Northwest Arkansas Regional ITS Architecture

Appendices

Prepared for the:

Northwest Arkansas Regional Planning Commission

and the

Arkansas Department of Transportation

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If information is needed in another language, contact Nicole Gibbs. Si se necesita informacion en otro idioma, comuniqese Nicole Gibbs, ngibbs@nwarpc.org.

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APPENDIX A: NATIONAL ITS ARCHITECTURE GLOSSARY

From the National ITS Architecture Website (https://www.arc-it.net/html/glossary/glossary-a.html)

Architecture - Fundamental concepts or properties of a system in its environment embodied in its elements, relationships, and in the principles of its design and evolution. An architecture is functionally oriented and not technology-specific which allows the architecture to remain effective over time. It defines "what must be done," not "how it will be done."

ARC-IT - The Architecture Reference for Cooperative and Intelligent Transportation, is a guidance document that provides a common basis for planners and engineers with differing perspectives to conceive, design, and implement systems using a common language as a basis for delivering ITS, but does not mandate any particular implementation. ARC-IT describes the elements of a Regional ITS Architecture and how to use the Regional ITS Architecture.

Architecture Interconnect - Communications paths that carry information between Physical Objects (subsystems and terminators) in the physical view of ARC-IT. Several different types of interconnects are defined in ARC-IT to reflect the range of interface requirements in ITS. The majority of the interconnects are various types of communications links that are defined in the communications view. The following types of communications links are defined: Center to Center (C2C), Center to Field (C2F), Field to Field (F2F), Wide Area Wireless (WAW), Short Range Wireless (includes Dedicated Short Range Communications or DSRC), Human Interface (e.g., what the system user sees and hears), Vehicle On-Board, Contact or Proximity, Wide Area Broadcast, Position Location Interface, Network Time Protocol, and Personal Area Network.

Center Physical Objects - Physical Objects that provide management, administrative, and support functions for the transportation system. The centers each communicate with other centers to enable coordination between modes and across jurisdictions. Some examples of center objects are Traffic Management, Transit Management, Commercial Vehicle Administration, Archived Data Management, Emissions Management, Payment Administration, Emergency Management, Transportation Information, and Fleet and Freight Management. The Center class is one of six general Physical Object classes defined in ARC-IT.

Center to Center Communications - A communication link serving stationary entities, including center Physical Objects. It may be implemented using a variety of public or private communication networks and technologies. It can include, but is not limited to, twisted pair, coaxial cable, fiber optic, microwave relay networks, spread spectrum, etc. In center to center communication the important issue is that it serves stationary objects. Both dedicated and shared communication resources may be used. One of the types of architecture interconnects defined in the Architecture Reference for Cooperative and Intelligent Transportation (ARC-IT).

Center to Field Communications - A communication link serving stationary entities, including center physical and field based objects. It may be implemented using a variety of public or private communication networks and technologies. It can include, but is not limited to, twisted pair, coaxial cable, fiber optic, microwave relay networks, cellular, spread spectrum, etc. In center to field communication the important issue is that it serves stationary objects. Both dedicated and shared communication resources may be used. One of the types of architecture interconnects defined in the Architecture Reference for Cooperative and Intelligent Transportation (ARC-IT).

Concept of Operations (ConOps) - For a specific project, the document in which the project stakeholders document their shared understanding of the system to be developed and how it will be operated and maintained. A user-oriented document that describes a system's operational characteristics from the end user's viewpoint.

Data Flow - Representations of data flowing between processes or between a process and a terminator in the ARC-IT Functional View. Graphically, a data flow is shown as an arrow on a data flow diagram and is defined in a data dictionary entry in the functional view. Data flows are aggregated to form information flows in the ARC-IT Physical View.

Enterprise Object - An organization or individual that interacts with other Enterprise Objects and/or Physical Objects. An Enterprise Object may be a component of another larger Enterprise Object, which may in turn be a component of a third, even larger, Enterprise Object (e.g., a Traffic Management Center Manager is a component of State DOT is a component of State Government). Enterprise Objects may participate wholly or in part in other Enterprise Objects (e.g., a Device Developer is a component of Auto Manufacturer but also participates in Standards Body).

Field Physical Objects - Infrastructure distributed near or along the transportation network, including 'intelligent' or 'smart' infrastructure which performs surveillance (e.g. traffic detectors, cameras), traffic control (e.g. signal controllers), information provision (e.g. Dynamic Message Signs (DMS)) and local transaction (e.g., tolling, parking) functions. Typically, their operation is governed by transportation management functions running in back offices. Field systems/devices also directly interface to vehicle or mobile Physical Objects. The Field class is one of the six general classes of Physical Objects defined in the Architecture, typically shown in orange on service package drawings.

Flow Characteristics - Characteristics that govern the transmission and receipt of information flows within ARC-IT.

Functional Object - The building blocks of the Physical Objects of the physical view. Functional Objects group similar processes of a particular Physical Object together into an "implementable" package. The grouping also takes into account the need to accommodate various levels of functionality. Since Functional Objects are both the most detailed components of the physical view and tied to specific service packages, they provide the common link between the interface-oriented architecture definition and the deployment-oriented service packages.

Functional Requirement - A statement that specifies WHAT a system must do. The statement should use formal "shall" language and specify a function in terms that the stakeholders, particularly the system implementers, will understand. In ARC-IT, functional requirements have been defined for each Functional Object that focus on the high-level requirements that support regional integration.

Functional View - The part of ARC-IT that defines what has to be done to support the ITS services. It defines the processes that perform transportation functions and the data flows that are shared between these processes. The functional view was developed using Structured Analysis techniques to support and provide the detail for the physical view's Physical Objects and information flows.

Functionality - The capabilities of the various computational, user interfaces, input, output, data management, and other features provided by a product.

Information Flow - The provision of information from one Physical Object to another in the physical view of ARC-IT. An information flow may include one or more other information flows (i.e., one flow is a sub-flow of another). An information flow may include message exchanges used to control the flow of

information. An information flow may be unidirectional or bidirectional. Regardless, the informative description defines the information provided by the source.

Information Flow Characteristics - Quantitative or qualitative enumeration of particular aspects of an information flow. Characteristics are defined to help address concerns related to applicable communications technologies, necessary cybersecurity support, use of standards and consistency between deployments.

Information Flow Triple - The combination of source physical object, information flow and destination physical object. See also Triple; see also Information Transfer.

Information Flow Triple Relationship - Dependencies and interactions between information flow triples. These relationships come in three types: "Interactive" relationship between triples means that one triple may prompt a response by the physical object for the other triple. "Request-response" relationship means that a request message on one triple will prompt a response message by the physical object for the other triple. A "depends-on" relationship means that one triple cannot be implemented without the other triple. Typically, a flow output by a physical object 'depends-on' a flow received by the physical object, as illustrated below, where the 'environmental situation data' flow sent by the Connected Vehicle Roadside Equipment depends on the 'vehicle environmental data' flow it receives.

Interface Standard - Standard defining necessary capabilities and requirements to be met by interfacing systems to achieve data exchange.

Interoperability - The ability of two or more systems or components to exchange information and to use the information that has been exchanged.

ITS Architecture - Defines an architecture of interrelated systems that work together to deliver transportation services. An ITS architecture defines how systems functionally operate and the interconnection of information exchanges that must take place between these systems to accomplish transportation services.

ITS Physical Objects - Physical Objects that provide core capabilities and interfaces that may be included in any ITS system or device. The ITS class is one of six general Physical Object classes defined in ARC-IT. The ITS class objects are typically shown as grey boxes on service package drawings.

National ITS Architecture - A common, established framework for developing integrated transportation systems, now known as the Architecture Reference for Cooperative and Intelligent Transportation (ARC-IT). ARC-IT is comprised of the communications, enterprise, functional, and physical views which satisfy a defined set of needs. The National ITS Architecture is maintained by the United States Department of Transportation (USDOT).

Object - An Object is an abstract model of something in the system that has behaviors and states and is distinct from any other object. An object is characterized by whatever attributes distinguish it from other objects and by encapsulation, abstraction, and behavior. For instance, an Enterprise Object is an abstract model of an organization. Some attributes of this object include resources, policies etc.

Physical Object - Systems or device that provide ITS functionality that makes up the intelligent transportation system (ITS) and the surrounding environment. Physical Objects are defined in terms of the services they support, the processing they include, and their interfaces with other Physical Objects. They are grouped into six classes: Centers, Field, ITS, Support, Personal, and Vehicles.

Project ITS Architecture - A framework that identifies the institutional agreement and technical integration necessary to interface a major ITS project with other ITS projects and systems.

RAD-IT - The Regional Architecture Development for Intelligent Transportation, is the tool used to create the Regional ITS Architecture. RAD-IT focuses on regional planning and the development of operations concepts. It requires an understanding of the stakeholder community and the ITS services that are provided and planned for in the region.

Regional ITS Architecture - A specific, tailored framework for ensuring institutional agreement and technical integration for the implementation of ITS projects or groups of projects in a particular region. It functionally defines what pieces of the system are linked to others and what information is exchanged between them.

Service Package - The service packages, formerly known as market packages, provide an accessible, service-oriented perspective to ARC-IT. They are tailored to fit, separately or in combination, real world transportation problems and needs. Service packages collect together one or more Functional Objects that must work together to deliver a given ITS service and the information flows that connect them and other important external systems. In other words, they identify the pieces of the physical view that are required to implement a particular ITS service. Service packages are implemented through projects (or groups of projects, aka programs) and in transportation planning, are directly related to ITS strategies used to meet regional goals and objectives.

Set-IT - The Systems Engineering Tool for Intelligent Transportation picks up where RAD-IT leaves off. SET-IT is project-focused, and ideally applied to individual project deployments with scope constrained by project definitions specified in the regional architecture. SET-IT is a graphical tool, providing the user with visual feedback and tools necessary to manipulate service package physical and enterprise diagrams, develop communications stack templates, specify standards at all protocol layers, and export that information in a variety of forms and formats.

Subsystem - The principle structural element of the physical view of ARC-IT. Subsystems are individual pieces of the Intelligent Transportation System defined by ARC-IT. Subsystems are grouped into 5 classes: Centers, Field, Vehicles, Support, and Travelers. Example subsystems are the Traffic Management Center, the Vehicle Onboard Equipment, and the ITS Roadway Equipment. These correspond to the physical world: respectively traffic operations centers, automobiles, and roadside signal controllers. Due to this close correspondence between the physical world and the subsystems, the subsystem interfaces are prime candidates for standardization.

System Element - A collection of interacting components organized to accomplish a specified function or set of functions within a specified environment. Also an object and procedures constituted to achieve defined objectives of some operational role by performing specified functions. A complete system element includes all of the associated equipment, facilities, material, computer programs, firmware, technical documentation, services, and personnel required for operations and support to the degree necessary for self-sufficient use in its intended environment. An integrated set of components that accomplish a clearly distinguishable set of functions with similar or related uses.

Systems Engineering - Defined by International Council on Systems Engineering (INCOSE) as an interdisciplinary approach and means to enable the realization of successful systems. It focuses on defining customer needs and required functionality early in the development cycle, documenting requirements, and then proceeding with design synthesis and system validation while considering the complete problem. Systems engineering integrates all the disciplines and specialty groups into a team effort forming a structured development process that proceeds from concept to production to

operation. Systems engineering considers both the business and the technical needs of all customers with the goal of providing a quality product that meets the users' needs.

Terminator - Terminators define the boundary of an architecture. ARC-IT terminators represent the people, systems, and general environment that interface to ITS. The interfaces between terminators and the subsystems and processes within ARC-IT are defined, but no functional requirements are allocated to terminators. The functional and physical view of ARC-IT both contain the same set of terminators.

Traceability - A cornerstone of ARC-IT is the traceability between its components. Microsoft Access databases are used to maintain these connections. The hyperlinked ARC-IT website relies on this traceability to build the links that allows navigation between service packages, physical, and communications views.

User Service Requirement - A specific functional requirement statement of what must be done to support the ITS user services. The user service requirements were developed specifically to serve as a requirements baseline to drive National ITS Architecture development. The user service requirements are not to be construed as mandates to system/architecture implementers, but rather are directions to the National Architecture Team. As a requirements baseline, the user service requirements include little narrative or background material. For a general introduction to the user services, consult the National Program Plan.

User Services - User services documented what ITS should do from the user's perspective. A broad range of users were considered, including the traveling public as well as many different types of system operators. User services, including the corresponding user service requirements, formed the basis for the original National ITS Architecture development effort. The initial user services were jointly defined by USDOT and ITS America with significant stakeholder input and documented in the National Program Plan. The concept of user services allows system or project definition to begin by establishing the high level services that will be provided to address identified problems and needs.

APPENDIX B: NORTHWEST ARKANSAS STAKEHOLDER AGENCIES AND CONTACTS

Stakeholder Agency	Address	Contact
Arkansas Highway Patrol	P.O. 1120 W Monroe Ave, Lowell, AR 72745	Jason Aaron
ARDOT District 4	P.O. Box 1424 Ft. Smith, AR 72901	Chad Adams
ARDOT District 9	P.O. Box 610 Harrison, AR 72601	Steve Lawrence
ARDOT Planning and Research Division	10324 Interstate 30 Little Rock, AR 72209	Travis Brooks
ARDOT Planning and Research Division	10324 Interstate 30 Little Rock, AR 72209	Joe Hawkins
Benton County	1206 SW 14th Street Bentonville, AR 72712	Judge Barry Moehring
Benton County	215 East Central Avenue Bentonville, AR 72712	Robert McGowen
Benton County Emergency Communications	215 East Central Avenue Bentonville, AR 72712	Jennifer Persons
Benton County Roads	1206 SW 14th Street Bentonville, AR 72712	Jay Frasier
Benton County Sheriff's Office	1300 SW 14th Street Bentonville, AR 72712	Shawn Holloway
City of Bella Vista	P.O. Box 5655 Bella Vista, AR 72741	Doug Tapp
City of Bentonville	117 W Central Bentonville, AR 72712	Stephanie Orman
City of Bentonville	305 Southwest A Street Bentonville, AR 72712	Mike Bender
City of Bentonville	117 West Central Bentonville, AR 72712	Dennis Birge
City of Bentonville	117 West Central Bentonville, AR 72712	Tyler Overstreet
City of Bentonville Fire Department	211 S.W "A" Street Bentonville, AR 72712	Brent Boydston
City of Bentonville Police Department	908 SE 14th Street Bentonville, AR 72712	Ray Chastid
City of Fayetteville	113 West Mountain Fayetteville, AR 72701	Chris Brown
City of Fayetteville Fire Department	303 W. Center St. Fayetteville, AR 72701	Brad Hardin
City of Fayetteville Police Department	100-A West Rock Street Fayetteville, AR 72701	Mike Reynolds

Stakeholder Agency	Address	Contact
City of Lowell	P.O. Box 979 Lowell, AR 72745	Mayor Chris Moore
City of Lowell	P.O. Box 979 Lowell, AR 72745	Richard Stone
City of Rogers	301 West Chestnut Rogers, AR 72756	John McCurdy
City of Rogers Police Department	1905 South Dixieland Rogers, AR 72758	Jonathon Best
City of Rogers Fire Department	1905 South Dixieland Rogers, AR 72758	Tom Jenkins
City of Rogers Street Department	3101 West Oak Street Rogers, AR 72758	Frankie Guyll
City of Springdale Public Works	269 East Randall Wobbe Springdale, AR 72764	Ben Peters
City of Springdale Public Works	269 East Randall Wobbe Springdale, AR 72764	Ryan Carr
City of Springdale Public Works	269 East Randall Wobbe Springdale, AR 72764	James Smith
City of Siloam Springs Planning Department	P.O. Box 80 Siloam Springs, AR 72761	Ben Rhoads
City of Siloam Springs Public Works	P.O. Box 80 Siloam Springs, AR 72761	Kevin Moore
City of Siloam Springs Police Department	P.O. Box 80 Siloam Springs, AR 72761	J. Alan Gilbert
City of Springdale Police Department	201 N. Spring Street Springdale, AR 72764	Frank Gamble
City of Springdale Fire Department	201 N. Spring Street Springdale, AR 72764	Blake Holte
FHWA Arkansas Division	700 W. Capital Room 3130 Little Rock, AR 72201	Amy Heflin
J. B. Hunt Transport Services, Inc.	615 JB Hunt Corporate Drive Lowell, AR 72745	
Missouri Department of Transportation	105 W Capitol Ave Jefferson City, MO 65102	Patrick McKenna
MoDOT Southwest District	3025 E Kearney St Springfield, MO 65803	Stacy Reese
MoDOT Southwest District Engineer	3025 E Kearney St Springfield, MO 65803	Marvin Morris

Stakeholder Agency	Address	Contact
Northwest Arkansas National Airport	One Airport Boulevard Bentonville, AR 72712	Aaron Burkes
Northwest Arkansas Regional Planning Commission	1311 Clayton Street Springdale, AR 72762	Tim Conklin
Northwest Arkansas Regional Planning Commission	1311 Clayton Street Springdale, AR 72762	Elizabeth Bowen
Ozark Regional Transit	2423 East Robinson Avenue Springdale, AR 72764	Joel Gardner
Razorback Transit University of Arkansas	240 Eastern – Bus B Fayetteville, AR 72701	Adam Waddell
Washington County	280 North College Av Fayetteville, AR 72701	Jeff Crowder
Washington County Department of Emergency Management	2615 Brink Drive, Suite 104 Fayetteville, AR 72701	George Luther
Washington County Sheriff's Department	1155 Clydesdale Drive Fayetteville, AR 72701	Tim Helder

APPENDIX C: NORTHWEST ARKANSAS STAKEHOLDER DESCRIPTIONS

Stakeholder	Stakeholder Description
ARDOT	Arkansas Department of Transportation.
Archive Data Users	Users (and their systems) of general archive data within the region.
Arkansas Department of Emergency Management	The Arkansas Department of Emergency Management has the mission to maintain a management system that effectively and efficiently provides mitigation of and recovery from the effects of natural and man-made disasters.
Arkansas Highway Police	The Arkansas Highway Police protect the State Highway System by enforcing Arkansas' vehicle size and load laws. Commercial vehicles are monitored for speed and other traffic violations. Hazardous materials and commercial vehicle safety laws are enforced. Permits are issued for movement of overloaded and/or oversized vehicles and compliance is monitored. Commercial truck registration and motor fuels tax laws are enforced. Highway Police Officers are also designated as enforcement agents for the Commissioner of Revenues.
Arkansas State Police	The Arkansas State Police provide public safety response on state highways and roads in Arkansas.
Benton County	Represents Benton County government and other departments for the County.
Benton County Emergency Communications	The 9-1-1 Administration Office, under the guidance of a five- member board, is responsible for the effective and efficient operation and administration of the countywide 9-1-1 Emergency Communications System (ECS) that will meet the emergency communication needs throughout Benton County.
Benton County Department of Emergency Management and Homeland Security	The Benton County Department of Emergency Management and Homeland Security vigorously pursue an all-hazards planning strategy in the traditional four phases of emergency management: preparedness, mitigation, response, and recovery for the county.
Benton County Road Department	County department responsible for the operation and maintenance of county roads and street for Benton County.
City of Bella Vista	Represents the city government and other departments for the City of Bella Vista.
City of Bentonville	Represents the city government and other departments for the City of Bentonville.
City of Fayetteville	Represents the city government and other departments for the City of Fayetteville.
City of Lowell	Represents the city government and other departments for the City of Lowell.

Stakeholder	Stakeholder Description
City of Rogers	Represents the city government and other departments for the City of Rogers.
City of Siloam Springs	Represents the city government and other departments for the City of Siloam Springs.
City of Springdale	Represents the city government and other departments for the City of Springdale.
Commercial Vehicle Operations	Private companies operating fleets of commercial vehicles within the Region.
County Public Safety Agencies	Represents the public safety agencies for Benton and Washington Counties.
County Road Departments	Represents the county government and all county departments within the Region.
Financial Institutions	Banks involved in the transfer of funds for fare collection as well as for other fee based transportation services.
Independent School Districts	The public schools systems throughout the Region.
Local Agencies	Represents the local agencies in the Region that maintain a data archive.
Local News Media	Includes both print (newspaper) and broadcast (TV, radio) news media.
Missouri Department of Public Safety	The Missouri Department of Public Safety provides public safety response and law enforcement for the State of Missouri. Jurisdiction includes state highways and roads.
Municipal Agencies	Represents the municipal governments (cities and towns) within the Region that are not specifically called out within the architecture.
NOAA	National Oceanic and Atmospheric Administration (National Weather Service).
Northwest Arkansas National Airport Authority	Operates the Northwest Arkansas National Airport. NWANAA is comprised of five cities and two counties. The cities, Bentonville, Fayetteville, Rogers, Siloam Springs and Springdale each appoint two members to the Board of Directors as do Benton and Washington County.
NWARPC	The Northwest Arkansas Regional Planning Commission (NWARPC) is a planning organization that serves local units of government in Benton and Washington Counties. It is also the designated MPO (Metropolitan Planning Organization) for transportation in the Fayetteville/Springdale/Rogers MSA (Metropolitan Statistical Area).
Ozark Regional Transit	The transit agency that provides fixed-route and demand-responsive service in the Region.

Stakeholder	Stakeholder Description
Private HAZMAT Security Provider	Private information service provider. Responsible for collecting HAZMAT laden and information from commercial vehicle carriers, receiving spill and emergency notifications from HAZMAT vehicles in distress, and coordinating with public safety agencies.
Private Long Distance Bus Providers	Private long distance bus service providers that serve the Region (e.g., Greyhound).
Private Rail Operations	Rail operations that operate within the Region. They include Arkansas and Missouri Railroad, Union Pacific, and Kansas City Southern.
Private Sector Traveler Information Service Providers	Local, regional and national information service providers that provide travel information, including Internet sites, service bureaus, etc.
Private Tow/Wrecker Providers	Private companies that provide tow or wrecker services for the Region.
Private Travelers	Traveling public accessing various modes of transportation, including surface street, air, rail/transit, and non-motorized.
Private Weather Providers	Private providers of weather information to the agencies within the Region.
Public Tourism Bureaus	Private event promoters in the Region.
Public/Private Ambulance Providers	Public or private ambulance providers located within the Region.
Regional Medical Centers	Hospital/trauma centers in the Region.
Regional Mobility Authority	Regional transportation entity with the authority to plan and build highways including toll roads.
Regional Public Safety Agencies	Stakeholder group representing the public safety agencies in the Region.
Regional Public Works Agencies	Stakeholder group representing the public works departments responsible for roadway maintenance and permits in the region.
Regional Traffic Management Agencies	Stakeholder group representing all the traffic management agencies in the Region.
River Valley Transportation Providers	Represents various local transit agencies within the Region.
Rural Fire Departments	Rural fire departments, including volunteer fire departments.
Service Agencies	State and Federal agencies who subsidize the funding of paratransit and other demand response providers.
University of Arkansas	The University of Arkansas is located in Fayetteville. The University's population impacts the Region, in particular Fayetteville, especially as it attracts large crowds for special events including football games.

Stakeholder	Stakeholder Description
University of Arkansas Transit and Parking Department	Department of the University of Arkansas for providing, operating, and managing parking and parking facilities on campus and transit operations on campus and in the City of Fayetteville.
Washington County Department of Emergency Management	The Washington County Department of Emergency Management provides all-hazards planning strategy in the traditional four phases of emergency management: preparedness, mitigation, response, and recovery for the county.
Washington County Road Department	County department responsible for the operation and maintenance of county roads and street for Washington County.
Washington County Sheriff's Department	Law enforcement provider for Washington County. Also operates the county's public safety answering point (PSAP).
Washington County/City of Fayetteville	Washington County Central EMS Dispatch is funded privately and publicly. The public funding is offered jointly from Washington County and the City of Fayetteville represented by the Washington County/City of Fayetteville stakeholder.

APPENDIX D: NORTHWEST ARKANSAS REGIONAL ITS INVENTORY

Stakeholder	Element Name	Element Description	Status
ARDOT	ARDOT Asset Management System	The asset management system (sign inventory, ITS equipment inventory, maintenance equipment inventory, etc.) owned and operated by ARDOT.	Existing
	ARDOT CCTV Cameras	Closed Circuit Television cameras owned and operated by ARDOT on the interstate highways throughout the region. Includes CCTV cameras in the tunnel.	Existing
	ARDOT District 4 Construction and Maintenance Operations	Oversees maintenance and construction of ARDOT roadways within the District.	Existing
	ARDOT District 4	Handles regional maintenance and construction coordination, including interstate, for District 4. Performs traffic management function for ARDOT managed highways and arterials within the District.	Existing
	ARDOT District 9 Construction and Maintenance Operations	Oversees maintenance and construction of ARDOT roadways within the District.	Existing
	ARDOT District 9	Handles regional maintenance and construction coordination, including interstate, for District 9. Performs traffic management function for ARDOT managed highways and arterials within District 9.	Existing
	ARDOT Equipment Repair Facility	Equipment repair facilities which communicate with vehicles for preventive maintenance.	Existing
	ARDOT Field Equipment	Includes dynamic message signs, portable equipment, and traffic counters.	Existing
	ARDOT Headquarters	Represents ARDOT's district roadway maintenance and construction operations.	Existing
	ARDOT Highway Conditions Reporting System	The ARDOT system that provides detailed construction closures, detours, restrictions, permits and weather information. Accessible to public by: Internet, which provides access to information by route, county or	Existing

Stakeholder	Element Name	Element Description	Status
		district. Includes contact information, and the phone number for construction, closures, hazards, detour information.	
	ARDOT I-49 Tunnel Emissions Monitoring System	Emissions and other monitoring sensors. Includes heat sensors and vapor monitors in the tunnel.	Existing
	ARDOT Maintenance and Construction Vehicles	Maintenance and construction vehicle on-board systems for vehicle tracking and maintenance logging.	Planned
	ARDOT Maintenance Archive	Collect data from ARDOT traffic and maintenance data collection equipment as well as provide traffic and maintenance data to the MPOs and other archive users.	Existing
	ARDOT Motorist Assist Patrol (MAP) Dispatch	The Freeway Service Patrol dispatch function that assists troubled motorists on freeways in the region.	Planned
	ARDOT Motorist Assist Patrol Vehicles	Vehicles of the freeway service patrol that assist troubled motorists on freeways in the region.	Planned
	ARDOT Public Information Office	The office provides the official interface between ARDOT traffic and maintenance departments and interests outside the departments such as the media and the ARDOT website.	Existing
	ARDOT Resident Engineers Office	Oversees highway construction operations in the district.	Existing
	ARDOT Roadside HAZMAT Detectors	ITS field sensors that detect HAZMAT situations on ARDOT roads.	Planned
	ARDOT Security Monitoring Field Equipment	Security monitoring field equipment includes sensors and surveillance devices that monitor transportation infrastructure and public areas.	Planned
	ARDOT Statewide TMC	Handles statewide maintenance and construction coordination, including interstate. Performs traffic management function in Little Rock for ARDOT managed highways and arterials.	Existing

Stakeholder	Element Name	Element Description	Status
	ARDOT Storage Facilities	Equipment and materials storage facilities for ARDOT.	Existing
	ARDOT Website	Transportation information website for ARDOT. Includes current traffic and road network conditions. In the future will include real- time construction, work zone, special event, incident, and traffic information.	Existing
	Arkansas IDrive Arkansas System	Planned statewide phone based traveler information system.	Existing
	ASP Statewide Crash Records Information System	ARDOT statewide database of vehicle crash/accident records. Inputs to this system are provided by elements in the region.	Existing
	Local Data Archives	Data archives maintained by local agencies.	Planned
	NW Arkansas Regional Joint Traffic Management Center	Possible future regional traffic management center for coordinating traffic operations in the region.	Future
	Other ARDOT District TMCs	Traffic Management Centers in the other Arkansas regions that handle regional maintenance and construction coordination, including interstate. They also perform traffic management function for ARDOT managed highways and arterials within their perspective region.	Existing
	Rest Area/Truck Stop/Visitor Center Kiosks	Remote traveler support provides access to traveler information at transit stations, transit stops, other fixed sites along travel routes (e.g., rest stops), and major trip generation locations.	Planned
Archive Data Users	Archive Data Users	Represents systems that make use of various archive data collected in the region.	Planned
Arkansas Department of Emergency Management	Arkansas State EOC	Statewide emergency operations center located in Conway, AR	Existing
	Local Data Archives	Data archives maintained by local agencies.	Planned
Arkansas Highway Police	AHP Weigh in Motion Sites	Weigh in motion sites on ARDOT highways that are operated by the Arkansas Highway Police.	Existing

Stakeholder	Element Name	Element Description	Status
	Arkansas Highway Police Dispatch	Manage weigh stations (4 in the state) and work zone enforcement. Hazardous materials and commercial vehicle safety laws are enforced. There is one central dispatch in Little Rock, AR	Existing
	Arkansas Highway Police Vehicles	Emergency vehicles dispatched from the Arkansas Highway Police dispatch center	Existing
	Local Data Archives	Data archives maintained by local agencies.	Planned
	NW Arkansas Regional Mutual Aid Network	The disaster information system and emergency information reconciliation network run by the regional public safety agencies in the event of a natural or man-made disaster	Planned
Arkansas State Police	Arkansas State Police Dispatch Troop L	Dispatch of Arkansas Highway Patrol Troop L. Dispatch center located in Springdale, AR	Existing
	Arkansas State Police Headquarters	This is the State Police Headquarters located in Little Rock, Arkansas – they are responsible for sending out AMBER Alerts throughout the state.	Existing
	Arkansas State Police Vehicles	Emergency vehicles dispatched from the Arkansas State Police dispatch center	Existing
	Local Data Archives	Data archives maintained by local agencies.	Planned
	NW Arkansas Regional Mutual Aid Network	The disaster information system and emergency information reconciliation network run by the regional public safety agencies in the event of a natural or man-made disaster	Planned
Benton County 911 Administration	Benton County Central Communications	The public safety answering point (PSAP) for Benton County. One of four PSAPs in Benton County provides the dispatch functions in Benton County except for Bentonville, Rogers, and Siloam Springs.	Existing
	County EMS Vehicles	Represents the ITS-devices (i.e., mobile data terminals) onboard county emergency medical services (EMS) vehicles.	Existing

Stakeholder	Element Name	Element Description	Status
	County Sheriff Vehicles	Represents the ITS-devices (i.e., mobile data terminals) onboard county law enforcement vehicles.	Planned
	Local Data Archives	Data archives maintained by local agencies.	Planned
	NW Arkansas Regional Mutual Aid Network	The disaster information system and emergency information reconciliation network run by the regional public safety agencies in the event of a natural or man-made disaster	Planned
Benton County Department of Emergency Management and Homeland Security	Benton County EOC	Represents the Benton County Emergency Operations Center	Existing
	County EMS Vehicles	Represents the ITS-devices (i.e., mobile data terminals) onboard county emergency medical services (EMS) vehicles.	Existing
	County Sheriff Vehicles	Represents the ITS-devices (i.e., mobile data terminals) onboard county law enforcement vehicles.	Planned
	Local Data Archives	Data archives maintained by local agencies.	Planned
	NW Arkansas Regional Mutual Aid Network	The disaster information system and emergency information reconciliation network run by the regional public safety agencies in the event of a natural or man-made disaster	Planned
Benton County Road Department	Benton County ITS Field Equipment	ITS field equipment owned and operated by Benton County, including any and all equipment distributed on and along the roadway which monitors and controls traffic. Includes traffic signals, and DMS.	Existing
	Benton County Traffic Management Center	Operation of ITS, including traffic signals, CCTV and DMS for Benton County.	Planned
	County Asset Management System	The asset management system (sign inventory, ITS equipment inventory, maintenance equipment inventory, etc.) owned and operated by the counties within the geographic region.	Existing

