



# INTELLIGENT TRANSPORTATION SYSTEMS ARCHITECTURE REPORT

JULY 2025



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### INTRODUCTION

The Wichita Area Metropolitan Planning Organization (WAMPO) Regional Intelligent Transportation Systems (ITS) Architecture serves as a foundational framework for the planning, deployment, integration, and operation of technology-driven solutions within the transportation network. By applying electronic technologies and communications to improve the efficiency and safety of transportation system, ITS architecture enables stakeholders to establish a long-term vision for the region's infrastructure and strategically break down this vision into manageable, fundable projects. This framework is crucial for encouraging interoperability and resource sharing among diverse agencies and jurisdictions, as well as identifying and applying relevant ITS standards that facilitate seamless integration.

### BACKGROUND & PURPOSE

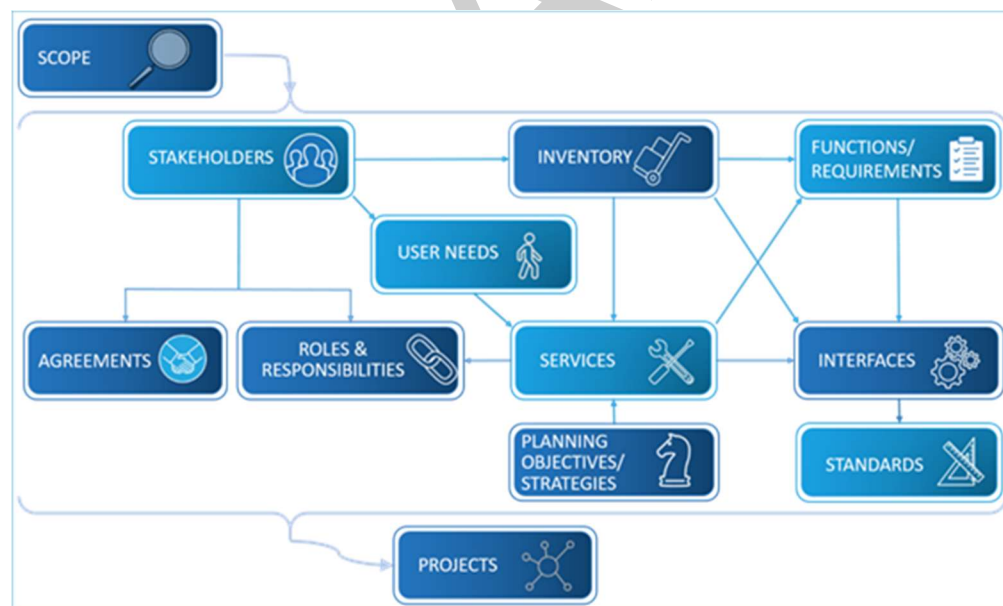
Imagine a city or a region's transportation network – its roads, traffic signals, public transit, emergency services, and even information for travelers. Now imagine trying to make all these various parts work together as smoothly and efficiently as possible. This is where ITS Architecture plays a key role. Think of it as a blueprint for how technology is used to improve our transportation systems.

ITS is the use of electronics, communications, and computer processing to make our transportation network safer and more efficient. Everyday examples include traffic signals that adjust to traffic flow, electronic signs that display delay information, and mobile apps that provide real-time updates. Now, similar to how a blueprint is needed to build a house, an ITS Architecture is needed to plan and build these technology-based transportation improvements in a coordinated way across the region. The ITS Architecture acts as a framework that guides how different transportation systems and technologies should work together. It helps different agencies, like city traffic departments, state transportation agencies, and transit authorities, to share information and resources. Here is why ITS Architecture is important for everyone, even for those that are not transportation experts:

- **It helps make transportation safer.** By coordinating systems and providing timely information, ITS can help prevent accidents and improve emergency response.
- **It makes getting around more efficient.** ITS Architecture helps plan for things like better traffic flow, reduced delays, and improved public transit - making commuting and traveling easier.
- **It ensures that technological investments are smart.** With a regional plan, agencies can avoid building isolated systems that do not communicate, saving money and ensuring that new projects align with a broader strategy.
- **It can unlock federal funding.** Developing and maintaining regional ITS architecture is a federal requirement. The WAMPO ITS Architecture is one example, based on the National ITS Architecture version 2.2 – renamed in 2017 to the Architecture Reference for Cooperative and Intelligent Transportation (ARC-IT).

To qualify for federal funding, any region planning to use Intelligent Transportation Systems (ITS) – like smart traffic signals, digital signs, or traffic management tools – must have an approved ITS Architecture in place. This ensures that all technology projects are well coordinated and work together as part of a larger system. This requirement has been in effect since 2001, starting with the Transportation Equity Act for the 21<sup>st</sup> Century (TEA-21), and continues under newer laws like SAFETEA-LU and the FAST Act. The ITS Architecture must also meet specific content guidelines set by the Federal Highway Administration (FHWA):

- A description of the region, including its geographic definition, timeframe, and operations.
- A listing of stakeholders involved.
- Identification of the roles and responsibilities of stakeholders.
- Agreements (existing or new) for operations identified in Regional Architecture.
- System functional requirements.
- Interface requirements and information exchanges with planned and existing systems.
- Identifying the technical standards that help different ITS systems communicate and work smoothly with each other.
- A sequence of projects in the region.

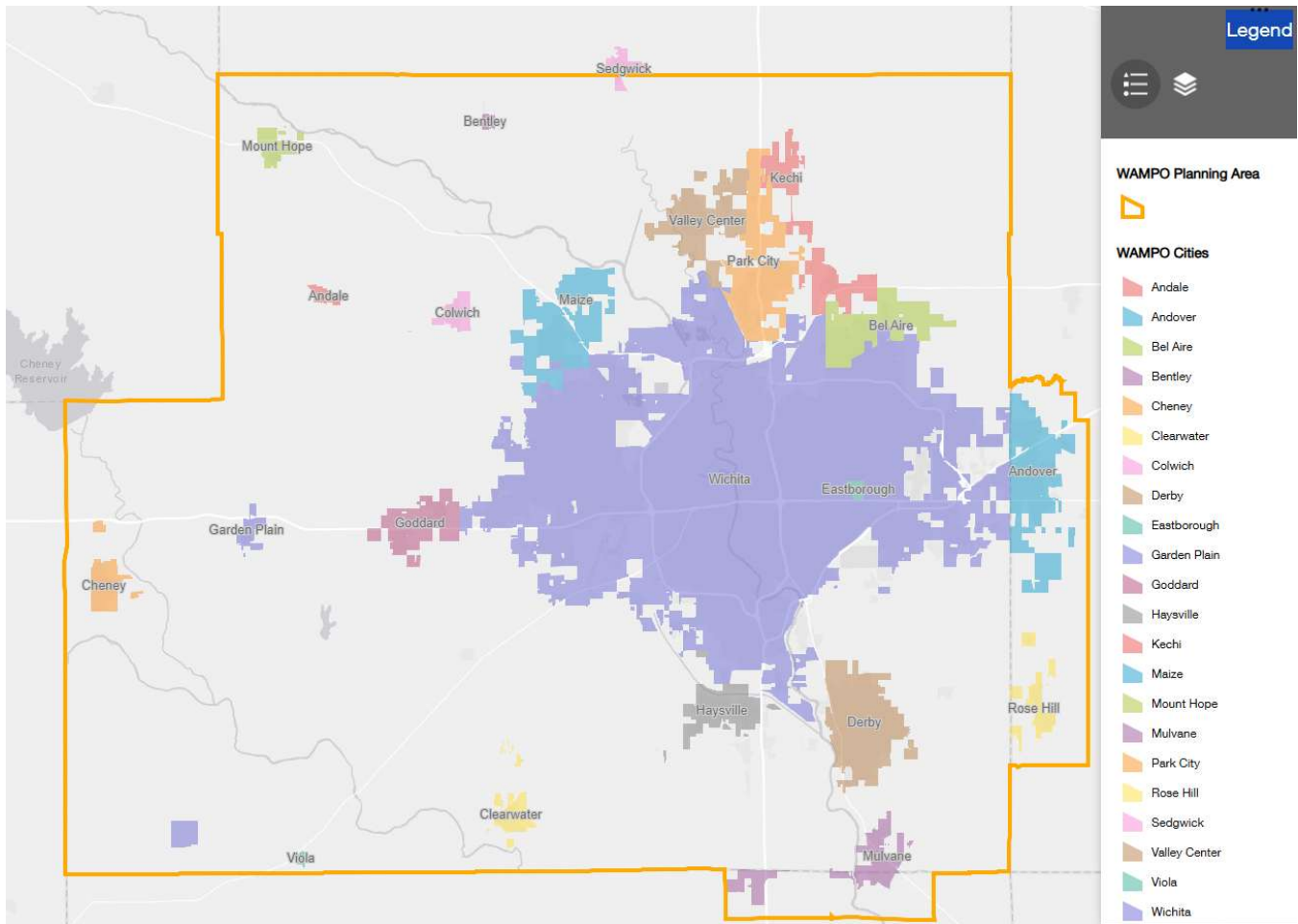


Regional ITS Architecture guide [arc-it.net](http://arc-it.net)

The illustration shows the relationship of these requirements within the architecture. This document will report on details of these requirements in subsequent sections.

