KNOXVILLE USE AND MAINTENANCE PLAN

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

ITS Architecture Use

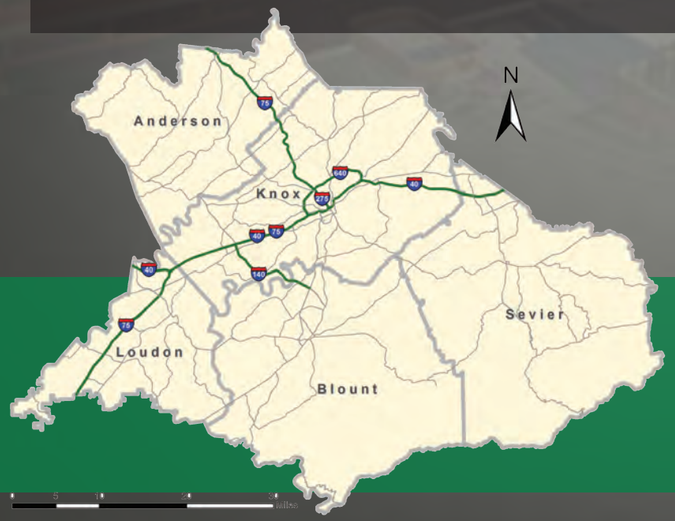
To ensure eligibility for the use of federal transportation funding of regional ITS projects, as projects are developed they will be compared to the applicable ITS service packages in the Regional ITS Architecture. Any discrepancies between a planned project and the ITS service packages will be resolved either by modifying the service packages or the project. Changes to the ITS service packages of a planned project will be documented on an ITS Architecture Maintenance Documentation Form. All change forms will be retained by the Knoxville Regional TPO until the next plan update.

ITS Architecture Maintenance

The stakeholder group will review the Regional ITS Deployment Plan annually. The recommended projects from the ITS Deployment Plan will be reviewed to determine changes in the project status, prioritization, or the addition of new projects. Any changes will be documented by the Knoxville Regional TPO. Prior to the Long-Range Transportation Plan update, the Regional ITS Architecture and Deployment Plan will undergo a complete update. During the complete update, any ITS Architecture Maintenance Documentation Forms and changes to the ITS Deployment Plan projects will be incorporated. In addition, any new stakeholders or elements in the Region will be included and any changes made by the USDOT to the National ITS Architecture will be evaluated for their impact on the Regional ITS Architecture.

Knoxville Regional ITS Architecture Geographic Boundaries

The Knoxville Regional ITS Architecture geographic boundaries cover the Knoxville Regional TPO planning area (At the time the ITS architecture was developed). This included all of Knox County and a portion of Anderson, Blount, Loudon, and Sevier Counties. In addition, the Knoxville Regional ITS Architecture also included the remaining portions of Anderson, Blount, Loudon, and Sevier Counties.



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Knoxville Region

EXECUTIVE SUMMARY

Regional ITS Architecture and Deployment Plan

January 2013

INTRODUCTION

Development of a Regional Intelligent Transportation System (ITS) Architecture and Deployment Plan is an important step in the planning and implementation of ITS in a region. The ITS Architecture and Deployment Plan 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 over time as funding permits. Development of an ITS Architecture and Deployment plan encourages interoperability and resource sharing among agencies and allows for cohesive long-range planning among regional stakeholders.

The Knoxville Regional ITS Architecture was first developed in 2000 and was updated 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 Knoxville Regional ITS Architecture, has been updated. In order to reflect these changes, the Knoxville Regional Transportation Planning Organization (TPO) updated the Regional ITS Architecture in 2012. As part of the update effort, an ITS Deployment Plan was also developed to document ITS projects that were identified by stakeholders in the Region.

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.

What is ITS?

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

INSIDE:

KNOXVILLE REGIONAL STAKEHOLDERS

The update of the Knoxville Regional ITS Architecture and Deployment Plan was led by the Knoxville Regional TPO in coordination with the Tennessee Department of Transportation (TDOT). The success of the plan is due in large part to the collaboration and continuous participation of the stakeholders representing the Knoxville Region. These stakeholders participated in a series of four workshops conducted in 2011 and 2012 to update the Regional ITS Architecture and Deployment Plan. Stakeholder agencies included:

- Blount County
- City of Alcoa
- City of Gatlinburg
- City of Knoxville
- City of Maryville
- City of Oak Ridge
- City of Pigeon Forge
- City of Sevierville
- East Tennessee Human Resource Agency
- Federal Highway Administration
- Knox County
- Knoxville Area Transit
- Knoxville-Knox County Emergency Management Agency
- Knoxville-Knox County Community Action Committee Transit
- Knoxville Regional TPO
- Lakeway Area Metropolitan Transportation Planning Organization
- Loudon County
- Oak Ridge National Laboratory – Center for Transportation Analysis
- Rural Metro Fire Department
- Sevier County
- TDOT
- Town of Farragut

TPO Transportation Planning Organization
Knoxville Regional

ITS Architecture

KNOXVILLE REGION PROJECT APPROACH

The Knoxville 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 below.

