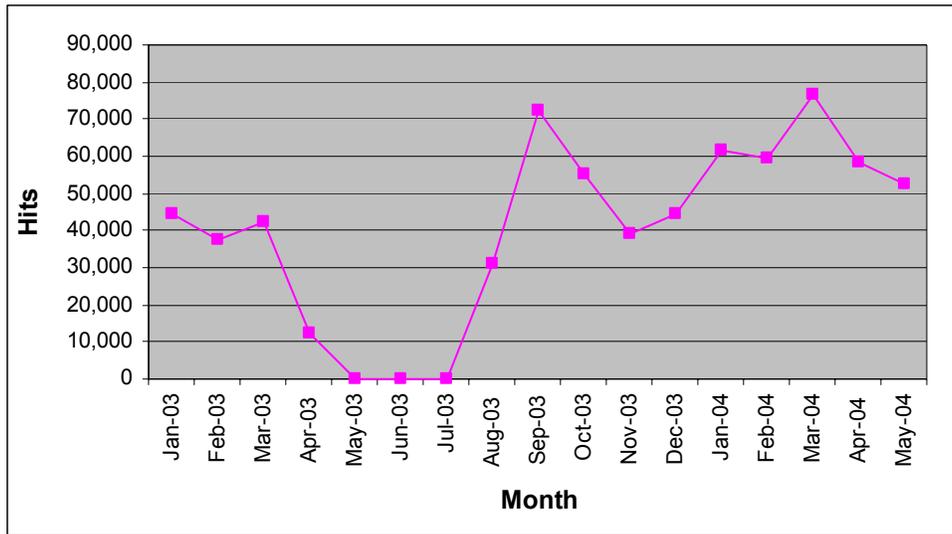


The average hits-per-month to Modeshift’s traffic page was 653 between January and June 2004. The low usage reflects the fact that most of the visits are from individuals who were affiliated with the Modeshift project, and who repeatedly visited Modeshift during the pre-acceptance and post-acceptance phase to assess functionality. In the month of May 2004, Modeshift averaged 2.86 unique visits per day.

Aside from Modeshift, TranStar is a valuable source of online traveler information, used regularly by end users and public agencies for transit trip itinerary purposes.

Prior to the discontinuation of the SCAG’s Rideshare program, SCAG provided a link to the TranStar webpage on its homepage. Because SCAG is established in the region as the Metropolitan Planning Organization (MPO), the SCAG website was an excellent platform for making TranStar available to the public. With the sale of TranStar to The Partnership, SCAG eliminated the link to the TranStar homepage, although it can easily be located through several Internet search engines. The Partnership maintains a public website for TranStar at www.latranstar.tann.com, and provides a link to the TranStar page via its website at www.the-partnership.org. Exhibit 15 shows the total number of users of the TranStar system between January 2003 and May 2004. In the months of May, June, and July of 2003, The Partnership performed routine maintenance and upgrades to the TranStar system.

Exhibit 15 –Monthly Usage of TranStar System



Because The Partnership (TANN) is in the process of establishing its market niche in the Southern California traveler information marketplace, new users not familiar with online traveler information services have a harder time locating TranStar. Although MTA, OCTA, RCTC and VCTC offer transit trip planning functions within their respective transit systems, these agencies do not provide a direct link to the TranStar homepage.

Inland Empire Region

The Fontana-Ontario ATMIS website provides useful information, but might not yet get enough use to significantly impact traffic conditions.

Both an online survey and a return postcard survey were conducted during a seven-month period to obtain user feedback regarding the ATMIS website and Cable TV Program. Copies of the postcard survey were inserted in the City of Fontana’s quarterly events brochure, which is mailed to all city residents. The postcard survey briefly described the ATMIS website and CATV program, and asked users about their frequency of use and the quality of the services compared to other ATIS. Response to the surveys was extremely low with only four users responding to the online survey and only eight postcard responses being returned.

Website usage statistics are not available from the City of Fontana, but the low response rate to the online survey might indicate low overall usage. There is no high-speed Internet service provider in the Fontana area, so users have to access the traffic conditions page via relatively slow dial-up services.

The ATMIS's public access cable television program is probably Fontana's most promising outlet for traffic information. A traffic flowmap and a revolving set of camera images are displayed on KFON Channel 3 during peak travel times. Unfortunately, supporting statistics on the number of viewers are not available at this time.