## SCOPE OF THE ARCHITECTURE

The WAMPO region is home to 547,230 people and is the largest metropolitan area entirely within the state of Kansas. The region is responsible for 18% of Kansas's Gross Domestic Product (GDP) and is the second-highest GDP by rank (counties) in the state. Wichita, the largest city in the region and in the state, serves as a central hub for business, education, healthcare, and entertainment. It is home to 70% of the regional population, which includes an additional twenty-one (21) cities. The remainder of the WAMPO region is comprised of productive agricultural areas in Sedgwick, Butler, and Sumner counties.



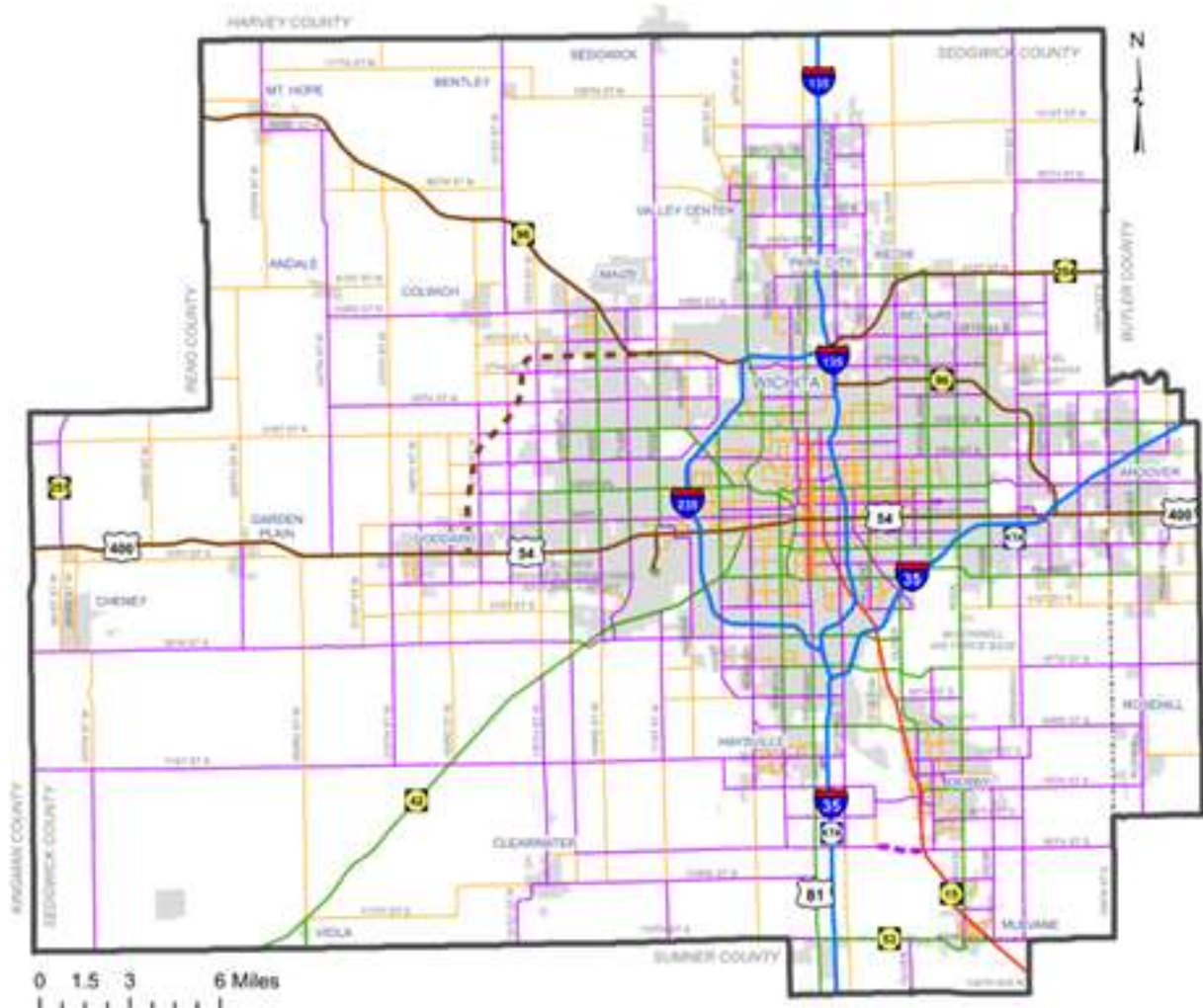
Map of the WAMPO Region with each of the 22 cities highlighted [wampo.org](http://wampo.org)



The transportation network of the WAMPO region contains 7 major corridors:

1. I-35 (the only North American interstate connecting Canada, US, and Mexico)
2. US-54 (main east west corridor also known as Kellogg Ave.)
3. I-135 (connecting WAMPO to I-70 north of the region)
4. I-235 (pinwheel interstate corridor around the west side of Wichita)
5. K-15 (connection to the southeast area of the region)
6. K-254 (connection to the northeast area of the region)
7. K-96 (connection to the northwest area of the region)

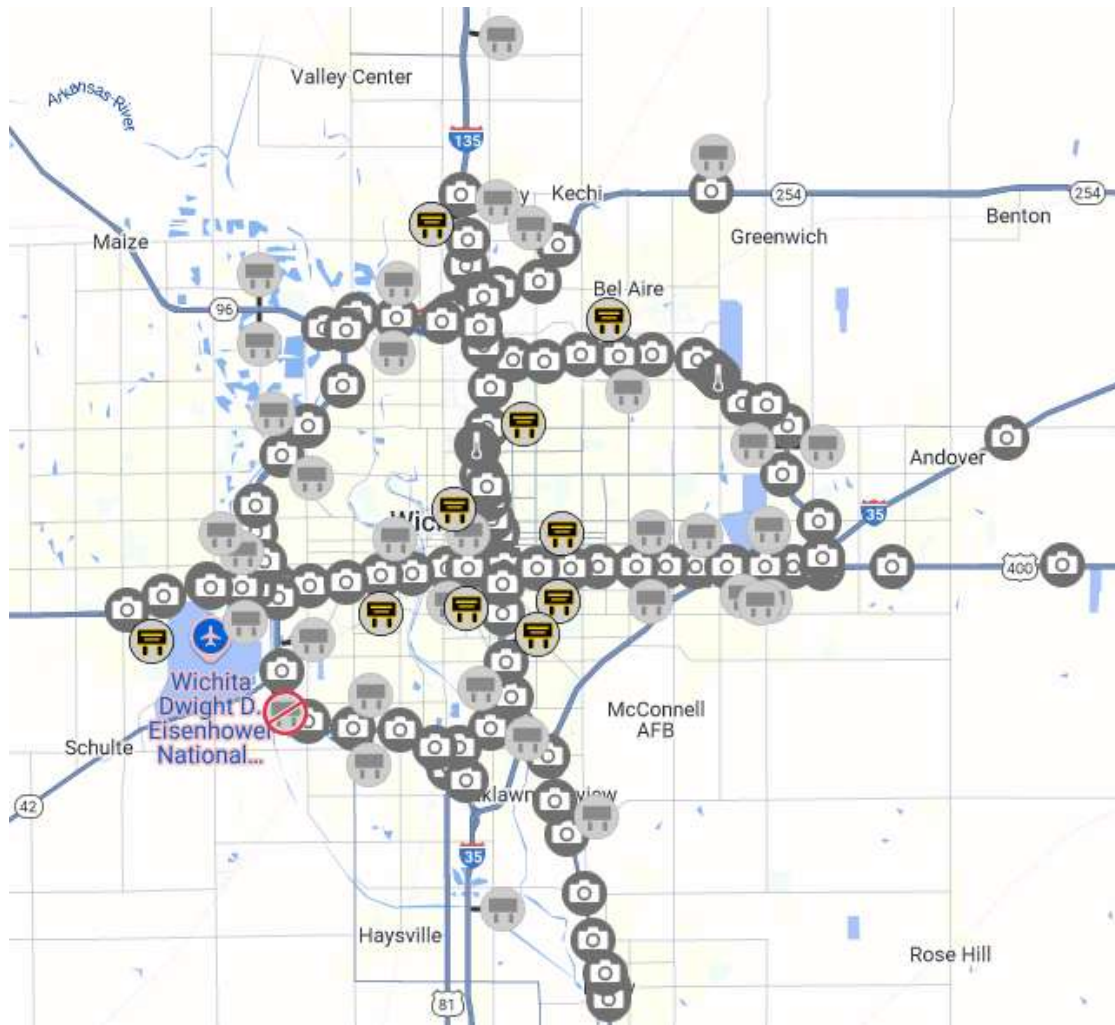
These along of the rest of the transportation network are illustrated here:



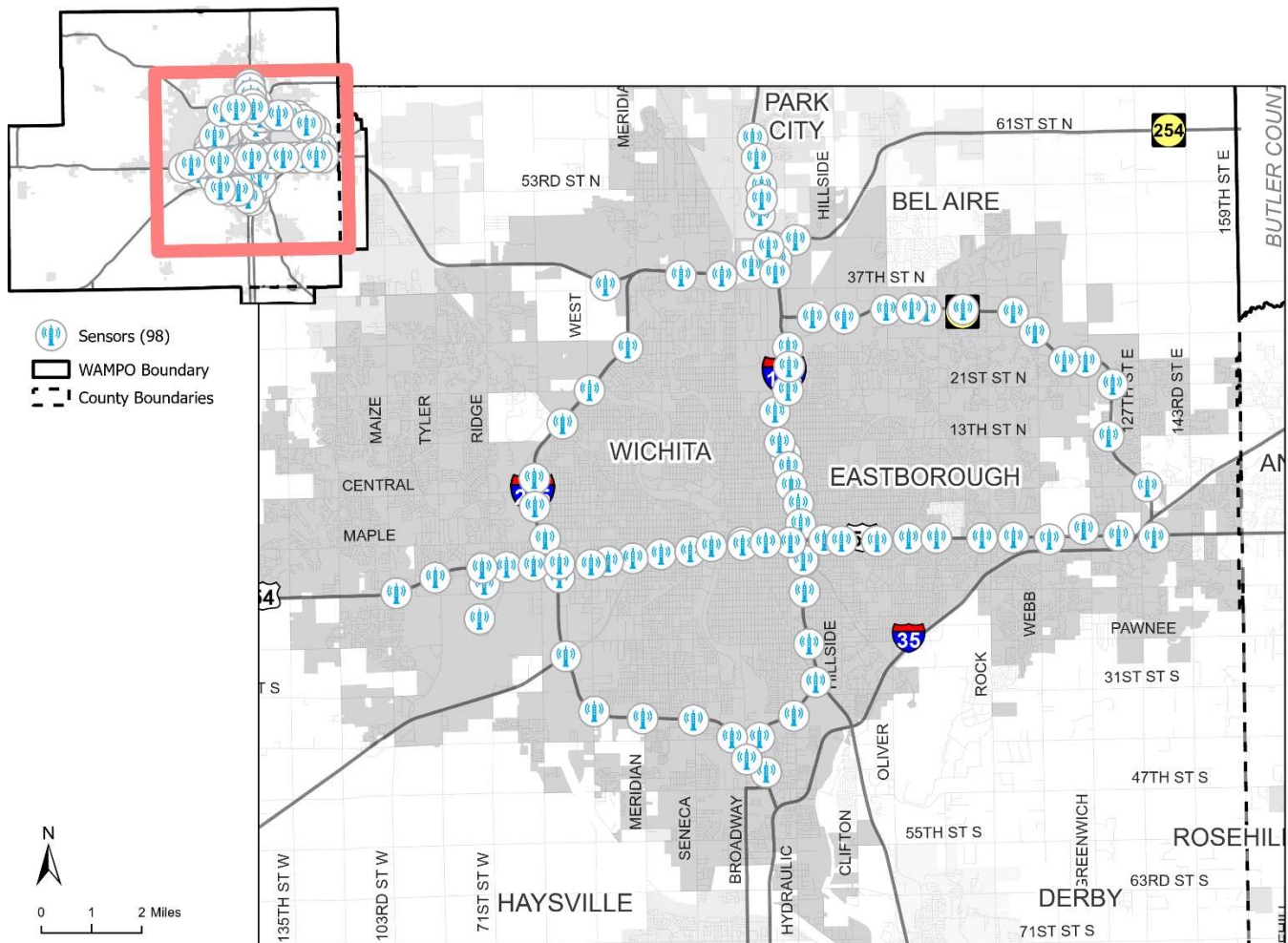
Transportation Network within the WAMPO Region [wampo.org](http://wampo.org)

The transportation network is “operated” by Kansas Department of Transportation’s (KDOT) Traffic Management Center (TMC) known as [WICHway](http://kandrive.gov) ([kandrive.gov](http://kandrive.gov)). The TMC employs a variety of ITS devices like CCTV Cameras, Speed Sensors, Dynamic Message Signs (DMS), etc. to observe, detect, and disseminate travel conditions in real time to the traveling public.

The following two illustrations depict deployments of CCTV Cameras, DMS, and Sensors around the region.



*Map of CCTV Cameras and DMS in the WAMPO Region [kandrive.gov](http://kandrive.gov)*

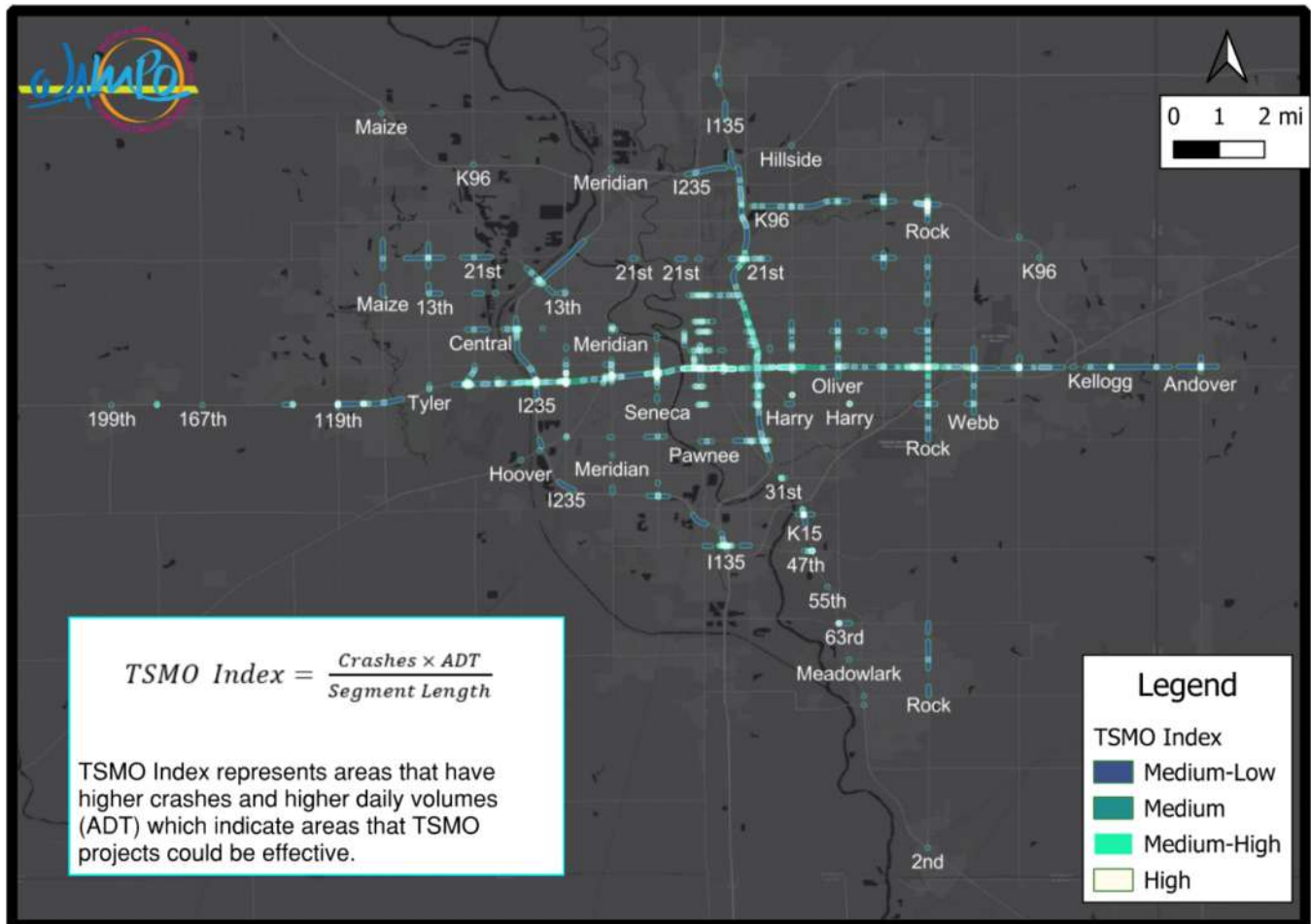


*Map of Speed Sensors in the WAMPO Region [WAMPO MTP2050](#)*

Many cities in the region have traffic signals with some form of ITS technology in place, but they are generally managed separately by each local government. Currently, there is little connection or coordination between these traffic signal systems.

Most of the ITS technology in use in the region has been installed along the busiest roads, where traffic is heaviest. These systems are usually added in response to common traffic problems like congestion or accidents. The next illustration shows the connection – called the TSMO Index (which is explained below) – between how much traffic is on a road and how many accidents or incidents occur on the road. The ‘hot spots’ or brighter sections show where ITS is already making a difference or where it could be especially helpful in the future.





