Clarksville Regional Intelligent Transportation System

CRITS

Clarksville Regional Intelligent Transportation System Architecture

Version 1.0

Including:
Clarksville and Montgomery County, TN
Oak Grove and southern Christian County, KY
Fort Campbell Military Reservation

September 2006

CLARKSVILLE URBANIZED AREA
Metropolitan Planning Organization

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CRITS ARCHITECTURE
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Added Executive Summary	n/a	8/10/06
Revised appendices naming	3, 7, 8, 9, 10	8/10/06
Revised number of market packages	7	8/10/06
Revised number of information flows	8	8/10/06
Revised Table 1 and added project map	15, 16	8/10/06
Added “ownership” text highlight	17	8/10/06
Revised map (Figure 1)	2	9/12/06
Clarified agreements text	13	9/12/06
Revised update process text	17	9/12/06
Added functional area requirement	Appendix C (2, 5, 16, 22, 23, 25, 36, 37, 40, 59, 60, 66)	9/12/06
Deleted functional area requirement	Appendix C (1, 52, 56, 58)	9/12/06
Revised flow diagram line types	Appendix E	9/12/06
Added Appendix G	Appendix G	9/12/06

Executive Summary

Clarksville Regional Intelligent Transportation System (CRITS) Architecture
Version 1.0

On January 8, 2001, section 5206(e) of the Transportation Equity Act for the 21st Century (TEA-21) became effective, pertaining to conformance with the National Intelligent Transportation Systems Architecture and Standards. This Final Rule of the FHWA requires that all ITS projects conform to the National ITS Architecture as defined by the Final Rule. Additionally, it requires the National ITS Architecture be used to develop a regional ITS architecture, and the subsequent adherence of all ITS projects to that regional ITS architecture. It also recommends that development of the regional ITS architecture be consistent with the transportation planning process for Statewide and Metropolitan Transportation Planning.

In order to steer the creation of a functional ITS program that satisfies the demands of local and regional transportation stakeholders and to formulate a realistic vision for the future of the ITS network of Clarksville, Tennessee, Version 1.0 of the CRITS architecture has been developed. A secondary aim is to bring the region into compliance with the 2001 FHWA Final Rule on ITS Architecture and Standards Conformity.

This 25-year planning document defines the future of intelligent transportation technologies in the Clarksville. Its geographic scope is the planning area of the Clarksville Urban Area Metropolitan Planning Organization (CUAMPO) which includes all of the Cities of Clarksville, Tennessee and Oak Grove, Kentucky and portions of Montgomery County, Tennessee and Christian County, Kentucky. In addition, the Fort Campbell Military Reservation which straddles the Tennessee-Kentucky border is included.

In development of this architecture, 28 local, regional, state, and federal stakeholders have been consulted for input and assistance in defining the operation of the CRITS networks. Through this process, the system of inventory, services, and lines of communication have been stored in an electronic database that allows facilitated documentation and graphic analysis. This database is maintained by the CUAMPO and will be updated regularly by the organization.

A major component of this document is the implementation forecast for ITS technologies. Prior to the development of CRITS, several ITS strategies were developed for the region, but required the structured plan provided by this architecture development process. A map and project detail table describe the major near and long-term defined ITS projects in the region.

Detailed architecture information is included in the appendices of this document.

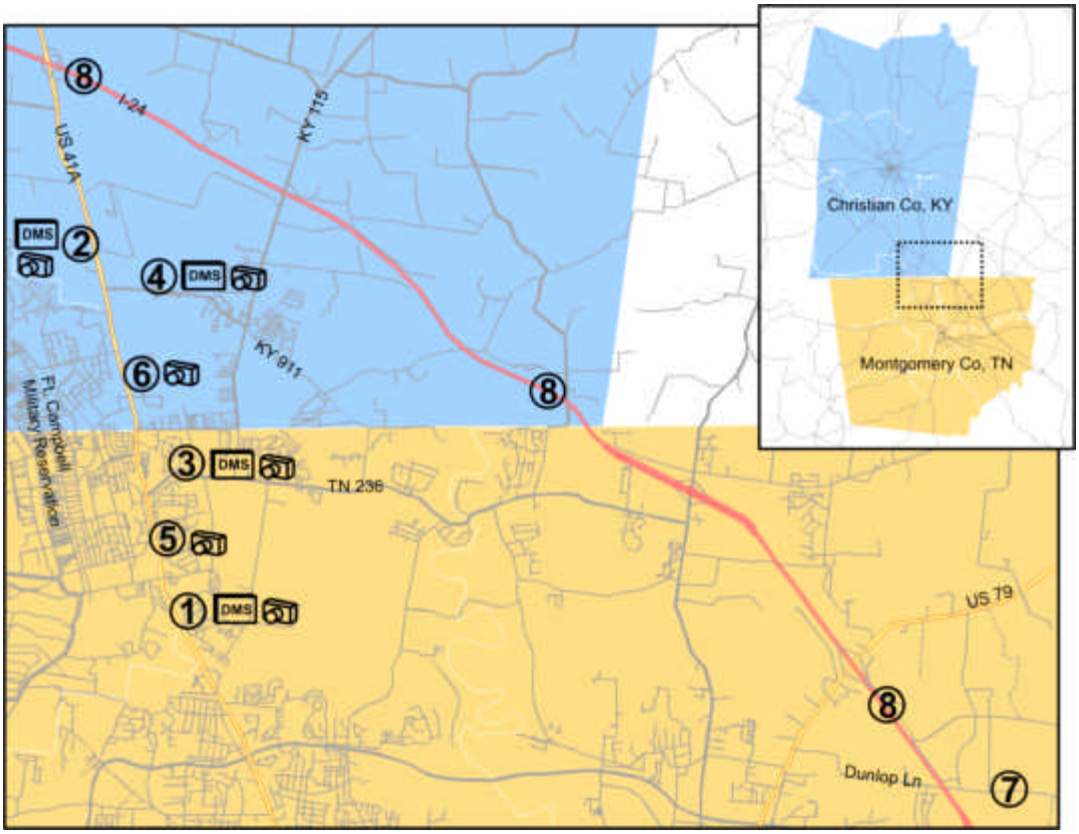
Map ID	Project	Route	Direction	Location	Jurisdiction	Plan Horizon (yrs)	Cost
1	DMS and CCTV Site 1	US 41A	Northbound	Near Tobacco Road	Clarksville, TN	0-5	$2,140,000[1]
2	DMS and CCTV Site 2	US 41A	Southbound	Near Herndon Oak Grove Road	Christian County, KY	0-5	
3	DMS and CCTV Site 3	TN 236	Westbound	Near Arbor Drive	Clarksville, TN	0-5	
4	DMS and CCTV Site 4	KY 911	Westbound	Near US 41A	Christian County, KY	0-5	
5	CCTV Site 5	US 41A	Northbound	South of Airport Road	Clarksville, TN	0-5	
6	CCTV Site 6	US 41A	Northbound	Between State Line Road and Ft. Campbell	Christian County, KY	0-5	
7	System Expansions/ Technology updates	Unknown		Dunlop Lane area	Clarksville, TN	0-5	$280,000[2]
	System Expansions/ Technology updates	Various			Clarksville, TN	5-10	$275,000[3]
	System Expansions/ Technology updates	Various			Christian County, KY	5-10	$555,000[3]
	System Expansions/ Technology updates	Various			Clarksville, TN	10-25	$2,442,000[3]
	System Expansions/ Technology updates	Various			Christian County, KY	10-25	$2,442,000[3]
	Traveler Information - Weather	Various				5-10	$50,000
	Traveler Information - Natural Disaster	Various				5-10	$50,000
	Traveler Information - Homeland Security	Various				5-10	$50,000
	Traveler Information - Incident/Accident	Various				5-10	$50,000
8	DMS and CCTV I-24 Corridor	I-24	Various			10-25	$2,500,000

Total Years 0 - 5	$2,420,000
Total Years 5 - 10	$980,000
Total Years 10 - 25	$7,384,000
Grand Total	$10,784,000

[1] From "Clarksville/Fort Campbell Intelligent Transportation System Study". TDOT. August 2003.

[2] Estimated. Study on I-24, proposed hospital, and Clarksville-Montgomery County Industrial Park under development.

[3] Estimated from "Clarksville Area 2030 Long Range Transportation Plan". Clarksville Urban Area MPO. June 2005.



1. INTRODUCTION

The Clarksville Regional Intelligent Transportation System (CRITS) Architecture was developed in 2006 to organize the implementation of ITS technologies in the Clarksville region. The primary goals of this architecture are to steer the creation of a functional ITS program that satisfies the demands of local and regional transportation stakeholders and to formulate a realistic vision for the future of Clarksville's ITS network. A secondary aim is to bring the region into compliance with the 2001 FHWA Final Rule on ITS Architecture and Standards Conformity. This document (termed Version 1.0) is intended as the initial CRITS architecture and will be updated on a regular basis as later defined in this document.

The scope of the CRITS system has a twofold definition. With respect to geographic area, the limits are defined as the Clarksville Area Metropolitan Planning Organization's (MPO) planning boundary (see Figure 1). This incorporates 230 square miles along the Tennessee-Kentucky state border including the cities of Clarksville, Tennessee and Oak Grove, Kentucky as well as other portions of Montgomery County, Tennessee and Christian County, Kentucky. Although not included in the MPO planning area, the Fort Campbell military base is also included in the CRITS scope due to its heavy impact on the regional transportation network.

The chronological scope of the CRITS architecture is 25 years. This service life, with regular updates, is an appropriate timeframe in which to allow for the planning of relatively ambitious technology implementation while ensuring that the region's ITS goals are attainable and are being pursued in a timely manner. All TIP-listed projects and near-term LRTP projects will be supported by the architecture.

This architecture is being developed in conjunction with the existing Kentucky ITS Statewide Architecture and the draft Tennessee Statewide ITS Architecture. In subsequent updates, the scope of the CRITS or of an adjacent regional architecture may expand to include overlapping ITS boundary areas. At such time, both CRITS and the adjacent regional architecture should be re-developed so as to promote a seamless delivery of communication and services.

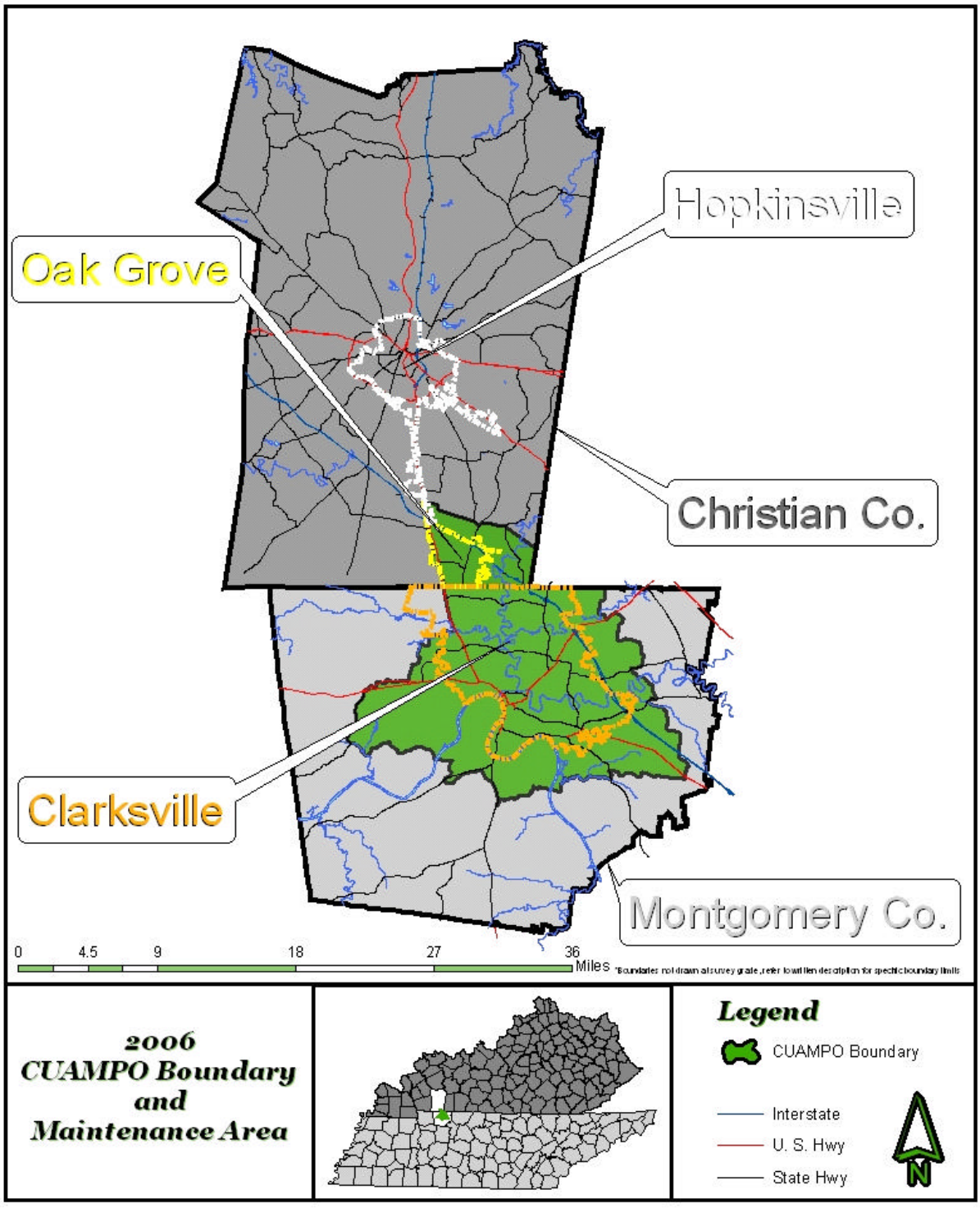


Figure 1: MPO area and CRITS geographic scope.

2. STAKEHOLDERS

Critical to the development of the CRITS architecture is the involvement of local transportation stakeholders. Major input and conformity guidance was received from the Federal Highway Administration (FHWA), the Tennessee Department of Transportation (TDOT), and the Kentucky Transportation Cabinet (KTC). The following organizations have been identified as other key role players in the region's transportation network. Also, because of specific management and operational issues, some organizations have been divided into two or more stakeholders.

The CRITS stakeholders are:

Christian County Highway Department
Clarksville Fire Department
Clarksville Information Services
Clarksville Police Department
Clarksville Street Department
Clarksville Transit System
Clarksville/Montgomery County E-911
Clarksville/Montgomery County RPC
FHWA, Kentucky Division
FHWA, Tennessee Division
Fort Campbell Military Base
Kentucky State Police
Kentucky Transportation Cabinet, District 2
Kentucky Transportation Cabinet, Planning Division
Kentucky Transportation Cabinet, Traffic Ops Division
Kentucky Vehicle Enforcement
Local emergency responder
Montgomery County Ambulance Service
Montgomery County Emergency Management Agency
Montgomery County Highway Department
Montgomery County Sheriffs Office
Oak Grove Emergency Management
Oak Grove Fire Department
Oak Grove Planning Department
Oak Grove Police Department
Pennyrile Area Development District
Subscription Weather Service
Tennessee Department of Transportation
Tennessee Highway Patrol

One stakeholder group has also been defined for organizations that maintain similar equipment inventories and are responsible for similar services in the ITS area. This group is termed "Local Emergency Responder" and includes responders and support from those organizations involved in emergency services in the region. These are:

Clarksville Fire Department
Clarksville Police Department
Clarksville/Montgomery Co E-911
Kentucky State Police
Montgomery County Ambulance Service
Montgomery County Sheriff's Office
Oak Grove Fire Department
Oak Grove Police Department
Tennessee Highway Patrol

Appendix A provides a detailed list including a description of the stakeholder and the ITS-related elements under the control of each.

3. INVENTORY

The CRITS Version 1.0 builds upon the ITS components already in operation in the Clarksville region. These technologies, controlled and maintained by the various stakeholder organizations, provide the opportunity for an improved level of communication once documented as part of the CRITS network.

The following list arranged by stakeholder details the existing ITS inventory elements found in the Clarksville region as of January 2006.

Christian County Highway Department

Element: ChrisCo Highways Headquarters
Status: Existing
Description: Contains maintenance/construction center and all administrative functions.

Element: ChrisCo Maintenance Vehicles
Status: Existing
Description: Includes street and construction vehicles.

Clarksville Information Services

Element: Clk Govt Reporting System
Status: Planned (funded)
Description: Will collect and distribute formatted data reports to government agencies.

Element: Clk Website
Status: Website existing, ITS component Planned (funded)
Description: Currently provides static display of city information. Will include traveler information and route guidance.

Clarksville Police Department

Element: Clarksville Police Headquarters
Status: Existing
Description: Serves as Emergency Management Center including vehicle dispatch, emergency response, and administration.

Element: Clarksville Police Roadway Equipment
Status: Existing
Description: Mobile safety equipment including speed detection trailers.

Clarksville Street Department

Element: Clk Maintenance Vehicles
Status: Existing
Description: Includes construction/maintenance and TOC vehicles.

Element: Clk Public Works Center
Status: Existing
Description: Headquarters for maintenance activities

Element: Clk Roadway Equipment
Status: Existing
Description: Includes reversible lane equipment, in-pavement detection, signal systems, RR crossing, surveillance, speed montoring, etc. Equipment is maintained by Street Dept. personnel.

Element: Clk Signal Priority System
Status: Existing
Description: Includes the field elements that receive signal priority and/or signal preemption requests from vehicles approaching a signalized intersection and controls traffic signals accordingly.

Element: Clk TOC
Status: Existing
Description: Monitors and manages the transportation networks within the city. Also collects and stores traffic data.

Element: Clk Traffic Data Stations
Status: Existing
Description: Collects regular ADT counts.

Element: Clk Traffic Information Stations
Status: Planned (funded)
Description: Provides traffic information, road conditions, transit information, yellow pages (traveler services) information, special event information, and other traveler information that is specifically tailored based on the traveler's request

Clarksville Transit System

Element: Clk Transit Area Surveillance
Status: Existing
Description: Monitors secure areas in the transit network.

Element: Transit Center
Status: Existing

Description: Manages transit operations including routing, scheduling, maintenance, and vehicle communications.

Element: Transit Fare Card System
Status: Planned (funded)
Description: Supports fare collection using a standard fare card or other non-monetary fare medium, detects payment violations, and counts passengers as they embark and disembark from the vehicle.

Element: Transit Vehicles
Status: Existing
Description: Provide transit services including paratransit service.

Clarksville/Montgomery County E-911

Element: MontCo E-911 System
Status: Existing
Description: Takes emergency calls within Montgomery County. Dispatches emergency responders from MontCo Sheriff and fire responders. Initiates dispatch of Clarksville Police through communication with CPD.

Fort Campbell Military Base

Element: Ft Campbell Gate Inspection
Status: Existing
Description: Security and inspection for all vehicles entering Ft Campbell

Kentucky Transportation Cabinet, District 2

Element: KTC Rdwy Equip, District 2
Status: Existing
Description: Includes in-pavement detection, signal systems, RR crossing, speed monitoring, etc. Equipment is maintained by KTC personnel and is used by TMC for traffic management within District 2.

Element: KY District 2 Maintenance Center
Status: Existing
Description: Houses and coordinates construction and maintenance activities in KTC's District 2. Includes typical ROW maintenance, work zone control, winter maintenance, etc.

