



## TOPEKA/SHAWNEE COUNTY REGIONAL ITS ARCHITECTURE

### EXECUTIVE SUMMARY

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*Submitted to*



**Metropolitan Topeka  
Planning Organization**

*by*



*In association with*



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## 1.0 INTRODUCTION

The Metropolitan Topeka Planning Organization (MTPO) has updated the Regional Intelligent Transportation System (ITS) Architecture for the Topeka/Shawnee County Metropolitan region. The Architecture summarizes the existing ITS in the region and describes the region's ITS plans, including projects that address the region's transportation needs. The architecture is compliant with Federal Highway Administration (FHWA) rule<sup>1</sup> and Federal Transit Administration (FTA) policy<sup>2</sup>.

The goal of the architecture update project is to develop a framework for the planning and development of ITS that improves the safety and efficiency of travel in the region. The Topeka/Shawnee County Regional ITS Architecture Update began in November 2013 and completed in April 2014.

### 1.1 Definition of ITS Architecture

An ITS architecture guides the efficient integration of ITS. It reflects the contributions of a broad cross-section of the transportation community (transportation practitioners, systems engineers, system developers, technology specialists, consultants, etc.). The architecture defines:

- The functions to be performed by ITS;
- The physical entities where the functions will be performed;
- The information flows and data flows that connect the functions and physical subsystems together into an integrated system;
- The roles and responsibilities of the ITS stakeholders;
- Technical goals to avoid duplication of investments in infrastructure; and
- Opportunities for integration and data sharing.

The Architecture also provides a means for tracking the progress of ITS development in the region. The completion of this planning effort is not the end of the architecture development; the architecture is flexible and meant to continue to adapt to reflect the ITS deployments and plans in the region.

### 1.2 Architecture Boundaries

The Topeka/Shawnee County Regional ITS Architecture has established boundaries for the transportation services addressed, geographic region and timeframe.

#### 1.2.1 Transportation Services Boundaries

The ITS Architecture examines transportation services in the following categories:

1. Arterial Traffic Management
2. Freeway Traffic Management
3. Traveler Information

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<sup>1</sup> [http://ops.fhwa.dot.gov/its\\_arch\\_imp/asflyer.htm](http://ops.fhwa.dot.gov/its_arch_imp/asflyer.htm)

<sup>2</sup> [http://ops.fhwa.dot.gov/its\\_arch\\_imp/policy\\_2.htm](http://ops.fhwa.dot.gov/its_arch_imp/policy_2.htm)