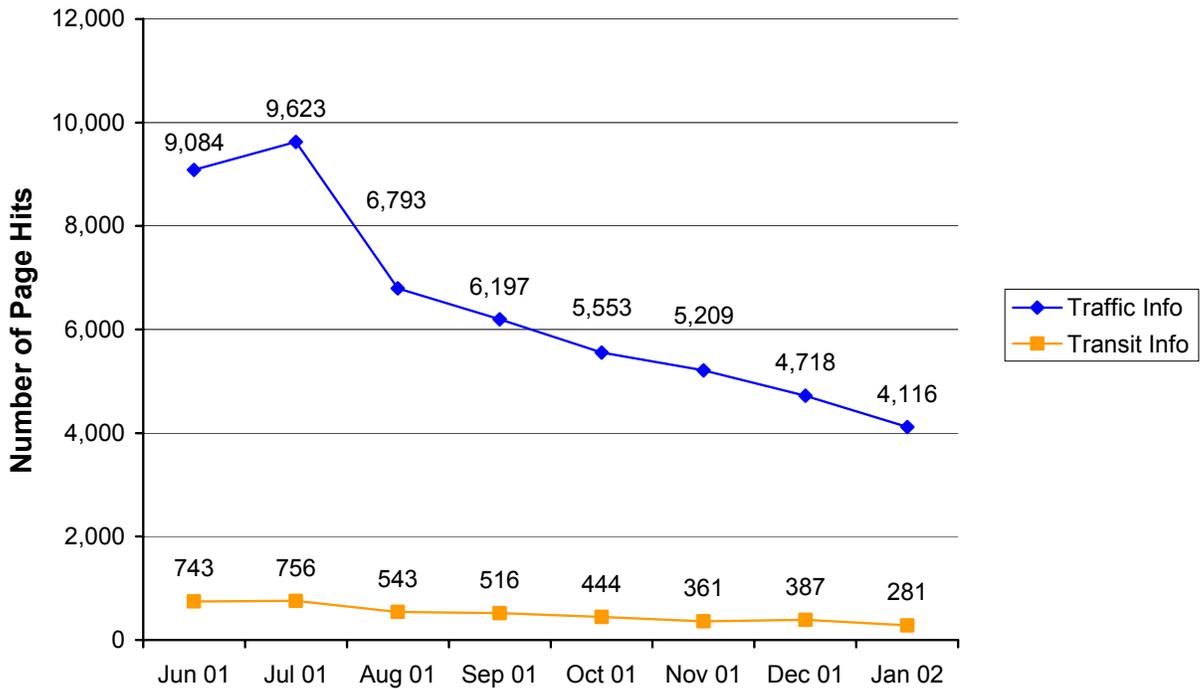
Orange County Region

The TravelTIP system in Orange County promises to be an excellent tool. It is one of the first traveler information systems to provide traffic conditions on surface streets in addition to highways and freeways, and its geographic coverage includes almost all of Orange County (refer back to Exhibit 11). TravelTIP disseminates its information via a website, Highway Advisory Telephone (HAT) system, and three local kiosks.

Data on the public's use of the TravelTIP website is available for the system's eight months of operation immediately following the "media blitz" on June 11, 2001. The usage data is drawn from automatically collected server statistics and is based on the number of web pages requested. These statistics do not necessarily indicate the number of unique users or the number of distinct user sessions. TravelTIP's traffic map refreshes automatically about every 60 seconds, and each refreshed page is counted as a new page request or "hit." Idle use of the traffic page as a background or "wallpaper" could result in hundreds of additional page hits being counted.

Exhibit 16 shows the number of monthly page hits to TravelTIP's traffic and transit pages over the eight months following the media blitz on June 11, 2001. As the exhibit shows, use of the site was greatest immediately following the media blitz and decreased rapidly over the following months.

Exhibit 16 – TravelTIP Website Usage, by Month



The June 2001 numbers reflect only 15 days of data, starting from June 11 (data for June 17 and June 27-30 were not available for this report). July 2001 page hits are estimates based on available data.