Element: KY District 2 TMC
Status: Existing
Description: Monitors and manages the transportation networks on regional network. Also collects and stores traffic data.

Element: KY Maintenance Vehicles
Status: Existing
Description: Deployed by the District 2 Maintenance Center for routine and special maintenance activities.

Kentucky Transportation Cabinet, Planning Division

Element: KY Rdwy Equip, Planning Division
Status: Existing
Description: Includes in-pavement detection, tube counters, speed monitoring, etc. Equipment is maintained by KTC personnel and is used for statewide traffic data collection.

Element: KY Traffic Data Stations
Status: Existing
Description: Collects bi-annual ADT and classification counts.

Kentucky Transportation Cabinet, Traffic Ops Division

Element: KTC Rdwy Equip, Traffic Ops Division
Status: Existing
Description: Includes in-pavement detection, surveillance, speed montoring, etc. Equipment is maintained by KTC personnel and is used for statewide traffic information.

Element: KY 511 System
Status: Existing
Description: Traveler assistance over mobile phone.

Element: KY Roadway Weather Info System
Status: Existing
Description: A web-based weather station information system. Information includes pavement temp, solar energy info, ambient, and subsurface conditions.

Element: KY Statewide TOC
Status: Existing
Description: Monitors the transportation networks on statewide network. Also collects and stores traffic data and disseminates traffic information to public.

Element: KY Traveler Info Kiosks
Status: Existing
Description: A public display that receives formatted traffic advisories, road conditions, transit information, broadcast alerts, and other general traveler information broadcasts and presents the information to the traveler with a public traveler interface.

Kentucky Vehicle Enforcement

Element: KY Comm Vehicle Inspection System
Status: Existing

Description: Exchanges information with roadside facilities, providing information such as driver, vehicle, and carrier identification to roadside facilities that can be used to support electronic screening.

Element: KY Commercial Vehicle Admin Center
Status: Existing

Element: KY Weigh-In-Motion
Status: Existing
Description: Measures commercial vehicle weight at high speeds.

Local emergency responder

Stakeholders in this group:
Clarksville Police Department
Montgomery County Sheriffs Office
Clarksville Fire Department
Kentucky State Police
Montgomery County Ambulance Service
Clarksville/Montgomery County E-911
Tennessee Highway Patrol
Oak Grove Fire Department
Oak Grove Police Department

Element: Emergency Vehicles
Status: Existing
Description: Includes dispatch, routing, support, and tracking of an emergency vehicle.

Montgomery County Emergency Management Agency

Element: MontCo Early Warning System
Status: Existing
Description: Monitors advisory and alerting systems and reports threats or incidents. Currently dedicated to severe weather threats.

Element: MontCo Emergency Mgmt Headquarters
Status: Existing
Description: Houses related emergency organizations. Base for planning and operation of emergency response for the whole of Montgomery County.

Montgomery County Highway Department

Element: MontCo Highways Headquarters
Status: Existing
Description: Contains maintenance/construction center and all administrative functions.

Element: MontCo Maintenance Vehicles
Status: Existing
Description: Includes street and construction vehicles.

Montgomery County Sheriffs Office

Element: MontCo Sheriff Headquarters
Status: Existing
Description: Serves as Emergency Management Center including non-emergency vehicle dispatch, as-needed emergency response, and administration.

Element: MontCo Sheriff Roadway Equipment
Status: Existing
Description: Mobile safety equipment including speed detection trailers.

Oak Grove Emergency Management

Element: OG E-911
Status: Existing
Description: Takes emergency calls and dispatches responders.

Element: OG Early Warning System

Status: Existing
Description: Monitors advisory and alerting systems and reports severe weather threats to residents.

Tennessee Department of Transportation

Element: TDOT District maintenance garage and equipment
Status: Existing

Element: TDOT Region 3 TOC
Status: Existing
Description: Monitors and manages the transportation networks on regional network. Also collects and stores traffic data.

Element: TN 511 System
Status: Planned (funded)
Description: Traveler assistance over mobile phone.

Element: TN Maintenance Vehicles
Status: Existing
Description: Deployed by the TDOT's district maintenance garage for routine and special maintenance activities.

Element: TN SmartWay Website
Status: Existing
Description: Provides statewide closure/delay information via personal computer connection.

Element: TN Traffic Data Stations
Status: Existing

Description: Collects annual ADT and classification counts.

Element: TN Traveler Info Kiosks
Status: Existing
Description: A public display that receives formatted traffic advisories, road conditions, broadcast alerts, and other general traveler information broadcasts and presents the information to the traveler with a public traveler interface.

Element: TN Weigh-In-Motion
Status: Existing
Description: Measures commercial vehicle weight at high speeds.

Element: TN Work Zone Equipment
Status: Existing
Description: Mobile safety equipment for use in work zones including speed monitors, HAR, and dynamic message signs.

Tennessee Highway Patrol

Element: TN Comm Vehicle Inspection System
Status: Existing

Description: Exchanges information with roadside facilities, providing information such as driver, vehicle, and carrier identification to roadside facilities that can be used to support electronic screening.

Element: TN Highway Patrol Regional Headquarters
Status: Existing
Description: Responding trooper base and administrative functions.
Element: TN Highway Patrol vehicles
Status: Existing
Description: Includes troopers and communication between vehicles.

Weather Service

Element: Weather Information
Status: Existing
Description: Provides early weather warnings to subscribing stakeholders.

4. SERVICES

Using the existing and planned inventory of the local and regional stakeholders, the existing and future services to be provided by the CRITS network have been established. The services reflect the realistic needs of the region within the 25-year architecture scope. ITS services are itemized as market packages. A market package is simply a desired service that requires multiple lines of communication and/or equipment holdings. For example, if the City of Oak Grove desires to have remote control of a signal system, they would request the market package "ATMS03, Surface Street Control" which would include a traffic operations center, roadway field equipment and various lines of communication between the two.

How are stakeholders' inventory and desired services known?

In developing the CRITS architecture, input from the stakeholders was essential. By using a detailed questionnaire format, stakeholders were asked to itemize the existing ITS-related elements their organization maintains. Additionally, future and desired services were asked for so that the services deemed most important to the region could be mapped as part of the ITS plan.

The questionnaire was based on the equipment packages developed for the National Architecture. This level of detail allowed specific service needs to be addressed while facilitating an easy transition into the architecture.

Altogether, the CRITS Architecture contains 49 of the 85 market packages defined in the National Architecture. However, most of these market packages have two or more instances. That is, the same type of market package may exist for more than one organization; or, it may be in varying levels of development. The services (either existing or to be implemented in the future) in the CRITS are given below.

Archived Data Systems:
AD1 ITS Data Mart
AD2 ITS Data Warehouse

Transit:
APTS3 Demand Response Transit Operations
APTS4 Transit Passenger and Fare Management
APTS5 Transit Security
APTS6 Transit Maintenance
APTS7 Multi-modal Coordination
APTS8 Transit Traveler Information

Traveler Information:
ATIS1 Broadcast Traveler Information
ATIS2 Interactive Traveler Information
ATIS4 Dynamic Route Guidance
ATIS7 Yellow Pages and Reservation
ATIS8 Dynamic Ridesharing
ATIS9 In-Vehicle Signing

Freeway Management:
ATMS01 Network Surveillance
ATMS04 Freeway Control
ATMS06 Traffic Information Dissemination
ATMS09 Traffic Forecast and Demand Management
ATMS19 Speed Monitoring

Incident Management:
ATMS08 Traffic Incident Management System

Surface Street Management:
ATMS01 Network Surveillance
ATMS03 Surface Street Control
ATMS06 Traffic Information Dissemination
ATMS13 Standard Railroad Grade Crossing
ATMS18 Reversible Lane Management
ATMS19 Speed Monitoring

CRITS MARKET PACKAGES:

Commercial Vehicle Operations:
CVO03 Electronic Clearance
CVO04 CV Administrative Processes
CVO06 Weigh-In-Motion
CVO07 Roadside CVO Safety
CVO11 Roadside HAZMAT Security Detection and Mitigation
CVO12 CV Driver Security Authentication
CVO13 Freight Assignment Tracking

Emergency Management:
EM01 Emergency Call-Taking and Dispatch
EM02 Emergency Routing
EM05 Transportation Infrastructure Protection
EM07 Early Warning System
EM09 Evacuation and Reentry Management
EM10 Disaster Traveler Information

Maintenance and Construction:
MC01 Maintenance and Construction Vehicle and Equipment Tracking
MC02 Maintenance and Construction Vehicle Maintenance
MC03 Road Weather Data Collection
MC04 Weather Information Processing and Distribution
MC05 Roadway Automated Treatment
MC06 Winter Maintenance
MC07 Roadway Maintenance and Construction
MC08 Work Zone Management
MC09 Work Zone Safety Monitoring
MC10 Maintenance and Construction Activity Coordination

5. OPERATIONAL CONCEPT AND REQUIREMENTS

Divided into nine major areas of ITS operation, the CRITS concept of operation defines current and future roles of stakeholder agencies in completing the tasks of the system. The nine divisions are: archived data systems, commercial vehicle operations, emergency management, freeway management, incident management, maintenance and construction, surface street management, transit, and traveler information. Within each of these divisions, affected stakeholders have been assigned roles and responsibilities relating to each division.

Defined for each element in the architecture, the functional requirements provide a high-level job description for the element. The functional areas for which the requirements are written are akin to the equipment packages upon which the inventory questionnaire was based. The requirements for each existing and future element are defined in Appendix C.

6. INTERCONNECTS AND FLOWS

Providing a clear "road map" for communication between various ITS elements, the interface diagrams are built on the inventory, ITS services, operational concepts, and functional requirements. An interconnect is the representation of a connection (regardless of the data/information being shared or its origin/destination) between two elements. An information flow not only illustrates the connection, but specifies the shared type of communication as well as which direction it flows.

Currently, the area of the CRITS scope contains over 170 definable individual information flows between transportation, emergency, and information elements (any two-way flows are considered as two separate flows in the architecture). Some of these are automated and some are manual. Some are highly structured and some are operated under very informal inter-agency agreements (see Section 8).

Building on the existing flows, over 260 additional future flows are added in the CRITS architecture. These help define the requests, services, and information to be transferred between the stakeholder organizations. These future flows come from the desired services that have been identified in the regional ITS plan.

How are information flows shown in the architecture?

Because one of the major themes of ITS implementation is communication, the information flows are among the most important features of the architecture. Here, the framework is defined that will support the shared integration of various ITS technologies throughout the region. It is important, therefore, to show these connections in a clear way.

A common way to show interconnection between ITS systems is the systems diagram given as Figure 2. This figure illustrates the high-level connections that are found in the CRITS architecture.

More specifically are interconnect and flow diagrams that can be generated by the architecture for any number of related elements, or the entire system. Interconnect diagrams show the existing and/or proposed connections, flow diagrams add the type of data (or service) transferred and an arrow indicating the direction of the information flow. Existing flow diagrams for related elements from the CRITS architecture are shown in Appendix D, future flow diagrams are in Appendix E.

Finally, these connections can be shown in list form. All CRITS interconnect information is stored in database format in the files of Turbo Architecture 3.1 (based on the National Architecture 5.1. Access to this format is especially useful for filtering, sorting, and displaying interconnection information. The Clarksville Urban Area MPO maintains these files.

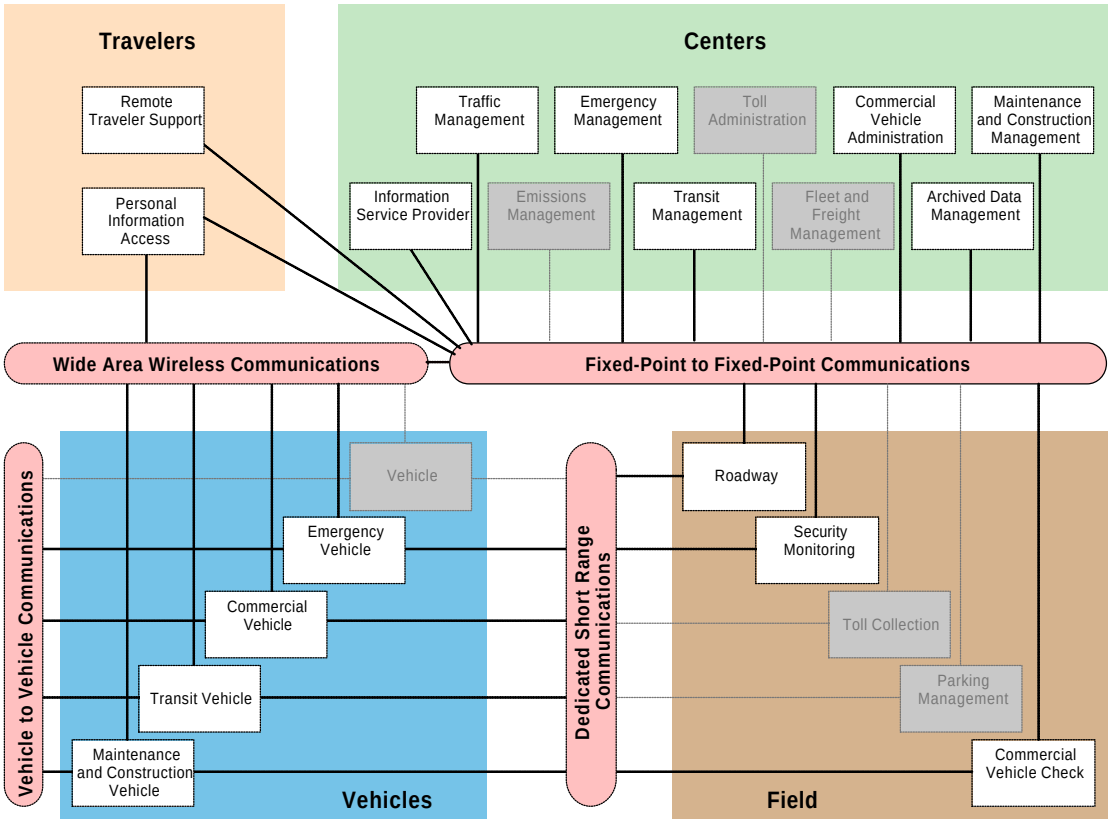


Figure 2: CRITS systems diagram.

A sample of the existing and future flows are shown here. A complete list is given in Appendix F. This complete list may be referred to as the CRITS architecture.

Sample existing flows:

FlowName: maint and constr dispatch information
Source: ChrisCo Highways Headquarters
Status: Existing
Destination: ChrisCo Maintenance Vehicles

FlowName: emergency plan coordination
Source: Clarksville Police Headquarters
Status: Existing
Destination: Clk TOC

FlowName: roadway equipment coordination
Source: Clk Roadway Equipment
Status: Existing
Destination: Clk Signal Priority System

FlowName: incident response coordination
Source: Emergency Vehicles
Status: Existing
Destination: MontCo E-911 System

FlowName: work zone information
Source: KY District 2 Maintenance Center
Status: Existing
Destination: KY District 2 TMC

FlowName: decision support information
Source: TN Highway Patrol Regional Headquarters
Status: Existing
Destination: TN Highway Patrol Vehicles

Sample future flows:

FlowName: maint and constr resource coordination **Source:** ChrisCo Highways Headquarters Center	**Status:** Future (not funded) **Destination:** KY District 2 Maintenance
FlowName: emergency route request **Source:** Clarksville Police Headquarters	**Status:** Future (not funded) **Destination:** Clk TOC
FlowName: road network status assessment **Source:** Clk TOC	**Status:** Future (not funded) **Destination:** Emergency Vehicles
FlowName: transit fare and passenger status **Source:** Clk Transit Area Surveillance	**Status:** Future (not funded) **Destination:** Transit Center
FlowName: credentials information **Source:** KY Commercial Vehicle Admin Center System	**Status:** Future (not funded) **Destination:** KY Comm Vehicle Inspection
FlowName: incident command information coordination **Source:** OG E-911	**Status:** Future (not funded) **Destination:** Emergency Vehicles
FlowName: logged vehicle routes **Source:** TN 511 System	**Status:** Future (not funded) **Destination:** TDOT Region 3 TOC
FlowName: transit traveler request **Source:** Transit vehicles	**Status:** Future (not funded) **Destination:** Transit Center

7. STANDARDS

Due to the need for consistency in ITS architectures across the country, defined standards allow simplified operation and interpretation of the plan as well as ease in constructing the various future elements of the system. The standards included in CRITS are derived from the flows identified between elements and represent tested practice in making these flows technically feasible. The standards shown below reflect those technologies likely to be needed in the implementation of the CRITS network.