The TMC and ITS Architecture are a part of a larger function in the transportation world known as Transportation Systems Management and Operations (TSMO). TSMO includes the following:

- i. TMC - Freeway and Arterial (major through streets in the local street network) Management
- ii. ITS & Communication deployments - Physical deployments of ITS such as smart traffic signals, ITS Architecture, or the system connected to all the components, and methods of communication like fiber that allow the system components to communicate.
- iii. Traffic Incident Management (TIM) - A system that helps police, firefighters, and other first responders work together quickly and efficiently when there is an accident or other road incident.
- iv. Work Zone Management - Using temporary technology such as message boards and signs to let drivers know about changes or issues in construction zones.
- v. Public Communications - Sharing traffic updates that let drivers know about regular and unexpected traffic issues through news, social media, and traffic apps such as [WICHway](#)

## ITS Architecture Update Process

The following five steps have been taken, encompassing the process of updating the WAMPO region's ITS Architecture for the first time since 2006:

- 1. Conduct Stakeholder Interviews:** When updating the region's Intelligent Transportation Systems (ITS) plan, it's important to get input from a variety of groups that will be impacted by the system. This is because ITS goes beyond just roads and traffic. It can involve things like public transit, emergency services, and the cities and stakeholders throughout the WAMPO region. WAMPO's ITS plan includes a variety of organizations, and many of them helped shape the most recent update. The following list of municipalities and agencies were engaged specifically during the update through one-on-one meetings:

- City of Maize
- City of Derby
- City of Haysville
- City of Goddard
- City of Andover
- Park City
- City of Belaire
- City of Wichita
- Kansas Department of Transportation
- Sedgwick County

Appendix A identifies the stakeholders that own or operate components of the ITS system within WAMPO Region. The table provides a name and description of the agency, department, or organization represented by the stakeholder. This comprehensive table of stakeholders have been given the opportunity to provide input and feedback on the ITS Architecture and this Report.

- 2. Develop a Draft ITS Architecture Update:** Using the information and feedback collected during the stakeholder interviews, the architecture material was updated. This includes:
  - Stakeholders
  - Inventory
  - Agreements
  - Planned ITS Projects
- 3. Hold Stakeholder Workshop:** A half-day stakeholder workshop was held on April 22, 2025 to review the draft architecture. Invitations were extended to all stakeholders. The workshop included:
  - Education
  - Review and updates
  - Discussion on future plans
- 4. Finalize Updated ITS Architecture:** Following the workshop, updates are completed to the following:
  - Regional ITS Architecture - RAD-IT Tool Output

- The Regional ITS Architecture will be documented using RAD-IT (Regional Architecture Development for Intelligent Transportation). It is a software application developed by the United States Department of Transportation (USDOT). It serves as a tool for documenting and maintaining ITS architecture. The final product is an interactive “website”, more than a file, which allows the user capabilities to update and maintain the region architecture information.
- ITS Architecture Report
- ITS Deployment Plan

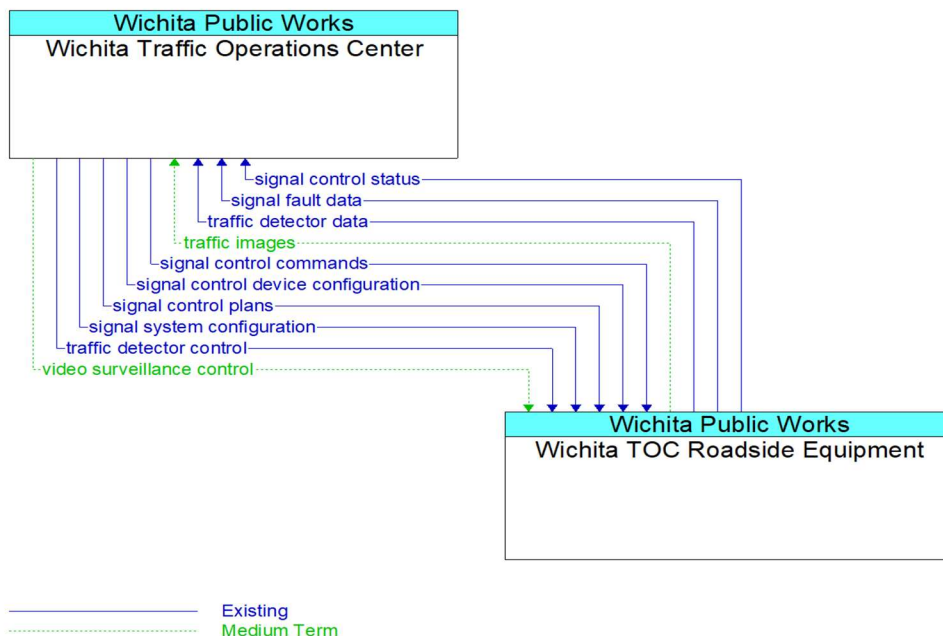
**5. Develop Final ITS Architecture** Following review by WAMPO staff, the Technical Advisory Committee (TAC) will formally recommend the architecture for approval by the Transportation Policy Body (TPB). Once approved, the architecture will be published and be accessible to the public.

## Inventory

Appendix B holds a chart pulled from the ITS Architecture RAD-IT file illustrating elements of ITS in the WAMPO region. They are tied to the appropriate responsible stakeholder and include a description of the element. The comprehensive list of elements can be found within the RAD-IT file.

## Flow Diagrams and Services

Within an ITS Architecture, data flows are documented through a series of illustrations that allow the user to understand how elements connect with services in the WAMPO region. These data flows are critical to understand as they reveal how the removal of one element affects the operation of services, other elements, and the stakeholders responsible for each. Here is an example of data flows between Wichita Public Works Operations Center and Roadside Equipment. The labeled directional arrows between the boxes are the data flows necessary for this overall connection to operate.



## Agreements

### Why Interagency Agreements Matter in ITS Planning

It's important to list and maintain formal agreements between agencies when planning and running Intelligent Transportation Systems. Here's why:

- **Clear Information Sharing:** These agreements explain how public and private organizations will share information to support things like traffic control, emergency response, and travel updates.
- **Defined Roles:** These agreements spell out roles, responsibilities, and authority among agencies. With the integration of complex ITS technologies, formal agreements ensure each entity understands its function in operations, maintenance, and data sharing.
- **Seamless Cooperation:** These agreements help different agencies work together smoothly, even if their systems are different.
- **Shared Responsibilities:** Interagency agreements make it clear who oversees running and maintaining services, and who is responsible for funding them.
- **Consistency Over Time:** Written agreements help avoid confusion when staff changes happen, unlike informal or verbal agreements.
- **Opportunities to Work Together:** These agreements can help agencies team up to share costs, equipment, and resources. Documenting financial responsibilities among participating agencies helps prevent future disputes over cost-sharing or budget commitments.

WAMPO ITS agreements are enclosed with the RAD-IT file.

## Project Deployment Plan

WAMPO has developed a separate Strategic ITS Deployment Plan for the documentation of existing and potential projects within the region. The existing projects are pulled from the Transportation Improvement Program (TIP) as projects with funding and are currently or about to be under construction. Potential projects are a result of stakeholder meetings in which issues within the transportation network where ITS deployments may provide solutions are discussed. The ITS Plan includes a matrix of those projects categorized by priorities of the region for funding considerations.

## Connection to Planning

### How ITS and the Transportation Improvement Program Work Together

ITS projects and the TIP are closely connected – especially when federal funding is used. It's important to make sure that any ITS projects in the TIP follow the plans already set in the Regional ITS Architecture. Here's what the connection looks like:

- **Integration into the Planning Process:** The ITS Architecture is meant to be a routine element of transportation planning in the region. This includes informing project priorities during TIP development. This ensures that the region's overall ITS goals are considered when deciding which projects to fund.



- **Guidance for Project Definition:** The ITS Architecture can help planners include ITS features into projects listed in the TIP. It can also help define project details, show how different systems can work together, and give better cost estimates based on what's needed.
- **Review and Evaluation of TIP Projects:** When new projects are proposed for the TIP, agencies should check to see if they include ITS components, and make sure those components match what's already in the Regional ITS Architecture.

### How ITS Architecture Supports Long-Term Transportation Planning

ITS Architecture plays an important role in shaping the region's Long-Range Transportation Plan (LRTP). Here's how they work together:

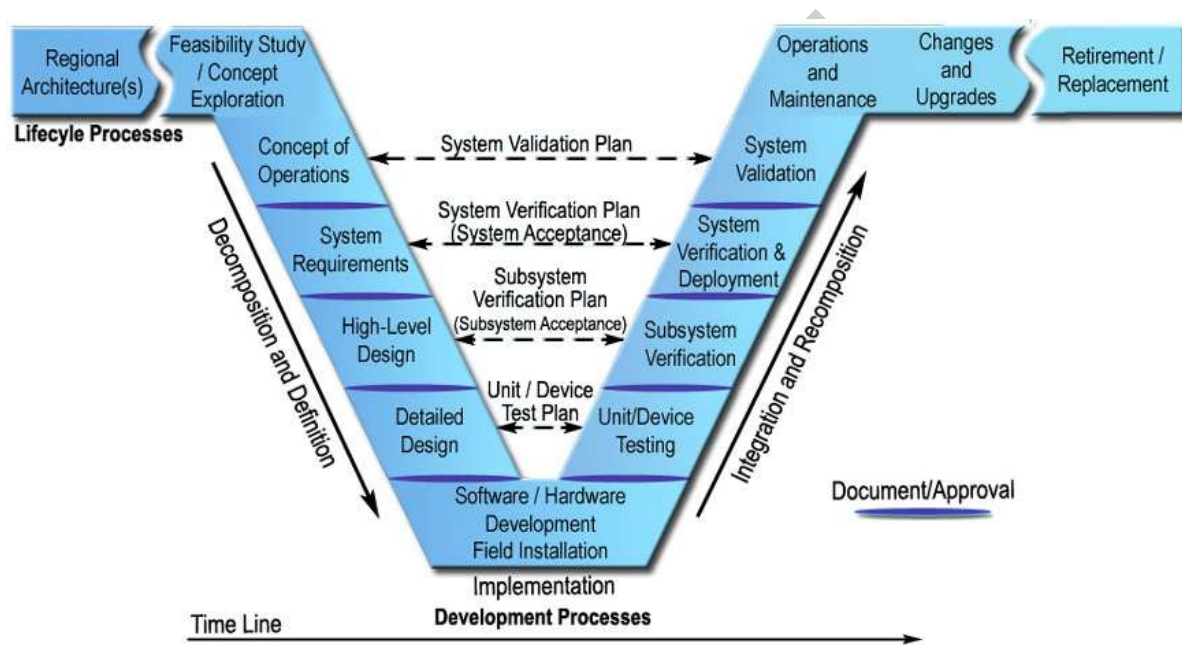
- **Guidance for ITS Integration:** The Regional ITS Architecture provides a guide for including smart transportation technologies in long-term plans.
- **Alignment with Regional Goals and Vision:** The LRTP sets the big-picture goals for transportation over the next twenty (20) years. ITS Architecture helps make sure technology projects support those goals.
- **Supports an Integrated System:** ITS focuses on how different parts of the transportation system – like roads, traffic signals, and transit – can share information and work together. This supports LRTP's goal of creating a more connected transportation network.
- **Focuses on the Future:** Both the ITS Architecture and the LRTP look ahead twenty (20) years or more, helping planners think about how today's ideas will grow into tomorrow's systems.
- **Shapes Project Ideas:** The ITS Architecture helps define early ideas for future technology projects. It can outline what these projects might include and how they will help meet regional goals.
- **Helps Prioritize Projects:** The ITS Architecture also helps decide which projects are most important by showing how they fit with long-term strategies, what data is needed, and how everything connects.

### Utilizing the ITS Architecture

WAMPO's Regional ITS Architecture defines a vision for ITS implementation at the time it was developed and is considered a living document. Needs change with growth and advances in technology. Shifts in regional needs and focus, as well as changes in the National ITS Architecture, will necessitate updates to the ITS Architecture. Also, if ITS projects do not conform with the region's architecture, it may be necessary to modify the architecture rather than modify the project. This section details the use of architecture for determining conformity of projects. WAMPO has developed a separate ITS Architecture Maintenance Plan to address details of updates including frequency of updates. In each of the following steps, the maintenance plan provides "how-to" utilize the RAD-IT based website in determining corresponding details.

## Systems Engineering Analysis

In addition to ITS Architecture requirements, Final Rule 23 CFR 940 requires each ITS project that integrates with the architecture to be developed using a systems engineering process. Deploying technology includes risks, like becoming outdated or not meeting the needs of stakeholders, resulting in unexpected costs and delays. The goal of performing a systems engineering analysis is to systematically address each component of the project deployment process and demonstrate that thorough consideration and planning was completed to help control costs and ensure schedule adherence. Requiring conformance with the architecture ensures project success for the reasons noted in the Background and Purpose section of this document.



This Vee Diagram is frequently used in systems engineering discussions to demonstrate where the Regional ITS Architecture and systems engineering process fits into the life cycle of an ITS project. The Regional ITS Architecture is shown unattached from the rest of the diagram because it is not specifically project related and an undetermined amount of time can pass between architecture development and the beginning of project implementation. Moving from left to right along the diagram, the systems engineering process addresses concept exploration, the systems engineering management plan framework, concept of operations, and systems requirements.

The systems engineering process is commensurate with the scope of risk in the project. In determining risk, the following project factors are considered:

- Number of jurisdictions
- Extent of software creation
- Extent of proven hardware and communications technology used

- Number and complexity of new interfaces to other systems
- Level of detail in requirements and documentation
- Level of detail in operating procedures and documentation
- Service life of technology applied to equipment and software

During systems engineering, the ITS Architecture should be leveraged to discover the following:

- Identification of portions of the Regional ITS Architecture being implemented
- Identification of participating agencies and their roles and responsibilities
- Definition of system requirements
- Analysis of alternative system configurations and technology options that meet the system requirements
- Identification of various procurement options
- Identification of applicable ITS standards and testing procedures
- Documentation of the procedures and resources necessary for operations and management of the system.

#### **Process for Determining ITS Architecture Conformity**

Projects listed within WAMPO's ITS Architecture have been determined to conform with the architecture. If a project is not listed, the following steps should be taken to ensure conformity:

- Step 1 - Identify the ITS components in the project
- Step 2 - Identify the corresponding service packages(s) from the Regional ITS Architecture
- Step 3 - Locate the component within the service package
- Step 4 - Compare the connections to other agencies or elements documented in the ITS architecture as well as the information flows between them to the connections that will be part of the project
- Step 5 - Document any changes necessary to the Regional ITS Architecture or the project to ensure conformance

#### **Step 1 – Identify the ITS Components**

ITS components can be fairly apparent in an ITS focused project such as CCTV or DMS deployments but could also be included in other types of projects where they are not as apparent. For example, an arterial widening project could include the installation of signal system interconnect, signal upgrades, and the incorporation of the signals within the project limits into a city's closed loop signal system. These are all ITS functions that involve ITS components, and they should be included in the ITS Architecture.

**Step 2 – Identify the Corresponding Service Packages**

Identify ITS service packages within the architecture. If the package does not exist, either the project or the Architecture will have to be modified.

**Step 3 – Identify the Component within the Service Package**

Once the element is located within the appropriate service package, it should be determined if the element name used in the service package is accurate or if a change to the name is needed.

**Step 4 – Evaluate the Connections and Flows**

The connections and information flows documented in the service package diagrams are selected based on the information available when the Regional ITS Architecture was developed. As the projects are designed, decisions will be made on the system layout that might differ from what is shown in the service package. These changes in the project should be documented in the ITS service packages.

**Step 5 – Document Required Changes**

If any changes are needed to accommodate the project under review, the maintenance plan describes how those changes should be documented. Any changes will be incorporated during the next Regional ITS Architecture update. Conformance will be accomplished by documenting how the service package(s) should be modified so that the connections and information flows are consistent with the project.



## Appendix A – WAMPO ITS Stakeholders

| Stakeholder Name      | Stakeholder Description   |
|-----------------------|---|
| 511 Stakeholder Group | The 511 Stakeholder Group contains the primary stakeholders involved with the Kansas statewide 511 phone-based traveler information services as well as a future Wichita area 511-based traveler information website. |
| BNSF Railroad         | Burlington Northern Santa Fe Railroad.  |
| City of Andale        | City of Andale is a city in Sedgwick County.  |
| City of Andover       | The City of Andover is located in Butler County.  |
| City of Bel Aire      | The City of Bel Aire is a city within Sedgwick County, and it abuts the city of Wichita to the Northeast.   |
| City of Bentley       | Bentley is located in Sedgwick County.  |
| City of Cheney        | The city of Cheney is in Sedgwick County and it has a police and fire department.   |
| City of Clearwater    | The city of Clearwater is in Sedgwick County and the city government has police, fire, public works and building planning and code enforcement departments.   |
| City of Colwich       | Colwich is a community located in northwestern Sedgwick County. It has police, fire and maintenance departments.  |
| City of Derby         | City of Derby is in Sedgwick County and has engineering, fire and rescue, public works and parks and police departments.  |
| City of Eastborough   | Eastborough is located in Sedgwick County.  |
| City of Garden Plain  | Garden Plain is located in western Sedgwick County .  |
| City of Goddard       | Goddard is located in the Southcentral part of Kansas just west of Wichita on US-54/400 Highway in Sedgwick County.   |
| City of Haysville     | The City of Haysville is in Sedgwick County. The city has police, planning, public works and recreation departments among others.   |
| City of Kechi         | City of Kechi is in Sedgwick County. It has a police department, planning and zoning department.  |
| City of Maize         | Maize is a city in Sedgwick County and its list of city departments include engineering, fire protection, police, and public works.   |