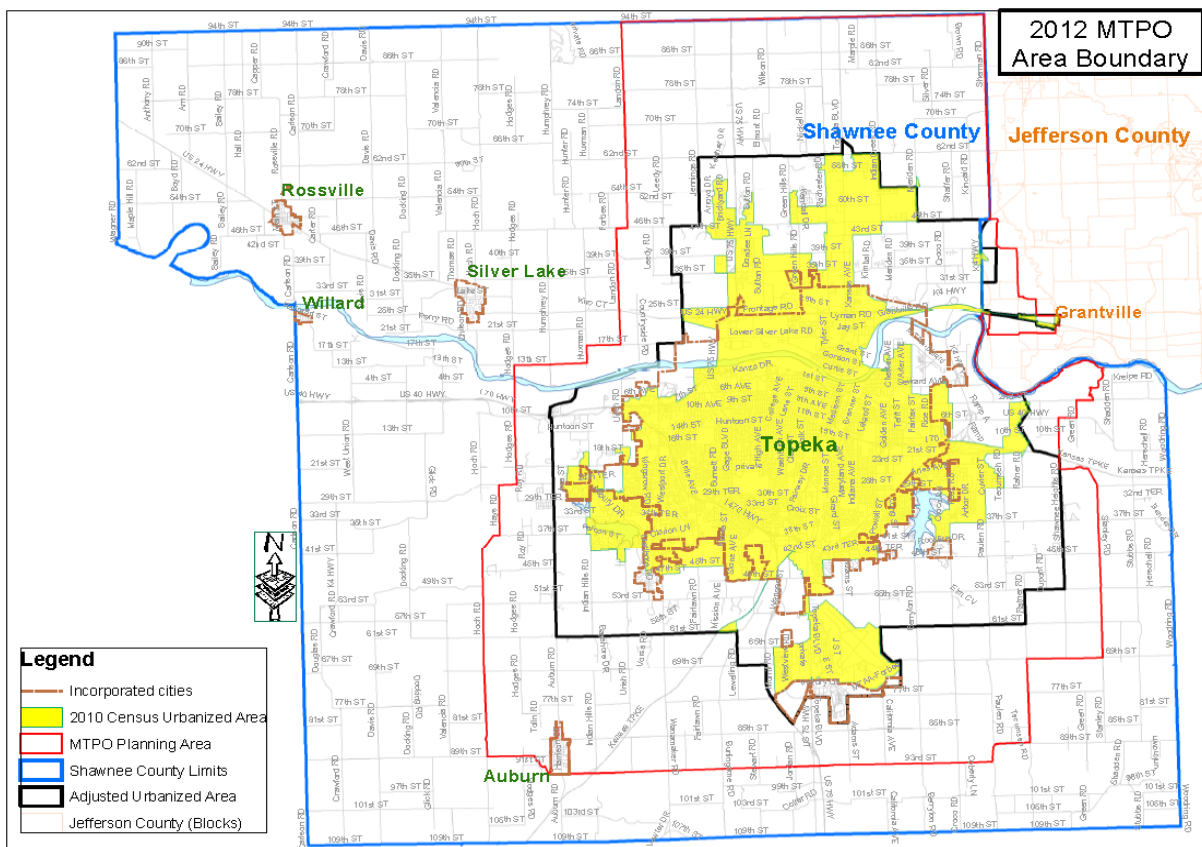
4. Transit Management and Information
5. Emergency Management
6. Maintenance and Construction
7. Electronic Fare Management

ITS Projects and existing conditions in the region fall into these categories.

### 1.2.2 Geographic Boundaries

The Topeka/Shawnee County ITS Architecture covers the MTPO planning boundaries, as shown in **Figure ES-1**. The region encompasses city and county roads, state highways, regional transit and two railroads that operate out of Topeka.

**Figure ES-1: Geographic Boundaries for the Topeka/Shawnee County Regional ITS Architecture**



### 1.2.3 Timeframe

The Topeka/Shawnee County Regional ITS Architecture complements the region’s Long-Range Transportation Plan (LRTP). Projects in the Topeka/Shawnee County Regional ITS Architecture are placed into three timeframes. They are:

1. **Near-term** – Near-term projects are needed in the next three years (through 2016).
2. **Medium-term** – Medium-term projects should be deployed within three to seven years (through 2020).

3. **Long-term** – Long-term projects should be deployed in seven or more years.

### 1.3 Stakeholders

The success of a regional ITS architecture depends on the participation by a diverse set of regional stakeholders. During this update, the stakeholders participated throughout the project via workshops, a project web site, surveys and webinars. They defined the project vision and goals, identified and prioritized the region’s needs, defined their roles and responsibilities and helped define the ITS projects. **Table ES-1** contains a list of ITS stakeholders for the region. The stakeholders listed in **bold** were members of the Project Team, which provided overall direction and guidance to the project.

**Table ES-1: Regional ITS Stakeholders**

Active Stakeholder Participation	Did not Participate but Support ITS in the Region
<b>City of Topeka Public Works</b>	AMR Emergency Response
<b>City of Topeka Emergency Services</b>	Federal Transit Administration (FTA)
<b>City of Topeka Information Technology</b>	Google
<b>Federal Highway Administration</b>	Kansas Department of Emergency Management
<b>Kansas Department of Transportation (KDOT)</b>	Kansas Motor Carrier Association
Kansas Highway Patrol	Local Towns Emergency Response
Kansas Turnpike Authority (KTA)	National Weather Service (NWS)
KTA Highway Patrol	Railroads
<b>Shawnee County</b>	Topeka Chamber of Commerce
<b>Shawnee County Emergency Management</b>	Traveling Public
State Capitol Police	
<b>Topeka Mass Transit Authority (TMTA)</b>	
Topeka Public Schools	
Washburn University	

### 2.0 ITS VISION AND GOALS

The development of a project vision and goals is important for bringing focus and structure to the ITS planning process. The vision and goals were developed with the Project Team.