Global Object Definitions NTCIP 1201

Object Definitions for Dynamic Message Signs NTCIP 1203

Environmental Sensor Station (ESS) Interface Standard NTCIP 1204

Object Definitions for Data Collection and Monitoring (DCM) Devices NTCIP 1206

Data Element Definitions for Transportation Sensor Systems (TSS) NTCIP 1209

Field Management Stations - Part 1: Object Definitions for Signal System Masters NTCIP 1210

Object Definitions for Signal Control and Prioritization NTCIP 1211

TCIP Common Public Transportation (CPT) Objects NTCIP 1401

TCIP Incident Management (IM) Objects NTCIP 1402

TCIP Passenger Information (PI) Objects Passenger Information Objects NTCIP 1403

TCIP Scheduling/Runcutting (SCH) Objects NTCIP 1404

TCIP Spatial Representation (SP) Objects NTCIP 1405

TCIP On-Board (OB) Objects NTCIP 1406

TCIP Control Center (CC) Objects NTCIP 1407

TCIP Fare Collection (FC) Business Area Objects NTCIP 1408

Commercial Vehicle Safety Reports ANSI TS284

Standard for Functional Level Traffic ITE TM 1.03

Message Sets for External TMC Communication (MS/ETMCC) ITE TM 2.01

Location Referencing Message Specification (LRMS) SAE J2266

Message Set for Advanced Traveler Information System (ATIS) SAE J2354

Messages for Handling Strings and Look-Up Tables in ATIS Standards SAE J2540

RDS (Radio Data System) Phrase Lists SAE J2540-1

ITIS (International Traveler Information Systems) SAE J2540-2

National Names Phrase List SAE J2540-3

Resource Manager for DSRC 5.9 GHz IEEE 1609.1

Application Services (Layers 6,7) for DSRC 5.9 GHz IEEE 1609.2

Communications Services (Layers 4,5) for DSRC 5.9 GHz (Future Standard) IEEE 1609.3

Medium Access Control (MAC) Extension & the MAC Extension Management Entity for DSRC 5.9 GHz IEEE 1609.4

Standard Specification for Telecommunications and Information Exchange Between Roadside and Vehicle Systems IEEE 802.11

Logical Link (Layer 2) for DSRC 5.9 GHz
IEEE 802.2
Networking Services (Layer 3) for DSRC 5.9 GHz
ISO 21210

Standard Specification for Dedicated Short Range Communication (DSRC) Physical Layer using Microwave in the 902-928 MHz Band
ASTM E2158-01

Commercial Vehicle Safety and Credentials Information Exchange ANSI TS285

Commercial Vehicle Credentials ANSI TS286

Standard Specification for Metadata to
ASTM E2259-xx

Standard Specification for Archiving ITS
ASTM E2259-yy
Standard Provisional Specification for Dedicated Short Range Communication (DSRC) Data Link
ASTM PS 105-99

Standard for Traffic Incident Management Message Sets for Use by EMCs IEEE 1512.1-2003

Standard for Public Safety IMMS for use by EMCs
IEEE 1512.2-2004

Standard for Hazardous Material IMMS
IEEE 1512.3-2002

Standard for Common Incident Management Message Sets (IMMS) for use by EMCs
IEEE 1512-2000

Standard for Common Traffic Incident Management Message Sets for Use in Entities External to Centers
IEEE P1512.4

Octet Encoding Rules (OER) Base Protocol
NTCIP 1102

Center-to-Center Naming Convention Specification
NTCIP 1104

CORBA Security Service Specification NTCIP 1105

CORBA Near-Real Time Data Service Specification
NTCIP 1106

Ethernet Subnetwork Profile NTCIP 2104

Internet (TCP/IP and UDP/IP) Transport Profile
NTCIP 2202

File Transfer Protocol (FTP) Application Profile
NTCIP 2303

Application Profile for DATEX-ASN (AP-DATEX)
NTCIP 2304
Application Profile for CORBA (AP-CORBA)
NTCIP 2305

Application Profile for XML Message Encoding and
NTCIP 2306

Transport in ITS C2C Communications Information Profile for DATEX NTCIP 2501

Information Profile for CORBA NTCIP 2502

Simple Transportation Management Framework NTCIP 1101

Octet Encoding Rules (OER) Base Protocol NTCIP 1102

Transportation Management Protocols (TMP) NTCIP 1103

Point to Multi-Point Protocol Using RS-232 Subnetwork Profile NTCIP 2101

Point to Multi-Point Protocol Using FSK Modem Subnetwork Profile NTCIP 2102

Point-to-Point Protocol Over RS-232 Subnetwork Profile NTCIP 2103

Ethernet Subnetwork Profile NTCIP 2104

Transportation Transport Profile NTCIP 2201

Internet (TCP/IP and UDP/IP) Transport Profile NTCIP 2202

Simple Transportation Management Framework (STMF) Application Profile NTCIP 2301

Trivial File Transfer Protocol (TFTP) Application Profile NTCIP 2302

File Transfer Protocol (FTP) Application Profile NTCIP 2303

Location Referencing Message Specification (LRMS) SAE J2266

On-Board Land Vehicle Mayday Reporting Interface SAE J2313

Message Set for Advanced Traveler Information System (ATIS) SAE J2354

Messages for Handling Strings and Look-Up in ATIS Standards Tables SAE J2540

RDS (Radio Data System) Phrase Lists SAE J2540-1

ITIS (International Traveler Information Systems) Phrase Lists SAE J2540-2

National Names Phrase List SAE J2540-3

8. AGREEMENTS

A survey taken of CRITS area stakeholders has shown that most existing organizational partnerships are “handshake” agreements; that is, very informal arrangements by which day-to-day operations are completed. In fact, only one operational agreement was noted in which responsibilities, funding, or other operational aspects are documented. This agreement is housed in the Montgomery County Emergency Management Plan which has been in effect since 2001. However, because this plan only becomes active with stated execution by the director of the Emergency Management Agency, only operations being completed in accordance with regional emergency planning are covered by formal agreement. Since the operation of CRITS should be prominent in both day-to-day and emergency conditions, this agreement is valid and is recognized in the architecture.

As ITS technologies are planned and implemented in the region, a more developed formal system of agreements between partnering agencies will likely be desired. These may range from the handshake agreement in place now to full funding or master agreements in which all party roles, responsibilities, and other aspects are detailed in contractual form. It is advised that, as the early planning stages of specific ITS project architectures commence, affected organizations discuss the form of agreement most appropriate. A good starting point may be the memorandum of understanding (MOU) in which technical and operational responsibilities are documented.

From this point, the type of agreement can grow if necessary to best accommodate the organizations involved in providing the ITS service.

9. IMPLEMENTATION AND ARCHITECTURE UPDATE

The Clarksville Area 2030 Long Range Plan has identified three ITS projects within the 10 year scope of this architecture. Two of these projects would expand existing ITS systems in the form of signal control, coordination, preemption. The other project would add surveillance and traffic information on portions of the US 41A corridor. The installation of video cameras and dynamic message signs (DMS) are proposed.

Within the long-term planning horizons of the Kentucky Transportation Cabinet, several ITS projects are also proposed. Likewise, these projects would add video surveillance and DMS operation on US-41A and on I-24. Extension of the signal system along US-41A in Kentucky is also proposed. Due to the nature of these projects, few significant points of dependency exist for one project to be complete before another. It is possible that part of the signal system improvements could be at a location affected by the US-41A surveillance and signing project. If so, coordination should be considered to allow the sharing of installed hardware or communication mediums.

System planning is currently underway in the Dunlop Lane area of Clarksville. This study will investigate access needs of a new regional hospital and industrial park growth in this area. A potential for future ITS technology deployment exists, particularly due to the possibility of a new interchange on Interstate 24 in this area. If required, these projects would be expected in the 0-5 year horizon.

Specific implementations and costs are shown in Table 1. Approximate locations of future ITS deployments are shown in Figure 3.

Apart from the planning scope of the CRITS architecture, major concept areas have been developed for a 25-year outlook. These items are not specific in form, method, or technology, but are meant to reflect the long-term ITS interests of the Clarksville region. These include:

- Provision of individual traveler information. While technology advances will likely dictate how and what types of information are transferred, providing two-way communication between travelers and transportation administrators is important.
- Multi-jurisdictional coordination. As technologies expand further out of the largest metropolitan areas, Tennessee and Kentucky statewide ITS networks in particular must foster strong working relationships and compatible technologies where possible.
- Enhanced data management. Allowing the determination of practical methods of effectiveness, improved data collection and analyses are desired.
- Work zone safety. Of interest to all maintenance organizations and several of those involved in public safety operations, improved work zone coordination and technologies is a 25-year focus.
- Roadway maintenance. Enhanced early warning for and/or automation of non-routine roadway maintenance activities would help city, county, and state crews to provide safe roadways during adverse weather events. Improved field environmental detection,

enhanced communication with crews and/or equipment, and automated roadway treatment systems are desirable long term ITS features.

Map ID	Project	Route	Direction	Location	Jurisdiction	Plan Horizon (yrs)	Cost
1	DMS and CCTV Site 1	US 41A	Northbound	Near Tobacco Road	Clarksville, TN	0-5	$2,140,000[1]
2	DMS and CCTV Site 2	US 41A	Southbound	Near Herndon Oak Grove Road	Christian County, KY	0-5	
3	DMS and CCTV Site 3	TN 236	Westbound	Near Arbor Drive	Clarksville, TN	0-5	
4	DMS and CCTV Site 4	KY 911	Westbound	Near US 41A	Christian County, KY	0-5	
5	CCTV Site 5	US 41A	Northbound	South of Airport Road	Clarksville, TN	0-5	
6	CCTV Site 6	US 41A	Northbound	Between State Line Road and Ft. Campbell	Christian County, KY	0-5	
7	System Expansions/ Technology updates	Unknown		Dunlop Lane area	Clarksville, TN	0-5	$280,000[2]
	System Expansions/ Technology updates	Various			Clarksville, TN	5-10	$275,000[3]
	System Expansions/ Technology updates	Various			Christian County, KY	5-10	$555,000[3]
	System Expansions/ Technology updates	Various			Clarksville, TN	10-25	$2,442,000[3]
	System Expansions/ Technology updates	Various			Christian County, KY	10-25	$2,442,000[3]
	Traveler Information - Weather	Various				5-10	$50,000
	Traveler Information - Natural Disaster	Various				5-10	$50,000
	Traveler Information - Homeland Security	Various				5-10	$50,000
	Traveler Information - Incident/Accident	Various				5-10	$50,000
8	DMS and CCTV I-24 Corridor	I-24	Various			10-25	$2,500,000
					Total Years 0 - 5		$2,420,000
					Total Years 5 - 10		$980,000
					Total Years 10 - 25		$7,384,000
					Grand Total		$10,784,000

[1] From "Clarksville/Fort Campbell Intelligent Transportation System Study". TDOT. August 2003.

[2] Estimated. Study on I-24, proposed hospital, and Clarksville-Montgomery County Industrial Park under development.

[3] Estimated from "Clarksville Area 2030 Long Range Transportation Plan". Clarksville Urban Area MPO. June 2005.

Table 1: Clarksville area planned ITS project details.

Table 1, Figure 3, and the concept areas listed on Page 13 are presented in recognition of the limitations on funding and implementation of most ITS projects. The timeframes and costs listed are approximations meant to illustrate the incremental building and deployment of the CRITS system.

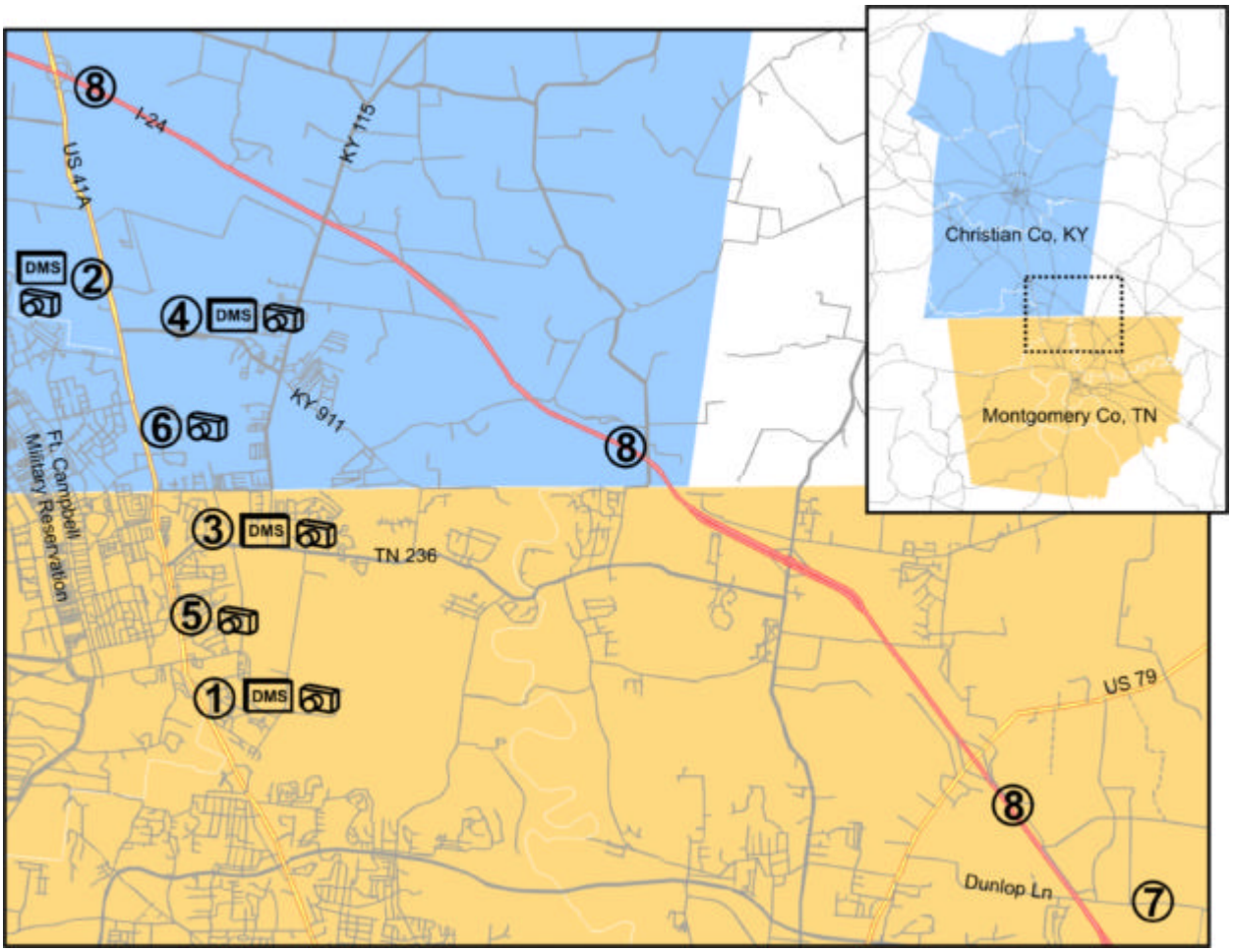


Figure 3: Clarksville area planned ITS projects map. (numbers reflect "Map ID" field in Table 1)

As these and other projects move forward in development, more specific project architectures may be developed and mapped back to this regional ITS plan. Likewise, this plan itself will require periodic updates, particularly as more ITS projects are planned for the Clarksville region.

The Clarksville Urban Area MPO will be responsible for the regular updates to the CRITS architecture. Updates will be completed with assistance from and coordination with the Tennessee Department of Transportation and the Federal Highway Administration and with input from additional stakeholders where needed. The update will consist of changes made to the architecture database (maintained with Turbo Architecture software), the architecture documentation, and information posted on the Clarksville Urban Area MPO website.

It is expected that an update of the architecture will be required in conjunction with one or more of the following:

- As a normal part of the LRTP/TIP update cycle
- When a new stakeholder(s) is identified
- When a major ITS project is implemented
- With a significant planning area boundary change
- To align with significant advances in bordering area regional architectures
- To reflect changes made within the Tennessee statewide or national architectures

Updates to the CRITS architecture should include:

- Addition of new stakeholders in the ITS network
- Maintenance and update of contact personnel within the stakeholder core
- New inventory technologies or services provided by stakeholders
- Future services or needs identified within the Clarksville region
- Additional operation concept statements, element functional requirements, and pertinent national standards for new or future services
- Updates to project sequencing stemming from progress, funding, or priority changes
- Clarification of stakeholder agreements

It is expected that the typical process for the architecture update will consist of the following steps:

1. Identification of the change(s) needed to be made. The change may well be the addition of a new ITS project to be added into the architecture. Stakeholders may also propose additions/revisions through coordination with the MPO (this process will be established by the MPO on an annual basis).
2. The Technical Coordinating Committee will recommend the change/project to the Executive Board. If approved by vote, the change/project is added to the TIP.
3. MPO staff updates the architecture by mapping the functions, responsibilities, agreements, etc. of the project into the architecture.
4. The revised architecture is sent to TDOT, FHWA, and other involved stakeholders for review.
5. After incorporation of comments from the stakeholder review, the Technical Coordinating Committee and the Executive Board vote to approve the new architecture.

Who "owns" the CRITS system?

The complexity of a properly functioning ITS system requires that all stakeholders have input and take responsibility for the system as a whole. True ownership, however, can mean different things to stakeholders.

In terms of individual technologies, lead stakeholders will be the responsible organizations. Examples could be that TDOT might operate and maintain surveillance along the I-24 corridor, the Clarksville Police Department might provide alert call boxes, or the Clarksville Street Department would maintain its coordinated signal system. In these cases, each major stakeholder would "own" and have control over its technology.

In terms of the complete system, however, the Clarksville Urban Area MPO is the CRITS owner. This requires that any changes to the CRITS architecture be coordinated through the MPO and this document. The MPO maintains an electronic database of the coordination of CRITS and will be required to update this database as ITS modifications and/or advances are made.

The central housing of the CRITS system with the CUAMPO will provide an efficient, consistent, and simplified way to manage this complex network so dependent on good communication.

APPENDIX A

Stakeholders Report

9/18/2006 9:55:52AM

Stakeholder

Christian County Highway Department

Description: Responsible for planning and maintenance of county roadways in Christian County, KY.

Associated Element: ChrisCo Maintenance Vehicles

Associated Element: ChrisCo Highways Headquarters

Clarksville Fire Department

Description: Jurisdiction: City of Clarksville

Clarksville Information Services

Description: Maintains City e-mail, website, Disaster Recovery Plan, GIS system, and other information-based technologies.

Associated Element: Clk Govt Reporting System

Associated Element: Clk Website

Clarksville Police Department

Description: Jurisdiction: City of Clarksville

Associated Element: Clarksville Police Roadway Equipment

Associated Element: Clarksville Police Headquarters

Clarksville Street Department

Description: Responsible for traffic control, engineering, traffic data, transportation planning, and roadway maintenance. Jurisdiction: City of Clarksville

Associated Element: Clk Traffic Data Stations

Associated Element: Clk Public Works Center

Associated Element: Clk TOC

Associated Element: Clk Roadway Equipment

Associated Element: Clk Maintenance Vehicles

Associated Element: Clk Traffic Information Stations

Associated Element: Clk Signal Priority System

Clarksville Transit System

Description: Maintains and operates Clarksville transit services including transit data and evacuation support. Jurisdiction: Cities of Clarksville and Oak Grove and Ft. Campbell.

Associated Element: Transit Fare Card System

Associated Element: Transit Center

Associated Element: Clk Transit Area Surveillance

Associated Element: Transit Vehicles

Clarksville/Montgomery County E-911

Description: Responsible for countywide emergency call-taking and dispatch of emergency responders. Jurisdiction: Montgomery County including incorporated cities

Associated Element: MontCo E-911 System

Clarksville/Montgomery County RPC

Description: Coordinated regional planning including transportation planning and ITS. Jurisdiction: Cities of Clarksville and Oak Grove and some areas outside of incorporated Montgomery and Christian Counties.

FHWA, Kentucky Division

Description: Responsible for approval of ITS plans based inside of Kentucky. Jurisdiction: statewide

FHWA, Tennessee Division

Description: Responsible for approval of ITS planes based inside of Tennessee. Jurisdiction: statewide

Fort Campbell Military Base

Description: Responsible for security monitoring and transportation planning within the boundaries of the base. Also plays active role in coordination with local emergency organizations and public works departments to support large military population.

Stakeholder

Associated Element: Ft Campbell Gate Inspection

Kentucky State Police

Description: Includes patrol, enforcement, and emergency response within jurisdiction.

Kentucky Transportation Cabinet, District 2

Description: Manages signal control and coordination and roadway maintenance for state routes. Jurisdiction: Christian, Caldwell, Hopkins, Muhlenburg, Ohio, McLean, Webster, Hancock, Daviess, Henderson, and Union Counties

Associated Element: KY District 2 TMC

Associated Element: KTC Rdwy Equip, District 2

Associated Element: KY District 2 Maintenance Center

Associated Element: KY Maintenance Vehicles

Kentucky Transportation Cabinet, Planning Division

Description: Frankfort headquarters office overseer of statewide ITS network. Jurisdiction: statewide

Associated Element: KY Traffic Data Stations

Associated Element: KY Rdwy Equip, Planning Division

Kentucky Transportation Cabinet, Traffic Ops Division

Description: Manages statewide TOC including traveler information, 511, and RWIS.

Associated Element: KY Traveler Info Kiosks

Associated Element: KY 511 System

Associated Element: KY Statewide TOC

Associated Element: KTC Rdwy Equip, Traffic Ops Division

Associated Element: KY Roadway Weather Info System

Kentucky Vehicle Enforcement

Description: Responsible for acquisition and maintenance of commercial vehicle and freight data, emergency call-taking, and officer patrols. Jurisdiction: statewide

Associated Element: KY Commercial Vehicle Admin Center

Associated Element: KY Comm Vehicle Inspection System

Associated Element: KY Weigh-In-Motion

Local emergency responder

Description: Stakeholder group consisting of all emergency responders.

