

San Antonio Regional ITS Architecture and Deployment Plan

Executive Summary

August 2007

SAN ANTONIO USE AND MAINTENANCE PLAN

Use and maintenance of the Regional ITS Architecture and ITS Deployment Plan will be important to preserve the plan's role as a guide for the implementation of ITS in the San Antonio Region. Stakeholders in the Region developed the following guidelines to address use of the ITS Architecture for project deployment and maintenance of the ITS Architecture to reflect changing needs and priorities.

ITS Architecture Use

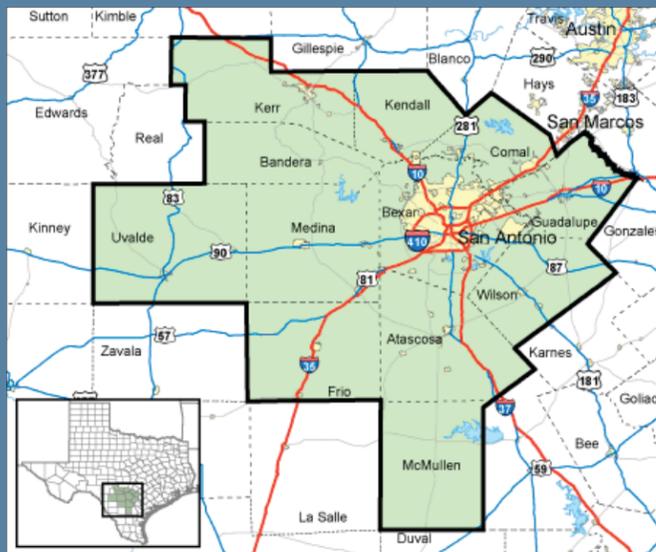
To ensure eligibility for the use of federal transportation funding on regional ITS projects, as projects are developed they will be compared to the applicable ITS market packages. Any discrepancies between the planned project and the architecture will be resolved either by modifying the project or the market package(s). Changes to the market packages will be documented on an Architecture Maintenance Documentation Form. All change forms will be retained by the TxDOT San Antonio District until the next plan update.

ITS Architecture Maintenance

The stakeholder group will review the project tables in the Regional ITS Deployment Plan annually. The tables will be updated to reflect changes in the project status, prioritization, or the addition of new projects. Every four years, prior to the Long Range Transportation Plan update, the ITS Architecture and Deployment Plan will undergo a complete update. During the complete update, Architecture Maintenance Documentation Forms and project table modifications will be incorporated. In addition, any new stakeholders or elements in the Region will be included and any changes made to the National ITS Architecture will be evaluated for their impact on the Regional ITS Architecture.

SAN ANTONIO REGION GEOGRAPHIC BOUNDARIES

The San Antonio Region is defined by the boundaries of the twelve county San Antonio District. The Region encompasses 12,251 square miles in South-Central Texas. The largest city in the Region is San Antonio, with a population estimate of 1.2 million. The U.S. census 2006 population estimate for the San Antonio Region area is approximately 2 million.



San Antonio Regional Boundaries

PROJECT CONTACTS



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INTRODUCTION

Development of a regional intelligent transportation system (ITS) architecture is a very important step in the planning and implementation of ITS in a region. An ITS architecture is essentially a very high level plan that identifies the need for the various services that ITS can provide and documents how ITS systems and components can be integrated together. ITS architectures provide a framework for implementing ITS projects, encourage interoperability and resource sharing among agencies, identify applicable standards to apply to projects, and allow for cohesive long-range planning among regional stakeholders.

In San Antonio, the first regional ITS architecture was developed in 2003. Since that time a number of new ITS projects have been implemented and the National ITS Architecture, which served as the basis for the San Antonio Regional ITS Architecture, has been updated. In order to reflect these changes, the Texas Department of Transportation (TxDOT) San Antonio District began an update of the San Antonio Regional ITS Architecture in 2006.

