Cleveland Use and Maintenance Plan

Use and maintenance of the 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 Cleveland Region. Stakeholders in the Region developed the following guidelines to address use of the plan for project deployment and maintenance of the plan to reflect changing needs and priorities.

ITS Architecture Use

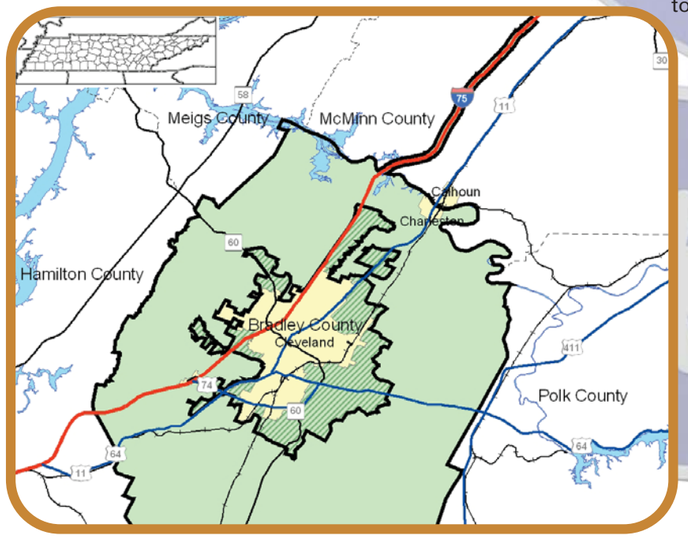
To ensure eligibility for the use of federal transportation funding of regional ITS projects, as projects are developed they will be compared to the applicable ITS market packages. Any discrepancies between the planned project and the ITS Architecture will be resolved either by modifying the project 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 Cleveland Urban Area MPO 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 Cleveland Urban Area MPO. Prior to the Long Range Transportation Plan update the Regional ITS Architecture and Deployment Plan will undergo a complete update. During the complete update, 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 to the National ITS Architecture will be evaluated for their impact on the Regional ITS Architecture.

Cleveland Region Geographic Boundaries

The geographic boundaries that were used in the development of the Regional ITS Architecture and Deployment Plan include all of Bradley County and a portion of McMinn County. The portion of McMinn County along the I-75 corridor to Exit 42 was included in the geographic boundaries for continuity with planning for management of fog events that impact I-75. The Cleveland Urban Area MPO area falls within the boundaries selected for the Cleveland Regional ITS Architecture and Deployment Plan and is represented by the diagonal lines in the map below.



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Cleveland Regional ITS Architecture and Deployment Plan

Executive Summary — June 2008

Introduction

The purpose of the Cleveland Regional Intelligent Transportation System (ITS) Architecture and Deployment Plan is to develop a framework for the implementation and operation of ITS in the Cleveland Region. An 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.

What is ITS?

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

Stakeholders in the Cleveland Region identified several key management areas where ITS applications could address local needs. These areas included traffic management, emergency management, and public transit management. Some of the highest priority ITS projects that were identified included projects to improve traffic signal timing on corridors, provide traffic signal preemption capabilities to emergency vehicles, deploy closed circuit television (CCTV) cameras and dynamic message signs (DMS), and track the location of transit vehicles.

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.

Cleveland Regional Stakeholders

The development of the Cleveland Regional ITS Architecture and Deployment Plan was led by the Tennessee Department of Transportation (TDOT) and the Cleveland Urban Area Metropolitan Planning Organization (MPO). The success of the plan is due in large part to the collaboration and continuous participation of the stakeholders representing the Cleveland Region. These stakeholders participated in a series of four workshops conducted in 2007 and 2008 to develop the Regional ITS Architecture and Deployment Plan. Stakeholder agencies included:

- Bradley County
- Chattanooga MPO
- City of Cleveland
- Cleveland-Bradley County Emergency Management Agency
- Cleveland Transit
- Cleveland Urban Area MPO
- Cleveland Utilities
- Federal Highway Administration – Tennessee Division
- Southeast Tennessee Human Resource Agency Transportation
- TDOT – Design Division
- TDOT – Long Range Planning Division
- TDOT – Region 2

Inside:

Kimley-Horn and Associates, Inc.