Stakeholders in this group:

Clarksville Fire Department
Clarksville Police Department
Clarksville/Montgomery County E-911
Kentucky State Police
Montgomery County Sheriffs Office
Tennessee Highway Patrol
Montgomery County Ambulance Service
Oak Grove Fire Department
Oak Grove Police Department

Associated Element: Emergency Vehicles

Montgomery County Ambulance Service

Description: Jurisdiction: Montgomery County, TN

Montgomery County Emergency Management Agency

Description: Responsible for evacuation support and coordination with traffic manager and emergency service provider to support responders. Jurisdiction: Montgomery County including incorporated cities

Associated Element: MontCo Early Warning System

Associated Element: MontCo Emergency Mgmt Headquarters

Montgomery County Highway Department

Description: Responsible for roadway operation and maintenance on county roads off the state system and outside of Clarksville city limits.

Associated Element: MontCo Maintenance Vehicles

Associated Element: MontCo Highways Headquarters

Stakeholder

Montgomery County Sheriffs Office

Description: Responsibilities include deputy patrol and dispatch, evacuation support, and coordination with traffic manager and emergency manager during incidents. Jurisdiction: Montgomery County including incorporated cities.

Associated Element: MontCo Sheriff Roadway Equipment

Associated Element: MontCo Sheriff Headquarters

Oak Grove Emergency Management

Description: Responsible for operation and maintenance of Oak Grove's severe weather alerting system.

Associated Element: OG E-911

Associated Element: OG Early Warning System

Oak Grove Fire Department

Description: Jurisdiction: Oak Grove, KY

Oak Grove Planning Department

Description: Responsible for transportation planning. Jurisdiction: City of Oak Grove

Oak Grove Police Department

Description: Jurisdiction: Oak Grove, KY

Pennyrile Area Development District

Description: A regional development organization responsible for some transportation planning and safety activities in western Kentucky.

Tennessee Department of Transportation

Description: Responsible for planning, operations, and maintenance of state facilities within TN. Oversees state ITS architecture.

Associated Element: TDOT Region 3 TOC

Associated Element: TDOT District maintenance garage and equipment

Associated Element: TN Traffic Data Stations

Associated Element: TN Weigh-In-Motion

Associated Element: TN Work Zone Equipment

Associated Element: TN Maintenance Vehicles

Associated Element: TN 511 System

Associated Element: TN SmartWay Website

Associated Element: TN Traveler Info Kiosks

Tennessee Highway Patrol

Description: Statewide jurisdiction with regional headquarters in Clarksville. Includes patrol, enforcement, and emergency response within jurisdiction. Also responsible for commercial vehicle enforcement.

Associated Element: TN Comm Vehicle Inspection System

Associated Element: TN Highway Patrol Regional Headquarters

Associated Element: TN Highway Patrol Vehicles

Weather Service

Description: Various subscription weather providers.

Associated Element: Weather Information

APPENDIX B

Operational Concept (Roles & Responsibilities)

Sorted by Stakeholder

Clarksville Regional ITS Architecture (Region)

9/18/2006 9:58:32AM

Christian County Highway Department

RR Area: **Maintenance and Construction for Clarksville Regional ITS Architecture**

Roles and Responsibilities	*Status*
Coordinate work activities with KTC	Existing
Perform regular maintenance (including ROW maintenance, winter work, and work zone activity)	Existing

RR Area MarketPackage

MC01: Maintenance and Construction Vehicle and Equipment Tracking (MontCo)
MC01: Maintenance and Construction Vehicle and Equipment Tracking (KY)
MC01: Maintenance and Construction Vehicle and Equipment Tracking (Clk)
MC02: Maintenance and Construction Vehicle Maintenance (KTC District 2)
MC02: Maintenance and Construction Vehicle Maintenance (Clk)
MC02: Maintenance and Construction Vehicle Maintenance (MontCo)
MC03: Road Weather Data Collection (MontCo)
MC03: Road Weather Data Collection
MC03: Road Weather Data Collection (KY)
MC03: Road Weather Data Collection (KY Emergency Vehicles)
MC03: Road Weather Data Collection (Clk)
MC04: Weather Information Processing and Distribution
MC04: Weather Information Processing and Distribution (Clk)
MC04: Weather Information Processing and Distribution (MontCo)
MC04: Weather Information Processing and Distribution (KY)
MC05: Roadway Automated Treatment (Clk)
MC05: Roadway Automated Treatment (MontCo)
MC06: Winter Maintenance (Clk)
MC06: Winter Maintenance (KY District 2)
MC06: Winter Maintenance (MontCo)
MC07: Roadway Maintenance and Construction (KY District 2)
MC07: Roadway Maintenance and Construction (MontCo)
MC07: Roadway Maintenance and Construction (Clk)
MC08: Work Zone Management (MontCo)
MC08: Work Zone Management (KY District 2)
MC08: Work Zone Management (Clk)
MC09: Work Zone Safety Monitoring (MontCo)
MC09: Work Zone Safety Monitoring (KY)
MC10: Maintenance and Construction Activity Coordination (Clk)
MC10: Maintenance and Construction Activity Coordination (KY District 2)
MC10: Maintenance and Construction Activity Coordination (MontCo)

Clarksville Information Services

RR Area: **Archived Data Systems for Clarksville Regional ITS Architecture**

Roles and Responsibilities	*Status*
Collect and format related data for government agency use.	Planned (funded)

RR Area MarketPackage
AD1: ITS Data Mart (KY Maintenance)
AD1: ITS Data Mart (MontCo maintenance)
AD1: ITS Data Mart (Clk Maintenance)
AD1: ITS Data Mart (Clk Traffic)
AD1: ITS Data Mart (KY Information)
AD1: ITS Data Mart (KY Comm Vehicle)
AD1: ITS Data Mart (KY Traffic)
AD1: ITS Data Mart (TN)
AD1: ITS Data Mart (MontCo Emergency)
AD1: ITS Data Mart (Clk Transit)
AD2: ITS Data Warehouse (KY)

*RR Area:***Traveler Information for Clarksville Regional ITS Architecture**

Roles and Responsibilities	*Status*
Update Clarksville city website with current traveler-related information.	Planned (funded)

RR Area MarketPackage
ATIS1: Broadcast Traveler Information (KY)
ATIS1: Broadcast Traveler Information (Clk)
ATIS2: Interactive Traveler Information (KY 511)
ATIS2: Interactive Traveler Information (KY Kiosks)
ATIS4: Dynamic Route Guidance (KY)
ATIS4: Dynamic Route Guidance (Clk)
ATIS7: Yellow Pages and Reservation (KY)
ATIS8: Dynamic Ridesharing (KY)
ATIS9: In Vehicle Signing (KY)

Clarksville Police Department

*RR Area:***Emergency Management for Clarksville Regional ITS Architecture**

Roles and Responsibilities	*Status*
Maintains roadway equipment including speed detection and monitoring.	Existing
Provides evacuation support and security monitoring for anticipated emergencies.	Existing
Receives information from E-911 regarding emergency area and responds accordingly	Existing

RR Area MarketPackage
EM01: Emergency Call-Taking and Dispatch (TN)
EM01: Emergency Call-Taking and Dispatch (MontCo)
EM02: Emergency Routing (TN)
EM02: Emergency Routing (KY)
EM02: Emergency Routing
EM05: Transportation Infrastructure Protection (Clk)
EM07: Early Warning System
EM07: Early Warning System (MontCo)
EM09: Evacuation and Reentry Management (KY)
EM10: Disaster Traveler Information (KY)

Clarksville Street Department

*RR Area:***Archived Data Systems for Clarksville Regional ITS Architecture**

Roles and Responsibilities	*Status*
Collect and store data from roadside equipment and manual traffic counts	Existing

RR Area: **Archived Data Systems for Clarksville Regional ITS Architecture**

Roles and Responsibilities	*Status*
Collect and store maintenance data	Existing
Share traffic data with other organizations	Existing

RR Area MarketPackage

AD1: ITS Data Mart (KY Maintenance)
AD1: ITS Data Mart (MontCo maintenance)
AD1: ITS Data Mart (Clk Maintenance)
AD1: ITS Data Mart (Clk Traffic)
AD1: ITS Data Mart (KY Information)
AD1: ITS Data Mart (KY Comm Vehicle)
AD1: ITS Data Mart (KY Traffic)
AD1: ITS Data Mart (TN)
AD1: ITS Data Mart (MontCo Emergency)
AD1: ITS Data Mart (Clk Transit)
AD2: ITS Data Warehouse (KY)

RR Area: **Emergency Management for Clarksville Regional ITS Architecture**

Roles and Responsibilities	*Status*
Dispatch and track vehicle location in flood events	Existing
Provide equipment-based signal preemption for emergency vehicles	Existing
Provide secure-area surveillance for transportation facilities	Future (not funded)

RR Area MarketPackage

EM01: Emergency Call-Taking and Dispatch (TN)
EM01: Emergency Call-Taking and Dispatch (MontCo)
EM02: Emergency Routing (TN)
EM02: Emergency Routing (KY)
EM02: Emergency Routing
EM05: Transportation Infrastructure Protection (Clk)
EM07: Early Warning System
EM07: Early Warning System (MontCo)
EM09: Evacuation and Reentry Management (KY)
EM10: Disaster Traveler Information (KY)

RR Area: **Incident Management for Clarksville Regional ITS Architecture**

Roles and Responsibilities	*Status*
Detects incident and modifies signal operation as needed	Existing

RR Area MarketPackage

ATMS08: Traffic Incident Management System (Clk)
ATMS08: Traffic Incident Management System (KY)

RR Area: **Maintenance and Construction for Clarksville Regional ITS Architecture**

Roles and Responsibilities	*Status*
Collect, process, and share environmental/weather data with other organizations	Future (not funded)
Control automated street treatment system	Future (not funded)
Share maintenance (including winter road maintenance) schedules, progress, etc with other agencies	Future (not funded)

RR Area MarketPackage
MC01: Maintenance and Construction Vehicle and Equipment Tracking (MontCo)
MC01: Maintenance and Construction Vehicle and Equipment Tracking (KY)
MC01: Maintenance and Construction Vehicle and Equipment Tracking (Clk)
MC02: Maintenance and Construction Vehicle Maintenance (KTC District 2)
MC02: Maintenance and Construction Vehicle Maintenance (Clk)
MC02: Maintenance and Construction Vehicle Maintenance (MontCo)
MC03: Road Weather Data Collection (MontCo)
MC03: Road Weather Data Collection
MC03: Road Weather Data Collection (KY)
MC03: Road Weather Data Collection (KY Emergency Vehicles)
MC03: Road Weather Data Collection (Clk)
MC04: Weather Information Processing and Distribution
MC04: Weather Information Processing and Distribution (Clk)
MC04: Weather Information Processing and Distribution (MontCo)
MC04: Weather Information Processing and Distribution (KY)
MC05: Roadway Automated Treatment (Clk)
MC05: Roadway Automated Treatment (MontCo)
MC06: Winter Maintenance (Clk)
MC06: Winter Maintenance (KY District 2)
MC06: Winter Maintenance (MontCo)
MC07: Roadway Maintenance and Construction (KY District 2)
MC07: Roadway Maintenance and Construction (MontCo)
MC07: Roadway Maintenance and Construction (Clk)
MC08: Work Zone Management (MontCo)
MC08: Work Zone Management (KY District 2)
MC08: Work Zone Management (Clk)
MC09: Work Zone Safety Monitoring (MontCo)
MC09: Work Zone Safety Monitoring (KY)
MC10: Maintenance and Construction Activity Coordination (Clk)
MC10: Maintenance and Construction Activity Coordination (KY District 2)
MC10: Maintenance and Construction Activity Coordination (MontCo)

*RR Area:***Surface Street Management for Clarksville Regional ITS Architecture**

Roles and Responsibilities	*Status*
Collect traffic surveillance	Existing
Control and coordination of signals and signal systems including reversible lanes	Existing
Provide incident detection and notification of emergency responders	Future (not funded)

RR Area MarketPackage
ATMS01: Network Surveillance (KY)
ATMS01: Network Surveillance (Clk)
ATMS03: Surface Street Control (KY District 2)
ATMS03: Surface Street Control (Clk)
ATMS06: Traffic Information Dissemination (KY)
ATMS06: Traffic Information Dissemination (Clk)
ATMS13: Standard Railroad Grade Crossing (KY)

*RR Area:***Traveler Information for Clarksville Regional ITS Architecture**

Roles and Responsibilities	*Status*
Issue custom traffic information and route guidance through personal data devices	Planned (funded)
Maintenance of traveler information (via kiosk) including traffic advisories, road conditions, etc	Planned (funded)

RR Area MarketPackage
ATIS1: Broadcast Traveler Information (KY)
ATIS1: Broadcast Traveler Information (Clk)
ATIS2: Interactive Traveler Information (KY 511)
ATIS2: Interactive Traveler Information (KY Kiosks)
ATIS4: Dynamic Route Guidance (KY)
ATIS4: Dynamic Route Guidance (Clk)
ATIS7: Yellow Pages and Reservation (KY)
ATIS8: Dynamic Ridesharing (KY)
ATIS9: In Vehicle Signing (KY)

Clarksville Transit System

*RR Area:***Archived Data Systems for Clarksville Regional ITS Architecture**

Roles and Responsibilities	*Status*
Collect and store CTS transit data	Existing

RR Area MarketPackage
AD1: ITS Data Mart (KY Maintenance)
AD1: ITS Data Mart (MontCo maintenance)
AD1: ITS Data Mart (Clk Maintenance)
AD1: ITS Data Mart (Clk Traffic)
AD1: ITS Data Mart (KY Information)
AD1: ITS Data Mart (KY Comm Vehicle)
AD1: ITS Data Mart (KY Traffic)
AD1: ITS Data Mart (TN)
AD1: ITS Data Mart (MontCo Emergency)
AD1: ITS Data Mart (Clk Transit)
AD2: ITS Data Warehouse (KY)

*RR Area:***Emergency Management for Clarksville Regional ITS Architecture**

Roles and Responsibilities	*Status*
Assists in evacuation support and coordinates these activities with other organizations	Existing

RR Area MarketPackage
EM01: Emergency Call-Taking and Dispatch (TN)
EM01: Emergency Call-Taking and Dispatch (MontCo)
EM02: Emergency Routing (TN)
EM02: Emergency Routing (KY)
EM02: Emergency Routing
EM05: Transportation Infrastructure Protection (Clk)
EM07: Early Warning System
EM07: Early Warning System (MontCo)
EM09: Evacuation and Reentry Management (KY)
EM10: Disaster Traveler Information (KY)

*RR Area:***Transit Services for Clarksville Regional ITS Architecture**

Roles and Responsibilities	*Status*
Provides on-demand paratransit services inside jurisdiction	Existing
Manages standard-fare medium for transit passengers	Planned (funded)
Provides automated transit fare and load data collection on regular routes	Planned (funded)

RR Area MarketPackage
APTS3: Demand Response Transit Operations
APTS4: Transit Passenger and Fare Management
APTS5: Transit Security
APTS6: Transit Maintenance
APTS7: Multi-modal Coordination
APTS8: Transit Traveler Information

*RR Area:***Traveler Information for Clarksville Regional ITS Architecture**

Roles and Responsibilities	*Status*
Provides broadcast of transit traveler information including personal route guidance and multi-modal information	Future (not funded)

RR Area MarketPackage
ATIS1: Broadcast Traveler Information (KY)
ATIS1: Broadcast Traveler Information (Clk)
ATIS2: Interactive Traveler Information (KY 511)
ATIS2: Interactive Traveler Information (KY Kiosks)
ATIS4: Dynamic Route Guidance (KY)
ATIS4: Dynamic Route Guidance (Clk)
ATIS7: Yellow Pages and Reservation (KY)
ATIS8: Dynamic Ridesharing (KY)
ATIS9: In Vehicle Signing (KY)

Clarksville/Montgomery County E-911

*RR Area:***Archived Data Systems for Clarksville Regional ITS Architecture**

Roles and Responsibilities	*Status*
collect and maintain emergency call data	Future (not funded)

RR Area MarketPackage
AD1: ITS Data Mart (KY Maintenance)
AD1: ITS Data Mart (MontCo maintenance)
AD1: ITS Data Mart (Clk Maintenance)
AD1: ITS Data Mart (Clk Traffic)
AD1: ITS Data Mart (KY Information)
AD1: ITS Data Mart (KY Comm Vehicle)
AD1: ITS Data Mart (KY Traffic)
AD1: ITS Data Mart (TN)
AD1: ITS Data Mart (MontCo Emergency)
AD1: ITS Data Mart (Clk Transit)
AD2: ITS Data Warehouse (KY)

*RR Area:***Emergency Management for Clarksville Regional ITS Architecture**

Roles and Responsibilities	*Status*
Dispatch emergency vehicles (Sheriff and fire) and maintain communications with vehicles.	Existing
Receive emergency calls via 911 system.	Existing
Send emergency call data to Clarksville Police for dispatch of responder.	Existing

RR Area MarketPackage
EM01: Emergency Call-Taking and Dispatch (TN)
EM01: Emergency Call-Taking and Dispatch (MontCo)
EM02: Emergency Routing (TN)
EM02: Emergency Routing (KY)
EM02: Emergency Routing
EM05: Transportation Infrastructure Protection (Clk)
EM07: Early Warning System
EM07: Early Warning System (MontCo)
EM09: Evacuation and Reentry Management (KY)
EM10: Disaster Traveler Information (KY)

Fort Campbell Military Base

RR Area: **Commercial Vehicle Operations for Clarksville Regional ITS Architecture**

Roles and Responsibilities	*Status*
Automated screening for HAZMAT detection (radiation detection)	Existing
Monitor gates and inspection of entering commercial vehicles	Existing

RR Area MarketPackage
CVO03: Electronic Clearance (KY Comm Vehicle)
CVO04: CV Administrative Processes (KY)
CVO06: Weigh-In-Motion (KY)
CVO06: Weigh-In-Motion (TN)
CVO07: Roadside CVO Safety (FtCamp)
CVO07: Roadside CVO Safety (KY)
CVO07: Roadside CVO Safety (TN)
CVO11: Roadside HAZMAT Security Detection and Mitigation (FtCamp)
CVO11: Roadside HAZMAT Security Detection and Mitigation (KY)

Kentucky Transportation Cabinet, District 2

RR Area: **Archived Data Systems for Clarksville Regional ITS Architecture**

Roles and Responsibilities	*Status*
Collect and store maintenance data from District 2 jurisdiction	Existing

RR Area MarketPackage
AD1: ITS Data Mart (KY Maintenance)
AD1: ITS Data Mart (MontCo maintenance)
AD1: ITS Data Mart (Clk Maintenance)
AD1: ITS Data Mart (Clk Traffic)
AD1: ITS Data Mart (KY Information)
AD1: ITS Data Mart (KY Comm Vehicle)
AD1: ITS Data Mart (KY Traffic)
AD1: ITS Data Mart (TN)
AD1: ITS Data Mart (MontCo Emergency)
AD1: ITS Data Mart (Clk Transit)
AD2: ITS Data Warehouse (KY)

RR Area: **Incident Management for Clarksville Regional ITS Architecture**

Roles and Responsibilities	*Status*
Adjusts signal operation as needed	Existing
May detect incident using roadway equipment	Existing

RR Area MarketPackage
ATMS08: Traffic Incident Management System (Clk)
ATMS08: Traffic Incident Management System (KY)