Stakeholder	Element Name	Element Description	Status
	County Equipment Repair Facility	The maintenance shop for all roadside equipment owned and operated by the counties within the region. Used to communicate with vehicles for preventive maintenance.	Existing
	County Maintenance and Construction Vehicles	Maintenance and construction vehicles owned and operated by the counties within the region. In the future they may include ITS devices that provide the sensory, processing, storage, and communications functions necessary to support maintenance and construction operations.	Existing
	County Maintenance Operations	Represents the region 's county roadway maintenance operations, including Benton County Road Department and Washington County Road Department.	Existing
	County Website	Information website for the county, including transportation and emergency information. In the future will include real-time construction, work zone, special event, incident, and traffic information.	Existing
	Local Data Archives	Data archives maintained by local agencies.	Planned
	Municipal or County Permitting System	Represents permitting systems operated at the county or municipal level.	Existing
	NW Arkansas Regional Mutual Aid Network	The disaster information system and emergency information reconciliation network run by the regional public safety agencies in the event of a natural or man-made disaster	Planned
	NW Arkansas Regional Joint Traffic Management Center	Possible future regional traffic management center for coordinating traffic operations in the region.	Planned
City of Bella Vista	Bella Vista Fire/EMS Vehicles	Represents the ITS-devices (i.e., mobile data terminals) onboard the Bella Vista fire vehicles.	Existing
	Bella Vista ITS Field Equipment	ITS field equipment owned and operated by Bella Vista including any and all equipment distributed on and along the roadway which monitors and controls traffic. This includes traffic signals, controllers, video cameras at the	Existing

Stakeholder	Element Name	Element Description	Status
		signals, demand-actuated pedestrian and bicyclist safety crossings and communications equipment for the cameras and signal system.	
	Bella Vista Police Dispatch	Dispatch function for Bella Vista. Includes dispatch for police, fire and EMS departments.	Existing
	Bella Vista Police Vehicles	Represents the ITS-devices (i.e., mobile data terminals) onboard Bella Vista law enforcement vehicles.	Existing
	Bella Vista Public Works Department	Represents Bella Vista's roadway maintenance operations.	Existing
	Bella Vista Traffic Operations Center	Operation of traffic signal systems, CCTV, and other ITS operations in Bella Vista.	Planned
	Bella Vista Website	Transportation information website for the City of Bella Vista. In the future may include real-time construction, work zone, special event, incident, and traffic information.	Planned
	Local Data Archives	Data archives maintained by local agencies.	Planned
	NW Arkansas Regional Mutual Aid Network	The disaster information system and emergency information reconciliation network run by the regional public safety agencies in the event of a natural or man-made disaster	Planned
	NW Arkansas Regional Joint Traffic Management Center	Possible future regional traffic management center for coordinating traffic operations in the region.	Planned
City of Bentonville	Bentonville Emergency Communications Center	Public Safety Answering Point (PSAP) and dispatch function for the City of Bentonville. Includes dispatch for police, fire and EMS departments.	Existing
	Bentonville Fire/EMS Vehicles	Represents the ITS-devices (i.e., mobile data terminals) onboard the City of Bentonville fire and emergency medical services (EMS) vehicles.	Existing

Stakeholder	Element Name	Element Description	Status
	Bentonville ITS Field Equipment	ITS field equipment owned and operated by the City of Bentonville, including any and all equipment distributed on and along the roadway that monitors and controls traffic. Includes traffic signals, fiber-optic communication, dynamic message signs (fixed and portable), video cameras, signal coordination (partial), demand -actuated pedestrians and bicycle safety crossings, and preemption for emergency services.	Existing
	Bentonville Parking Management System	Equipment for managing and monitoring the City of Bentonville's on-street parking, parking garages and parking lots.	Planned
	Bentonville Police Vehicles	Represents the ITS-devices (i.e., mobile data terminals) onboard the City of Bentonville law enforcement vehicles.	Existing
	Bentonville Traffic Operations Center	Traffic Management Center (TMC) for operation of traffic signal systems, monitoring video cameras, and other ITS operations in the City of Bentonville. Shared with police department.	Existing
	Bentonville Transportation Division	Represents the City of Bentonville's roadway maintenance operations.	Existing
	Bentonville Website	Transportation information website for the City of Bentonville. In the future will include real-time construction, work zone, special event, incident, and traffic information.	Existing
	Local Data Archives	Video camera recordings archived for planning.	Existing
	NW Arkansas Regional Mutual Aid Network	The disaster information system and emergency information reconciliation network run by the regional public safety agencies in the event of a natural or man-made disaster	Planned
	NW Arkansas Regional Joint Traffic Management Center	Possible future regional traffic management center for coordinating traffic operations in the region.	Planned

Stakeholder	Element Name	Element Description	Status
City of Fayetteville	Fayetteville Central Dispatch	Dispatch function for Fayetteville. Includes dispatch for police, fire and other city departments/services for Fayetteville. It is a PSAP for Washington County 911 operations.	Existing
	Fayetteville Fire Vehicles	Represents the ITS-devices (i.e., mobile data terminals) onboard the City of Fayetteville fire vehicles.	Existing
	Fayetteville ITS Field Equipment	ITS field equipment that are owned and operated by the City of Fayetteville including any and all equipment distributed on and along the roadway that monitors and controls traffic. These include traffic signals, dynamic message signs (fixed and portable),video cameras, signal coordination (partial), demand-actuated pedestrians and bicycle safety crossings, and preemption for emergency services.	Existing
	Fayetteville Parking Management System	Equipment for managing and monitoring parking garages and parking lots.	Existing
	Fayetteville Police Vehicles	Represents the ITS-devices (i.e., mobile data terminals) onboard the City of Fayetteville law enforcement vehicles.	Existing
	Fayetteville Traffic Operations Center	Partial TMC for Operation of traffic signal systems, CCTV, and other ITS operations in the City of Fayetteville.	Existing
	Fayetteville Transportation Division	Represents the City of Fayetteville's roadway maintenance operations.	Existing
	Fayetteville Website	Transportation information website for the City of Fayetteville. In the future may include real-time construction, work zone, special event, incident, and traffic information.	Existing
	Local Data Archives	Data archives maintained by local agencies.	Planned
	NW Arkansas Regional Mutual Aid Network	The disaster information system and emergency information reconciliation network run by the regional public safety agencies in the event of a natural or man-	Planned

Stakeholder	Element Name	Element Description	Status
		made disaster.	
	NW Arkansas Regional Joint Traffic Management Center	Possible future regional traffic management center for coordinating traffic operations in the region.	Planned
	Washington County Central EMS Dispatch	Dispatch function for rural fire, EMS, and search and rescue services for Washington County. Includes EMS for Fayetteville. It is a PSAP for Washington County 911 operations.	Existing
	Washington County Central EMS Vehicles	Represents the ITS-devices (i.e., mobile data terminals) onboard the EMS vehicles dispatched within Washington County. Includes EMS vehicles dispatched for Fayetteville.	Existing
City of Rogers	Local Data Archives	Data archives maintained by local agencies.	Planned
	NW Arkansas Regional Joint Traffic Management Center	Possible future regional traffic management center for coordinating traffic operations in the region.	Planned
	Rogers Fire/EMS Vehicles	Represents the ITS-devices (i.e., mobile data terminals) onboard the City of Rogers fire and EMS vehicles.	Existing
	Rogers ITS Field Equipment	ITS field equipment that are owned and operated by the City of Rogers including any and all equipment distributed on and along the roadway that monitors and controls traffic. These include traffic signals and video cameras.	Existing
	Rogers Parking Management System	Equipment for managing and monitoring the City of Rogers on- street parking, parking garages and parking lots.	Planned
	Rogers Police Dispatch	Public Safety Answering Point (PSAP) and dispatch function for the City of Rogers. Includes dispatch for its police, fire and EMS departments.	Existing
	Rogers Police Vehicles	Represents the ITS-devices (i.e., mobile data terminals) onboard the City of Rogers law enforcement vehicles.	Existing
	Rogers Street Department	Represents the City of Rogers' roadway maintenance operations.	Existing

Stakeholder	Element Name	Element Description	Status
	Rogers Traffic Operations Center	Operation of traffic signal systems, video cameras, CCTV, and other ITS operations in the City of Rogers. Also operates traffic signals for Avoca.	Existing
	Rogers Website	Transportation information website for the City of Rogers. In the future may include real-time construction, work zone, special event, incident, and traffic information. Also has provides road condition information to IDrive Arkansas for 16 routes.	Existing
City of Siloam Springs	Local Data Archives	Data archives maintained by local agencies.	Planned
	NW Arkansas Regional Mutual Aid Network	The disaster information system and emergency information reconciliation network run by the regional public safety agencies in the event of a natural or man-made disaster	Planned
	NW Arkansas Regional Joint Traffic Management Center	Possible future regional traffic management center for coordinating traffic operations in the region.	Planned
	Siloam Springs Fire/EMS Vehicles	Represents the ITS-devices (i.e., mobile data terminals) onboard the City of Siloam Springs fire and EMS vehicles.	Existing
	Siloam Springs ITS Field Equipment	ITS field equipment (CCTV, field sensors, traffic signals, etc.) that are owned and operated by the City of Siloam Springs including any and all equipment distributed on and along the roadway that monitors and controls traffic. These include traffic signals, video cameras, and signal coordination (partial).	Existing
	Siloam Springs Police Dispatch	Public Safety Answering Point (PSAP) and dispatch function for the City of Siloam Springs. Includes dispatch for police, fire and EMS departments.	Existing
	Siloam Springs Police Vehicles	Represents the ITS-devices (i.e., mobile data terminals) onboard the City of Siloam Springs law enforcement vehicles.	Existing
	Siloam Springs Public Works	Represents the City of Siloam Springs roadway maintenance operations.	Existing

Stakeholder	Element Name	Element Description	Status
	Siloam Springs Traffic Operations Center	Operation of traffic signal systems, CCTV, and other ITS operations in the City of Siloam Springs.	Planned
	Siloam Springs Website	Transportation information website for the City of Siloam Springs. In the future will include real-time construction, work zone, special event, incident, and traffic information.	Existing
City of Springdale	Local Data Archives	Data archives maintained by local agencies.	Planned
	NW Arkansas Regional Joint Traffic Management Center	Possible future regional traffic management center for coordinating traffic operations in the region.	Planned
	Springdale Dispatch	Dispatch function for Springdale. Includes dispatch for police, fire and EMS departments. It is a PSAP for Washington County 911 operations.	Existing
	Springdale Fire/EMS Vehicles	Represents the ITS-devices (i.e., mobile data terminals) onboard the City of Springdale fire and EMS vehicles.	Planned
	Springdale ITS Field Equipment	ITS field equipment (CCTV, field sensors, traffic signals, etc.) that are owned and operated by the City of Springdale including any and all equipment distributed on and along the roadway that monitors and controls traffic. These include traffic signals, dynamic message signs (fixed and portable),video cameras, signal coordination (partial), demand-actuated pedestrian and bicycle safety crossings, and preemption for emergency services.	Existing
	Springdale Parking Management System	Equipment for managing and monitoring the City of Springdale's on-street parking, parking garages and parking lots.	Planned
	Springdale Police Vehicles	Represents the ITS-devices (i.e., mobile data terminals) onboard the City of Springdale law enforcement vehicles.	Existing
	Springdale Public Works	Represents the City of Springdale roadway maintenance operations.	Existing
	Springdale Traffic Operations Center	Traffic Management Center (TMC) for operation of traffic signal systems, video cameras, and other ITS operations	Existing

Stakeholder	Element Name	Element Description	Status
		in the City of Springdale. Also manages some traffic signals for adjacent municipalities.	
	Springdale Website	Transportation information website for the City of Springdale. In the future may include real-time construction, work zone, special event, incident, and traffic information.	Existing
Commercial Vehicle Operations	Commercial Vehicles	Represents ITS equipment on privately owned commercial vehicles.	Existing
	Private Fleet Operations	Fleet dispatch systems for private commercial vehicle firms.	Existing
County Public Safety Agencies	County EMS Vehicles	Represents the ITS-devices (i.e., mobile data terminals) onboard county emergency medical services (EMS) vehicles.	Existing
	County Sheriff Vehicles	Represents the ITS-devices (i.e., mobile data terminals) onboard county law enforcement vehicles.	Planned
County Road Departments	County Asset Management System	The asset management system (sign inventory, ITS equipment inventory, maintenance equipment inventory, etc.) owned and operated by the counties within the geographic region.	Existing
	County Equipment Repair Facility	The maintenance shop for all roadside equipment owned and operated by the counties within the region. Used to communicate with vehicles for preventive maintenance.	Existing
	County Maintenance and Construction Vehicles	Maintenance and construction vehicles owned and operated by the counties within the region. In the future they may include ITS devices that provide the sensory, processing, storage, and communications functions necessary to support maintenance and construction operations.	Existing
	County Maintenance Operations	Represents the region 's county roadway maintenance operations. Benton County Road Department, Washington County Road Department.	Existing

Stakeholder	Element Name	Element Description	Status
	County Website	Information website for the county, including transportation and emergency information. In the future will include real-time construction, work zone, special event, incident, and traffic information.	Existing
Financial Institutions	Financial Institution	Represents the financial institutions the regional transit agencies will use as part of electronic fare payment systems.	Existing
Independent School Districts	Independent School District Buses	The buses owned and operated by the various independent school districts in the region.	Existing
	Independent School District Dispatch	Dispatch function for each of the Independent School Districts throughout the region. Includes radio communication with school buses.	Existing
Local News Media	Local Print and Broadcast Media	The Media element represents the information systems that provide traffic reports, travel conditions, and other transportation- related news services to the traveling public through radio, TV, and other media.	Existing
Missouri Department of Public Safety	Missouri State Highway Patrol Dispatch	Dispatch function for the Missouri State Highway Patrol.	Existing
Municipal Agencies	Local Data Archives	Data archives maintained by local agencies.	Planned
	Municipal Asset Management System	The asset management system (sign inventory, ITS equipment inventory, maintenance equipment inventory, etc.) owned and operated by the municipalities (cities and towns) within the geographic region.	Existing
	Municipal Convention and Visitors Bureau	The regional event promoter for the municipalities within the region.	Planned
	Municipal Equipment Repair Facility	The maintenance shop for all roadside equipment owned and operated by the municipalities within the region. Used to communicate with vehicles for preventive maintenance.	Existing
	Municipal ITS Field Equipment	ITS field equipment (CCTV, field sensors, traffic signals, etc.)	Planned

Stakeholder	Element Name	Element Description	Status
		that are owned and operated by the municipalities within the region.	
	Municipal Maintenance and Construction Vehicles	Maintenance and construction vehicles owned and operated by the municipalities within the region. In the future they may include ITS devices that provide the sensory, processing, storage, and communications functions necessary to support maintenance and construction operations.	Existing
	Municipal Public Safety Dispatch	EMS, fire, and police dispatch functions for the municipalities within the region.	Existing
	Municipal Public Safety Vehicles	Represents the ITS-devices (i.e., mobile data terminals) onboard municipal emergency vehicles including police, fire, and EMS.	Existing
	Municipal Public Works	Represents the municipalities' roadway maintenance operations that are within the region.	Planned
	Municipal Traffic Operations Center	Includes traffic signal system in Lowell.	Planned
	Municipal Website	Transportation information website for the municipalities within the region. In the future it may include real-time construction, work zone, special event, incident, and traffic information.	Planned
	NW Arkansas Regional Mutual Aid Network	The disaster information system and emergency information reconciliation network run by the regional public safety agencies in the event of a natural or man-made disaster	Planned
	NW Arkansas Maintenance and Construction Mutual Aid Network	Represents the ARDOT's district roadway maintenance operations that are in adjacent regions.	Planned
NOAA	National Weather Service	National service for national, regional, and local weather information.	Existing

Stakeholder	Element Name	Element Description	Status
Northwest Arkansas National Airport Authority	Local Data Archives	Data archives maintained by local agencies.	Planned
	NW Arkansas Regional Mutual Aid Network	The disaster information system and emergency information reconciliation network run by the regional public safety agencies in the event of a natural or man-made disaster	Planned
	NW Arkansas National Airport	Represents the ITS systems at the Northwest Arkansas National Airport.	Existing
	NW Arkansas National Airport Authority Parking System	Equipment for managing and monitoring parking garages and parking lots operated and maintained by the NW Arkansas National Airport Authority.	Planned
	NW Arkansas National Airport Emergency Management	Provides emergency services for the Northwest Arkansas National Airport, including fire and police.	Existing
	NW Arkansas National Airport Emergency Vehicles	Represents the ITS-devices (i.e., mobile data terminals) onboard the emergency vehicles operated by NW Arkansas National Airport including police, fire, and EMS.	Existing
NWARPC	Local Data Archives	Data archives maintained by local agencies.	Planned
	NWARPC MPO Data Archive	The Regional data warehouse for NWARPC.	Planned
	NWARPC Virtual Data Warehouse	The Regional data warehouse for NWARPC, providing access to the NWARPC's own data archive and other data archives in the region.	Planned
	NWARPC Website	The NWARPC website that includes archived planning information, schedules, TIPs, STIP, and other planning data.	Existing

Stakeholder	Element Name	Element Description	Status
Ozark Regional Transit Ozark Regional Transit	Local Data Archives	Data archives maintained by local agencies.	Planned
	Ozark Regional Transit Archive	Archive of transit data including ridership and other operations information.	Existing
	Ozark Regional Transit Demand Response Transit Vehicles	Demand response transit vehicles operated by Ozark Regional Transit.	Existing
	Ozark Regional Transit Dispatch	Provides fixed route and demand response dispatch functions for Ozark Regional Transit, including a Commuter Express Route.	Existing
	Ozark Regional Transit Fixed Route Transit Vehicles	Transit vehicles include ITS devices that support the safe and efficient movement of passengers. These systems collect, manage, and disseminate transit-related information to the driver, operations and maintenance personnel, and transit system patrons.	Existing
	Ozark Regional Transit Kiosks	Kiosks (public informational displays supporting various levels of interaction and information access) operated by Ozark Regional Transit.	Planned
	Ozark Regional Transit Security Monitoring Field Equipment	Surveillance cameras at Ozark Regional Transit stops and terminals.	Planned
	Ozark Regional Transit Website	Ozark Regional Transit Website includes route, schedule, and fare information for the system. In the future it could include demand-response scheduling requests.	Existing
	Regional Smart Card	Smart Card used for Transit and other electronic systems (i.e. parking) throughout the region.	Planned
Private HAZMAT Security Provider	Private HAZMAT Security Provider	Private Information service providers. Responsible for collecting HAZMAT cargo and information from commercial vehicle carriers, receiving spill and emergency notifications from HAZMAT vehicles in distress, and coordinating with public safety agencies in the event of a HAZMAT incident.	Planned

Stakeholder	Element Name	Element Description	Status
Private Long Distance Bus Providers	Private Long Distance Bus Company Operations	Represents private bus lines that travel through the region , including Greyhound.	Existing
Private Rail Operations	Rail Operations Centers	The rail operation centers located within the region. These centers handle freight rail and passenger rail.	Existing
	Rail Operators Rail Cars	Rail-based commercial vehicles.	Existing
	Rail Operators Wayside Equipment	The rail operated equipment at highway rail intersections. Interconnect with traffic control.	Existing
Private Sector Traveler Information Service Providers	Private Sector Traveler Information Services	Information service providers that provide traffic information, weather conditions, transit information, and general broadcast information to the traveling public.	Existing
Private Tow/Wrecker Providers	Private Tow/Wrecker Dispatch	Dispatch function for privately owned tow or wrecker service. Based on a rotation list or a selected contractor.	Existing
	Private Tow/Wrecker Vehicles	Represents the ITS-devices (i.e., mobile data terminals) onboard the tow or wrecker vehicles in the region.	Existing
Private Travelers	Private Travelers Personal Computing Devices	The equipment an individual owns and can personalize with their choices for information about transportation networks. An Internet-connected PC is an example.	Existing
	Private Vehicles	Vehicles owned by private individuals in the area.	Existing
	Traveler	Represents the private traveler who is a user of the transportation system.	Existing
Private Weather Providers	Private Weather Services	Private weather companies which are disseminators of weather information.	Existing
Public Tourism Bureaus	Public Tourism Websites	National Forestry, State Forestry, Army Corps of Engineers, and Arkansas Parks and Tourism Website.	Existing
Public/Private Ambulance	Public/Private Ambulance Dispatch	Dispatch functions for public/private ambulance companies in the region.	Existing

Stakeholder	Element Name	Element Description	Status
Providers	Public/Private Ambulances	Represents the ITS-devices (i.e., mobile data terminals) onboard ambulance vehicles that operate within the Northwest Arkansas Region	Existing
Regional Medical Centers	Regional Medical Centers	Medical centers that are located within the region (hospitals) or within the adjacent regions.	Existing
Regional Mobility Authority	Regional Mobility Authority CSC	Customer Service Center for toll roads operated by the region al Mobility Authority to process the electronic toll transactions.	Planned
	Regional Mobility Authority ITS Field Equipment	ITS field equipment owned and operated by the Regional Mobility Authority, including any and all equipment distributed on and along the roadway which monitors and controls traffic. Includes traffic signals, CCTV cameras and DMS.	Planned
	Regional Mobility Authority TMC	Operation of ITS, including traffic signals, CCTV cameras and DMS for the Regional Mobility Authority.	Planned
	Regional Mobility Authority Website	Web site and information portal (including account information) for customers using electronic toll tags on toll roads operated by the Regional Mobility Authority.	Planned
Regional Public Safety Agencies	Northwest Arkansas Regional Mutual Aid Network	The disaster information system and emergency information reconciliation network run by the regional public safety agencies in the event of a natural or man-made disaster	Planned
Regional Public Works Agencies	Municipal or County Permitting System	Represents permitting systems operated at the county or municipal level.	Existing
	NW Arkansas Maintenance and	Represents ARDOT's district roadway maintenance	Planned

Stakeholder	Element Name	Element Description	Status
	Construction Mutual Aid Network	operations that are in adjacent regions.	
Regional Traffic Management Agencies	NW Arkansas Regional Joint Traffic Management Center	Possible future regional traffic management center for coordinating traffic operations in the region.	Planned
River Valley Transportation Providers	Local Data Archives	Data archives maintained by local agencies.	Planned
	River Valley Transportation Providers	Local transit operators in the Fort Smith Region.	Existing
Rural Fire Departments	Rural Fire Departments	Rural fire departments, including volunteer fire departments.	Existing
	Rural Fire Vehicles	Represents the ITS-devices (i.e., mobile data terminals) onboard rural fire vehicles.	Planned
Service Agencies	Service Agency	Agencies that help subsidize the funding for paratransit operations for special case citizens to ensure that these citizens have transportation to and from where they need to go (generally the hospital).	Existing
University of Arkansas	University of Arkansas Police	Represents the dispatch function for the law enforcement provider for the University of Arkansas campus in Fayetteville.	Existing
	University of Arkansas Police Vehicles	Represents the ITS-devices (i.e., mobile data terminals) onboard the University of Arkansas law enforcement vehicles.	Existing
University of Arkansas Transit and Parking Department	Local Data Archives	Data archives maintained by local agencies.	Planned
	Razorback Transit Archive	Transit data archive for Razorback Transit. Archived transit data includes ridership and other operational information.	Existing
	Razorback Transit Demand Response Vehicles	Represents ITS systems in Razorback Transit demand responsive vehicles.	Existing
	Razorback Transit Dispatch	Dispatch function for the University of Arkansas's transit service.	Existing
	Razorback Transit Fixed Route Vehicles	Represents ITS systems in Razorback Transit fixed-route	Existing

Stakeholder	Element Name	Element Description	Status
		vehicles.	
	Razorback Transit Kiosks	Kiosks owned and operated by Razorback Transit.	Planned
	Razorback Transit On-board Voice Annunciation	Represents the voice annunciation system on Razorback Transit vehicles.	Planned
	University of Arkansas Parking System	Equipment for managing and monitoring parking garages and parking lots operated by the University of Arkansas.	Planned
	University of Arkansas Transit and Parking Website	Transportation information website for the University of Arkansas. In the future will include real-time construction, work zone, special event, incident, and traffic information.	Planned
Washington County Department of Emergency Management	County EMS Vehicles	Represents the ITS-devices (i.e., mobile data terminals) onboard county emergency medical services (EMS) vehicles.	Existing
	County Sheriff Vehicles	Represents the ITS-devices (i.e., mobile data terminals) onboard county law enforcement vehicles.	Planned
	Local Data Archives	Data archives maintained by local agencies.	Planned
	Northwest Arkansas Regional Mutual Aid Network	The disaster information system and emergency information reconciliation network run by the regional public safety agencies in the event of a natural or man-made disaster	Planned
	Washington County Central EMS Dispatch	Dispatch function for rural fire, EMS, and search and rescue services for Washington County. Includes EMS for Fayetteville. It is a PSAP for Washington County 911 operations.	Existing
	Washington County Central EMS Vehicles	Represents the ITS-devices (i.e., mobile data terminals) onboard the EMS vehicles dispatched within Washington County. Includes EMS vehicles dispatched for Fayetteville.	Existing
	Washington County EOC/911 Operations	Represents the Washington County Emergency Operations Center	Existing

Stakeholder	Element Name	Element Description	Status
Washington County Road Department	County Asset Management System	The asset management system (sign inventory, ITS equipment inventory, maintenance equipment inventory, etc.) owned and operated by the counties within the geographic region.	Existing
	County Equipment Repair Facility	The maintenance shop for all roadside equipment owned and operated by the counties within the region. Used to communicate with vehicles for preventive maintenance.	Existing
	County Maintenance and Construction Vehicles	Maintenance and construction vehicles owned and operated by the counties within the region. In the future they may include ITS devices that provide the sensory, processing, storage, and communications functions necessary to support maintenance and construction operations.	Existing
	County Maintenance Operations	Represents the county's roadway maintenance operations.	Existing
Washington County Road Department	County Website	Information website for the county, including transportation and emergency information. In the future will include real-time construction, work zone, special event, incident, and traffic information.	Existing
	Local Data Archives	Data archives maintained by local agencies.	Planned
	Municipal or County Permitting System	Represents permitting systems operated at the county or municipal level.	Existing
	NW Arkansas Maintenance and Construction Mutual Aid Network	Represents the ARDOT's district roadway maintenance operations that are in adjacent regions.	Planned
	NW Arkansas Regional Joint Traffic Management Center	Possible future regional traffic management center for coordinating traffic operations in the region.	Planned
	Washington County ITS Field Equipment	Traffic signals, Dynamic Message Signs owned and operated by Washington County, including portable signs.	Planned

Stakeholder	Element Name	Element Description	Status
Washington County Sheriff's Department	County EMS Vehicles	Represents the ITS-devices (i.e., mobile data terminals) onboard county emergency medical services (EMS) vehicles.	Existing
	County Sheriff Vehicles	Represents the ITS-devices (i.e., mobile data terminals) onboard county law enforcement vehicles.	Planned
	Local Data Archives	Data archives maintained by local agencies.	Planned
	Northwest Arkansas Regional Mutual Aid Network	The disaster information system and emergency information reconciliation network run by the regional public safety agencies in the event of a natural or man-made disaster	Planned
	Washington County Sheriff Dispatch	Dispatches Sheriff's department and municipal police, except for Fayetteville and Springdale. It is a PSAP for Washington County 911 operations.	Existing
Washington County/City of Fayetteville	Washington County Central EMS Dispatch	Dispatch function for rural fire, EMS, and search and rescue services for Washington County. Includes EMS for Fayetteville. It is a PSAP for Washington County 911 operations.	Existing
	Washington County Central EMS Vehicles	Represents the ITS-devices (i.e., mobile data terminals) onboard the EMS vehicles dispatched within Washington County.	Existing

APPENDIX E: SERVICE PACKAGE DESCRIPTIONS

Service Package	Service Package Name	Description
Traffic Management		
TM01	Infrastructure-Based Traffic Surveillance	Includes traffic detectors, other surveillance equipment, the supporting field equipment, and Center to Field communications to transmit the collected data back to the Traffic Management Center.
TM02	Vehicle-Based Traffic Surveillance	Uses probe data information obtained from vehicles in the network to support traffic operations, including incident detection and the implementation of localized operational strategies.
TM03	Traffic Signal Control	Provides the central control and monitoring equipment, communication links, and the signal control equipment that support traffic control at signalized intersections.
TM06	Traffic Information Dissemination	Provides driver information using roadway equipment such as dynamic message signs or highway advisory radio. Also covers the equipment and interfaces that provide traffic information from a traffic management center to the media, Transit Management, Emergency Management, and Transportation Information Centers.
TM07	Regional Traffic Management	Provides for the sharing of information and control among traffic management centers to support regional traffic management strategies.
TM08	Traffic Incident Management System	Manages both unexpected incidents and planned events so that the impact to the transportation network and traveler safety is minimized. 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.
TM09	Integrated Decision Support and Demand Management	Recommends courses of action to transportation operators in a corridor, downtown area, or other heavily traveled area. Recommendations are based on an assessment of current and forecast transportation network performance and environmental conditions.
TM10	Electronic Toll Collection	Provides toll operators with the ability to collect tolls electronically and detect and process violations.

Service Package	Service Package Name	Description
TM13	Standard Railroad Grade Crossing	Manages highway traffic at highway-rail intersections (HRIs) where operational requirements do not dictate more advanced features (e.g., where rail operational speeds are less than 80 miles per hour).
TM15	Railroad Operations Coordination	Provides an additional level of strategic coordination between freight rail operations and other transportation centers. Provides train schedules, maintenance schedules, and any other forecast events that will result in highway-rail intersection (HRI) closures.
TM17	Speed Warning and Enforcement	Provides for the management of reversible lane facilities, including sensory functions that detect wrong-way vehicles and other special surveillance capabilities that mitigate safety hazards associated with reversible lanes.
TM19	Roadway Closure Management	Supports systems that manage drawbridges at rivers and canals and other multimodal crossings (other than railroad grade crossings which are specifically covered by other service packages).
Public Safety (formerly Emergency Management)		
PS01	Emergency Call-Taking and Dispatch	Provides basic public safety call-taking and dispatch services. It includes emergency vehicle equipment, equipment used to receive and route emergency calls, and wireless communications that enable safe and rapid deployment of appropriate resources to an emergency.
PS02	Emergency Response	Supports emergency/ incident response by personnel in the field. Includes emergency vehicle equipment used to provide response status as well as video or images from either the vehicle or from emergency personnel in the field
PS09	Transportation Infrastructure Protection	includes the monitoring of transportation infrastructure for potential threats using sensors and surveillance equipment and barrier and safeguard systems to control access, preclude an incident, and mitigate the impact of an incident if it occurs.
PS10	Wide-Area Alert	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.