**Topeka/Shawnee Regional ITS Vision**

*The Topeka/Shawnee County Region will use Intelligent Transportation Systems to provide cost-effective and practical technologies that improve the safety, capacity, and efficiency of moving people and goods on the area’s roadways.*

The Topeka/Shawnee County ITS Architecture Goals are:

1. Integrate efficient and effective ITS into regional transportation planning and project development.
2. Improve information sharing among the region's transportation agencies and with the public.
3. Increase the safety and security of transportation through improved infrastructure monitoring and emergency management.
4. Improve the utilization of existing facilities and infrastructure.
5. Encourage efficient modal choices through improved information sharing.

### 3.0 ITS NEEDS AND SERVICES

Transportation needs were gathered from stakeholders through a survey, a web site and a workshop. Over 100 needs were identified and prioritized during this exercise. Of all the needs identified, the following ten were considered the highest priorities:

1. Improve information sharing among agencies.
2. Improve incident detection.
3. Reduce response delays at signals.
4. Improve inter-agency coordination.
5. Provide more timely dissemination of traveler information.
6. Improve incident response times.
7. Improve incident response coordination among agencies.
8. Improve signal timing and control.
9. Improve traffic flow at intersections.
10. Enable the transit agency to locate the bus fleet.

The project mapped all of the identified needs to ITS User Services. ITS user services describe what ITS should do from the user's perspective. These services are typically represented by ITS Service Packages, which are "deployable bundles" of functions. One example of an ITS Service Package describes traffic signal control. Nationally, there are 97 ITS Service Packages<sup>3</sup> for:

- Archived data management
- Public transportation
- Traveler information
- Traffic management
- Vehicle safety
- Commercial vehicle operations
- Emergency management
- Maintenance and construction management

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<sup>3</sup> <http://www.iteris.com/itsarch/html/mp/mpindex.htm>



## Topeka / Shawnee County Regional ITS Architecture Update Executive Summary

The 2014 Topeka/Shawnee County Regional ITS Architecture Update describes eleven projects that utilize 14 ITS Service Packages. The projects and the ITS Service Packages utilized are described in the next section.

### 4.0 TOPEKA/SHAWNEE COUNTY ITS PROJECTS

The development of the ITS projects for the Topeka/Shawnee County Region was performed in an iterative manner with the stakeholders providing input into project sequencing and project definitions. The sequencing of projects was based on need, available funding and a project's dependency on other technologies. The greater the need, the sooner a project is planned for deployment, especially if funding is in place and technologies it depends on are already deployed in the region. Table ES-2 provides the list of projects by timeframe and estimated costs<sup>4</sup>. Following the table are brief descriptions of each planned project.


