

**Bi-State Regional
Intelligent Transportation System
(ITS)
Architecture Plan**

June 2013



Bi-State Regional ITS Architecture Plan

June 2013

Including comprehensive, cooperative, and continuing transportation planning activities to be performed by:

Bi-State Regional Commission

Illinois Department of Transportation

Iowa Department of Transportation

and

Local Units of Government

with the assistance of:

U. S. DEPARTMENT OF TRANSPORTATION

(Federal Highway Administration and Federal Transit Administration)

STATE OF ILLINOIS

STATE OF IOWA

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Abstract

TITLE: Bi-State Regional ITS Architecture Plan

AUTHOR: Bi-State Regional Commission

SUBJECT: A plan covering Intelligent Transportation System (ITS) activities of the Bi-State Regional Commission, and state and local agencies involved with the cooperative, comprehensive and continuing transportation planning process.

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ABSTRACT: The Bi-State Regional ITS Architecture Plan describes the transportation planning activities related to planning and implementation of Intelligent Transportation Systems (ITS) of the Bi-State Region for a ten year time horizon. The work related to this planning effort is carried out with full involvement and participation of local elected and appointed officials and other citizens.

Bi-State Region ITS Architecture Plan

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Bi-State Region ITS Architecture Plan

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⁴ The mayors of the cities of Buffalo, Eldridge, LeClaire, Princeton, and Riverdale in the Iowa portion and the cities and villages of Andalusia, Carbon Cliff, Coal Valley, Colona, Hampton, Milan, Oak Grove, Port Byron, Rapids City, and Silvis in the Illinois portion select a representative from their jurisdictions (Iowa and Illinois separately) to represent them on the Policy and Technical Committees.

NOTE: Additional membership may include advisory representatives from the Illinois and Iowa Departments of Transportation, planning and research engineers from the Illinois and Iowa Federal Highway Administration, and a community planning representative from the Federal Transit Administration Region VII.

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I INTRODUCTION

This document, the *Bi-State Regional ITS Architecture Plan*, is the framework for ensuring institutional agreements and technical integration are in place prior to beginning a project or groups of projects which incorporate Intelligent Transportation Systems (ITS) technology in the implementation. Key planning issues in developing a regional plan include determining the geography, the time horizon and the stakeholders.

Defining ITS

An Intelligent Transportation System (ITS) is a term that applies to any transportation related project that uses computers, communication and other advanced technologies to support transportation services. ITS may include telephone systems, such as 511, to disseminate traveler information; weigh-in-motion systems that measure truck weight without stopping; or dynamic message signs warning of an accident ahead along the roadway or alerting travelers of construction ahead.

The Federal Highway Administration (FHWA) promotes integration of planning and project definition by encouraging the use of the National ITS Architecture. This framework provides guidance and vocabulary for planning, defining and integrating ITS projects. For funding purposes, the FHWA defines ITS as “any project that...fund the acquisition of technologies...that provides...one or more ITS User Service, as defined in the National ITS Architecture.” Originally under TEA-21 and continuing under MAP-21, all ITS projects funded through the Highway Trust Fund are required to be in conformance with the National ITS Architecture. FHWA issued a rule in January 2001 and FTA issued a parallel policy to foster integration of Intelligent Transportation Systems and reiterates the conformance with the National ITS Architecture and standards.

ITS Costs and Benefits

Intelligent Transportation Systems have added cost when compared to traditional construction and maintenance projects. However, ITS draws on system engineering methodologies that provide advantages for integration and deployment of technology and systems. Basically, they make transportation operations better. Experience has shown the following results using this type of approach:

- Reduced design costs and development time
- Orderly and efficient expansion
- Improved communications between stakeholders
- Improved communications between systems
- Lower project risk
- Interoperability
- Interchangeability of equipment and devices

Defining the Region

The Bi-State Regional ITS Architecture will include the five-county region of Henry, Mercer and Rock Island Counties, Illinois and Muscatine and Scott Counties, Iowa. The plan for this geographic area will be tiered. The Quad Cities Metropolitan Planning Area, using the MPO planning boundary, will be the first tier and focus of the plan. Corridors radiating from the metropolitan area to other municipalities in the region will be examined in the second tier. A third tier will examine larger rural municipalities that may have the opportunity to initiate ITS technologies within corporate limits during the time horizon outlined in this Plan. Map 1 illustrates the Bi-State Region and the three tiers.

Time Horizon

Due to the rapidly changing field of technology, an ITS plan usually outlines projects and priorities in a shorter time frame than a twenty-year long range transportation plan. The Bi-State Regional ITS Architecture Plan will use a ten (10) year time horizon to allow projects to develop and be carried forward to implementation.

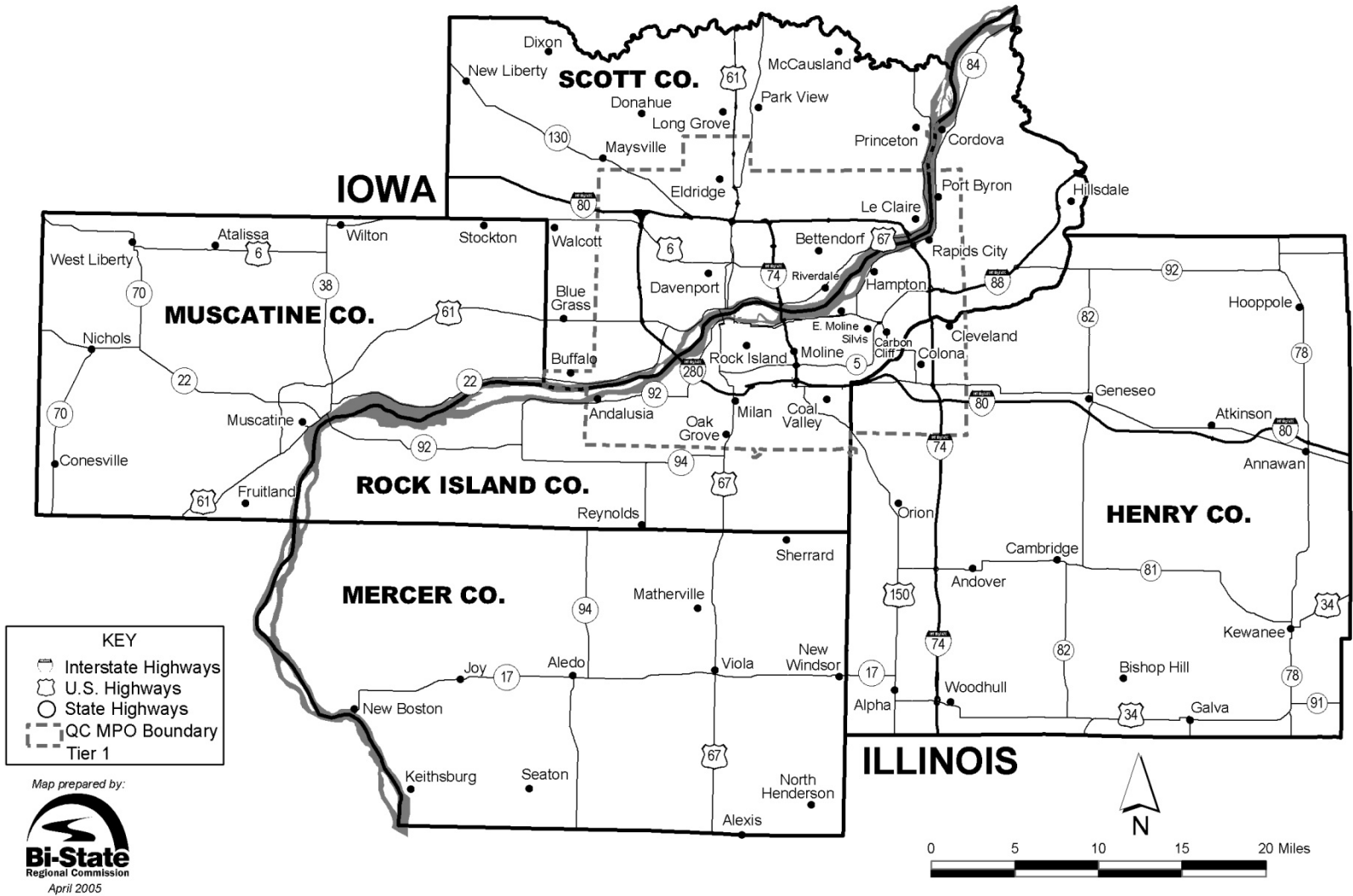
Stakeholders

The purpose of developing a regional ITS architecture is to afford integration of technologies and coordination among entities and/or institutions. Deploying the latest transportation technologies in the Region will require a variety of persons and groups to work cooperatively. Stakeholders include those persons or groups who are active in the development of ITS technologies or have an interest or need to complete a regional system. The Region's stakeholders include a wide variety of federal, state and local partners, private organizations, media and citizens. Details are to be discussed later in this document.

As technologies change and programs or projects are implemented, the list of stakeholders may increase or decrease based on ITS needs. The benefits of involving a variety of interests and multiple disciplines will afford improved communication, potential leveraging of investments or cost sharing and a greater pool of information from which decisions and operations can be based.

Bi-State Regional Commission acts as the Metropolitan Planning Organization (MPO) for the Quad City Metropolitan Area. With its role in preparing both short and long range transportation plans, it was consistent to include ITS planning as part of the agencies' work activities. Bi-State Regional Commission staff serves as facilitator on behalf of the Region's Stakeholders to prepare a comprehensive, cooperative and continuing ITS architecture for the Bi State Region.

MAP 1 BI-STATE REGION & QUAD CITY MPO



Map prepared by:

Bi-State
 Regional Commission
 April 2005

II GOALS AND OBJECTIVES

The overriding Bi-State Regional ITS Architecture Plan goals and objectives mirror those adopted for the Metropolitan Planning Organization (MPO) planning area and have been expanded for the Region. These goals will be viewed from the perspective of deploying ITS technologies or systems to further the regional transportation system and accomplishment of these planning goals. The regional development goals include:

- **Residential Development** – Encourage all metropolitan residential areas to be adequately designed and quality-based to produce a healthful, satisfying living environment.
- **Commercial and Industrial Development** – Enhance the metropolitan economy by retaining existing employers and providing additional employment opportunities through improvements to existing commercial and industrial establishments and by attracting new commercial and industrial activities to the area.
- **Transportation** – Develop a transportation system in the metropolitan area to provide for the safe, secure, efficient, economical and sustainable movement of people and goods.
- **Cultural Attractions, Recreation and Open Space** – Provide a system to access cultural attractions, recreational facilities and open space to fulfill needs for a healthful, satisfying living environment.
- **Government and Public Facilities** – Promote governmental and public facilities and programs/services which will adequately serve the present and future needs of the metropolitan community.
- **Urban Design** – Provide an environment with attractive, convenient living and working conditions that minimize impacts and provide quality of life benefits for the metropolitan community.

The above goals are further refined into objectives for general transportation planning. The Bi-State Regional ITS Architecture Plan should support projects that provide one or more of the following:

- Support Economic Vitality
- Increase Transportation System Safety and Security
- Increase Accessibility and Mobility Options
- Protect and Enhance the Environment
- Enhance the Connectivity and Integration between Modes
- Promote Efficient System Management and Operation
- Emphasize System Preservation

Ultimately, the vision for Intelligent Transportation Systems in the Bi-State Region reflects those of the two-state area. *The use of technology is envisioned to*

provide a safe, secure transportation network with seamless choices and services to the users, the traveling public or commerce.

III STAKEHOLDER IDENTIFICATION

The purpose of developing a regional ITS architecture is to integrate technologies and coordinate among entities and/or institutions. Deploying the latest transportation technologies in the Region will require a variety of persons and groups to work cooperatively. Stakeholders include those persons or groups who are active in the development of ITS technologies or have an interest or need to complete a regional system. The Region's stakeholders include a wide variety of federal, state and local partners, private organizations, media and citizens.

As technologies change or programs or projects are implemented, the list of stakeholders may increase or decrease based on ITS needs. The benefits of involving a variety of interests and multiple disciplines will improve communication, potential leveraging of investments or cost sharing and allow a greater pool of information from which decisions and operations can be based.

The following groups and stakeholders were identified as key participants in the development of the Bi-State Regional ITS Architecture Plan. As mentioned in the Introduction, this Plan takes a tiered approach. Through the ITS inventory, stakeholders will be stratified to identify those who have primary responsibility for development and/or implementation of the architecture and those who may become involved at a later date as ITS technologies are deployed in the Region.

Groups/Stakeholders

Federal/State

- Federal Highway Administration (FHWA)
- Federal Transit Administration (FTA)
- U.S. Army Corps of Engineers
- U.S. Coast Guard
- Illinois Department of Transportation {Central (Springfield) Office}
- Illinois Department of Transportation {District 2 (Dixon) Office}
- Illinois Department of Transportation {Area Maintenance Office}
- Illinois Department of Transportation {Construction Project Office}
- Iowa Department of Transportation {Central (Ames) Office}
- Iowa Department of Transportation {District (Cedar Rapids) Office}
- Iowa Department of Transportation {District (Fairfield) Office}
- Iowa Department of Transportation {Area Construction Office}
- Iowa Department of Transportation {Area Maintenance Office}
- Iowa DPS- Governor's Traffic Safety Bureau
- Iowa State Patrol District 12
- Illinois State Police District 7

National/Regional

- Bi-State Regional Commission (MPO)
- Burlington Northern Santa Fe Railroad
- Illinois Trucking Association
- Iowa Trucking Association
- Iowa, Chicago & Eastern Railroad
- Iowa Interstate Railroad
- Medic Emergency Medical Service
- MetroLINK Transit
- Quad City International Airport
- River Bend Transit
- Rock Island and Mercer County Transit (RIM)
- Union Pacific Railroad

County

- Henry County (IL) Sheriff's Office
- Henry County (IL) Engineering Office
- Henry County (IL) Public Transit (Abilities Plus)
- Mercer County (IL) Sheriff's Office
- Mercer County (IL) Engineering Office -
- Muscatine County (IA) Sheriff's Office
- Muscatine County (IA) Engineering Office
- Rock Island County (IL) Sheriff's Office
- Rock Island County (IL) Engineering Office
- Scott County (IA) Sheriff's Office
- Scott County (IA) Engineering Office
- Scott County Emergency Communication Center

Local Quad Cities

- Bettendorf (IA) Community Development Department
- Bettendorf (IA) Police and Fire Departments
- Bettendorf (IA) Public Works Department
- Bettendorf (IA) Transit
- Carbon Cliff (IL) Municipality
- Coal Valley (IL) Municipality
- Coal Valley (IL) Police and Fire Departments
- Colona (IL) Municipality
- Colona (IL) Police and Fire Departments
- Davenport (IA) CitiBus Transit
- Davenport (IA) Municipal Airport
- Davenport (IA) Police and Fire Departments
- Davenport (IA) Public Works Department
- East Moline (IL) Police and Fire Departments

- East Moline (IL) Public Works Department
- Eldridge (IA) Municipality
- Eldridge (IA) Police and Fire Departments
- Milan (IL) Municipality
- Milan (IL) Police and Fire Departments
- Moline (IL) Police and Fire Departments
- Moline (IL) Public Works Department
- Rock Island (IL) Police and Fire Departments
- Rock Island (IL) Public Works Department
- Silvis (IL) Municipality
- Silvis (IL) Police and Fire Departments

Local Other Cities (>3,000 population)

- Aledo Municipality
- Aledo Police Department
- Geneseo Municipality
- Geneseo Police Department
- Kewanee Police Department
- Kewanee Public Works Department
- Muscatine (IA) Police Department
- Muscatine (IA) Public Works Department
- Muscatine (IA) Municipal Airport
- Muscatine (IA) Transit
- West Liberty (IA) Municipality
- West Liberty (IA) Police Department

Other

- Media
- Motorists/Public
- Tow Operators

Planning Participation

Because ITS often goes beyond the traditional transportation stakeholders, it is important to involve multiple disciplines (engineers, planners, law enforcement officers, emergency response officials, transit managers, telecommunications specialists, etc.) in the Plan development process. Input from these stakeholders, both public and private, add value to defining interfaces, integration needs and the overall vision of the Bi-State Regional ITS Architecture Plan. Within the first tier of the Quad Cities MPO, there have been a number of stakeholder ITS planning initiatives, including those related to the I-74 Iowa-Illinois Mississippi River Corridor Study, I-74 Incident Management Deployment Feasibility Study, and the I-74 Corridor ITS Architecture Final Report. Input from these planning processes included workshops and stakeholder interviews. Additionally, both the States of Iowa and Illinois have completed statewide ITS architectures where Bi-State

Region input has been included. All of these efforts have laid a foundation for the basis of the Bi-State regional plan. In developing the regional ITS architecture plan, the Bi-State Regional Commission staff have utilized the urban and Region 9 Transportation Technical Committees and invited the other ITS interest to the table to fulfill the broadest stakeholder representation.

IV ITS INVENTORY

An Intelligent Transportation System (ITS) is a term that applies to any transportation related project that uses computers, communication and other advanced technologies to support transportation services. ITS may include telephone systems such as 511 disseminating traveler information. Weigh-in-motion systems that measure truck weight without stopping are another example. Dynamic message signs warning of an accident ahead along the roadway or alerting travelers of construction ahead is ITS.

For integration and coordination of transportation systems and operations to occur, a regional ITS architecture plan must embody the ability to be flexible, adaptable and based on accepted standards.

Needs and Services

To begin to develop a regional ITS architecture for implementing and integrating transportation technologies, identification of services and needs are necessary. Transportation services in the Bi-State Region are provided by a variety of entities. Different modes of transportation (motor vehicle, public transit, air service, river navigation, rail, etc.) are served by different providers. Each community and county in the Region, for example, is responsible for arterial, collector and local roads including the operational systems, such as traffic signals associated with them. The State Departments of Transportation (DOTs) are responsible for major highways and interstates, including their associated operational systems. DOTs are also responsible for motor vehicle registration, monitoring shipments of special materials, among a variety of other aspects of their roles and responsibilities. There are three public transit systems within the Quad Cities MPO and regional transit providers in the Bi-State Region. Air service is provided by the Cities of Davenport and Muscatine for general commercial aviation and by the Metropolitan Airport Authority for the Quad Cities International Airport. The U.S. Coast Guard regulates the movement of river traffic, both freight and pleasure craft, on the Mississippi and Rock Rivers. There are several rail and freight companies owning and operating rail and distribution facilities within the Bi-State Region. Identifying these entities and their services is one component of the regional ITS inventory.

The following have been identified through the planning participation process as needs related to improving the Bi-State Region's transportation systems and operation:

- Incident Management – River Crossings
- Freeway/Arterial Management and Coordination – Integrated Corridors
- Transit Management and Coordination
- Surveillance and Video Sharing
- Integrated Systems via Institutional Relationships
- Work Zone Safety and Information Availability

- Operation and Maintenance Technology
- Advanced Traveler Information
- Emergency Responsiveness via Interagency Coordination
- Security and Disaster Response at Critical Facilities
- Intelligent Corridors

These needs will formulate the basis of the existing, planned and future ITS systems in the Bi-State Region.

Inventory of Elements and Entities

The Intelligent Transportation System (ITS) inventory is a valuable tool for several reasons. It provides a baseline of existing and planned ITS projects and systems in the Region. It identifies which agencies are currently deploying and operating ITS technologies and those who are planning to implement ITS projects or programs. The inventory also provides a framework for identifying needed elements or entity participation in the ITS implementation.

