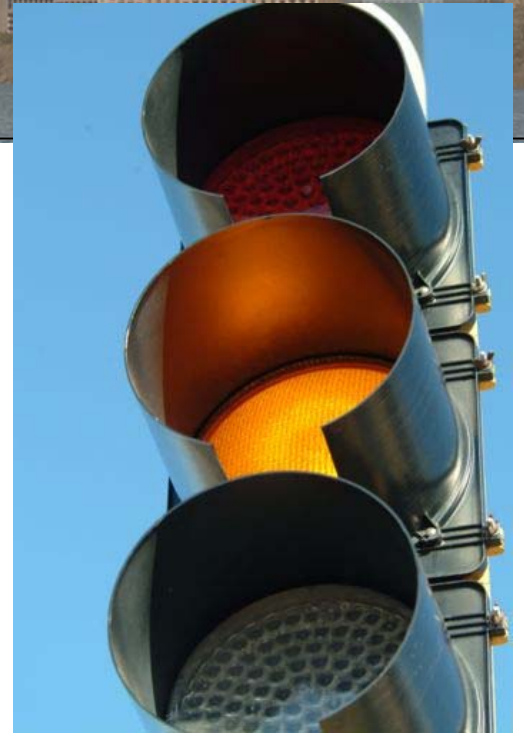# Austin Regional ITS Architecture and Deployment Plan
Executive Summary

Introduction

The Austin Regional Intelligent Transportation System (ITS) Architecture and Deployment Plan provides a long-range plan for the implementation, integration, and operation of ITS in the Austin Region. The Regional ITS Architecture allows stakeholders to plan for how they want their system to function in the long-term and then implement various components incrementally as funding permits. Development of an Regional ITS Architecture encourages interoperability and resource sharing among agencies and allows for cohesive long-range planning among regional stakeholders. Completion and update of the plan is required by the Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) in order to use federal transportation funds for ITS projects in the Region.

The first regional ITS architecture for the Austin Region was developed in 2002. Since that time, several new ITS projects have been implemented and the National ITS Architecture, which serves as the basis for the Austin ITS Architecture, has been updated. In order to reflect those changes, the Texas Department of Transportation (TxDOT) in coordination with the Capital Area Metropolitan Planning Organization (MPO), completed an update of the Regional ITS Architecture in 2015.

More information on the Austin Regional ITS Architecture can be found on the project website located at http://www.austinitsarchitecture.com/

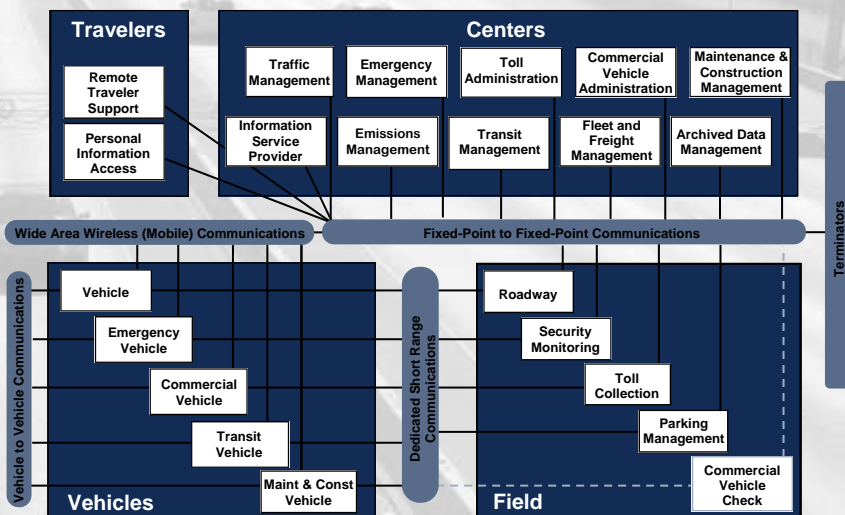**Kimley»Horn**

Austin Regional Stakeholders

The development of the Austin Regional ITS Architecture and Deployment Plan was led by the Texas Department of Transportation (TxDOT) in coordination with the Capital Area Metropolitan Transportation Planning Organization (CAMPO.) These stakeholders participated in a series of workshops and interviews conducted in 2014 and 2015 to develop the Regional ITS Architecture. Stakeholder agencies that participated in the update include:

- 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 Pflugerville
- City of Round Rock
- City of San Marcos
- Federal Highway Administration - Texas Division

- Lone Star Rail District
- Texas A&M University
- Texas Department of Public Safety
- Texas State University
- Travis County
- TxDOT Austin District
- TxDOT Rail Division
- TxDOT Toll Operations Division
- TxDOT Traffic Operations Division
- TxDOT Transportation Planning and Programming Division
- University of Texas
- Williamson County

June 2015

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 Service Packages - ITS service packages represent the services that ITS can provide to address one or more needs in the Region. In Austin, a total of 59 ITS service packages were identified and prioritized as high, medium, or low. ITS service 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 ITS service packages. The primary focus of the ITS Deployment Plan was on regional projects that involve multiple stakeholder agencies.