**Table ES-2: Topeka/Shawnee County Candidate ITS Projects**

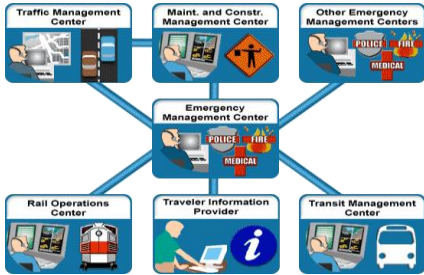
Projects		Estimated Cost
Near-term (planned to be deployed in the next three years)	City of Topeka Traffic Camera Upgrade	\$60,000 to \$100,000
	Regional Incident Coordination	\$100,000
	KDOT Dynamic Message Signs and Cameras South Expansion	\$400,000
	TMTA Automatic Vehicle Location	\$344,000 to \$645,000
<b>Total Estimated Near-Term Cost</b>		<b>\$904,000 to \$1,245,000</b>
Medium-term (planned to be deployed in three to seven years)	City of Topeka Traffic Control Upgrade	\$900,000 to \$1,200,000
	KDOT Dynamic Message Signs and Cameras North Expansion	\$300,000 to \$400,000
	Increased Emergency Signal Preemption – Phase 1	\$81,000 to \$330,000
	Regional Data Warehouse	\$800,000 to \$2,000,000
	Real-time Bus Arrival Information	\$200,000
<b>Total Estimated Medium-Term Cost</b>		<b>\$2,281,000 to \$4,130,000</b>
Long-term (planned to be deployed in more than seven years)	Transit Signal Priority	\$87,000 to \$303,000
	Regional Traveler Information	\$500,000 to \$1,500,000
	Increased Emergency Signal Preemption – Phase 2	\$60,000 to \$240,000
<b>Total Estimated Long-Term Cost</b>		<b>\$647,000 to \$2,043,000</b>
<b>Total Cost of All Projects</b>		<b>\$3,832,000 to \$7,418,000</b>

Note that a project's presence on this list does not mean that it has been programmed in other regional transportation plans. Only near-term projects have funding identified.


<sup>4</sup> <http://www.itscosts.its.dot.gov/its/benecost.nsf/ByLink/CostDocs>


## 4.1 Near-term Projects

<b>Project Name: Topeka Traffic Camera Upgrade</b>	
<p><i>Description:</i> This project will deploy new camera software to better manage the city's existing traffic cameras. It will increase the number of operable City of Topeka traffic cameras from five to 14 and significantly improve coverage near interchanges with I-70 and I-470. The project will provide camera image access to other agencies, including KDOT, emergency responders, Shawnee County and others, as well as to the traveling public.</p>	
<p><i>Timeframe:</i> Next three years.</p>	<p><i>Project Area:</i> Key intersections near highways in Topeka.</p>
<p><i>Lead stakeholder:</i> <b>City of Topeka Public Works</b> <i>Other Stakeholders:</i> City of Topeka Fire and Police; KDOT; KHP; KTA; KTA HP; Shawnee County.</p>	<p><i>ITS Service Packages:</i> <a href="#">ATIS01: Broadcast Traveler Information</a> <a href="#">ATMS01: Network Surveillance</a></p>
<p><i>Need(s) Addressed:</i></p> <ul style="list-style-type: none"> <li>• Provide more timely dissemination of traveler information.</li> <li>• Provide quality real time congestion related information.</li> <li>• Improve incident detection.</li> <li>• Improve system operation monitoring.</li> <li>• Improve freeway traffic surveillance.</li> <li>• Improve arterial roadway traffic surveillance.</li> </ul>	
<p><i>Estimated Cost:</i> From <b>\$60,000 to \$100,000.</b></p>	

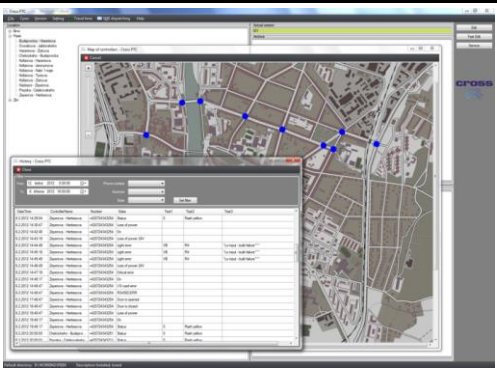
<b>Project Name: Regional Incident Coordination</b>	
<p><i>Description:</i> This project establishes a process for the region's transportation and emergency response agencies to share incident and event information. Its product will be a strategy and protocols for information and response strategy coordination. The project will bring the stakeholders together to define incident information needs, define what and how information will be shared, and implement a strategy.</p>	
<p><i>Timeframe:</i> Next three years.</p>	<p><i>Project Area:</i> Shawnee County.</p>
<p><i>Lead stakeholder:</i> <b>KDOT</b> <i>Other Stakeholders:</i> City of Topeka Public Works; City of Topeka Fire and Police; KTA; Shawnee County; KDEM; TMTA.</p>	<p><i>ITS Service Packages:</i> <a href="#">ATMS06: Traffic Information Dissemination</a> <a href="#">ATMS08: Traffic Incident Management System</a></p>
<p><i>Need(s) Addressed:</i></p> <ul style="list-style-type: none"> <li>• Improve information sharing among agencies.</li> <li>• Improve interagency coordination.</li> <li>• Improve traffic management during incidents.</li> <li>• Improve incident response coordination among agencies.</li> <li>• Improve response to hazardous materials spills/incidents.</li> </ul>	
<p><i>Estimated Cost:</i> Approximately <b>\$100,000.</b></p>	