Service Package	Service Package Name	Description
PS11	Early Warning System	Monitors and detects potential, looming, and actual disasters including natural disasters and technological and man-made disasters.
PS12	Disaster Response and Recovery	The service package supports coordination of emergency response plans, including general plans developed before a disaster as well as specific tactical plans with short time horizon that are developed as part of a disaster response.
PS13	Evacuation and Reentry Management	Supports evacuation of the general public from a disaster area and manages subsequent reentry to the disaster area.
PS14	Disaster Traveler Information	Uses ITS to provide disaster-related traveler information to the general public, including evacuation and reentry information and other information concerning the operation of the transportation system during a disaster.
Maintenance and Construction Management		
MC01	Maintenance and Construction Vehicle and Equipment Tracking	Tracks the location of maintenance and construction vehicles and other equipment to ascertain the progress of their activities.
MC02	Maintenance and Construction Vehicle Maintenance	Performs vehicle maintenance scheduling and manages both routine and corrective maintenance activities on vehicles and other maintenance and construction equipment.
MC03	Roadway Automated Treatment	Automatically treats a roadway section based on environmental or atmospheric conditions. includes the environmental sensors that detect adverse conditions, the automated treatment system itself, and driver information systems that warn drivers when the treatment system is activated.
MC04	Winter Maintenance	Supports winter road maintenance including snow plow operations, roadway treatments, and other snow and ice control activities.
MC05	Roadway Maintenance and Construction	Supports numerous services for scheduled and unscheduled maintenance and construction on a roadway system or right-of-way.
MC06	Work Zone Management	Manages work zones, controlling traffic in areas of the roadway where maintenance, construction, and utility work activities are underway.
MC07	Work Zone Safety Monitoring	Provides warnings to maintenance personnel within a work zone about potential hazards within the work zone.

Service Package	Service Package Name	Description
MC08	Maintenance and Construction Activity Coordination	Supports the dissemination of maintenance and construction activity to centers that can utilize it as part of their operations, or to Transportation Information Centers who can provide the information to travelers.
Public Transportation Management		
PT04	Transit Fare Collection Management	Manages transit fare collection on-board transit vehicles and at transit stops using electronic means.
PT05	Transit Security	Provides for the physical security of transit passengers and transit vehicle operators. On-board equipment performs surveillance and sensor monitoring in order to identify potentially hazardous situations.
PT06	Transit Fleet Management	Supports automatic transit maintenance scheduling and monitoring. Supports the day to day management of the transit fleet inventory, including the assignment of specific transit vehicles to blocks and the assignment of transit vehicle operators to runs.
PT07	Transit Passenger Counting	Counts the number of passengers entering and exiting a transit vehicle using sensors mounted on the vehicle and communicates the collected passenger data back to the management center.
PT09	Transit Signal Priority	Uses transit vehicle to infrastructure communications to allow a transit vehicle to request priority at one or a series of intersections.
PT11	Transit Pedestrian Indication	Provides vehicle to device communications to inform pedestrians at a station or stop about the presence of a transit vehicle.
PT14	Multi-modal Coordination	Establishes two way communications between multiple transit and traffic agencies to improve service coordination.
Commercial Vehicle Operations		
CVO04	Administrative Processes	Supports program administration and enrollment and provides for electronic application, processing, fee collection, issuance, and distribution of CVO credential and tax filing.
CVO08	Smart Roadside and Virtual WIM	Includes the delivery of capabilities related to wireless roadside inspections and electronic screening/virtual weigh stations.
CVO12	HAZMAT Management	Integrates incident management capabilities with commercial vehicle tracking to assure effective

Service Package	Service Package Name	Description
		treatment of HAZMAT material transport, including response to incidents.
CVO13	Roadside HAZMAT Security Detection and Mitigation	Provides the capability to detect and classify security sensitive HAZMAT on commercial vehicles using roadside sensing and imaging technology.
CVO18	Intelligent Access Program – Weight Monitoring	Enables commercial vehicle operators simplified access to permit operations in exchange for remote weight monitoring.
Traveler Information		
TI01	Broadcast Traveler Information	Provides a digital broadcast service that disseminates traveler information to all equipped travelers within range.
TI02	Personalized Traveler Information	Provides tailored information in response to a traveler request.
TI04	Infrastructure-Provided Trip Planning and Route Guidance	Offers the user trip planning and en route guidance services. Generates a trip plan, including a multimodal route and associated service information
Information Management		
DM01	ITS Data Warehouse	Provides access to transportation data to support transportation planning, condition and performance monitoring, safety analysis, and research.
DM02	Performance Monitoring	Uses information collected from detectors and sensors, connected vehicles, and operational data feeds from centers to support performance monitoring and other uses of historical data including transportation planning, condition monitoring, safety analyses, and research.
Other		
PM01	Parking Space Management	Monitors and manages parking spaces in lots, garages, and other parking areas and facilities.
PM04	Regional Parking Management	Supports communication and coordination between equipped parking facilities and also supports regional coordination between parking facilities and traffic and transit management systems.
SU07	ITS Communications	Provides secure, reliable communications between ITS devices. Encompasses security services that protect communications and preserve privacy, and the management services that support network management.

Service Package	Service Package Name	Description
WX01	Weather Data Collection	Collects current road and weather conditions using data collected from environmental sensors deployed on and about the roadway.
WX02	Weather Information Processing and Distribution	Processes and distributes the environmental information collected from the Weather Data Collection service package.

APPENDIX F: ITS NEEDS AND CORRESPONDING SERVICE PACKAGES

ITS Need	Service Package
Traffic Management	
Need for TMCs in cities for improved traffic management capabilities on major corridors **(High Priority)**	TM07 Regional Traffic Management TM08 Traffic Incident Management System
Need improved signal coordination on arterials and across city boundaries **(High Priority)**	TM03 Traffic Signal Control TM07 Regional Traffic Management
Need improved traffic management systems, such as closed loop signal systems, throughout the region **(High Priority)**	TM03 Traffic Signal Control
Need improved data collection systems, such as detectors, throughout the region **(High Priority)**	TM01 Infrastructure-Based Traffic Surveillance TM02 Vehicle-Based Traffic Surveillance TM17 Speed Warning and Enforcement
Need improved monitoring capabilities, such as video cameras on major arterials and I- 49, throughout the region **(High Priority)**	TM01 Infrastructure-Based Traffic Surveillance
Need an ITS-enhanced traffic management system for athletic events at the University of Arkansas and other major events in the region **(High Priority)**	TM08 Traffic Incident Management System
Need to share information between TMCs in Region **(High Priority)**	TM07 Regional Traffic Management
Need to consider development of some type of regional management center that could be used for regional traffic coordination **(High Priority)**	TM07 Regional Traffic Management
Need to develop technology-guiding standards and policies in the region **(High Priority)**	Not covered by a service package
Need to consider adding ITS technologies such as DMS and electronic tolling to airport access road if it is constructed	TM06 Traffic Information Dissemination TM10 Electronic Toll Collection
Need to provide advanced notice of closures and provide alternate routing information	TM06 Traffic Information Dissemination TI01 Broadcast Traveler Information
Need to prevent railroad intersection blockages by railroad operators	TM13 Standard Railroad Grade Crossing TM15 Railroad Operations Coordination
Need for electronically managed parking facilities in growing municipalities	PM01 Parking Space Management
Need for regional parking management, especially when coordinating for special events	PM04 Regional Parking Management
Public Safety (formerly Emergency Management)	

ITS Need	Service Package
Need to increase the number of portable DMS for use during extended closures and for traffic control during traffic incidents, major storms, and major events **(High Priority)**	TM06 Traffic Information Dissemination MC06 Work Zone Management MC08 Maintenance and Construction Activity Coordination
Need to consider adding ice detection systems on roads, particularly roads with steep grades **(High Priority)**	MC03 Roadway Automated Treatment MC04 Winter Maintenance
Need to improve incident management coordination capabilities **(High Priority)**	TM08 Traffic Incident Management System PS01 Emergency Call-Taking and Dispatch PS02 Emergency Response
Need add links to provide all emergency response agencies with video from ARDOT and local jurisdiction TMC video cameras **(High Priority)**	TM08 Traffic Incident Management System PS01 Emergency Call-Taking and Dispatch
Need to increase emergency coordination capabilities for floods, tornadoes, homeland security, etc.	PS10 Wide-Area Alert PS11 Early Warning System PS12 Disaster Response and Recovery PS13 Evacuation and Reentry Management PS14 Disaster Traveler Information
Need to add MDTs on emergency vehicles for dispatching	PS01 Emergency Call-Taking and Dispatch PS02 Emergency Response
Need for infrastructure protection along major routes	PS09 Transportation Infrastructure Protection
Maintenance and Construction Management	
Need to develop a regional system for logging, displaying, and tracking planned lane or road closures for maintenance, construction, or special events **(High Priority)**	TM19 Roadway Closure Management
Need to add flood detection and closure systems at low water crossings	WX01 Weather Data Collection WX02 Weather Information Processing and Distribution
Need to add ITS to improve work zone safety	MC05 Roadway Maintenance and Construction MC07 Work Zone Safety Monitoring
Need for maintenance tracking and location tracking of maintenance and construction vehicles	MC01 Maintenance and Construction Vehicle and Equipment Tracking MC02 Maintenance and Construction Vehicle Maintenance
Public Transportation Management	

ITS Need	Service Package
Need to improve overall traffic flow in the region that will benefit all transit vehicles **(High Priority)**	TM01 Infrastructure-Based Traffic Surveillance TM03 Traffic Signal Control TM07 Regional Traffic Management
Need to install Automatic Passenger Counting (APC) technology on buses to help produce passenger counts **(High Priority)**	PT07 Transit Passenger Counting
Need to acquire an app for travelers to get all services in one place (Mobility as a Service) **(High Priority)**	TI02 Personalized Traveler Information
Need to acquire technology and software to support transit fleet management functions **(High Priority)**	PT06 Transit Fleet Management
Need to implement ITS strategies to support transportation demand management programs **(High Priority)**	TM06 Traffic Information Dissemination TM09 Integrated Decision Support and Demand Management TI01 Broadcast Traveler Information TI02 Personalized Traveler Information
Need to consider adding on-board video surveillance on Ozark Regional Transit and Razorback Transit buses	PT05 Transit Security
Need for coordination with toll and parking agencies in the Region, including payment and card readers	PT04 Transit Fare Collection Management PT14 Multi-modal Coordination
Commercial Vehicle Operations	
Need to provide updates on the Arkansas Commercial Vehicle Information Systems and Networks (CVISN) program	CVO04 CV Administrative Processes CVO08 Smart Roadside and Virtual WIM CVO18 Intelligent Access Program - Weight Monitoring
Need to develop capability of detecting and classifying secure sensitive HAZMAT with the use of roadside ITS equipment along I-49	CVO12 HAZMAT Management CVO13 Roadside HAZMAT Security Detection and Mitigation
Traveler Information	
Need to add roadside traveler information systems throughout the Region, including highway advisory radio and DMS on major arterials and I-49 **(High Priority)**	TM06 Traffic Information Dissemination TI01 Broadcast Traveler Information
Need to implement a regional traveler information system **(High Priority)**	TI01 Broadcast Traveler Information TI02 Personalized Traveler Information
Need to provide a real-time regional information on apps for travelers **(High Priority)**	TI01 Broadcast Traveler Information
Need to consider technologies that can provide updates and alerts directly to cell phones apps **(High Priority)**	TI01 Broadcast Traveler Information

ITS Need	Service Package
Need to link TMCs and the media to get real-time traffic information to the public **(High Priority)**	TM06 Traffic Information Dissemination TI01 Broadcast Traveler Information
Information Management	
Need to consider data archiving as ITS technologies are implemented and data becomes more available **(High Priority)**	DM01 ITS Data Warehouse DM02 Performance Monitoring
Need to acquire 'big data" sources to be used by the cities for volumes, speeds, and origin-destinations **(High Priority)**	DM01 ITS Data Warehouse
Need to develop a regional system for logging, displaying, and tracking planned lane or road closures for maintenance, construction or special events **(High Priority)**	TM19 Roadway Closure Management
Other	
Need to implement ITS strategies to support transportation demand management programs such as mode shift, teleworking, flexible work hours, bicycling and walking **(High Priority)**	TM06 Traffic Information Dissemination TM09 Integrated Decision Support and Demand Management TI01 Broadcast Traveler Information TI02 Personalized Traveler Information
Need to educate public on alternative routes that may be available or under-utilized	TM06 Traffic Information Dissemination TM09 Integrated Decision Support and Demand Management TI01 Broadcast Traveler Information TI02 Personalized Traveler Information
Need to incorporate ITS strategies and funding into the regional planning and programming process	TI02 Personalized Traveler Information
Need to replace existing signal communication technology with fiber optic cable	SU07 ITS Communications
Need to coordinate with utility companies to share conduit and communications capabilities where appropriate	SU07 ITS Communications

APPENDIX G: NORTHWEST ARKANSAS CUSTOMIZED SERVICE PACKAGES

Appendix G contains a set of interaction and flow diagrams for the twenty-one high-priority service package that have been customized for the Northwest Arkansas Region using the National ITS Architecture. These twenty-one service packages reflect the areas in which there was the most interest in further ITS development. As a result, many of the interactions and flows are shown as "Planned" rather than "Existing." The National ITS Architecture provides a description for each of the service packages including a discussion of how each may be operated. This appendix provides descriptions that have been customized, where applicable, to provide information for how the service package has been customized for Northwest Arkansas.

The appendix represents an update of one used in the 2007 Northwest Arkansas Regional ITS Architecture and draws heavily on the text used in the previous version. The diagrams are also simplified to convey the key interactions and flows that are of primary importance in the region. As an example, the all of the cities and towns in the region are represented as "Municipal Agencies" rather than as each individual city or town separately. The characteristics for the "Municipal Agencies" reflect those of the six largest cities in region. The following high-priority service packages are included in this appendix.

Traffic Management

- TM01 Infrastructure-Based Traffic Surveillance
- TM03 Traffic Signal Control
- TM06 Traffic Information Dissemination
- TM07 Regional Traffic Management
- TM08 Traffic Incident Management System
- TM09 Integrated Decision Support and Demand Management
- TM17 Speed Warning and Enforcement
- TM19 Roadway Closure Management

Public Safety

- PS01 Emergency Call-Taking and Dispatch
- PS02 Emergency Response)

Maintenance and Construction Management

- MC03 Roadway Automated Treatment
- MC04 Winter Maintenance
- MC06 Work Zone Management
- MC08 Maintenance and Construction Activity Coordination

Public Transportation Management

- PT06 Transit Fleet Management
- PT07 Transit Passenger Counting

Traveler Information

- TI01 Broadcast Traveler Information
- TI02 Personalized Traveler Information
- TI04 Infrastructure-Provided Trip Planning and Route Guidance

Information Management

- DM01 ITS Data Warehouse
- DM02 Performance Monitoring

Traffic Management

TM01 Infrastructure-Based Traffic Surveillance (ATMS01)[1]

The Infrastructure-Based Traffic Surveillance service package allows traffic operations centers to monitor road network conditions and traffic, detect and validate incidents, and acquire both real-time and static data. CCTV cameras, traffic detectors, and other surveillance equipment are examples of ITS field equipment that would facilitate network surveillance in the region. Data collected from surveillance equipment can be archived, disseminated in real-time to information service provider subsystems such as websites, or used in support of functions in other service packages such as Emergency Response.

In Northwest Arkansas, many of the municipalities and ARDOT were interested in adding or expanding their network surveillance capabilities. Surveillance will be implemented primarily with the use of CCTV cameras and video detection. Many of the larger municipalities are currently using video detection or loop detection to gather traffic flow information.

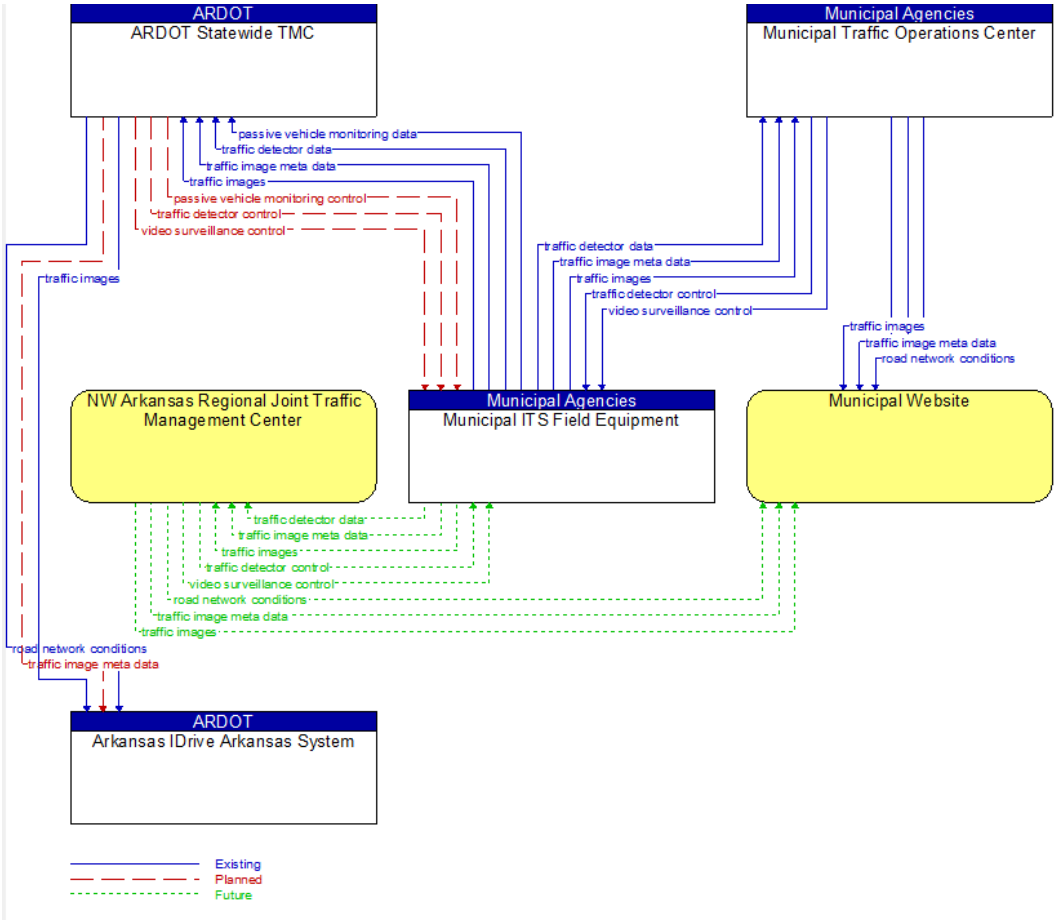

Figure G-1 TM01 Infrastructure-Based Traffic Surveillance

[1] *Codes in parentheses are the codes for the service packages in 2007 Northwest Arkansas Regional ITS Architecture.*

TM03 Traffic Signal Control (ATMS03l)

The Traffic Signal Control service package incorporates the communication and management of traffic signal control equipment that supports local streets and arterials. Traffic signal control systems in the region may include fixed-schedule control as well as traffic- responsive control which use video detection and other types of detection equipment to adjust control plans according to traffic conditions and needs such as emergency vehicle signal preemption and priority requests.

Additionally, the possibility of a Northwest Arkansas Regional Joint TMC would mean that video feeds, traffic signal control, CCTV cameras, and DMS control could all be operated from this one site which would be of particular importance when managing incidents. A future Northwest Arkansas Regional Joint TMC would likely perform incident management using CCTV cameras, DMS, HAR and other ITS technologies.

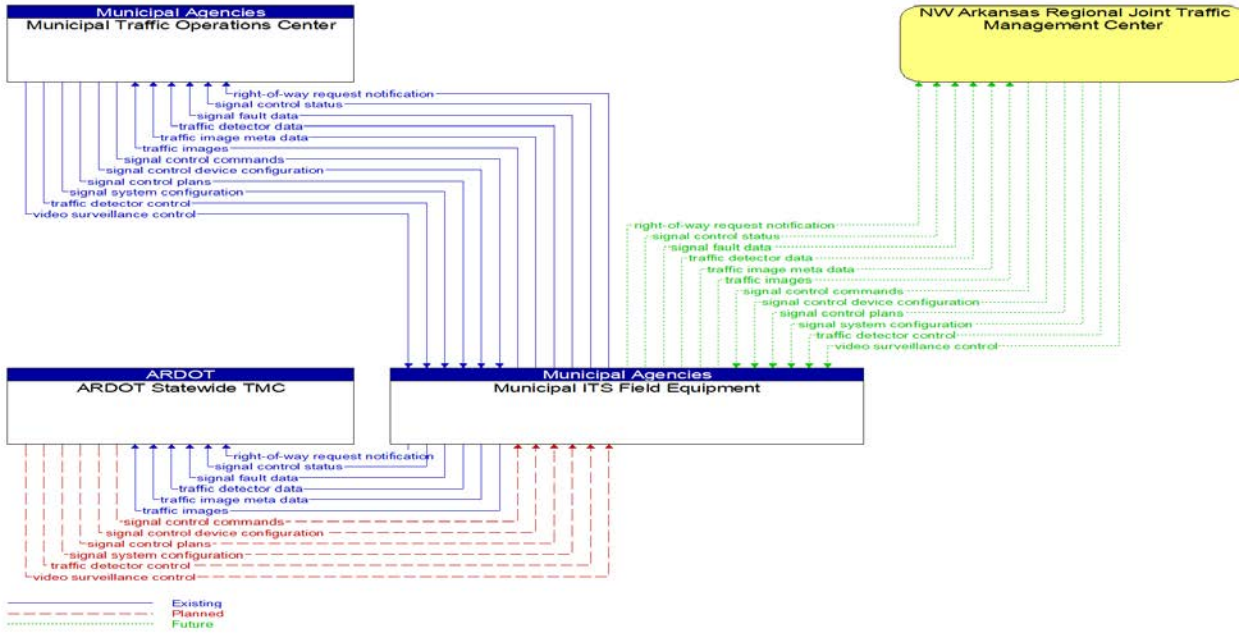

Figure G-2 TM03 Traffic Signal Control

TM06 Traffic Information Dissemination (ATMS06)

The Traffic Information Dissemination service package provides travelers with information through roadway equipment such as IDrive Arkansas, agency websites, or dynamic message signs. Information relayed to travelers may include driver advisories, road or traffic conditions, road closures and detours, emergency alerts, and incident information.

In Northwest Arkansas, both municipal and county traffic operations centers would provide information directly to transit management, emergency management, maintenance and construction management, and local print and broadcast media. ARDOT also disseminates information to the ARDOT Highway Conditions Reporting System and provides information to the IDrive Arkansas System.

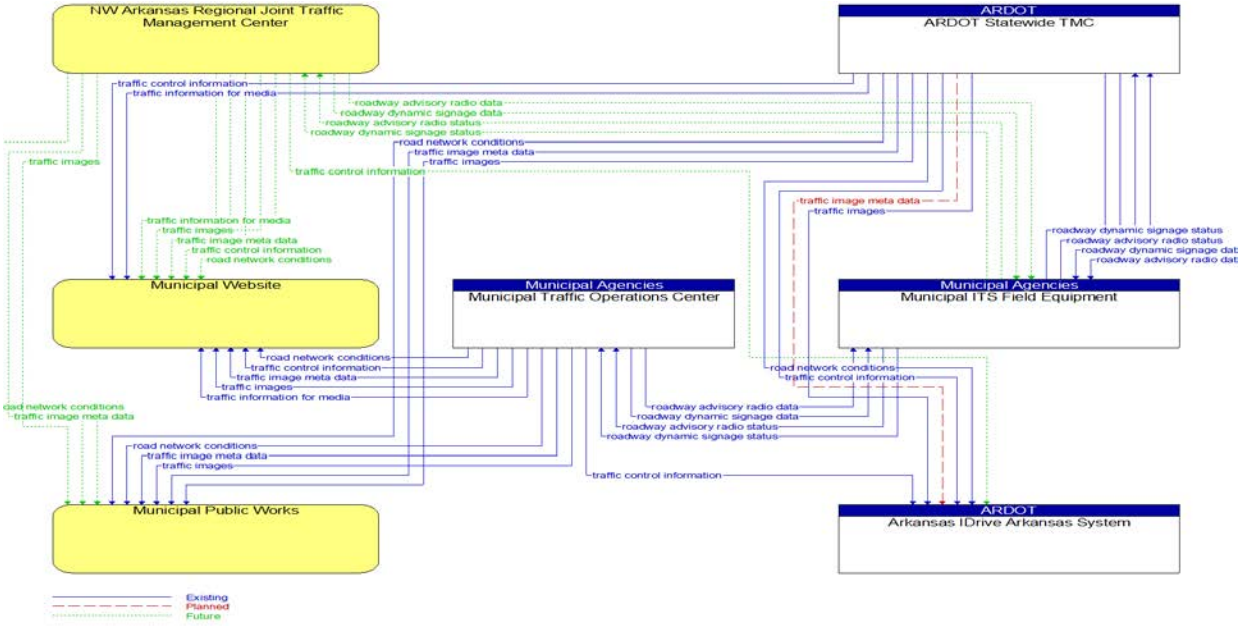

Figure G-3: TM06 Traffic Information Dissemination

TM07 Regional Traffic Management (ATMS07)

The Regional Traffic Control service package provides the framework for the sharing of traffic information and control among the various municipal traffic operations centers which would support a regional control strategy. Regional Traffic Control involves enhancing communications links between operation centers which allow for coordination and sharing of traffic control strategies. Working arrangements and agreements established by the different jurisdictions will aid in establishing a regional traffic strategy and detail the nature of optimization and extent of information shared. Multiple levels of coordination are supported from the sharing of information to the sharing of control between traffic operation centers.

In the Northwest Arkansas Region, there is currently very little coordination between operations centers. With the rapid growth in the region, there is a need to improve signal coordination at jurisdictional boundaries and facilitate regional responses to incidents. Coordination between traffic operations centers will be very important to implement improved signal coordination and incident response.

The Northwest Arkansas Regional Joint TMC could play a key role in Regional Traffic Management should it be developed. The Northwest Arkansas Regional Joint TMC could facilitate regional signal control strategies and take a leading role in incident management for the region. The Northwest Arkansas Regional Joint TMC could also serve as a 24 hour center and would receive information pertaining to the municipalities, counties, and ARDOT and operate traffic signals and ITS devices after normal business hours. Additionally, the ARDOT Statewide TMC could operate after hours for the ARDOT District TMCs.

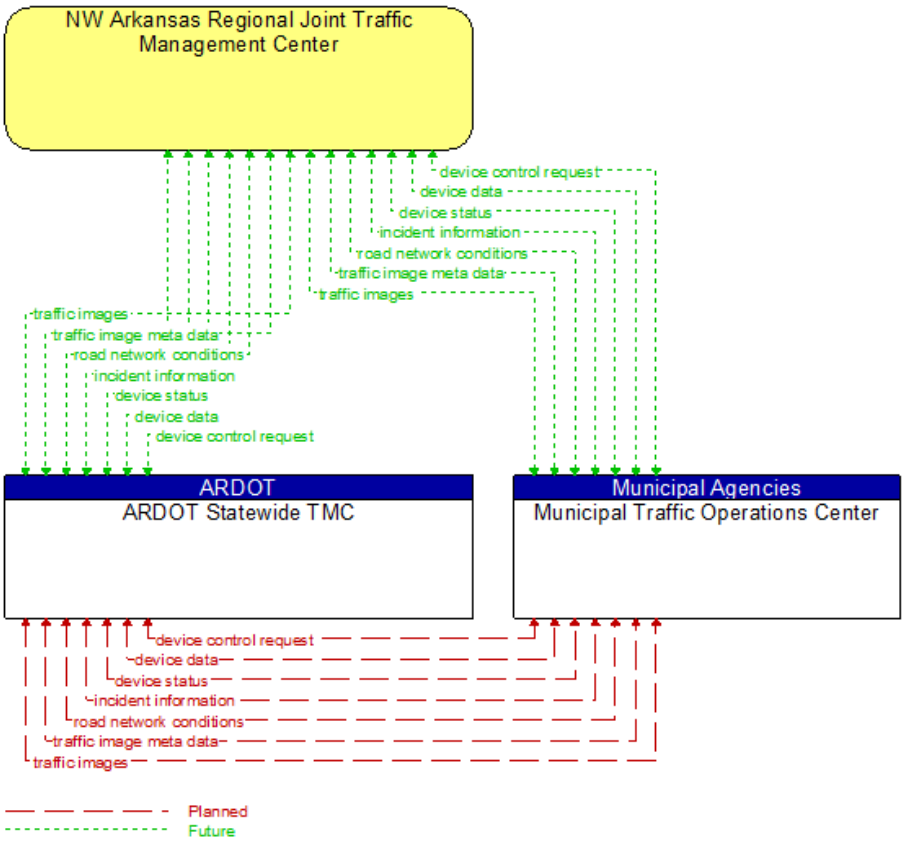

Figure G-4: TM07 Regional Traffic Management

TM08 Traffic Incident Management System (ATMS08)

The Traffic Incident Management service package includes the management of planned events and unexpected incidents. The management of incidents is facilitated by coordination of all the different agencies and the use of ITS technologies which can monitor and control roadways as well as disseminate traffic information. The incident management system uses numerous other service package services to provide an appropriate response. A response may involve resource coordination between subsystems or the implementation of special traffic control strategies. An example of a situation with a resource coordination response could be a severe traffic crash on I-49 in which traffic management shares camera feeds with emergency management who notify maintenance and construction management about re-routing and road closures. An example of a traffic control strategy response could be the control of traffic in and around Fayetteville before and after a Razorback sporting event.

