Austin Regional ITS Architecture and Deployment Plan Executive Summary

Austin 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 Austin 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 market packages. Any discrepancies between the planned project and the architecture will be resolved either by modifying the project or the architecture 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 Capital Area Metropolitan Planning Organization until the next plan update.

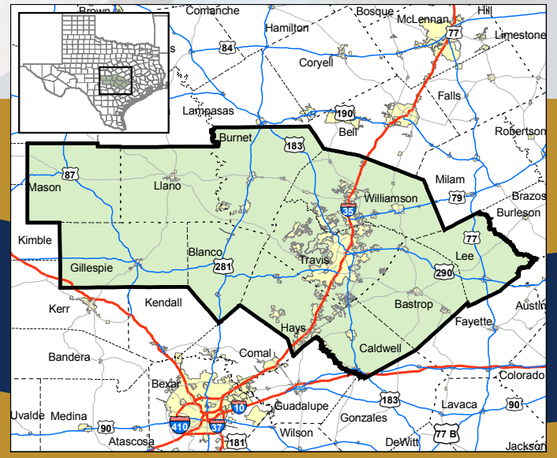
ITS Architecture Maintenance

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.

Austin Region Geographic Boundaries

The Austin Region is defined by the boundaries of the eleven county TxDOT Austin District as shown by the dark line. The largest city in the Region is Austin, which is situated in the center of Travis County. The Austin Region population is approximately 1.5 million.

Austin Regional Boundaries



PROJECT CONTACTS:

Texas Department of Transportation

Brian Burk
bburk@dot.state.tx.us

Kimley-Horn and Associates, Inc.

Thomas Fowler
thomas.fowler@kimley-horn.com

Amy Lewis
amy.lewis@kimley-horn.com

Austin Regional ITS Architecture and Deployment Plan Executive Summary

January 2007

Introduction

Development of a regional intelligent transportation system (ITS) architecture is one of the most important steps in planning for and implementing ITS in a region. 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.

ITS is the application of electronic technologies and communications to increase the safety and efficiency of the transportation system. The ITS architecture allows stakeholders to plan for what they want their system to look like in the long-term and then break the system into smaller pieces that can be implemented in the short-term.

In order to be eligible for funding of an ITS project from the Federal Highway Administration (FHWA) or the Federal Transit Administration (FTA), an agency must show that its project conforms to the regional ITS architecture. This requirement became effective in April 2005.

Austin Regional Stakeholders

The development of the Austin Regional ITS Architecture and Deployment Plan was led by the Texas Department of Transportation in coordination with the Capital Area Metropolitan Transportation Planning Organization. The success of the plan is due in large part to the collaboration and continuous participation of the stakeholders representing the agencies in the Austin Region. These stakeholders participated in a series of workshops and interviews conducted in 2006 to develop the Regional ITS Architecture. Stakeholders included:

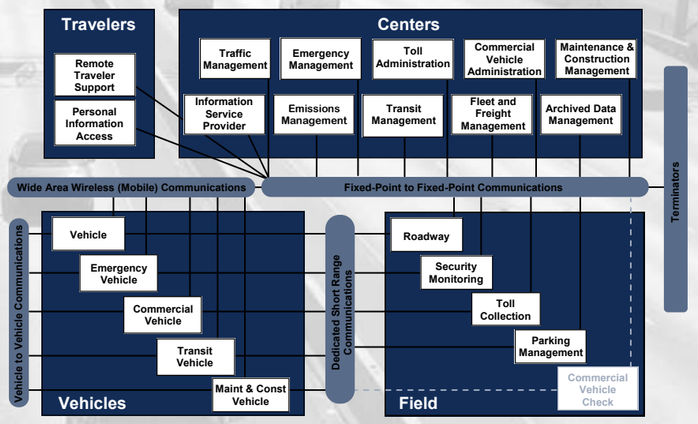
- Burnet County
- Caldwell County
- Capital Area Metropolitan Planning Organization
- Capital Area Rural Transportation System
- Capital Metropolitan Transportation Authority
- Central Texas Regional Mobility Authority
- City of Austin
- City of Cedar Park
- City of Georgetown
- City of Marble Falls
- City of Round Rock
- City of San Marcos
- Federal Highway Administration Texas Division
- Hays County
- National Weather Service
- Texas Department of Public Safety
- Texas State University
- Travis County
- TxDOT Austin District
- TxDOT Public Transportation Division
- TxDOT Texas Turnpike Authority Division
- TxDOT Traffic Operations Division
- University of Texas
- Village of Bee Cave
- Williamson County

Inside:

Kimley-Horn and Associates, Inc.