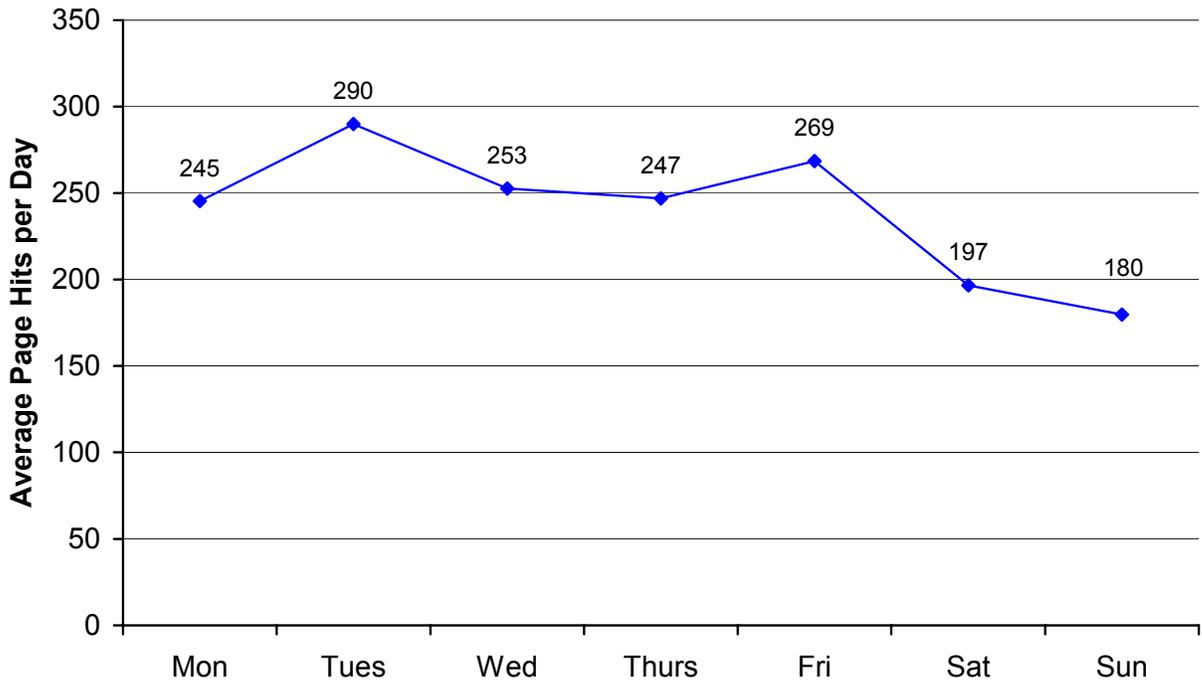
The average hits-per-month to TravelTIP’s Traffic page was 6,412 during the eight-month period, while the average hits-per-month to the Transit page was 504. The resulting ratio of Traffic page hits to Transit page hits is roughly 12.7 to 1. This might be explained by two factors:

1. TravelTIP’s transit page provides a list of links to existing local transit information web sites. Once identified, users can “bookmark” and access these sites directly without using TravelTIP.
2. The vast majority of Orange County commuters travel by automobile, which results in a greater demand for traffic information as compared to transit information.

The average number of TravelTIP page hits per day, including both the traffic and transit pages, was much higher in June and July (daily average of 439) than in the later six months (daily average of 191). In particular, the number of page hits on June 12 (i.e., the day after the media blitz) is estimated at 1,194 – almost five times higher than the overall average daily number of page hits of 241 during the eight-month period.

Exhibit 17 shows the average daily number of page hits, by day of week.

Exhibit 17 – TravelTIP Usage, by Day of Week



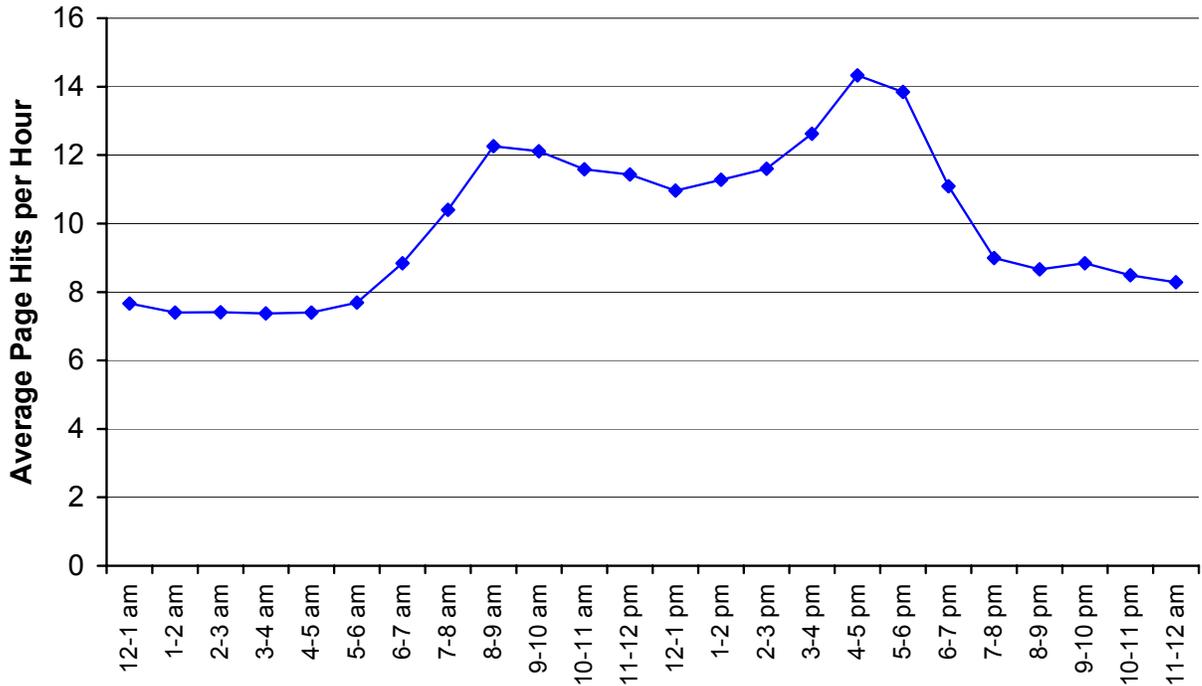
The relative proportions of Traffic page hits versus Transit page hits by day of week were not available.