Austin ITS Service Packages

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

Travel and Traffic Management
- Network Surveillance
- Traffic Signal Control
- HOV Lane Management
- Traffic Information Dissemination
- Regional Traffic Management
- Traffic Incident Management System
- Electronic Toll Collection
- Dynamic Lane Management and Should Use

Emergency Management
- Emergency Call Taking and Dispatch
- Emergency Routing
- Roadway Service Patrols
- Wide-Area Alert

- Early Warning system

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 Fare Collection Management

- Transit Security
- Transit Fleet Management
- Multi-Modal Coordination
- Transit Traveler Information
- Transit Signal Priority
- Transit Passenger Counting
- Multimodal Connection Protection

Traveler Information
- Broadcast Traveler Information
- Interactive Traveler Information

Archived Data Management
- ITS Data Mart
- ITS Data Warehouse
- Virtual ITS Data Warehouse

Traveler Information

Incident Management

Freeway Service Patrol

Integrated Corridor Management

Austin Regional ITS Deployment Plan

The Austin Regional ITS Deployment Plan identifies the ITS projects that stakeholders would like to implement in order to support the vision of ITS integration and operations developed in the Regional ITS Architecture. The Austin Regional ITS Deployment Plan provides a list of ITS projects identified for each stakeholder agency in the Region as well as a recommendation for eight regional ITS projects that involve two or more stakeholder agencies. The eight recommended regional ITS projects are described in more detail below.

Regional Traveler Information Improvements - Deployment of additional detection and traveler information devices in the field, the consolidation of traveler information from throughout the Region, and the implementation or support of methods to make that information available to stakeholder agencies and the traveling public.

Traffic Incident Management Improvements - Improvements to incident information sharing between agencies, increased incident management training, and improvements in the accuracy, timeliness, and availability of traffic incident information.

Freeway Service Patrol Expansion - Expanded coverage and frequency of existing freeway service patrols as well as enhanced capabilities related to lane clearance and traffic control.

Integrated Corridor Management - Implementation of ICM strategies on the I-35 corridor and other corridors as needed.

Center-to-Center Communications - Implementation of center-to-center connections between agencies in the Austin Region to improve information sharing.

Regional or Statewide Payment System - Implementation of a single payment system to allow transit users access to multiple transit agencies throughout Texas using a regional or statewide payment system.

Bus Rapid Transit Expansion - Expansion of the Capital Metro bus rapid transit (BRT) in partnership with the City of Austin.
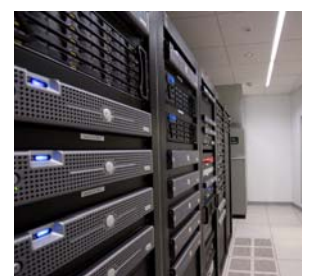
Archived Data Warehouse Implementation - Implementation of an archived data warehouse for archiving data collected through the ITS system in the Austin Region.

Center-to-Center Communications

Regional or Statewide Transit Payment System

Bus Rapid Transit

Archived Data Warehouse

Austin Regional ITS Architecture and Deployment Plan
Executive Summary

Austin Use and Maintenance Plan

Use and maintenance of the Regional ITS Architecture and Deployment Plan will be important to preserve their role as guides for the implementation of ITS in the Austin Region. Stakeholders in the Region developed the following guidelines to address use and maintenance of the Regional ITS Architecture.

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 service packages in the Regional ITS Architecture. Any discrepancies between the planned project and the Regional ITS Architecture will be resolved either by modifying the project or the ITS service package(s). Changes to the I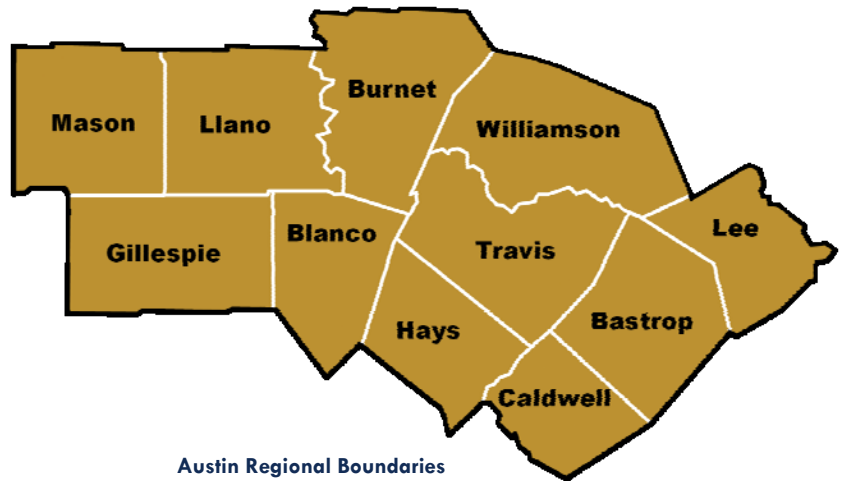TS service packages will be documented on an Architecture Maintenance Documentation Form. The Architecture Maintenance Documentation Form can be found on the project website (http://www.austinitsarchitecture.com/) under the Use and Maintenance tab.

ITS Architecture Maintenance
CAMPO will be responsible for maintaining the Regional ITS Architecture for the six-county Region within the MPO planning boundary (Bastrop, Burnet, Caldwell, Hays, Travis, and Williamson Counties). TxDOT will be responsible for maintaining the plan for the remaining five counties (Blanco, Gillespie, Lee, Llano, and Mason Counties.) It was recommended that the Regional ITS Architecture be reviewed prior to updating the CAMPO Regional Transportation Plan to determine the need for an update.

Austin Region Geographic Boundaries

The Austin Region is defined by the boundaries of the eleven county TxDOT Austin District. The largest city in the Region is Austin, which is situated in the center of Travis County. The population of the Austin metropolitan statistical area is approximately 1.9 million according to

Austin Regional Boundaries

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