Austin Project Approach

The Austin 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.



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.

2 Develop ITS Market Packages - Market packages represent the services that ITS can provide to address one or more needs in the Region. In Austin, 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.

3 Develop an ITS Deployment Plan - The ITS Deployment Plan identifies the projects stakeholders want to deploy in order to implement the ITS services identified in the market packages.

Austin ITS Market Packages

Market packages outline the services 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 as high, medium, or 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 market packages identified by stakeholders in the Austin Region are listed below.

Travel and Traffic Management
- Network Surveillance
- Surface Street Control
- Traffic Information Dissemination
- Regional Traffic Control
- Traffic Incident Management System
- Electronic Toll Collection
- Railroad Operations Coordination
- Parking Facility Management
- Emergency Call-Taking and Dispatch

Emergency Management
- Emergency Routing
- Roadway Service Patrols
- Wide-Area Alert

Maintenance and Construction Management
- 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
- HAZMAT Management

Traveler Information
- Broadcast Traveler Information
- Interactive Traveler Information

ITS Deployment Examples

Traffic Management

Emergency Management

Maintenance and Construction Management

Public Transportation Management

Traveler Information

Austin ITS Deployment Plan

A list of recommended ITS projects for the Austin Region was developed through input from stakeholders during the architecture development process. Stakeholders grouped projects into timeframes for deployment based on priority, dependence on other projects, technology, and feasibility. Below is a summary of the 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
- Center-to-Center Communications
- Corridor Traffic Management (CTM) Projects on All Freeways
- CTM Maintenance and Upgrades
- Highway Advisory Radio Expansion
- National Weather Service Connection
- Texas Turnpike Authority Division Toll Enforcement

City of Austin
- CCTV Camera Deployment
- Closed Loop Signal System Upgrades and Expansion
- HAR Deployment
- Web-based Information Sharing

City of Cedar Park
- Traffic Operations Center
- Signal System Upgrades

City of Georgetown
- Traffic Operations Center
- Signal System Upgrades
- Portable DMS

City of Round Rock
- Communications Connection

City of San Marcos
- Communications Connection

Emergency Management Projects
- TxDOT AVL for HERO Vehicles
- Regional Radio Interoperability
- City of Cedar Park Emergency Vehicle Signal Preemption
- City of Georgetown Emergency Vehicle Signal Preemption
- City of Round Rock CAD Integration with TxDOT ATMS Software
- City of Round Rock Signal System Railroad Coordination
- City of Round Rock Advance Railroad Notification
- Williamson County CAD Integration with TxDOT ATMS Software

Maintenance and Construction Management Projects
- TxDOT Real-Time HCRS (Statewide)
- TxDOT Portable DMS
- TxDOT Portable DMS Upgrades for Remote Communications
- TxDOT Burnet County Flood Detection System
- TxDOT Caldwell County Flood Detection System
- City of Georgetown Flood Detection and Closure System
- City of San Marcos Flood Detection System
- Hays County Flood Detection System

Public Transportation Management Projects

CapMetro
- Asset Management System
- Centralized Rail Control Center
- ITS Implementation for Fixed Route Buses
- ITS Implementation for Rail
- ITS Implementation for RAPID Bus
- ITS Implementation for Special Transit Services (STS)
- Security Monitoring
- Smart Card Payment System
- Ticket Vending Kiosks
- Web-based STS Reservation System

CARTS
- Passenger Counters
- Real-time Bus Arrival Information
- RideCARTS Card Electronic Fare Payment System
- RideCARTS Card Service Kiosks
- Web-based Reservation System for Paratransit
- Intercity Bus Flag Stops

Traveler Information Management Projects

TxDOT
- 511 Traveler Information
- Travel Time Information on DMS
- Traveler Information Website with Speed Maps