

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 Johnson City Region. Stakeholders in the Region developed the following guidelines to address use of the ITS Architecture for project deployment and steps to maintain and update the 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 Change Form. All change forms will be retained by the Johnson City MTPO 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, in coordination with the Long Range Transportation Plan update, the ITS Architecture and Deployment Plan will undergo a complete update. During the complete update Architecture Change Forms and project table modifications will be incorporated. In addition, any changes made to the National ITS Architecture during the four year period will be evaluated for any impact to the Regional Architecture.

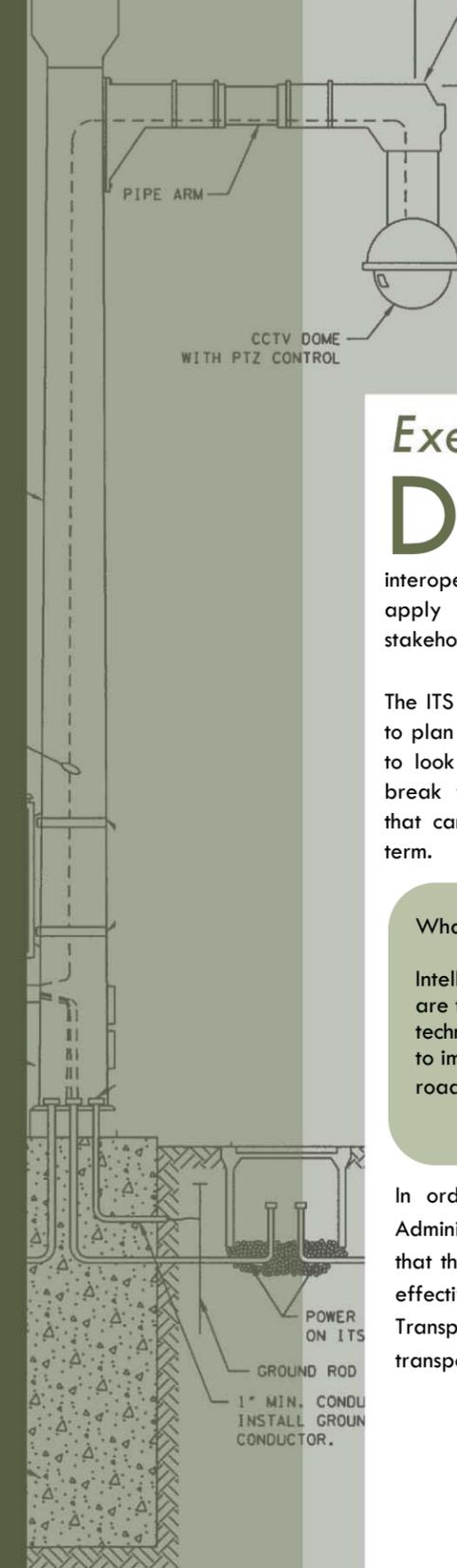
Regional Stakeholders

Working together, the development of the Johnson City Regional ITS Architecture and Deployment Plan was led by the Tennessee Department of Transportation in coordination with the Johnson City Metropolitan Transportation Planning Organization. The success is due in large part to the collaboration and continuous participation of the stakeholders representing the communities of the Johnson City Region. These stakeholders participated in a series of four workshops conducted in 2006.

- City of Elizabethton
- City of Johnson City
- Federal Highway Administration – Tennessee Division
- First Tennessee Development District
- Johnson City Metropolitan Transportation Planning Organization
- Johnson City Transit System
- Tennessee Department of Transportation – Region 1
- Tennessee Department of Transportation – Long Range Planning Division
- Tennessee Department of Transportation – Design Division, Signals and Signing
- Washington County – Johnson City Emergency Management Agency



TENNESSEE



JOHNSON CITY REGIONAL ITS ARCHITECTURE AND DEPLOYMENT PLAN

December 2006

Executive Summary

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.

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.



What is ITS?

Intelligent Transportation Systems are the application of electronic technologies and communications to improve the operation of roadway and transit systems.

In order to be eligible for funding of ITS projects from the Federal Highway Administration (FHWA) or the Federal Transit Administration (FTA), regions must show that their projects conform to their regional ITS architecture. This requirement became effective in April 2005 and was continued by the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFTEA-LU), the 5-year federal transportation authorization bill.

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What is an ITS architecture?

An ITS architecture is a framework for the deployment and operation of ITS in a region.