ITS Architecture

Cleveland Project Approach

The Cleveland 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.

What is an ITS architecture?

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

Step 1 – Identify Needs and ITS Inventory

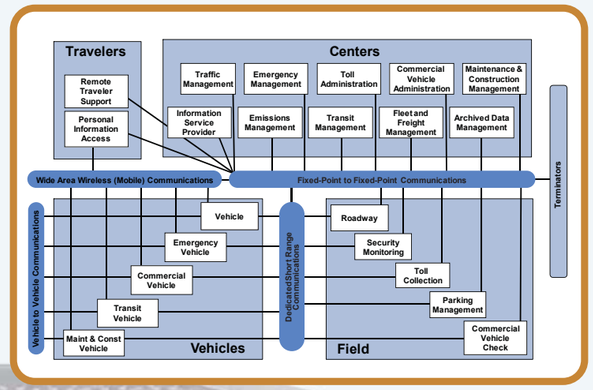
Stakeholder needs as well as existing and planned ITS elements were identified. Elements were categorized as centers, vehicles, travelers, or field devices as shown in the diagram to the right.

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 Cleveland a total of 36 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.



Cleveland ITS Market Packages

ITS market packages outline the functions and services that stakeholders envision ITS to perform now and in the future. 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 to meeting the goals and vision for ITS functionality in the Region. The high priority ITS market packages identified by stakeholders in the Cleveland Region include:

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

Emergency Management
- Emergency Call-Taking and Dispatch
- Emergency Routing
- Wide-Area Alert
- Disaster Traveler Information

Traveler Information
- Broadcast Traveler Information
- Interactive Traveler Information

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 Security

ITS Deployment Plan

Cleveland ITS Projects

A list of recommended ITS projects for the Cleveland 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. Locations for deployment of ITS elements in the field were also identified for many of the projects and documented on maps included in the ITS Deployment Plan. Below is a summary of some of the key projects recommended for deployment by stakeholder agencies in the Region. A complete listing of all the projects identified is found in the Regional ITS Deployment Plan.

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 ITS architecture.

Bradley County 911 Dispatch
- TDOT and City of Cleveland CCTV Camera Image Sharing
- Computer Aided Dispatch (CAD) Connection to City of Cleveland Public Works
- Railroad Crossing Blockage Notification System

City of Cleveland
- Signal System Upgrade, CCTV Camera Implementation, and Traffic Management Enhancements
- Overheight Detection and Warning System on SR 40/US 64
- School Zone Flasher Control System
- Emergency Vehicle Signal Preemption Expansion
- Public Works Department Automated Vehicle Location (AVL)
- Public Works Department Coordination with TDOT Smartway Center

Cleveland-Bradley County Emergency Management Agency
- Back-up Operations for City of Cleveland Public Works Traffic Management
- TDOT and City of Cleveland CCTV Camera Image Sharing

Cleveland Urban Area Metropolitan Planning Organization
- Archive Data Warehouse

Southeast Tennessee Human Resource Agency

Cleveland Urban Area Transit System Projects
- Automated Vehicle Location (AVL), Mobile Data Terminals (MDTs), and Mayday Alarms
- On-Board Security Monitoring
- Bus Stop Annunciation

SETHRA Projects
- Transportation AVL, MDTs, and Mayday Alarms
- On-Board Security Monitoring

Tennessee Department of Transportation
- SmartWay Deployment on I-75 – CCTV Cameras
- SmartWay Deployment on I-75 – Vehicle Detection
- SmartWay Deployment on I-75 – DMS Northbound and Southbound Before Exit 20
- I-75 Detour Route DMS – Westbound on US 64
- TDOT HELP Vehicle Service Area Expansion

ITS Deployment Examples

Closed Circuit Television Cameras

Traffic Management Center

Dynamic Message Signs

Highway Incident Response Units

Traffic Signal Coordination System

Transit Vehicle Tracking