*RR Area:***Maintenance and Construction for Clarksville Regional ITS Architecture**

Roles and Responsibilities	*Status*
Collects road weather data from forecasts and road condition data	Existing
Provides work zone management through DMS, HAR	Existing
Manages winter road maintenance for KY routes	Future (not funded)

RR Area MarketPackage
MC01: Maintenance and Construction Vehicle and Equipment Tracking (MontCo)
MC01: Maintenance and Construction Vehicle and Equipment Tracking (KY)
MC01: Maintenance and Construction Vehicle and Equipment Tracking (Clk)
MC02: Maintenance and Construction Vehicle Maintenance (KTC District 2)
MC02: Maintenance and Construction Vehicle Maintenance (Clk)
MC02: Maintenance and Construction Vehicle Maintenance (MontCo)
MC03: Road Weather Data Collection (MontCo)
MC03: Road Weather Data Collection
MC03: Road Weather Data Collection (KY)
MC03: Road Weather Data Collection (KY Emergency Vehicles)
MC03: Road Weather Data Collection (Clk)
MC04: Weather Information Processing and Distribution
MC04: Weather Information Processing and Distribution (Clk)
MC04: Weather Information Processing and Distribution (MontCo)
MC04: Weather Information Processing and Distribution (KY)
MC05: Roadway Automated Treatment (Clk)
MC05: Roadway Automated Treatment (MontCo)
MC06: Winter Maintenance (Clk)
MC06: Winter Maintenance (KY District 2)
MC06: Winter Maintenance (MontCo)
MC07: Roadway Maintenance and Construction (KY District 2)
MC07: Roadway Maintenance and Construction (MontCo)
MC07: Roadway Maintenance and Construction (Clk)
MC08: Work Zone Management (MontCo)
MC08: Work Zone Management (KY District 2)
MC08: Work Zone Management (Clk)
MC09: Work Zone Safety Monitoring (MontCo)
MC09: Work Zone Safety Monitoring (KY)
MC10: Maintenance and Construction Activity Coordination (Clk)
MC10: Maintenance and Construction Activity Coordination (KY District 2)
MC10: Maintenance and Construction Activity Coordination (MontCo)

*RR Area:***Surface Street Management for Clarksville Regional ITS Architecture**

Roles and Responsibilities	*Status*
Collects traffic data	Existing
Conducts major-corridor surveillance	Existing
Signal control and coordination	Existing
Maintenance and communications with at-grade rail crossings	Future (not funded)
Provide incident detection via roadway surveillance equipment	Future (not funded)

RR Area MarketPackage
ATMS01: Network Surveillance (KY)
ATMS01: Network Surveillance (Clk)
ATMS03: Surface Street Control (KY District 2)
ATMS03: Surface Street Control (Clk)
ATMS06: Traffic Information Dissemination (KY)
ATMS06: Traffic Information Dissemination (Clk)
ATMS13: Standard Railroad Grade Crossing (KY)

Kentucky Transportation Cabinet, Planning Division

*RR Area:***Archived Data Systems for Clarksville Regional ITS Architecture**

Roles and Responsibilities	*Status*
Collect and store traffic data including volume, speed, classification, etc	Existing
Collect and catalog ITS data from different agencies	Future (not funded)
Provide advanced data warehouse and on-line search functions for data retrieval	Future (not funded)

RR Area MarketPackage
AD1: ITS Data Mart (KY Maintenance)
AD1: ITS Data Mart (MontCo maintenance)
AD1: ITS Data Mart (Clk Maintenance)
AD1: ITS Data Mart (Clk Traffic)
AD1: ITS Data Mart (KY Information)
AD1: ITS Data Mart (KY Comm Vehicle)
AD1: ITS Data Mart (KY Traffic)
AD1: ITS Data Mart (TN)
AD1: ITS Data Mart (MontCo Emergency)
AD1: ITS Data Mart (Clk Transit)
AD2: ITS Data Warehouse (KY)

Kentucky Transportation Cabinet, Traffic Ops Divis

*RR Area:***Freeway Management for Clarksville Regional ITS Architecture**

Roles and Responsibilities	*Status*
Monitoring and control of freeway components including ramps, HOV, etc	Existing

RR Area MarketPackage
ATMS01: Network Surveillance (KY)
ATMS04: Freeway Control (KY)
ATMS06: Traffic Information Dissemination (Clk)
ATMS06: Traffic Information Dissemination (KY)
ATMS09: Traffic Forecast and Demand Management (KY)
ATMS09: Traffic Forecast and Demand Management (Clk)
ATMS19: Speed Monitoring (KY)

*RR Area:***Incident Management for Clarksville Regional ITS Architecture**

Roles and Responsibilities	*Status*
Detects incident using surveillance and disseminates significant traffic information to public	Existing

RR Area MarketPackage
ATMS08: Traffic Incident Management System (Clk)
ATMS08: Traffic Incident Management System (KY)

RR Area: **Traveler Information for Clarksville Regional ITS Architecture**

Roles and Responsibilities	*Status*
Maintain and support traveler information kiosks and 511 information system	Existing
Collect probe data and process to determine travel time	Future (not funded)
Provide feed of surveillance images to local media, web	Future (not funded)
Receive local road information from other agencies to include in traveler information	Future (not funded)
Support interactive traveler kiosks at determined locations	Future (not funded)

RR Area MarketPackage
ATIS1: Broadcast Traveler Information (KY)
ATIS1: Broadcast Traveler Information (Clk)
ATIS2: Interactive Traveler Information (KY 511)
ATIS2: Interactive Traveler Information (KY Kiosks)
ATIS4: Dynamic Route Guidance (KY)
ATIS4: Dynamic Route Guidance (Clk)
ATIS7: Yellow Pages and Reservation (KY)
ATIS8: Dynamic Ridesharing (KY)
ATIS9: In Vehicle Signing (KY)

Kentucky Vehicle Enforcement

RR Area: **Archived Data Systems for Clarksville Regional ITS Architecture**

Roles and Responsibilities	*Status*
Operates WIM and roadside check facilities	Existing
Regular patrol and enforcement of commercial vehicle operations	Existing
Supports commercial vehicle information exchange between other agencies	Existing
Operates roadside HAZMAT detection	Future (not funded)

RR Area MarketPackage
AD1: ITS Data Mart (KY Maintenance)
AD1: ITS Data Mart (MontCo maintenance)
AD1: ITS Data Mart (Clk Maintenance)
AD1: ITS Data Mart (Clk Traffic)
AD1: ITS Data Mart (KY Information)
AD1: ITS Data Mart (KY Comm Vehicle)
AD1: ITS Data Mart (KY Traffic)
AD1: ITS Data Mart (TN)
AD1: ITS Data Mart (MontCo Emergency)
AD1: ITS Data Mart (Clk Transit)
AD2: ITS Data Warehouse (KY)

RR Area: **Commercial Vehicle Operations for Clarksville Regional ITS Architecture**

Roles and Responsibilities	*Status*
Collect, manage, and share safety, permit, and credential data	Existing
Regular patrol on KY interstate system	Existing
Operate KY WIM and other automated electronic screening technologies	Future (not funded)

RR Area MarketPackage
CVO03: Electronic Clearance (KY Comm Vehicle)
CVO04: CV Administrative Processes (KY)
CVO06: Weigh-In-Motion (KY)
CVO06: Weigh-In-Motion (TN)
CVO07: Roadside CVO Safety (FtCamp)
CVO07: Roadside CVO Safety (KY)
CVO07: Roadside CVO Safety (TN)
CVO11: Roadside HAZMAT Security Detection and Mitigation (FtCamp)
CVO11: Roadside HAZMAT Security Detection and Mitigation (KY)

Montgomery County Emergency Management Agency

*RR Area:***Emergency Management for Clarksville Regional ITS Architecture**

Roles and Responsibilities	*Status*
Advised of road and emergency incidents and provides support personnel when needed.	Existing
Coordinate emergency and evacuation plans with related organizations.	Existing
Notify other agencies and the public of large-scale emergency via early warning system.	Existing

RR Area MarketPackage
EM01: Emergency Call-Taking and Dispatch (TN)
EM01: Emergency Call-Taking and Dispatch (MontCo)
EM02: Emergency Routing (TN)
EM02: Emergency Routing (KY)
EM02: Emergency Routing
EM05: Transportation Infrastructure Protection (Clk)
EM07: Early Warning System
EM07: Early Warning System (MontCo)
EM09: Evacuation and Reentry Management (KY)
EM10: Disaster Traveler Information (KY)

Montgomery County Highway Department

*RR Area:***Archived Data Systems for Clarksville Regional ITS Architecture**

Roles and Responsibilities	*Status*
Collect and store county roadway and environmental data	Future (not funded)

RR Area MarketPackage
AD1: ITS Data Mart (KY Maintenance)
AD1: ITS Data Mart (MontCo maintenance)
AD1: ITS Data Mart (Clk Maintenance)
AD1: ITS Data Mart (Clk Traffic)
AD1: ITS Data Mart (KY Information)
AD1: ITS Data Mart (KY Comm Vehicle)
AD1: ITS Data Mart (KY Traffic)
AD1: ITS Data Mart (TN)
AD1: ITS Data Mart (MontCo Emergency)
AD1: ITS Data Mart (Clk Transit)
AD2: ITS Data Warehouse (KY)

*RR Area:***Maintenance and Construction for Clarksville Regional ITS Architecture**

Roles and Responsibilities	*Status*

RR Area: **Maintenance and Construction for Clarksville Regional ITS Architecture**

Roles and Responsibilities	*Status*
Automate regular maintenance decision-making (including ROW maintenance, winter work, and work zone activity)	Future (not funded)
Coordinate work activities with TDOT and Clarksville Street Department	Future (not funded)

RR Area MarketPackage

MC01: Maintenance and Construction Vehicle and Equipment Tracking (MontCo)
MC01: Maintenance and Construction Vehicle and Equipment Tracking (KY)
MC01: Maintenance and Construction Vehicle and Equipment Tracking (Clk)
MC02: Maintenance and Construction Vehicle Maintenance (KTC District 2)
MC02: Maintenance and Construction Vehicle Maintenance (Clk)
MC02: Maintenance and Construction Vehicle Maintenance (MontCo)
MC03: Road Weather Data Collection (MontCo)
MC03: Road Weather Data Collection
MC03: Road Weather Data Collection (KY)
MC03: Road Weather Data Collection (KY Emergency Vehicles)
MC03: Road Weather Data Collection (Clk)
MC04: Weather Information Processing and Distribution
MC04: Weather Information Processing and Distribution (Clk)
MC04: Weather Information Processing and Distribution (MontCo)
MC04: Weather Information Processing and Distribution (KY)
MC05: Roadway Automated Treatment (Clk)
MC05: Roadway Automated Treatment (MontCo)
MC06: Winter Maintenance (Clk)
MC06: Winter Maintenance (KY District 2)
MC06: Winter Maintenance (MontCo)
MC07: Roadway Maintenance and Construction (KY District 2)
MC07: Roadway Maintenance and Construction (MontCo)
MC07: Roadway Maintenance and Construction (Clk)
MC08: Work Zone Management (MontCo)
MC08: Work Zone Management (KY District 2)
MC08: Work Zone Management (Clk)
MC09: Work Zone Safety Monitoring (MontCo)
MC09: Work Zone Safety Monitoring (KY)
MC10: Maintenance and Construction Activity Coordination (Clk)
MC10: Maintenance and Construction Activity Coordination (KY District 2)
MC10: Maintenance and Construction Activity Coordination (MontCo)

Montgomery County Sheriffs Office

RR Area: **Emergency Management for Clarksville Regional ITS Architecture**

Roles and Responsibilities	*Status*
Maintains roadway equipment including speed detection and monitoring.	Existing
Provides evacuation support and security monitoring for anticipated emergencies.	Existing
Receives information from E-911 regarding emergency area and responds accordingly	Existing
Re-routes traffic in emergency/work zone situations.	Future (not funded)

RR Area MarketPackage
EM01: Emergency Call-Taking and Dispatch (TN)
EM01: Emergency Call-Taking and Dispatch (MontCo)
EM02: Emergency Routing (TN)
EM02: Emergency Routing (KY)
EM02: Emergency Routing
EM05: Transportation Infrastructure Protection (Clk)
EM07: Early Warning System
EM07: Early Warning System (MontCo)
EM09: Evacuation and Reentry Management (KY)
EM10: Disaster Traveler Information (KY)

Oak Grove Planning Department

*RR Area:***Surface Street Management for Clarksville Regional ITS Architecture**

Roles and Responsibilities	*Status*
Collect and distribute road data and conditions to other agencies	Future (not funded)
Maintain and operate local traffic signals and signal systems	Future (not funded)

RR Area MarketPackage
ATMS01: Network Surveillance (KY)
ATMS01: Network Surveillance (Clk)
ATMS03: Surface Street Control (KY District 2)
ATMS03: Surface Street Control (Clk)
ATMS06: Traffic Information Dissemination (KY)
ATMS06: Traffic Information Dissemination (Clk)
ATMS13: Standard Railroad Grade Crossing (KY)

Oak Grove Police Department

*RR Area:***Emergency Management for Clarksville Regional ITS Architecture**

Roles and Responsibilities	*Status*
Provides evacuation support and security monitoring for anticipated emergencies.	Existing
Receives information regarding emergency area and responds accordingly	Existing

RR Area MarketPackage
EM01: Emergency Call-Taking and Dispatch (TN)
EM01: Emergency Call-Taking and Dispatch (MontCo)
EM02: Emergency Routing (TN)
EM02: Emergency Routing (KY)
EM02: Emergency Routing
EM05: Transportation Infrastructure Protection (Clk)
EM07: Early Warning System
EM07: Early Warning System (MontCo)
EM09: Evacuation and Reentry Management (KY)
EM10: Disaster Traveler Information (KY)

Tennessee Department of Transportation

*RR Area:***Archived Data Systems for Clarksville Regional ITS Architecture**

Roles and Responsibilities	*Status*

RR Area: **Archived Data Systems for Clarksville Regional ITS Architecture**

Roles and Responsibilities	*Status*
Collect and catalog ITS data from other agencies	Existing
Provide advanced data warehouse and on-line search functions for data retrieval	Planned (funded)

RR Area MarketPackage

AD1: ITS Data Mart (KY Maintenance)
AD1: ITS Data Mart (MontCo maintenance)
AD1: ITS Data Mart (Clk Maintenance)
AD1: ITS Data Mart (Clk Traffic)
AD1: ITS Data Mart (KY Information)
AD1: ITS Data Mart (KY Comm Vehicle)
AD1: ITS Data Mart (KY Traffic)
AD1: ITS Data Mart (TN)
AD1: ITS Data Mart (MontCo Emergency)
AD1: ITS Data Mart (Clk Transit)
AD2: ITS Data Warehouse (KY)

RR Area: **Commercial Vehicle Operations for Clarksville Regional ITS Architecture**

Roles and Responsibilities	*Status*
Maintains TN Weigh-In-Motion system.	Existing

RR Area MarketPackage

CVO03: Electronic Clearance (KY Comm Vehicle)
CVO04: CV Administrative Processes (KY)
CVO06: Weigh-In-Motion (KY)
CVO06: Weigh-In-Motion (TN)
CVO07: Roadside CVO Safety (FtCamp)
CVO07: Roadside CVO Safety (KY)
CVO07: Roadside CVO Safety (TN)
CVO11: Roadside HAZMAT Security Detection and Mitigation (FtCamp)
CVO11: Roadside HAZMAT Security Detection and Mitigation (KY)

RR Area: **Freeway Management for Clarksville Regional ITS Architecture**

Roles and Responsibilities	*Status*
Monitoring and control of freeway components including ramps, HOV, etc	Existing

RR Area MarketPackage

ATMS01: Network Surveillance (KY)
ATMS04: Freeway Control (KY)
ATMS06: Traffic Information Dissemination (Clk)
ATMS06: Traffic Information Dissemination (KY)
ATMS09: Traffic Forecast and Demand Management (KY)
ATMS09: Traffic Forecast and Demand Management (Clk)
ATMS19: Speed Monitoring (KY)

RR Area: **Maintenance and Construction for Clarksville Regional ITS Architecture**

Roles and Responsibilities	*Status*
Collects road weather data from forecasts and road condition data	Existing
Manages winter road maintenance for KY routes	Existing
Provides work zone management through DMS, HAR	Existing

RR Area MarketPackage
MC01: Maintenance and Construction Vehicle and Equipment Tracking (MontCo)
MC01: Maintenance and Construction Vehicle and Equipment Tracking (KY)
MC01: Maintenance and Construction Vehicle and Equipment Tracking (Clk)
MC02: Maintenance and Construction Vehicle Maintenance (KTC District 2)
MC02: Maintenance and Construction Vehicle Maintenance (Clk)
MC02: Maintenance and Construction Vehicle Maintenance (MontCo)
MC03: Road Weather Data Collection (MontCo)
MC03: Road Weather Data Collection
MC03: Road Weather Data Collection (KY)
MC03: Road Weather Data Collection (KY Emergency Vehicles)
MC03: Road Weather Data Collection (Clk)
MC04: Weather Information Processing and Distribution
MC04: Weather Information Processing and Distribution (Clk)
MC04: Weather Information Processing and Distribution (MontCo)
MC04: Weather Information Processing and Distribution (KY)
MC05: Roadway Automated Treatment (Clk)
MC05: Roadway Automated Treatment (MontCo)
MC06: Winter Maintenance (Clk)
MC06: Winter Maintenance (KY District 2)
MC06: Winter Maintenance (MontCo)
MC07: Roadway Maintenance and Construction (KY District 2)
MC07: Roadway Maintenance and Construction (MontCo)
MC07: Roadway Maintenance and Construction (Clk)
MC08: Work Zone Management (MontCo)
MC08: Work Zone Management (KY District 2)
MC08: Work Zone Management (Clk)
MC09: Work Zone Safety Monitoring (MontCo)
MC09: Work Zone Safety Monitoring (KY)
MC10: Maintenance and Construction Activity Coordination (Clk)
MC10: Maintenance and Construction Activity Coordination (KY District 2)
MC10: Maintenance and Construction Activity Coordination (MontCo)

*RR Area:***Surface Street Management for Clarksville Regional ITS Architecture**

Roles and Responsibilities	*Status*
Collects and distributes traffic data	Existing

RR Area MarketPackage
ATMS01: Network Surveillance (KY)
ATMS01: Network Surveillance (Clk)
ATMS03: Surface Street Control (KY District 2)
ATMS03: Surface Street Control (Clk)
ATMS06: Traffic Information Dissemination (KY)
ATMS06: Traffic Information Dissemination (Clk)
ATMS13: Standard Railroad Grade Crossing (KY)

*RR Area:***Traveler Information for Clarksville Regional ITS Architecture**

Roles and Responsibilities	*Status*
Maintain and support traveler information kiosks	Existing
Maintain and support 511 information system	Planned (funded)
Receive local road information from other agencies to include in traveler information	Future (not funded)

RR Area MarketPackage
ATIS1: Broadcast Traveler Information (KY)
ATIS1: Broadcast Traveler Information (Clk)
ATIS2: Interactive Traveler Information (KY 511)
ATIS2: Interactive Traveler Information (KY Kiosks)
ATIS4: Dynamic Route Guidance (KY)
ATIS4: Dynamic Route Guidance (Clk)
ATIS7: Yellow Pages and Reservation (KY)
ATIS8: Dynamic Ridesharing (KY)
ATIS9: In Vehicle Signing (KY)

