

# Lawrence-Douglas County Regional ITS Architecture and Deployment Plan

## Executive Summary

April 2008

### LAWRENCE-DOUGLAS COUNTY 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 Lawrence-Douglas County 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

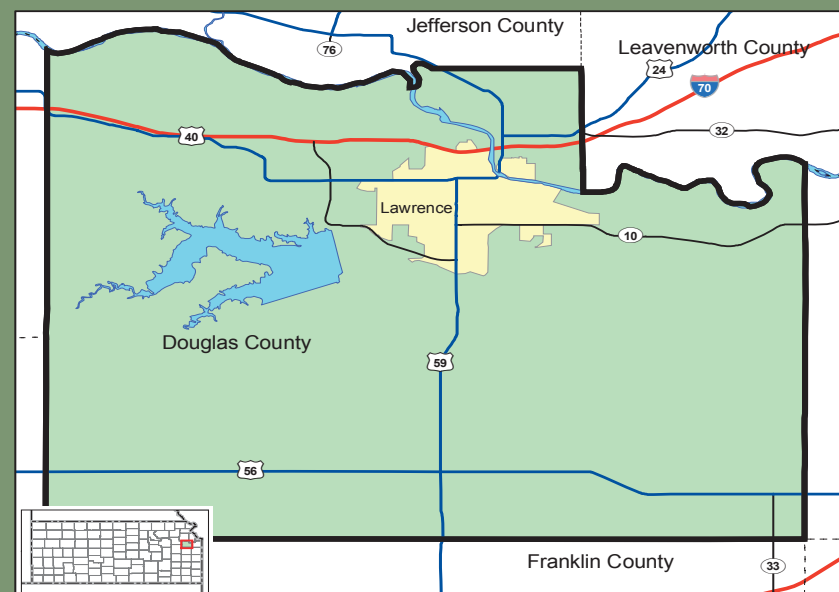
To ensure eligibility for the use of federal transportation funding on regional ITS projects, as projects are developed they will be compared to the applicable ITS market packages. Any discrepancies between the planned project and the ITS Architecture will be resolved either by modifying the project 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 City of Lawrence until the next plan update.

#### ITS Architecture Maintenance

The stakeholder group will review the Regional ITS Deployment Plan at least once and ideally twice per year. The tables will be updated to reflect changes in the project status, prioritization, or the addition of new projects. 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 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 and Deployment Plan.

### LAWRENCE-DOUGLAS COUNTY REGION GEOGRAPHIC BOUNDARIES

The Lawrence-Douglas County Region is defined as the total geographic area of Douglas County in northwest Kansas. The Region encompasses 474 square miles in Kansas. The largest city in the Region is Lawrence, with a population estimate of 80,000 residents.



Lawrence-Douglas County Regional Boundaries

#### PROJECT CONTACTS



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### INTRODUCTION

Development of a regional intelligent transportation system (ITS) architecture is a very important step in the planning and implementation of ITS in a region. An ITS architecture is essentially a very high level plan that identifies the need for the various services that ITS can provide and documents how ITS systems and components can be integrated together. 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 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. This requirement goes into effect in the Lawrence-Douglas County Region in October 2008.

### LAWRENCE-DOUGLAS COUNTY REGIONAL STAKEHOLDERS

The development of the Lawrence-Douglas County Regional ITS Architecture and Deployment Plan was led by the City of Lawrence with assistance and input provided by a number of stakeholders in the Lawrence-Douglas County Region. The success of the plan is due in large part to the collaboration and continuous participation of the stakeholders representing the communities of the Lawrence-Douglas County Region. These stakeholders participated in four workshops conducted in 2007 and 2008 to develop the Regional ITS Architecture.