In addition to the planning benefits of developing a regional ITS architecture, project conformance to the regional ITS architecture is also a requirement for any agency in the region to be eligible for federal funding of an ITS project. This requirement became effective in April 2005 and continues to be enforced by the US Department of Transportation.

SAN ANTONIO REGIONAL STAKEHOLDERS

The development of the San Antonio Regional ITS Architecture and Deployment Plan was led by the TxDOT San Antonio District with assistance and input provided by a number of stakeholders in the San Antonio Region. The success of the plan is due in large part to the collaboration and continuous participation of the stakeholders representing the communities of the San Antonio Region. These stakeholders participated in numerous interviews conducted in 2006 and 2007 to develop the Regional ITS Architecture. Stakeholders included:

- Alamo Area Council of Governments
- Alamo Regional Mobility Authority
- Alamo Regional Transit
- Bexar County
- City of San Antonio Elderly and Disabled Services - Community Initiatives;
- City of San Antonio Public Works Department
- Coach America - Kerrville Bus Company
- Comal County
- Community Council of Southwest Texas
- Department of Public Safety
- Federal Highway Administration
- Guadalupe County
- Presa Community Center
- Texas Department of Transportation San Antonio District
- Texas Department of Transportation Traffic Operations Division
- VIA Metropolitan Transit
- Warm Springs Resource Center



Inside:

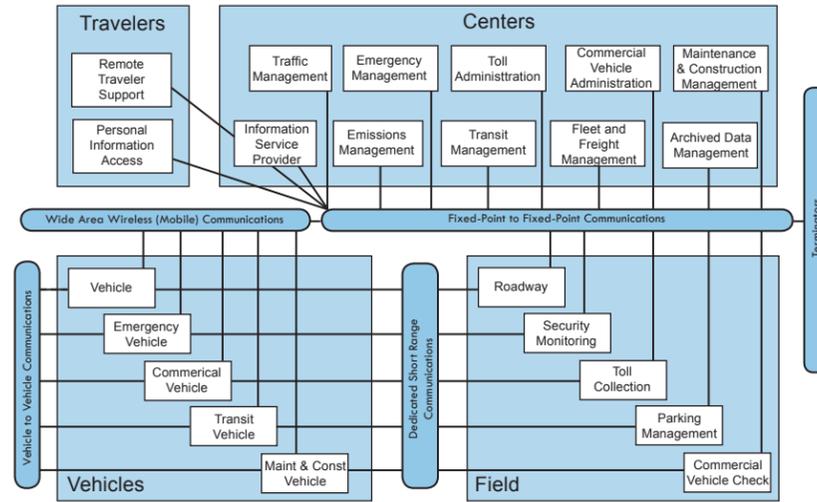
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SAN ANTONIO PROJECT APPROACH

The San Antonio Regional ITS Architecture was developed using a consensus approach with input from stakeholder agencies throughout the Region. Three key steps were used to develop the plan.

Step 1 - Identify Needs and ITS Inventory

Stakeholder needs as well as existing and planned ITS elements were identified. Elements were categorized as centers, vehicles, travelers, or field devices as shown in the diagram to the right.



Step 2 - Develop ITS Market Packages (Services)

ITS market packages represent the services that ITS can provide to address one or more needs in the Region. In San Antonio a total of 51 market packages were identified and prioritized as high, medium, or low. Market packages not only identify a service, but also show how that service will be operated and the data flows that will occur between agencies.

Step 3 - Identify Sequence of ITS Projects to Deploy in the Region

The ITS Deployment Plan identifies the projects that stakeholders recommended for deployment in order to implement the ITS services identified in the market packages.

SAN ANTONIO ITS MARKET PACKAGES

ITS market packages outline the functions that stakeholders envision ITS to perform in coming years. Market packages are groups of ITS services that address one or more needs for a region. Stakeholders selected and prioritized market packages into high, medium, and low priorities based on regional needs, feasibility, likelihood of deployment, and overall contribution of the market package in meeting the goals and vision for ITS functionality in the Region. The high priority ITS market packages identified by stakeholders in the San Antonio Region are listed below.