Tennessee Highway Patrol

*RR Area:***Archived Data Systems for Clarksville Regional ITS Architecture**

Roles and Responsibilities	*Status*
Collects and stores emergency information (including crash and enforcement data)	Existing
Supplies relevant data to TDOT or other pertinent organizations	Existing

RR Area MarketPackage
AD1: ITS Data Mart (KY Maintenance)
AD1: ITS Data Mart (MontCo maintenance)
AD1: ITS Data Mart (Clk Maintenance)
AD1: ITS Data Mart (Clk Traffic)
AD1: ITS Data Mart (KY Information)
AD1: ITS Data Mart (KY Comm Vehicle)
AD1: ITS Data Mart (KY Traffic)
AD1: ITS Data Mart (TN)
AD1: ITS Data Mart (MontCo Emergency)
AD1: ITS Data Mart (Clk Transit)
AD2: ITS Data Warehouse (KY)

*RR Area:***Commercial Vehicle Operations for Clarksville Regional ITS Architecture**

Roles and Responsibilities	*Status*
Manage and monitor commercial vehicle checks	Existing

RR Area MarketPackage
CVO03: Electronic Clearance (KY Comm Vehicle)
CVO04: CV Administrative Processes (KY)
CVO06: Weigh-In-Motion (KY)
CVO06: Weigh-In-Motion (TN)
CVO07: Roadside CVO Safety (FtCamp)
CVO07: Roadside CVO Safety (KY)
CVO07: Roadside CVO Safety (TN)
CVO11: Roadside HAZMAT Security Detection and Mitigation (FtCamp)
CVO11: Roadside HAZMAT Security Detection and Mitigation (KY)

*RR Area:***Emergency Management for Clarksville Regional ITS Architecture**

Roles and Responsibilities	*Status*
Coordinates with TOC during emergency routing	Existing
Identifies and reports incident locations to other agencies	Existing
Provides emergency call-taking and dispatch of trooper vehicles	Existing

RR Area MarketPackage
EM01: Emergency Call-Taking and Dispatch (TN)
EM01: Emergency Call-Taking and Dispatch (MontCo)
EM02: Emergency Routing (TN)
EM02: Emergency Routing (KY)
EM02: Emergency Routing
EM05: Transportation Infrastructure Protection (Clk)
EM07: Early Warning System
EM07: Early Warning System (MontCo)
EM09: Evacuation and Reentry Management (KY)
EM10: Disaster Traveler Information (KY)

APPENDIX C

Functional Requirements
Clarksville Regional ITS Architecture (Region)

9/18/2006 10:00:22AM

Architecture		Status
Clarksville Regional ITS Architecture (Region)		(Region)
Element: **ChrisCo Highways Headquarters**		
Entity: **Maintenance and Construction Management**		
Functional Area: **MCM Vehicle and Equipment Maintenance Management** Monitors vehicle and equipment condition, tracks maintenance history, and schedules routine and corrective maintenance.		
Requirement:	1 The center shall collect and analyze vehicle diagnostics information from maintenance and construction vehicles. The information includes engine temperature, mileage, tire wear, brake wear, belt wear, and any warnings or alarms concerning the operational condition of the vehicle and ancillary equipment.	Existing
Requirement:	3 The center shall schedule preventive and corrective vehicle maintenance with the equipment repair facility based on fleet health reports, maintenance records, vehicle utilization and vehicle availability schedules.	Existing
Element: **ChrisCo Maintenance Vehicles**		
Entity: **Maintenance and Construction Vehicle**		
Functional Area: **MCV Vehicle System Monitoring and Diagnostics** On-board sensors capable of monitoring the condition of each of the vehicle systems and diagnostics that can be used to support vehicle maintenance.		
Requirement:	1 The maintenance and construction vehicle shall collect vehicle diagnostics and operating status data from the maintenance vehicle platform including engine temperature, mileage, tire wear, brake wear, belt wear, and other operational status measures as well as the status of maintenance and construction-specific systems on the vehicle.	Future (not funded)
Requirement:	2 The maintenance and construction vehicle shall use the diagnostic and status information to support scheduling vehicle maintenance, monitoring safety status, and informing the vehicle operator of the conditions.	Future (not funded)
Element: **Clarksville Police Headquarters**		
Entity: **Emergency Management**		
Functional Area: **Emergency Evacuation Support** Evacuation planning and coordination to manage evacuation and reentry of a population in the vicinity of a disaster or other emergency that poses a risk to public safety.		
Requirement:	2 The center shall develop and exchange evacuation plans with allied agencies prior to the occurrence of a disaster.	Existing
Requirement:	3 The center shall provide an interface to the emergency system operator to enter evacuation plans and procedures and present the operator with other agencies' plans.	Existing
Requirement:	7 The center shall request traffic management agencies to implement special traffic control strategies and to control evacuation traffic, including traffic on local streets and arterials as well as the major evacuation routes.	Existing

Architecture	Status
Clarksville Regional ITS Architecture (Region)	(Region)
Element: **Clarksville Police Headquarters**	
Entity: **Emergency Management**	
Functional Area: **Emergency Evacuation Support** Evacuation planning and coordination to manage evacuation and reentry of a population in the vicinity of a disaster or other emergency that poses a risk to public safety.	
Requirement: 12 [User Defined] The center shall monitor the progress or status of the evacuation once it begins and exchange plans with allied agencies.	Future (not funded)
Requirement: 13 [User Defined] The center shall provide evacuation information to traffic, transit, maintenance and construction and other emergency management centers as needed.	Existing
Element: **Clarksville Police Roadway Equipment**	
Entity: **Roadway Subsystem**	
Functional Area: **Roadway Equipment Coordination** Field elements that control and send data to other field elements (such as environmental sensors that send data to a DMS or coordination between traffic controllers on adjacent intersections), without center control.	
Requirement: 5 [User Defined] The field element shall include sensors (such as traffic) that provide data and status information to other field element devices (such as traffic signals), without center control.	Existing
Functional Area: **Roadway Speed Monitoring** Vehicle speed sensors that detect excessive vehicle speeds, informing drivers, centers and/or enforcement agencies of speed violations.	
Requirement: 2 The field element shall include sensors to detect vehicle speeds, under enforcement agency control.	Existing
Requirement: 3 If the speed detected by vehicle speed sensors is determined to be excessive, the field element shall provide a safe speed advisory to passing drivers via a driver information system (such as portable messages signs, etc.).	Future (not funded)
Element: **Clk Govt Reporting System**	
Entity: **Archived Data Management Subsystem**	
Functional Area: **ITS Data Repository** Collect and maintain data and data catalogs from one or more data sources. May include quality checks, error notification, and archive coordination.	
Requirement: 1 The center shall collect data to be archived from one or more data sources.	Planned (funded)
Functional Area: **Government Reporting Systems Support** Selects and formats data residing in an ITS archive to facilitate local, state, and federal government data reporting requirements.	
Requirement: 1 The center shall provide data from an ITS archive to federal, state, or local government reporting systems.	Planned (funded)
Requirement: 2 The center shall provide the capability to select data from an ITS archive for use in government reports.	Planned (funded)
Requirement: 3 The center shall provide the capability to format data from an ITS archive suitable for input into government reports.	Planned (funded)
Functional Area: **On-Line Analysis and Mining**	

Architecture		Status
Clarksville Regional ITS Architecture (Region)		(Region)
Element: **Clk Govt Reporting System**		
Entity: **Archived Data Management Subsystem**		
Functional Area: **On-Line Analysis and Mining** Advanced data analysis and mining features to support discovery of information, patterns, and correlations in large ITS archives.		
Requirement:	1 The center shall support the interface with Archive Data User Systems for requests for analysis of the archive data.	Future (not funded)
Requirement:	2 The center shall provide the capability to perform activities such as data mining, data fusion, summarizations, aggregations, and recreation from archive data. This may include multidimensional analysis, selective summarization and expansion of data details, and many other advanced analysis services.	Future (not funded)
Requirement:	3 The center shall receive the user's systems requests and develop the request to retrieve the data from the archive.	Future (not funded)
Element: **Clk Maintenance Vehicles**		
Entity: **Maintenance and Construction Vehicle**		
Functional Area: **MCV Vehicle Location Tracking** On-board systems to track vehicle location and reports the position and timestamp information to the dispatch center.		
Requirement:	1 The maintenance and construction vehicle shall compute the location of the vehicle based on inputs from a vehicle location determination function.	Existing
Requirement:	2 The maintenance and construction vehicle shall send the timestamped vehicle location to the controlling center.	Existing
Functional Area: **MCV Environmental Monitoring** On-board systems that collect environmental and road condition data (including road surface or air temperature, wind speed, and road traction information - spatially located and time stamped) from sensors on-board the maintenance vehicle or located at the roadway.		
Requirement:	2 The maintenance and construction vehicle shall transmit environmental sensor data to the center. The sensor data includes location and timestamp information.	Future (not funded)
Requirement:	9 [User Defined] The maintenance and construction vehicle shall collect environmental data from on-board sensors, including air temperature, surface temperature, etc.	Future (not funded)
Functional Area: **MCV Winter Maintenance** On-board systems that support snow plow operations and other roadway treatments (e.g., salt spraying and other material applications). Supports information sharing between snow plows.		
Requirement:	3 The maintenance and construction vehicle shall monitor materials information including remaining quantity and current application rate of materials on the vehicle.	Future (not funded)
Requirement:	4 The maintenance and construction vehicle shall respond to dispatch information from the center, presented to the vehicle operator for acknowledgement and returning status.	Existing
Functional Area: **MCV Work Zone Support** On-board systems that provide communications and support for local management of a work zone.		

Architecture		Status
Clarksville Regional ITS Architecture (Region)		(Region)
Element: **Clk Maintenance Vehicles**		
Entity: **Maintenance and Construction Vehicle**		
Functional Area: **MCV Work Zone Support** On-board systems that provide communications and support for local management of a work zone.		
Requirement:	4 [User Defined] The maintenance and construction vehicle shall monitor, operate, and control work zone devices located at or alongside the roadway. The devices operated on board the vehicle include driver information devices (e.g. dynamic message signs) and/or other devices.	Existing
Element: **Clk Public Works Center**		
Entity: **Maintenance and Construction Management**		
Functional Area: **MCM Vehicle Tracking** Remotely tracks the location of maintenance and construction vehicles and other equipment; presented to the center personnel.		
Requirement:	1 The center shall monitor the locations of all maintenance and construction vehicles and other equipment under its jurisdiction.	Existing
Requirement:	2 The center shall present location data to center personnel for the fleet of maintenance and construction vehicles and other equipment.	Existing
Functional Area: **MCM Environmental Information Collection** Remotely controls environmental sensors and assimilates collected data with other current and forecast road conditions and surface weather information from weather service providers and transportation operations.		
Requirement:	1 The center shall remotely control environmental sensors that measure road surface temperature, moisture, icing, salinity, and other measures.	Future (not funded)
Requirement:	2 The center shall remotely control environmental sensors that measure weather conditions including temperature, wind, humidity, precipitation, and visibility.	Future (not funded)
Requirement:	3 The center shall remotely control environmental sensors on-board maintenance and construction vehicles that measure road and weather conditions including air and surface temperatures, wind speed, humidity, precipitation, visibility and other measures.	Future (not funded)
Requirement:	4 The center shall assimilate current and forecast road conditions and surface weather information using a combination of weather service provider information (such as the National Weather Service and value-added sector specific meteorological services), data from traffic, emergency, and transit management, traveler information providers, and environmental data collected from sensors deployed on and about the roadway as well as the fleet of maintenance and construction vehicles.	Future (not funded)
Requirement:	6 The center shall respond to control data from center personnel regarding environmental sensor control and weather data collection and processing.	Future (not funded)
Functional Area: **MCM Environmental Information Processing**		

Architecture		Status
Clarksville Regional ITS Architecture (Region)		(Region)
Element: **Clk Public Works Center**		
Entity: **Maintenance and Construction Management**		
Functional Area: **MCM Environmental Information Processing** Processes current and forecast weather data, road condition information, local environmental data, and uses internal models to develop specialized detailed forecasts of local weather and surface conditions. Disseminates road weather information to other agencies and centers.		
Requirement:	1 The center shall respond to control data from center personnel regarding environmental sensor control and weather data collection and processing.	Future (not funded)
Requirement:	2 The center shall assimilate current and forecast road conditions and surface weather information using a combination of weather service provider information (such as the National Weather Service and value-added sector specific meteorological services) and local environmental sensor data.	Future (not funded)
Requirement:	3 The center shall use the various data inputs of environmental sensors and road weather data to develop a view of current and predicted road weather and road conditions.	Future (not funded)
Requirement:	4 The center shall disseminate current and forecasted road weather and road condition information to weather service providers (such as the National Weather Service and value-added sector specific meteorological services) as well as other agencies including traffic, emergency, and transit management, traveler information providers, rail operations centers, media, and other maintenance management centers.	Future (not funded)
Functional Area: **MCM Automated Treatment System Control** Remotely controls automated roadway treatment systems (to disperse anti-icing chemicals, etc.) directly, or via control of the environmental sensors that activate the treatment systems automatically in the field.		
Requirement:	1 The center shall remotely control automated roadway treatment systems. Treatments can be in the form of fog dispersion, anti-icing chemicals, etc.	Future (not funded)
Requirement:	2 The center shall remotely control the environmental sensors that upon detecting changes in environmental or atmospheric conditions, automatically activate roadway treatment systems.	Future (not funded)
Requirement:	5 The center shall accept requests for automated roadway treatment system activation from center personnel.	Future (not funded)
Functional Area: **MCM Maintenance Decision Support** Maintenance Decision Support Systems recommend courses of action based on current and forecast environmental and road conditions (filtered and fused for specific time horizons) and additional application specific information. Recommendations and dispatch instructions are generated based on this integrated information.		
Requirement:	1 The center shall provide the center personnel with tailored external information, including weather or road condition observations, forecasted weather information or road conditions, current usage of treatments and materials, available resources, equipment and vehicle availability, road network information, and source reliability information.	Future (not funded)

Architecture		Status
Clarksville Regional ITS Architecture (Region)		(Region)
Element: **Clk Public Works Center**		
Entity: **Maintenance and Construction Management**		
Functional Area: **MCM Maintenance Decision Support**	Maintenance Decision Support Systems recommend courses of action based on current and forecast environmental and road conditions (filtered and fused for specific time horizons) and additional application specific information. Recommendations and dispatch instructions are generated based on this integrated information.	
Requirement:	4 The center shall provide dispatch information to maintenance and construction vehicles based on the outputs of the decision support system, including recommended roadway treatment actions.	Future (not funded)
Functional Area: **MCM Winter Maintenance Management**	Manages winter road maintenance, tracking and controlling snow plow operations, roadway treatment (e.g., salt spraying and other material applications) based on weather information.	
Requirement:	2 The center shall exchange information with administrative systems to support the planning and scheduling of winter maintenance activities. This information includes: equipment and consumables resupply purchase request status, personnel qualifications including training and special certifications, environmental regulations and rules that may impact maintenance activities, and requests and project requirements from contract administration.	Existing
Requirement:	4 The center shall receive equipment availability and materials storage status information from storage facilities to support the scheduling of winter maintenance activities.	Existing
Requirement:	6 The center shall collect current and forecast traffic and weather information from traffic management centers and weather service providers (such as the National Weather Service and value-added sector specific meteorological services).	Existing
Requirement:	7 The center shall dispatch and route winter maintenance vehicle drivers and support them with route- specific environmental, incident, advisory, threat, alert, and traffic congestion information.	Existing
Requirement:	8 The center shall determine the need for roadway treatment based on current and forecasted weather information, current usage of treatments and materials, available resources, requests for action from other agencies, and recommendations from the Maintenance Decision Support system, specifically under winter conditions. This supports winter maintenance such as plowing, treating, anti-icing, etc.	Existing
Requirement:	9 The center shall provide dispatch instructions for vehicle operators based on input parameters from center personnel, specifically for winter conditions. This could include a treatment route, treatment application rates, start and end times, and other treatment instructions.	Existing
Requirement:	11 The center shall assess the current status of all winter maintenance activities, including actual work activities performed, current locations and operational conditions of vehicles, materials and equipment inventories, field equipment status, environmental information, etc.	Existing
Functional Area: **MCM Roadway Maintenance and Construction**		

Architecture		Status
Clarksville Regional ITS Architecture (Region)		(Region)
Element: **Clk Public Works Center**		
Entity: **Maintenance and Construction Management**		
Functional Area: **MCM Roadway Maintenance and Construction** Overall management and support for routine maintenance on the roadway or right-of-way. Includes landscape maintenance, hazard removal (roadway debris, dead animals), routine maintenance activities (roadway cleaning, grass cutting), and repair and maintenance of both ITS and non-ITS equipment.		
Requirement:	1 The center shall maintain an interface with asset management systems to track the inventory, restrictions, repair needs and status updates of transportation assets (pavement, bridges, signs, etc.) including location, installation and materials information, vendor/contractor, current maintenance status, standard height, width, and weight restrictions.	Existing
Requirement:	2 The center shall respond to requests from emergency management and traffic management centers for hazard removal, field equipment repair, and other roadway maintenance.	Existing
Requirement:	3 The center shall exchange information with administrative systems to support the planning and scheduling of maintenance activities. This information includes: equipment and consumables resupply purchase request status, personnel qualifications including training and special certifications, environmental regulations and rules that may impact maintenance activities, and requests and project requirements from contract administration.	Existing
Requirement:	4 The center shall provide emergency management and traffic management centers with information about scheduled maintenance and construction work activities including anticipated closures and impact to the roadway, alternate routes, anticipated delays, closure times, and durations.	Existing
Requirement:	10 The center shall collect current and forecast traffic and weather information from traffic management centers and weather service providers (such as the National Weather Service and value-added sector specific meteorological services).	Existing
Requirement:	11 The center shall dispatch and route maintenance and construction vehicle drivers and support them with route- specific environmental, incident, advisory, threat, alert, and traffic congestion information.	Existing
Functional Area: **MCM Work Zone Management** Remotely monitors and supports work zone activities, controlling traffic through dynamic message signs (DMS), highway advisory radio, gates and barriers, and informing other groups of activity (e.g., traveler information systems, traffic management centers, other maintenance and construction centers).		
Requirement:	3 The center shall disseminate work zone information to other agencies and centers including traffic, transit, emergency management centers, other maintenance centers, traveler information providers, and the media.	Existing
Requirement:	4 The center shall control traffic in work zones by providing remote control of dynamic message signs, highway advisory radio systems, gates, and barriers located in or near the work zone.	Future (not funded)