<b>Project Name: KDOT Dynamic Message Signs and Cameras South Expansion</b>	
<p><i>Description:</i> This project will deploy three additional Dynamic Message Signs and cameras on US75 and I470 and a camera on I70. The signs and camera will be under the control of KDOT through its Traffic Management Operation Center. The signs will advise travelers of traffic conditions in the Topeka/Shawnee County region and be located to allow travelers to alter their routes before encountering congestion.</p>	
<p><i>Timeframe:</i> Next three years.</p>	<p><i>Project Area:</i> Three locations on US75 and I470 in Shawnee County.</p>
<p><i>Lead stakeholder:</i> <b>KDOT</b></p>	<p><i>ITS Service Packages:</i>  <a href="#">ATMS06: Traffic Information Dissemination</a></p>
<p><i>Need(s) Addressed:</i></p> <ul style="list-style-type: none"> <li>• Provide more timely dissemination of traveler information.</li> <li>• Provide alternate route plans.</li> <li>• Provide quality real time congestion related information.</li> <li>• Improve method of disseminating congestion and incident data from KDOT.</li> </ul>	
<p><i>Estimated Cost:</i> Approximately <b>\$400,000</b>.</p>	

<b>Project Name: TMTA Automated Vehicle Location</b>	
<p><i>Description:</i> This project will equip transit vehicles with vehicle location technologies, and the dispatch center with the capability to monitor vehicle location and performance in real-time. The project will allow for increased electronic communication between drivers and dispatch, and increased real-time information provided to the public. The project will also allow for increased data collection, such as passenger boarding and exiting by location and schedule performance.</p>	
<p><i>Timeframe:</i> Next three years.</p>	<p><i>Project Area:</i> TMTA Service area.</p>
<p><i>Lead stakeholder:</i> <b>TMTA</b></p>	<p><i>ITS Service Packages:</i>  <a href="#">APTS01: Transit Vehicle Tracking</a></p>
<p><i>Need(s) Addressed:</i></p> <ul style="list-style-type: none"> <li>• Enable transit agency to locate bus fleet.</li> <li>• Enable dissemination/display of real-time bus arrival times.</li> </ul>	
<p><i>Estimated Cost:</i> From <b>\$344,000 to \$645,000</b>.</p>	

## 4.2 Medium-term Projects

<b>Project Name: Topeka Traffic Control Upgrade</b>	
<p><i>Description:</i> In this project, the city's existing Pyramids traffic control system will be upgraded to a newer system that will allow for increased control and information exchange with existing traffic signals. The upgraded system will allow for increased signal coordination, adaptive control and traffic monitoring. Upgraded software may allow for integrated management of signals, cameras and other roadside devices.</p>	
<p><i>Timeframe:</i> Three to seven years from present.</p>	<p><i>Project Area:</i> Topeka metro area.</p>
<p><i>Lead stakeholder:</i> City of Topeka Public Works</p>	<p><i>ITS Service Packages:</i> <a href="#">ATMS03: Traffic Signal Control</a></p>
<p><i>Need(s) Addressed:</i></p> <ul style="list-style-type: none"> <li>• Improve signal timing and control.</li> <li>• Improve traffic flow at intersections.</li> <li>• Implement or improve signal coordination.</li> <li>• Improve system operation monitoring.</li> </ul>	
<p><i>Estimated Cost:</i> From <b>\$900,000 to \$1,200,000.</b></p>	