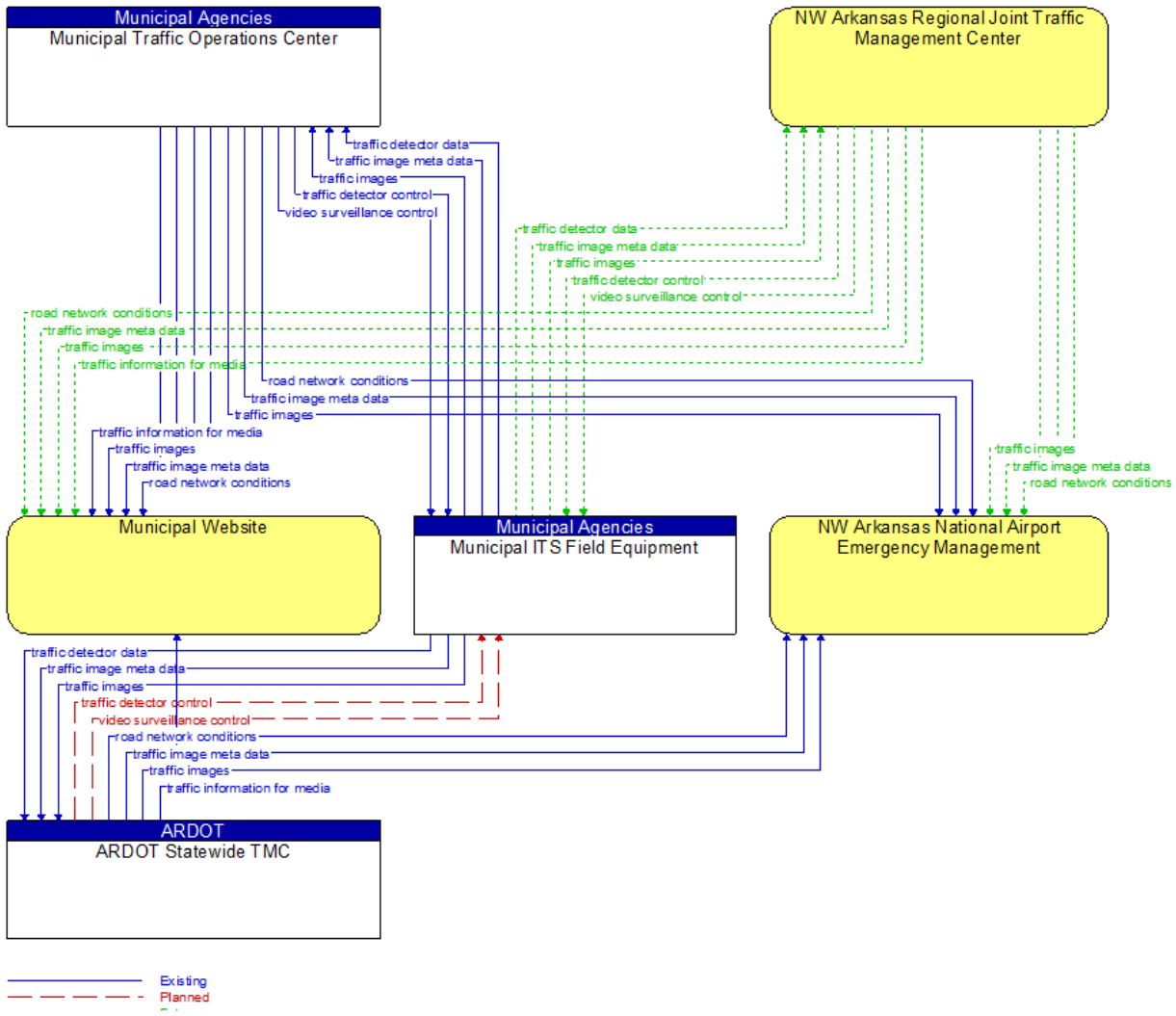

Figure G-5: TM08: Traffic Incident Management System

TM09 Integrated Decision Support and Demand Management (ATMS09)

Due to the rapid growth in the region, the stakeholder group envisioned that the need for the Integrated Decision Support and Demand Management service package may become increasingly important. The package involves the use of advanced algorithms, processing, data collection, real-time assessment, and the forecasting of roadway network performance to operate the transportation network more efficiently. In the Northwest Arkansas Region, this service package would involve not only the management of roadways, but could also include parking management.

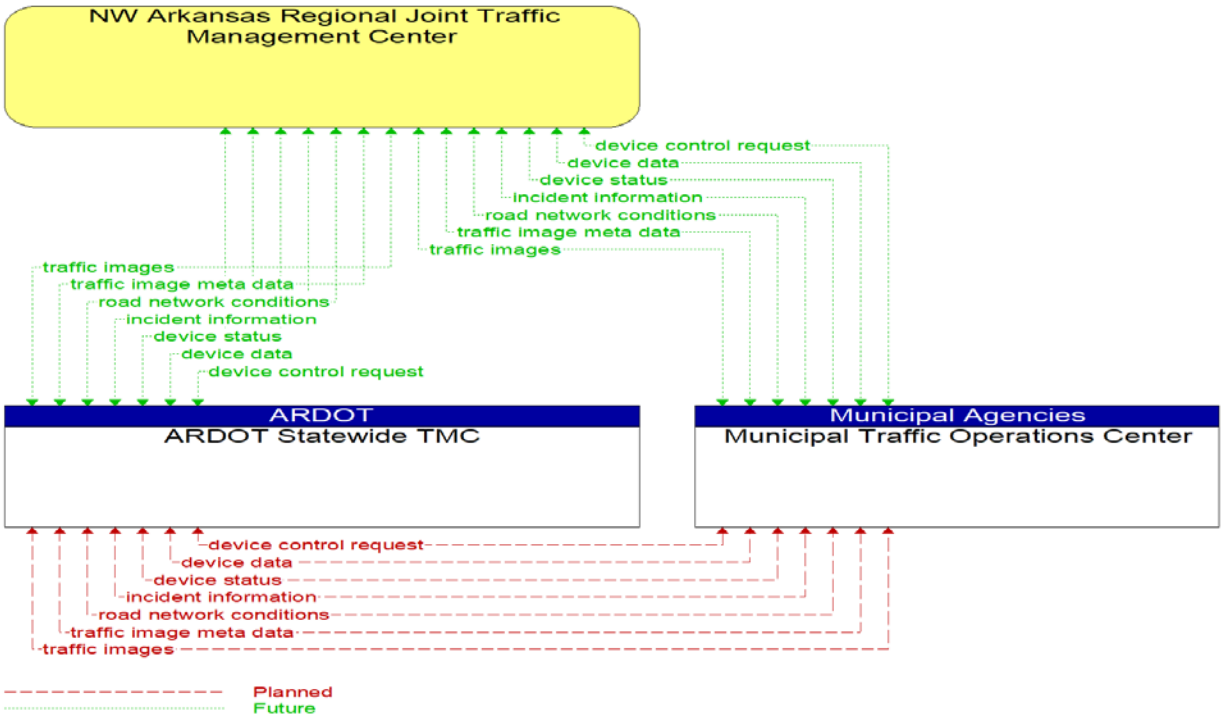

Figure 6: TM09 Integrated Decision Support and Demand Management

TM17 Speed Warning and Enforcement (ATMS19)

The Speed Warning and Enforcement service package monitors the speeds of vehicles traveling on the roadway system. If the speed is determined to be excessive, roadside equipment can suggest a safe driving speed. Environmental conditions may be monitored and factored into the safe speed advisories that are provided to the motorist. This service can also support notifications to an enforcement agency to enforce the speed limit on a roadway system.

Stakeholders in the Northwest Arkansas Region have indicated that monitoring speeds would be beneficial not only for enforcement purposes, but also in the event of bad weather such as flooding or ice storms. During such situations, suggested safe driving speeds could be placed on changeable speed limit signs.

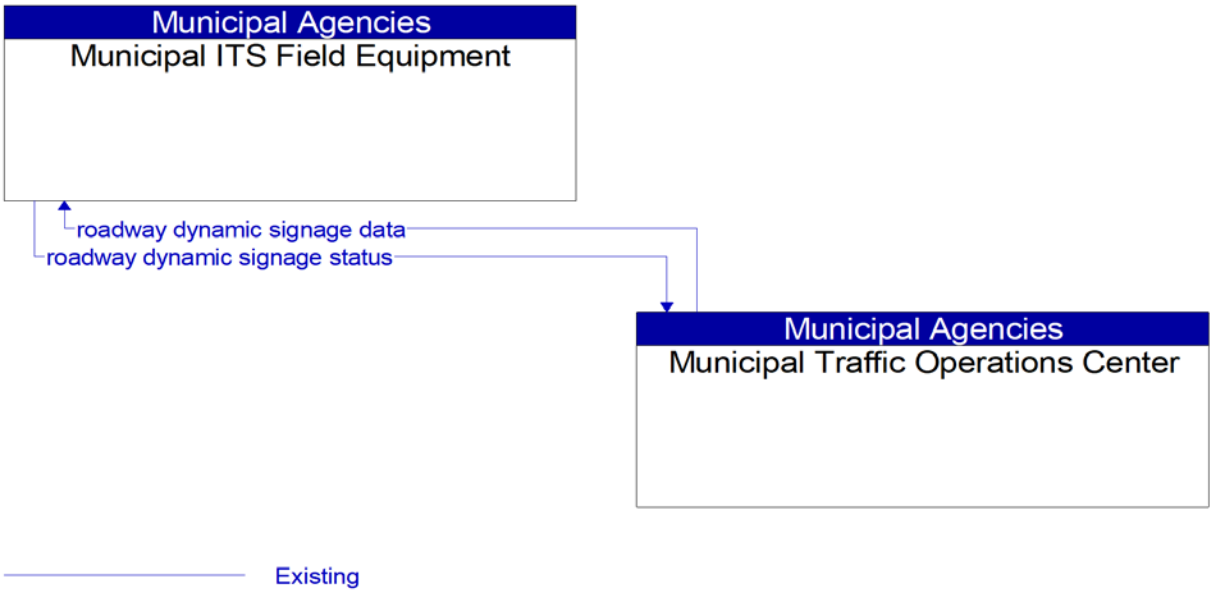

Figure G-7: TM17 Speed Warning and Enforcement

TM19 Roadway Closure Management (ATMS21)

The Roadway Closure Management service package supports services to automatically close roadways to vehicular traffic when driving conditions are unsafe. The region has varying levels of technology implemented. Although not currently implemented, automatic or remotely controlled gates or barriers that control access to roadway segments are likely to be installed in the near future. The remote control systems would allow the gates to be controlled from a central location, improving system efficiency and reducing personnel exposure to unsafe conditions during severe weather and other situations where roads must be closed. Surveillance systems such as CCTV cameras allow operating personnel to visually verify the safe activation of the closure system. The road closure systems planned for the region will be primarily used at low-water crossings when flooding occurs and possibly locations which are prone to icing.

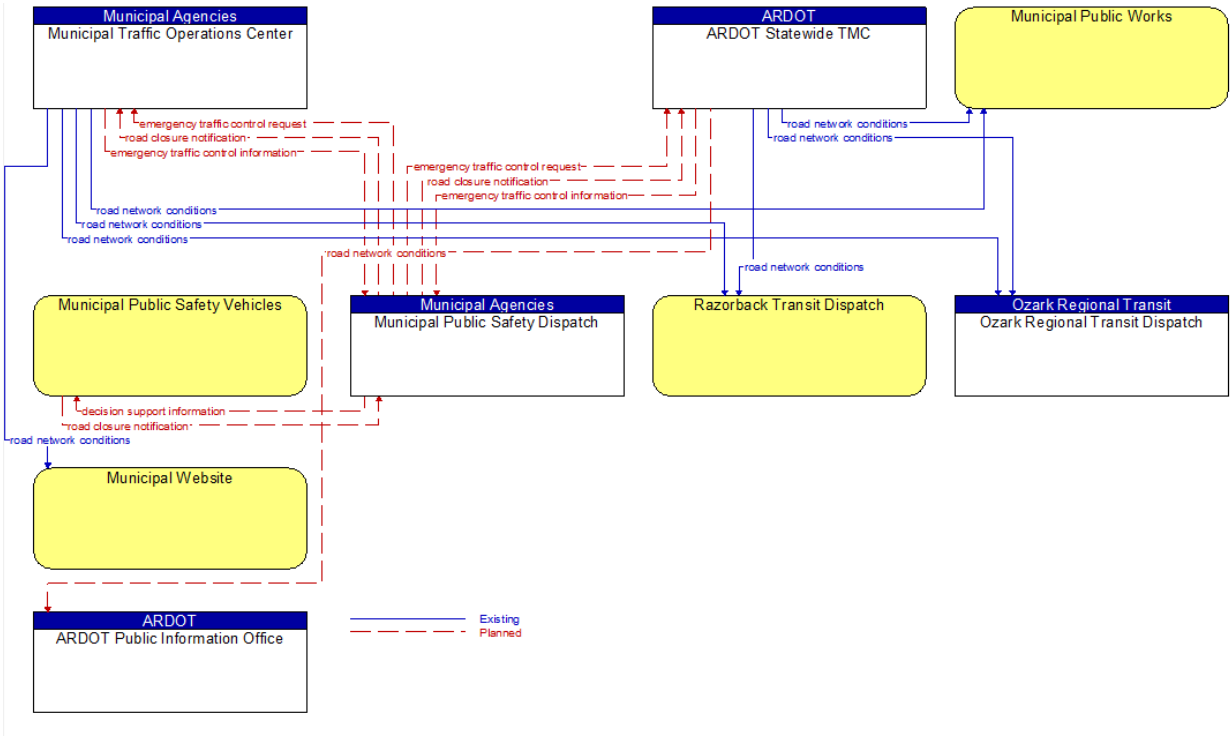

Figure G-8: TM19 Roadway Closure Management

Public Safety (Formerly Emergency Management)

PS01 Emergency Call-Taking and Dispatch (EM01)

The Emergency Call-Taking and Dispatch service package provides basic public safety call-taking and dispatch services. It includes emergency vehicle equipment, equipment used to receive and route emergency calls, and wireless communications that enable safe and rapid deployment of appropriate resources to an emergency. Coordination between emergency management subsystems supports emergency notification between agencies. Wide area wireless communications between the emergency management subsystem and an emergency vehicle supports dispatch and provision of information to responding personnel.

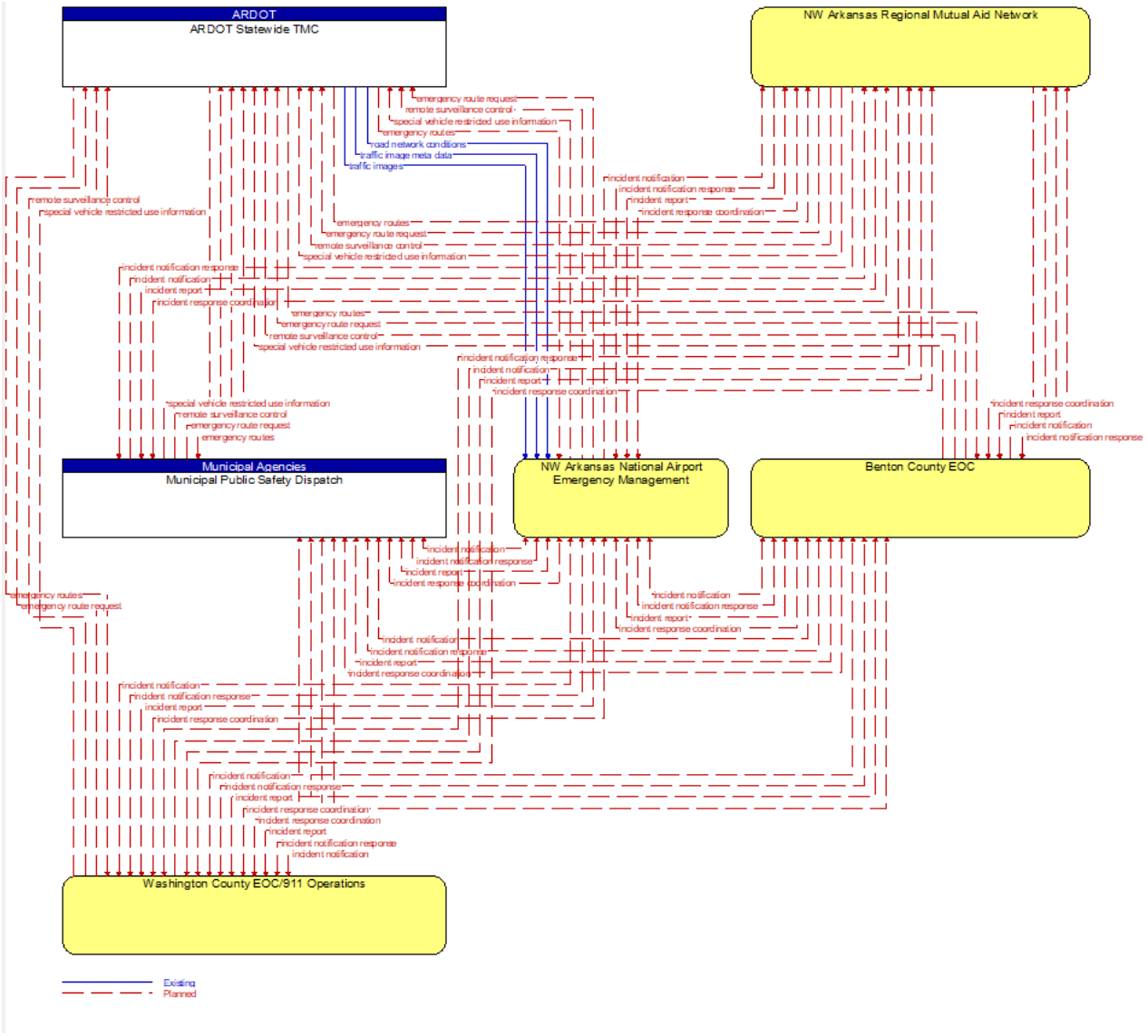

Figure G-9: PS01 Emergency Call-Taking and Dispatch

PS02 Emergency Response (EM02)

The Emergency Response 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. Emergency vehicle traffic signal preemption can improve the safety and response times of emergency vehicles on routes with signal preemption implemented. Emergency management agencies in Northwest Arkansas have expressed interest in expansion of emergency vehicle traffic signal preemption and improved routing based on real-time road network conditions.

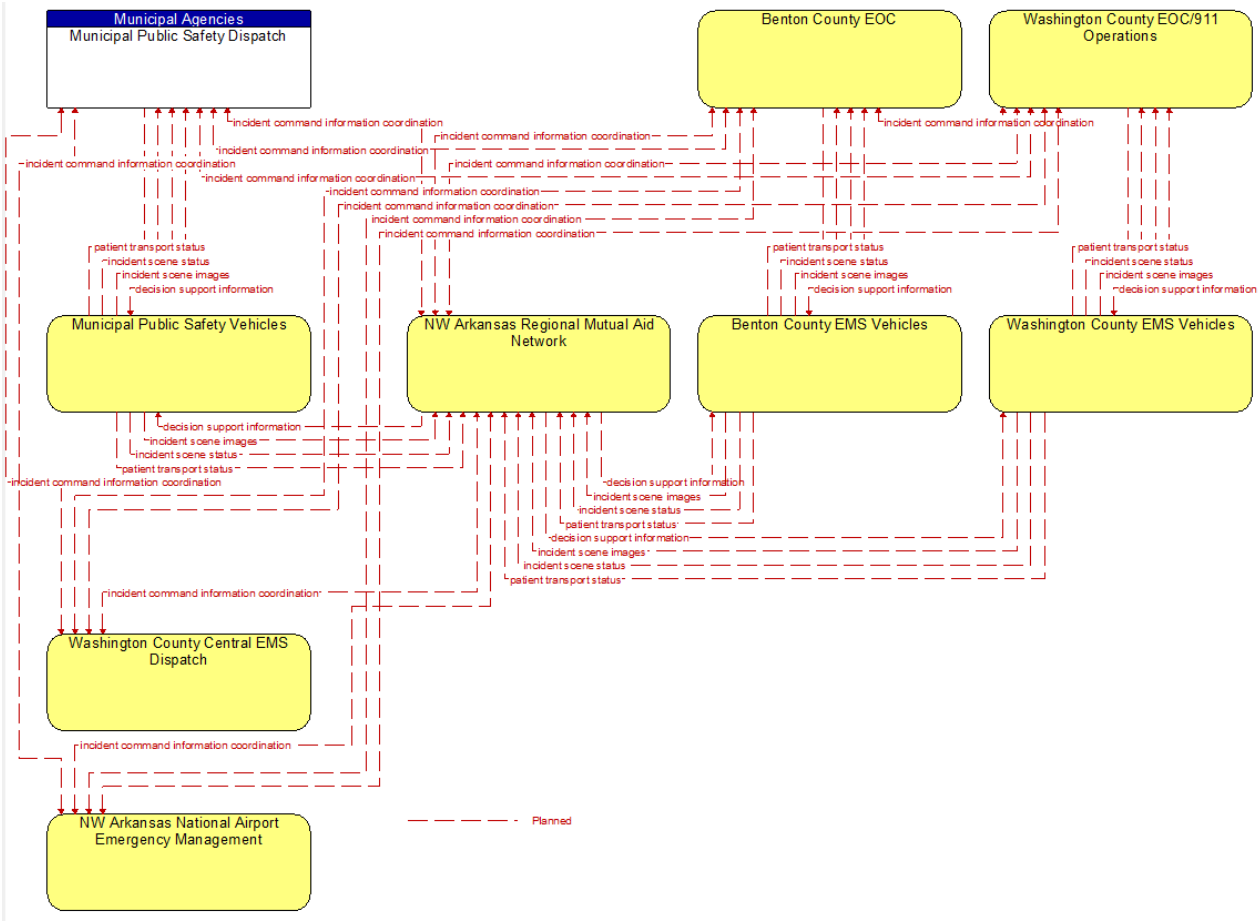

Figure G-10: PS02 Emergency Response

Maintenance and Construction Management

MC03 Roadway Automated Treatment (MC05)

The Roadway Automated Treatment service package automatically treats a roadway section based on environmental or atmospheric conditions. Treatments in the Northwest Arkansas Region will primarily be the use of anti-icing chemicals. The service package includes the environmental sensors that detect adverse conditions, the automated treatment system itself, and driver information systems (e.g., dynamic message signs) that warn drivers when the treatment system is activated.

The responsible stakeholder for implementing Roadway Automated Treatment would most likely be ARDOT. The field equipment required to implement roadway automated treatment would probably only be used on heavily traveled highways and on I-49. Primarily locations such as overpasses, bridges, or other areas prone to icing would have the equipment installed first. Maintenance challenges with implementing such equipment would be the primary deterrent, and until limited deployment of such equipment proved reliable, wide-spread installation of such equipment is unlikely.

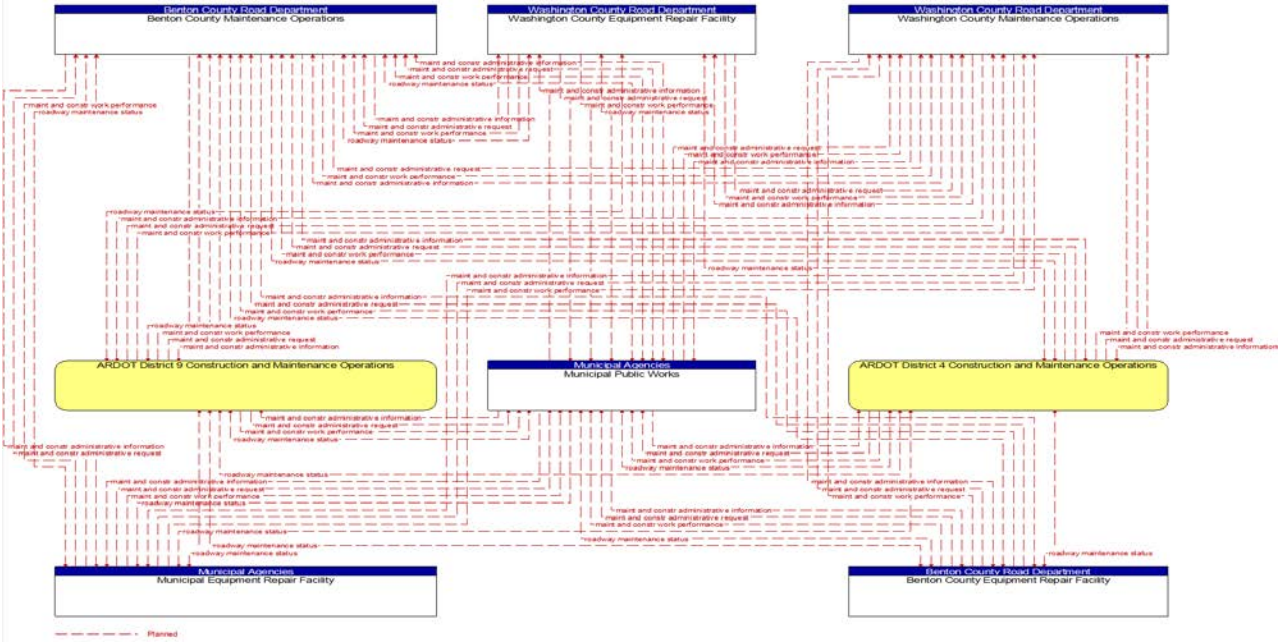

Figure G-11: MC03 Roadway Automated Treatment

MC04 Winter Maintenance (MC06)

The Winter Maintenance service package supports winter road maintenance including snow plow operations, roadway treatments (e.g., salt and other anti-icing material applications), and other snow and ice control activities. This service package monitors environmental conditions and weather forecasts and uses the information to schedule winter maintenance activities, determine the appropriate snow and ice control response, and track and manage response operations.

The primary stakeholder implementing this service package in the region is most likely to be ARDOT. All maintenance operations that are tracked, as well as roadway maintenance status would be recorded and sent to the appropriate ARDOT District, local TMC/TOCs, and ARDOT Headquarters. ARDOT Headquarters would then disseminate pertinent information to various stakeholders, including transit management, emergency management, the ARDOT Highway Conditions Reporting System, the IDrive Arkansas System, and private sector traveler information systems.

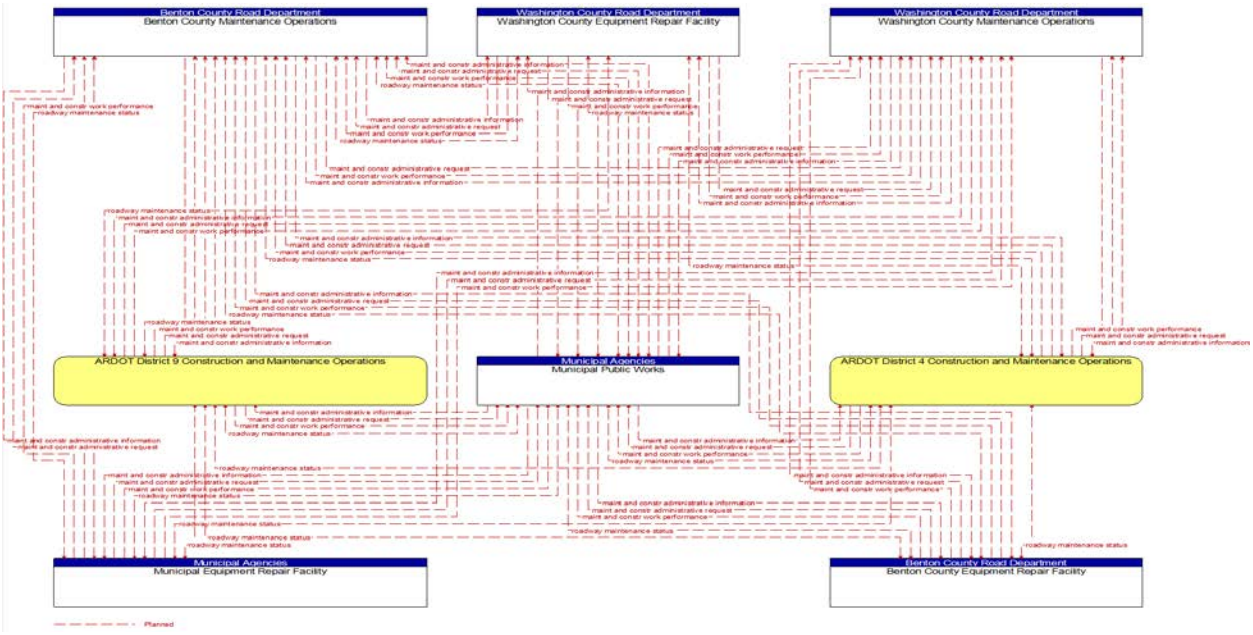

Figure G-12: MC04 Winter Maintenance

MC06 Work Zone Management (MC08)

The Work Zone Management service package directs activity in work zones, controlling traffic through portable dynamic message signs and informing other groups of the activity (e.g., ISP, traffic management, other maintenance and construction centers) for better coordination management. Work zone speeds and information regarding delays are provided to the motorist prior to the work zones.

Municipalities and counties are primarily concerned with monitoring work zones using ITS equipment such as CCTV cameras and providing closure information to the public on DMS if available. ARDOT could also disseminate information to the IDrive Arkansas System, ARDOT Highway Conditions Reporting System, transit management, and emergency management regarding work zone information and status.

Figure G-13: MC06 Work Zone Management

MC08 Maintenance and Construction Activity Coordination (MC10)

The Maintenance and Construction Activity Coordination service package supports the dissemination of maintenance and construction activity to centers that can utilize it as part of their operations such as transit operators and emergency dispatch centers, or to the information service providers who can provide the information to travelers through ITS technologies such as the ARDOT Highway Conditions Reporting System (HCRS). ARDOT would provide information to the HCRS as well as transit and emergency management agencies. For each of the major municipalities, the maintenance and construction departments would provide information to other applicable maintenance and construction departments in surrounding jurisdictions as well as local transit agencies.

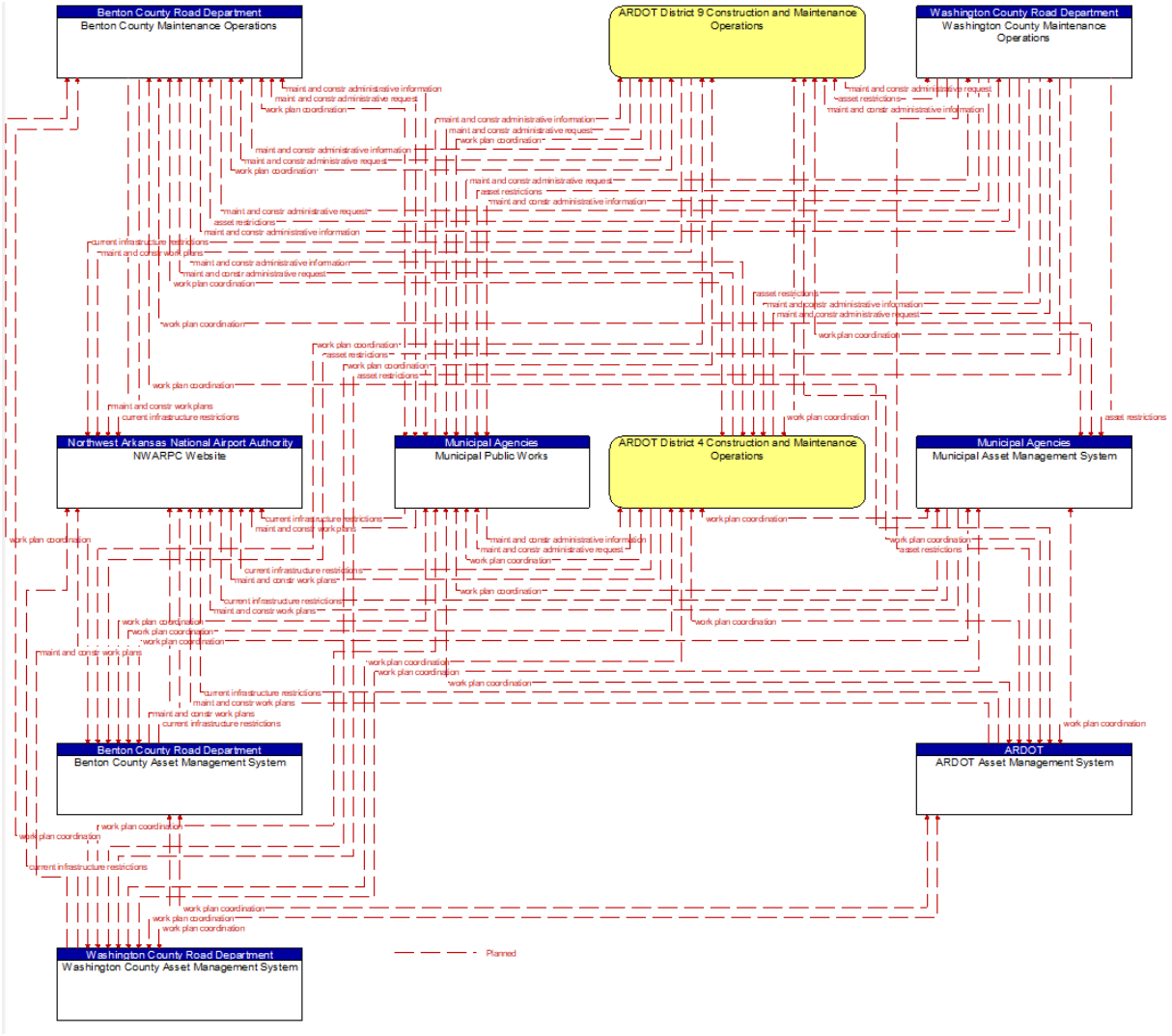

Figure G-14: MC08 Maintenance and Construction Activity Coordination

Public Transportation

PT06 Transit Fleet Management (APTS6)

The Transit Maintenance service package supports automatic transit maintenance scheduling and monitoring. On-board sensors monitor system status and transmit critical status information to the transit management subsystem. Hardware and software in the transit management subsystem processes this data and schedules preventative and corrective maintenance. Vehicle Maintenance is not currently being performed with the use of ITS technologies in the region.