The National ITS Architecture was designed with a standardized language for inventorying components of an intelligent transportation system. It is important to understand this language to be able to talk uniformly about the planning components.

- **Element.** An element is the name used by stakeholders to describe a system or piece of a system.
- **System.** A system is defined as a collection of hardware, software, data, processes, and people that work together to achieve a common goal. Note the scope of a "system" depends on one's viewpoint. To a sign manufacturer, a dynamic message sign is a "system". To a state DOT, the same sign is only a component of a larger Freeway Management "System". In a regional ITS architecture plan, a Freeway Management System is a part of the overall surface transportation "system" for the region.
- **Entities or Subsystems.** Subsystems are individual pieces of the ITS defined by the National ITS Architecture. Subsystems are grouped into four classes: Centers, Field, Vehicles, and Travelers. Example subsystems are the Traffic Management Subsystem, the Vehicle Subsystem, and the Roadway Subsystem. These correspond to the physical world: respectively traffic operations centers, automobiles, and roadside signal controllers. Due to this close correlation between the physical world and the subsystems, the subsystem interfaces are prime candidates for standardization.
- **Service Packages.** Service Packages represent slices of the physical architecture that address specific services like surface street control. A service package collects together several different subsystems, equipment packages, terminators, and architecture flows that provide the desired service. There are 97 total standardized services packages; 18 are to be deployed in the Bi-State Region. The following are a few examples of the

service packages used in the development of the Bi-State Regional ITS Architecture.

- ▶ Traveler Information Traveler information consists of data or facts to provide travelers regarding the current traffic condition. The condition could be a transit bus location or the incident information on the bridge. The Transit Travel package provides information to transit users at transit stops and on-board transit vehicles with ready access to transit information. The information services include transit stop annunciation, imminent arrival signs, and real-time transit schedule displays that are of general interest to transit users.
- ▶ Road Closure Management This service package closes roadways to vehicular traffic when driving conditions are unsafe, maintenance must be performed, and other scenarios where access to the roadway must be prohibited. The service package includes automatic or remotely controlled gates or barriers that control access to roadway segments including ramps and traffic lanes. Remote control systems allow the gates to be controlled from a central location or from a vehicle at the gate/barrier location, improving system efficiency and reducing personnel exposure to unsafe conditions during severe weather and other situations where roads must be closed. Surveillance systems allow operating personnel to visually verify the safe activation of the closure system and driver information systems (e.g., DMS) provide closure information to motorists in the vicinity of the closure. The equipment managed by this service package includes the control and monitoring systems, the field devices (e.g., gates, warning lights, DMS, CCTV cameras) at the closure location(s), and the information systems that notify other systems of a closure. This service package covers general road closure applications; specific closure systems that are used at railroad grade crossings, drawbridges, reversible lanes, etc. are covered by other ATMS service packages.
- ▶ Incident Management Incident Management is critical for any region because of the tremendous impacts of a crash or event incident on the free flow of the traffic. The goal to manage an incident is about providing the right information at the right time to motorists. The Incident Management service package manages both unexpected incidents and planned events so that the impact to the transportation network and traveler safety is minimized. The service package includes incident detection capabilities through roadside surveillance devices (e.g. CCTV) and through regional coordination with other traffic management, maintenance and construction management and emergency management centers as well as rail operations and event promoters.
- ▶ Maintenance and Construction Activity Coordination This service package supports the dissemination of maintenance and construction activity to centers that can utilize it as part of their operations, or to the

Information Service Providers who can provide the information to travelers.

- ▶ Emergency Routing: Emergency routing of the responding vehicle is important in case of a major incident where the time is crucial. Emergency routing of all apparatus are key components to a major incident. This service package supports automated vehicle location and dynamic routing of emergency vehicles. Traffic information, road conditions, and suggested routing information are provided to enhance emergency vehicle routing. Special priority or other specific emergency traffic control strategies can be coordinated to improve the safety and time-efficiency of a responding vehicle's travel on selected route(s). The Emergency Management Subsystem provides routing for the emergency fleet based on real-time conditions and has the option of requesting a route from the Traffic Management subsystem.
- ▶ Regional Traffic Management: This service package provides for the sharing of traffic information and control among traffic management centers to support regional traffic management strategies. Regional traffic management strategies that are supported include inter-jurisdictional, real-time coordinated traffic signal control systems and coordination between freeway operations and traffic signal control within a corridor. This service package advances the ATMS03-Traffic Signal Control and ATMS04-Traffic Metering service packages by adding the communications links and integrated control strategies that enable integrated, interjurisdictional traffic management. The nature of optimization and extent of information and control sharing is determined through working arrangements between jurisdictions. This package relies principally on roadside instrumentation supported by the Traffic Signal Control and Traffic Metering service packages and adds hardware, software, and fixed-point to fixed-point communications capabilities to implement traffic management strategies that are coordinated between allied traffic management centers. Several levels of coordination are supported from sharing of information through sharing of control between traffic management centers.
- ▶ ITS Data Source: ITS creates data that has a significant value to archive. The data could be used for the further analysis at another point in time. This data could also be shared with other entities from the architecture. This service package includes all the data collection and management capabilities provided by the ITS Data Mart, and adds the functionality and interface definitions that allow collection of data from multiple agencies and data sources spanning across modal and jurisdictional boundaries. It performs the additional transformations and provides the additional meta data management features that are necessary so that all this data can be managed in a single repository with consistent formats.

- ▶ Arterial Management: Arterial management system coordinates traffic along roadways, traffic signals and various commuting information to travelers. Information dissemination to travelers are performed by different technologies such as DMS (Dynamic Message Signs), HAR (Highway Advisory Radio). In order to manage arterial, system needs to collect data from the roadway and analyze at a central location. Signal Coordination in various communities is a prime example of the arterial management.
- ▶ Automatic Transit Vehicle Tracking: Real time information by location of the transit vehicle is very important to maintain on time schedule of transit routes. This service package monitors current transit vehicle location using an Automated Vehicle Location System. The location data may be used to determine real time schedule adherence and update the transit system's schedule in real-time. Vehicle position may be determined either by the vehicle (e.g., through GPS) and relayed to the infrastructure or may be determined directly by the communications infrastructure. A two-way wireless communication link with the Transit Management Subsystem is used for relaying vehicle position and control measures. Fixed route transit systems may also employ beacons along the route to enable position determination and facilitate communications with each vehicle at fixed intervals. The Transit Management Subsystem processes this information, updates the transit schedule and makes real-time schedule information available to the Information Service Provider

The ITS inventory plays a key role in building an effective ITS architecture. ITS inventory primarily focuses on the existing devices such as CCTV, Cameras, Dynamic Message Signs, etc. Various communities are also planning to implement new ITS technologies. The purpose of the inventory is to identify existing and potential ITS components in the region to implement ITS technologies. Some of the communities were grouped in order to minimize details of the ITS plan, e.g. County Highway Department for Scott and Rock Island County.

The Bi-State Regional ITS Architecture Plan is primarily focused on the MPO area planning boundary at this time. There is a greater need for ITS technology in metropolitan area where the congestion is of concern. Bi-State Regional ITS Architecture Plan consists of a tiered approach. Tier I would focus on the MPO planning area boundary. Tier II would focus on the Interstate outside the MPO planning area. The smaller communities such as Muscatine and Geneseo indicated no planned ITS technologies and will be considered Tier III in the future. Refer to the Appendices for the participating stakeholders (Stakeholder Report).

Table 1 represents the Bi-State Region ITS inventory using the associated National ITS Architecture subsystem and laminators. Refer to the Appendices for the Inventory Report with a detailed description of each of the stakeholders elements.

Operational Concepts

An operational concept is described in sufficient detail to understand the roles and responsibilities of the primary stakeholders and the systems they operate in the region. It is also referred to as the existing Concept of Operations for the Bi-State Region. An operational concept outlines how and who will communicate and work together. In other words, it outlines the roles and responsibilities of the stakeholders in the operation and implementation of the regional ITS architecture plan. The Concept of Operations matches the services and needs of the Region. It also provides an understanding of how the services can be constructed into an operational system.

For example, the role relates to the transportation system function, which may be to respond to an incident. The responsibility relates to the delivery of a specific identified service, which may be to send an officer to the crash site. Further, there are currently pan/tilt/zoom (PTZ) cameras positioned on the I-74 Bridge spans over the Mississippi River. The images from these cameras are relayed to key agencies on both sides of the river in Illinois and Iowa. They are owned and maintained by the Iowa Department of Transportation and Illinois Department of Transportation. The camera images are provided to the City of Bettendorf Police Center and the City of Moline Police Center for incident response and verification. It is their role to monitor the imaging for traffic incidents and their responsibility to respond to a crash.

Table 1 – Inventory Report

2/27/2013 6:39:07PM



Stakeholder Inventory for Project 2012 Regional Level ITS Architecture

City of Bettendorf - Police Department

Element: City of Bettendorf Police Dispatch Terminal

Status: Existing

Description: Police agency uses '800-System' radio system for voice and data communication; permits compatibility with Scott County (IA) and Moline (IL) police agencies.
Includes Fax/Email terminal to receive/disseminate information from/to local agencies and the virtual traffic management center.

Mapped to Entity: Traffic Management

City of Bettendorf - Public Works

Element: City of Bettendorf Public Works Terminal

Status: Existing

Description: The Bettendorf Public Works E-mail/Fax Terminal will be used to receive Traveler Information from the I-74 Bridge/Incident Management Warning System. In addition, they may, on occasion, send specific Traveler Information related to incidents on transportation systems under their jurisdiction.

Mapped to Entity: Traffic Management

Element: City of Bettendorf Roadside Equipment

Status: Planned

Description: Traffic data collection sensors (loop or video detection) at 17 intersections exist today; planned program at all signalized intersections for 2004

Existing video detection at local intersections; can be used to provide limited view of intersections; Maintains other (4) CCTV cameras on local street system for surveillance purposes.

I-74 Bridge; Provides viewing coverage of I-74 bridge area (limited view) and State Street Interchange; used for incident verification in bridge area and general incident management during an incident

Planned - Provide viewing coverage of intersection area; will use for traffic operations purposes; color camera (with pan, tilt, zoom) on pole in intersection area. 26th Street, Middle Road, Roundabout, Spruce Hills Road, State Street

Mapped to Entity: Roadway

City of Davenport - Police Department

Element: City of Davenport Police Dispatch Terminal

Status: Existing

Description: Police agency uses '800-System' radio system for voice and data communication.
Includes Fax/Email server to receive/disseminate Information from/to local agencies and the virtual traffic management center.

Mapped to Entity: Emergency Management

Mapped to Entity: Traffic Management

City of Davenport - Public Works

Element: City of Davenport Public Works Terminal

Status: Existing

Description: The Davenport Public Works E-mail/Fax Terminal will be used to receive Traveler Information from the I-74 Bridge/Incident Management Warning System. In addition, they may, on occasion, send specific Traveler Information related to incidents on transportation systems under their jurisdiction.

Mapped to Entity: Traffic Management

Element: City of Davenport Roadside Equipment

Status: Planned

Description: Existing CCTV - Video detection at local intersections; can be used to provide limited view of intersections.

Flood level systems - Located at key spots

Road-Weather Information Systems (RWIS) - Air temp, wind speed, humidity, etc. obtained at several locations in the field and communicated back to Streets Dept. for maintenance purposes. Flood monitors at various locations throughout the City; Require manual verification in field to monitor.

Mapped to Entity: Roadway

Stakeholder Inventory for Project 2012 Regional Level ITS Architecture**City of Moline - Police Department***Element:* City of Moline Police Dispatch Terminal*Status:* Existing

Description: Police agency uses '800-System' radio system for voice and data communication; permits compatibility with Bettendorf and Scott County (IA) police agencies.
Includes Fax/Email server to receive/disseminate Information from/to local agencies and the virtual traffic management center.

Mapped to Entity: Emergency Management*Mapped to Entity:* Traffic Management**IA DOT - Area Maintenance Office***Element:* Iowa DOT - Portable DMS*Status:* Existing*Description:* Portable Dynamic Message Signs*Mapped to Entity:* Roadway**IA DOT - District Office***Element:* Iowa DOT - Automated Gates*Status:* Existing*Description:**Mapped to Entity:* Roadway*Element:* Iowa DOT - DMS*Status:* Planned*Description:* Dynamic Message Signs*Mapped to Entity:* Roadway*Element:* Iowa DOT - QCDS*Status:* Planned*Description:* Quad Cities Detection System*Mapped to Entity:* Roadway*Element:* Iowa DOT - QCLU*Status:* Planned*Description:* Quad Cities Lane Utilization*Mapped to Entity:* Roadway*Element:* Iowa DOT - QCTV*Status:* Planned*Description:* Quad Cities Closed Circuit Television*Mapped to Entity:* Roadway*Element:* Iowa DOT - RWIS*Status:* Planned*Description:* Road Weather Information System*Mapped to Entity:* Roadway*Element:* Iowa DOT - VDS*Status:* Planned*Description:* Video Detection System*Mapped to Entity:* Roadway*Element:* Iowa DOT District Office Terminal*Status:* Existing

Description: The IA DOT District Office E-mail/Fax Terminal will be used to receive Traveler Information from the I-74 Bridge/Incident Management Warning System. In addition, they may, on occasion, send specific Traveler Information related to incidents on transportation systems under their jurisdiction.

Mapped to Entity: Traffic Management**IL DOT - Area Maintenance Office***Element:* Illinois DOT - Portable DMS*Status:* Existing*Description:**Mapped to Entity:* Roadway*Element:* Illinois DOT District Maintenance Office Terminal*Status:* Planned

Stakeholder Inventory for Project 2012 Regional Level ITS Architecture

Element: Illinois DOT District Maintenance Office Terminal *Status:* Planned*Description:* The IL DOT District Maintenance Office E-mail/Fax Terminal will be used to receive Traveler Information from the I-74 Bridge/Incident Management Warning System. In addition, they may, on occasion, send specific Traveler Information related to incidents on transportation systems under their jurisdiction.*Mapped to Entity:* Maintenance and Construction Management

Element: Iowa DOT District Maintenance Office Terminal *Status:* Existing*Description:* The IA DOT Area Maintenance Office E-mail/Fax Terminal will be used to receive Traveler Information from the I-74 Bridge/Incident Management Warning System. In addition, they may, on occasion, send specific Traveler Information related to incidents on transportation systems under their jurisdiction.*Mapped to Entity:* Maintenance and Construction Management

Iowa DOT Headquarters*Element:* Iowa DOT State Traffic Management Center *Status:* Existing*Description:**Mapped to Entity:* Traffic Management

Iowa State Patrol*Element:* Iowa State Patrol Dispatch Terminal *Status:* Existing*Description:* The IL State Patrol E-mail/Fax Terminal will be used to receive Traveler Information from the I-74 Bridge/Incident Management Warning System. In addition, they may, on occasion, send specific Traveler Information related to incidents on transportation systems under their jurisdiction.*Mapped to Entity:* Traffic Management

Media*Element:* Media Terminal *Status:* Existing*Description:* The Media provides traffic reports, travel conditions, and other transportation-related news services to the traveling public through radio, TV, and other media.*Mapped to Entity:* Media

Moline 911 Dispatch center*Element:* City of Moline Fire Department *Status:* Existing*Description:**Mapped to Entity:* Traffic Management

Private*Element:* Surface Transportation Weather Service *Status:* Existing*Description:* Providers of value-added sector specific meteorological services. These providers utilize National Weather Service data and predictions, road condition information and local environmental data to provide weather observations and forecasts.*Mapped to Entity:* Surface Transportation Weather Service

Public*Element:* I-74 Motorists *Status:* Existing*Description:* I-74 motorists will receive traveler information en-route via dynamic message signs or highway advisory radio, or pre-trip via personal computer.*Mapped to Entity:* Basic Vehicle*Mapped to Entity:* Other Vehicle*Mapped to Entity:* Traffic*Mapped to Entity:* Traveler

Element: Weather Services *Status:* Existing*Description:* Weather Services include the National Weather Service as well as private disseminators of weather data.*Mapped to Entity:* Weather Service

Rock Island 911 Dispatch Center*Element:* Rock Island County Emergency Response Center *Status:* Existing

Stakeholder Inventory for Project 2012 Regional Level ITS Architecture

Element: Rock Island County Emergency Response Center

Status: Existing

Description:

Mapped to Entity: Emergency Management

Scott County 911 Dispatch Centers

Element: Scott County Communications Center

Status: Existing

Description:

Mapped to Entity: Emergency Management

 **Scott County Emergency Coommunication Center**

Stakeholders in this group:

Bettendorf 911 Dispatch Center

Davenport 911 Dispatch Center

Moline 911 Dispatch center

Rock Island 911 Dispatch Center

Scott County 911 Dispatch Centers

Element: Bridge Security Monitoring System

Status: Planned

Description:

Mapped to Entity: Roadway

<i>Status Value Legend</i>	
Name	Description
Existing	
Planned	
Not Planned	

<i>Filters</i>													
Entity Class		Entity Type		Interconnects		Flow Type		Flow Status		Flow Futuristic		Market Package	
Show	Class	Show	Type	Show	Interconnect	Show	Type	Show	Status	Show	Futuristic	Show	Market Package
Yes	Center	Yes	System	Yes	Center to Center	Yes	Request	Yes	Existing	Yes	Futuristic	Yes	All
Yes	Field	Yes	Human	Yes	Center to Field	Yes	Information	Yes	Planned				
Yes	Traveler	Yes	Environment	Yes	Center to Traveler								
Yes	Vehicle			Yes	Center to Vehicle								
				Yes	Field to Field								
				Yes	Field to Vehicle								
				Yes	Traveler to Field								
				Yes	Traveler to Traveler								
				Yes	Traveler to Vehicle								
				Yes	Vehicle to Vehicle								

Functional Requirements

Another aspect of ITS architecture development is to define functional requirements of the system. High-level functional requirements are identified for each regionally significant system that is included in the inventory of the architecture. “Regionally significant systems” are defined as those with interfaces that cross agency boundaries. (For example, functional requirements for a transit management center would be expected, but not for the systems on board the transit vehicle that primarily interface with the transit management center.) Functional requirements are a high-level description of how each piece of the ITS system will function or work. Based on the needs identified above, target transportation services or service packages will be examined for their functional requirements. Service packages may include several stakeholders and elements that work together to provide a service in the Region. Examples of service packages from the National ITS Architecture include Incident Management System (ATMS8), Transit Vehicle Tracking (APTS1), Dynamic Route Guidance (ATIS4) or Weigh-In-Motion (CVO06).

In the Bi-State Region, the National ITS Architecture service packages or transportation services were reviewed by the stakeholders and selected based on the relevance of the service provided. Again, these services refer back to the needs identified in the Region by the stakeholders. The service packages selected for implementation in the Bi-State Region are shown in Table 2. The table identifies the National ITS Architecture service package code, service package name, elements associated with the service package, primary stakeholders responsible for implementation, and status of item (existing, planned or future).

The MetroLINK Transit and River Bend Transit have AVL systems installed on all buses. MetroLINK Terminals can track the location of the buses and inform drivers if the buses are running late. The Service Package for Transit Vehicle Tracking was used to define ITS activities in the Regional ITS Architecture.