<b>Project Name: KDOT Dynamic Message Signs and Cameras North Expansion</b>	
<p><i>Description:</i> This project will deploy two additional Dynamic Message Signs on US24 and K4. The signs and cameras will be under the control of KDOT through its Traffic Management Operation Center. The signs will advise travelers of traffic conditions in the Topeka/Shawnee County region and be located to allow travelers to alter their routes before encountering congestion.</p>	
<p><i>Timeframe:</i> Next three years.</p>	<p><i>Project Area:</i> Three locations on US24 and K4.</p>
<p><i>Lead stakeholder:</i> KDOT</p>	<p><i>ITS Service Packages:</i> <a href="#">ATMS06: Traffic Information Dissemination</a></p>
<p><i>Need(s) Addressed:</i></p> <ul style="list-style-type: none"> <li>• Provide more timely dissemination of traveler information.</li> <li>• Provide alternate route plans.</li> <li>• Provide quality real time congestion related information.</li> <li>• Improve method of disseminating congestion and incident data from KDOT.</li> </ul>	
<p><i>Estimated Cost:</i> From <b>\$300,000 to \$400,000.</b></p>	

<b>Project Name: Increased Emergency Signal Preemption – Phase 1</b>	
<p><i>Description:</i> This project will enable signal preemption at key intersections in the City of Topeka. Corridors targeted in this phase are along the streets of Fairlawn and Gage. Fire vehicles will be able to alert signals of their approach and trigger a signal change to give the emergency vehicle a green light. The project entails equipping vehicles with the ability to communicate with traffic signals, and for the signals to be able to receive and respond to communications. The project will improve incident response for emergency vehicles.</p>	
<p><i>Timeframe:</i> Three to seven years from present.</p>	<p><i>Project Area:</i> Fairlawn and Gage corridors.</p>
<p><i>Lead stakeholder:</i> <b>City of Topeka Public Works</b> <i>Other Stakeholders:</i> City of Topeka Fire</p>	<p><i>ITS Service Packages:</i> <a href="#">EM02: Emergency Routing</a></p>
<p><i>Need(s) Addressed:</i></p> <ul style="list-style-type: none"> <li>• Reduce response delays at signals.</li> <li>• Improve incident response times.</li> </ul>	
<p><i>Estimated Cost:</i> From <b>\$81,000 to \$330,000</b>.</p>	

<b>Project Name: Regional Data Warehouse</b>	
<p><i>Description:</i> This project will develop a centralized regional data warehouse that collects traffic, maintenance, transit, emergency and incident information. Authorized agencies can use the information for managing traffic and incidents, and for maintenance planning and response. Key functions will be to collect, format and organize information to make it usable and ensure all regional stakeholders use the same information for their operations.</p>	
<p><i>Timeframe:</i> Three to seven years from present.</p>	<p><i>Project Area:</i> Shawnee County.</p>
<p><i>Lead stakeholder:</i> <b>City of Topeka Public Works</b> <i>Other Stakeholders:</i> Shawnee County; KDOT; KTA; TMTA; State and Local Emergency Management</p>	<p><i>ITS Service Packages:</i>  <a href="#">AD2: ITS Data Warehouse</a>  <a href="#">APTS07: Multi-Modal Coordination</a>  <a href="#">ATIS06: Transportation Operations Data Sharing</a>  <a href="#">ATMS07: Regional Traffic Management</a>  <a href="#">MC10: Maintenance and Construction Activity Coordination</a></p>
<p><i>Need(s) Addressed:</i></p> <ul style="list-style-type: none"> <li>• Improve information sharing among agencies.</li> <li>• Improve interagency coordination.</li> <li>• Coordinate traffic control plans between jurisdictions.</li> <li>• Improve incident response coordination among agencies.</li> <li>• Improve coordination on construction notification and information distribution.</li> </ul>	
<p><i>Estimated Cost:</i> From <b>\$800,000 to \$2,000,000</b>.</p>	