Traffic Management

- Network Surveillance
- Probe Surveillance
- Surface Street Control
- Freeway Control
- Traffic Information Dissemination
- Regional Traffic Control
- Traffic Incident Management System
- Electronic Toll Collection
- Reversible Lane Management

Emergency Management

- Emergency Call-Taking and Dispatch
- Emergency Routing
- Wide-Area Alert
- Disaster Response and Recovery
- Evacuation and Reentry Management
- Disaster Traveler Information

Maintenance and Construction

- Maintenance and Construction Vehicle and Equipment Tracking
- Road Weather Data Collection

- Weather Information Processing and Distribution
- Work Zone Management
- Maintenance and Construction Activity Coordination

Public Transportation Management

- Transit Vehicle Tracking
- Transit Fixed-Route Operations
- Demand Response Transit Operations
- Transit Passenger and Fare Management
- Transit Security
- Multi-Modal Coordination
- Transit Traveler Information

Traveler Information

- Broadcast Traveler Information
- Interactive Traveler Information

Archived Data

- ITS Data Mart
- ITS Data Warehouse

SAN ANTONIO ITS PROJECTS

A list of recommended ITS projects for the San Antonio Region was developed through input from stakeholders during the architecture process. Stakeholders grouped projects into timeframes for deployment based on priority, dependence on other projects, technology, and feasibility. Below is a summary of some of the key projects recommended for deployment in the short term (next five years). A complete listing of all the projects identified is found in the ITS Deployment Plan.

Traffic Management Projects



TxDOT

- Corridor Traffic Management (CTM) Deployments
 - CTM Maintenance and Upgrades
 - CCTV Camera Deployment
 - DMS Deployments
 - Highway Advisory Radio Expansion
 - Truck Rollover Warning System
 - Center-to-Center Communications
 - Fiber Optic Deployment
 - National Weather Service Connection
- City of San Antonio**
- Signal System Upgrades and Expansions
 - CCTV Camera Deployment
 - DMS Deployment
 - Bus Priority
- City of San Antonio/TransGuide**
- Information Sharing Expansion
 - Operator Cross-Training Program
- Alamo RMA**
- Electronic Toll Collection
- County EOCs**
- TransGuide Workstation Implementation

Emergency Management Projects



- TxDOT ATMS Software Integration with Municipal and County Public Safety CAD
- City of San Antonio Emergency Vehicle Signal Preemption
- San Antonio/Bexar County EOC TransGuide Workstation Implementation
- AACOG Portable DMS Deployment
- Bexar County Early Warning System Study
- AACOG Portable DMS Deployment

Maintenance and Construction Management Projects



TxDOT

- District Wide Flood Detection System
- Portable DMS Deployment
- Portable DMS Upgrades for Remote Communication
- Storm Water Pump Station Installation and Upgrades

Public Transportation Management Projects



City of San Antonio

- Flood Detection and Closure System
 - Portable DMS Deployment
- Bexar County**
- Flood Detection and Closure System
- Comal County**
- Flood Detection and Closure System

Alamo Regional Transit

- Fare Box Management Systems
- Dispatch Software Upgrade
- Mobile Data Computer Deployment
- Security at the Kerrville Intermodal Facility

CCSWT

- AVL Pilot Study

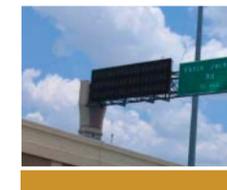
Coach America KBC

- Passenger Information Signs
- Integrated Website Management

VIA Metropolitan

- Bus Rapid Transit Program
- Dispatcher Closure and Traffic Information Access
- On-board Vehicle Communications Upgrade
- Smart Card Payment System
- Super Stop Deployment

Traveler Information Projects



TxDOT

- 511 Traveler Information
- AMBER Alerts
- AWARDS System Expansion
- Personal Emergency Transportation Plan
- City of San Antonio Traveler Information System

Archived Data Management Projects



- TransGuide Data Archive Upgrades