This service package monitors current transit vehicle location using an Automated Vehicle Location System. The location data may be used to determine real time schedule adherence and update the transit system’s schedule in real-time. Vehicle position may be determined either by the vehicle (e.g., through GPS) and relayed to the infrastructure or may be determined directly by the communications infrastructure. A two-way wireless communication link with the Transit Management Subsystem is used for relaying vehicle position and control measures. Fixed route transit systems may also employ beacons along the route to enable position determination and facilitate communications with each vehicle at fixed intervals. The Transit Management Subsystem processes this information, updates the transit schedule and makes real-time schedule information available to the Information Service Provider.

Table 2 – Service Packages (Transportation Services)

2/27/2013 6:28:52PM



Service Packages for Project 2012 Regional Level ITS Architecture

Service Package

Element(s)

Broadcast Traveler Information (ATIS01) -- Planned

This service package collects traffic conditions, advisories, general public transportation, toll and parking information, incident information, roadway maintenance and construction information, air quality and weather information, and broadcasts the information to travelers using technologies such as FM subcarrier, satellite radio, cellular data broadcasts, and Internet web casts. The information may be provided directly to travelers or provided to merchants and other traveler service providers so that they can better inform their customers of travel conditions. Different from the service package ATMS06 - Traffic Information Dissemination, which provides localized HAR and DMS information capabilities, ATIS01 provides a wide area digital broadcast service. Successful deployment of this service package relies on availability of real-time traveler information from roadway instrumentation, probe vehicles or other sources.

City of Bettendorf Police Dispatch Terminal
City of Bettendorf Public Works Terminal
City of Davenport Police Dispatch Terminal
City of Davenport Public Works Terminal
City of Moline Fire Department
City of Moline Police Dispatch Terminal
I-74 Motorists
Illinois DOT District Maintenance Office Terminal
Iowa DOT District Maintenance Office Terminal
Iowa DOT District Office Terminal
Iowa DOT State Traffic Management Center
Iowa State Patrol Dispatch Terminal
Media Terminal
Rock Island County Emergency Response Center
Scott County Communications Center
Surface Transportation Weather Service
Weather Services

Network Surveillance (ATMS01) -- Planned

This service package includes traffic detectors, other surveillance equipment, the supporting field equipment, and fixed-point to fixed-point communications to transmit the collected data back to the Traffic Management Subsystem. The derived data can be used locally such as when traffic detectors are connected directly to a signal control system or remotely (e.g., when a CCTV system sends data back to the Traffic Management Subsystem). The data generated by this service package enables traffic managers to monitor traffic and road conditions, identify and verify incidents, detect faults in indicator operations, and collect census data for traffic strategy development and long range planning. The collected data can also be analyzed and made available to users and the Information Service Provider Subsystem.

Bridge Security Monitoring System
City of Bettendorf Police Dispatch Terminal
City of Bettendorf Public Works Terminal
City of Bettendorf Roadside Equipment
City of Davenport Police Dispatch Terminal
City of Davenport Public Works Terminal
City of Davenport Roadside Equipment
City of Moline Fire Department
City of Moline Police Dispatch Terminal
I-74 Motorists
Illinois DOT - Portable DMS
Iowa DOT - Automated Gates

Service Packages for Project 2012 Regional Level ITS Architecture**Service Package****Element(s)**

Iowa DOT - DMS
 Iowa DOT - Portable DMS
 Iowa DOT - QCDS
 Iowa DOT - QCLU
 Iowa DOT - QCTV
 Iowa DOT - RWIS
 Iowa DOT - VDS
 Iowa DOT District Office Terminal
 Iowa DOT State Traffic Management Center
 Iowa State Patrol Dispatch Terminal

Traffic Signal Control (ATMS03) -- Planned

This service package provides the central control and monitoring equipment, communication links, and the signal control equipment that support traffic control at signalized intersections. A range of traffic signal control systems are represented by this service package ranging from fixed-schedule control systems to fully traffic responsive systems that dynamically adjust control plans and strategies based on current traffic conditions and priority requests. This service package is generally an intra-jurisdictional package. Systems that achieve coordination across jurisdictions by using a common time base or other strategies that do not require real time coordination would also be represented by this package. Coordination of traffic signal systems using real-time communications is covered in the ATMS07-Regional Traffic Management service package. This service package is consistent with typical traffic signal control systems.

Bridge Security Monitoring System
 City of Bettendorf Police Dispatch Terminal
 City of Bettendorf Public Works Terminal
 City of Bettendorf Roadside Equipment
 City of Davenport Police Dispatch Terminal
 City of Davenport Public Works Terminal
 City of Davenport Roadside Equipment
 City of Moline Fire Department
 City of Moline Police Dispatch Terminal
 I-74 Motorists
 Illinois DOT - Portable DMS
 Iowa DOT - Automated Gates
 Iowa DOT - DMS
 Iowa DOT - Portable DMS
 Iowa DOT - QCDS
 Iowa DOT - QCLU
 Iowa DOT - QCTV
 Iowa DOT - RWIS
 Iowa DOT - VDS
 Iowa DOT District Office Terminal
 Iowa DOT State Traffic Management Center
 Iowa State Patrol Dispatch Terminal

Traffic Metering (ATMS04) -- Planned

This service package provides central monitoring and control, communications, and field equipment that support metering of traffic. It supports the complete range of metering strategies including ramp, interchange, and mainline metering. This package incorporates the instrumentation included in the Network Surveillance service package (traffic sensors are used to measure traffic flow and queues) to support traffic monitoring so responsive and adaptive metering strategies can be implemented. Also included is configurable field equipment to provide information to drivers approaching a meter, such as advance warning of the meter, its operational status (whether it is currently on or not, how many cars per green are allowed, etc.), lane usage at the meter (including a bypass lane for HOVs) and existing queue at the meter.

Bridge Security Monitoring System

Service Packages for Project 2012 Regional Level ITS Architecture**Service Package****Element(s)**

City of Bettendorf Police Dispatch Terminal
 City of Bettendorf Public Works Terminal
 City of Bettendorf Roadside Equipment
 City of Davenport Police Dispatch Terminal
 City of Davenport Public Works Terminal
 City of Davenport Roadside Equipment
 City of Moline Fire Department
 City of Moline Police Dispatch Terminal
 I-74 Motorists
 Illinois DOT - Portable DMS
 Iowa DOT - Automated Gates
 Iowa DOT - DMS
 Iowa DOT - Portable DMS
 Iowa DOT - QCDS
 Iowa DOT - QCLU
 Iowa DOT - QCTV
 Iowa DOT - RWIS
 Iowa DOT - VDS
 Iowa DOT District Office Terminal
 Iowa DOT State Traffic Management Center
 Iowa State Patrol Dispatch Terminal

Traffic Information Dissemination (ATMS06) -- Planned

This service package provides driver information using roadway equipment such as dynamic message signs or highway advisory radio. A wide range of information can be disseminated including traffic and road conditions, closure and detour information, travel restrictions, incident information, and emergency alerts and driver advisories. This package provides information to drivers at specific equipped locations on the road network. Careful placement of the roadway equipment provides the information at points in the network where the drivers have recourse and can tailor their routes to account for the new information. This package also covers the equipment and interfaces that provide traffic information from a traffic management center to the media (for instance via a direct tie-in between a traffic management center and radio or television station computer systems), Transit Management, Emergency Management, and Information Service Providers. A link to the Maintenance and Construction Management subsystem allows real time information on road/bridge closures and restrictions due to maintenance and construction activities to be disseminated. The sharing of transportation operations data described in this service package also supports other services like ATMS09- Traffic Decision Support and Demand Management.

Bridge Security Monitoring System
 City of Bettendorf Police Dispatch Terminal
 City of Bettendorf Public Works Terminal
 City of Bettendorf Roadside Equipment
 City of Davenport Police Dispatch Terminal
 City of Davenport Public Works Terminal
 City of Davenport Roadside Equipment
 City of Moline Fire Department
 City of Moline Police Dispatch Terminal
 I-74 Motorists
 Illinois DOT - Portable DMS
 Illinois DOT District Maintenance Office Terminal
 Iowa DOT - Automated Gates
 Iowa DOT - DMS
 Iowa DOT - Portable DMS
 Iowa DOT - QCDS
 Iowa DOT - QCLU

Service Packages for Project 2012 Regional Level ITS Architecture**Service Package****Element(s)**

Iowa DOT - QCTV
 Iowa DOT - RWIS
 Iowa DOT - VDS
 Iowa DOT District Maintenance Office Terminal
 Iowa DOT District Office Terminal
 Iowa DOT State Traffic Management Center
 Iowa State Patrol Dispatch Terminal
 Media Terminal
 Rock Island County Emergency Response Center
 Scott County Communications Center

Regional Traffic Management (ATMS07) -- Planned

This service package provides for the sharing of traffic information and control among traffic management centers to support regional traffic management strategies. Regional traffic management strategies that are supported include inter-jurisdictional, real-time coordinated traffic signal control systems and coordination between freeway operations and traffic signal control within a corridor. This service package advances the ATMS03-Traffic Signal Control and ATMS04-Traffic Metering service packages by adding the communications links and integrated control strategies that enable integrated, interjurisdictional traffic management. The nature of optimization and extent of information and control sharing is determined through working arrangements between jurisdictions. This package relies principally on roadside instrumentation supported by the Traffic Signal Control and Traffic Metering service packages and adds hardware, software, and fixed-point to fixed-point communications capabilities to implement traffic management strategies that are coordinated between allied traffic management centers. Several levels of coordination are supported from sharing of information through sharing of control between traffic management centers.

Bridge Security Monitoring System
 City of Bettendorf Police Dispatch Terminal
 City of Bettendorf Public Works Terminal
 City of Bettendorf Roadside Equipment
 City of Davenport Police Dispatch Terminal
 City of Davenport Public Works Terminal
 City of Davenport Roadside Equipment
 City of Moline Fire Department
 City of Moline Police Dispatch Terminal
 Illinois DOT - Portable DMS
 Iowa DOT - Automated Gates
 Iowa DOT - DMS
 Iowa DOT - Portable DMS
 Iowa DOT - QCDS
 Iowa DOT - QCLU
 Iowa DOT - QCTV
 Iowa DOT - RWIS
 Iowa DOT - VDS
 Iowa DOT District Office Terminal
 Iowa DOT State Traffic Management Center
 Iowa State Patrol Dispatch Terminal

Traffic Incident Management System (ATMS08) -- Planned

Service Packages for Project 2012 Regional Level ITS Architecture**Service Package****Element(s)**

This service package manages both unexpected incidents and planned events so that the impact to the transportation network and traveler safety is minimized. The service package includes incident detection capabilities through roadside surveillance devices (e.g. CCTV) and through regional coordination with other traffic management, maintenance and construction management and emergency management centers as well as rail operations and event promoters. Information from these diverse sources is collected and correlated by this service package to detect and verify incidents and implement an appropriate response. This service package supports traffic operations personnel in developing an appropriate response in coordination with emergency management, maintenance and construction management, and other incident response personnel to confirmed incidents. The response may include traffic control strategy modifications or resource coordination between center subsystems. Incident response also includes presentation of information to affected travelers using the Traffic Information Dissemination service package and dissemination of incident information to travelers through the Broadcast Traveler Information or Interactive Traveler Information service packages. The roadside equipment used to detect and verify incidents also allows the operator to monitor incident status as the response unfolds. The coordination with emergency management might be through a CAD system or through other communication with emergency field personnel. The coordination can also extend to tow trucks and other allied response agencies and field service personnel.

Bridge Security Monitoring System
 City of Bettendorf Police Dispatch Terminal
 City of Bettendorf Public Works Terminal
 City of Bettendorf Roadside Equipment
 City of Davenport Police Dispatch Terminal
 City of Davenport Public Works Terminal
 City of Davenport Roadside Equipment
 City of Moline Fire Department
 City of Moline Police Dispatch Terminal
 I-74 Motorists
 Illinois DOT - Portable DMS
 Illinois DOT District Maintenance Office Terminal
 Iowa DOT - Automated Gates
 Iowa DOT - DMS
 Iowa DOT - Portable DMS
 Iowa DOT - QCDS
 Iowa DOT - QCLU
 Iowa DOT - QCTV
 Iowa DOT - RWIS
 Iowa DOT - VDS
 Iowa DOT District Maintenance Office Terminal
 Iowa DOT District Office Terminal
 Iowa DOT State Traffic Management Center
 Iowa State Patrol Dispatch Terminal
 Media Terminal
 Rock Island County Emergency Response Center
 Scott County Communications Center

Roadway Closure Management (ATMS21) -- Planned

Service Packages for Project 2012 Regional Level ITS Architecture**Service Package****Element(s)**

This service package closes roadways to vehicular traffic when driving conditions are unsafe, maintenance must be performed, and other scenarios where access to the roadway must be prohibited. The service package includes automatic or remotely controlled gates or barriers that control access to roadway segments including ramps and traffic lanes. Remote control systems allow the gates to be controlled from a central location or from a vehicle at the gate/barrier location, improving system efficiency and reducing personnel exposure to unsafe conditions during severe weather and other situations where roads must be closed. Surveillance systems allow operating personnel to visually verify the safe activation of the closure system and driver information systems (e.g., DMS) provide closure information to motorists in the vicinity of the closure. The equipment managed by this service package includes the control and monitoring systems, the field devices (e.g., gates, warning lights, DMS, CCTV cameras) at the closure location(s), and the information systems that notify other systems of a closure. This service package covers general road closure applications; specific closure systems that are used at railroad grade crossings, drawbridges, reversible lanes, etc. are covered by other ATMS service packages.

Bridge Security Monitoring System
 City of Bettendorf Police Dispatch Terminal
 City of Bettendorf Public Works Terminal
 City of Bettendorf Roadside Equipment
 City of Davenport Police Dispatch Terminal
 City of Davenport Public Works Terminal
 City of Davenport Roadside Equipment
 City of Moline Fire Department
 City of Moline Police Dispatch Terminal
 Illinois DOT - Portable DMS
 Illinois DOT District Maintenance Office Terminal
 Iowa DOT - Automated Gates
 Iowa DOT - DMS
 Iowa DOT - Portable DMS
 Iowa DOT - QCDS
 Iowa DOT - QCLU
 Iowa DOT - QCTV
 Iowa DOT - RWIS
 Iowa DOT - VDS
 Iowa DOT District Maintenance Office Terminal
 Iowa DOT District Office Terminal
 Iowa DOT State Traffic Management Center
 Iowa State Patrol Dispatch Terminal
 Rock Island County Emergency Response Center
 Scott County Communications Center

Wide-Area Alert (EM06) -- Planned

This service package uses ITS driver and traveler information systems to alert the public in emergency situations such as child abductions, severe weather events, civil emergencies, and other situations that pose a threat to life and property. The alert includes information and instructions for transportation system operators and the traveling public, improving public safety and enlisting the public's help in some scenarios. The ITS technologies will supplement and support other emergency and homeland security alert systems such as the Emergency Alert System (EAS). When an emergency situation is reported and verified and the terms and conditions for system activation are satisfied, a designated agency broadcasts emergency information to traffic agencies, transit agencies, information service providers, toll operators, and others that operate ITS systems. The ITS systems, in turn, provide the alert information to transportation system operators and the traveling public using ITS technologies such as dynamic message signs, highway advisory radios, in-vehicle displays, transit displays, 511 traveler information systems, and traveler information web sites.

Bridge Security Monitoring System
 City of Bettendorf Police Dispatch Terminal
 City of Bettendorf Public Works Terminal
 City of Bettendorf Roadside Equipment
 City of Davenport Police Dispatch Terminal

Service Packages for Project 2012 Regional Level ITS Architecture**Service Package****Element(s)**

City of Davenport Public Works Terminal
 City of Davenport Roadside Equipment
 City of Moline Fire Department
 City of Moline Police Dispatch Terminal
 I-74 Motorists
 Illinois DOT - Portable DMS
 Illinois DOT District Maintenance Office Terminal
 Iowa DOT - Automated Gates
 Iowa DOT - DMS
 Iowa DOT - Portable DMS
 Iowa DOT - QCDS
 Iowa DOT - QCLU
 Iowa DOT - QCTV
 Iowa DOT - RWIS
 Iowa DOT - VDS
 Iowa DOT District Maintenance Office Terminal
 Iowa DOT District Office Terminal
 Iowa DOT State Traffic Management Center
 Iowa State Patrol Dispatch Terminal
 Rock Island County Emergency Response Center
 Scott County Communications Center

Road Weather Data Collection (MC03) -- Planned

This service package collects current road and weather conditions using data collected from environmental sensors deployed on and about the roadway (or guideway in the case of transit related rail systems). In addition to fixed sensor stations at the roadside, sensing of the roadway environment can also occur from sensor systems located on Maintenance and Construction Vehicles. The collected environmental data is used by the Weather Information Processing and Distribution service package to process the information and make decisions on operations. The collected environmental data may be aggregated, combined with data attributes and sent to meteorological systems for data qualification and further data consolidation. The service package may also request and receive qualified data sets from meteorological systems.

Bridge Security Monitoring System
 City of Bettendorf Police Dispatch Terminal
 City of Bettendorf Public Works Terminal
 City of Bettendorf Roadside Equipment
 City of Davenport Police Dispatch Terminal
 City of Davenport Public Works Terminal
 City of Davenport Roadside Equipment
 City of Moline Fire Department
 City of Moline Police Dispatch Terminal
 Illinois DOT - Portable DMS
 Illinois DOT District Maintenance Office Terminal
 Iowa DOT - Automated Gates
 Iowa DOT - DMS
 Iowa DOT - Portable DMS
 Iowa DOT - QCDS
 Iowa DOT - QCLU
 Iowa DOT - QCTV
 Iowa DOT - RWIS
 Iowa DOT - VDS
 Iowa DOT District Maintenance Office Terminal
 Iowa DOT District Office Terminal

Service Packages for Project 2012 Regional Level ITS Architecture**Service Package****Element(s)**

Iowa DOT State Traffic Management Center
 Iowa State Patrol Dispatch Terminal
 Surface Transportation Weather Service
 Weather Services

Roadway Maintenance and Construction (MC07) -- Planned

This service package supports numerous services for scheduled and unscheduled maintenance and construction on a roadway system or right-of-way. Maintenance services would include landscape maintenance, hazard removal (roadway debris, dead animals), routine maintenance activities (roadway cleaning, grass cutting), and repair and maintenance of both ITS and non-ITS equipment on the roadway (e.g., signs, traffic controllers, traffic detectors, dynamic message signs, traffic signals, CCTV, etc.). Environmental conditions information is also received from various weather sources to aid in scheduling maintenance and construction activities.

Bridge Security Monitoring System
 City of Bettendorf Police Dispatch Terminal
 City of Bettendorf Public Works Terminal
 City of Bettendorf Roadside Equipment
 City of Davenport Police Dispatch Terminal
 City of Davenport Public Works Terminal
 City of Davenport Roadside Equipment
 City of Moline Fire Department
 City of Moline Police Dispatch Terminal
 Illinois DOT - Portable DMS
 Illinois DOT District Maintenance Office Terminal
 Iowa DOT - Automated Gates
 Iowa DOT - DMS
 Iowa DOT - Portable DMS
 Iowa DOT - QCDS
 Iowa DOT - QCLU
 Iowa DOT - QCTV
 Iowa DOT - RWIS
 Iowa DOT - VDS
 Iowa DOT District Maintenance Office Terminal
 Iowa DOT District Office Terminal
 Iowa DOT State Traffic Management Center
 Iowa State Patrol Dispatch Terminal
 Rock Island County Emergency Response Center
 Scott County Communications Center
 Surface Transportation Weather Service
 Weather Services

Maintenance and Construction Activity Coordination (MC10) -- Planned

This service package supports the dissemination of maintenance and construction activity to centers that can utilize it as part of their operations, or to the Information Service Providers who can provide the information to travelers.