<b>Project Name: Real-Time Bus Arrival Information</b>	
<p><i>Description:</i> This project will provide real-time bus arrival information to transit riders at bus stops. It will use the vehicle location information collected by an AVL system and calculate the actual time buses will arrive at bus stops. Digital signs at bus stops and smart phone applications may be used to disseminate accurate bus arrival time information for the stop.</p>	
<i>Timeframe:</i> Three to seven years from present.	<i>Project Area:</i> Key bus stops.
<i>Lead stakeholder:</i> <b>TMTA</b>	<i>ITS Service Packages:</i> <a href="#">APTS08: Transit Traveler Information</a>
<p><i>Need(s) Addressed:</i></p> <ul style="list-style-type: none"> <li>• Enable dissemination/display of real-time bus arrival times.</li> <li>• Provide more timely dissemination of traveler information.</li> <li>• Expand traveler information delivery methods.</li> </ul>	
<i>Estimated Cost:</i> Approximately <b>\$200,000</b> .	

### 4.3 Long-term Projects

<b>Project Name: Transit Signal Priority</b>	
<p><i>Description:</i> This project will equip buses with the ability to request a green light at signals as they approach. The request can be based on such considerations as whether a bus is significantly behind schedule and the passenger load. The traffic control system would determine to grant the green light based on such considerations as corridor coordination, impact on other traffic and impact on signal cycle.</p>	
<i>Timeframe:</i> More than seven years from present.	<i>Project Area:</i> Key intersections within the Topeka Metro area.
<i>Lead stakeholder:</i> <b>TMTA</b>	<i>ITS Service Packages:</i> <a href="#">APTS09: Transit Signal Priority</a>
<p><i>Need(s) Addressed:</i></p> <ul style="list-style-type: none"> <li>• Reduce transit vehicle delays at signals.</li> </ul>	
<i>Estimated Cost:</i> From <b>\$87,000 to \$303,000</b> .	

<b>Project Name: Regional Traveler Information</b>	
<p><i>Description:</i> This project will build upon the medium-term Regional Data Warehouse project to develop a system for sharing consistent regional traffic and traveler information with the public. The project will pull information from the regional data warehouse and share it with the public in a consistent manner through multiple mediums, potentially including phone, web and DMS. The project may also develop a data feed of regional traveler information that can be shared with third parties for dissemination to the public.</p>	<p>The diagram illustrates the flow of information in a traveler information system. On the left, 'Information is Generated...' from sources like Traffic Sensors, Aerial Surveillance, Road Weather, Incident Detection, and Weather Monitoring. This information is sent to travelers, who then respond by changing routes, modes, departure times, or destinations. A central list of events includes Delays, Incidents, Road Weather, Next Bus, Travel Times, Emergency Alerts, and Alternate Routes.</p>
<p><i>Timeframe:</i> More than seven years from present.</p>	<p><i>Project Area:</i> Shawnee County.</p>
<p><i>Lead stakeholder:</i> <b>TMTA</b></p> <p><i>Other Stakeholders:</i> Shawnee County; KDOT; KTA; TMTA; State and Local Emergency Management</p>	<p><i>ITS Service Packages:</i>  <a href="#">ATIS01: Broadcast Traveler Information</a></p>
<p><i>Need(s) Addressed:</i></p> <ul style="list-style-type: none"> <li>• Provide more timely dissemination of traveler information.</li> <li>• Provide quality real time congestion related information.</li> <li>• Disseminate better information regarding limited alternative routes.</li> <li>• Provide better road construction information and notification.</li> <li>• Expand traveler information delivery methods.</li> </ul>	
<p><i>Estimated Cost:</i> From <b>\$500,000 to \$1,500,000.</b></p>	