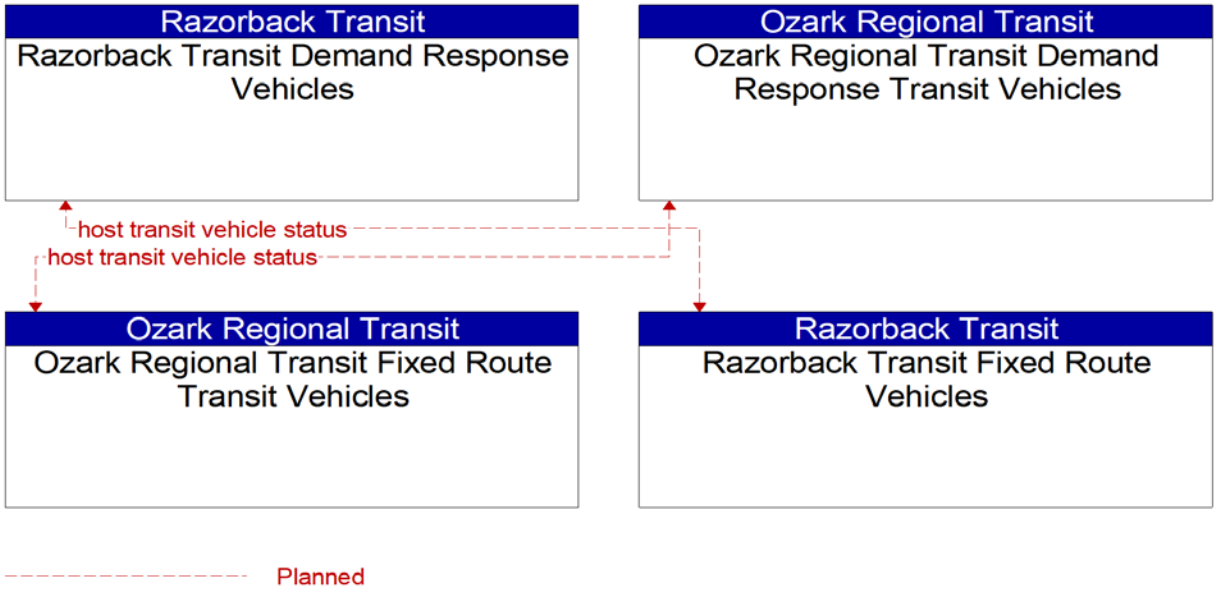

Figure G-15: PT06 Transit Fleet Management

PT07 Transit Passenger Counting (Not part of 2007 Architecture)

The Transit Passenger Counting service package includes equipment to automatically count and record the number of passengers entering and exiting a transit vehicle using sensors mounted on the vehicle and communicates the collected passenger data back to the management center. The collected data can be used to calculate reliable ridership figures and measure passenger load information at particular stops.

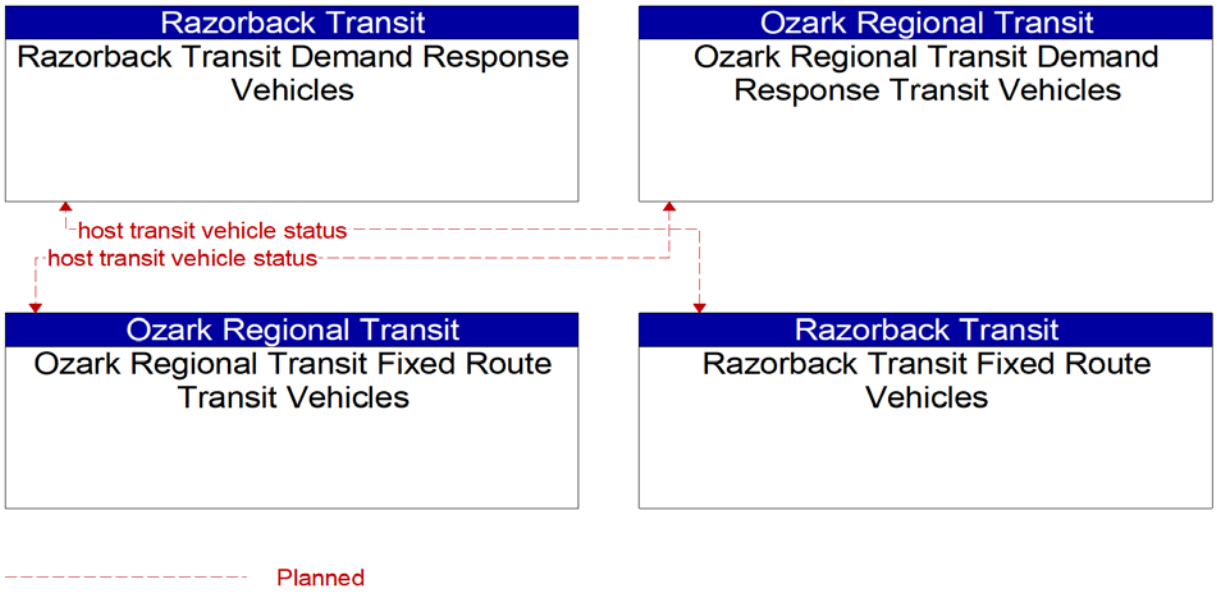

Figure G-16: PT07 Transit Passenger Counting

Traveler Information

TI01 Broadcast Traveler Information (ATIS1)

The Broadcast Traveler Information service package collects traffic conditions, advisories, general public transportation information, toll and parking information, incident information, roadway maintenance and construction information, and air quality and weather information. This information is then broadly disseminated through existing infrastructure and low cost user equipment (e.g., cellular data broadcast). The information will be provided directly to travelers through public tourism websites, the IDrive Arkansas System, or the ARDOT Highway Conditions and Reporting System, local print and broadcast media, and private traveler personal computing devices.

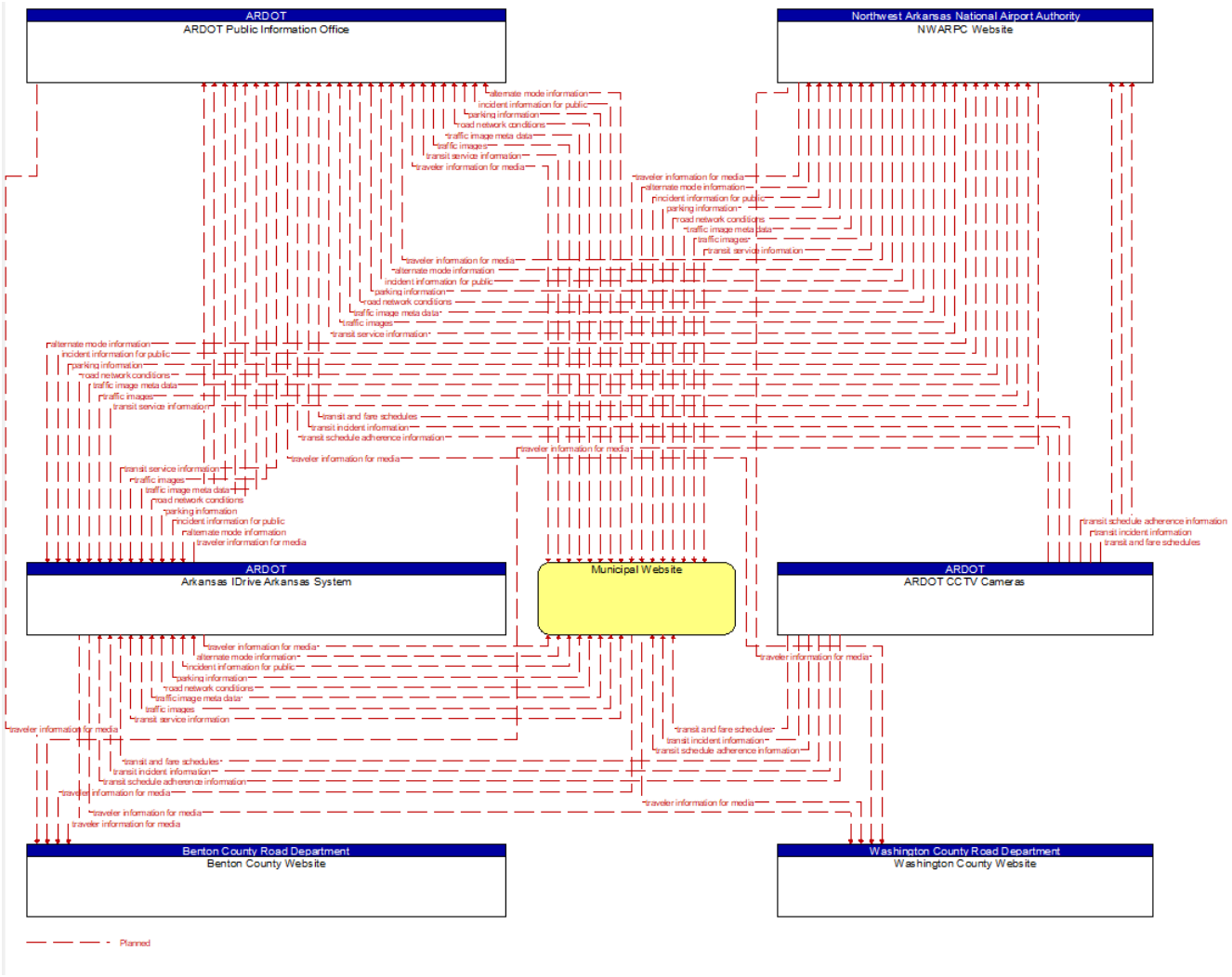

Figure G-17: TI01 Broadcast Traveler Information

TI02 Personalized Traveler Information (ATIS2)

The Personalized Traveler Information service package provides tailored information in response to a traveler request. Both real-time interactive request/response systems and information systems that "push" a tailored stream of information to the traveler based on a submitted profile are supported. The traveler can obtain current information regarding traffic conditions, roadway maintenance and construction, transit services, ride share/ride match, parking management, and detours. Two-way wide-area wireless communications systems will be used to support the required data communications between the travelers and ISPs. A variety of interactive devices may be used by the traveler to access information prior to a trip or enroute including phones, kiosks, PDAs, personal computers, and a variety of in-vehicle devices.

This service package also allows value-added resellers to collect transportation information that can be aggregated and made available to travelers, generally on a subscription basis to better inform customers of transportation conditions. Successful deployment of this service package relies on availability of real-time transportation data from roadway instrumentation, transit, probe vehicles or other means. The service package provided illustrates a broad concept of how the service could be implemented using the potential future IDrive Arkansas System.

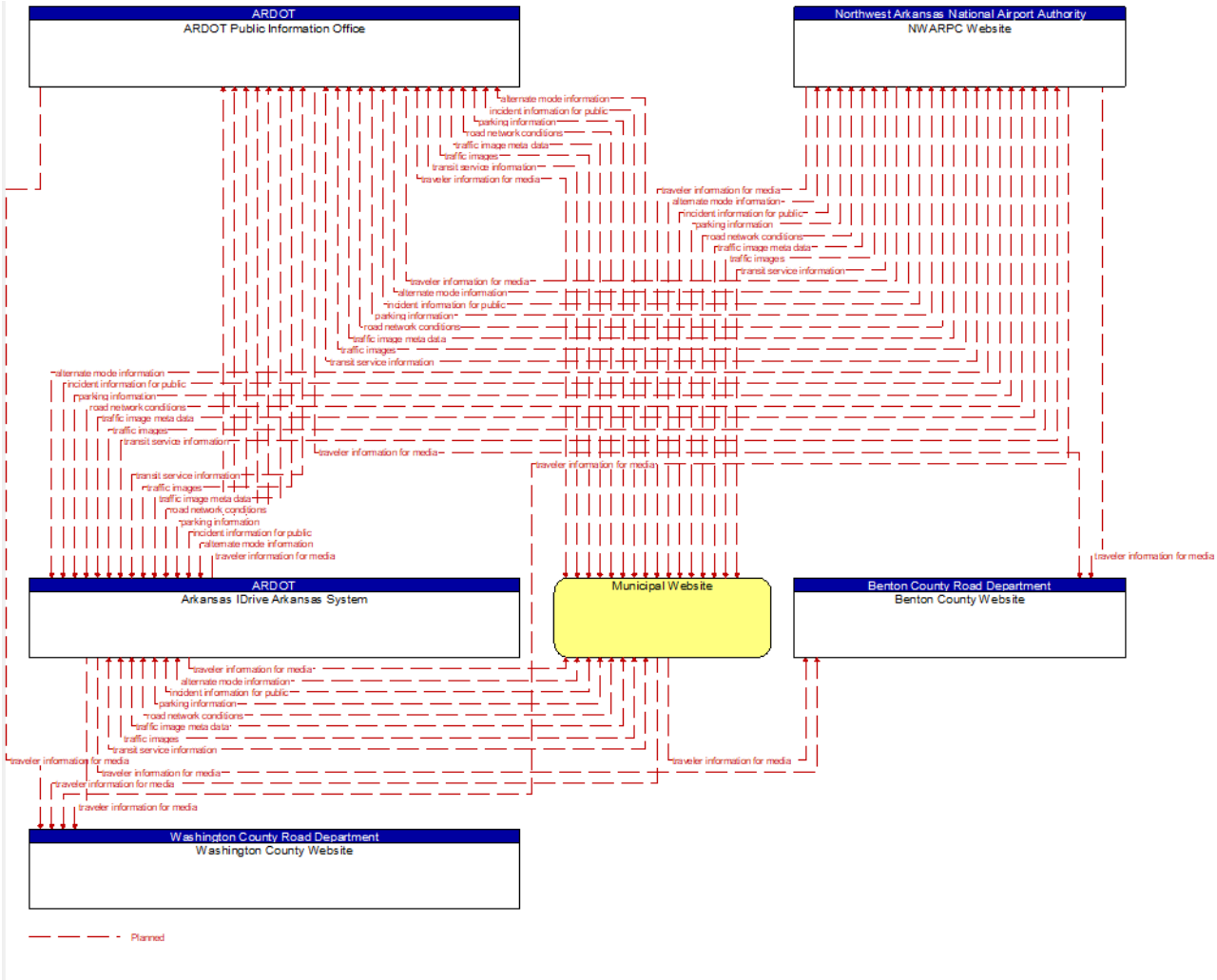

Figure G-18: TI02 Personalized Traveler Information

TI04 Infrastructure-Provided Trip Planning and Route Guidance (Not part of 2007 Architecture)

The Infrastructure-Provided Trip Planning and Route Guidance service package offers the user trip planning and enroute guidance services. It generates a trip plan, including a multimodal route and associated service information (e.g., parking information), based on traveler preferences and constraints. Routes may be based on static information or reflect real time network conditions. The route determination functions are performed by the center in this service package. The trip plan may be confirmed by the traveler and advanced payment and reservations for transit and alternate mode (e.g., airline, rail, and ferry) trip segments, and ancillary services are accepted and processed. The confirmed trip plan may include specific routing information that can be supplied to the traveler as general directions or as turn-by-turn route guidance depending on the level of user equipment.

Figure G-19: TI04 Infrastructure-Provided Trip Planning and Route Guidance

Information Management

DM01 ITS Data Warehouse (AD2)

The ITS Data Warehouse service package includes all the data collection and management capabilities provided by the ITS data archive, 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 metadata management features that are necessary so that all this data can be managed in a single repository with consistent formats. The potential for large volumes of varied data suggests additional on-line analysis and data mining features that are also included in this service package in addition to the basic query and reporting user access features offered by the ITS data archive.

The NWARPC MPO Data Archive would serve as a data warehouse that could store information and data regarding transportation, transit, and maintenance and construction operations. NWARPC would share information with the Bi-State MPO since both share common infrastructure (I-49) and there are a large number of commuters that travel between the two regions.

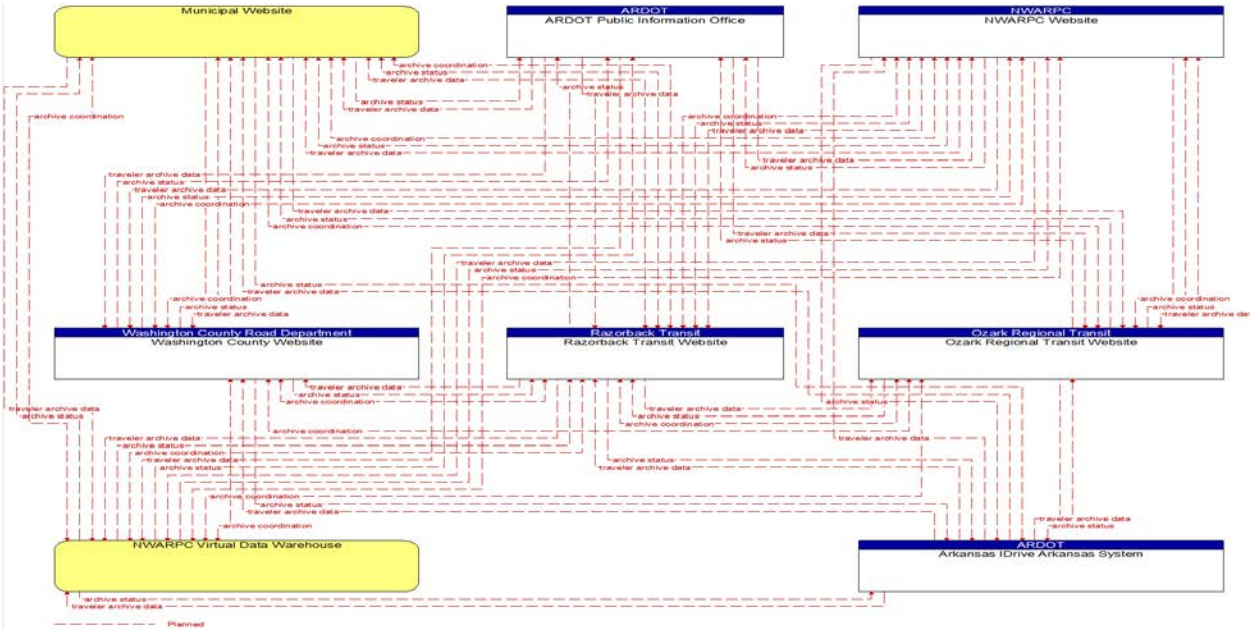

Figure G-20: DM01 ITS Data Warehouse

DM02 Performance Monitoring (Not part of 2007 Architecture)

The Performance Monitoring service package uses information collected from detectors and sensors, connected vehicles, and operational data feeds from centers to support performance monitoring and other uses of historical data including transportation planning, condition monitoring, safety analyses, and research. The information may be probe data information obtained from vehicles in the network to determine network performance measures such as speed and travel times, or it may be information collected from the vehicles and processed by the infrastructure, e.g. environmental data and infrastructure conditions monitoring data. Additional data are collected including accident data, road condition data, road closures and other operational decisions to provide context for measured transportation performance and additional safety and mobility-related measures. More complex performance measures may be derived from the collected data.

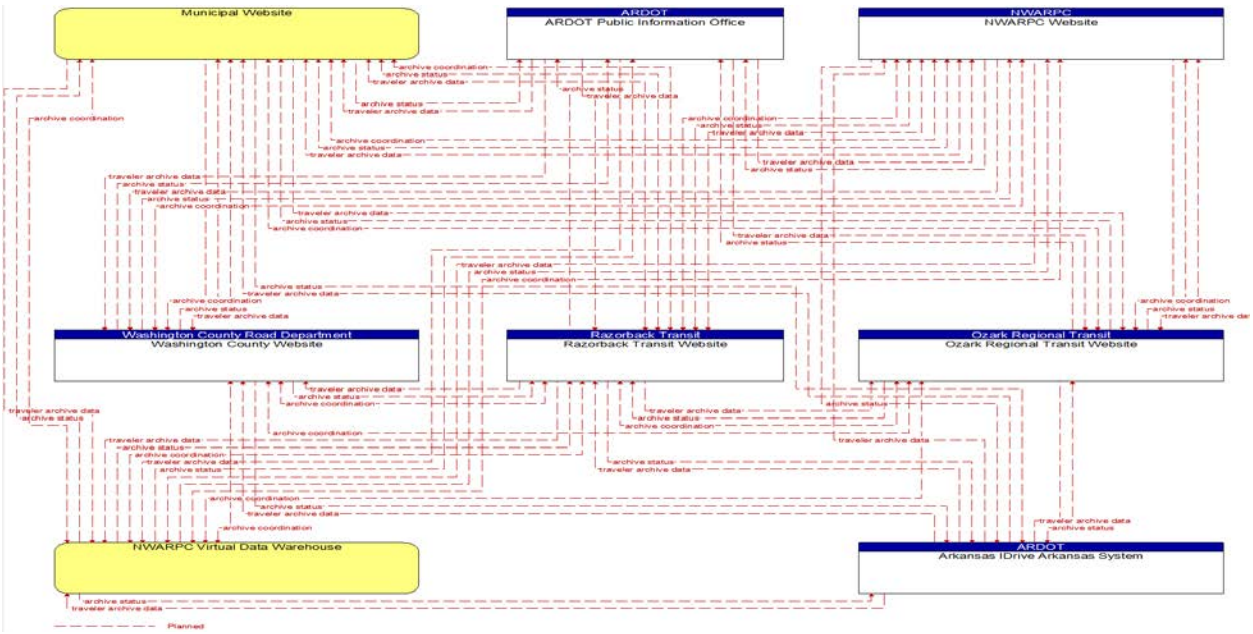

Figure G-21: DM02 Performance Monitoring

APPENDIX H: NORTHWEST ARKANSAS ITS ELEMENT FUNCTIONS

Element Name	Equipment Package (Function)
AHP Weigh in Motion Sites	Roadside WIM
ARDOT CCTV Cameras	Roadway Basic Surveillance
	Roadway Equipment Coordination
	Roadway Traffic Information Dissemination
ARDOT District 4	Center Secure Area Sensor Management
	Center Secure Area Surveillance
	Collect Traffic Surveillance
	Emergency Early Warning System
	Emergency Evacuation Support
	Incident Command
	Rail Operations Coordination
	Evacuation Support
	Freeway Management
	Incident Detection
	Incident Dispatch Coordination/Communication
	Regional Traffic Control
	Signal Control
	Traffic Information Dissemination
	Work Zone Traffic Management
	Traffic Maintenance
ARDOT District 9	Center Secure Area Sensor Management
	Center Secure Area Surveillance
	Collect Traffic Surveillance
	Emergency Data Collection
	Emergency Early Warning System
	Emergency Evacuation Support
	Rail Operations Coordination
	Environmental Monitoring
	Evacuation Support
	Freeway Management
	Incident Detection
	Incident Dispatch Coordination/Communication
	Regional Traffic Control
	Signal Control
	Traffic Information Dissemination
	Work Zone Traffic Management
	Traffic Data Collection

Element Name	Equipment Package (Function)
	Traffic Maintenance
ARDOT Field Equipment	Roadway Basic Surveillance
	Roadway Equipment Coordination
	Roadway Traffic Information Dissemination
	Roadway Work Zone Traffic Control
ARDOT Headquarters	MCM Data Collection
	MCM Environmental Information Processing
	MCM Incident Management
	MCM Maintenance Decision Support
	MCM Roadway Maintenance and Construction
	MCM Vehicle and Equipment Maintenance Management
	MCM Vehicle Tracking
	MCM Winter Maintenance Management
	MCM Work Activity Coordination
	MCM Work Zone Management
ARDOT Highway Conditions Reporting System	Basic Information Broadcast
	Infrastructure Provided Trip Planning
	ISP Emergency Traveler Information
	ISP Traveler Data Collection
	MCM Maintenance Decision Support
	MCM Work Activity Coordination
	TMC Traffic Information Dissemination
	Traveler Telephone Information
ARDOT Maintenance and Construction Vehicles	MCV Infrastructure Monitoring
	MCV Roadway Maintenance and Construction
	MCV Vehicle Location Tracking
	MCV Vehicle System Monitoring and Diagnostics
	MCV Winter Maintenance
	MCV Work Zone Support
ARDOT Maintenance Archive	Government Reporting Systems Support
	ITS Data Repository
	Traffic and Roadside Data Archival
ARDOT Public Information Office	Basic Information Broadcast
	ISP Emergency Traveler Information
	ISP Traveler Data Collection
	Traveler Telephone Information
ARDOT Resident Engineers Office	MCM Maintenance Decision Support

Element Name	Equipment Package (Function)
	MCM Roadway Maintenance and Construction
	MCM Work Activity Coordination
	MCM Work Zone Management
ARDOT Security Monitoring Field Equipment	Field Secure Area Sensor Monitoring
	Field Secure Area Surveillance
	Traveler Secure Area Sensor Monitoring
	Traveler Secure Area Surveillance
ARDOT Statewide TMC	MCM Incident Management
	MCM Work Activity Coordination
	TMC Freeway Management
	TMC Incident Dispatch Coordination/Communication
	TMC Regional Traffic Control
	TMC Signal Control
	TMC Traffic Information Dissemination
ARDOT Website	Basic Information Broadcast
	Infrastructure Provided Trip Planning
	ISP Emergency Traveler Information
	ISP Traveler Data Collection
	MCM Work Activity Coordination
Arkansas IDrive Arkansas	Basic Information Broadcast
	Infrastructure Provided Trip Planning
	ISP Emergency Traveler Information
	ISP Traveler Data Collection
	Traveler Telephone Information
Arkansas Highway Police Dispatch	Emergency Call-Taking
	Emergency Commercial Vehicle Response
	Emergency Data Collection
	Emergency Dispatch
	Emergency Early Warning System
	Emergency Evacuation Support
	Emergency Response Management
	Emergency Routing
	Incident Command
	Mayday Support
Arkansas Highway Police Vehicles	On-board EV En Route Support
	On-board EV Incident Management Communication
Arkansas State EOC	Emergency Call-Taking

Element Name	Equipment Package (Function)
	Emergency Dispatch
	Emergency Evacuation Support
	Emergency Response Management
	Incident Command
Arkansas State Police Dispatch Troop L	Emergency Call-Taking
	Emergency Data Collection
	Emergency Dispatch
	Emergency Early Warning System
	Emergency Evacuation Support
	Emergency Response Management
	Incident Command
	Mayday Support
Arkansas State Police Vehicles	On-board EV En Route Support
	On-board EV Incident Management Communication
ASP Statewide Crash Records Information System	Government Reporting Systems Support
	ITS Data Repository
	Traffic and Roadside Data Archival
Bella Vista Fire/EMS Vehicles	On-board EV En Route Support
	On-board EV Incident Management Communication
Bella Vista ITS Field Equipment	Roadway Basic Surveillance
	Roadway Equipment Coordination
	Roadway Incident Detection
	Roadway Signal Controls
	Roadway Signal Priority
	Roadway Traffic Information Dissemination
	Roadway Work Zone Safety
	Roadway Work Zone Traffic Control
	Standard Rail Crossing
Bella Vista Public Works Department	MCM Incident Management
	MCM Maintenance Decision Support
	MCM Roadway Maintenance and Construction
	MCM Vehicle and Equipment Maintenance Management
	MCM Vehicle Tracking
	MCM Work Activity Coordination
	MCM Work Zone Management

Element Name	Equipment Package (Function)
	MCM Work Zone Safety Management
Bella Vista Traffic Operations Center	Collect Traffic Surveillance
	HRI Traffic Management
	Rail Operations Coordination
	TMC Evacuation Support
	TMC Incident Detection
	TMC Incident Dispatch Coordination/Communication
	TMC Regional Traffic Control
	TMC Signal Control
	TMC Traffic Information Dissemination
	TMC Work Zone Traffic Management
	Traffic Data Collection
	Traffic Maintenance
Benton County EOC	Emergency Call-Taking
	Emergency Dispatch
	Emergency Early Warning System
	Emergency Evacuation Support
	Emergency Response Management
	Incident Command
Bentonville Emergency Communications Center	Center Secure Area Alarm Support
	Center Secure Area Sensor Management
	Center Secure Area Surveillance
	Emergency Call-Taking
	Emergency Commercial Vehicle Response
	Emergency Data Collection
	Emergency Dispatch
	Emergency Early Warning System
	Emergency Evacuation Support
	Emergency Routing
	Incident Command
	Mayday Support
Bentonville Fire/EMS Vehicles	On-board EV En Route Support
	On-board EV Incident Management Communication
Bentonville ITS Field Equipment	Roadway Basic Surveillance
	Roadway Equipment Coordination
	Roadway Signal Controls
	Roadway Signal Priority

Element Name	Equipment Package (Function)
	Roadway Traffic Information Dissemination
	Roadway Work Zone Safety
	Roadway Work Zone Traffic Control
	Standard Rail Crossing
Bentonville Police Vehicles	On-board EV En Route Support
	On-board EV Incident Management Communication
Bentonville Traffic Operations Center	Collect Traffic Surveillance
	HRI Traffic Management
	Rail Operations Coordination
	TMC Evacuation Support
	TMC Incident Detection
	TMC Incident Dispatch Coordination/Communication
	TMC Regional Traffic Control
	TMC Signal Control
	TMC Traffic Information Dissemination
	TMC Work Zone Traffic Management
	Traffic Data Collection
	Traffic Maintenance
Bentonville Transportation Division	MCM Incident Management
	MCM Roadway Maintenance and Construction
	MCM Vehicle and Equipment Maintenance Management
	MCM Vehicle Tracking
	MCM Work Activity Coordination
	MCM Work Zone Management
	MCM Work Zone Safety Management
Bentonville Website	Basic Information Broadcast
	ISP Emergency Traveler Information
	ISP Traveler Data Collection
Commercial Vehicles	On-board Cargo Monitoring
	On-board CV Electronic Data
	Vehicle Location Determination
	Vehicle Mayday I/F
County EMS Vehicles	On-board EV En Route Support
	On-board EV Incident Management Communication
County Maintenance and Construction Vehicles	MCV Roadway Maintenance and Construction