City of Bettendorf Police Dispatch Terminal
 City of Bettendorf Public Works Terminal
 City of Davenport Police Dispatch Terminal
 City of Davenport Public Works Terminal
 City of Moline Fire Department
 City of Moline Police Dispatch Terminal
 Illinois DOT District Maintenance Office Terminal
 Iowa DOT District Maintenance Office Terminal
 Iowa DOT District Office Terminal

Service Packages for Project 2012 Regional Level ITS Architecture

Service Package

Element(s)

Iowa DOT State Traffic Management Center
Iowa State Patrol Dispatch Terminal
Media Terminal
Rock Island County Emergency Response Center
Scott County Communications Center

Inventory to Service Package Comparison

2/27/2013 6:31:40PM



Comparison for Project 2012 Regional Level ITS Architecture

Entity Name	Type	Element Name
The following Element(s) are in the inventory, but do not participate in any of the selected Service Packages		
Basic Vehicle	<i>Terminator</i>	I-74 Motorists
Other Vehicle	<i>Terminator</i>	I-74 Motorists
Traffic	<i>Terminator</i>	I-74 Motorists
Traveler	<i>Terminator</i>	I-74 Motorists
Emergency Management	<i>Subsystem</i>	Rock Island County Emergency Response Center
Emergency Management	<i>Subsystem</i>	Scott County Communications Center

Service Package: (ATIS01) Broadcast Traveler Information

Traffic Management	<i>Subsystem</i>	City of Bettendorf Public Works Terminal
Traffic Management	<i>Subsystem</i>	City of Davenport Public Works Terminal
Traffic Management	<i>Subsystem</i>	City of Moline Fire Department
Traveler	<i>Terminator</i>	I-74 Motorists
Maintenance and Construction Management	<i>Subsystem</i>	Illinois DOT District Maintenance Office Terminal
Maintenance and Construction Management	<i>Subsystem</i>	Iowa DOT District Maintenance Office Terminal
Emergency Management	<i>Subsystem</i>	Rock Island County Emergency Response Center
Emergency Management	<i>Subsystem</i>	Scott County Communications Center
Surface Transportation Weather Service	<i>Terminator</i>	Surface Transportation Weather Service
Weather Service	<i>Terminator</i>	Weather Services
Traffic Management	<i>Subsystem</i>	City of Bettendorf Police Dispatch Terminal
Emergency Management	<i>Subsystem</i>	City of Davenport Police Dispatch Terminal
Traffic Management	<i>Subsystem</i>	City of Davenport Police Dispatch Terminal
Emergency Management	<i>Subsystem</i>	City of Moline Police Dispatch Terminal
Traffic Management	<i>Subsystem</i>	City of Moline Police Dispatch Terminal
Traffic Management	<i>Subsystem</i>	Iowa DOT District Office Terminal
Traffic Management	<i>Subsystem</i>	Iowa DOT State Traffic Management Center
Traffic Management	<i>Subsystem</i>	Iowa State Patrol Dispatch Terminal
Media	<i>Terminator</i>	Media Terminal
Emissions Management	<i>Subsystem</i>	
Information Service Provider	<i>Subsystem</i>	
Parking Management	<i>Subsystem</i>	
Payment Administration	<i>Subsystem</i>	
Personal Information Access	<i>Subsystem</i>	
Remote Traveler Support	<i>Subsystem</i>	
Transit Management	<i>Subsystem</i>	
Vehicle	<i>Subsystem</i>	
Border Inspection Systems	<i>Terminator</i>	
Driver	<i>Terminator</i>	
Event Promoters	<i>Terminator</i>	
ISP Operator	<i>Terminator</i>	
Other ISP	<i>Terminator</i>	

Service Package: (ATMS01) Network Surveillance

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Entity Name	Type	Element Name
Service Package: (ATMS01) Network Surveillance		
Traffic Management	<i>Subsystem</i>	City of Bettendorf Public Works Terminal
Traffic Management	<i>Subsystem</i>	City of Davenport Public Works Terminal
Roadway	<i>Subsystem</i>	City of Davenport Roadside Equipment
Traffic Management	<i>Subsystem</i>	City of Moline Fire Department
Traffic	<i>Terminator</i>	I-74 Motorists
Roadway	<i>Subsystem</i>	Illinois DOT - Portable DMS
Roadway	<i>Subsystem</i>	Iowa DOT - Automated Gates
Roadway	<i>Subsystem</i>	Iowa DOT - DMS
Roadway	<i>Subsystem</i>	Iowa DOT - Portable DMS
Roadway	<i>Subsystem</i>	Iowa DOT - QCLU
Roadway	<i>Subsystem</i>	Iowa DOT - RWIS
Traffic Management	<i>Subsystem</i>	Iowa State Patrol Dispatch Terminal
Roadway	<i>Subsystem</i>	Bridge Security Monitoring System
Traffic Management	<i>Subsystem</i>	City of Bettendorf Police Dispatch Terminal
Roadway	<i>Subsystem</i>	City of Bettendorf Roadside Equipment
Traffic Management	<i>Subsystem</i>	City of Davenport Police Dispatch Terminal
Traffic Management	<i>Subsystem</i>	City of Moline Police Dispatch Terminal
Roadway	<i>Subsystem</i>	Iowa DOT - QCDS
Roadway	<i>Subsystem</i>	Iowa DOT - QCTV
Roadway	<i>Subsystem</i>	Iowa DOT - VDS
Traffic Management	<i>Subsystem</i>	Iowa DOT District Office Terminal
Traffic Management	<i>Subsystem</i>	Iowa DOT State Traffic Management Center
Information Service Provider	<i>Subsystem</i>	
Map Update Provider	<i>Terminator</i>	
Traffic Operations Personnel	<i>Terminator</i>	

Service Package: (ATMS03) Traffic Signal Control		
Roadway	<i>Subsystem</i>	Bridge Security Monitoring System
Traffic Management	<i>Subsystem</i>	City of Bettendorf Public Works Terminal
Roadway	<i>Subsystem</i>	City of Bettendorf Roadside Equipment
Traffic Management	<i>Subsystem</i>	City of Davenport Police Dispatch Terminal
Traffic Management	<i>Subsystem</i>	City of Davenport Public Works Terminal
Roadway	<i>Subsystem</i>	City of Davenport Roadside Equipment
Traffic Management	<i>Subsystem</i>	City of Moline Fire Department
Traffic Management	<i>Subsystem</i>	City of Moline Police Dispatch Terminal
Traffic	<i>Terminator</i>	I-74 Motorists
Roadway	<i>Subsystem</i>	Illinois DOT - Portable DMS
Roadway	<i>Subsystem</i>	Iowa DOT - Automated Gates
Roadway	<i>Subsystem</i>	Iowa DOT - DMS
Roadway	<i>Subsystem</i>	Iowa DOT - Portable DMS
Roadway	<i>Subsystem</i>	Iowa DOT - QCDS
Roadway	<i>Subsystem</i>	Iowa DOT - QCLU
Roadway	<i>Subsystem</i>	Iowa DOT - QCTV
Roadway	<i>Subsystem</i>	Iowa DOT - RWIS
Roadway	<i>Subsystem</i>	Iowa DOT - VDS
Traffic Management	<i>Subsystem</i>	Iowa State Patrol Dispatch Terminal
Traffic Management	<i>Subsystem</i>	City of Bettendorf Police Dispatch Terminal
Traffic Management	<i>Subsystem</i>	Iowa DOT District Office Terminal

Entity Name	Type	Element Name
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Service Package: (ATMS03) Traffic Signal Control

Traffic Management	<i>Subsystem</i>	Iowa DOT State Traffic Management Center
Driver	<i>Terminator</i>	
Pedestrians	<i>Terminator</i>	
Traffic Operations Personnel	<i>Terminator</i>	

Service Package: (ATMS04) Traffic Metering

Roadway	<i>Subsystem</i>	Bridge Security Monitoring System
Traffic Management	<i>Subsystem</i>	City of Bettendorf Public Works Terminal
Roadway	<i>Subsystem</i>	City of Bettendorf Roadside Equipment
Traffic Management	<i>Subsystem</i>	City of Davenport Police Dispatch Terminal
Traffic Management	<i>Subsystem</i>	City of Davenport Public Works Terminal
Roadway	<i>Subsystem</i>	City of Davenport Roadside Equipment
Traffic Management	<i>Subsystem</i>	City of Moline Fire Department
Traffic Management	<i>Subsystem</i>	City of Moline Police Dispatch Terminal
Traffic	<i>Terminator</i>	I-74 Motorists
Roadway	<i>Subsystem</i>	Iowa DOT - QCDS
Roadway	<i>Subsystem</i>	Iowa DOT - QCTV
Roadway	<i>Subsystem</i>	Iowa DOT - RWIS
Roadway	<i>Subsystem</i>	Iowa DOT - VDS
Traffic Management	<i>Subsystem</i>	Iowa State Patrol Dispatch Terminal
Traffic Management	<i>Subsystem</i>	City of Bettendorf Police Dispatch Terminal
Roadway	<i>Subsystem</i>	Illinois DOT - Portable DMS
Roadway	<i>Subsystem</i>	Iowa DOT - Automated Gates
Roadway	<i>Subsystem</i>	Iowa DOT - DMS
Roadway	<i>Subsystem</i>	Iowa DOT - Portable DMS
Roadway	<i>Subsystem</i>	Iowa DOT - QCLU
Traffic Management	<i>Subsystem</i>	Iowa DOT District Office Terminal
Traffic Management	<i>Subsystem</i>	Iowa DOT State Traffic Management Center
Driver	<i>Terminator</i>	
Traffic Operations Personnel	<i>Terminator</i>	

Service Package: (ATMS06) Traffic Information Dissemination

Roadway	<i>Subsystem</i>	Bridge Security Monitoring System
Traffic Management	<i>Subsystem</i>	City of Bettendorf Public Works Terminal
Roadway	<i>Subsystem</i>	City of Bettendorf Roadside Equipment
Emergency Management	<i>Subsystem</i>	City of Davenport Police Dispatch Terminal
Traffic Management	<i>Subsystem</i>	City of Davenport Police Dispatch Terminal
Traffic Management	<i>Subsystem</i>	City of Davenport Public Works Terminal
Roadway	<i>Subsystem</i>	City of Davenport Roadside Equipment
Traffic Management	<i>Subsystem</i>	City of Moline Fire Department
Emergency Management	<i>Subsystem</i>	City of Moline Police Dispatch Terminal
Traffic Management	<i>Subsystem</i>	City of Moline Police Dispatch Terminal
Basic Vehicle	<i>Terminator</i>	I-74 Motorists
Roadway	<i>Subsystem</i>	Iowa DOT - Automated Gates
Roadway	<i>Subsystem</i>	Iowa DOT - QCDS
Roadway	<i>Subsystem</i>	Iowa DOT - QCLU
Roadway	<i>Subsystem</i>	Iowa DOT - QCTV
Roadway	<i>Subsystem</i>	Iowa DOT - RWIS

Entity Name	Type	Element Name
Service Package: (ATMS06) Traffic Information Dissemination		
Roadway	<i>Subsystem</i>	Iowa DOT - VDS
Traffic Management	<i>Subsystem</i>	Iowa State Patrol Dispatch Terminal
Emergency Management	<i>Subsystem</i>	Rock Island County Emergency Response Center
Emergency Management	<i>Subsystem</i>	Scott County Communications Center
Traffic Management	<i>Subsystem</i>	City of Bettendorf Police Dispatch Terminal
Roadway	<i>Subsystem</i>	Illinois DOT - Portable DMS
Maintenance and Construction Management	<i>Subsystem</i>	Illinois DOT District Maintenance Office Terminal
Roadway	<i>Subsystem</i>	Iowa DOT - DMS
Roadway	<i>Subsystem</i>	Iowa DOT - Portable DMS
Maintenance and Construction Management	<i>Subsystem</i>	Iowa DOT District Maintenance Office Terminal
Traffic Management	<i>Subsystem</i>	Iowa DOT District Office Terminal
Traffic Management	<i>Subsystem</i>	Iowa DOT State Traffic Management Center
Media	<i>Terminator</i>	Media Terminal
Information Service Provider	<i>Subsystem</i>	
Transit Management	<i>Subsystem</i>	
Border Inspection Systems	<i>Terminator</i>	
Driver	<i>Terminator</i>	
Traffic Operations Personnel	<i>Terminator</i>	

Service Package: (ATMS07) Regional Traffic Management		
Roadway	<i>Subsystem</i>	Bridge Security Monitoring System
Roadway	<i>Subsystem</i>	City of Bettendorf Roadside Equipment
Roadway	<i>Subsystem</i>	City of Davenport Roadside Equipment
Roadway	<i>Subsystem</i>	Illinois DOT - Portable DMS
Roadway	<i>Subsystem</i>	Iowa DOT - DMS
Roadway	<i>Subsystem</i>	Iowa DOT - Portable DMS
Roadway	<i>Subsystem</i>	Iowa DOT - QCDS
Roadway	<i>Subsystem</i>	Iowa DOT - QCLU
Roadway	<i>Subsystem</i>	Iowa DOT - QCTV
Roadway	<i>Subsystem</i>	Iowa DOT - RWIS
Roadway	<i>Subsystem</i>	Iowa DOT - VDS
Traffic Management	<i>Subsystem</i>	Iowa State Patrol Dispatch Terminal
Traffic Management	<i>Subsystem</i>	City of Bettendorf Police Dispatch Terminal
Traffic Management	<i>Subsystem</i>	City of Bettendorf Public Works Terminal
Traffic Management	<i>Subsystem</i>	City of Davenport Police Dispatch Terminal
Traffic Management	<i>Subsystem</i>	City of Davenport Public Works Terminal
Traffic Management	<i>Subsystem</i>	City of Moline Fire Department
Traffic Management	<i>Subsystem</i>	City of Moline Police Dispatch Terminal
Roadway	<i>Subsystem</i>	Iowa DOT - Automated Gates
Traffic Management	<i>Subsystem</i>	Iowa DOT District Office Terminal
Traffic Management	<i>Subsystem</i>	Iowa DOT State Traffic Management Center
Traffic Operations Personnel	<i>Terminator</i>	

Service Package: (ATMS08) Traffic Incident Management System		
Traffic Management	<i>Subsystem</i>	City of Bettendorf Public Works Terminal
Traffic Management	<i>Subsystem</i>	City of Davenport Public Works Terminal

Entity Name	Type	Element Name
Service Package: (ATMS08) Traffic Incident Management System		
Roadway	<i>Subsystem</i>	City of Davenport Roadside Equipment
Traffic	<i>Terminator</i>	I-74 Motorists
Roadway	<i>Subsystem</i>	Illinois DOT - Portable DMS
Roadway	<i>Subsystem</i>	Iowa DOT - DMS
Roadway	<i>Subsystem</i>	Iowa DOT - Portable DMS
Roadway	<i>Subsystem</i>	Iowa DOT - RWIS
Media	<i>Terminator</i>	Media Terminal
Emergency Management	<i>Subsystem</i>	Rock Island County Emergency Response Center
Emergency Management	<i>Subsystem</i>	Scott County Communications Center
Roadway	<i>Subsystem</i>	Bridge Security Monitoring System
Traffic Management	<i>Subsystem</i>	City of Bettendorf Police Dispatch Terminal
Roadway	<i>Subsystem</i>	City of Bettendorf Roadside Equipment
Emergency Management	<i>Subsystem</i>	City of Davenport Police Dispatch Terminal
Traffic Management	<i>Subsystem</i>	City of Davenport Police Dispatch Terminal
Traffic Management	<i>Subsystem</i>	City of Moline Fire Department
Emergency Management	<i>Subsystem</i>	City of Moline Police Dispatch Terminal
Traffic Management	<i>Subsystem</i>	City of Moline Police Dispatch Terminal
Maintenance and Construction Management	<i>Subsystem</i>	Illinois DOT District Maintenance Office Terminal
Roadway	<i>Subsystem</i>	Iowa DOT - Automated Gates
Roadway	<i>Subsystem</i>	Iowa DOT - QCDS
Roadway	<i>Subsystem</i>	Iowa DOT - QCLU
Roadway	<i>Subsystem</i>	Iowa DOT - QCTV
Roadway	<i>Subsystem</i>	Iowa DOT - VDS
Maintenance and Construction Management	<i>Subsystem</i>	Iowa DOT District Maintenance Office Terminal
Traffic Management	<i>Subsystem</i>	Iowa DOT District Office Terminal
Traffic Management	<i>Subsystem</i>	Iowa DOT State Traffic Management Center
Traffic Management	<i>Subsystem</i>	Iowa State Patrol Dispatch Terminal
Emergency Vehicle	<i>Subsystem</i>	
Information Service Provider	<i>Subsystem</i>	
Transit Management	<i>Subsystem</i>	
Border Inspection Systems	<i>Terminator</i>	
Emergency Personnel	<i>Terminator</i>	
Emergency System Operator	<i>Terminator</i>	
Event Promoters	<i>Terminator</i>	
Maintenance and Construction Center Personnel	<i>Terminator</i>	
Map Update Provider	<i>Terminator</i>	
Rail Operations	<i>Terminator</i>	
Traffic Operations Personnel	<i>Terminator</i>	
Service Package: (ATMS21) Roadway Closure Management		
Roadway	<i>Subsystem</i>	Bridge Security Monitoring System
Traffic Management	<i>Subsystem</i>	City of Bettendorf Public Works Terminal
Roadway	<i>Subsystem</i>	City of Bettendorf Roadside Equipment
Traffic Management	<i>Subsystem</i>	City of Davenport Public Works Terminal
Roadway	<i>Subsystem</i>	City of Davenport Roadside Equipment
Traffic Management	<i>Subsystem</i>	City of Moline Fire Department