The day of the week with the highest average usage was Tuesday, followed by Friday. However, it should be noted that June 12, the day after the media blitz, was on a Tuesday. If data for this particular day is removed from the calculation, the average daily number of page hits on Tuesdays was 263 – closer to the average for other weekdays.

The volume of page hits on Mondays through Fridays (average of 261 page hits per day) was about 38.5% higher than the volume on Saturdays and Sundays (average of 188 page hits per day).

Exhibit 18 shows the average hourly number of page hits, by time of day.

Exhibit 18 – TravelTIP Usage, by Time of Day



The relative proportions of Traffic page hits versus Transit page hits by time of day were not available. Different time of day distribution data by day of week was also not available.

The peak times were from 8 am to 10 am in the mornings (average of 12.2 page hits per hour), and from 3 pm to 6 pm in the afternoons (average of 13.6 page hits per hour). Usage was fairly constant from 10 am to 3 pm (average of 11.4 page hits per hour).

Only summary data regarding the usage of the HAT is available at this time. The system received roughly 900 calls per month.

Exhibit 19 compares the average daily use of the TravelTIP website and HAT during the eight-month period from June 2001 to January 2002 to that of Smart Traveler and CHIN, two other California-based traveler information systems.

Exhibit 19 – Summary Comparison

System	Average Daily Website Hits (Home Page)	Average Daily Number of Calls
TravelTIP	241	30
Smart Traveler	81	6,250
CHIN	4,029	8,341

Exhibit 19 does not highlight that use of the TravelTIP website went down significantly after July 2001:

- ▶ From June 2001 to July 2001, there were an estimated 439 average daily home page hits to the TravelTIP website;
- ▶ From August 2001 to January 2002, this number went down to 191.

CHIN is clearly the most heavily used of the three systems. Reasons for variations in use among the three systems are likely to include:

- ▶ Time in Market – Smart Traveler and CHIN have been operational for several years and have had an opportunity to establish a user base. TravelTIP is relatively new.
- ▶ System Functionalities – The Smart Traveler website is primarily a portal to other regional traveler information services, while the CHIN website provides a textual listing of current traffic incidents, closures, etc.
- ▶ Geographic Coverage – TravelTIP focuses on the Orange County region, while both Smart Traveler and CHIN are statewide.

San Diego Region

Mission Valley ATMIS

The Mission Valley ATMIS's dissemination of information to the traveling public is through the display of CMS and the broadcast of HAR messages during events and when otherwise required due to special traffic conditions in the region. Use of the CMS and HAR information by the traveling public could not be measured during the evaluation period due to system outages caused by fiber optic cable damage and upgrades in the Qualcomm Stadium vicinity.

As the Regional Integrated Workstation is deployed throughout the San Diego region, it is expected that the system will provide more extensive traveler and commuter information beyond that of event-related information.

Conclusions

This cross-cutting report aggregates and summarizes the cumulative knowledge gained from the Showcase Program projects with regards to user acceptance and the usage of transportation data and traveler information.

The extent of regional and inter-regional transportation and traveler information integration between agencies.