| Stakeholder Name                          | Stakeholder Description   |
|---|---|
| City of Mount Hope                        | The City of Mount Hope is in Sedgwick County. It has police and volunteer fire department.  |
| City of Mulvane                           | Mulvane is located on the county line between Sumner and Sedgwick counties, five miles west of the corner of Sumner, Sedgwick, Butler, Cowley Counties. It has an emergency (police, fire, Ems) and public works department and also a planning commission. |
| City of Park City                         | The City of Park City is in Sedgwick County. It has planning, park, police, and public works departments.   |
| City of Sedgwick                          | Sedgwick, Kansas is located in south central Harvey County on the border with Sedgwick County.  |
| City of Valley Center                     | City of Valley Center is in Sedgwick county and it has public safety (Police, EMS, and Fire) and public works departments.  |
| City of Viola                             | The City of Viola is in Sedgwick County.  |
| Commercial Vehicle Operators              | This stakeholder represents all commercial vehicle operators traveling through Kansas.  |
| CVO Check Station Group                   | The CVO Check Station Group represents the stakeholders involved with administering the CVO Check Stations.   |
| FMCSA                                     | This stakeholder is the Federal Motor Carrier Safety Administration.  |
| General Public                            | This stakeholder represents the general public.   |
| Healthcare Providers                      | This stakeholder represents all of the healthcare providers (e.g., Hospitals) in the Wichita Area.  |
| Kansas Bureau of Investigation            | This stakeholder represents the Kansas Bureau of Investigation (KBI).   |
| Kansas Corporation Commission             | This stakeholder represents the Kansas Corporation Commission (KCC).  |
| Kansas Department of Emergency Management | This stakeholder represents the Kansas Department of Emergency Management.  |
| Kansas Department of Revenue              | This stakeholder represents the Kansas Department of Revenue (KDOR).  |

| Stakeholder Name                | Stakeholder Description   |
|---------------------------------|---|
| Kansas Highway Patrol           | The Kansas Highway Patrol (KHP) provides law enforcement services for the State of Kansas including enforcement of traffic and other laws of the State of Kansas.   |
| Kansas Turnpike Authority (KTA) | This stakeholder represents the Kansas Turnpike Authority who is responsible for managing the Kansas Turnpike.  |
| KDOT                            | The Kansas Department of Transportation (KDOT) is responsible for maintaining approximately 10,000 miles of state highways and their related features across the state of Kansas. KDOT's headquarters are in Topeka with six District Offices, 26 Area Offices and 112 Sub-Area Offices across the state. KDOT is organized into numerous Bureaus with specific responsibilities. |
| KHP-Turnpike                    | The Kansas Highway Patrol (KHP) Turnpike dispatchers provide dispatching services for the Kansas Highway Patrol for the turnpike.   |
| KMCA                            | This stakeholder represents the Kansas Motor Carriers Association (KMCA).   |
| Local Media                     | This stakeholder represents all of the media companies that plan to disseminate transportation-related information.   |
| MAP                             | This stakeholder group represents the Motorist Assistance Patrol (MAP) stakeholders.  |
| NOAA                            | This stakeholder represents the National Oceanic and Atmospheric Administration (NOAA) who runs the National Weather Service (NWS).   |
| PrePass                         | PrePass operates an automatic vehicle identification (AVI) system that allows participating transponder equipped commercial vehicles to bypass designated weigh stations.   |
| Private Weather Providers       | This stakeholder represents private weather service providers who provide value-added weather services to transportation agencies.  |
| Railroad Operators              | This stakeholder group represents the railroad operators in the Wichita Area.   |
| Sedgwick County                 | This stakeholder represents the County of Sedgwick.   |

| Stakeholder Name                                     | Stakeholder Description   |
|--|---|
| Sedgwick County Department on Aging and Disabilities | The Sedgwick County Department of Aging and Disabilities provides services to adults 55+ and individuals with disabilities in Sedgwick County in an effort to assist them in maintaining independence. The Department of Aging and Disabilities is responsible for planning and coordinating a system to meet the needs of older adults and individuals with disabilities in the Sedgwick County area. Special emphasis is given to the needs of low income, minority, frail and disabled adults to prevent costly institutionalization. The department's focus is on providing home and community-based services, including home delivered meals, supportive services, transportation, information and assistance and linking individuals in need to available services through the department or other resources in the community.  |
| Sedgwick County Emergency Communications             | The Sedgwick County Department of Emergency Communications (SGEC) provides 9-1-1 emergency call handling and dispatching service for all Sedgwick County public safety agencies including the Wichita Police and Fire Departments and Sedgwick County Sheriff, Fire and EMS Departments. SGEC dispatches nearly 500,000 calls for service annually. SGEC provides 9-1-1 emergency call handling and full dispatch service or some level of incident alerting service for Andale PD, Bel Aire PD, Bentley FD, Cheney PD, Clearwater PD, Clearwater FD, Clearwater EMS, Colwich PD, Colwich FD, Derby PD, Derby FD, Goddard PD, Kechi PD, Maize PD, Mt Hope PD, Mt Hope FD, Mt Hope EMS, Park City Police Department, Sedgwick County EMS, Sedgwick County FD, Sedgwick County Sheriff, Viola FD, Valley Center Fire Department, Eastborough PD, Garden Plain PD, Wichita Police PD, Wichita FD under the Sedgwick County public safety agencies. |
| Sedgwick County Emergency Management                 | Emergency Management's mission is to build, sustain, and improve Sedgwick County's capabilities in disaster prevention, preparedness, mitigation, response, and recovery through whole community collaboration, innovative planning, training, and exercise activities.   |
| Sedgwick County EMS                                  | Sedgwick County Emergency Medical Service (EMS) responds to calls for emergency medical assistance in Wichita and the communities of Sedgwick County. EMS provides Advanced Life Support (ALS) services. EMS receives First Responder basic life support (BLS) emergency response support from volunteer Emergency Medical Technicians (EMTs) in Derby, EMS Reserves and EMTs on the Wichita and Sedgwick County Fire Departments.  |
| Sedgwick County Fire                                 | The Sedgwick County Fire Department, District #1(SCFD)provides fire protection and emergency services response for Sedgwick County.   |
| Sedgwick County Public Works                         | Public Works is responsible for over 600 miles of roads and 657 bridges within Sedgwick County. The Highway Department handles the operations and maintenance of roads, bridges and intersections to ensure safe passage throughout the County. The Stream Maintenance Department maintains certain water courses to help minimize flooding, erosion and property damage. The Noxious Weed Department is responsible for the control and eradication of noxious weeds on all County property.   |



| Stakeholder Name  | Stakeholder Description  |
|---|--|
| Sedgwick County Sheriff                                 | The Sedgwick County Sheriff's Department provides law enforcement and criminal justice services to Sedgwick County. Field operations are provided by the Department Operations Bureau that includes the Patrol Division and Investigation Division. The Department Detention Bureau operates the Sedgwick County Adult Detention Facility.   |
| Suburban Communities                                    | This stakeholder group represents all of the suburban communities external to the City of Wichita and in the Wichita Area.   |
| Suburban Emergency Dispatch Agencies                    | This stakeholder group represents all of the suburban community emergency dispatch agencies external to the Cities of Wichita and Andover in the Wichita region.   |
| Suburban Maintenance and Construction Agencies          | This stakeholder group represents all of the suburban community maintenance and construction agencies external to the City of Wichita and in the Wichita Area.   |
| Union Pacific Railroad                                  | This stakeholder represents the Union Pacific (UP) Railroad traveling through the Wichita Area.  |
| WAMPO (Wichita Area Metropolitan Planning Organization) |  |
| Watco Railroad  | Watco is the owner and operator of a diverse network of short line railroads, terminals, and ports throughout North America.   |
| Wichita Airport Authority                               | The Wichita Airport Authority is responsible for the Dwight D. Eisenhower National Airport operations.   |
| Wichita Area Public Safety Agencies                     | This stakeholder group represents all of the public safety agencies in the Wichita Area.   |
| Wichita Department of Environmental Health              | The Department of Environmental Health operates several programs aimed at improving and maintaining the quality of life for citizens of the Wichita region as well as protecting their health and lives. Most activities of the Department are field activities and involve inspections and investigations of complaints received from citizens or conditions seen while in the field. The Department operates these programs through specialized Sections of the Department, most with field staff assigned for specific duties. The Department programs include air quality. Air monitoring is conducted at a number of fixed sites throughout the City and MSA. |
| Wichita Fire Department (WFD)                           | The City of Wichita Fire Department provides fire suppression, fire investigation, fire prevention, citizen rescue, emergency medical services, and hazardous materials accident handling.   |

| Stakeholder Name                     | Stakeholder Description   |
|--------------------------------------|---|
| Wichita IT/IS                        | This stakeholder represents the City of Wichita's (COW) information technology and information services (IT/IS).  |
| Wichita Office of Central Inspection | The Wichita Office of Central Inspection (OCI) is responsible for on-site inspection of all building construction and remodeling permit work in the City of Wichita, including new construction, additions, remodeling and trade work (trade work includes electrical, mechanical, plumbing, sewer and elevators). OCI also performs inspections of new or altered business wall or pole/ground signage for which permits have been issued, and inspection on code enforcement cases initiated on existing structures and land uses.  |
| Wichita Parks and Recreation         | The Wichita Parks and Recreation Department is responsible for city park and parkway maintenance, recreational programming and implementation, athletic programming and implementation and special events.  |
| Wichita Police                       | Wichita Police Department (WPD) provides law enforcement services to the City of Wichita. The mission of the Department is "to provide professional and ethical public safety services in partnership with citizens to identify, prevent and solve the problems of crime, fear of crime, social disorder and neighborhood decay, thereby improving the quality of life in our community." The Department is comprised of numerous divisions and sections that provide specialized services. The Divisions include Patrol Division, Support Services Division, and Field Services Division among others. |
| Wichita Public Works                 | The Wichita Public Works Department provides for the design, construction, maintenance and cleaning of the City's streets, roads, sidewalks and traffic control devices; maintenance and custodial services for City buildings; and natural resource conservation.  |
| Wichita Transit                      | Wichita Transit provides public transportation services for the City of Wichita. This includes fixed route bus services and paratransit services for riders with a disability. Other services include special event shuttles and chartered trolley services.  |