Entity Name	Type	Element Name
Service Package: (ATMS21) Roadway Closure Management		
Maintenance and Construction Management	<i>Subsystem</i>	Illinois DOT District Maintenance Office Terminal
Roadway	<i>Subsystem</i>	Iowa DOT - QCDS
Roadway	<i>Subsystem</i>	Iowa DOT - QCLU
Roadway	<i>Subsystem</i>	Iowa DOT - QCTV
Roadway	<i>Subsystem</i>	Iowa DOT - RWIS
Roadway	<i>Subsystem</i>	Iowa DOT - VDS
Traffic Management	<i>Subsystem</i>	Iowa DOT District Office Terminal
Traffic Management	<i>Subsystem</i>	Iowa State Patrol Dispatch Terminal
Emergency Management	<i>Subsystem</i>	Rock Island County Emergency Response Center
Emergency Management	<i>Subsystem</i>	Scott County Communications Center
Traffic Management	<i>Subsystem</i>	City of Bettendorf Police Dispatch Terminal
Emergency Management	<i>Subsystem</i>	City of Davenport Police Dispatch Terminal
Traffic Management	<i>Subsystem</i>	City of Davenport Police Dispatch Terminal
Emergency Management	<i>Subsystem</i>	City of Moline Police Dispatch Terminal
Traffic Management	<i>Subsystem</i>	City of Moline Police Dispatch Terminal
Roadway	<i>Subsystem</i>	Illinois DOT - Portable DMS
Roadway	<i>Subsystem</i>	Iowa DOT - Automated Gates
Roadway	<i>Subsystem</i>	Iowa DOT - DMS
Roadway	<i>Subsystem</i>	Iowa DOT - Portable DMS
Maintenance and Construction Management	<i>Subsystem</i>	Iowa DOT District Maintenance Office Terminal
Traffic Management	<i>Subsystem</i>	Iowa DOT State Traffic Management Center
Emergency Vehicle	<i>Subsystem</i>	
Information Service Provider	<i>Subsystem</i>	
Maintenance and Construction Vehicle	<i>Subsystem</i>	
Transit Management	<i>Subsystem</i>	
Driver	<i>Terminator</i>	
Emergency Personnel	<i>Terminator</i>	
Emergency System Operator	<i>Terminator</i>	
Maintenance and Construction Center Personnel	<i>Terminator</i>	
Maintenance and Construction Field Personnel	<i>Terminator</i>	
Traffic Operations Personnel	<i>Terminator</i>	
Service Package: (EM06) Wide-Area Alert		
Roadway	<i>Subsystem</i>	Bridge Security Monitoring System
Traffic Management	<i>Subsystem</i>	City of Bettendorf Police Dispatch Terminal
Traffic Management	<i>Subsystem</i>	City of Bettendorf Public Works Terminal
Roadway	<i>Subsystem</i>	City of Bettendorf Roadside Equipment
Emergency Management	<i>Subsystem</i>	City of Davenport Police Dispatch Terminal
Traffic Management	<i>Subsystem</i>	City of Davenport Police Dispatch Terminal
Traffic Management	<i>Subsystem</i>	City of Davenport Public Works Terminal
Roadway	<i>Subsystem</i>	City of Davenport Roadside Equipment
Traffic Management	<i>Subsystem</i>	City of Moline Fire Department
Emergency Management	<i>Subsystem</i>	City of Moline Police Dispatch Terminal
Traffic Management	<i>Subsystem</i>	City of Moline Police Dispatch Terminal

Entity Name	Type	Element Name
Service Package: (EM06) Wide-Area Alert		
Traveler	<i>Terminator</i>	I-74 Motorists
Maintenance and Construction Management	<i>Subsystem</i>	Illinois DOT District Maintenance Office Terminal
Roadway	<i>Subsystem</i>	Iowa DOT - Automated Gates
Roadway	<i>Subsystem</i>	Iowa DOT - QCDS
Roadway	<i>Subsystem</i>	Iowa DOT - QCLU
Roadway	<i>Subsystem</i>	Iowa DOT - QCTV
Roadway	<i>Subsystem</i>	Iowa DOT - RWIS
Roadway	<i>Subsystem</i>	Iowa DOT - VDS
Maintenance and Construction Management	<i>Subsystem</i>	Iowa DOT District Maintenance Office Terminal
Traffic Management	<i>Subsystem</i>	Iowa DOT District Office Terminal
Emergency Management	<i>Subsystem</i>	Rock Island County Emergency Response Center
Emergency Management	<i>Subsystem</i>	Scott County Communications Center
Roadway	<i>Subsystem</i>	Illinois DOT - Portable DMS
Roadway	<i>Subsystem</i>	Iowa DOT - DMS
Roadway	<i>Subsystem</i>	Iowa DOT - Portable DMS
Traffic Management	<i>Subsystem</i>	Iowa DOT State Traffic Management Center
Traffic Management	<i>Subsystem</i>	Iowa State Patrol Dispatch Terminal
Information Service Provider	<i>Subsystem</i>	
Payment Administration	<i>Subsystem</i>	
Personal Information Access	<i>Subsystem</i>	
Remote Traveler Support	<i>Subsystem</i>	
Roadway Payment	<i>Subsystem</i>	
Transit Management	<i>Subsystem</i>	
Transit Vehicle	<i>Subsystem</i>	
Vehicle	<i>Subsystem</i>	
Alerting and Advisory Systems	<i>Terminator</i>	
Driver	<i>Terminator</i>	
Emergency System Operator	<i>Terminator</i>	
ISP Operator	<i>Terminator</i>	
Maintenance and Construction Center Personnel	<i>Terminator</i>	
Other ISP	<i>Terminator</i>	
Payment Administrator	<i>Terminator</i>	
Telecommunications System for Traveler Information	<i>Terminator</i>	
Traffic Operations Personnel	<i>Terminator</i>	
Transit Operations Personnel	<i>Terminator</i>	
Service Package: (MC03) Road Weather Data Collection		
Roadway	<i>Subsystem</i>	Bridge Security Monitoring System
Traffic Management	<i>Subsystem</i>	City of Bettendorf Police Dispatch Terminal
Traffic Management	<i>Subsystem</i>	City of Bettendorf Public Works Terminal
Roadway	<i>Subsystem</i>	City of Bettendorf Roadside Equipment
Traffic Management	<i>Subsystem</i>	City of Davenport Police Dispatch Terminal
Traffic Management	<i>Subsystem</i>	City of Davenport Public Works Terminal
Traffic Management	<i>Subsystem</i>	City of Moline Fire Department
Traffic Management	<i>Subsystem</i>	City of Moline Police Dispatch Terminal

Entity Name	Type	Element Name
Service Package: (MC03) Road Weather Data Collection		
Roadway	<i>Subsystem</i>	Illinois DOT - Portable DMS
Maintenance and Construction Management	<i>Subsystem</i>	Illinois DOT District Maintenance Office Terminal
Roadway	<i>Subsystem</i>	Iowa DOT - Automated Gates
Roadway	<i>Subsystem</i>	Iowa DOT - DMS
Roadway	<i>Subsystem</i>	Iowa DOT - Portable DMS
Roadway	<i>Subsystem</i>	Iowa DOT - QCDS
Roadway	<i>Subsystem</i>	Iowa DOT - QCLU
Roadway	<i>Subsystem</i>	Iowa DOT - QCTV
Roadway	<i>Subsystem</i>	Iowa DOT - VDS
Traffic Management	<i>Subsystem</i>	Iowa DOT District Office Terminal
Traffic Management	<i>Subsystem</i>	Iowa State Patrol Dispatch Terminal
Roadway	<i>Subsystem</i>	City of Davenport Roadside Equipment
Roadway	<i>Subsystem</i>	Iowa DOT - RWIS
Maintenance and Construction Management	<i>Subsystem</i>	Iowa DOT District Maintenance Office Terminal
Traffic Management	<i>Subsystem</i>	Iowa DOT State Traffic Management Center
Surface Transportation Weather Service	<i>Terminator</i>	Surface Transportation Weather Service
Weather Service	<i>Terminator</i>	Weather Services
Information Service Provider	<i>Subsystem</i>	
Maintenance and Construction Vehicle	<i>Subsystem</i>	
Maintenance and Construction Center Personnel	<i>Terminator</i>	
Maintenance and Construction Field Personnel	<i>Terminator</i>	
Roadway Environment	<i>Terminator</i>	
Service Package: (MC07) Roadway Maintenance and Construction		
Traffic Management	<i>Subsystem</i>	City of Bettendorf Public Works Terminal
Emergency Management	<i>Subsystem</i>	City of Davenport Police Dispatch Terminal
Traffic Management	<i>Subsystem</i>	City of Davenport Police Dispatch Terminal
Traffic Management	<i>Subsystem</i>	City of Davenport Public Works Terminal
Roadway	<i>Subsystem</i>	City of Davenport Roadside Equipment
Traffic Management	<i>Subsystem</i>	City of Moline Fire Department
Emergency Management	<i>Subsystem</i>	City of Moline Police Dispatch Terminal
Traffic Management	<i>Subsystem</i>	City of Moline Police Dispatch Terminal
Roadway	<i>Subsystem</i>	Illinois DOT - Portable DMS
Roadway	<i>Subsystem</i>	Iowa DOT - Automated Gates
Roadway	<i>Subsystem</i>	Iowa DOT - DMS
Roadway	<i>Subsystem</i>	Iowa DOT - Portable DMS
Roadway	<i>Subsystem</i>	Iowa DOT - QCDS
Roadway	<i>Subsystem</i>	Iowa DOT - QCLU
Roadway	<i>Subsystem</i>	Iowa DOT - RWIS
Roadway	<i>Subsystem</i>	Iowa DOT - VDS
Traffic Management	<i>Subsystem</i>	Iowa DOT District Office Terminal
Traffic Management	<i>Subsystem</i>	Iowa State Patrol Dispatch Terminal
Emergency Management	<i>Subsystem</i>	Rock Island County Emergency Response Center
Emergency Management	<i>Subsystem</i>	Scott County Communications Center

Entity Name	Type	Element Name
Service Package: (MC07) Roadway Maintenance and Construction		
Surface Transportation Weather Service	Terminator	Surface Transportation Weather Service
Weather Service	Terminator	Weather Services
Roadway	Subsystem	Bridge Security Monitoring System
Traffic Management	Subsystem	City of Bettendorf Police Dispatch Terminal
Roadway	Subsystem	City of Bettendorf Roadside Equipment
Maintenance and Construction Management	Subsystem	Illinois DOT District Maintenance Office Terminal
Roadway	Subsystem	Iowa DOT - QCTV
Maintenance and Construction Management	Subsystem	Iowa DOT District Maintenance Office Terminal
Traffic Management	Subsystem	Iowa DOT State Traffic Management Center
Information Service Provider	Subsystem	
Maintenance and Construction Vehicle	Subsystem	
Vehicle	Subsystem	
Asset Management	Terminator	
Basic Maintenance and Construction Vehicle	Terminator	
Location Data Source	Terminator	
Maintenance and Construction Administrative Systems	Terminator	
Maintenance and Construction Center Personnel	Terminator	
Maintenance and Construction Field Personnel	Terminator	
Map Update Provider	Terminator	
Storage Facility	Terminator	

Service Package: (MC10) Maintenance and Construction Activity Coordination		
Emergency Management	Subsystem	City of Davenport Police Dispatch Terminal
Traffic Management	Subsystem	City of Davenport Police Dispatch Terminal
Traffic Management	Subsystem	City of Moline Fire Department
Emergency Management	Subsystem	City of Moline Police Dispatch Terminal
Traffic Management	Subsystem	City of Moline Police Dispatch Terminal
Emergency Management	Subsystem	Rock Island County Emergency Response Center
Emergency Management	Subsystem	Scott County Communications Center
Traffic Management	Subsystem	City of Bettendorf Police Dispatch Terminal
Traffic Management	Subsystem	City of Bettendorf Public Works Terminal
Traffic Management	Subsystem	City of Davenport Public Works Terminal
Maintenance and Construction Management	Subsystem	Illinois DOT District Maintenance Office Terminal
Maintenance and Construction Management	Subsystem	Iowa DOT District Maintenance Office Terminal
Traffic Management	Subsystem	Iowa DOT District Office Terminal
Traffic Management	Subsystem	Iowa DOT State Traffic Management Center
Traffic Management	Subsystem	Iowa State Patrol Dispatch Terminal
Media	Terminator	Media Terminal
Commercial Vehicle Administration	Subsystem	
Information Service Provider	Subsystem	

Entity Name	Type	Element Name
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Service Package: (MC10) Maintenance and Construction Activity Coordination

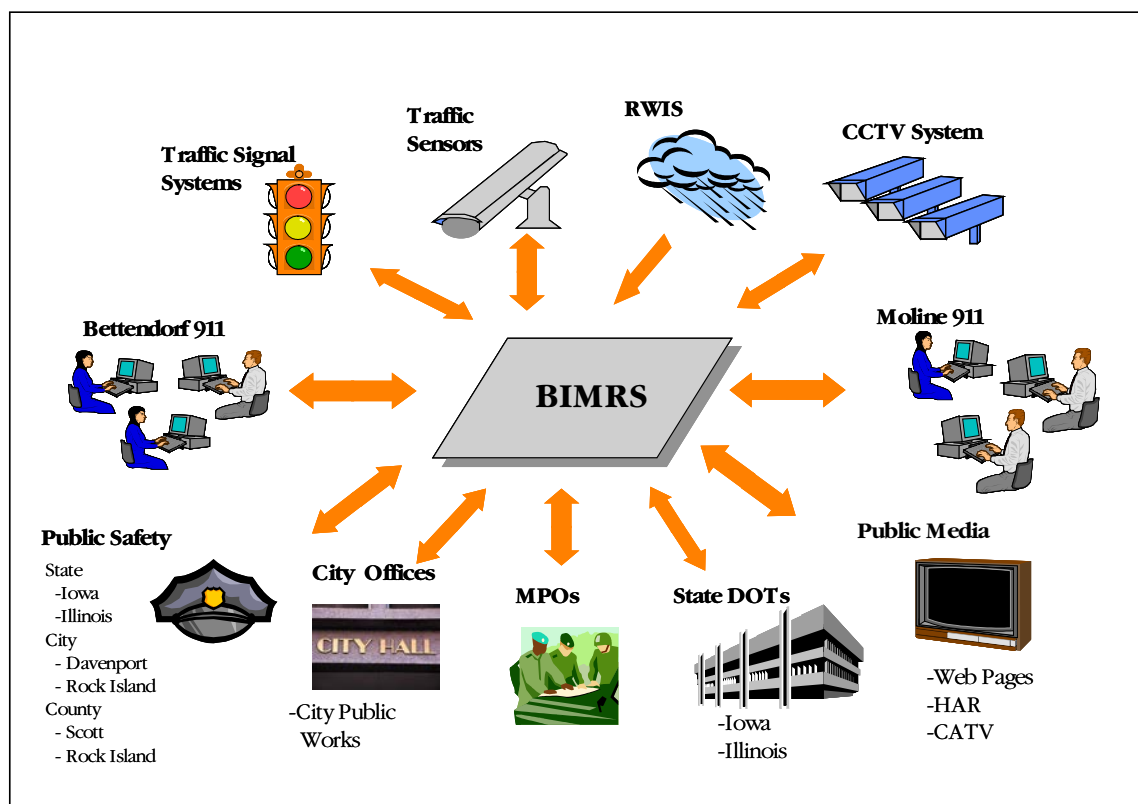
Transit Management	<i>Subsystem</i>	
Asset Management	<i>Terminator</i>	
Maintenance and Construction Administrative Systems	<i>Terminator</i>	
Maintenance and Construction Center Personnel	<i>Terminator</i>	
Multimodal Transportation Service Provider	<i>Terminator</i>	
Rail Operations	<i>Terminator</i>	

One example of the functional requirements from the Region is the Bridge Incident Management Response System (BIMRS). The functional requirements of the BIMRS vary in different levels of detail. Diagram 1 shows the future concept on how the BIMRS should work.

The primary notification on the I-74 Bridge is via cell phone calls to the 911 dispatch center. If it has been determined that the emergencies forces are needed then the appropriate agencies are contacted. The local police on the scene determined the needs of additional equipments then the Department of Transportation are contacted. The Police may request a possible closure of the ramp or the section of the roadway. To further minimize the delay, several DMS are activated by IA/IL DOT or Scott County Sheriff's office or Illinois State Police.

The BIMRS interacts between many entities. The information from the BIMRS could be disseminated to other agencies.

Diagram 1
Bridge Incident Management Response System



Source: I-74 BIMRS Study, 2004

V INTERFACES AND INFORMATION FLOWS

To carry out the roles and responsibilities outlined in the ITS inventory, the next component of the ITS Plan is to determine interconnections and information flows. Interconnections are identified and information flows are defined for each interface in this section of the Plan. If applicable, user defined flows are established in sufficient detail to understand the information exchanged. To manage the details of the Bi-State Regional ITS Architecture, a database system known as Turbo Architecture was used. Version 7.0 was used to catalog the stakeholders, elements and entities. The software also aids in visualizing the interconnections and information flows.

The Transit Travel Information Package provides transit users at transit stops and on-board transit vehicles with ready access to transit information. The information services include transit stop annunciation, imminent arrival signs, and real-time transit schedule displays that are of general interest to transit users. Systems that provide custom transit trip itineraries and other tailored transit information services are also represented by this service package.

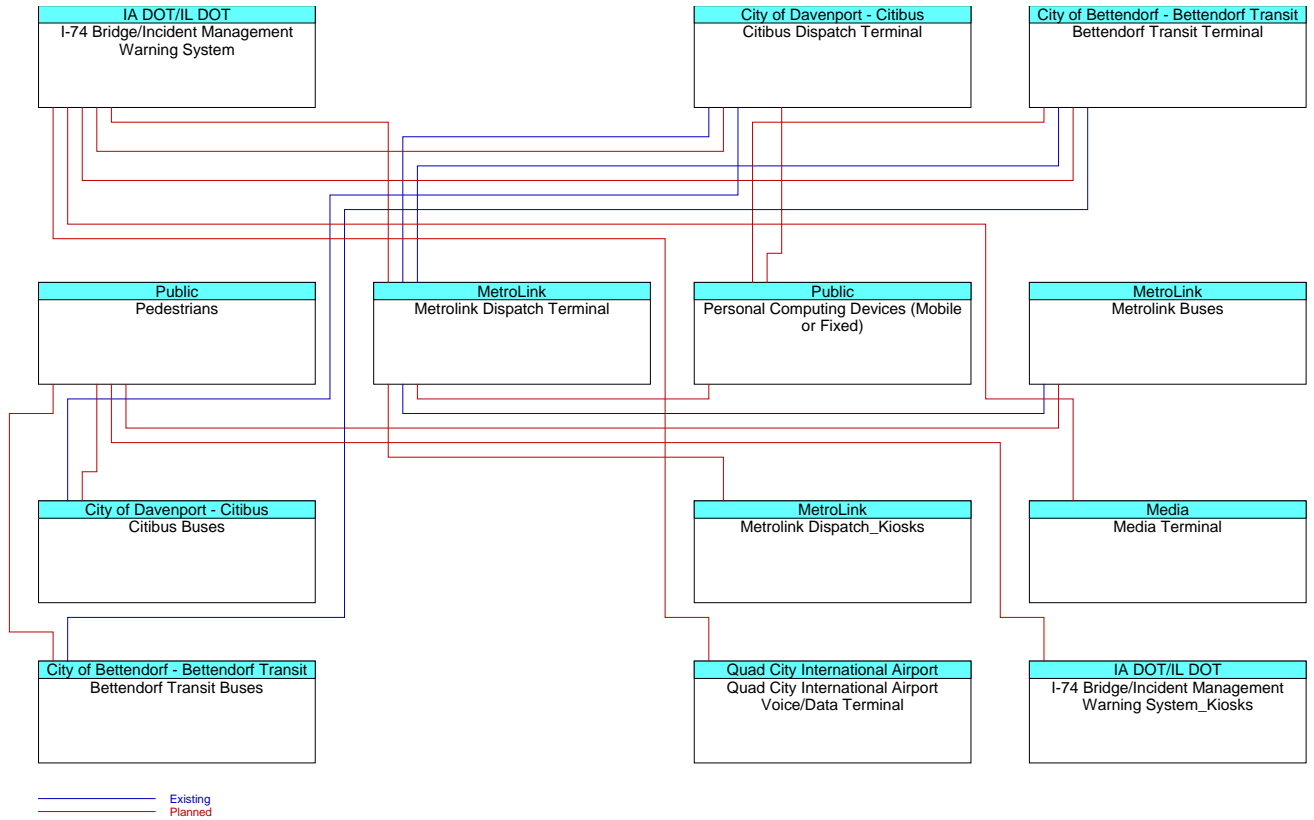
The interfaces and the information flow shows how each of the elements are connected to share information. (Refer to Diagrams 2 and 3.) The Transit Traveler information at the Centre station in Moline provides real time transit schedule. This information could also be shared with the public by mobile device in the future. The BIMRS (Bridge Incident Management System) would also be the part of sharing traveler information. If there is an incident on the bridge then the BIMRS would share information to transit agencies.