Architecture	Status
Clarksville Regional ITS Architecture (Region)	(Region)
Element: **Clk Public Works Center**	
Entity: **Maintenance and Construction Management**	
Functional Area: **MCM Work Zone Management** Remotely monitors and supports work zone activities, controlling traffic through dynamic message signs (DMS), highway advisory radio, gates and barriers, and informing other groups of activity (e.g., traveler information systems, traffic management centers, other maintenance and construction centers).	
Requirement: 5 The center shall exchange information with administrative systems to support the planning and scheduling of work zone activities. This information includes: equipment and consumables resupply purchase request status, personnel qualifications including training and special certifications, environmental regulations and rules that may impact maintenance activities, and requests and project requirements from contract administration.	Existing
Functional Area: **MCM Speed Monitoring** Remotely monitors vehicle speeds, and informs an enforcement agency if excessive speeds are detected; primarily used in work zones.	
Requirement: 5 [User Defined] The center shall remotely control vehicle speed sensors; control parameters may include environmental and traffic conditions.	Existing
Functional Area: **MCM Work Activity Coordination** Disseminates work activity schedules and current asset restrictions to other agencies. Work schedules are coordinated, factoring in the needs and activities of other agencies and adjacent jurisdictions.	
Requirement: 1 The center shall provide work zone activities affecting the road network including the nature of the maintenance or construction activity, location, impact to the roadway, expected time(s) and duration of impact, anticipated delays, alternate routes, and suggested speed limits. This information may be augmented with images that provide a visual indication of current work zone status and traffic impacts.	Existing
Requirement: 2 The center shall provide status information about scheduled maintenance and construction activities including anticipated closures and impact to the roadway, alternate routes, anticipated delays, closure times, and durations. The information is provided to other management centers such as traffic, emergency, transit, traveler information providers, other maintenance centers, multimodal transportation providers, rail operations, and the media.	Existing
Requirement: 5 The center shall exchange information with administrative systems to support the planning and scheduling of maintenance and construction activities. This information includes: equipment and consumables resupply purchase request status, personnel qualifications including training and special certifications, environmental regulations and rules that may impact maintenance activities, and requests and project requirements from contract administration.	Existing
Requirement: 6 The center shall exchange rail schedules and work plans with rail operations centers.	Existing
Functional Area: **MCM Data Collection**	

Architecture		Status
Clarksville Regional ITS Architecture (Region)		(Region)
Element: **Clk Public Works Center**		
Entity: **Maintenance and Construction Management**		
Functional Area: **MCM Data Collection** Collection and storage of maintenance and construction information. For use by operations personnel or data archives in the region.		
Requirement:	1 The center shall collect maintenance and construction data (such as field equipment status, infrastructure status, maintenance and construction activity data) gathered from roadway, traffic, and other maintenance and construction sources.	Existing
Requirement:	4 The center shall be able to produce sample products of the data available.	Existing
Element: **Clk Roadway Equipment**		
Entity: **Roadway Subsystem**		
Functional Area: **Roadway Basic Surveillance** Field elements that monitor traffic conditions using loop detectors and CCTV cameras.		
Requirement:	1 The field element shall collect, process, digitize, and send traffic sensor data (speed, volume, and occupancy) to the center for further analysis and storage, under center control.	Existing
Requirement:	2 The field element shall collect, process, and send traffic images to the center for further analysis and distribution.	Planned (funded)
Functional Area: **Roadway Signal Controls** Field elements including traffic signal controllers for use at signalized intersections; also supports pedestrian crossings.		
Requirement:	1 The field element shall control traffic signals at intersections and on main highways for urban and rural areas, under center control.	Existing
Requirement:	6 The field element shall return traffic signal controller operational status to the controlling center.	Existing
Requirement:	7 The field element shall return traffic signal controller fault data to the maintenance center for repair.	Existing
Functional Area: **Roadway Traffic Information Dissemination** Driver information systems, such as dynamic message signs and Highway Advisory Radio (HAR).		
Requirement:	1 The field element shall include dynamic messages signs for dissemination of traffic and other information to drivers, under center control; the DMS may be either those that display variable text messages, or those that have fixed format display(s) (e.g. vehicle restrictions, or lane open/close).	Planned (funded)
Functional Area: **Roadway Equipment Coordination** Field elements that control and send data to other field elements (such as environmental sensors that send data to a DMS or coordination between traffic controllers on adjacent intersections), without center control.		
Requirement:	5 [User Defined] The field element shall include sensors (such as traffic) that provide data and status information to other field element devices (such as traffic signals), without center control.	Existing
Functional Area: **Roadway Automated Treatment**		

Architecture		Status
Clarksville Regional ITS Architecture (Region)		(Region)
Element: **Clk Roadway Equipment**		
Entity: **Roadway Subsystem**		
Functional Area: **Roadway Automated Treatment** Field elements that activate automated roadway treatment systems (to disperse anti-icing chemicals, etc.) based on environmental or atmospheric conditions, or under center control.		
Requirement:	1 The field element shall activate automated roadway treatment systems based on environmental or atmospheric conditions. Treatments can be in the form of fog dispersion, anti-icing chemicals, etc.	Future (not funded)
Requirement:	2 The field element shall activate automated roadway treatment systems under center control. Treatments can be in the form of fog dispersion, anti-icing chemicals, etc.	Future (not funded)
Functional Area: **Roadway Reversible Lanes** Traffic sensors, surveillance, and automated reversible lane equipment and lane control signals to control traffic in reversible lanes.		
Requirement:	2 The field element shall include automated reversible lane equipment and driver information systems (such as lane control signals) that control traffic in reversible lanes on surface streets, under center control.	Existing
Functional Area: **Roadway Speed Monitoring** Vehicle speed sensors that detect excessive vehicle speeds, informing drivers, centers and/or enforcement agencies of speed violations.		
Requirement:	1 The field element shall include sensors to detect vehicle speeds, under traffic or maintenance center control.	Existing
Requirement:	3 If the speed detected by vehicle speed sensors is determined to be excessive, the field element shall provide a safe speed advisory to passing drivers via a driver information system (such as portable messages signs, etc.).	Existing
Functional Area: **Roadway Work Zone Traffic Control** Field elements in maintenance and construction areas including CCTV cameras, driver information systems (such as DMS), and gates/barriers that monitor and control traffic and provide information directly to drivers in affected areas.		
Requirement:	3 Under the control of field personnel within maintenance vehicles, the field element shall include driver information systems (such as dynamic messages signs and highway advisory radios) that advise drivers of activity around a work zone through which they are currently passing.	Existing
Functional Area: **Roadway Data Collection** Field elements to collect traffic, road, and environmental conditions information for use in transportation planning, research, and other off-line applications. Includes the sensors, supporting roadside infrastructure, and communications equipment.		
Requirement:	4 [User Defined] The field element shall collect traffic and classification information.	Existing
Requirement:	5 [User Defined] The field element shall include the sensors and supporting roadside devices that sense and collect traffic information.	Existing

Architecture		Status
Clarksville Regional ITS Architecture (Region)		(Region)
Element: **Clk Signal Priority System**		
Entity: **Roadway Subsystem**		
Functional Area: **Roadway Basic Surveillance** Field elements that monitor traffic conditions using loop detectors and CCTV cameras.		
Requirement:	1 The field element shall collect, process, digitize, and send traffic sensor data (speed, volume, and occupancy) to the center for further analysis and storage, under center control.	Existing
Requirement:	2 The field element shall collect, process, and send traffic images to the center for further analysis and distribution.	Existing
Functional Area: **Roadway Signal Controls** Field elements including traffic signal controllers for use at signalized intersections; also supports pedestrian crossings.		
Requirement:	1 The field element shall control traffic signals at intersections and on main highways for urban and rural areas, under center control.	Existing
Functional Area: **Roadway Equipment Coordination** Field elements that control and send data to other field elements (such as environmental sensors that send data to a DMS or coordination between traffic controllers on adjacent intersections), without center control.		
Requirement:	2 The field element shall include sensors (such as traffic, environmental, and work zone intrusion detection sensors) that receive control information from other field element devices, without center control.	Existing
Element: **Clk TOC**		
Entity: **Traffic Management**		
Functional Area: **Collect Traffic Surveillance** Management of traffic sensors and surveillance (CCTV) equipment, and distribution of the collected information to other centers and operators.		
Requirement:	1 The center shall monitor, analyze, and store traffic sensor data (speed, volume, occupancy) collected from field elements under remote control of the center.	Existing
Requirement:	2 The center shall monitor, analyze, and distribute traffic images from CCTV systems under remote control of the center.	Planned (funded)
Requirement:	4 The center shall distribute road network conditions data (raw or processed) based on collected and analyzed traffic sensor and surveillance data to other centers.	Existing
Requirement:	5 The center shall respond to control data from center personnel regarding sensor and surveillance data collection, analysis, storage, and distribution.	Existing
Functional Area: **TMC Probe Information Collection** Collects, assimilates, and disseminates vehicle probe data collected from roadside beacons and centers controlling transit vehicles, emergency vehicles, toll collection points, and route-guided vehicles.		
Requirement:	1 The center shall collect probe data including traffic and road conditions from vehicles via roadside beacon field elements; the data may be aggregated and initial link time calculations performed in the field.	Future (not funded)
Functional Area: **TMC Signal Control**		

Architecture		Status
Clarksville Regional ITS Architecture (Region)		(Region)
Element: **Clk TOC**		
Entity: **Traffic Management**		
Functional Area: **TMC Signal Control** Remotely controls traffic signal controllers to implement traffic management strategies at signalized intersections based on traffic conditions, incidents, emergency vehicle preemptions, pedestrian crossings, etc.		
Requirement:	1 The center shall remotely control traffic signal controllers.	Existing
Requirement:	3 The center shall collect traffic signal controller operational status and compare against the control information sent by the center.	Existing
Requirement:	4 The center shall collect traffic signal controller fault data from the field.	Existing
Requirement:	5 The center shall implement control plans to coordinate signalized intersections, under control of center personnel, based on data from sensors and surveillance monitoring traffic conditions, incidents, emergency vehicle preemptions, the passage of commercial vehicles with unusual loads, equipment faults, pedestrian crossings, etc.	Existing
Functional Area: **TMC Traffic Information Dissemination** Controls dissemination of traffic-related data to other centers, the media, and travelers via the driver information systems (DMS, HAR) that it operates.		
Requirement:	1 The center shall remotely control dynamic messages signs for dissemination of traffic and other information to drivers.	Future (not funded)
Requirement:	2 The center shall remotely control driver information systems that communicate directly from a center to the vehicle radio (such as Highway Advisory Radios) for dissemination of traffic and other information to drivers.	Future (not funded)
Requirement:	8 The center shall provide the capability for center personnel to control the nature of the data that is available to non-traffic operations centers and the media.	Existing
Requirement:	9 [User Defined] The center shall distribute traffic data to the media upon request.	Existing
Requirement:	10 [User Defined] The center shall retrieve locally stored traffic information, including current and forecasted traffic information, traffic incident information, and closures.	Existing
Requirement:	11 [User Defined] The center shall distribute traffic data to maintenance and construction centers, transit centers, emergency management centers, and traveler information providers (by request only).	Existing
Functional Area: **TMC Incident Detection** Remotely controls traffic and video sensors to support incident detection and verification; exchange information with other agencies including emergency management, maintenance and construction, alerting and advisory systems, event promoters, intermodal freight depots, and traveler information systems.		
Requirement:	1 The center shall receive inputs from the Alerting and Advisory System concerning the possibility or occurrence of severe weather, terrorist activity, or other major emergency, including information provided by the Emergency Alert System.	Future (not funded)
Requirement:	2 The center shall collect and store traffic flow and image data from the field equipment to detect and verify incidents.	Planned (funded)

Architecture		Status
Clarksville Regional ITS Architecture (Region)		(Region)
Element: **Clk TOC**		
Entity: **Traffic Management**		
Functional Area: **TMC Incident Detection** Remotely controls traffic and video sensors to support incident detection and verification; exchange information with other agencies including emergency management, maintenance and construction, alerting and advisory systems, event promoters, intermodal freight depots, and traveler information systems.		
Requirement:	3 The center shall receive inputs concerning upcoming events that would effect the traffic network from event promoters, traveler information service providers, and intermodal freight depots.	Future (not funded)
Requirement:	4 The center shall exchange incident and threat information with emergency management centers as well as maintenance and construction centers; including notification of existence of incident and expected severity, location, time and nature of incident.	Existing
Requirement:	5 The center shall support requests from emergency management centers to remotely control sensor and surveillance equipment located in the field.	Existing
Requirement:	6 The center shall provide road network conditions and traffic images to emergency management centers to support the detection, verification, and classification of incidents.	Existing
Requirement:	7 The center shall provide video and traffic sensor control commands to the field equipment to detect and verify incidents.	Existing
Functional Area: **TMC Incident Dispatch Coordination/Communication** Center-based capability to formulate an incident response that takes into account the incident potential, incident impacts, and/or resources required for incident management including proposing and facilitating the dispatch of emergency response and service vehicles as well as coordinating response with all appropriate cooperating agencies.		
Requirement:	1 The center shall exchange alert information and status with emergency management centers. The information includes notification of a major emergency such as a natural or man-made disaster, civil emergency, or child abduction for distribution to the public. The information may include the alert originator, the nature of the emergency, the geographic area affected by the emergency, the effective time period, and information and instructions necessary for the public to respond to the alert. This may also identify specific information that should not be released to the public.	Existing
Requirement:	2 The center shall coordinate planning for incidents with emergency management centers - including pre-planning activities for disaster response, evacuation, and recovery operations.	Existing
Requirement:	3 The center shall support requests from emergency management centers to remotely control sensor and surveillance equipment located in the field, provide special routing for emergency vehicles, and to provide responding emergency vehicles with signal preemption.	Existing

Architecture		Status
Clarksville Regional ITS Architecture (Region)		(Region)
Element: **Clk TOC**		
Entity: **Traffic Management**		
Functional Area: **TMC Incident Dispatch Coordination/Communication** Center-based capability to formulate an incident response that takes into account the incident potential, incident impacts, and/or resources required for incident management including proposing and facilitating the dispatch of emergency response and service vehicles as well as coordinating response with all appropriate cooperating agencies.		
Requirement:	4 The center shall exchange incident and threat information with emergency management centers as well as maintenance and construction centers; including notification of existence of incident and expected severity, location, time and nature of incident.	Existing
Requirement:	5 The center shall respond to requests from emergency management to provide traffic management resources to implement special traffic control measures, assist in clean up, verify an incident, etc. This may also involve coordination with maintenance centers.	Existing
Requirement:	6 The center shall receive inputs concerning upcoming events that would effect the traffic network from event promoters, traveler information service providers, media, and rail operations centers.	Existing
Requirement:	7 The center shall provide road network conditions and traffic images to emergency management centers, maintenance and construction centers, and traveler information service providers.	Existing
Requirement:	8 The center shall exchange road network status assessment information with emergency management and maintenance centers including an assessment of damage sustained by the road network including location and extent of the damage, estimate of remaining capacity, required closures, alternate routes, necessary restrictions, and time frame for repair and recovery.	Existing
Requirement:	9 The center shall coordinate information and controls with other traffic management centers.	Future (not funded)
Functional Area: **TMC Evacuation Support** Development, coordination, and execution of special traffic management strategies during evacuation and subsequent reentry of a population in the vicinity of a disaster or major emergency. Interfaces with emergency management and other traffic management centers.		
Requirement:	1 The center shall coordinate planning for evacuation with emergency management centers - including pre-planning activities such as establishing routes, areas to be evacuated, timing, etc.	Existing
Requirement:	2 The center shall support requests from emergency management centers to preempt the current traffic control strategy, activate traffic control and closure systems such as gates and barriers, activate safeguard systems, or use driver information systems to support evacuation traffic control plans.	Existing
Requirement:	3 The center shall coordinate information and controls with other traffic management centers.	Future (not funded)
Requirement:	4 The center shall coordinate execution of evacuation strategies with emergency management centers - including activities such as setting closures and detours, establishing routes, updating areas to be evacuated, timing the process, etc.	Future (not funded)

Architecture		Status
Clarksville Regional ITS Architecture (Region)		(Region)
Element: **Clk TOC**		
Entity: **Traffic Management**		
Functional Area: **TMC Traffic Network Performance Evaluation** Systems to predict travel demand patterns to support traffic flow optimization, demand management, and incident management. Collects data from surveillance equipment as well as input from other management centers including emissions, event promoters, and other TMCs.		
Requirement:	1 The center shall monitor, analyze, and store traffic sensor data (speed, volume, occupancy) collected from field elements under remote control of the center to support overall network performance evaluations.	Existing
Requirement:	3 The center shall collect and store plans from event promoters for major future events possibly impacting traffic to support overall network performance evaluations.	Future (not funded)
Requirement:	6 The center shall exchange traffic information with other traffic management centers, including incidents, congestion data, traffic data, signal timing plans, and real-time signal control information to support overall network performance evaluations.	Future (not funded)
Functional Area: **TMC Environmental Monitoring** Management of environmental sensors and assimilation of collected data with other current and forecast road conditions and surface weather information from weather service providers and roadway maintenance operations.		
Requirement:	1 The center shall remotely control environmental sensors that measure road surface temperature, moisture, icing, salinity, and other measures.	Future (not funded)
Requirement:	2 The center shall remotely control environmental sensors that measure weather conditions including temperature, wind, humidity, precipitation, and visibility.	Future (not funded)
Requirement:	3 The center shall assimilate current and forecast road conditions and surface weather information using a combination of weather service provider information (such as the National Weather Service and value-added sector specific meteorological services), data from roadway maintenance operations, and environmental data collected from sensors deployed on and about the roadway.	Future (not funded)
Requirement:	5 The center shall respond to control data from center personnel regarding environmental sensor control and weather data collection and processing.	Existing
Requirement:	6 [User Defined] The center shall provide weather and road condition information to center personnel.	Existing
Functional Area: **TMC Reversible Lane Management** Remotely controls traffic sensors, surveillance, and automated reversible lane equipment and lane control signals to control traffic in reversible lanes.		
Requirement:	2 The center shall monitor the use of reversible lanes and detect wrong-way vehicles in reversible lanes using sensor and surveillance information, and the current lane control status (which direction the lane is currently operating).	Existing
Requirement:	3 The center shall remotely control automated reversible lane equipment and driver information systems (such as lane control signals) that control traffic in reversible lanes on surface streets.	Existing

Architecture		Status
Clarksville Regional ITS Architecture (Region)		(Region)
Element: **Clk TOC**		
Entity: **Traffic Management**		
Functional Area: **TMC Reversible Lane Management** Remotely controls traffic sensors, surveillance, and automated reversible lane equipment and lane control signals to control traffic in reversible lanes.		
Requirement:	7 The center shall provide the capability for center personnel to control access and management of reversible lane facilities, including the direction of traffic flow changes during the day, especially between the peak hours and dedication of more lanes to the congestion direction during special events.	Existing
Functional Area: **TMC Speed Monitoring** Remotely monitors vehicle speeds, and informs an enforcement agency if excessive speeds are detected. Also configures and controls speed warning systems that provide safe speed advisories to the motorist.		
Requirement:	1 The center shall remotely control vehicle speed sensors typically placed in work zones; control parameters may include environmental and traffic conditions.	Existing
Requirement:	2 The center shall collect operational status for the vehicle speed sensors; the status shall include logged information including measured speeds, warning messages displayed, and violation records.	Existing
Functional Area: **Safeguard System Management** Remotely controls safeguard systems such as blast shields and tunnel exhaust systems that are used to mitigate the impact of incidents on transportation infrastructure.		
Requirement:	1 The center shall remotely control safeguard systems, equipment used to mitigate the impact of incidents on transportation infrastructure (e.g., blast shields, tunnel exhaust systems, etc.)	Future (not funded)
Functional Area: **Traffic Maintenance** Monitoring and remote diagnostics of field equipment - detect failures, issue problem reports, and track the repair or replacement of the failed equipment.		
Requirement:	1 The center shall collect and store sensor (traffic, pedestrian, multimodal crossing) operational status.	Existing
Requirement:	2 The center shall collect and store CCTV surveillance system (traffic, pedestrian) operational status.	Planned (funded)
Requirement:	5 The center shall collect environmental sensor operational status.	Future (not funded)
Functional Area: **TMC Work Zone Traffic Management** Coordination with maintenance systems using work zone images and traveler information systems (such as DMS), and distribution of work plans so that work zones are established that have minimum traffic impact.		
Requirement:	6 The center shall receive proposed maintenance and construction work plans, analyze the activity as a possible incident, and provide work plan feedback to the sending center.	Existing
Functional Area: **TMC Toll/Parking Coordination** Provides the capability to gather information on regional toll, parking, and transit usage and request changes to enable dynamic pricing for demand management.		
Requirement:	8 [User Defined] The center shall collect and store transit schedule information from transit management centers.	Future (not funded)