STEP 2 – Develop ITS Service Packages (Services)
ITS service packages represent the services that ITS can provide to address one or more needs in the Region. In the Knoxville Region a total of 44 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.

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 service packages

KNOXVILLE REGION ITS SERVICE PACKAGES

ITS service packages outline the functions and services that stakeholders envision ITS to perform now and in the future. Stakeholders selected and prioritized ITS service packages into high, medium, and low priorities based on regional needs, feasibility, likelihood of deployment, and overall contribution of the ITS service package to meeting the goals and vision for ITS functionality in the Region. The high priority ITS service packages identified by stakeholders in the Knoxville Region are listed below.

Traffic Management
- Network Surveillance
- Surface Street Control
- Traffic Information Dissemination
- Regional Traffic Management
- Traffic Incident Management System

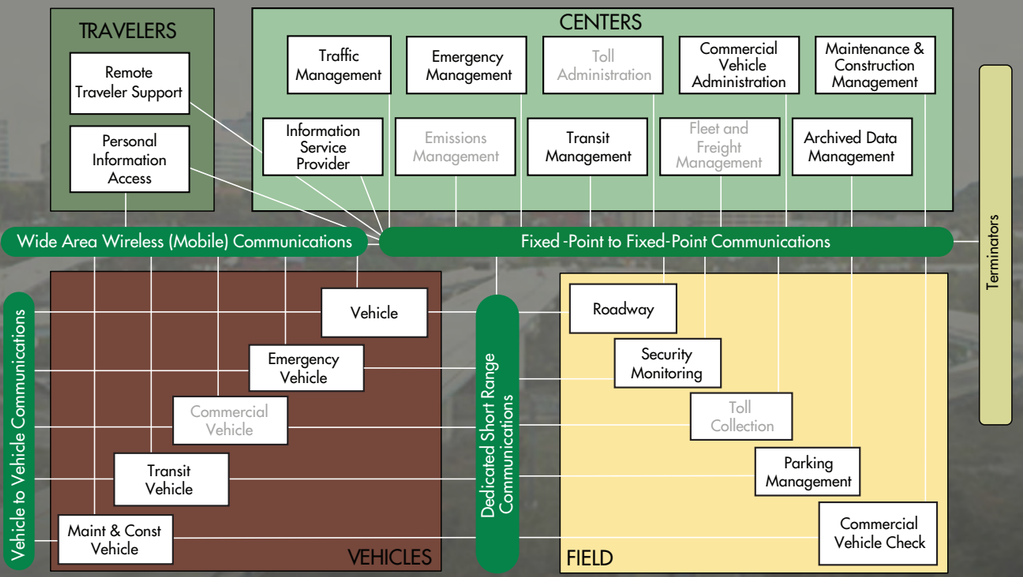
Emergency Management
- Emergency Call-Taking and Dispatch
- Emergency Routing
- Roadway Service Patrols
- Wide-Area Alert

Maintenance And Construction Management
- Road Weather Data Collection
- Weather Information Processing and Distribution
- Maintenance and Construction Activity Coordination

Public Transportation Management
- Transit Vehicle Tracking
- Transit Fixed-Route Operations
- Demand Response Transit Operations
- Multi-Modal Coordination
- Transit Traveler Information
- Transit Passenger Counting

Traveler Information
- Broadcast Traveler Information
- Interactive Traveler Information
- Dynamic Ridesharing

Archived Data Management
- ITS Data Mart



Systems shown in grey were not included in the Knoxville Regional ITS architecture

ITS Deployment Plan

KNOXVILLE REGION RECOMMENDED ITS PROJECTS

A list of recommended ITS projects for the Knoxville Region was developed through input from stakeholders during the ITS 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 some of the key projects recommended for deployment by stakeholder agencies in the short-term (2012 – 2016). A complete listing of all the projects identified is found in the Regional ITS Deployment Plan.

Tennessee Department of Transportation Projects
- TDOT Region 1 SmartWay Geographic Expansion: I-40 and I-75 West of Knoxville
- TDOT Region 1 SmartWay Communications System Upgrade
- TDOT HELP Service Patrol Expansion
- TDOT Region 1 SmartWay Traffic Management Center Coordination with County Emergency Management Agencies and 911 Dispatch

Knoxville Regional TPO Projects
- Archived Data Warehouse
- Smart Trips Ridesharing Automated System

Municipal and County Projects*
- Traffic Operations Center Implementations and Upgrades
- Traffic Signal System Upgrades
- Communication System Upgrades
- CCTV Camera Deployment
- Dynamic Message Sign Deployment
- Emergency Vehicle Traffic Signal Preemption

Transit Projects*
- On-Board Passenger Counters
- On-Board Security Cameras
- On-Board Transit Fare Box Upgrades
- Computer Aided Maintenance Systems
- Real-Time Bus Arrival Information
- Transit Priority
- Link to SmartWay 511 Traveler Information Number

**Represents common projects that have been recommended for one or more agencies.*

What is an ITS Deployment Plan?

An ITS Deployment Plan identifies the projects that need to be implemented in order to meet ITS needs and deliver the ITS services identified in the Regional ITS Architecture.