## Appendix B – WAMPO ITS Elements

| Stakeholder                  | Element Name   | Element Description  | Element Status |
|------------------------------|--|--|----------------|
| 511 Stakeholder Group        | Kansas 511 System                                    | This element represents the 3-digit traveler information phone system for the state of Kansas.   | Existing       |
| City of Andover              | City of Andover 911                                  | The City of Andover 911 system is responsible for 911 call-taking and dispatch of public safety vehicles in the city.  | Existing       |
|                              | City of Andover Fiber Optic Network                  | Fiber Optic cable network installed to connect field devices with the city's traffic management center.  | Near Term      |
|                              | City of Andover Maintenance and Construction System. | This element is responsible for providing the maintenance and construction activity for the City of Andover including snow plow operations, traffic equipment repair, etc.         | Near Term      |
|                              | City of Andover Public Safety Vehicles               | The City of Andover Public Safety Vehicles represent the public safety vehicles with the jurisdiction of Andover.  | Existing       |
|                              | City of Andover Roadside Equipment                   | City of Andover's Signal System Equipment.   | Near Term      |
|                              | City of Andover TOC                                  | City of Andover's Traffic Operations Center responsible for controlling the City of Andover signal system.   | Near Term      |
| Commercial Vehicle Operators | Commercial Vehicles                                  | This is a generic representation of the various commercial vehicles (e.g., JB Hunt) that will traverse through the geographic scope of the Wichita Area Regional ITS Architecture. | Existing       |
| CVO Check Station Group      | Kansas CVO Check Stations                            | This element supports functionality to allow automated vehicle identification at mainline speeds for credential checking, and roadside safety inspections.                         | Existing       |
| General Public               | Personal Information Access Devices                  | Personal Information Access Devices used by the general public to send and retrieve traveler information.  | Existing       |
|                              | Vehicle  | General Vehicle used for Electronic Toll Collection (ETC) applications.  | Existing       |

| Stakeholder                               | Element Name   | Element Description   | Element Status |
|---|--|---|----------------|
| Healthcare Providers                      | Healthcare Facilities                                    | This element represents emergency care facilities that are in the Wichita Area Metropolitan Planning Organization (WAMPO) planning area.  | Existing       |
| Kansas Bureau of Investigation            | Kansas Bureau of Investigation (KBI) System              | This element represents the Kansas Bureau of Investigation (KBI) system which provides alerts (e.g., amber alerts) and advisories.  | Existing       |
|   | Kansas Criminal Justice Information System (KCJIS)       | The Kansas Criminal Justice Information System (KCJIS) is responsible for sending alerts and extreme weather conditions to all public safety organizations.   | Existing       |
| Kansas Department of Emergency Management | National Warning System (NAWAS)                          | This element represents the National Warning System that provides alerts and advisories on a National basis.  | Existing       |
| Kansas Highway Patrol                     | *47-KHP  | KHP Central Dispatch which represents motorist using their cell phones to call in traffic incidents.  | Existing       |
|   | Kansas Highway Patrol Dispatch                           | KHP operates throughout the state of Kansas and is organized into Troops. Patrol operates with nine troops. Troup F's region includes Sedgwick County and 12 other rural counties. The KHP also dispatches MAP vehicles.                        | Existing       |
|   | KHP Vehicles   | This element represents the vehicles that are dispatched by KHP.  | Existing       |
| Kansas Turnpike Authority (KTA)           | Kansas Turnpike Authority Center                         | This center is responsible for providing public safety on the Kansas Turnpike along with managing the toll collection processes on the turnpike. This center will also provide Kansas 511 with traffic congestion information for the turnpike. | Existing       |
|   | Kansas Turnpike Authority Environmental Sensors Stations | Environmental Sensor Stations owned by KTA are used to collect road weather conditions along the turnpike.  | Existing       |
|   | KTA Maintenance Vehicle                                  | This element represents the maintenance and construction vehicles including snowplows for KTA.  | Existing       |

| Stakeholder | Element Name                            | Element Description  | Element Status |
|-------------|---|--|----------------|
|             | KTA Motorist Assistance Patrol Vehicles | This element represents the motorist assistance patrol vehicles operated by the Kansas Turnpike Authority for the turnpike.  | Existing       |
|             | KTA Toll Collection Equipment           | This element represents the field equipment that is used for electronic toll collection and represents KTAG.   | Existing       |
| KDOT        | CAV Authorizing Center                  | The Connected and Automated Vehicle (CAV) Authorizing Center provides the functionality needed to enable data exchange between and among mobile and fixed transportation users. Its primary mission is to enable safety, mobility and environmental communications-based applications for both mobile and non-mobile users. The CAV Authorizing Center has some jurisdiction over limited access resources; typically this includes roadside application access and radio spectrum licensing. It may be implemented as an autonomous center or as a set of supporting services that are co-located within another center. This object is generally defined and will be refined as needed.  | Medium Term    |
|             | CAV-ITS Map Update System               | The Connected and Automated Vehicle (CAV)-ITS Map Update System represents a provider of map databases used to support ITS services. It supports the provision of the map data that are used directly by vehicles (e.g., roadway and intersection geometry data sets), travelers (e.g., navigable maps used for route guidance and display maps used at traveler information points), system operators (e.g., map data used by Traffic Operators to monitor and manage the road network, and map data used by Fleet Managers to manage a vehicle fleet). It may represent a third-party provider or an internal organization that produces map data for agency use. Products may include simple display maps, map data sets that define detailed road network topology and geometry, or full geographic information system databases that are used to support planning and operations. This element is tagged as CAV related, but that is only to draw attention to its need for CAV purposes, but it is also valuable for traditional ITS services. | Medium Term    |



| Stakeholder | Element Name   | Element Description  | Element Status |
|-------------|--|--|----------------|
|             | KDOT CAV Field Equipment                                     | KDOT CAV Field Equipment represents the Connected and Autonomous Vehicle (CAV) field equipment in the KDOT WAMPO area. In addition to the KDOT Traffic Operations Center (Wichita Metro), this equipment will interface to statewide CAV systems that are required for administrative, security, credentialing, or other support purposes.   | Medium Term    |
|             | KDOT Maintenance Vehicle                                     | This element represents the maintenance and construction vehicles including snowplows for KDOT.  | Existing       |
|             | KDOT Planning Archive  | This is KDOT archiving system that collects and analyze traffic, incident, and emergency data that can be used for planning future initiatives throughout the region.  | Existing       |
|             | KDOT SCMS  | KDOT's Security and Credentials Management System (SCMS) will support connected and autonomous vehicle operations. The SCMS will enable trusted communications between mobile devices and other mobile devices, roadside devices, and centers and protect data they handle from unauthorized access. As the SCMS interacts with mobile devices and other devices in the Connected and Automated Vehicle (CAV) environment, these devices pass through stages as certificates and cryptographic material are furnished that enable the device to have trusted interactions with other devices in the CAV environment. | Medium Term    |
|             | KDOT TOC (Wichita Metro) Kiosks                              | Kiosks are public informational displays supporting various levels of interaction and information access.  | Near Term      |
|             | KDOT TOC (Wichita Metro) Maintenance and Construction System | This element is responsible for providing the maintenance and construction activity for KDOT including snowplow operations, traffic equipment repair, etc. KanDrive is KDOTs all things road systems. DOT also has a maintenance and construction system.  | Existing       |
|             | KDOT TOC (Wichita Metro) Roadside Equipment                  | Roadside Equipment includes any and all equipment distributed on and along the roadway which monitors and controls traffic. This can include equipment for ramp metering, roadway treatment systems and environmental sensors.   | Existing       |

| Stakeholder  | Element Name                                   | Element Description  | Element Status |
|--------------|--|--|----------------|
|              | KDOT TOC Information System                    | This element represents the KDOT website that provides transportation related information to aid motorists in trip planning. This website will display incident, congestion levels, and weather-related information.   | Existing       |
|              | KDOT TOPS                                      | This element represents KDOT Truck Overturn Prevention System (TOPS) that measures truck's speed in real-time and displays warning message on roadside dynamic message signs if the measured speed is higher than the safe speed on a roadway curve such as on the curve from EB K-96 to EB US 54 interchange. | Near Term      |
|              | KDOT Traffic Operations Center (Wichita Metro) | The KDOT TOC is responsible for managing and controlling traffic conditions on the arterials and freeways they operate. Traffic is managed through vehicle detectors, dynamic message signs, and closed circuit television.  | Existing       |
| KHP-Turnpike | *KTA   | This element represents motorist using their cell phones to report incidents to the Kansas Highway Patrol - Turnpike.  | Existing       |
|              | KHP Turnpike Dispatch System                   | The KHP Turnpike Dispatch System is responsible for providing law enforcement on the Turnpike.   | Existing       |
|              | KHP Turnpike Vehicles                          | This element represents the vehicles that are dispatched by KHP Turnpike dispatchers.  | Existing       |
| Local Media  | Media  | This represents information systems that provide traffic reports, travel conditions, and other transportation-related news services to the traveling public through radio, TV, and other media.  | Existing       |
| MAP          | Motorist Assistance Patrol Vehicles            | This element represents emergency patrol vehicles that traverse the Wichita metro area system (except the Turnpike) to assist motorist in emergency situations while also detecting incidents that may cause delays to motorists.  | Existing       |
| NOAA         | National Weather Service                       | This element provides atmospheric weather observations and forecasts that are collected and derived by the National Weather Service.   | Existing       |