Element Name	Equipment Package (Function)
	MCV Vehicle Location Tracking
	MCV Vehicle Safety Monitoring
	MCV Vehicle System Monitoring and Diagnostics
	MCV Winter Maintenance
	MCV Work Zone Support
County Maintenance Operations	MCM Incident Management
	MCM Maintenance Decision Support
	MCM Roadway Maintenance and Construction
	MCM Vehicle and Equipment Maintenance Management
	MCM Vehicle Tracking
	MCM Winter Maintenance Management
	MCM Work Activity Coordination
	MCM Work Zone Management
	MCM Work Zone Safety Management
County Sheriff Vehicles	On-board EV En Route Support
	On-board EV Incident Management Communication
Fayetteville Central Dispatch	Center Secure Area Alarm Support
	Center Secure Area Sensor Management
	Center Secure Area Surveillance
	Emergency Call-Taking
	Emergency Commercial Vehicle Response
	Emergency Data Collection
	Emergency Dispatch
	Emergency Early Warning System
	Emergency Evacuation Support
	Emergency Response Management
	Emergency Routing
	Incident Command
	Mayday Support
Fayetteville ITS Field Equipment	Roadway Basic Surveillance
	Roadway Equipment Coordination
	Roadway Signal Controls
	Roadway Signal Priority
	Roadway Traffic Information Dissemination
	Roadway Work Zone Safety
	Roadway Work Zone Traffic Control
Fayetteville Police Vehicles	On-board EV En Route Support

Element Name	Equipment Package (Function)
	On-board EV Incident Management Communication
Fayetteville Traffic Operations Center	Collect Traffic Surveillance
	Rail Operations Coordination
	TMC Evacuation Support
	TMC Incident Detection
	TMC Incident Dispatch Coordination/Communication
	TMC Regional Traffic Control
	TMC Signal Control
	TMC Traffic Information Dissemination
	TMC Work Zone Traffic Management
	Traffic Data Collection
	Traffic Maintenance
Fayetteville Transportation Division	MCM Incident Management
	MCM Maintenance Decision Support
	MCM Roadway Maintenance and Construction
	MCM Vehicle and Equipment Maintenance Management
	MCM Vehicle Tracking
	MCM Work Activity Coordination
	MCM Work Zone Management
	MCM Work Zone Safety Management
Fayetteville Website	Basic Information Broadcast
	ISP Traveler Data Collection
Independent School District Buses	On-board Fixed Route Schedule Management
	On-board Transit Security
	On-board Transit Trip Monitoring
Independent School District Dispatch	Transit Center Fixed-Route Operations
	Transit Center Security
	Transit Center Vehicle Tracking
	Transit Data Collection
	Transit Evacuation Support
	Transit Vehicle Operator Scheduling
Municipal ITS Field Equipment	Roadway Basic Surveillance
	Roadway Equipment Coordination
	Roadway Signal Controls
	Roadway Signal Priority
	Roadway Traffic Information Dissemination
	Roadway Work Zone Safety

Element Name	Equipment Package (Function)
	Roadway Work Zone Traffic Control
	Standard Rail Crossing
Municipal Maintenance and Construction Vehicles	MCV Roadway Maintenance and Construction
	MCV Vehicle Location Tracking
	MCV Vehicle Safety Monitoring
	MCV Vehicle System Monitoring and Diagnostics
	MCV Work Zone Support
Municipal Public Safety Dispatch	Center Secure Area Alarm Support
	Emergency Call-Taking
	Emergency Commercial Vehicle Response
	Emergency Data Collection
	Emergency Dispatch
	Emergency Early Warning System
	Emergency Evacuation Support
	Emergency Response Management
	Emergency Routing
	Incident Command
	Mayday Support
Municipal Public Works	MCM Incident Management
	MCM Maintenance Decision Support
	MCM Roadway Maintenance and Construction
	MCM Vehicle and Equipment Maintenance Management
	MCM Vehicle Tracking
	MCM Work Activity Coordination
	MCM Work Zone Management
	MCM Work Zone Safety Management
Municipal Traffic Operations Center	Collect Traffic Surveillance
	HRI Traffic Management
	Rail Operations Coordination
	TMC Evacuation Support
	TMC Incident Detection
	TMC Incident Dispatch Coordination/Communication
	TMC Regional Traffic Control
	TMC Signal Control
	TMC Traffic Information Dissemination
	TMC Work Zone Traffic Management
	Traffic Data Collection

Element Name	Equipment Package (Function)
	Traffic Maintenance
Municipal Website	Basic Information Broadcast
	ISP Emergency Traveler Information
	ISP Traveler Data Collection
	Traveler Telephone Information
NW Arkansas Maintenance and Construction Mutual Aid Network	MCM Incident Management
	MCM Maintenance Decision Support
	MCM Winter Maintenance Management
	MCM Work Activity Coordination
NWARPC Website	Basic Information Broadcast
	ISP Data Collection
	ISP Emergency Traveler Information
	ISP Traveler Data Collection
	Traveler Telephone Information
Ozark Regional Transit Archive	Government Reporting Systems Support
	ITS Data Repository
	Traffic and Roadside Data Archival
Ozark Regional Transit Dispatch	Center Secure Area Alarm Support
	Center Secure Area Sensor Management
	Center Secure Area Surveillance
	Emergency Data Collection
	Emergency Evacuation Support
	Transit Center Fare and Load Management
	Transit Center Fixed-Route Operations
	Transit Center Information Services
	Transit Center Multi-Modal Coordination
	Transit Center Paratransit Operations
	Transit Center Security
	Transit Center Vehicle Tracking
	Transit Data Collection
	Transit Evacuation Support
	Transit Garage Maintenance
	Transit Vehicle Operator Scheduling
Ozark Regional Transit Fixed Route Transit Vehicles	On-board Fixed Route Schedule Management
	On-board Maintenance
	On-board Transit Fare and Load Management
	On-board Transit Security

Element Name	Equipment Package (Function)
	On-board Transit Signal Priority
	On-board Transit Trip Monitoring
Ozark Regional Transit Kiosks	Remote Basic Information Reception
	Remote Transit Fare Management
	Remote Transit Information Services
Ozark Regional Transit Website	Infrastructure Provided Trip Planning
	ISP Traveler Data Collection
Private Fleet Operations	Fleet Administration
	Fleet Credentials and Taxes Management and Reporting
	Fleet HAZMAT Management
Private Long Distance Bus Company Operations	Transit Center Multi-Modal Coordination
Private Sector Traveler Information Services	ISP Emergency Traveler Information
	ISP Traveler Data Collection
	Traveler Telephone Information
Private Tow/Wrecker Dispatch	Emergency Dispatch
	Emergency Response Management
	Incident Command
Private Tow/Wrecker Vehicles	On-board EV En Route Support
	On-board EV Incident Management Communication
Private Travelers Personal Computing Devices	Personal Basic Information Reception
	Personal Interactive Information Reception
Private Vehicles	Basic Vehicle Reception
Public Tourism Websites	Basic Information Broadcast
	ISP Emergency Traveler Information
	ISP Traveler Data Collection
	Traveler Telephone Information
Public/Private Ambulance Dispatch	Emergency Dispatch
	Emergency Response Management
	Emergency Routing
	Incident Command
	Mayday Support
Private/Public Ambulances	On-board EV En Route Support
	On-board EV Incident Management Communication
Rail Operations Centers	Fleet Administration
	Fleet HAZMAT Management

Element Name	Equipment Package (Function)
Rail Operators Rail Cars	On-board Cargo Monitoring
	Vehicle Location Determination
	Vehicle Mayday I/F
Razorback Transit Archive	Government Reporting Systems Support
	ITS Data Repository
	Traffic and Roadside Data Archival
Razorback Transit Dispatch	Transit Center Fare and Load Management
	Transit Center Fixed-Route Operations
	Transit Center Multi-Modal Coordination
	Transit Center Paratransit Operations
	Transit Center Security
	Transit Center Vehicle Tracking
	Transit Data Collection
	Transit Evacuation Support
	Transit Garage Maintenance
	Transit Vehicle Operator Scheduling
Razorback Transit Demand Response Transit Vehicles	On-board Maintenance
	On-board Paratransit Operations
	On-board Transit Fare and Load Management
	On-board Transit Security
	On-board Transit Trip Monitoring
Razorback Transit Fixed Route Vehicles	On-board Fixed Route Schedule Management
	On-board Maintenance
	On-board Paratransit Operations
	On-board Transit Fare and Load Management
	On-board Transit Security
	On-board Transit Signal Priority
	On-board Transit Trip Monitoring
Razorback Transit Kiosks	Remote Basic Information Reception
	Remote Transit Fare Management
Rest Area/Truck Stop/Visitor Center Kiosks	Remote Basic Information Reception
	Remote Interactive Information Reception
River Valley Transportation Providers	Transit Center Multi-Modal Coordination
	Transit Center Paratransit Operations
	Transit Center Security
	Transit Center Vehicle Tracking
	Transit Data Collection
	Transit Evacuation Support

Element Name	Equipment Package (Function)
Rogers Fire/EMS Vehicles	On-board EV En Route Support
	On-board EV Incident Management Communication
Rogers ITS Field Equipment	Roadway Basic Surveillance
	Roadway Equipment Coordination
	Roadway Incident Detection
	Roadway Signal Controls
	Roadway Signal Priority
	Roadway Traffic Information Dissemination
	Roadway Work Zone Safety
	Roadway Work Zone Traffic Control
	Standard Rail Crossing
Rogers Public Works Department	MCM Incident Management
	MCM Maintenance Decision Support
	MCM Roadway Maintenance and Construction
	MCM Vehicle and Equipment Maintenance Management
	MCM Vehicle Tracking
	MCM Work Activity Coordination
	MCM Work Zone Management
	MCM Work Zone Safety Management
Rogers Traffic Operations Center	Collect Traffic Surveillance
	HRI Traffic Management
	Rail Operations Coordination
	TMC Evacuation Support
	TMC Incident Detection
	TMC Incident Dispatch Coordination/Communication
	TMC Regional Traffic Control
	TMC Signal Control
	TMC Traffic Information Dissemination
	TMC Work Zone Traffic Management
	Traffic Data Collection
	Traffic Maintenance
Siloam Springs Fire/EMS Vehicles	On-board EV En Route Support
	On-board EV Incident Management Communication
Siloam Springs ITS Field Equipment	Roadway Basic Surveillance
	Roadway Equipment Coordination
	Roadway Incident Detection

Element Name	Equipment Package (Function)
	Roadway Signal Controls
	Roadway Signal Priority
	Roadway Traffic Information Dissemination
	Roadway Work Zone Safety
	Roadway Work Zone Traffic Control
	Standard Rail Crossing
Siloam Springs Public Works Department	MCM Incident Management
	MCM Maintenance Decision Support
	MCM Roadway Maintenance and Construction
	MCM Vehicle and Equipment Maintenance Management
	MCM Vehicle Tracking
	MCM Work Activity Coordination
	MCM Work Zone Management
	MCM Work Zone Safety Management
Siloam Springs Traffic Operations Center	Collect Traffic Surveillance
	HRI Traffic Management
	Rail Operations Coordination
	TMC Evacuation Support
	TMC Incident Detection
	TMC Incident Dispatch Coordination/Communication
	TMC Regional Traffic Control
	TMC Signal Control
	TMC Traffic Information Dissemination
	TMC Work Zone Traffic Management
	Traffic Data Collection
	Traffic Maintenance
Springdale Fire/EMS Vehicles	On-board EV En Route Support
	On-board EV Incident Management Communication
Springdale ITS Field Equipment	Roadway Basic Surveillance
	Roadway Equipment Coordination
	Roadway Incident Detection
	Roadway Signal Controls
	Roadway Signal Priority
	Roadway Traffic Information Dissemination
	Roadway Work Zone Safety
	Roadway Work Zone Traffic Control
	Standard Rail Crossing

Element Name	Equipment Package (Function)
Springdale Public Works Department	MCM Incident Management
	MCM Maintenance Decision Support
	MCM Roadway Maintenance and Construction
	MCM Vehicle and Equipment Maintenance Management
	MCM Vehicle Tracking
	MCM Work Activity Coordination
	MCM Work Zone Management
	MCM Work Zone Safety Management
Springdale Traffic Operations Center	Collect Traffic Surveillance
	HRI Traffic Management
	Rail Operations Coordination
	TMC Evacuation Support
	TMC Incident Detection
	TMC Incident Dispatch Coordination/Communication
	TMC Regional Traffic Control
	TMC Signal Control
	TMC Traffic Information Dissemination
	TMC Work Zone Traffic Management
	Traffic Data Collection
	Traffic Maintenance
University of Arkansas Transit and Parking Website	Basic Information Broadcast
	ISP Emergency Traveler Information
	ISP Traveler Data Collection
	Traveler Telephone Information
Washington County Central EMS Dispatch	Emergency Call-Taking
	Emergency Commercial Vehicle Response
	Emergency Dispatch
	Emergency Response Management
	Emergency Routing
Washington County Central EMS Vehicles	On-board EV En Route Support
	On-board EV Incident Management Communication
Washington County Sheriff Dispatch	Center Secure Area Alarm Support
	Center Secure Area Sensor Management

Element Name	Equipment Package (Function)
	Center Secure Area Surveillance
	Emergency Call-Taking
	Emergency Commercial Vehicle Response
	Emergency Data Collection
	Emergency Dispatch
	Emergency Evacuation Support
	Incident Command
	Mayday Support

APPENDIX I: NORTHWEST ARKANSAS APPLICABLE STANDARDS

SDO	Document ID	Title
AASHTO/ITE/NEMA	NTCIP 1101	Simple Transportation Management Framework (STMF)
	NTCIP 1102	Octet Encoding Rules (OER) Base Protocol
	NTCIP 1102	Octet Encoding Rules (OER) Base Protocol
	NTCIP 1103	Transportation Management Protocols (TMP)
	NTCIP 1104	Center-to-Center Naming Convention Specification
	NTCIP 1105	CORBA Security Service Specification
	NTCIP 1106	CORBA Near-Real Time Data Service Specification
	NTCIP 1201	Global Object Definitions
	NTCIP 1202	Object Definitions for Actuated Traffic Signal Controller Units
	NTCIP 1203	Object Definitions for Dynamic Message Signs (DMS)
	NTCIP 1204	Environmental Sensor Station (ESS) Interface Standard
	NTCIP 1205	Object Definitions for Closed Circuit Television (CCTV) Camera Control
	NTCIP 1206	Object Definitions for Data Collection and Monitoring (DCM) Devices
	NTCIP 1207	Object Definitions for Ramp Meter Control (RMC) Units
	NTCIP 1208	Object Definitions for Closed Circuit Television (CCTV) Switching
	NTCIP 1209	Data Element Definitions for Transportation Sensor Systems (TSS)
	NTCIP 1210	Field Management Stations - Part 1: Object Definitions for Signal System Masters
	NTCIP 1211	Object Definitions for Signal Control and Prioritization
	NTCIP 1401	TCIP Common Public Transportation (CPT) Objects
	NTCIP 1402	TCIP Incident Management (IM) Objects
	NTCIP 1403	TCIP Passenger Information (PI) Objects
	NTCIP 1404	TCIP Scheduling/Runcutting (SCH) Objects
	NTCIP 1405	TCIP Spatial Representation (SP) Objects
	NTCIP 1406	TCIP On-Board (OB) Objects
	NTCIP 1407	TCIP Control Center (CC) Objects
	NTCIP 1408	TCIP Fare Collection (FC) Business Area Objects
	NTCIP 2101	Point to Multi-Point Protocol Using RS-232 Subnetwork Profile
	NTCIP 2102	Point to Multi-Point Protocol Using FSK Modem Subnetwork Profile
	NTCIP 2103	Point-to-Point Protocol Over RS-232 Subnetwork Profile
	NTCIP 2104	Ethernet Subnetwork Profile
	NTCIP 2104	Ethernet Subnetwork Profile
	NTCIP 2201	Transportation Transport Profile
	NTCIP 2202	Internet (TCP/IP and UDP/IP) Transport Profile
	NTCIP 2202	Internet (TCP/IP and UDP/IP) Transport Profile

	NTCIP 2301	Simple Transportation Management Framework (STMF) Application Profile
	NTCIP 2302	Trivial File Transfer Protocol (TFTP) Application Profile
	NTCIP 2303	File Transfer Protocol (FTP) Application Profile
	NTCIP 2303	File Transfer Protocol (FTP) Application Profile
	NTCIP 2304	Application Profile for DATEX-ASN (AP-DATEX)
	NTCIP 2305	Application Profile for CORBA (AP-CORBA)
	NTCIP 2306	Application Profile for XML Message Encoding and Transport in ITS C2C Communications
	NTCIP 2501	Information Profile for DATEX
	NTCIP 2502	Information Profile for CORBA
ASTM	ASTM E2158-01	Standard Specification for Dedicated Short Range Communication (DSRC) Physical Layer using Microwave in the 902-928 MHz Band
	ASTM E2259-xx	Standard Specification for Metadata to Support Archived Data Management Systems
	ASTM E2259-yy	Standard Specification for Archiving ITS Generated Travel Monitoring Data
	ASTM PS 105-99	Standard Provisional Specification for Dedicated Short Range Communication (DSRC) Data Link Layer
IEEE	IEEE 1512.1-2003	Standard for Traffic Incident Management Message Sets for Use by EMCs
	IEEE 1512.2-2004	Standard for Public Safety IMMS for use by EMCs
	IEEE 1512.3-2002	Standard for Hazardous Material IMMS
	IEEE 1512-2000	Standard for Common Incident Management Message Sets (IMMS) for use by EMCs
	IEEE 1570-2002	Standard for Interface Between the Rail Subsystem and the Highway Subsystem at a Highway Rail Intersection
	IEEE 1609.1	Resource Manager for DSRC 5.9 GHz
	IEEE 1609.2	Application Services (Layers 6,7) for DSRC 5.9 GHz
	IEEE 1609.3	Communications Services (Layers 4,5) for DSRC 5.9 GHz (Future Standard)
	IEEE 1609.4	Medium Access Control (MAC) Extension & the MAC Extension Management Entity for DSRC 5.9 GHz
	IEEE 802.11	Standard Specification for Telecommunications and Information Exchange Between Roadside and Vehicle Systems - 5 GHz Band Dedicated Short Range Communications (DSRC) Medium Access Control (MAC) and Physical Layer (PHY) Specifications
	IEEE 802.2	Logical Link (Layer 2) for DSRC 5.9 GHz
	IEEE P1512.4	Standard for Common Traffic Incident Management Message Sets for Use in Entities External to Centers
	IEEE Std 1455-1999	Standard for Message Sets for Vehicle/Roadside Communications

ISO	ISO 21210	Networking Services (Layer 3) for DSRC 5.9 GHz
ITE	ITE TM 1.03	Standard for Functional Level Traffic Management Data Dictionary (TMDD)
	ITE TM 2.01	Message Sets for External TMC Communication (MS/ETMCC)
SAE	SAE J2266	Location Referencing Message Specification (LRMS)
	SAE J2266	Location Referencing Message Specification (LRMS)
	SAE J2354	Message Set for Advanced Traveler Information System (ATIS)
	SAE J2354	Message Set for Advanced Traveler Information System (ATIS)
	SAE J2369	Standard for ATIS Message Sets Delivered Over Reduced Bandwidth Media
	SAE J2540	Messages for Handling Strings and Look-Up Tables in ATIS Standards
	SAE J2540	Messages for Handling Strings and Look-Up Tables in ATIS Standards
	SAE J2540-1	RDS (Radio Data System) Phrase Lists
	SAE J2540-1	RDS (Radio Data System) Phrase Lists
	SAE J2540-2	ITIS (International Traveler Information Systems) Phrase Lists
	SAE J2540-2	ITIS (International Traveler Information Systems) Phrase Lists
	SAE J2540-3	National Names Phrase List
	SAE J2540-3	National Names Phrase List
	SAE J2735	Dedicated Short Range Communications (DSRC) Message Set Dictionary
	SAE J2945-1	On-board Minimum Performance Requirements for V2V Safety Communications
	SAE J2945-2	Dedicated Short Range Communications (DSRC) Performance Requirements for V2V Safety Awareness

APPENDIX J: NORTHWEST ARKANSAS STAKEHOLDER ROLES AND RESPONSIBILITIES

Transportation Service	Stakeholder	Roles/Responsibilities
Arterial Management	City of Bella Vista	Operate network surveillance equipment (CCTV cameras, field sensors, etc.) on city streets.
		Provide road network conditions to private sector traveler information systems.
		Operate traffic signal systems on city streets including traffic signals, sensor systems, and pedestrian crossing signals.
		Provide construction and traffic information reports to regional and private information service providers, as well as the IDrive Arkansas system.
		Provide traffic information to regional agencies including transit, emergency management, maintenance and construction, and the media.
		Provide traffic information to travelers through City-owned DMS.
		Coordinate traffic information with the Regional Joint TMC and adjacent local, county, and ARDOT TMCs/TOCs.
		Provide speed monitoring on City-owned roadways.
		Provide traffic information to regional archives.
		Obtain traffic probe information from transit vehicles.
	City of Bentonville	Operate network surveillance equipment (CCTV cameras, field sensors, etc.) on city streets.
		Provide road network conditions to private sector traveler information systems.
		Operate traffic signal systems on city streets including traffic signals, sensor systems, and pedestrian crossing signals.
		Provide construction and traffic information reports to regional and private information service providers, as well as the Arkansas IDrive Arkansas system.
		Provide traffic information to regional agencies including transit, emergency management, maintenance and construction, and the media.
		Provide traffic information to travelers through City-owned DMS.
		Coordinate traffic information with the Regional Joint TMC and adjacent local, county, and ARDOT TMCs/TOCs.
		Provide speed monitoring on City-owned roadways.
		Provide traffic information to regional archives.
		Obtain traffic probe information from transit vehicles.
		Provide transit signal priority for regional fixed-route transit vehicles.
	City of Fayetteville	Operate network surveillance equipment (CCTV cameras, field sensors, etc.) on city streets.

Transportation Service	Stakeholder	Roles/Responsibilities
		Provide road network conditions to private sector traveler information systems.
		Operate traffic signal systems on city streets including traffic signals, sensor systems, and pedestrian crossing signals.
		Provide construction and traffic information reports to regional and private information service providers, as well as the IDrive Arkansas system.
		Provide traffic information to regional agencies including transit, emergency management, maintenance and construction, and the media.
		Provide traffic information to travelers through City-owned DMS.
		Coordinate traffic information with the Regional Joint TMC and adjacent local, county, and ARDOT TMCs/TOCs.
		Provide speed monitoring on City-owned roadways.
		Provide traffic information to regional archives.
		Obtain traffic probe information from transit vehicles.
		Provide transit signal priority for regional fixed-route transit vehicles.
		Coordinate HRI signal adjustments with regional and private rail operators.
		Provide emergency signal preemption for the city's and County's public safety vehicles.
	City of Rogers	Operate network surveillance equipment (CCTV cameras, field sensors, etc.) on city streets.
		Provide road network conditions to private sector traveler information systems.
		Operate traffic signal systems on city streets including traffic signals, sensor systems, and pedestrian crossing signals.
		Provide construction and traffic information reports to regional and private information service providers, as well as the IDrive Arkansas system.
		Provide traffic information to regional agencies including transit, emergency management, maintenance and construction, and the media.
		Provide traffic information to travelers through City-owned DMS.
		Coordinate traffic information with the Regional Joint TMC and adjacent local, county, and ARDOT TMCs/TOCs.
		Provide speed monitoring on City-owned roadways.
		Provide traffic information to regional archives.
		Obtain traffic probe information from transit vehicles.
		Provide transit signal priority for regional fixed-route transit vehicles.

Transportation Service	Stakeholder	Roles/Responsibilities
		Coordinate HRI signal adjustments with regional and private rail operators.
		Provide emergency signal preemption for the city's public safety vehicles.
	City of Siloam Springs	Operate network surveillance equipment (CCTV cameras, field sensors, etc.) on city streets.
		Provide road network conditions to private sector traveler information systems.
		Operate traffic signal systems on city streets including traffic signals, sensor systems, and pedestrian crossing signals.
		Provide construction and traffic information reports to regional and private information service providers, as well as the IDrive Arkansas system.
		Provide traffic information to regional agencies including transit, emergency management, maintenance and construction, and the media.
		Provide traffic information to travelers through City-owned DMS.
		Coordinate traffic information with the Regional Joint TMC and adjacent local, county, and ARDOT TMCs/TOCs.
		Provide speed monitoring on City-owned roadways.
		Provide traffic information to regional archives.
		Obtain traffic probe information from transit vehicles.
		Coordinate HRI signal adjustments with regional and private rail operators.
		Provide emergency signal preemption for the city's public safety vehicles.
	City of Springdale	Operate network surveillance equipment (CCTV cameras, field sensors, etc.) on city streets.
		Provide road network conditions to private sector traveler information systems.
		Operate traffic signal systems on city streets including traffic signals, sensor systems, and pedestrian crossing signals.
		Provide construction and traffic information reports to regional and private information service providers, as well as the IDrive Arkansas system.
		Provide traffic information to regional agencies including transit, emergency management, maintenance and construction, and the media.
		Provide traffic information to travelers through City-owned DMS.
		Coordinate traffic information with the Regional Joint TMC and adjacent local, county, and ARDOT TMCs/TOCs.
		Provide speed monitoring on City-owned roadways.
		Provide traffic information to regional archives.

Transportation Service	Stakeholder	Roles/Responsibilities
		Obtain traffic probe information from transit vehicles.
		Provide transit signal priority for regional fixed-route transit vehicles.
		Provide road closures on City-owned roadways for flooding and winter weather.
		Provide emergency signal preemption for the city's public safety vehicles.
	Municipalities	Operate network surveillance equipment (CCTV cameras, field sensors, etc.) on local streets.
		Provide road network conditions to private sector traveler information systems.
		Operate traffic signal systems on local streets including traffic signals, sensor systems, and pedestrian crossing signals.
		Provide construction and traffic information reports to regional and private information service providers, as well as the IDrive Arkansas system.
		Provide traffic information to regional agencies including transit, emergency management, maintenance and construction, and the media.
		Provide traffic information to travelers through local owned DMS.
		Coordinate traffic information with the Regional Joint TMC and adjacent local, county, and ARDOT TMCs/TOCs.
		Provide speed monitoring on municipal owned roadways.
		Provide traffic information to regional archives.
		Obtain traffic probe information from transit vehicles.
		Provide transit signal priority for regional fixed-route transit vehicles.
		Coordinate HRI signal adjustments with regional and private rail operators.
		Provide emergency signal preemption for municipal public safety vehicles.
	Benton County	Operate network surveillance equipment (CCTV cameras, field sensors, etc.) on county roadways.
		Provide road network conditions to private sector traveler information systems.
		Operate traffic signal systems on county streets including traffic signals, sensor systems, and pedestrian crossing signals.
		Provide construction and traffic information reports to regional and private information service providers, as well as the IDrive Arkansas system.
		Provide traffic information to regional agencies including transit, emergency management, maintenance and construction, and the media.

Transportation Service	Stakeholder	Roles/Responsibilities
		Provide traffic information to travelers through county owned DMS.
		Coordinate traffic information with the Regional Joint TMC and adjacent local, county, and ARDOT TMCs/TOCs.
		Provide traffic information to regional archives.
		Obtain traffic probe information from transit vehicles.
Highway Management	ARDOT	Operate network surveillance equipment (CCTV cameras, field sensors, etc.) on state highways.
		Operate lane control signals on state highways.
		Provide HOT lane management for state highways. Provide travelers with real-time pricing information for HOT lanes via agency DMS.
		Coordinate traffic information with the Regional Joint TMC and adjacent local, county, and ARDOT TMCs/TOCs.
		Provide construction and traffic information to regional transportation agencies and the general public through traffic information devices (DMS, HCRS, IDrive Arkansas, etc.).
		Provide construction and traffic information reports to regional and private information service providers, as well as the IDrive Arkansas system.
		Obtain traffic probe information from transit vehicles.
		Monitor emissions sensors in state operated tunnels.
		Provide security monitoring of critical infrastructure for the State.
		Coordinate traffic information with the state's other Regional TMCs and the local city and municipality TMCs/TOCs.
Incident Management (Traffic)	ARDOT	Perform network surveillance for detection and verification of incidents on state highways.
		Provide incident information to travelers via traffic information devices on highways (e.g. DMS, IDrive Arkansas, etc).
		Provide incident information to regional emergency responders, including the local police and fire departments as well as county public safety and Arkansas State Police.
		Operate regional Motorist Assist Patrol (MAP) vehicles that work to identify and respond to incidents on roadways and reduce clearance times for minor incidents.
		Coordinate maintenance resources for incident response with the ARDOT District Construction and Maintenance Operations as well as all other regional maintenance providers.
	City of Bella Vista	Perform network surveillance for detection and verification of incidents on city streets.
		Provide incident information to regional emergency responders, including the local city and fire departments as well as county public safety and Arkansas State Police.

Transportation Service	Stakeholder	Roles/Responsibilities
		Coordinate maintenance resources for incident response with the City's Public Works Department and other regional providers.
	City of Bentonville	Perform network surveillance for detection and verification of incidents on city streets.
		Provide incident information to regional emergency responders, including the city's police and fire departments as well as county public safety and Arkansas State Police.
		Coordinate maintenance resources for incident response with the City's Transportation Division and other regional providers.
	City of Fayetteville	Perform network surveillance for detection and verification of incidents on city streets.
		Provide incident information to regional emergency responders, including the city's police and fire departments as well as county public safety and Arkansas State Police.
		Coordinate maintenance resources for incident response with the City's Transportation Division and other regional providers.
	City of Rogers	Perform network surveillance for detection and verification of incidents on city streets.
		Provide incident information to regional emergency responders, including the city's police and fire departments as well as county public safety and Arkansas State Police.
		Coordinate maintenance resources for incident response with the City's Street Department and other regional providers.
	City of Siloam Springs	Perform network surveillance for detection and verification of incidents on city streets.
		Provide incident information to regional emergency responders, including the city's police and fire departments as well as county public safety and Arkansas State Police.
		Coordinate maintenance resources for incident response with the City's Public Works Department and other regional providers.
	City of Springdale	Perform network surveillance for detection and verification of incidents on city streets.
		Provide incident information to regional emergency responders, including the city's police and fire departments as well as county public safety and Arkansas State Police.
		Coordinate maintenance resources for incident response with the City's Public Works Department and other regional providers.
	Municipalities	Perform network surveillance for detection and verification of incidents on municipal streets.
		Provide incident information to regional emergency responders, including the local police and fire departments as well as county public safety and Arkansas State Police.