The following are the elements in the Architecture plan which would share traveler information in the regions.

- Metrolink Transit System
- Davenport CitiBus
- Bettendorf Transit System
- Quad City International Airport
- Personal Commuting Devices
- Dispatch Terminals
- Kiosks

The interfaces and the information flows for various service packages within the Bi-State Region are outlined in the Appendices.

**Diagram 2
Transit Travel Information Interfaces**



VI IMPLEMENTATION STRATEGY**Project Priorities and Sequencing**

The regional ITS architecture is implemented through many individual ITS projects that occur over time. The project priorities and sequencing defines the order in which projects will occur and/or how a project will progress. Table 3 provides projects by stakeholder, element, status and estimated timeframe.

Table 6
Project Priorities

Stakeholder	Element	Status	Timeframe
Cities, Law Enforcement Agencies, DOTs – IA and ILL, Scott County Emergency Dispatch Center	I-74 ITS Project: Provides real time information for Incidents on I-74 bridge to alleviate traffic congestion on Interstates	<i>Existing</i>	
Cities of Davenport City of Bettendorf City of Muscatine	Network surveillance using red light running camera: Enforcement of red light running violations	<i>Existing:</i> City of Davenport City of Muscatine <i>Planning:</i> City of Bettendorf	10 years
DOTs – IA & IL	Traveler information to motorists via DMS and Portable Signs	<i>Existing</i>	
MetroLINK and Bettendorf Transit	Transit Bus schedule and travel time information to users. E.g. Kiosks, Display Boards, PDAs, Cellular Phones	<i>Existing</i>	
MetroLINK City of Moline	Signal Preemptions – priority to buses to preempt signal on various routes	<i>Planned</i>	10 years
MetroLINK Other Transit Agencies from State of Illinois	Universal Smart Card -	<i>Planned</i>	5 years
City of Bettendorf, Iowa DOT	Changeable Message Signs on US 67	<i>Planned</i>	10 years
Bettendorf Transit	AVL system: Track vehicle location to monitor schedule	<i>Planned</i>	10 Years

Agency Agreements

Agreements among different stakeholders are needed to achieve integration of the regional ITS architecture. Because the regional ITS architecture realizes there are technical and institutional connections, it is important to document the roles and responsibilities of these aspects. Interagency agreements may detail very specific items, such as how images from closed-circuit television cameras will be used, to broader concerns of shared staffing at a transportation management center. The following outlines a listing of both existing and planned agreements that are required for operation of an intelligent transportation system.

Currently, there are formal agreements in place in the Bi-State Region with regards to ITS. As the new ITS technologies are implemented, various agreements are required to outline responsibilities on each agency.

Table 7 provides the list of existing and planned agreements. It is also important that agencies should review the roles and responsibility of each agency in form of agreements as the new ITS technologies are implemented in the region.

**Table 7
Existing and Planned Agreements**

Agencies	Agreement descriptions	Status
MetroLINK Financial Institute	Agreement for smart cards in Transit Systems: This agreement would define roles and responsibilities of the transit agencies and financial institution to share information e.g. revenue from smart cards etc.	Future
Scott County, Illinois State Police and IA/IL DOT	Access Dynamic Message Signs to activate: This agreement defines limited access to all five dynamic message signs.	Existing
Iowa DOT and Illinois DOT	Ownership and Maintenance agreement for Dynamic Message Signs.	Existing
Cities and Transit System	Signal Preemption: Allow MetroLINK to activate signal preemption.	Future
City of Davenport and Vendor	Agreement for Red Light Running Cameras.	Existing
DOTs, Cities, Law Enforcement Agencies, Media	Shared Video Monitoring: This agreement would enable agencies to share video for an incident on freeways. There may be a separate agreement for media to access video only for incidents.	Future
Cities and Law Enforcement Agencies, Fire Departments	Mutual Aid Agreement: Mutual Aid agreement currently exists to share resources. Formal mutual aid agreement would become more important as agencies integrate new ITS technologies.	Existing

ITS Standards

ITS standards facilitate the integration and interoperability of the proposed system by providing a set of technical specifications that are to be used consistently as rules, guidelines or definitions of characteristics for the exchange of information. The respective ITS standards for the regional architecture are identified in Appendices for each information flow.

VII USE AND MAINTENANCE

The Bi-State Regional ITS Architecture Plan has been developed to ensure comprehensive, cooperative, and continuing transportation planning activities related to the implementation of intelligent transportation systems or ITS. It is one component of the transportation planning process. As technologies develop and evolve, so does this plan. This section outlines how the regional ITS architecture plan is used and maintained.

Integration into Planning Process

The purpose of the Bi-State Regional ITS Architecture Plan is to outline both technical and institutional linkages for the integration of transportation technologies into the multi-modal transportation system. Ultimately, use of ITS will reinforce the Region's vision of providing a safe, secure transportation network with seamless choices and services to the users, the traveling public or meeting the needs of commerce.

The Quad Cities MPO Long Range Transportation Plan discusses ITS at the highest level. Subsequently, the Bi-State Regional ITS Architecture Plan provides a more complete definition of project requirements and enables the integration of transportation technologies into network improvements. The regional ITS document is viewed as a conceptual plan offering a framework for greater detail as the project moves toward implementation. This is similar to identification of roadway projects in the Long Range Transportation Plan which require detailed engineering analysis prior to construction. This ITS plan operates similarly where project level architectures will be developed to refine details and specifications conceived in this document. The project architecture will provide a concise project description and identify dependence and relationships to other projects and activities. Based on this analysis, the project scope will be refined to avoid duplication and show project sequencing.

As projects develop from the regional ITS plan, potential funding sources are identified and programmed for projects. ITS may be a component in the evaluation and prioritization of projects vying for funds. If Federal funding is used, the project moves into the Transportation Improvement Program then proceeds toward implementation. The project will be identified in the Transportation Improvement Program under plan justification as a documented part of the Bi-State Regional ITS Architecture Plan.

Plan Maintenance Process

ITS stakeholders in the Bi-State region will be responsible for periodic updates of the regional ITS architecture. The initial Bi-State Regional ITS Architecture Plan divided the Bi-State Region into tiers. The current ITS inventory determined no existing or planned ITS beyond the MPO planning boundary. Under this

determination, the urban Transportation Policy Committee approved this plan. As ITS evolves in the Bi-State Region, plan approval may need to be taken to the Bi-State Regional Commission board for approval as technologies begin to be planned and deployed beyond the metropolitan area.

Bi-State Regional Commission as the MPO will be responsible for maintaining the Bi-State Regional ITS Architecture Plan document. The plan is expected to be updated prior to the Long Range Transportation Plan update every five years. Between formal updates, new ITS project descriptions and proposed updates to the regional ITS architecture will be inserted into an appendix of this document. These incremental updates will be made available to ITS stakeholders in the Bi-State Region to keep them informed about what ITS projects are being planned and deployed. If all stakeholders are aware of projects that are underway, integration opportunities can be identified.

The administrative procedures for initiating interim changes to the Bi-State Regional ITS Architecture Plan will be classified as either an amendment or an administrative revision. An amendment is the addition, deletion or significant modification of an ITS stakeholder, ITS project or ITS project sequencing. An amendment relates to a new ITS project that is expected to use federal transportation dollars. An administrative revision is a minor modification of an existing ITS stakeholder, ITS project or ITS project sequencing or simple correction. In either case, the requested change will be submitted in writing to Bi-State Regional Commission (MPO). An amendment will be published and advertised consistent with the public involvement plan for the MPO.

Appendices

Inventory to Service Package Comparison

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Comparison for Project 2012 Regional Level ITS Architecture

Entity Name	Type	Element Name
The following Element(s) are in the inventory, but do not participate in any of the selected Service Packages		
Basic Vehicle	<i>Terminator</i>	I-74 Motorists
Other Vehicle	<i>Terminator</i>	I-74 Motorists
Traffic	<i>Terminator</i>	I-74 Motorists
Traveler	<i>Terminator</i>	I-74 Motorists
Emergency Management	<i>Subsystem</i>	Rock Island County Emergency Response Center
Emergency Management	<i>Subsystem</i>	Scott County Communications Center

Service Package: (ATIS01) Broadcast Traveler Information

Traffic Management	<i>Subsystem</i>	City of Bettendorf Public Works Terminal
Traffic Management	<i>Subsystem</i>	City of Davenport Public Works Terminal
Traffic Management	<i>Subsystem</i>	City of Moline Fire Department
Traveler	<i>Terminator</i>	I-74 Motorists
Maintenance and Construction Management	<i>Subsystem</i>	Illinois DOT District Maintenance Office Terminal
Maintenance and Construction Management	<i>Subsystem</i>	Iowa DOT District Maintenance Office Terminal
Emergency Management	<i>Subsystem</i>	Rock Island County Emergency Response Center
Emergency Management	<i>Subsystem</i>	Scott County Communications Center
Surface Transportation Weather Service	<i>Terminator</i>	Surface Transportation Weather Service
Weather Service	<i>Terminator</i>	Weather Services
Traffic Management	<i>Subsystem</i>	City of Bettendorf Police Dispatch Terminal
Emergency Management	<i>Subsystem</i>	City of Davenport Police Dispatch Terminal
Traffic Management	<i>Subsystem</i>	City of Davenport Police Dispatch Terminal
Emergency Management	<i>Subsystem</i>	City of Moline Police Dispatch Terminal
Traffic Management	<i>Subsystem</i>	City of Moline Police Dispatch Terminal
Traffic Management	<i>Subsystem</i>	Iowa DOT District Office Terminal
Traffic Management	<i>Subsystem</i>	Iowa DOT State Traffic Management Center
Traffic Management	<i>Subsystem</i>	Iowa State Patrol Dispatch Terminal
Media	<i>Terminator</i>	Media Terminal
Emissions Management	<i>Subsystem</i>	
Information Service Provider	<i>Subsystem</i>	
Parking Management	<i>Subsystem</i>	
Payment Administration	<i>Subsystem</i>	
Personal Information Access	<i>Subsystem</i>	
Remote Traveler Support	<i>Subsystem</i>	
Transit Management	<i>Subsystem</i>	
Vehicle	<i>Subsystem</i>	
Border Inspection Systems	<i>Terminator</i>	
Driver	<i>Terminator</i>	
Event Promoters	<i>Terminator</i>	
ISP Operator	<i>Terminator</i>	
Other ISP	<i>Terminator</i>	

Service Package: (ATMS01) Network Surveillance

Turbo Architecture v7.0.2

Entity Name	Type	Element Name
Service Package: (ATMS01) Network Surveillance		
Traffic Management	<i>Subsystem</i>	City of Bettendorf Public Works Terminal
Traffic Management	<i>Subsystem</i>	City of Davenport Public Works Terminal
Roadway	<i>Subsystem</i>	City of Davenport Roadside Equipment
Traffic Management	<i>Subsystem</i>	City of Moline Fire Department
Traffic	<i>Terminator</i>	I-74 Motorists
Roadway	<i>Subsystem</i>	Illinois DOT - Portable DMS
Roadway	<i>Subsystem</i>	Iowa DOT - Automated Gates
Roadway	<i>Subsystem</i>	Iowa DOT - DMS
Roadway	<i>Subsystem</i>	Iowa DOT - Portable DMS
Roadway	<i>Subsystem</i>	Iowa DOT - QCLU
Roadway	<i>Subsystem</i>	Iowa DOT - RWIS
Traffic Management	<i>Subsystem</i>	Iowa State Patrol Dispatch Terminal
Roadway	<i>Subsystem</i>	Bridge Security Monitoring System
Traffic Management	<i>Subsystem</i>	City of Bettendorf Police Dispatch Terminal
Roadway	<i>Subsystem</i>	City of Bettendorf Roadside Equipment
Traffic Management	<i>Subsystem</i>	City of Davenport Police Dispatch Terminal
Traffic Management	<i>Subsystem</i>	City of Moline Police Dispatch Terminal
Roadway	<i>Subsystem</i>	Iowa DOT - QCDS
Roadway	<i>Subsystem</i>	Iowa DOT - QCTV
Roadway	<i>Subsystem</i>	Iowa DOT - VDS
Traffic Management	<i>Subsystem</i>	Iowa DOT District Office Terminal
Traffic Management	<i>Subsystem</i>	Iowa DOT State Traffic Management Center
Information Service Provider	<i>Subsystem</i>	
Map Update Provider	<i>Terminator</i>	
Traffic Operations Personnel	<i>Terminator</i>	

Service Package: (ATMS03) Traffic Signal Control		
Roadway	<i>Subsystem</i>	Bridge Security Monitoring System
Traffic Management	<i>Subsystem</i>	City of Bettendorf Public Works Terminal
Roadway	<i>Subsystem</i>	City of Bettendorf Roadside Equipment
Traffic Management	<i>Subsystem</i>	City of Davenport Police Dispatch Terminal
Traffic Management	<i>Subsystem</i>	City of Davenport Public Works Terminal
Roadway	<i>Subsystem</i>	City of Davenport Roadside Equipment
Traffic Management	<i>Subsystem</i>	City of Moline Fire Department
Traffic Management	<i>Subsystem</i>	City of Moline Police Dispatch Terminal
Traffic	<i>Terminator</i>	I-74 Motorists
Roadway	<i>Subsystem</i>	Illinois DOT - Portable DMS
Roadway	<i>Subsystem</i>	Iowa DOT - Automated Gates
Roadway	<i>Subsystem</i>	Iowa DOT - DMS
Roadway	<i>Subsystem</i>	Iowa DOT - Portable DMS
Roadway	<i>Subsystem</i>	Iowa DOT - QCDS
Roadway	<i>Subsystem</i>	Iowa DOT - QCLU
Roadway	<i>Subsystem</i>	Iowa DOT - QCTV
Roadway	<i>Subsystem</i>	Iowa DOT - RWIS
Roadway	<i>Subsystem</i>	Iowa DOT - VDS
Traffic Management	<i>Subsystem</i>	Iowa State Patrol Dispatch Terminal
Traffic Management	<i>Subsystem</i>	City of Bettendorf Police Dispatch Terminal
Traffic Management	<i>Subsystem</i>	Iowa DOT District Office Terminal

Entity Name	Type	Element Name
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Service Package: (ATMS03) Traffic Signal Control

Traffic Management	<i>Subsystem</i>	Iowa DOT State Traffic Management Center
Driver	<i>Terminator</i>	
Pedestrians	<i>Terminator</i>	
Traffic Operations Personnel	<i>Terminator</i>	

Service Package: (ATMS04) Traffic Metering

Roadway	<i>Subsystem</i>	Bridge Security Monitoring System
Traffic Management	<i>Subsystem</i>	City of Bettendorf Public Works Terminal
Roadway	<i>Subsystem</i>	City of Bettendorf Roadside Equipment
Traffic Management	<i>Subsystem</i>	City of Davenport Police Dispatch Terminal
Traffic Management	<i>Subsystem</i>	City of Davenport Public Works Terminal
Roadway	<i>Subsystem</i>	City of Davenport Roadside Equipment
Traffic Management	<i>Subsystem</i>	City of Moline Fire Department
Traffic Management	<i>Subsystem</i>	City of Moline Police Dispatch Terminal
Traffic	<i>Terminator</i>	I-74 Motorists
Roadway	<i>Subsystem</i>	Iowa DOT - QCDS
Roadway	<i>Subsystem</i>	Iowa DOT - QCTV
Roadway	<i>Subsystem</i>	Iowa DOT - RWIS
Roadway	<i>Subsystem</i>	Iowa DOT - VDS
Traffic Management	<i>Subsystem</i>	Iowa State Patrol Dispatch Terminal
Traffic Management	<i>Subsystem</i>	City of Bettendorf Police Dispatch Terminal
Roadway	<i>Subsystem</i>	Illinois DOT - Portable DMS
Roadway	<i>Subsystem</i>	Iowa DOT - Automated Gates
Roadway	<i>Subsystem</i>	Iowa DOT - DMS
Roadway	<i>Subsystem</i>	Iowa DOT - Portable DMS
Roadway	<i>Subsystem</i>	Iowa DOT - QCLU
Traffic Management	<i>Subsystem</i>	Iowa DOT District Office Terminal
Traffic Management	<i>Subsystem</i>	Iowa DOT State Traffic Management Center
Driver	<i>Terminator</i>	
Traffic Operations Personnel	<i>Terminator</i>	

Service Package: (ATMS06) Traffic Information Dissemination

Roadway	<i>Subsystem</i>	Bridge Security Monitoring System
Traffic Management	<i>Subsystem</i>	City of Bettendorf Public Works Terminal
Roadway	<i>Subsystem</i>	City of Bettendorf Roadside Equipment
Emergency Management	<i>Subsystem</i>	City of Davenport Police Dispatch Terminal
Traffic Management	<i>Subsystem</i>	City of Davenport Police Dispatch Terminal
Traffic Management	<i>Subsystem</i>	City of Davenport Public Works Terminal
Roadway	<i>Subsystem</i>	City of Davenport Roadside Equipment
Traffic Management	<i>Subsystem</i>	City of Moline Fire Department
Emergency Management	<i>Subsystem</i>	City of Moline Police Dispatch Terminal
Traffic Management	<i>Subsystem</i>	City of Moline Police Dispatch Terminal
Basic Vehicle	<i>Terminator</i>	I-74 Motorists
Roadway	<i>Subsystem</i>	Iowa DOT - Automated Gates
Roadway	<i>Subsystem</i>	Iowa DOT - QCDS
Roadway	<i>Subsystem</i>	Iowa DOT - QCLU
Roadway	<i>Subsystem</i>	Iowa DOT - QCTV
Roadway	<i>Subsystem</i>	Iowa DOT - RWIS

Entity Name	Type	Element Name
Service Package: (ATMS06) Traffic Information Dissemination		
Roadway	<i>Subsystem</i>	Iowa DOT - VDS
Traffic Management	<i>Subsystem</i>	Iowa State Patrol Dispatch Terminal
Emergency Management	<i>Subsystem</i>	Rock Island County Emergency Response Center
Emergency Management	<i>Subsystem</i>	Scott County Communications Center
Traffic Management	<i>Subsystem</i>	City of Bettendorf Police Dispatch Terminal
Roadway	<i>Subsystem</i>	Illinois DOT - Portable DMS
Maintenance and Construction Management	<i>Subsystem</i>	Illinois DOT District Maintenance Office Terminal
Roadway	<i>Subsystem</i>	Iowa DOT - DMS
Roadway	<i>Subsystem</i>	Iowa DOT - Portable DMS
Maintenance and Construction Management	<i>Subsystem</i>	Iowa DOT District Maintenance Office Terminal
Traffic Management	<i>Subsystem</i>	Iowa DOT District Office Terminal
Traffic Management	<i>Subsystem</i>	Iowa DOT State Traffic Management Center
Media	<i>Terminator</i>	Media Terminal
Information Service Provider	<i>Subsystem</i>	
Transit Management	<i>Subsystem</i>	
Border Inspection Systems	<i>Terminator</i>	
Driver	<i>Terminator</i>	
Traffic Operations Personnel	<i>Terminator</i>	