Market Packages

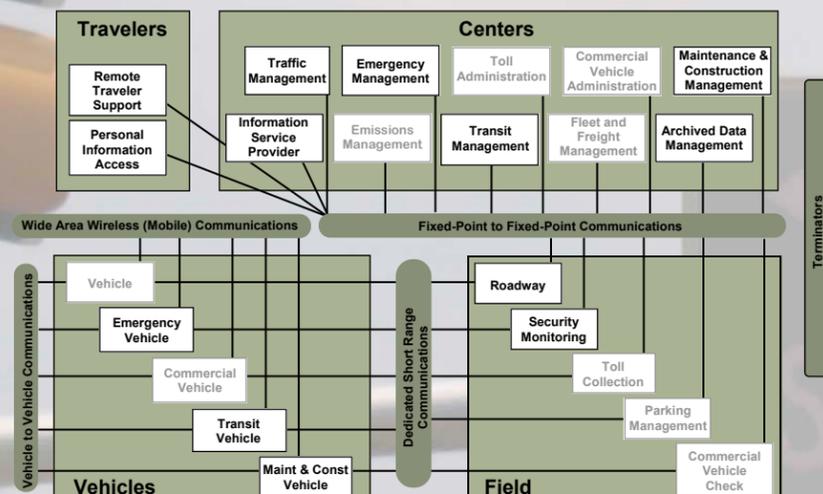
Market packages outline the functions that stakeholders envision ITS to perform in coming years. Market packages are groups of ITS services that address one or more needs for a region. Stakeholders selected and prioritized market packages into high, medium, and low priorities based on regional needs, 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 market packages identified by stakeholders in the Johnson City Region are listed below.

High Priority Market Packages

- Network Surveillance
- Surface Street Control
- Traffic Information Dissemination
- Traffic Incident Management System
- Emergency Call-Taking and Dispatch
- Emergency Routing
- Wide-Area Alert
- Disaster Traveler Information
- Road Weather Data Collection
- Weather Information Processing and Distribution
- Work Zone Management
- Maintenance and Construction Activity Coordination
- Transit Vehicle Tracking
- Transit Fixed Route Operations
- Demand Response Transit Operations
- Transit Security
- Broadcast Traveler Information
- Interactive Traveler Information

Johnson City Architecture Diagram

The architecture diagram, otherwise known as the subsystem diagram, shows the communication relationship between existing, planned and future systems in the Johnson City Region. The arrows represent information being exchanged between systems. Examples of information being communicated are: alerts and messages about incidents, broadcast advisories about travel conditions, and video images shared between traffic and emergency management agencies. A number of national standards have been established for the communication of ITS information and the Regional ITS Architecture identifies the standards that apply to the Johnson City Region.



Recommended Projects

A list of recommended ITS projects for the Johnson City 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 the projects recommended for deployment in the short term. A complete listing of all the projects identified is found in the ITS Deployment Plan.

Travel and Traffic Management Projects

- City of Elizabethton Signal System Upgrades Phase 1
- City of Elizabethton Signal Timing Improvements
- City of Johnson City CCTV Cameras Phase 1
- City of Johnson City Communications Backbone Expansion Phase 1
- City of Johnson City Signal System Upgrades Phase 1
- City of Johnson City TOC Upgrades
- City of Johnson City Traffic Signal Battery Backup
- City of Johnson City Vehicle Detection Phase 1
- TDOT HELP Vehicle AVL
- TDOT HELP Vehicle Service Area Expansion
- TDOT Interstate Reference Marker Deployment
- TDOT Portable CCTV Camera Technology with Cellular Communications

Emergency Management Projects

- City of Elizabethton Emergency Vehicle Signal Preemption Expansion Phase 1
- Washington County Emergency Vehicle Signal Preemption Expansion Phase 1

Maintenance and Construction Management Projects

- City of Elizabethton Portable DMS
- City of Johnson City Upgrade and Expansion of Flood Detection Network Phase 1
- TDOT Portable DMS Upgrade to Support Remote Communications

Public Transportation Management Projects

- Johnson City Transit Automated Passenger Counters
- Johnson City Transit AVL Phase 1
- Johnson City Transit Paratransit Schedule and Call Back System
- Johnson City Transit Real Time Arrival Information Phase 1

What is an ITS deployment plan?

A plan that outlines the projects that need to be implemented in order to meet needs identified in the ITS architecture.

ITS Technologies



Dynamic Message Signs



Emergency Vehicle Signal Preemption



Closed Circuit Television Cameras



Traffic Management Center



Flood Detection and Closure Systems



Traffic Signal System Coordination