Transportation Service	Stakeholder	Roles/Responsibilities
		Coordinate maintenance resources for incident response with the municipality's public works department and other regional providers.
Incident Management (Emergency)	Arkansas State Police	Dispatch Arkansas State Police vehicles for highway incidents.
		Coordinate incident response with other public safety agencies (police, fire, EMS, sheriff, etc.) as well as with ARDOT.
		Perform incident detection and verification for the highways within the region and provide this information to traffic and other public safety agencies.
		Coordinate maintenance resources in response to incidents on state highways with regional maintenance providers.
		Coordinate incident response with regional rail operations for incidents involving rail or transit operations.
	City of Bentonville Emergency Communications Center	Receive emergency calls for incidents within the City.
		Coordinate public safety resources with the City's TOC for incident response.
		Coordinate incident response with other public safety agencies (police, fire and EMS).
		Dispatch the City's police and fire vehicles, as well as coordinate with all other public safety agencies within the region.
		Perform incident detection and verification for the roadways within the City and County and provide this information to the City's TOC.
		Coordinate City and County maintenance resources in response to incidents.
		Coordinate incident response with regional rail operations for incidents involving rail or transit operations.
	City of Fayetteville Central Dispatch	Receive emergency calls for incidents within the City.
		Coordinate public safety resources with the City's TOC for incident response.
		Coordinate incident response with other public safety agencies (police, fire and EMS).
		Dispatch the City's police and fire vehicles, as well as coordinate with all other public safety agencies within the region.
		Perform incident detection and verification for the roadways within the City and County and provide this information to the City's TOC.
		Coordinate City and County maintenance resources in response to incidents.
		Coordinate incident response with regional rail operations for incidents involving rail or transit operations.

Transportation Service	Stakeholder	Roles/Responsibilities
	City of Rogers	Receive emergency calls for incidents within the City.
		Coordinate public safety resources with the City's TOC for incident response.
		Coordinate incident response with other public safety agencies (police, fire and EMS).
		Dispatch the City's police and fire vehicles, as well as coordinate with all other public safety agencies within the region.
		Perform incident detection and verification for the roadways within the City and County and provide this information to the City's TOC.
		Coordinate City and County maintenance resources in response to incidents.
		Coordinate incident response with regional rail operations for incidents involving rail.
	City of Springdale	Receive emergency calls for incidents within the City.
		Coordinate public safety resources with the City's TOC for incident response.
		Coordinate incident response with other public safety agencies (police, fire and EMS).
		Dispatch the City's police and fire vehicles, rural fire vehicles, as well as coordinate with all other public safety agencies within the region.
		Perform incident detection and verification for the roadways within the City and County and provide this information to the City's TOC.
		Coordinate City and County maintenance resources in response to incidents.
		Coordinate incident response with regional rail operations for incidents involving rail.
	Municipalities	Receive emergency calls for incidents within the municipalities.
		Coordinate public safety resources for incident response with the municipality's TOC or TMC.
		Dispatch the municipality's police vehicles, fire vehicles and EMS vehicles as well as coordinate with all other public safety agencies within the region.
		Perform incident detection and verification for the streets within the municipality and provide this information to the regional TMCs/TOCs.
		Coordinate incident response with regional rail operations for incidents involving rail.
		Coordinate with ambulance services in response to incidents within the municipality.
		Coordinate maintenance resources in response to incidents within the municipality.

Transportation Service	Stakeholder	Roles/Responsibilities
	Benton County 911 Administration	Receive emergency calls for incidents within the County, in areas not covered by another PSAP.
		Coordinate public safety resources with the County TOC and other municipal TOCs in the county for incident response.
		Coordinate incident response with other public safety agencies (police, fire and EMS).
		Dispatch the County's sheriffs, fire, and EMS vehicles, as well as coordinate with all other public safety agencies within the region.
		Perform incident detection and verification for the roadways within the County and provide this information to the County and municipal TOCs.
		Coordinate City and County maintenance resources in response to incidents.
		Coordinate incident response with regional rail operations for incidents involving rail.
	Washington County Sheriff's Department	Receive emergency calls for incidents within the County, in areas not covered by another PSAP.
		Coordinate public safety resources with the County TOC and other municipal TOCs in the county for incident response.
		Coordinate incident response with other public safety agencies (police, fire and EMS).
		Dispatch the County's sheriffs and fire vehicles, as well as coordinate with all other public safety agencies within the region.
		Perform incident detection and verification for the roadways within the County and provide this information to the County and municipal TOCs.
		Coordinate City and County maintenance resources in response to incidents.
		Coordinate incident response with regional rail operations for incidents involving rail.
	University of Arkansas	Receive emergency calls for incidents on the University campus.
		Dispatch University Police vehicles as well as coordinate with all other public safety agencies within the region (City and County level).
		Coordinate incident response with the Fayetteville Police Department.
		Perform incident detection and verification for the streets within the campus and provide this information to the regional and City TMC.
		Coordinate maintenance resources in response to an incident on the University campus.
Transit Management	Independent School Districts	Track vehicle location and evaluate schedule performance of school district vehicles.

Transportation Service	Stakeholder	Roles/Responsibilities
		Provide school bus schedule and route information on the school district website.
		Provide school bus service for the cities, municipalities, and counties within the region.
		Provide transit security on school buses through silent alarms and surveillance systems.
		Provide automated transit maintenance scheduling through automated vehicle conditions reports on all Independent School District buses.
		Coordinate emergency plans with Municipal, County, and Statewide EOCs and provide emergency transit services for evacuations, fires, and disasters (including re-entry).
	Ozark Regional Transit	Track vehicle location on agency fixed-route transit vehicles, and demand response vehicles.
		Provide transit schedule and fare information to the agency's website, the IDrive Arkansas system, regional traveler information providers, and private sector traveler information service providers.
		Provide fixed-route service for the agency defined service area using fixed-route transit vehicles.
		Provide demand-response transit service for the agency defined service area.
		Provide a customized demand-response transit plan from the agency website.
		Provide transit passenger electronic fare payment on all agency fixed route and demand-responsive transit vehicles.
		Provide transit security on all agency transit vehicles through silent alarms, sensors, AVL, and surveillance systems.
		Provide automated transit maintenance scheduling through automated vehicle condition reports on all agency fixed route and demand-responsive transit vehicles.
		Obtain traffic signal priority from the municipalities in the agency's service area through the municipality's field equipment for fixed-route transit vehicles.
		Coordinate transit service with other regional transit providers, as well as regional airports.
		Provide road probe information to regional traffic management centers.
		Provide transit traveler information on the agency website (thus accessible from the WWW) as well as make it available on transit information kiosks and transit vehicles.
		Coordinate emergency plans with Municipal, County, and Statewide EOCs and provide emergency transit services for evacuations, fires, and disasters (including re-entry).

Transportation Service	Stakeholder	Roles/Responsibilities
	Razorback Transit	Track vehicle location on agency fixed-route transit vehicles, and demand response vehicles.
		Provide transit schedule and fare information to the agency's website, the IDrive Arkansas system, regional traveler information providers, and private sector traveler information service providers.
		Provide fixed-route service for the agency defined service area using fixed-route transit vehicles.
		Provide demand-responsive transit service for the agency defined service area.
		Provide a customized demand-responsive transit plan from the agency website.
		Provide transit security on all agency transit vehicles through silent alarms, sensors, AVL, and surveillance systems.
		Provide automated transit maintenance scheduling through automated vehicle condition reports on all agency fixed route and demand-responsive transit vehicles.
		Obtain traffic signal priority from the municipalities in the agency's service area through the municipality's field equipment for fixed-route transit vehicles.
		Coordinate transit service with other regional transit providers, as well as regional airports.
		Provide road probe information to regional traffic management centers.
		Provide transit traveler information on the agency website (thus accessible from the WWW) as well as make it available on transit information kiosks and transit vehicles.
		Coordinate emergency plans with Municipal, County, and Statewide EOCs and provide emergency transit services for evacuations, fires, and disasters (including re-entry).
Traveler Information	ARDOT	Operate the state IDrive Arkansas system.
		Collect traffic, incident, transit schedule, road maintenance, and weather information and provide it to the media and private travelers.
		Provide broadcast information to travelers.
		Coordinate and share traveler information with other traveler information providers within the region.
		Provide traveler information to private travelers (in vehicle, personal computing device, or kiosk) upon request.
		Provide traveler information to the media.
		Provide a route guidance system for private commercial fleets based on information gathered from HCRS.
	City of Bentonville	Provide broadcast information to travelers through the City's website.

Transportation Service	Stakeholder	Roles/Responsibilities
	City of Fayetteville	Provide broadcast information to travelers through the City's website.
	City of Rogers	Provide broadcast information to travelers through the City's website.
	City of Siloam Springs	Provide broadcast information to travelers through the City's website.
	City of Springdale	Provide broadcast information to travelers through the City's website.
Public Safety - Emergency Management	ARDOT	Receive flood monitoring information from its own field equipment.
		Provide flood warning information to regional TMCs/TOCs, regional transit agencies, regional maintenance agencies, and the media.
		Provide flood warning information to the traveling public through DMS and with flood gates.
		Receive Amber Alert and other Wide Area Alert information from Arkansas State Police.
		Provide disaster traveler information to regional emergency management agencies, regional traffic agencies, and regional transit agencies.
	Arkansas State Police	Dispatch Arkansas State Police vehicles (and track their location) as well as coordinate with other public safety agencies within the region.
		Participate in the incident response, coordination, and reporting of the Northwest Arkansas Regional Mutual Aid Network in a coordination effort only (no dispatch function).
		Operates a PSAP for cellular phone network near state highways but has the ability to dispatch emergency services on a regional level.
		Receive and respond to threat information from the Regional or City TMC regarding critical infrastructure.
		Receive Amber Alert and other Wide Area Alert information from the State Office of Emergency Management.
		Generate Amber Alerts and distribute them to regional emergency management agencies, transit agencies, ARDOT, other traffic agencies, and the media.
		Aid in the coordination of region wide emergency plans, evacuation and reentry plans, and disaster management plans.
		Receive Wide Area Alert information from the county EOCs.
	Bella Vista Fire Department	Dispatch city fire/EMS vehicles (and track their location) as well as coordinate with other public safety agencies within the region.
		Participate in the incident response, coordination, and reporting of the Northwest Arkansas Regional Mutual Aid Network in a coordination effort only (no dispatch function).

Transportation Service	Stakeholder	Roles/Responsibilities
		Coordinates with regional medical centers regarding the status of the care facility as well as the patient status enroute to the medical center.
		Receive signal preemption from City's traffic signals.
		Perform incident detection and verification for streets within the City.
		Aid in the coordination of region wide emergency plans, evacuation and reentry plans, and disaster management plans.
	Bella Vista Police Department	Dispatch city police vehicles (and track their location) as well as coordinate with other public safety agencies within the region.
		Participate in the incident response, coordination, and reporting of the Northwest Arkansas Regional Mutual Aid Network in a coordination effort only (no dispatch function).
		Receive Amber Alert and other Wide Area Alert information from Arkansas State Police.
		Perform incident detection and verification for roadways within the City.
		Aid in the coordination of region wide emergency plans, evacuation and reentry plans, and disaster management plans.
	Bentonville Fire Department	Dispatch city fire/EMS vehicles (and track their location) as well as coordinate with other public safety agencies within the region.
		Participate in the incident response, coordination, and reporting of the Northwest Arkansas Regional Mutual Aid Network in a coordination effort only (no dispatch function).
		Coordinates with regional medical centers regarding the status of the care facility as well as the patient status enroute to the medical center.
		Receive signal preemption from City's traffic signals.
		Perform incident detection and verification for streets within the City.
		Aid in the coordination of region wide emergency plans, evacuation and reentry plans, and disaster management plans.
	Bentonville Police Department	Dispatch city police vehicles (and track their location) as well as coordinate with other public safety agencies within the region.
		Participate in the incident response, coordination, and reporting of the Northwest Arkansas Regional Mutual Aid Network in a coordination effort only (no dispatch function).
		Receive Amber Alert and other Wide Area Alert information from Arkansas State Police.
		Coordinates with regional medical centers regarding the status of the care facility as well as the patient status enroute to the medical center.
		Perform incident detection and verification for roadways within the City.

Transportation Service	Stakeholder	Roles/Responsibilities
		Aid in the coordination of region wide emergency plans, evacuation and reentry plans, and disaster management plans.
	Fayetteville Fire Department	Dispatch city fire vehicles (and track their location) as well as coordinate with other public safety agencies within the region.
		Participate in the incident response, coordination, and reporting of the Northwest Arkansas Regional Mutual Aid Network in a coordination effort only (no dispatch function).
		Receive signal preemption from City's traffic signals.
		Perform incident detection and verification for streets within the City.
		Aid in the coordination of region wide emergency plans, evacuation and reentry plans, and disaster management plans.
	Fayetteville Police Department	Dispatch city police vehicles (and track their location) as well as coordinate with other public safety agencies within the region.
		Participate in the incident response, coordination, and reporting of the Northwest Arkansas Regional Mutual Aid Network in a coordination effort only (no dispatch function).
		Receive Amber Alert and other Wide Area Alert information from Arkansas State Police.
		Perform incident detection and verification for roadways within the City.
		Aid in the coordination of region wide emergency plans, evacuation and reentry plans, and disaster management plans.
	Rogers Fire Department	Dispatch city fire/EMS vehicles (and track their location) as well as coordinate with other public safety agencies within the region.
		Participate in the incident response, coordination, and reporting of the Northwest Arkansas Regional Mutual Aid Network in a coordination effort only (no dispatch function).
		Coordinates with regional medical centers regarding the status of the care facility as well as the patient status enroute to the medical center.
		Receive signal preemption from City's traffic signals.
		Perform incident detection and verification for streets within the City.
		Aid in the coordination of region wide emergency plans, evacuation and reentry plans, and disaster management plans.
	Rogers Police Department	Dispatch city police vehicles (and track their location) as well as coordinate with other public safety agencies within the region.
		Participate in the incident response, coordination, and reporting of the Northwest Arkansas Regional Mutual Aid Network in a coordination effort only (no dispatch function).
		Receive Amber Alert and other Wide Area Alert information from Arkansas State Police.

Transportation Service	Stakeholder	Roles/Responsibilities
		Coordinates with regional medical centers regarding the status of the care facility as well as the patient status enroute to the medical center.
		Participate in the incident response, coordination, and reporting of the Northwest Arkansas Regional Mutual Aid Network in a coordination effort only (no dispatch function).
		Perform incident detection and verification for roadways within the City.
		Aid in the coordination of region wide emergency plans, evacuation and reentry plans, and disaster management plans.
	Siloam Springs Fire Department	Dispatch city fire/EMS vehicles (and track their location) as well as coordinate with other public safety agencies within the region.
		Participate in the incident response, coordination, and reporting of the Northwest Arkansas Regional Mutual Aid Network in a coordination effort only (no dispatch function).
		Coordinates with regional medical centers regarding the status of the care facility as well as the patient status enroute to the medical center.
		Receive signal preemption from City's traffic signals.
		Perform incident detection and verification for streets within the City.
		Aid in the coordination of region wide emergency plans, evacuation and reentry plans, and disaster management plans.
	Siloam Springs Police Department	Dispatch city police vehicles (and track their location) as well as coordinate with other public safety agencies within the region.
		Participate in the incident response, coordination, and reporting of the Northwest Arkansas Regional Mutual Aid Network in a coordination effort only (no dispatch function).
		Receive Amber Alert and other Wide Area Alert information from Arkansas State Police.
		Coordinates with regional medical centers regarding the status of the care facility as well as the patient status enroute to the medical center.
		Perform incident detection and verification for roadways within the City.
		Aid in the coordination of region wide emergency plans, evacuation and reentry plans, and disaster management plans.
	Springdale Fire Department	Dispatch city fire/EMS vehicles (and track their location), and rural fire/EMS vehicles as well as coordinate with other public safety agencies within the region.
		Participate in the incident response, coordination, and reporting of the Northwest Arkansas Regional Mutual Aid Network in a coordination effort only (no dispatch function).

Transportation Service	Stakeholder	Roles/Responsibilities
		Coordinates with regional medical centers regarding the status of the care facility as well as the patient status enroute to the medical center.
		Receive signal preemption from City's traffic signals and Fayetteville's traffic signals.
		Perform incident detection and verification for streets within the City.
		Aid in the coordination of region wide emergency plans, evacuation and reentry plans, and disaster management plans.
	Springdale Police Department	Dispatch city police vehicles (and track their location) as well as coordinate with other public safety agencies within the region.
		Participate in the incident response, coordination, and reporting of the Northwest Arkansas Regional Mutual Aid Network in a coordination effort only (no dispatch function).
		Receive Amber Alert and other Wide Area Alert information from Arkansas State Police.
		Perform incident detection and verification for roadways within the City.
		Aid in the coordination of region wide emergency plans, evacuation and reentry plans, and disaster management plans.
	Municipalities	Perform incident detection and verification for streets within the municipality.
		Participate in the incident response, coordination, and reporting of the Northwest Arkansas Regional Mutual Aid Network in a coordination effort only (no dispatch function).
		Aid in the coordination of region wide emergency plans, evacuation and reentry plans, and disaster management plans.
		Dispatch the municipality's public safety vehicles (and track their location) as well as coordinate with other public safety agencies within the region.
		Receive Amber Alert and other Wide Area Alert information from Arkansas State Police.
		Coordinate with regional medical centers regarding the status of the care facility as well as the patient status enroute to the medical center.
		Receive signal preemption from municipal traffic signals.
	Benton County 911 Administration	Dispatch county sheriffs and rural fire/EMS vehicles, as well as coordinate with other public safety agencies within the region.
		Participate in the incident response, coordination, and reporting of the Northwest Arkansas Regional Mutual Aid Network in a coordination effort only (no dispatch function).
		Receive signal preemption for county public safety vehicles from regional traffic signals.

Transportation Service	Stakeholder	Roles/Responsibilities
		Perform incident detection and verification for roadways within the County.
		Receive Amber Alert and other Wide Area Alert information from Arkansas State Police.
		Receive Wide Area Alert information from the County EOCs.
		Aid in the coordination of region wide emergency plans, evacuation and reentry plans, and disaster management plans.
	Benton County Department of Emergency Management and Homeland Security	Participate in the incident response, coordination, and reporting of the Northwest Arkansas Regional Mutual Aid Network in a coordination effort only (no dispatch function).
		Operates the county's Emergency Operations Center.
		Coordinate with regional medical centers regarding the status of the care facility as well as the patient status enroute to the medical center.
		Receive Amber Alert and other Wide Area Alert information from Arkansas State Police.
		Generate and coordinate wide area alerts and distribute them to regional emergency management agencies, transit agencies, traffic agencies, regional information service providers, and the media.
		Plan and coordinate region wide emergency plans, evacuation and reentry plans, and disaster management plans dealing with HAZMAT incidents.
		Provide regional traffic, transit, emergency management, and maintenance operations with disaster information to disseminate to the traveling public.
	Washington County Sheriff's Department	Dispatch county sheriffs, municipal public safety vehicles not dispatched by other PSAPs in the county, and rural fire/EMS vehicles, as well as coordinate with other public safety agencies within the region.
		Participate in the incident response, coordination, and reporting of the Northwest Arkansas Regional Mutual Aid Network in a coordination effort only (no dispatch function).
		Perform incident detection and verification for roadways within the County.
		Coordinate with regional medical centers regarding the status of the care facility as well as the patient status enroute to the medical center.
		Receive Amber Alert and other Wide Area Alert information from Arkansas State Police.
		Receive Wide Area Alert information from the County EOCs.
		Aid in the coordination of region wide emergency plans, evacuation and reentry plans, and disaster management plans.

Transportation Service	Stakeholder	Roles/Responsibilities
	Washington County Department of Emergency Management	Participate in the incident response, coordination, and reporting of the Northwest Arkansas Regional Mutual Aid Network in a coordination effort only (no dispatch function).
		Dispatch rural fire/EMS vehicles and ambulances for the county, as well as coordinate with other public safety agencies within the region.
		Operates the county's Emergency Operations Center.
		Perform incident detection and verification for roadways within the County.
		Receive signal preemption from regional traffic signals.
		Receive Amber Alert and other Wide Area Alert information from Arkansas State Police.
		Coordinate with regional medical centers regarding the status of the care facility as well as the patient status enroute to the medical center.
		Generate and coordinate wide area alerts and distribute them to regional emergency management agencies, transit agencies, traffic agencies, regional information service providers, and the media.
		Plan and coordinate region wide emergency plans, evacuation and reentry plans, and disaster management plans dealing with HAZMAT incidents.
		Provide regional traffic, transit, emergency management, and maintenance operations with disaster information to disseminate to the traveling public.
	Northwest Arkansas National Airport Authority	Participate in the incident response, coordination, and reporting of the Northwest Arkansas Regional Mutual Aid Network in a coordination effort only (no dispatch function).
		Dispatch Northwest Arkansas National Airport Emergency Vehicles
		Aid in the coordination of region wide emergency plans, evacuation and reentry plans, and disaster management plans.
	Public/Private Ambulance Providers	Participate in the incident response, coordination, and reporting of the Northwest Arkansas Regional Mutual Aid Network in a coordination effort only (no dispatch function).
		Coordinate with regional and statewide emergency services to dispatch and track their own vehicles.
		Coordinate with regional medical centers regarding the status of the care facility as well as the patient status enroute to the medical center.
		Dispatch ambulance vehicles with suggested route information and track the vehicles to the incident.
		Receive signal preemption from regional traffic signals.

Transportation Service	Stakeholder	Roles/Responsibilities
		Receive Wide Area Alert information from Arkansas State Police.
		Receive Wide Area Alert information from the County EOCs.
		Aid in the coordination of region wide emergency plans, evacuation and reentry plans, and disaster management plans.
	University of Arkansas	Participate in the incident response, coordination, and reporting of the Northwest Arkansas Regional Mutual Aid Network in a coordination effort only (no dispatch function).
		Dispatch University Police vehicles (and track their location) as well as coordinate with other public safety agencies within the City.
		Perform incident detection and verification for streets within the specified area of responsibility.
		Receive Amber Alert and other Wide Area Alert information from Arkansas State Police.
		Receive Wide Area Alert information from the County EOCs.
		Aid in the coordination of region wide emergency plans, evacuation and reentry plans, and disaster management plans.
Maintenance and Construction Management	ARDOT	Receive a request for maintenance resources for incident response from regional emergency management agencies.
		Coordinate maintenance resources for incidents with other regional maintenance providers.
		Receive vehicle location information from agency maintenance and construction vehicles.
		Receive vehicle maintenance conditions from agency maintenance and construction vehicles and coordinate fleet maintenance with the agency's equipment repair facilities.
		Collect road weather information with agency field equipment and distribute it to regional traffic, maintenance and transit agencies as well as the national weather service and the media.
		Provide maintenance of state highways within the Region, including pavement maintenance and all construction activities.
		Coordinate maintenance activities with the agency's district engineer and with the agency's asset management system.
		Dispatch agency maintenance vehicles and get operations status from these vehicles.
		Provide maintenance to all field equipment owned and operated by the agency.
		Manage work zones on all agency maintenance and construction activities, as well as monitor work zone safety with agency field devices and vehicles.
		Provide maintenance status and notification information to the traveling public through agency owned DMS.

Transportation Service	Stakeholder	Roles/Responsibilities
		Monitor the safety of maintenance and construction activities through early warning systems and sensors on maintenance and construction field equipment.
		Coordinate maintenance and construction activities with other regional maintenance and construction agencies.
		Distribute maintenance and construction plans and work zone information to regional information service providers, regional traffic operations, emergency operations, transit providers, rail operations, and the media.
	City of Bella Vista	Receive a request for maintenance resources for incident response from regional emergency management agencies.
		Coordinate maintenance resources for incidents with other regional maintenance providers.
		Receive vehicle location information from agency maintenance and construction vehicles.
		Receive vehicle maintenance conditions from agency maintenance and construction vehicles and coordinate fleet maintenance with agency's fleet services.
		Provide maintenance of streets within the city, including pavement maintenance and all construction activities.
		Coordinate maintenance activities with the agency's TOC.
		Dispatch agency maintenance vehicles and get operations status from these vehicles.
		Provide maintenance to all field equipment owned and operated by the City.
		Manage work zones on City streets and monitor the safety of work zones status with City owned vehicles and field equipment.
		Coordinate maintenance and construction activities with other regional maintenance and construction agencies.
		Distribute maintenance and construction plans and work zone information to regional information service providers, regional traffic operations, emergency operations, rail operations, and the media.
	City of Bentonville	Receive a request for maintenance resources for incident response from regional emergency management agencies.
		Coordinate maintenance resources for incidents with other regional maintenance providers.
		Receive vehicle location information from agency maintenance and construction vehicles.
		Receive vehicle maintenance conditions from agency maintenance and construction vehicles and coordinate fleet maintenance with agency's fleet services.
		Provide maintenance of streets within the city, including pavement maintenance and all construction activities.

Transportation Service	Stakeholder	Roles/Responsibilities
		Coordinate maintenance activities with the agency's TOC.
		Dispatch agency maintenance vehicles and get operations status from these vehicles.
		Provide maintenance to all field equipment owned and operated by the City.
		Manage work zones on City streets, and monitor the safety of work zones status with City owned vehicles and field equipment.
		Coordinate maintenance and construction activities with other regional maintenance and construction agencies.
		Distribute maintenance and construction plans and work zone information to regional information service providers, regional traffic operations, emergency operations, rail operations, and the media.
	City of Fayetteville	Receive a request for maintenance resources for incident response from regional emergency management agencies.
		Coordinate maintenance resources for incidents with other regional maintenance providers.
		Receive vehicle location information from agency maintenance and construction vehicles.
		Receive vehicle maintenance conditions from agency maintenance and construction vehicles and coordinate fleet maintenance with agency's fleet services.
		Provide maintenance of streets within the city, including pavement maintenance and all construction activities.
		Coordinate maintenance activities with the agency's TOC.
		Dispatch agency maintenance vehicles and get operations status from these vehicles.
		Provide maintenance to all field equipment owned and operated by the City.
		Manage work zones on City streets and monitor the safety of work zones status with City owned vehicles and field equipment.
		Coordinate maintenance and construction activities with other regional maintenance and construction agencies.
		Distribute maintenance and construction plans and work zone information to regional information service providers, regional traffic operations, emergency operations, rail operations, and the media.
	City of Rogers	Receive a request for maintenance resources for incident response from regional emergency management agencies.
		Coordinate maintenance resources for incidents with other regional maintenance providers.
		Receive vehicle location information from agency maintenance and construction vehicles.

Transportation Service	Stakeholder	Roles/Responsibilities
		Receive vehicle maintenance conditions from agency maintenance and construction vehicles and coordinate fleet maintenance with agency's fleet services.
		Provide maintenance of streets within the city, including pavement maintenance and all construction activities.
		Coordinate maintenance activities with the agency's TOC.
		Dispatch agency maintenance vehicles and get operations status from these vehicles.
		Provide maintenance to all field equipment owned and operated by the City.
		Manage work zones on City streets, and monitor the safety of work zones status with City owned vehicles and field equipment.
		Coordinate maintenance and construction activities with other regional maintenance and construction agencies.
		Distribute maintenance and construction plans and work zone information to regional information service providers, regional traffic operations, emergency operations, rail operations, and the media.
	City of Siloam Springs	Receive a request for maintenance resources for incident response from regional emergency management agencies.
		Coordinate maintenance resources for incidents with other regional maintenance providers.
		Receive vehicle location information from agency maintenance and construction vehicles.
		Receive vehicle maintenance conditions from agency maintenance and construction vehicles and coordinate fleet maintenance with agency's fleet services.
		Provide maintenance of streets within the city, including pavement maintenance and all construction activities.
		Coordinate maintenance activities with the agency's TOC.
		Dispatch agency maintenance vehicles and get operations status from these vehicles.
		Provide maintenance to all field equipment owned and operated by the City.
		Manage work zones on City streets, and monitor the safety of work zones status with City owned vehicles and field equipment.
		Coordinate maintenance and construction activities with other regional maintenance and construction agencies.
		Distribute maintenance and construction plans and work zone information to regional information service providers, regional traffic operations, emergency operations, rail operations, and the media.
	City of Springdale	Receive a request for maintenance resources for incident response from regional emergency management agencies.

Transportation Service	Stakeholder	Roles/Responsibilities
		Coordinate maintenance resources for incidents with other regional maintenance providers.
		Receive vehicle location information from agency maintenance and construction vehicles.
		Receive vehicle maintenance conditions from agency maintenance and construction vehicles and coordinate fleet maintenance with agency's fleet services.
		Provide maintenance of streets within the city, including pavement maintenance and all construction activities.
		Coordinate maintenance activities with the agency's TOC.
		Dispatch agency maintenance vehicles and get operations status from these vehicles.
		Provide maintenance to all field equipment owned and operated by the City.
		Manage work zones on City streets, and monitor the safety of work zones status with City owned vehicles and field equipment.
		Coordinate maintenance and construction activities with other regional maintenance and construction agencies.
		Distribute maintenance and construction plans and work zone information to regional information service providers, regional traffic operations, emergency operations, rail operations, and the media.
	Municipalities	Receive a request for maintenance resources for incident response from regional emergency management agencies.
		Coordinate maintenance resources for incidents with other regional maintenance providers.
		Receive vehicle location information from agency maintenance and construction vehicles.
		Receive vehicle maintenance conditions from agency maintenance and construction vehicles and coordinate fleet maintenance with agency's equipment repair garage.
		Provide maintenance of streets within the municipality, including pavement maintenance and all construction activities.
		Coordinate maintenance activities with the municipal TOC and with the agency's asset management system.
		Dispatch agency maintenance vehicles and get operations status from these vehicles.
		Manage work zones on municipal streets.
		Coordinate maintenance and construction activities with other regional maintenance and construction agencies.
		Distribute maintenance and construction plans and work zone information to regional information service providers, regional traffic operations, emergency operations, rail operations, and the media.

Transportation Service	Stakeholder	Roles/Responsibilities
	Benton County Road Department	Receive a request for maintenance resources for incident response from regional emergency management agencies.
		Coordinate maintenance resources for incidents with other regional maintenance providers.
		Receive vehicle location information from agency maintenance and construction vehicles.
		Receive vehicle maintenance conditions from agency maintenance and construction vehicles and coordinate fleet maintenance with agency's equipment repair garage.
		Provide maintenance of county roads, including pavement maintenance and all construction activities.
		Coordinate maintenance activities with regional traffic operations and with the agency's asset management system.
		Dispatch agency maintenance vehicles and get operations status from these vehicles.
		Provide maintenance to all field equipment owned and operated by the county.
		Manage work zones on county roads.
		Coordinate maintenance and construction activities with other regional maintenance and construction agencies.
		Distribute maintenance and construction plans and work zone information to regional information service providers, regional traffic operations, emergency operations, rail operations, and the media.
	Washington County Road Department	Receive a request for maintenance resources for incident response from regional emergency management agencies.
		Coordinate maintenance resources for incidents with other regional maintenance providers.
		Receive vehicle location information from agency maintenance and construction vehicles.
		Receive vehicle maintenance conditions from agency maintenance and construction vehicles and coordinate fleet maintenance with agency's equipment repair facility.
		Provide maintenance of county roads, including pavement maintenance and all construction activities.
		Coordinate maintenance activities with regional traffic operations and with the agency's asset management system.
		Dispatch agency maintenance vehicles and get operations status from these vehicles.
		Provide maintenance to all field equipment owned and operated by the county.
		Manage work zones on county roads.
		Coordinate maintenance and construction activities with other regional maintenance and construction agencies.