<b>Project Name: Increased Emergency Signal Preemption – Phase 2</b>	
<p><i>Description:</i> This project will expand the deployment of the signal preemption technology described in the medium-term Phase 1 project. This expansion will increase emergency signal preemption to other corridors for fire vehicles. Those corridors may include portions of Topeka Boulevard and 10<sup>th</sup> Street.</p>	<p>The diagram shows a 3D perspective of a four-way intersection. A fire truck is approaching from the top-left. A building with a radio tower is shown below the intersection, connected by a signal line to the intersection's traffic lights, illustrating the signal preemption technology.</p>
<p><i>Timeframe:</i> More than seven years from present.</p>	<p><i>Project Area:</i> Topeka and 10<sup>th</sup> corridors.</p>
<p><i>Lead stakeholder:</i> <b>City of Topeka Public Works</b></p> <p><i>Other Stakeholders:</i> City of Topeka Fire</p>	<p><i>ITS Service Packages:</i>  <a href="#">EM02: Emergency Routing</a></p>
<p><i>Need(s) Addressed:</i></p> <ul style="list-style-type: none"> <li>• Reduce response delays at signals.</li> <li>• Improve incident response times.</li> </ul>	
<p><i>Estimated Cost:</i> From <b>\$60,000 to \$240,000.</b></p>	

### 4.4 Communications

A robust communications network must exist in order for ITS deployments to succeed. In addition to the twelve projects, the Topeka/Shawnee Region should explore means to improve its ability to exchange information among centers, devices and the public.

The region should explore deploying a wireless network that covers the region and provides flexibility on the placement and movement of ITS devices. The network could serve multiple stakeholders and provide communications to devices such as signals and cameras in locations where wired communications are not feasible. It may also provide the capability for communications to mobile devices, such as on-board transit, maintenance and construction ITS.

### 4.5 Project Funding

ITS projects may be eligible for funding from a variety of sources, including some specifically for the deployment of advanced technologies. ITS projects should also compete for existing transportation funds with other transportation projects, such as road-widening and expansion. **Table ES-3** lists the Topeka/Shawnee County region ITS projects and summarizes the funding resources they may qualify for. For each project, a black dot (●) indicates a funding source that the project may qualify for, with the funding covering at least a portion of its cost. This does not mean that each project will be funded by these sources, just that these sources should be considered.

**Table ES-3: Potential Project Funding Sources**

Project Name	Locally Administered			State Administered		Federally Administered		
	Local Transportation Funds	MTPO Funds	Local Emergency Funds	KDOT	ITS Earmark Funds	Homeland Security	Federal Highway Funds	Federal Transit Funds
City of Topeka Traffic Camera Upgrade	•	•	•	•				
Regional Incident Coordination				•			•	
KDOT Dynamic Message Signs and Cameras North Expansion				•			•	
TMTA Automatic Vehicle Location	•	•						•
City of Topeka Traffic Control Upgrade	•	•						
KDOT Dynamic Message Signs and Cameras South Expansion				•			•	
Increased Emergency Signal Preemption – Phase 1	•	•	•					
Regional Data Warehouse	•	•	•	•	•		•	
Real-time Bus Arrival Information	•	•						•
Transit Signal Priority	•	•						•
Regional Traveler Information	•	•		•	•		•	
Increased Emergency Signal Preemption – Phase 2	•	•	•					

### 5.0 CONCLUSIONS

The ITS projects recommended in the Topeka/Shawnee County Region ITS Architecture Update are the result of the needs-based ITS Architecture process. The update makes the Topeka/Shawnee County region compliant with FHWA rules and FTA policy on architecture.

Throughout the project, every project was vetted to ensure that it directly addressed and had the potential to resolve the region's transportation needs. The entire process can be reviewed in the ***Strategic Deployment Plan***.

The plan discusses many other considerations to be undertaken before designing and deploying ITS. They include:

- Identifying needed agreements among stakeholders.
- Identifying funding for deployment and maintenance.
- Involving stakeholders.
- Maintaining the ITS architecture.
- Using the ITS architecture.
- Incorporating ITS into the traditional planning process.

Going forward, the region should continue to actively consider cost-effective ITS solutions when addressing the region's needs. The projects identified in this plan should be allowed to compete with traditional transportation projects for funding and be considered for inclusion in the Long Range Transportation Plan.

Over time, the region's needs and plans may change. The architecture should be maintained and updated to reflect the status of ITS in the region. The architecture should be examined and revised in coordination with other regional planning activities.