Service Package: (ATMS07) Regional Traffic Management		
Roadway	<i>Subsystem</i>	Bridge Security Monitoring System
Roadway	<i>Subsystem</i>	City of Bettendorf Roadside Equipment
Roadway	<i>Subsystem</i>	City of Davenport Roadside Equipment
Roadway	<i>Subsystem</i>	Illinois DOT - Portable DMS
Roadway	<i>Subsystem</i>	Iowa DOT - DMS
Roadway	<i>Subsystem</i>	Iowa DOT - Portable DMS
Roadway	<i>Subsystem</i>	Iowa DOT - QCDS
Roadway	<i>Subsystem</i>	Iowa DOT - QCLU
Roadway	<i>Subsystem</i>	Iowa DOT - QCTV
Roadway	<i>Subsystem</i>	Iowa DOT - RWIS
Roadway	<i>Subsystem</i>	Iowa DOT - VDS
Traffic Management	<i>Subsystem</i>	Iowa State Patrol Dispatch Terminal
Traffic Management	<i>Subsystem</i>	City of Bettendorf Police Dispatch Terminal
Traffic Management	<i>Subsystem</i>	City of Bettendorf Public Works Terminal
Traffic Management	<i>Subsystem</i>	City of Davenport Police Dispatch Terminal
Traffic Management	<i>Subsystem</i>	City of Davenport Public Works Terminal
Traffic Management	<i>Subsystem</i>	City of Moline Fire Department
Traffic Management	<i>Subsystem</i>	City of Moline Police Dispatch Terminal
Roadway	<i>Subsystem</i>	Iowa DOT - Automated Gates
Traffic Management	<i>Subsystem</i>	Iowa DOT District Office Terminal
Traffic Management	<i>Subsystem</i>	Iowa DOT State Traffic Management Center
Traffic Operations Personnel	<i>Terminator</i>	

Service Package: (ATMS08) Traffic Incident Management System		
Traffic Management	<i>Subsystem</i>	City of Bettendorf Public Works Terminal
Traffic Management	<i>Subsystem</i>	City of Davenport Public Works Terminal

Entity Name	Type	Element Name
Service Package: (ATMS08) Traffic Incident Management System		
Roadway	<i>Subsystem</i>	City of Davenport Roadside Equipment
Traffic	<i>Terminator</i>	I-74 Motorists
Roadway	<i>Subsystem</i>	Illinois DOT - Portable DMS
Roadway	<i>Subsystem</i>	Iowa DOT - DMS
Roadway	<i>Subsystem</i>	Iowa DOT - Portable DMS
Roadway	<i>Subsystem</i>	Iowa DOT - RWIS
Media	<i>Terminator</i>	Media Terminal
Emergency Management	<i>Subsystem</i>	Rock Island County Emergency Response Center
Emergency Management	<i>Subsystem</i>	Scott County Communications Center
Roadway	<i>Subsystem</i>	Bridge Security Monitoring System
Traffic Management	<i>Subsystem</i>	City of Bettendorf Police Dispatch Terminal
Roadway	<i>Subsystem</i>	City of Bettendorf Roadside Equipment
Emergency Management	<i>Subsystem</i>	City of Davenport Police Dispatch Terminal
Traffic Management	<i>Subsystem</i>	City of Davenport Police Dispatch Terminal
Traffic Management	<i>Subsystem</i>	City of Moline Fire Department
Emergency Management	<i>Subsystem</i>	City of Moline Police Dispatch Terminal
Traffic Management	<i>Subsystem</i>	City of Moline Police Dispatch Terminal
Maintenance and Construction Management	<i>Subsystem</i>	Illinois DOT District Maintenance Office Terminal
Roadway	<i>Subsystem</i>	Iowa DOT - Automated Gates
Roadway	<i>Subsystem</i>	Iowa DOT - QCDS
Roadway	<i>Subsystem</i>	Iowa DOT - QCLU
Roadway	<i>Subsystem</i>	Iowa DOT - QCTV
Roadway	<i>Subsystem</i>	Iowa DOT - VDS
Maintenance and Construction Management	<i>Subsystem</i>	Iowa DOT District Maintenance Office Terminal
Traffic Management	<i>Subsystem</i>	Iowa DOT District Office Terminal
Traffic Management	<i>Subsystem</i>	Iowa DOT State Traffic Management Center
Traffic Management	<i>Subsystem</i>	Iowa State Patrol Dispatch Terminal
Emergency Vehicle	<i>Subsystem</i>	
Information Service Provider	<i>Subsystem</i>	
Transit Management	<i>Subsystem</i>	
Border Inspection Systems	<i>Terminator</i>	
Emergency Personnel	<i>Terminator</i>	
Emergency System Operator	<i>Terminator</i>	
Event Promoters	<i>Terminator</i>	
Maintenance and Construction Center Personnel	<i>Terminator</i>	
Map Update Provider	<i>Terminator</i>	
Rail Operations	<i>Terminator</i>	
Traffic Operations Personnel	<i>Terminator</i>	
Service Package: (ATMS21) Roadway Closure Management		
Roadway	<i>Subsystem</i>	Bridge Security Monitoring System
Traffic Management	<i>Subsystem</i>	City of Bettendorf Public Works Terminal
Roadway	<i>Subsystem</i>	City of Bettendorf Roadside Equipment
Traffic Management	<i>Subsystem</i>	City of Davenport Public Works Terminal
Roadway	<i>Subsystem</i>	City of Davenport Roadside Equipment
Traffic Management	<i>Subsystem</i>	City of Moline Fire Department

Entity Name	Type	Element Name
Service Package: (ATMS21) Roadway Closure Management		
Maintenance and Construction Management	<i>Subsystem</i>	Illinois DOT District Maintenance Office Terminal
Roadway	<i>Subsystem</i>	Iowa DOT - QCDS
Roadway	<i>Subsystem</i>	Iowa DOT - QCLU
Roadway	<i>Subsystem</i>	Iowa DOT - QCTV
Roadway	<i>Subsystem</i>	Iowa DOT - RWIS
Roadway	<i>Subsystem</i>	Iowa DOT - VDS
Traffic Management	<i>Subsystem</i>	Iowa DOT District Office Terminal
Traffic Management	<i>Subsystem</i>	Iowa State Patrol Dispatch Terminal
Emergency Management	<i>Subsystem</i>	Rock Island County Emergency Response Center
Emergency Management	<i>Subsystem</i>	Scott County Communications Center
Traffic Management	<i>Subsystem</i>	City of Bettendorf Police Dispatch Terminal
Emergency Management	<i>Subsystem</i>	City of Davenport Police Dispatch Terminal
Traffic Management	<i>Subsystem</i>	City of Davenport Police Dispatch Terminal
Emergency Management	<i>Subsystem</i>	City of Moline Police Dispatch Terminal
Traffic Management	<i>Subsystem</i>	City of Moline Police Dispatch Terminal
Roadway	<i>Subsystem</i>	Illinois DOT - Portable DMS
Roadway	<i>Subsystem</i>	Iowa DOT - Automated Gates
Roadway	<i>Subsystem</i>	Iowa DOT - DMS
Roadway	<i>Subsystem</i>	Iowa DOT - Portable DMS
Maintenance and Construction Management	<i>Subsystem</i>	Iowa DOT District Maintenance Office Terminal
Traffic Management	<i>Subsystem</i>	Iowa DOT State Traffic Management Center
Emergency Vehicle	<i>Subsystem</i>	
Information Service Provider	<i>Subsystem</i>	
Maintenance and Construction Vehicle	<i>Subsystem</i>	
Transit Management	<i>Subsystem</i>	
Driver	<i>Terminator</i>	
Emergency Personnel	<i>Terminator</i>	
Emergency System Operator	<i>Terminator</i>	
Maintenance and Construction Center Personnel	<i>Terminator</i>	
Maintenance and Construction Field Personnel	<i>Terminator</i>	
Traffic Operations Personnel	<i>Terminator</i>	
Service Package: (EM06) Wide-Area Alert		
Roadway	<i>Subsystem</i>	Bridge Security Monitoring System
Traffic Management	<i>Subsystem</i>	City of Bettendorf Police Dispatch Terminal
Traffic Management	<i>Subsystem</i>	City of Bettendorf Public Works Terminal
Roadway	<i>Subsystem</i>	City of Bettendorf Roadside Equipment
Emergency Management	<i>Subsystem</i>	City of Davenport Police Dispatch Terminal
Traffic Management	<i>Subsystem</i>	City of Davenport Police Dispatch Terminal
Traffic Management	<i>Subsystem</i>	City of Davenport Public Works Terminal
Roadway	<i>Subsystem</i>	City of Davenport Roadside Equipment
Traffic Management	<i>Subsystem</i>	City of Moline Fire Department
Emergency Management	<i>Subsystem</i>	City of Moline Police Dispatch Terminal
Traffic Management	<i>Subsystem</i>	City of Moline Police Dispatch Terminal

Entity Name	Type	Element Name
Service Package: (EM06) Wide-Area Alert		
Traveler	<i>Terminator</i>	I-74 Motorists
Maintenance and Construction Management	<i>Subsystem</i>	Illinois DOT District Maintenance Office Terminal
Roadway	<i>Subsystem</i>	Iowa DOT - Automated Gates
Roadway	<i>Subsystem</i>	Iowa DOT - QCDS
Roadway	<i>Subsystem</i>	Iowa DOT - QCLU
Roadway	<i>Subsystem</i>	Iowa DOT - QCTV
Roadway	<i>Subsystem</i>	Iowa DOT - RWIS
Roadway	<i>Subsystem</i>	Iowa DOT - VDS
Maintenance and Construction Management	<i>Subsystem</i>	Iowa DOT District Maintenance Office Terminal
Traffic Management	<i>Subsystem</i>	Iowa DOT District Office Terminal
Emergency Management	<i>Subsystem</i>	Rock Island County Emergency Response Center
Emergency Management	<i>Subsystem</i>	Scott County Communications Center
Roadway	<i>Subsystem</i>	Illinois DOT - Portable DMS
Roadway	<i>Subsystem</i>	Iowa DOT - DMS
Roadway	<i>Subsystem</i>	Iowa DOT - Portable DMS
Traffic Management	<i>Subsystem</i>	Iowa DOT State Traffic Management Center
Traffic Management	<i>Subsystem</i>	Iowa State Patrol Dispatch Terminal
Information Service Provider	<i>Subsystem</i>	
Payment Administration	<i>Subsystem</i>	
Personal Information Access	<i>Subsystem</i>	
Remote Traveler Support	<i>Subsystem</i>	
Roadway Payment	<i>Subsystem</i>	
Transit Management	<i>Subsystem</i>	
Transit Vehicle	<i>Subsystem</i>	
Vehicle	<i>Subsystem</i>	
Alerting and Advisory Systems	<i>Terminator</i>	
Driver	<i>Terminator</i>	
Emergency System Operator	<i>Terminator</i>	
ISP Operator	<i>Terminator</i>	
Maintenance and Construction Center Personnel	<i>Terminator</i>	
Other ISP	<i>Terminator</i>	
Payment Administrator	<i>Terminator</i>	
Telecommunications System for Traveler Information	<i>Terminator</i>	
Traffic Operations Personnel	<i>Terminator</i>	
Transit Operations Personnel	<i>Terminator</i>	

Service Package: (MC03) Road Weather Data Collection

Roadway	<i>Subsystem</i>	Bridge Security Monitoring System
Traffic Management	<i>Subsystem</i>	City of Bettendorf Police Dispatch Terminal
Traffic Management	<i>Subsystem</i>	City of Bettendorf Public Works Terminal
Roadway	<i>Subsystem</i>	City of Bettendorf Roadside Equipment
Traffic Management	<i>Subsystem</i>	City of Davenport Police Dispatch Terminal
Traffic Management	<i>Subsystem</i>	City of Davenport Public Works Terminal
Traffic Management	<i>Subsystem</i>	City of Moline Fire Department
Traffic Management	<i>Subsystem</i>	City of Moline Police Dispatch Terminal

Entity Name	Type	Element Name
Service Package: (MC03) Road Weather Data Collection		
Roadway	<i>Subsystem</i>	Illinois DOT - Portable DMS
Maintenance and Construction Management	<i>Subsystem</i>	Illinois DOT District Maintenance Office Terminal
Roadway	<i>Subsystem</i>	Iowa DOT - Automated Gates
Roadway	<i>Subsystem</i>	Iowa DOT - DMS
Roadway	<i>Subsystem</i>	Iowa DOT - Portable DMS
Roadway	<i>Subsystem</i>	Iowa DOT - QCDS
Roadway	<i>Subsystem</i>	Iowa DOT - QCLU
Roadway	<i>Subsystem</i>	Iowa DOT - QCTV
Roadway	<i>Subsystem</i>	Iowa DOT - VDS
Traffic Management	<i>Subsystem</i>	Iowa DOT District Office Terminal
Traffic Management	<i>Subsystem</i>	Iowa State Patrol Dispatch Terminal
Roadway	<i>Subsystem</i>	City of Davenport Roadside Equipment
Roadway	<i>Subsystem</i>	Iowa DOT - RWIS
Maintenance and Construction Management	<i>Subsystem</i>	Iowa DOT District Maintenance Office Terminal
Traffic Management	<i>Subsystem</i>	Iowa DOT State Traffic Management Center
Surface Transportation Weather Service	<i>Terminator</i>	Surface Transportation Weather Service
Weather Service	<i>Terminator</i>	Weather Services
Information Service Provider	<i>Subsystem</i>	
Maintenance and Construction Vehicle	<i>Subsystem</i>	
Maintenance and Construction Center Personnel	<i>Terminator</i>	
Maintenance and Construction Field Personnel	<i>Terminator</i>	
Roadway Environment	<i>Terminator</i>	
Service Package: (MC07) Roadway Maintenance and Construction		
Traffic Management	<i>Subsystem</i>	City of Bettendorf Public Works Terminal
Emergency Management	<i>Subsystem</i>	City of Davenport Police Dispatch Terminal
Traffic Management	<i>Subsystem</i>	City of Davenport Police Dispatch Terminal
Traffic Management	<i>Subsystem</i>	City of Davenport Public Works Terminal
Roadway	<i>Subsystem</i>	City of Davenport Roadside Equipment
Traffic Management	<i>Subsystem</i>	City of Moline Fire Department
Emergency Management	<i>Subsystem</i>	City of Moline Police Dispatch Terminal
Traffic Management	<i>Subsystem</i>	City of Moline Police Dispatch Terminal
Roadway	<i>Subsystem</i>	Illinois DOT - Portable DMS
Roadway	<i>Subsystem</i>	Iowa DOT - Automated Gates
Roadway	<i>Subsystem</i>	Iowa DOT - DMS
Roadway	<i>Subsystem</i>	Iowa DOT - Portable DMS
Roadway	<i>Subsystem</i>	Iowa DOT - QCDS
Roadway	<i>Subsystem</i>	Iowa DOT - QCLU
Roadway	<i>Subsystem</i>	Iowa DOT - RWIS
Roadway	<i>Subsystem</i>	Iowa DOT - VDS
Traffic Management	<i>Subsystem</i>	Iowa DOT District Office Terminal
Traffic Management	<i>Subsystem</i>	Iowa State Patrol Dispatch Terminal
Emergency Management	<i>Subsystem</i>	Rock Island County Emergency Response Center
Emergency Management	<i>Subsystem</i>	Scott County Communications Center

Entity Name	Type	Element Name
Service Package: (MC07) Roadway Maintenance and Construction		
Surface Transportation Weather Service	<i>Terminator</i>	Surface Transportation Weather Service
Weather Service	<i>Terminator</i>	Weather Services
Roadway	<i>Subsystem</i>	Bridge Security Monitoring System
Traffic Management	<i>Subsystem</i>	City of Bettendorf Police Dispatch Terminal
Roadway	<i>Subsystem</i>	City of Bettendorf Roadside Equipment
Maintenance and Construction Management	<i>Subsystem</i>	Illinois DOT District Maintenance Office Terminal
Roadway	<i>Subsystem</i>	Iowa DOT - QCTV
Maintenance and Construction Management	<i>Subsystem</i>	Iowa DOT District Maintenance Office Terminal
Traffic Management	<i>Subsystem</i>	Iowa DOT State Traffic Management Center
Information Service Provider	<i>Subsystem</i>	
Maintenance and Construction Vehicle	<i>Subsystem</i>	
Vehicle	<i>Subsystem</i>	
Asset Management	<i>Terminator</i>	
Basic Maintenance and Construction Vehicle	<i>Terminator</i>	
Location Data Source	<i>Terminator</i>	
Maintenance and Construction Administrative Systems	<i>Terminator</i>	
Maintenance and Construction Center Personnel	<i>Terminator</i>	
Maintenance and Construction Field Personnel	<i>Terminator</i>	
Map Update Provider	<i>Terminator</i>	
Storage Facility	<i>Terminator</i>	

Service Package: (MC10) Maintenance and Construction Activity Coordination		
Emergency Management	<i>Subsystem</i>	City of Davenport Police Dispatch Terminal
Traffic Management	<i>Subsystem</i>	City of Davenport Police Dispatch Terminal
Traffic Management	<i>Subsystem</i>	City of Moline Fire Department
Emergency Management	<i>Subsystem</i>	City of Moline Police Dispatch Terminal
Traffic Management	<i>Subsystem</i>	City of Moline Police Dispatch Terminal
Emergency Management	<i>Subsystem</i>	Rock Island County Emergency Response Center
Emergency Management	<i>Subsystem</i>	Scott County Communications Center
Traffic Management	<i>Subsystem</i>	City of Bettendorf Police Dispatch Terminal
Traffic Management	<i>Subsystem</i>	City of Bettendorf Public Works Terminal
Traffic Management	<i>Subsystem</i>	City of Davenport Public Works Terminal
Maintenance and Construction Management	<i>Subsystem</i>	Illinois DOT District Maintenance Office Terminal
Maintenance and Construction Management	<i>Subsystem</i>	Iowa DOT District Maintenance Office Terminal
Traffic Management	<i>Subsystem</i>	Iowa DOT District Office Terminal
Traffic Management	<i>Subsystem</i>	Iowa DOT State Traffic Management Center
Traffic Management	<i>Subsystem</i>	Iowa State Patrol Dispatch Terminal
Media	<i>Terminator</i>	Media Terminal
Commercial Vehicle Administration	<i>Subsystem</i>	
Information Service Provider	<i>Subsystem</i>	

Entity Name	Type	Element Name
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Service Package: (MC10) Maintenance and Construction Activity Coordination

Transit Management	<i>Subsystem</i>	
Asset Management	<i>Terminator</i>	
Maintenance and Construction Administrative Systems	<i>Terminator</i>	
Maintenance and Construction Center Personnel	<i>Terminator</i>	
Multimodal Transportation Service Provider	<i>Terminator</i>	
Rail Operations	<i>Terminator</i>	

Service Packages (Transportation Services)



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Service Packages for Project 2012 Regional Level ITS Architecture

Service Package

Element(s)

Broadcast Traveler Information (ATIS01) -- Planned

This service package collects traffic conditions, advisories, general public transportation, toll and parking information, incident information, roadway maintenance and construction information, air quality and weather information, and broadcasts the information to travelers using technologies such as FM subcarrier, satellite radio, cellular data broadcasts, and Internet web casts. The information may be provided directly to travelers or provided to merchants and other traveler service providers so that they can better inform their customers of travel conditions. Different from the service package ATMS06 - Traffic Information Dissemination, which provides localized HAR and DMS information capabilities, ATIS01 provides a wide area digital broadcast service. Successful deployment of this service package relies on availability of real-time traveler information from roadway instrumentation, probe vehicles or other sources.