#### Stakeholders included:

- City of Eudora
- City of Lawrence Public Works
- City of Lawrence Information Systems
- City of Lawrence Fire Department/EMS
- City of Lawrence Police Department
- Douglas County Information Technology
- Douglas County Emergency Communications-911
- Douglas County Emergency Management
- Douglas County Public Works
- Douglas County Sheriff's Office
- Federal Highway Administration
- Kansas Department of Transportation
- Kansas Turnpike Authority
- KU Civil, Environmental and Architectural Engineering
- KU on Wheels
- KU Parking and Transit
- KU Public Safety Office
- Lawrence Freenet
- Lawrence Transit System
- Lawrence-Douglas County MPO
- Lawrence-Douglas County Planning
- Lecompton Fire/Rescue/EMS
- USD 497 – Laidlaw Transportation



#### Inside:

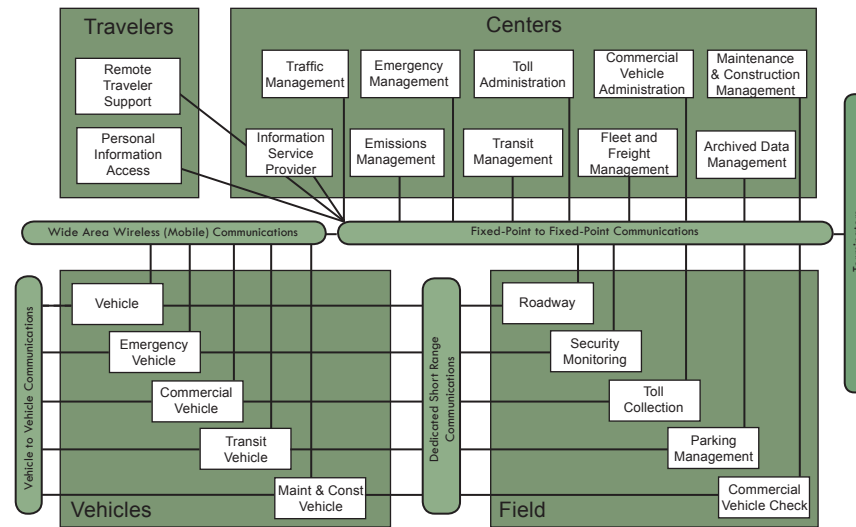
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## LAWRENCE-DOUGLAS COUNTY PROJECT APPROACH

The Lawrence-Douglas County 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 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 Lawrence a total of 44 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.

## LAWRENCE-DOUGLAS COUNTY ITS MARKET PACKAGES

ITS 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 ITS market packages identified by stakeholders in the Lawrence-Douglas County Region are listed below.

#### Traffic Management

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

#### Traveler Information

- Broadcast Traveler Information
- Interactive Traveler Information

#### Emergency Management

- Emergency Call-Taking and Dispatch
- Emergency Routing
- Disaster Traveler Information

#### Maintenance and Construction

- Road Weather Data Collection
- Weather Information Processing and Distribution
- Winter Maintenance
- Roadway Maintenance and Construction
- Work Zone Management
- Maintenance and Construction Activity Coordination

#### Public Transportation Management

- Transit Vehicle Tracking
- Transit Fixed-Route Operations
- Demand Response Transit Operations
- Transit Security
- Transit Traveler Information

## LAWRENCE-DOUGLAS COUNTY ITS PROJECTS

A list of recommended ITS projects for the Lawrence-Douglas County Region was developed through input from the regional ITS stakeholders. 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 in the Region. A complete listing of all the projects identified is found in the ITS Deployment Plan.

### Traffic Management and Traveler Information Projects



#### City of Lawrence

- Traffic Operations Center
- Signal System Upgrade
- CCTV Camera Deployment
- Special Event Traffic Control
- Incident Information Dissemination
- Center to Center Data Connection

#### KDOT

- CCTV Camera Deployment
- Dynamic Message Sign Deployment

### Maintenance and Construction Management Projects



#### City of Lawrence

- Flood Detection and Road Closure Warning System
- Automated Vehicle Location (Maintenance Vehicles)

#### Douglas County

- Flood Detection and Road Closure System
- Road Weather Information System
- Automated Vehicle Location (Maintenance Vehicles)

#### KDOT

- Road Weather Information System
- Automated Vehicle Location (Maintenance Vehicles)

### Emergency Management Projects



#### Douglas County

- 911 CAD Connection to City of Lawrence Traffic Operations Center
- 911 CAD Connection to KDOT Statewide Traffic Operations Management Center
- 911 Dispatch Intersection Blockage Notification

### Public Transportation Management Projects



#### KU on Wheels and Lawrence Transit

- Transit Vehicle Security Cameras
- Automated Vehicle Location
- Internet Trip Planning
- Electronic Fare Collection
- Automated Passenger Counters
- Next Bus Arrival Signs
- Traffic Signal Priority