Transportation Service	Stakeholder	Roles/Responsibilities
		Distribute maintenance and construction plans and work zone information to regional information service providers, regional traffic operations, emergency operations, rail operations, and the media.
Parking Management	**City of Bentonville**	Collect revenue from agency parking lots and garages.
		Provide parking information and availability to the general public via agency website and private information service providers.
		Provide travelers to request parking reservations at agency parking lots and garages and provide parking confirmation.
	City of Fayetteville	Collect tolls from agency parking lots and garages.
		Provide parking information and availability to the general public via agency website and private information service providers.
		Provide travelers to request parking reservations at agency parking lots and garages, and provide parking confirmation.
	City of Rogers	Collect revenue from agency parking lots and garages.
		Provide parking information and availability to the general public via agency website and private information service providers.
		Provide travelers to request parking reservations at agency parking lots and garages, and provide parking confirmation.
	City of Springdale	Collect revenue from agency parking lots and garages.
		Provide parking information and availability to the general public via agency website and private information service providers.
		Provide travelers to request parking reservations at agency parking lots and garages and provide parking confirmation.
	Northwest Arkansas National Airport Authority	Collect revenue from agency parking lots and garages.
		Provide parking information and availability to the general public via agency website and private information service providers.
		Provide travelers to request parking reservations at agency parking lots and garages, and provide parking confirmation.
	University of Arkansas	Collect revenue from agency parking lots and garages.
		Provide parking information and availability to the general public via agency website and private information service providers.
		Provide travelers to request parking reservations at agency parking lots and garages, and provide parking confirmation.
		Coordinate with Razorback Transit to provide parking and transit coordination.
		Provide parking information and demand to the City of Fayetteville Traffic Operations Center.
Archived Data Management	ARDOT	Collect and archive pavement management/maintenance information from regional maintenance districts and provide the information to the statewide system.
		Collect and archive traffic information from the agency's regional TMCs.

Transportation Service	Stakeholder	Roles/Responsibilities
	NWARPC	Collect and archive traffic information from regional traffic management providers, transit information from regional transit agencies, and maintenance and construction information from maintenance agencies for planning purposes.
		Serve as a data warehouse for regional traffic, maintenance, and transit agencies.
		Serve as a virtual data warehouse for all archive systems in the region.
	Municipalities	Collect and archive pavement management/maintenance information from its own field equipment and maintenance section and provide the information to regional and statewide systems.
		Collect and archive emergency and crash information from regional emergency management agencies and regional public safety agencies and provide this information to the statewide system.
	Local Agencies	Collect and archive transportation and emergency data and information for that agency.
	Ozark Regional Transit	Collect and archive transit and ridership information for the agency's transit operations.
	Razorback Transit	Collect and archive transit and ridership information for the agency's transit operations.
Commercial Vehicle Operations	ARDOT	Provide an electronic (web based) credentials interface for commercial vehicle credentials applications.
		Coordinate fee and credential information and payment with regional and municipal permitting systems.
		Provide route information to regional and statewide information service providers, including IDrive Arkansas and HCRS.
		Operate and maintain roadside HAZMAT detectors.
	Arkansas Highway Police	Inspect commercial vehicles and operate weigh-in-motion sites
		Coordinate fee and credential information and payment with regional and municipal permitting systems.
	City of Bella Vista	Provide for commercial vehicle permits (oversize/overweight) and through coordination with other regional permitting systems.
	City of Bentonville	Provide for commercial vehicle permits (oversize/overweight) and through coordination with other regional permitting systems.
	City of Fayetteville	Provide for commercial vehicle permits (oversize/overweight) and through coordination with other regional permitting systems.
	City of Rogers	Provide for commercial vehicle permits (oversize/overweight) and through coordination with other regional permitting systems.
	City of Siloam Springs	Provide for commercial vehicle permits (oversize/overweight) and through coordination with other regional permitting systems.
	City of Springdale	Provide for commercial vehicle permits (oversize/overweight) and through coordination with other regional permitting systems.

Transportation Service	Stakeholder	Roles/Responsibilities
	Benton County	Provide for commercial vehicle permits (oversize/overweight) and through coordination with other regional permitting systems.
	Washington County	Provide for commercial vehicle permits (oversize/overweight) and through coordination with other regional permitting systems.
	Private Commercial Carriers	Provide emergency notification and HAZMAT information to regional emergency management providers through a concierge service provider.
		Provide HAZMAT information to regional emergency management providers.
	Rail Operations	Provide emergency notification and HAZMAT information to regional emergency management providers through a concierge service provider.
		Provide HAZMAT information to regional emergency management providers.

APPENDIX K: NORTHWEST ARKANASAS RECOMMENDED HIGH-PRIORITY ITS PROJECTS

Traffic Management Service Packages and Projects

TM01 Infrastructure-Based Traffic Surveillance	High Priority

Includes traffic detectors, CCTV cameras, other surveillance equipment, supporting field equipment, and fixed point to point communications to transmit the collected data back to a traffic management center.

Recommended Projects

- ARDOT I-49 Road Network Surveillance and Infrastructure Security Monitoring Expansion
- City of Fayetteville Queue Detectors for I-49 Exit Ramps
- Future Municipal TOC and Traffic Signal System Deployment
- Municipal and County CCTV Camera Deployment
- Municipal and County Real-Time Transportation Information Website Enhancements
- Municipal and County TOC Upgrades

TM03 Traffic Signal Control	High Priority

Provides the central control and monitoring equipment, communication links, and signal control equipment that support local street and/or arterial traffic management. This service package is consistent with typical urban traffic signal control systems.

Recommended Projects

- City of Fayetteville Queue Detectors for I-49 Exit Ramps
- Future Municipal TOC and Traffic Signal System Deployment
- Municipal and County TOC Upgrades
- Municipal and County Traffic Signal System Coordination and Field Devices
- Standard Railroad Grade Crossing Coordination

TM06 Traffic Information Dissemination	High Priority

Provides driver information using roadway equipment such as dynamic message signs or highway advisory radio. Information can include traffic and road conditions, closure and detour information, incident information, emergency alerts and driver advisories.

Recommended Projects

- ARDOT I-49 DMS Deployment Expansion
- ARDOT, County and Municipal Portable DMS Expansion
- Future Municipal TOC and Traffic Signal System Deployment
- Municipal and County DMS Deployment
- Municipal and County TOC Upgrades

TM07 Regional Traffic Management	High Priority

Facilitates the sharing of traffic information and control among traffic management centers to support a regional control strategy. The nature of optimization and extent of information and control sharing is determined through working arrangements between jurisdictions.

Recommended Projects

- Future Municipal TOC and Traffic Signal System Deployment
- Municipal and County TOC Upgrades
- Northwest Arkansas Regional Operations Committee
- Future Northwest Arkansas Joint Regional Traffic Management Center

TM08 Traffic Incident Management System	High Priority

Manages both unexpected incidents and planned events so that the impact to the transportation network and traveler safety is minimized. This service package includes incident detection capabilities and coordination with other agencies. It supports traffic operations personnel in developing an appropriate response in coordination with emergency management, maintenance and construction management, and other incident response personnel.

Recommended Projects

- Future Municipal TOC and Traffic Signal System Deployment
- Municipal and County CCTV Camera Deployment
- Municipal and County DMS Deployment
- Municipal and County TOC Upgrades
- Municipal and County Traffic/Public Safety Video Sharing
- Northwest Arkansas Regional Incident Management Coordination and Training
- Northwest Arkansas Regional Operations Committee
- Future Northwest Arkansas Joint Regional Traffic Management Center

TM09 Integrated Decision Support and Demand Management	High Priority

Provides courses of action to transportation operators in a corridor, downtown area, or other heavily traveled area. Recommendations are based on an assessment of current and forecast transportation network performance and environmental conditions. Multi-modal transportation operational strategies are created that consider all modes and all roads in the travel area to correct network imbalances and effectively manage available capacity. Operational strategies, including demand management recommendations, are coordinated to support operational decisions by each transportation operator that are consistent with the recommended strategy.

Recommended Projects

- Regional Committee to Improve Access to and Safe Use of Alternative Modes of Transportation and to Promote Demand-Management Strategies
- ITS Elements to Improve Access to and Safe Use of Alternative Modes of Transportation

TM17 Speed Warning and Enforcement	Medium Priority

Monitors the speed of vehicles traveling through a roadway system.

Recommended Projects

- Municipal Speed Warning Systems

TM19 Roadway Closure Management	High Priority

Closes roadways to vehicular traffic when driving conditions are unsafe, maintenance must be performed, or other situations. Service package covers general road closures applications; specific closure systems that are used at railroad grade crossings, drawbridges, reversible lanes, etc. are covered by other service packages.

Recommended Projects

- ARDOT, County and Municipal Road Closure Management Systems
- Low Water Crossing Flood Detection and Road Closure Systems

Public Safety Service Packages and Projects

PS01 Emergency Call-Taking and Dispatch	High Priority

Provides basic public safety call-taking and dispatch services. Includes emergency vehicle equipment, equipment used to receive and route emergency calls, wireless communications, and coordination between emergency management agencies.

Recommended Projects

- Benton County Coordinated Dispatch
- Municipal and County Traffic/Public Safety Video Sharing
- Northwest Arkansas Regional Mutual Aid Agreements
- Washington County Coordinated Dispatch

PS02 Emergency Response	High Priority

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. Includes signal preemption and priority applications.

Recommended Projects

- Benton County Coordinated Dispatch
- Municipal and County Emergency Vehicle Traffic Signal Preemption
- Northwest Arkansas Regional Mutual Aid Agreements
- Washington County Coordinated Dispatch

Maintenance and Construction Management Service Packages and Projects

MC03 Roadway Automated Treatment	High Priority

Automatically treats a roadway section based on environmental or atmospheric conditions. Includes the sensors that detect adverse conditions, automated treatment (such as anti-icing chemicals), and driver information systems.

Recommended Projects

- ARDOT Anti-icing Systems

MC04 Winter Maintenance	High Priority

Supports winter road maintenance. Monitors environmental conditions and weather forecasts and uses the information to schedule winter maintenance activities.

Recommended Projects

- ARDOT, County and Municipal Road Closure Management Systems
- ARDOT Anti-icing Systems
- ARDOT County and Municipal Road Weather Data Collection Systems

MC06 Work Zone Management	High Priority

Directs activity in work zones, controlling traffic through portable dynamic message signs and informing other groups of activity for better coordination management. Also provides speed and delay information to motorists prior to the work zone.

Recommended Projects

- ARDOT, County and Municipal Portable DMS Expansion

MC08 Maintenance and Construction Activity Coordination	High Priority

Supports numerous services for scheduled and unscheduled maintenance and construction on a roadway system or right-of-way. Also supports the dissemination of maintenance and construction activity information to centers that can use it as part of their operations. (i.e., traffic management, transit, emergency management)Environmental conditions information is also received from various weather sources to aid in scheduling maintenance and construction activities.

Recommended Projects

- ARDOT, County and Municipal Maintenance and Construction Activity Coordination System
- ARDOT, County and Municipal Road Closure Management Systems
- ARDOT, County and Municipal Low Water Crossing Flood Detection and Road Closure Systems

Public Transportation Management Service Packages and Projects

PT06 Transit Fleet Management	High Priority

Supports automatic transit maintenance scheduling and monitoring for both routine and corrective maintenance.

Recommended Projects

- Transit Asset Management and Maintenance Scheduling System

PT07 Transit Passenger Counting	High Priority

Supports automatic counting of passengers entering and exiting a transit vehicle using sensors mounted on the vehicle and communicates the collected passenger data back to the management center. The collected data can be used to calculate reliable ridership figures and measure passenger load information at particular stops.

Recommended Projects

- Ozark Regional Transit APC
- Razorback Transit APC

Traveler Information Service Packages and Projects

TI01 Broadcast Traveler Information	High Priority

Collects traffic conditions, advisories, general public transportation, toll and parking information, incident information, roadway maintenance and construction information, air quality and weather information, and broadly disseminates this information through existing infrastructure (radio, cell phones, etc.).

Recommended Projects

- Municipal and County Real-Time Transportation Information Website Enhancements
- Northwest Arkansas Media Liaison and Coordination
- Northwest Arkansas Regional Traveler Information Website

TI02 Personalized Traveler Information	High Priority

Provides tailored information in response to a traveler request. Both real-time interactive request/response systems and information systems that "push" a tailored stream of information to the traveler based on a submitted profile are supported. The traveler can obtain current information regarding traffic conditions, roadway maintenance and construction, transit services, ride share/ride match, parking management, detours, and pricing information.

Recommended Projects

- Expansion of IDrive Arkansas to include Arterial Data from Cities and Counties
- Municipal and County Real-Time Transportation Information Website Enhancements

TI04 Infrastructure-Provided Trip Planning and Route Guidance	High Priority

Provides transit users at transit stops and on board transit vehicles with ready access to transit information. Services include stop annunciation, imminent arrival signs, and real-time transit schedule displays. Systems that provide custom transit trip itineraries and other tailored transit information services are also represented by this service package.

Recommended Projects

- Ozark Regional Transit Personalized Interactive Traveler Information
- Razorback Transit Personalized Interactive Traveler Information
- Mobility as a Service App

Information Management Service Packages and Projects

DM01 ITS Data Warehouse	High Priority

Includes all the data collection and management capabilities of the ITS Data Mart. Adds the functionality to allow collection of data from multiple agencies and data sources across modal and jurisdictional boundaries.

Recommended Projects

- Northwest Arkansas Regional Data Warehouse

DM02 Performance Monitoring	High Priority

Uses information collected from detectors and sensors, connected vehicles, and operational data feeds from centers to support performance monitoring and other uses of historical data including transportation planning, condition monitoring, safety analyses, and research.

Recommended Projects

- Northwest Arkansas Online Performance Dashboard

APPENDIX L: POTENTIAL FEDERAL FUNDING SOURCES

Introduction

In late 2015, the U.S. Congress enacted the Fixing America's Surface Transportation Act (FAST Act), which provides funds for surface transportation activities. The FAST Act provided just over $300 billion dollars for surface transportation projects through the fiscal years of 2016 to 2020. The FAST Act builds upon the Moving Ahead for Progress in the 21st Century Act (MAP-21), which was enacted in 2012, by expanding its scope to include improving highway mobility, supporting economic growth by creating jobs, and accelerating project delivery and promoting innovation. MAP-21 set out to make surface transportation projects streamlined, performance based, and multimodal, while improving safety, maintaining infrastructure, reducing traffic congestion, improving efficiency, protecting the environment, and expediting project delivery. In 2022, the U.S. Congress enacted the Bipartisan Infrastructure Law, which provided new funding sources to plan, design, build, manage, operate and maintain transportation infrastructure and service in the U.S.. Many of these new funding programs can be used to support ITS infrastructure and services.

This appendix provides descriptions of the most relevant programs for funding of ITS. The summary draw heavily from descriptions oof the funding programs found on the U.S. DOT web sites. The potential funding programs are presented in the following groups:

- Federal Aid Programs
- Federal Grant Programs
- Bipartisan Infrastructure Law Programs

Where possible, the descriptions identify the purpose of the program, eligible uses, eligible recipients and the amount of money authorized for the program,

Federal Formula Aid Programs

NATIONAL HIGHWAY PERFORMANCE PROGRAM (NHPP)

Every year, the FAST Act provides a little over $23 billion for the NHPP to preserve the condition and performance of the National Highway System (NHS). NHPP funds can also be used to construct new NHS facilities and ensure that projects are making progress toward performance goals set out in each state's asset management plan. NHPP provides funding for improvements to rural and urban roads that are part of the NHS, including the Interstate System and designated connections to major intermodal terminals. Under certain circumstances, NHS funds may also be used to fund transit improvements in NHS corridors.

SURFACE TRANSPORTATION BLOCK GRANT (STBG) PROGRAM

Previously titled the Surface Transportation Program (STP) The STBG is a block grant funding program with subcategories for states and urban areas. STBG funding may be used for projects to preserve and improve the conditions and performance on any Federal-aid highway, bridge, and tunnel projects on any public road, pedestrian and bicycle infrastructure, and transit capital projects, including intercity bus terminals. These funds can be used for any road, including an NHS roadway, that is not functionally classified as a local road or rural minor collector. The state portion can be used on roads within (or outside) an urbanized area, while the urban portion can only be used on roads within an urbanized area. The funding ratio is 80/20 (federal/local). For urban areas with a population of greater than 200,000

people (such as the AAMPO area), the MPO is the lead agency for funding allocation in consultation with the State. In urban areas with a population of less than 200,000 people, the State is the leading agency for fund allocation in consultation with the MPO.

HIGHWAY SAFETY IMPROVEMENT PROGRAM (HSIP)

The purpose of the HSIP is to achieve a significant reduction in traffic fatalities and serious injuries on all public roads, including non-State-owned public roads and roads on tribal lands. States are required to allocate HSIP using a safety data system to perform problem identification and countermeasure analysis on all public roads, adopt strategic and performance-based goals, advance data collection, analysis, and integration capabilities, determine priorities for the correction of identified safety problems, and establish evaluation procedures.

TRANSPORTATION ALTERNATIVES (TA) PROGRAM

The FAST Act replaced the MAP-21 Transportation Alternatives (TA) Program with a set-aside of STBG program funding for Transportation Alternatives (TA) to provide funding for a variety of alternative transportation projects that were previously eligible activities. Eligible activities include:

- Facilities for pedestrians, bicyclists, and other non-motorized forms of transportation
- Safe routes for non-drivers
- Conversion and use of abandoned railroad corridors for trails
- Community improvement activities

States and MPOs (for urbanized areas with more than 200,000 people) conduct a competitive application process for use of the sub-allocated funds. Other than a recreational trails set-aside, states are given broad flexibility to use these funds. A 20% local funding match is required for most projects.

FTA FUNDING PROGRAMS

Several FTA grant programs could potentially provide funding for public transportation service improvements, facilities or equipment. These include:

- Section 5307 - Urbanized Area Formula Grants: Makes federal resources available to urbanized areas and to governors for transit capital and operating assistance in urbanized areas and for transportation-related planning. An urbanized area is an incorporated area with a population of 50,000 or more.
- Section 5339 - Grants for Buses and Bus Facilities: Provides funding to states and transit agencies through a statutory formula to replace, rehabilitate and purchase buses and related equipment, and to construct bus-related facilities.
- Section 5310 - Enhanced Mobility of Seniors and Individuals with Disabilities: Formula funding to states for the purpose of assisting private nonprofit groups in meeting transportation needs of the elderly and persons with disabilities.
- Section 5311 – The Formula Grants for Rural Areas Program: Formula funding to states for the purpose of providing capital, planning, and operating assistance for public transportation

providers in rural areas with populations of less than 50,000. Additionally, the program provides funding for training and technical assistance under the Rural Transportation Assistance Program.

Federal Grant Programs

ADVANCED TRANSPORTATION TECHNOLOGIES AND INNOVATIVE MOBILITY DEVELOPMENT (ATTIMD)/ADVANCED TRANSPORTATION TECHNOLOGY AND INNOVATION (ATTAIN)

The Bipartisan Infrastructure Law (BIL) amended the Advanced Transportation and Congestion Management Technologies Deployment (ATCMTD) Program and renamed it the ATTIMTD Program. In implementing BIL, FHWA will refer to this program as the ATTAIN program. The program provides competitive grants to deploy, install, and operate advanced transportation technologies to improve safety, mobility, efficiency, system performance, intermodal connectivity, and infrastructure return on investment. Each Fiscal Year, 2022 through FY 2026, $60 million is authorized and the Federal share for each project may be up to 80 percent of the cost of the project. Grant recipients may use funds under this program to deploy advanced transportation and congestion management technologies, including Integrated Corridor Management systems; advanced parking reservation or variable pricing systems; electronic pricing, toll collection, and payment systems; integration of transportation service payment systems; advanced mobility access and on-demand transportation service technologies; and retrofitting dedicated short-range communications (DSRC) technology. Eligible applicants include state or local governments, MPOs, transit agencies or multijurisdictional groups made up of the other listed eligible applicants.

REBUILDING AMERICAN INFRASTRUCTURE WITH SUSTAINABILITY AND EQUITY (RAISE) GRANTS

The U.S. Department of Transportation (USDOT) published a Notice of Funding Opportunity for $1 billion in Fiscal Year (FY) 2021 discretionary grant funding through the Rebuilding American Infrastructure with Sustainability and Equity (RAISE) grants. RAISE, formerly known as BUILD and TIGER, has awarded over $8.935 billion in grants to projects in all 50 states, the District of Columbia and Puerto Rico since 2009. Projects for RAISE funding are evaluated based on merit criteria that include safety, environmental sustainability, quality of life, economic competitiveness, state of good repair, innovation, and partnership. Within these criteria, USDOT will prioritize projects that can demonstrate improvements to racial equity, reduce impacts of climate change, and create good-paying jobs. For FY 2021 of RAISE grants, the maximum grant award is $25 million, and no more than $100 million can be awarded to a single State, as specified in the appropriations act. Up to $30 million will be awarded to planning grants, including at least $10 million to Areas of Persistent Poverty. To ensure that the benefits of infrastructure investments benefit communities large and small the Department will award an equitable amount, not to exceed half of funding, to projects located in urban and rural areas, respectively.

INFRASTRUCTURE FOR REBUILDING AMERICA (INFRA) GRANT PROGRAM

The U.S. Department of Transportation (USDOT) provides the Infrastructure for Rebuilding America (INFRA) discretionary grant program to fund transportation projects of national and regional significance that are in line with the Biden Administration's principles for national infrastructure projects that result in good-paying jobs, improve safety, apply transformative technology, and explicitly address climate change and racial equity. The funding available for FY 2021 grants totaled approximately $889 million. USDOT seeks projects that apply innovative technology, delivery, or financing methods with proven outcomes to deliver projects in a cost-effective manner. Eligible INFRA project costs may include

reconstruction, rehabilitation, acquisition of property (including land related to the project and improvements to the land), environmental mitigation, construction contingencies, equipment acquisition, and operational improvements directly related to system performance.

TRANSPORTATION INFRASTRUCTURE FINANCE AND INNOVATION ACT (TIFIA) PROGRAM

The Transportation Infrastructure Finance and Innovation Act (TIFIA) program provides federal credit assistance in the form of direct loans, loan guarantees, and standby lines of credit to finance surface transportation projects of national and regional significance. TIFIA credit assistance provides improved access to capital markets, flexible repayment terms, and potentially more favorable interest rates than can be found in private capital markets for similar instruments. TIFIA can help advance qualified large-scale projects that otherwise might be delayed or deferred because of size, complexity, or uncertainty over the timing of revenues. Transportation Projects eligible for federal assistance through existing transportation programs are eligible for the TIFIA credit program. Eligible projects must be included in the State Transportation Improvement Program (STIP) and have a capital cost of at least $50 million, except ITS projects which have a $15 million eligibility requirement. TIFIA financing should attract public and private investment; result in a project proceeding earlier and/or more efficiently; and reduce use of federal grant assistance to the project.

Bipartisan Infrastructure Law Programs

CONGESTION RELIEF PROGRAM

The Congestion Relief Program will provide $250 million in competitive grants over four years to advance innovative, integrated, and multimodal solutions to reduce congestion and the related economic and environmental costs in the most congested metropolitan areas with an urbanized area population of 1 million or more. Eligible uses include planning, design, implementation, and construction activities to achieve the program goals, including deployment and operation of integrated congestion management systems, systems that implement or enforce high occupancy vehicle toll lanes or pricing strategies, or mobility services; and incentive programs that encourage carpooling, nonhighway travel during peak periods, or travel during nonpeak periods. Subject to certain requirements and approval by the Secretary, provides for tolling on the Interstate System as part of a project carried out with a grant under the program.

ACCELERATED INNOVATION DEPLOYMENT (AID)

The AID Demonstration Program provides funding as an incentive to accelerate the deployment and adoption of proven innovative practices and technologies in highway transportation projects. The Federal Highway Administration (FHWA) anticipates approximately $10 million to be made available for AID Demonstration grants in 2022 from amounts authorized within the Technology and Innovation Deployment Program (TIDP) under the Infrastructure Investment and Jobs Act. The grants are administered through the FHWA Office of Transportation Workforce Development and Technology Deployment. Projects submitted for an AID Demonstration grant must:

- Be eligible for assistance under title 23, United States Code.
- Be ready to initiate within 6 months of receiving an AID Demonstration award.
- Involve any phase of a highway transportation project between project planning and project delivery including planning, financing, operation, structures, materials, pavements, environment, and construction.

- Include an innovation proven in real-world highway transportation application, though not routinely used by the applicant or the subrecipient.
- Address TIDP goals and other program requirements as identified in the Notice of Funding Opportunity.

The AID Demonstration award is based on the cost of the innovation in a project (rather than the total project cost). The award amount may be up to the full cost of the innovation in the project, to a maximum of $1 million. AID Demonstration funds are available at an 80 percent federal share, which require a minimum 20 percent cost share.

STRENGTHENING MOBILITY AND REVOLUTIONIZING TRANSPORTATION (SMART) GRANTS

The Office of the Secretary's Strengthening Mobility and Revolutionizing Transportation Grant program will provide $500 million supplemental funding as competitive grants to rural, midsized, and large communities to conduct demonstration projects focused on advanced smart city or community technologies and systems in a variety of communities to improve transportation efficiency and safety. Eligible uses include activities to carry out a project that demonstrates at least one of the following: vehicle automation, connected vehicles, intelligent sensor-based infrastructure, systems integration, commerce delivery and logistics, leveraging use of innovative aviation technology, smart grid and smart technology traffic signals. Eligible recipients include States; a political subdivision of a State; a Tribal government; a public transit agency or authority; a public toll authority; a metropolitan planning organization; and a group of 2 or more eligible entities.

SAFE STREETS AND ROADS FOR ALL (SS4A) GRANTS

The Bipartisan Infrastructure Law established the new Safe Streets and Roads for All (SS4A) discretionary program with $5 billion in appropriated funds over the next 5 years. The SS4A program funds regional, local, and Tribal initiatives through grants to prevent roadway deaths and serious injuries. The SS4A program supports Secretary of Transportation Pete Buttigieg's National Roadway Safety Strategy and the Department's goal of zero deaths and serious injuries on our nation's roadways On Feb. 1, 2023, U.S. Transportation Secretary Pete Buttigieg announced $800 million in grant awards for 510 projects through the first round of funding for the Safe Streets and Roads for All (SS4A) grant program. Organization eligible for grant funding include Metropolitan Planning Organizations; counties, cities, towns, and transit agencies or other special districts that are subdivisions of a State; federally recognized Tribal governments; and multijurisdictional groups comprised of the above entities. The following activities are eligible for the SS4A program: develop or update a comprehensive safety action plan (Action Plan); conduct planning, design, and development activities in support of an Action Plan; and carry out projects and strategies identified in an Action Plan.

CARBON REDUCTION PROGRAM GRANTS

The U.S. Department of Transportation's Federal Highway Administration has announced a program that will make available $6.4 billion in formula funding for states and localities over five years with roughly one-fifth of the total allocated in each fiscal year. The new Carbon Reduction Program (CRP), created under the President's Bipartisan Infrastructure Law, will help states develop carbon reduction strategies and address the climate crisis. The CRP will fund a wide range of projects designed to reduce carbon dioxide emissions from on-road highway sources — from installing infrastructure to support the electrification of freight vehicles or personal cars, to constructing Bus Rapid Transit corridors, to facilitating micro-mobility and biking. Projects can also include zero emission vehicles and facilities,

projects that support congestion pricing and travel demand strategies; truck stop and port electrification systems to reduce the environmental impacts of freight movement and carbon dioxide emissions at port facilities. Under the CRP, states must also develop carbon reduction strategies in consultation with Metropolitan Planning Organizations to identify projects and strategies tailored to reduce carbon dioxide emissions in their states, although states and localities may begin using the CRP funds even before plans are developed and reviewed. Arkansas has already received $15.7 million for FY 2022. A similar amount will be available for the next four fiscal years.

PROMOTING RESILIENT OPERATIONS FOR TRANSFORMATIVE, EFFICIENT, AND COST SAVING TRANSPORTATION (PROTECT) GRANTS

PROTECT Grants will support planning, resilience improvements, community resilience and evacuation routes, and at-risk coastal infrastructure. Recipients may use PROTECT Formula Program funds to conduct resilience planning, strengthen and protect evacuation routes, and increase the resilience of surface transportation infrastructure from the impacts of sea level rise, flooding, wildfires, extreme weather events, and other natural disasters. Highway, transit, and certain port projects are eligible. Eligible recipients include States (or political subdivision of a State), MPO, local government, special purpose district or public authority with a transportation function, Tribe, and Federal land management agency (applying jointly with State(s). The program will provide $7.3 billion in formula funding (to States only) and $1.4 billion in discretionary grants for all eligible recipients.

CHARGING AND FUELING INFRASTRUCTURE DISCRETIONARY GRANT PROGRAM

The Charging and Fueling Infrastructure Discretionary Grant Program (CFI Program) is a new competitive grant program created by President Biden's Bipartisan Infrastructure Law to strategically deploy publicly accessible electric vehicle charging and alternative fueling infrastructure in the places people live and work – urban and rural areas alike – in addition to along designated Alternative Fuel Corridors (AFCs). CFI Program investments will make modern and sustainable infrastructure accessible to all drivers of electric, hydrogen, propane, and natural gas vehicles. This program provides two funding categories of grants: (1) Community Charging and Fueling Grants (Community Program); and (2) Alternative Fuel Corridor Grants (Corridor Program). The Bipartisan Infrastructure Law provides $2.5 billion over five years for this program. This round of funding will open soon, making $700 million from Fiscal Years 2022 and 2023 funding available to strategically deploy electric vehicle (EV) charging infrastructure and other fueling infrastructure projects in urban and rural communities in publicly accessible locations, including downtown areas and local neighborhoods, particularly in underserved and disadvantaged communities. Eligible applicants include States or political subdivision of States, Metropolitan Planning Organizations, units of local governments, Indian tribes and special-purpose districts or public authorities with a transportation function, including port authorities.

APPENDIX M: ARCHITECTURE MAINTENANCE DOCUMENTATION FORM

Please complete the following questionnaire to document changes for the Northwest Arkansas Regional ITS Architecture. Modifications will be made during the next architecture update.

Agency	
Agency Contact Person	
Street Address	
City	
State, Zip Code	
Telephone	
E-Mail	

Change Information

Please indicate the type of change:

☐ **Level 1:** Basic changes that do not affect the structure of the architecture.

Examples include: Changes to stakeholder or element name, element status, or data flow status

☐ **Level 2:** Structural changes that impact only one agency.

Examples include: Addition of a new service package or modifications to an existing service package that affect only your agency

☐ **Level 3:** Structural changes that have the potential to impact multiple agencies.

Examples include: Addition of a new service package or modifications to an existing service package that involves multiple agencies, incorporation of a new stakeholder into the architecture.

Describe requested change:	
What, if any, service packages are impacted by the proposed change? Note: If the proposed change involves creating or modifying a service package, please attach a sketch of the new or modified service package.	
Does the proposed change affect any additional stakeholders?	
Has coordination occurred with any impacted stakeholders? Please describe the results.	

Please submit change forms to:

Elizabeth Bowen
Northwest Arkansas Regional Planning Commission 1311 Clayton Street
Springdale, Arkansas 72764
Phone: (479) 751-7125
Date Request Filed: _____