City of Bettendorf Police Dispatch Terminal
City of Bettendorf Public Works Terminal
City of Davenport Police Dispatch Terminal
City of Davenport Public Works Terminal
City of Moline Fire Department
City of Moline Police Dispatch Terminal
I-74 Motorists
Illinois DOT District Maintenance Office Terminal
Iowa DOT District Maintenance Office Terminal
Iowa DOT District Office Terminal
Iowa DOT State Traffic Management Center
Iowa State Patrol Dispatch Terminal
Media Terminal
Rock Island County Emergency Response Center
Scott County Communications Center
Surface Transportation Weather Service
Weather Services

Network Surveillance (ATMS01) -- Planned

This service package includes traffic detectors, other surveillance equipment, the supporting field equipment, and fixed-point to fixed-point communications to transmit the collected data back to the Traffic Management Subsystem. The derived data can be used locally such as when traffic detectors are connected directly to a signal control system or remotely (e.g., when a CCTV system sends data back to the Traffic Management Subsystem). The data generated by this service package enables traffic managers to monitor traffic and road conditions, identify and verify incidents, detect faults in indicator operations, and collect census data for traffic strategy development and long range planning. The collected data can also be analyzed and made available to users and the Information Service Provider Subsystem.

Bridge Security Monitoring System
City of Bettendorf Police Dispatch Terminal
City of Bettendorf Public Works Terminal
City of Bettendorf Roadside Equipment
City of Davenport Police Dispatch Terminal
City of Davenport Public Works Terminal
City of Davenport Roadside Equipment
City of Moline Fire Department
City of Moline Police Dispatch Terminal
I-74 Motorists
Illinois DOT - Portable DMS
Iowa DOT - Automated Gates

Service Packages for Project 2012 Regional Level ITS Architecture**Service Package****Element(s)**

Iowa DOT - DMS
 Iowa DOT - Portable DMS
 Iowa DOT - QCDS
 Iowa DOT - QCLU
 Iowa DOT - QCTV
 Iowa DOT - RWIS
 Iowa DOT - VDS
 Iowa DOT District Office Terminal
 Iowa DOT State Traffic Management Center
 Iowa State Patrol Dispatch Terminal

Traffic Signal Control (ATMS03) -- Planned

This service package provides the central control and monitoring equipment, communication links, and the signal control equipment that support traffic control at signalized intersections. A range of traffic signal control systems are represented by this service package ranging from fixed-schedule control systems to fully traffic responsive systems that dynamically adjust control plans and strategies based on current traffic conditions and priority requests. This service package is generally an intra-jurisdictional package. Systems that achieve coordination across jurisdictions by using a common time base or other strategies that do not require real time coordination would also be represented by this package. Coordination of traffic signal systems using real-time communications is covered in the ATMS07-Regional Traffic Management service package. This service package is consistent with typical traffic signal control systems.

Bridge Security Monitoring System
 City of Bettendorf Police Dispatch Terminal
 City of Bettendorf Public Works Terminal
 City of Bettendorf Roadside Equipment
 City of Davenport Police Dispatch Terminal
 City of Davenport Public Works Terminal
 City of Davenport Roadside Equipment
 City of Moline Fire Department
 City of Moline Police Dispatch Terminal
 I-74 Motorists
 Illinois DOT - Portable DMS
 Iowa DOT - Automated Gates
 Iowa DOT - DMS
 Iowa DOT - Portable DMS
 Iowa DOT - QCDS
 Iowa DOT - QCLU
 Iowa DOT - QCTV
 Iowa DOT - RWIS
 Iowa DOT - VDS
 Iowa DOT District Office Terminal
 Iowa DOT State Traffic Management Center
 Iowa State Patrol Dispatch Terminal

Traffic Metering (ATMS04) -- Planned

This service package provides central monitoring and control, communications, and field equipment that support metering of traffic. It supports the complete range of metering strategies including ramp, interchange, and mainline metering. This package incorporates the instrumentation included in the Network Surveillance service package (traffic sensors are used to measure traffic flow and queues) to support traffic monitoring so responsive and adaptive metering strategies can be implemented. Also included is configurable field equipment to provide information to drivers approaching a meter, such as advance warning of the meter, its operational status (whether it is currently on or not, how many cars per green are allowed, etc.), lane usage at the meter (including a bypass lane for HOVs) and existing queue at the meter.

Bridge Security Monitoring System

Service Packages for Project 2012 Regional Level ITS Architecture**Service Package****Element(s)**

City of Bettendorf Police Dispatch Terminal
 City of Bettendorf Public Works Terminal
 City of Bettendorf Roadside Equipment
 City of Davenport Police Dispatch Terminal
 City of Davenport Public Works Terminal
 City of Davenport Roadside Equipment
 City of Moline Fire Department
 City of Moline Police Dispatch Terminal
 I-74 Motorists
 Illinois DOT - Portable DMS
 Iowa DOT - Automated Gates
 Iowa DOT - DMS
 Iowa DOT - Portable DMS
 Iowa DOT - QCDS
 Iowa DOT - QCLU
 Iowa DOT - QCTV
 Iowa DOT - RWIS
 Iowa DOT - VDS
 Iowa DOT District Office Terminal
 Iowa DOT State Traffic Management Center
 Iowa State Patrol Dispatch Terminal

Traffic Information Dissemination (ATMS06) -- Planned

This service package provides driver information using roadway equipment such as dynamic message signs or highway advisory radio. A wide range of information can be disseminated including traffic and road conditions, closure and detour information, travel restrictions, incident information, and emergency alerts and driver advisories. This package provides information to drivers at specific equipped locations on the road network. Careful placement of the roadway equipment provides the information at points in the network where the drivers have recourse and can tailor their routes to account for the new information. This package also covers the equipment and interfaces that provide traffic information from a traffic management center to the media (for instance via a direct tie-in between a traffic management center and radio or television station computer systems), Transit Management, Emergency Management, and Information Service Providers. A link to the Maintenance and Construction Management subsystem allows real time information on road/bridge closures and restrictions due to maintenance and construction activities to be disseminated. The sharing of transportation operations data described in this service package also supports other services like ATMS09- Traffic Decision Support and Demand Management.

Bridge Security Monitoring System
 City of Bettendorf Police Dispatch Terminal
 City of Bettendorf Public Works Terminal
 City of Bettendorf Roadside Equipment
 City of Davenport Police Dispatch Terminal
 City of Davenport Public Works Terminal
 City of Davenport Roadside Equipment
 City of Moline Fire Department
 City of Moline Police Dispatch Terminal
 I-74 Motorists
 Illinois DOT - Portable DMS
 Illinois DOT District Maintenance Office Terminal
 Iowa DOT - Automated Gates
 Iowa DOT - DMS
 Iowa DOT - Portable DMS
 Iowa DOT - QCDS
 Iowa DOT - QCLU

Service Packages for Project 2012 Regional Level ITS Architecture**Service Package****Element(s)**

Iowa DOT - QCTV
 Iowa DOT - RWIS
 Iowa DOT - VDS
 Iowa DOT District Maintenance Office Terminal
 Iowa DOT District Office Terminal
 Iowa DOT State Traffic Management Center
 Iowa State Patrol Dispatch Terminal
 Media Terminal
 Rock Island County Emergency Response Center
 Scott County Communications Center

Regional Traffic Management (ATMS07) -- Planned

This service package provides for the sharing of traffic information and control among traffic management centers to support regional traffic management strategies. Regional traffic management strategies that are supported include inter-jurisdictional, real-time coordinated traffic signal control systems and coordination between freeway operations and traffic signal control within a corridor. This service package advances the ATMS03-Traffic Signal Control and ATMS04-Traffic Metering service packages by adding the communications links and integrated control strategies that enable integrated, interjurisdictional traffic management. The nature of optimization and extent of information and control sharing is determined through working arrangements between jurisdictions. This package relies principally on roadside instrumentation supported by the Traffic Signal Control and Traffic Metering service packages and adds hardware, software, and fixed-point to fixed-point communications capabilities to implement traffic management strategies that are coordinated between allied traffic management centers. Several levels of coordination are supported from sharing of information through sharing of control between traffic management centers.

Bridge Security Monitoring System
 City of Bettendorf Police Dispatch Terminal
 City of Bettendorf Public Works Terminal
 City of Bettendorf Roadside Equipment
 City of Davenport Police Dispatch Terminal
 City of Davenport Public Works Terminal
 City of Davenport Roadside Equipment
 City of Moline Fire Department
 City of Moline Police Dispatch Terminal
 Illinois DOT - Portable DMS
 Iowa DOT - Automated Gates
 Iowa DOT - DMS
 Iowa DOT - Portable DMS
 Iowa DOT - QCDS
 Iowa DOT - QCLU
 Iowa DOT - QCTV
 Iowa DOT - RWIS
 Iowa DOT - VDS
 Iowa DOT District Office Terminal
 Iowa DOT State Traffic Management Center
 Iowa State Patrol Dispatch Terminal

Traffic Incident Management System (ATMS08) -- Planned

Service Packages for Project 2012 Regional Level ITS Architecture**Service Package****Element(s)**

This service package manages both unexpected incidents and planned events so that the impact to the transportation network and traveler safety is minimized. The service package includes incident detection capabilities through roadside surveillance devices (e.g. CCTV) and through regional coordination with other traffic management, maintenance and construction management and emergency management centers as well as rail operations and event promoters. Information from these diverse sources is collected and correlated by this service package to detect and verify incidents and implement an appropriate response. This service package supports traffic operations personnel in developing an appropriate response in coordination with emergency management, maintenance and construction management, and other incident response personnel to confirmed incidents. The response may include traffic control strategy modifications or resource coordination between center subsystems. Incident response also includes presentation of information to affected travelers using the Traffic Information Dissemination service package and dissemination of incident information to travelers through the Broadcast Traveler Information or Interactive Traveler Information service packages. The roadside equipment used to detect and verify incidents also allows the operator to monitor incident status as the response unfolds. The coordination with emergency management might be through a CAD system or through other communication with emergency field personnel. The coordination can also extend to tow trucks and other allied response agencies and field service personnel.

Bridge Security Monitoring System
 City of Bettendorf Police Dispatch Terminal
 City of Bettendorf Public Works Terminal
 City of Bettendorf Roadside Equipment
 City of Davenport Police Dispatch Terminal
 City of Davenport Public Works Terminal
 City of Davenport Roadside Equipment
 City of Moline Fire Department
 City of Moline Police Dispatch Terminal
 I-74 Motorists
 Illinois DOT - Portable DMS
 Illinois DOT District Maintenance Office Terminal
 Iowa DOT - Automated Gates
 Iowa DOT - DMS
 Iowa DOT - Portable DMS
 Iowa DOT - QCDS
 Iowa DOT - QCLU
 Iowa DOT - QCTV
 Iowa DOT - RWIS
 Iowa DOT - VDS
 Iowa DOT District Maintenance Office Terminal
 Iowa DOT District Office Terminal
 Iowa DOT State Traffic Management Center
 Iowa State Patrol Dispatch Terminal
 Media Terminal
 Rock Island County Emergency Response Center
 Scott County Communications Center

Roadway Closure Management (ATMS21) -- Planned

Service Packages for Project 2012 Regional Level ITS Architecture**Service Package****Element(s)**

This service package closes roadways to vehicular traffic when driving conditions are unsafe, maintenance must be performed, and other scenarios where access to the roadway must be prohibited. The service package includes automatic or remotely controlled gates or barriers that control access to roadway segments including ramps and traffic lanes. Remote control systems allow the gates to be controlled from a central location or from a vehicle at the gate/barrier location, improving system efficiency and reducing personnel exposure to unsafe conditions during severe weather and other situations where roads must be closed. Surveillance systems allow operating personnel to visually verify the safe activation of the closure system and driver information systems (e.g., DMS) provide closure information to motorists in the vicinity of the closure. The equipment managed by this service package includes the control and monitoring systems, the field devices (e.g., gates, warning lights, DMS, CCTV cameras) at the closure location(s), and the information systems that notify other systems of a closure. This service package covers general road closure applications; specific closure systems that are used at railroad grade crossings, drawbridges, reversible lanes, etc. are covered by other ATMS service packages.

Bridge Security Monitoring System
 City of Bettendorf Police Dispatch Terminal
 City of Bettendorf Public Works Terminal
 City of Bettendorf Roadside Equipment
 City of Davenport Police Dispatch Terminal
 City of Davenport Public Works Terminal
 City of Davenport Roadside Equipment
 City of Moline Fire Department
 City of Moline Police Dispatch Terminal
 Illinois DOT - Portable DMS
 Illinois DOT District Maintenance Office Terminal
 Iowa DOT - Automated Gates
 Iowa DOT - DMS
 Iowa DOT - Portable DMS
 Iowa DOT - QCDS
 Iowa DOT - QCLU
 Iowa DOT - QCTV
 Iowa DOT - RWIS
 Iowa DOT - VDS
 Iowa DOT District Maintenance Office Terminal
 Iowa DOT District Office Terminal
 Iowa DOT State Traffic Management Center
 Iowa State Patrol Dispatch Terminal
 Rock Island County Emergency Response Center
 Scott County Communications Center

Wide-Area Alert (EM06) -- Planned

This service package uses ITS driver and traveler information systems to alert the public in emergency situations such as child abductions, severe weather events, civil emergencies, and other situations that pose a threat to life and property. The alert includes information and instructions for transportation system operators and the traveling public, improving public safety and enlisting the public's help in some scenarios. The ITS technologies will supplement and support other emergency and homeland security alert systems such as the Emergency Alert System (EAS). When an emergency situation is reported and verified and the terms and conditions for system activation are satisfied, a designated agency broadcasts emergency information to traffic agencies, transit agencies, information service providers, toll operators, and others that operate ITS systems. The ITS systems, in turn, provide the alert information to transportation system operators and the traveling public using ITS technologies such as dynamic message signs, highway advisory radios, in-vehicle displays, transit displays, 511 traveler information systems, and traveler information web sites.

Bridge Security Monitoring System
 City of Bettendorf Police Dispatch Terminal
 City of Bettendorf Public Works Terminal
 City of Bettendorf Roadside Equipment
 City of Davenport Police Dispatch Terminal

Service Packages for Project 2012 Regional Level ITS Architecture**Service Package****Element(s)**

City of Davenport Public Works Terminal
 City of Davenport Roadside Equipment
 City of Moline Fire Department
 City of Moline Police Dispatch Terminal
 I-74 Motorists
 Illinois DOT - Portable DMS
 Illinois DOT District Maintenance Office Terminal
 Iowa DOT - Automated Gates
 Iowa DOT - DMS
 Iowa DOT - Portable DMS
 Iowa DOT - QCDS
 Iowa DOT - QCLU
 Iowa DOT - QCTV
 Iowa DOT - RWIS
 Iowa DOT - VDS
 Iowa DOT District Maintenance Office Terminal
 Iowa DOT District Office Terminal
 Iowa DOT State Traffic Management Center
 Iowa State Patrol Dispatch Terminal
 Rock Island County Emergency Response Center
 Scott County Communications Center

Road Weather Data Collection (MC03) -- Planned

This service package collects current road and weather conditions using data collected from environmental sensors deployed on and about the roadway (or guideway in the case of transit related rail systems). In addition to fixed sensor stations at the roadside, sensing of the roadway environment can also occur from sensor systems located on Maintenance and Construction Vehicles. The collected environmental data is used by the Weather Information Processing and Distribution service package to process the information and make decisions on operations. The collected environmental data may be aggregated, combined with data attributes and sent to meteorological systems for data qualification and further data consolidation. The service package may also request and receive qualified data sets from meteorological systems.

Bridge Security Monitoring System
 City of Bettendorf Police Dispatch Terminal
 City of Bettendorf Public Works Terminal
 City of Bettendorf Roadside Equipment
 City of Davenport Police Dispatch Terminal
 City of Davenport Public Works Terminal
 City of Davenport Roadside Equipment
 City of Moline Fire Department
 City of Moline Police Dispatch Terminal
 Illinois DOT - Portable DMS
 Illinois DOT District Maintenance Office Terminal
 Iowa DOT - Automated Gates
 Iowa DOT - DMS
 Iowa DOT - Portable DMS
 Iowa DOT - QCDS
 Iowa DOT - QCLU
 Iowa DOT - QCTV
 Iowa DOT - RWIS
 Iowa DOT - VDS
 Iowa DOT District Maintenance Office Terminal
 Iowa DOT District Office Terminal

Service Packages for Project 2012 Regional Level ITS Architecture**Service Package****Element(s)**

Iowa DOT State Traffic Management Center
 Iowa State Patrol Dispatch Terminal
 Surface Transportation Weather Service
 Weather Services

Roadway Maintenance and Construction (MC07) -- Planned

This service package supports numerous services for scheduled and unscheduled maintenance and construction on a roadway system or right-of-way. Maintenance services would include landscape maintenance, hazard removal (roadway debris, dead animals), routine maintenance activities (roadway cleaning, grass cutting), and repair and maintenance of both ITS and non-ITS equipment on the roadway (e.g., signs, traffic controllers, traffic detectors, dynamic message signs, traffic signals, CCTV, etc.). Environmental conditions information is also received from various weather sources to aid in scheduling maintenance and construction activities.

Bridge Security Monitoring System
 City of Bettendorf Police Dispatch Terminal
 City of Bettendorf Public Works Terminal
 City of Bettendorf Roadside Equipment
 City of Davenport Police Dispatch Terminal
 City of Davenport Public Works Terminal
 City of Davenport Roadside Equipment
 City of Moline Fire Department
 City of Moline Police Dispatch Terminal
 Illinois DOT - Portable DMS
 Illinois DOT District Maintenance Office Terminal
 Iowa DOT - Automated Gates
 Iowa DOT - DMS
 Iowa DOT - Portable DMS
 Iowa DOT - QCDS
 Iowa DOT - QCLU
 Iowa DOT - QCTV
 Iowa DOT - RWIS
 Iowa DOT - VDS
 Iowa DOT District Maintenance Office Terminal
 Iowa DOT District Office Terminal
 Iowa DOT State Traffic Management Center
 Iowa State Patrol Dispatch Terminal
 Rock Island County Emergency Response Center
 Scott County Communications Center
 Surface Transportation Weather Service
 Weather Services

Maintenance and Construction Activity Coordination (MC10) -- Planned

This service package supports the dissemination of maintenance and construction activity to centers that can utilize it as part of their operations, or to the Information Service Providers who can provide the information to travelers.

City of Bettendorf Police Dispatch Terminal
 City of Bettendorf Public Works Terminal
 City of Davenport Police Dispatch Terminal
 City of Davenport Public Works Terminal
 City of Moline Fire Department
 City of Moline Police Dispatch Terminal
 Illinois DOT District Maintenance Office Terminal
 Iowa DOT District Maintenance Office Terminal
 Iowa DOT District Office Terminal

Service Packages for Project 2012 Regional Level ITS Architecture

Service Package

Element(s)

Iowa DOT State Traffic Management Center
Iowa State Patrol Dispatch Terminal
Media Terminal
Rock Island County Emergency Response Center
Scott County Communications Center