Although *inter*-regional integration (between regions) has not yet been achieved in the Southern California Priority Corridor, the Showcase Program projects have integrated a large number of agency systems within each region. The Los Angeles-Ventura and San Diego regions are each pursuing the development of their own regional ITS networks based on the architecture and standard interfaces developed by the Showcase Program.

In the Los Angeles-Ventura region, projects such as IMAJINE and LA-Ventura ATIS have helped integrate the following public agencies:

- ▶ Caltrans District 7
- ▶ Los Angeles County Department of Public Works (LACDPW)
- ▶ Los Angeles County Metropolitan Transportation Authority (MTA)
- ▶ Los Angeles (City) Department of Transportation (LADOT)
- ▶ City of South Gate

As a result of the seed planted by Showcase, the MTA is pushing forward with integration efforts in the Los Angeles region through its own (non-Showcase) Regional Integration of ITS project (RIITS). RIITS will help extend the network to additional agency partners in the Los Angeles region.

Similarly, SANDAG is utilizing the IMTMC/S project to construct an ITS network for the San Diego region. Agency partners include Caltrans District 11, SANDAG, City of San Diego, law enforcement, transit operators, and other local cities.

Because the systems in the four regions are all based on the same Showcase Architecture and interface standards, they are well positioned for eventual Corridor-wide integration.

The utilization of regional and inter-regional transportation and traveler information by agencies.

Many agencies – particularly those new to ITS – do not have the staff resources to manually operate a system on a full-time basis. As a result, the systems must be designed to run and perform the majority of their functions automatically. Those that require human intervention will tend to be underutilized.

The extent to which comprehensive and seamless traveler information was disseminated to – and used by – travelers, including the relative effectiveness of different dissemination technologies.

Several traveler information systems were installed throughout the Priority Corridor during the Showcase Program.

Data on the public's use of Los Angeles' Modeshift website is available for the system's four months of operation immediately following the completion of acceptance testing in February 2004. The average hits-per-month to Modeshift's traffic page from March 2004 to June 2004 was 149. Most of the visits are believed to be from individuals who were affiliated with the Modeshift project and who repeatedly visited Modeshift during the pre-acceptance and post-acceptance phase to assess functionality. In the month of May 2004, Modeshift averaged 2.86 unique visitors per day.

Similarly, data on the public's use of Orange County's TravelTIP traveler information website are available for the eight months following the system's media blitz on June 11, 2001. Use of the site was greatest immediately following the media blitz and decreased rapidly over the following months. The average hits-per-month to TravelTIP's Traffic page was 6,412 during the eight-month period, while the average hits-per-month to the Transit page was 504. The uneven distribution might be explained by two factors:

1. TravelTIP's transit page provides a list of links to existing local transit information web sites. Once identified, users can "bookmark" and access these sites directly without using TravelTIP.
2. The vast majority of Orange County commuters travel by automobile, which results in a greater demand for traffic information as compared to transit information.

Only summary data regarding the usage of TravelTIP's Highway Advisory Telephone (HAT) service is available at this time. The system received roughly 900 calls per month.

Online traveler information systems provide valuable information to the traveling public, but are generally underutilized unless actively marketed. As a result, macro-level analyses of historical traffic data show no before-and-after impacts to overall traffic conditions. 87% of the respondents to a TANN User Survey conducted by the Volpe Center reported that the system has saved them travel time, although highway statistics from Caltrans and California's Partnership for Advanced Transit and Highways (PATH) do not show clear evidence of any aggregate, network-wide savings or improvements.

Focus group interviews with traveler information users revealed that only a handful of users actively seek out traveler information sources without being prompted by

marketing. This suggests that a small number of highly motivated commuters may actually benefit from the systems, but that this number of commuters is too small to noticeably impact overall traffic conditions. The evaluation suggests two recommendations in this regard:

- ▶ To achieve market penetration to an extent that will noticeably impact traffic conditions, agencies must continually and actively market their traveler information services.
- ▶ Outsource traveler information services to semi-private organizations such as the Traveler Advisory News Network (TANN). TANN acts as a data and information broker between public agencies and local media affiliates. In 2001, KABC Channel 7 in Los Angeles approached TANN to provide content for an on-air traffic report. Since then, TANN's traffic flowmap – produced from Caltrans data – has been available to an estimated 3 million daily viewers in the greater Los Angeles area.

References

ⁱ California Statistical Abstract, Table B-4. California Department of Finance, Sacramento, CA. December 2003.

ⁱⁱ California Statistical Abstract, Table J-4. California Department of Finance, Sacramento, CA. December 2003.