| Stakeholder  | Element Name  | Element Description  | Element Status |
|--|---|--|----------------|
| Private Weather Providers                            | Surface Transportation Weather Service Providers      | This represents value-added private weather services (e.g., observations, nowcasts and forecasts) provided by private weather providers.               | Existing       |
| Railroad Operators                                   | Wayside Equipment (Railroad Gates)                    | This element represents equipment at a highway rail intersection providing notification of an arriving train that is operated by rail agencies.        | Long Term      |
| Sedgwick County                                      | Sedgwick County EMS Vehicles                          | This element represents vehicles that are dispatched by the Sedgwick County 911/EOC.   | Existing       |
|  | Sedgwick County Fiber Optic Cable Expansion           | Fiber Optic cable network installed to connect field devices with the Sedgwick County's traffic management center.                                     | Long Term      |
|  | Sedgwick County Fire Vehicles                         | This element represents vehicles that are dispatched by the Sedgwick County 911/EOC.   | Existing       |
|  | Sedgwick County Government Data Repository            | Maintain/archive data for a variety of uses and operates similar to a data clearinghouse.  | Existing       |
|  | Sedgwick County Maintenance and Construction Vehicles | This element represents the vehicles that are dispatched by the Sedgwick County Maintenance and Construction Division.                                 | Existing       |
|  | Sedgwick County Roadside Equipment                    | This element represents vehicle detectors and traffic controllers for Sedgwick County that sends information to the Wichita Traffic Operations Center. | Long Term      |
| Sedgwick County Department on Aging and Disabilities | Sedgwick County Transportation Brokerage System       | The Sedgwick County Transportation Brokerage System provides rides through private paratransit providers.  | Existing       |
|  | Sedgwick County Transportation Brokerage Vehicles     | This element represents the vehicles that are dispatched by Sedgwick County Transportation Brokerage System.   | Existing       |

| Stakeholder                                    | Element Name  | Element Description   | Element Status |
|--|---|---|----------------|
| Sedgwick County Public Works                   | Sedgwick County Maintenance and Construction System | This element is responsible for providing the maintenance and construction activities for Sedgwick County including snow plow operations, traffic equipment repair, etc.  | Existing       |
| Sedgwick County Sheriff                        | Sedgwick County Sheriff Vehicles                    | This element represents vehicles that are dispatched by the Sedgwick County 911.  | Existing       |
| Suburban Communities                           | Suburban Communities Traffic Operations Center      | The Suburban Communities are responsible for managing and controlling traffic conditions on the arterials they operate.   | Near Term      |
|  | Suburban Community Fiber Optic Network              | Fiber Optic cable network installed to connect field devices with the traffic management center.  | Near Term      |
|  | Suburban Community Field Equipment                  | Generic element representing local cities' ITS roadside field equipment not specifically enumerated in other inventory elements. This suggests that these traffic signal systems that are widely scattered throughout the WAMPO area should be integrated in a consistent fashion, when circumstances require. ITS field equipment may include traffic signals, vehicle detectors, CCTV cameras, dynamic message signs, etc., to control and monitor traffic. | Existing       |
|  | Suburban Community Traffic Operations Center        | The Suburban Community Traffic Operations Center is responsible for managing and controlling traffic conditions on the arterials they operate.  | Existing       |
|  | Suburban Public Safety Vehicles                     | This element represents the public safety vehicles that service the suburban areas.   | Existing       |
| Suburban Emergency Dispatch Agencies           | Suburban Emergency Dispatch Centers                 | This element provides public safety dispatch in the Suburban areas that are not covered by the Sedgwick County 911 system or the City of Andover 911 system.  | Existing       |
| Suburban Maintenance and Construction Agencies | Suburban Maintenance and Construction System        | This element is responsible for providing the maintenance and construction activities for the Suburban Cities including snowplow operations, traffic equipment repair, etc.   | Existing       |

| Stakeholder                                | Element Name                          | Element Description  | Element Status |
|--|---------------------------------------|--|----------------|
| Wichita Airport Authority                  | Dwight D. Eisenhower National Airport | This element provides airport schedule information to the public.  | Existing       |
|  | Jabara Airport                        | Jabara Airport is located approximately nine miles North-East of McConnell AFB and 2.5 miles North of Beech Field. The airport authority shares public safety vehicles with the Eisenhower Airport and can dispatch vehicles from the Jabara Airport.  | Existing       |
| Wichita Area Public Safety Agencies        | Sedgwick County 911                   | The Sedgwick County Department of Emergency Communications (SGEC) provides 9-1-1 emergency call handling and dispatching service for most public safety agencies within Sedgwick County.   | Existing       |
| Wichita Department of Environmental Health | Air Quality Alert System              | The Air Quality Alert System inspects sources of air pollution in the Wichita region, conducts air monitoring, responds to hazardous materials incidences as needed, assists citizens and businesses in resolving indoor/outdoor air quality problems. | Existing       |
|  | Air Quality Sensors                   | These sensors monitor general air quality within a sector of an area and also monitor the emissions of individual vehicles on the roadway.   | Existing       |
|  | HAZMAT Response Vehicles              | This element is a HAZMAT Response Vehicle that responds to incidents involving suspected hazardous materials. The Fire Department relies on this element to identify unknown HAZMAT and assist in other HAZMAT duties as assigned.                     | Existing       |
| Wichita Fire Department (WFD)              | Wichita Fire Vehicles                 | The Wichita Fire Vehicles are dispatched by Sedgwick County 911.   | Existing       |
| Wichita IT/IS                              | City of Wichita Fiber Optic Network   | Fiber Optic cable network installed to connect field devices with the city's traffic management center.  | Medium Term    |
|  | Wichita Government Data Repository    | Maintain/archive City of Wichita data for a variety of uses and operates similar to a data clearinghouse.  | Existing       |

| Stakeholder                          | Element Name                                  | Element Description  | Element Status |
|--------------------------------------|---|--|----------------|
| Wichita Office of Central Inspection | Office of Central Inspection (Event Permits)  | This element is responsible for reporting special event activities.  | Existing       |
| Wichita Parks and Recreation         | Wichita Parks and Recreation System           | This element is responsible for reporting special event activities in the region.  | Existing       |
| Wichita Police                       | Wichita Police Vehicles                       | The Wichita Police Vehicles are dispatched by the Sedgwick County 911 system.  | Existing       |
| Wichita Public Works                 | City of Wichita CAV Field Equipment           | City of Wichita CAV Field Equipment represents the Connected and Autonomous Vehicle (CAV) field equipment in the City of Wichita. In addition to the Wichita Traffic Operations Center, this equipment will interface to statewide CAV systems that are required for administrative, security, credentialing, or other support purposes. | Medium Term    |
|                                      | SCADA   | This is a supervisory, control and data acquisition (SCADA) system monitoring automated pump stations, rain gauges and water levels.   | Existing       |
|                                      | Wichita Construction and Maintenance System   | This element is responsible for providing the maintenance and construction activity for the City of Wichita including snowplow operations, traffic signal installation and repair, etc.  | Existing       |
|                                      | Wichita Construction and Maintenance Vehicles | This element represents the maintenance and construction vehicles including snowplows for the City of Wichita.   | Existing       |
|                                      | Wichita Flood Monitoring System               | Wichita flood monitoring system monitors the flood and flood controlling activities in Wichita region and sends the flood and flood controlling information to the Wichita TOC roadside equipment.   | Existing       |
|                                      | Wichita TOC Roadside Equipment                | Roadside Equipment includes any and all equipment distributed on and along the roadway which monitors and controls traffic.  | Near Term      |



| Stakeholder     | Element Name                                      | Element Description  | Element Status |
|-----------------|---|--|----------------|
|                 | Wichita Traffic Operations Center                 | The Wichita TOC is responsible for managing and controlling traffic conditions on the arterials they operate.  | Existing       |
| Wichita Transit | Wichita Transit Customer Information System (CIS) | This element represents the Wichita Transit website that provides transit related information to aid travelers in their planning.  | Existing       |
|                 | Wichita Transit Operations Center                 | Wichita Transit provides public transit service throughout the Wichita community including fixed route and demand response services.   | Existing       |
|                 | Wichita Transit Vehicles                          | This element represents the transit vehicles that are dispatched by Wichita Transit. These transit vehicles have ITS devices that support the safe and efficient movement of passengers. These systems collect, manage, and disseminate transit-related information to the driver, operations and maintenance personnel, and transit system patrons. | Existing       |