Architecture		Status
Clarksville Regional ITS Architecture (Region)		(Region)
Element: **Clk TOC**		
Entity: **Traffic Management**		
Functional Area: **Traffic Data Collection** Collection and storage of traffic management data. For use by operations personnel or data archives in the region.		
Requirement:	1 The center shall collect traffic management data such as operational data, event logs, etc.	Existing
Requirement:	4 The center shall be able to produce sample products of the data available.	Existing
Element: **Clk Traffic Data Stations**		
Entity: **Roadway Subsystem**		
Functional Area: **Roadway Data Collection** Field elements to collect traffic, road, and environmental conditions information for use in transportation planning, research, and other off-line applications. Includes the sensors, supporting roadside infrastructure, and communications equipment.		
Requirement:	4 [User Defined] The field element shall collect traffic and classification information.	Existing
Requirement:	5 [User Defined] The field element shall include the sensors and supporting roadside devices that sense and collect traffic information.	Existing
Element: **Clk Traffic Information Stations**		
Entity: **Personal Information Access**		
Functional Area: **Personal Basic Information Reception** Personal traveler interface that provides formatted traffic advisories, transit, event, and other traveler information, as well as broadcast alerts. Devices include personal computers and personal portable devices such as PDAs and pagers.		
Requirement:	1 The personal traveler interface shall receive traffic information from a center and present it to the traveler.	Future (not funded)
Requirement:	2 The personal traveler interface shall receive transit information from a center and present it to the traveler.	Future (not funded)
Requirement:	3 The personal traveler interface shall receive event information from a center and present it to the traveler.	Future (not funded)
Requirement:	4 The personal traveler interface shall receive evacuation information from a center and present it to the traveler.	Future (not funded)
Requirement:	5 The personal traveler interface shall receive wide-area alerts and present it to the traveler.	Future (not funded)
Requirement:	6 The personal traveler interface shall provide the capability for digitized map data to act as the background to the information presented to the traveler.	Future (not funded)
Requirement:	7 The personal traveler interface shall support traveler input in audio or manual form.	Future (not funded)
Requirement:	8 The personal traveler interface shall present information to the traveler in audible or visual forms, consistent with a personal device.	Future (not funded)
Functional Area: **Personal Interactive Information Reception**		

Architecture		Status
Clarksville Regional ITS Architecture (Region)		(Region)
Element: **Clk Traffic Information Stations**		
Entity: **Personal Information Access**		
Functional Area: **Personal Interactive Information Reception** Personal traveler interface that provides traffic, transit, yellow pages, event, and trip planning information, and other personalized traveler information services upon request. Devices include personal computers and personal portable devices such as PDAs.		
Requirement:	1 The personal traveler interface shall receive traffic information from a center and present it to the traveler upon request.	Future (not funded)
Requirement:	2 The personal traveler interface shall receive transit information from a center and present it to the traveler upon request.	Future (not funded)
Requirement:	3 The personal traveler interface shall receive yellow pages information (such as lodging, restaurants, theaters, bicycle facilities, and other tourist activities) from a center and present it to the traveler upon request.	Future (not funded)
Requirement:	4 The personal traveler interface shall receive event information from a center and present it to the traveler upon request.	Future (not funded)
Requirement:	5 The personal traveler interface shall receive evacuation information from a center and present it to the traveler.	Future (not funded)
Requirement:	6 The personal traveler interface shall receive wide-area alerts and present it to the traveler.	Future (not funded)
Requirement:	10 The personal traveler interface shall base requests from the traveler on the traveler's current location or a specific location identified by the traveler, and filter the provided information accordingly.	Future (not funded)
Requirement:	11 The personal traveler interface shall provide digitized map data to act as the background to the information presented to the traveler.	Future (not funded)
Requirement:	12 The personal traveler interface shall support traveler input in audio or manual form.	Future (not funded)
Requirement:	13 The personal traveler interface shall present information to the traveler in audible or visual forms consistent with a personal device, and suitable for travelers with hearing and vision physical disabilities.	Future (not funded)
Requirement:	14 The personal traveler interface shall be able to store frequently requested or used data, including the traveler's identity, home and work locations, etc.	Future (not funded)
Functional Area: **Personal Location Determination** Determines current location of a personal device using GPS or similar location referencing and uses this information for navigation, guidance, and emergency notification systems.		
Requirement:	1 The personal traveler interface shall provide the traveler's current location. It is intended for use by traveler personal navigation and guidance systems, as well as emergency notification systems.	Future (not funded)
Requirement:	2 The personal traveler interface shall calculate the location from one or more sources of position data such as GPS or DGPS.	Future (not funded)
Requirement:	3 The personal traveler interface shall refine its calculations as required by other functions such as navigation, guidance, and emergency notification.	Future (not funded)

Architecture		Status
Clarksville Regional ITS Architecture (Region)		(Region)
Element: **Clk Traffic Information Stations**		
Entity: **Personal Information Access**		
Functional Area: **Personal Autonomous Route Guidance** Personal traveler interface that provides route guidance using a digital map stored locally. Devices include personal computers and personal portable devices such as PDAs and pagers.		
Requirement:	1 The personal traveler interface shall provide the capability for a traveler to obtain route guidance from a specified source to a destination.	Future (not funded)
Requirement:	2 The personal traveler interface shall calculate the requested route using data obtained from a navigable map database stored in the device.	Future (not funded)
Requirement:	3 The personal traveler interface shall provide multi-modal guidance for the shortest route, within the preferences and constraints specified by the traveler.	Future (not funded)
Requirement:	4 The personal traveler interface shall present information to the traveler in audible or visual forms consistent with a personal device, and suitable for travelers with hearing and vision physical disabilities.	Future (not funded)
Requirement:	5 The personal traveler interface shall support an interface with a map update provider, or other appropriate data sources, through which updates of digitized map data can be obtained and used for route guidance.	Future (not funded)
Element: **Clk Transit Area Surveillance**		
Entity: **Remote Traveler Support**		
Functional Area: **Traveler Secure Area Surveillance** Security surveillance devices that monitor traveler-frequented areas such as transit stops and rest stops.		
Requirement:	1 The field element shall include video and/or audio surveillance of traveler secure areas including transit stations, transit stops, rest areas, park and ride lots, and other fixed sites along travel routes (e.g., emergency pull-off areas and traveler information centers).	Existing
Requirement:	2 The field element shall be remotely controlled by a center.	Existing
Requirement:	4 The field element shall provide raw video or audio data.	Existing
Functional Area: **Traveler Secure Area Sensor Monitoring** Security sensors monitoring traveler-frequented areas such as transit stops, park-and-ride lots, and rest areas for environmental threats, intrusion and motion, and object detection.		
Requirement:	[Not Defined]	
Functional Area: **Remote Traveler Security** Public traveler interface that provides the capability for travelers to report an emergency or activate a panic button to summon assistance in areas such as transit stops, park-and-ride areas, etc.		
Requirement:	1 The public interface for travelers shall provide the capability for a traveler to report an emergency and summon assistance from secure areas such as transit stops, transit stations, modal transfer facilities, rest stops, park-and-ride areas, travel information areas, and emergency pull off areas.	Future (not funded)

Architecture		Status
Clarksville Regional ITS Architecture (Region)		(Region)
Element: **Clk Transit Area Surveillance**		
Entity: **Remote Traveler Support**		
Functional Area: **Remote Traveler Security** Public traveler interface that provides the capability for travelers to report an emergency or activate a panic button to summon assistance in areas such as transit stops, park-and-ride areas, etc.		
Requirement:	2 When initiated by a traveler, the public interface for travelers shall forward a request for assistance to an emergency management function and acknowledge the request.	Future (not funded)
Requirement:	4 The public interface for travelers shall accept input and provide information to the traveler in a form suitable for travelers with physical disabilities.	Future (not funded)
Element: **Clk Website**		
Entity: **Personal Information Access**		
Functional Area: **Personal Basic Information Reception** Personal traveler interface that provides formatted traffic advisories, transit, event, and other traveler information, as well as broadcast alerts. Devices include personal computers and personal portable devices such as PDAs and pagers.		
Requirement:	1 The personal traveler interface shall receive traffic information from a center and present it to the traveler.	Future (not funded)
Requirement:	2 The personal traveler interface shall receive transit information from a center and present it to the traveler.	Future (not funded)
Requirement:	3 The personal traveler interface shall receive event information from a center and present it to the traveler.	Future (not funded)
Requirement:	4 The personal traveler interface shall receive evacuation information from a center and present it to the traveler.	Future (not funded)
Requirement:	5 The personal traveler interface shall receive wide-area alerts and present it to the traveler.	Future (not funded)
Requirement:	6 The personal traveler interface shall provide the capability for digitized map data to act as the background to the information presented to the traveler.	Future (not funded)
Requirement:	7 The personal traveler interface shall support traveler input in audio or manual form.	Future (not funded)
Requirement:	8 The personal traveler interface shall present information to the traveler in audible or visual forms, consistent with a personal device.	Future (not funded)
Functional Area: **Personal Location Determination** Determines current location of a personal device using GPS or similar location referencing and uses this information for navigation, guidance, and emergency notification systems.		
Requirement:	1 The personal traveler interface shall provide the traveler's current location. It is intended for use by traveler personal navigation and guidance systems, as well as emergency notification systems.	Future (not funded)
Requirement:	2 The personal traveler interface shall calculate the location from one or more sources of position data such as GPS or DGPS.	Future (not funded)
Requirement:	3 The personal traveler interface shall refine its calculations as required by other functions such as navigation, guidance, and emergency notification.	Future (not funded)

Architecture		Status
Clarksville Regional ITS Architecture (Region)		(Region)
Element: **Clk Website**		
Entity: **Personal Information Access**		
Functional Area: **Personal Autonomous Route Guidance** Personal traveler interface that provides route guidance using a digital map stored locally. Devices include personal computers and personal portable devices such as PDAs and pagers.		
Requirement:	1 The personal traveler interface shall provide the capability for a traveler to obtain route guidance from a specified source to a destination.	Future (not funded)
Requirement:	2 The personal traveler interface shall calculate the requested route using data obtained from a navigable map database stored in the device.	Future (not funded)
Requirement:	3 The personal traveler interface shall provide multi-modal guidance for the shortest route, within the preferences and constraints specified by the traveler.	Future (not funded)
Requirement:	4 The personal traveler interface shall present information to the traveler in audible or visual forms consistent with a personal device, and suitable for travelers with hearing and vision physical disabilities.	Future (not funded)
Requirement:	5 The personal traveler interface shall support an interface with a map update provider, or other appropriate data sources, through which updates of digitized map data can be obtained and used for route guidance.	Future (not funded)
Element: **Emergency Vehicles**		
Entity: **Emergency Management**		
Functional Area: **Emergency Routing** Routing of emergency vehicles to facilitate the quickest/safest arrival. Routes may be determined based on real-time traffic information and road conditions or routes may be provided by Traffic Management on request.		
Requirement:	1 The center shall collect current traffic and road condition information from traffic management centers for emergency vehicle route calculation.	Future (not funded)
Requirement:	2 The center shall receive inputs from traffic management and maintenance centers on the location and status of traffic control equipment and work zones along potential emergency routes.	Future (not funded)
Requirement:	7 The center shall provide the capability to request special traffic control measures, such as signal preemption, from the traffic management center to facilitate emergency vehicle progress along the suggested route.	Future (not funded)
Requirement:	8 Once the route is calculated the route shall be provided to the dispatch function.	Future (not funded)
Functional Area: **Service Patrol Management** Dispatch and communication with roadway service patrol vehicles that monitor roads to aid motorists, offering rapid response to minor incidents.		
Requirement:	1 The center shall dispatch roadway service patrol vehicles to identified incident locations.	Existing
Requirement:	2 The center shall store the current status of all service patrol vehicles available for dispatch and those that have been dispatched.	Existing

Architecture		Status
Clarksville Regional ITS Architecture (Region)		(Region)
Element: **Emergency Vehicles**		
Entity: **Emergency Management**		
Functional Area: **Service Patrol Management** Dispatch and communication with roadway service patrol vehicles that monitor roads to aid motorists, offering rapid response to minor incidents.		
Requirement:	3 The center shall share incident information collected by the service patrol with traffic, maintenance and construction, and traveler information centers for incident management, incident notification to travelers, and incident cleanup.	Existing
Functional Area: **Emergency Response Management** Strategic emergency planning and response capabilities and broad inter-agency interfaces to support large-scale incidents and disasters, commonly associated with Emergency Operations Centers.		
Requirement:	6 The center shall allocate the appropriate emergency services, resources, and vehicle (s) to respond to incidents, and shall provide the capability to override the current allocation to suit the special needs of a current incident.	Existing
Functional Area: **Emergency Environmental Monitoring** Current and forecast road and weather information assimilated from weather service providers and emergency vehicles equipped with environmental sensors; used by the operator to more effectively manage incidents.		
Requirement:	1 The center shall collect current and forecast road and weather information from weather service providers (such as the National Weather Service and value-added sector specific meteorological services).	Existing
Functional Area: **Center Secure Area Surveillance** Management of security surveillance devices and analysis of that data to detect potential threats. Areas under surveillance may include transit stops, transit stations, rest areas, park and ride lots, modal interchange facilities, on-board a transit vehicle, etc.		
Requirement:	2 The center shall remotely monitor video images and audio surveillance data collected in traveler secure areas, which include transit stations, transit stops, rest areas, park and ride lots, and other fixed sites along travel routes (e.g., emergency pull-off areas and travel information centers). The data may be raw or pre-processed in the field.	Future (not funded)
Functional Area: **Center Secure Area Sensor Management** Management of security sensors, analysis of sensor data, correlation with surveillance data and alerts from other agencies to detect potential threats, and dissemination of threat information to other agencies. Sensors may be placed in areas such as transit stops, transit stations, rest areas, park and ride lots, modal interchange facilities, on-board a transit vehicle, etc.		
Requirement:	2 The center shall remotely monitor and control security sensor data collected in traveler secure areas, which include transit stations, transit stops, rest areas, park and ride lots, and other fixed sites along travel routes (e.g., emergency pull-off areas and travel information centers). The types of security sensor data include environmental threat (e.g. chemical agent, toxic industrial chemical, biological, explosives, and radiological sensors), intrusion and motion, and object detection sensors. The data may be raw or pre-processed in the field.	Future (not funded)

Architecture	Status
Clarksville Regional ITS Architecture (Region)	(Region)
Element: **Emergency Vehicles**	
Entity: **Emergency Management**	
Functional Area: **Center Secure Area Alarm Support** Collection and response to silent and audible alarms received from travelers in secure areas (such as transit stops, rest areas, park-and-ride lots) and from on-board transit vehicles.	
Requirement: 1 The center shall collect silent and audible alarms received from travelers in secure areas (such as transit stops, rest areas, park and ride lots, modal interchange facilities).	Future (not funded)
Entity: **Emergency Vehicle Subsystem**	
Functional Area: **On-board EV En Route Support** On-board systems for gathering of dispatch and routing information for emergency vehicle personnel, vehicle tracking, communications with care facilities, and signal preemption via short range communication directly with traffic control equipment at the roadside.	
Requirement: 3 The emergency vehicle, including roadway service patrols, shall receive incident details and a suggested route when dispatched to a scene.	Future (not funded)
Functional Area: **On-board EV Incident Management Communication** On-board systems provide communications support to first responders. Incident information is provided to dispatched emergency personnel. Emergency personnel transmit information about the incident and response status.	
Requirement: 1 The emergency vehicle shall receive dispatch instructions sufficient to enable emergency personnel in the field to implement an effective incident response. It includes local traffic, road, and weather conditions, hazardous material information, and the current status of resources that have been allocated to an incident.	Existing
Element: **Ft Campbell Gate Inspection**	
Entity: **Commercial Vehicle Check**	
Functional Area: **Roadside Safety and Security Inspection** Roadside check facility equipment to provide the capabilities to automate the roadside safety inspection process including use of hand held devices to rapidly inspect the vehicle and driver.	
Requirement: 8 [User Defined] The roadside check facility equipment shall receive information concerning any commercial vehicle or freight equipment approaching a Ft. Campbell gate for safety inspections.	Existing
Functional Area: **Roadside HAZMAT Detection** Roadside check facility equipment to detect and identify commercial vehicles carrying hazardous materials. Compare data with registered credentials and determines whether a pull-in message should be generated - notify emergency management if a problem occurs.	

Architecture		Status
Clarksville Regional ITS Architecture (Region)		(Region)
Element: **Ft Campbell Gate Inspection**		
Entity: **Commercial Vehicle Check**		
Functional Area: **Roadside HAZMAT Detection** Roadside check facility equipment to detect and identify commercial vehicles carrying hazardous materials. Compare data with registered credentials and determines whether a pull-in message should be generated - notify emergency management if a problem occurs.		
Requirement:	5 The roadside check facility equipment shall raise and forward an alarm to the appropriate emergency management center if the hazmat-carrying commercial vehicle does not stop, or in the case of a positive identification of an unpermitted security sensitive hazmat cargo, to coordinate a traffic stop or some other action with respect to the offending commercial vehicle. The alarm will include information concerning the security sensitive hazmat detected at the roadside including the location, appropriate identifiers, route deviation, or assignment mismatches between the driver, commercial vehicle, or the freight equipment.	Existing
Requirement:	6 [User Defined] The roadside check facility equipment shall detect the presence of security sensitive substance, e.g. detection of radiation, carried on-board commercial vehicles and freight equipment approaching the base. This data is acquired by roadside sensors from the freight equipment electronically, optically, or manually.	Existing
Element: **KTC Rdwy Equip, District 2**		
Entity: **Roadway Subsystem**		
Functional Area: **Roadway Basic Surveillance** Field elements that monitor traffic conditions using loop detectors and CCTV cameras.		
Requirement:	4 The field element shall return sensor and CCTV system operational status to the controlling center.	Existing
Functional Area: **Roadway Signal Controls** Field elements including traffic signal controllers for use at signalized intersections; also supports pedestrian crossings.		
Requirement:	1 The field element shall control traffic signals at intersections and on main highways for urban and rural areas, under center control.	Existing
Requirement:	6 The field element shall return traffic signal controller operational status to the controlling center.	Existing
Requirement:	8 [User Defined] The field element shall collect pedestrian sensor data, and respond to pedestrian crossing requests via display, audio signal, or other manner.	Existing
Functional Area: **Roadway Equipment Coordination** Field elements that control and send data to other field elements (such as environmental sensors that send data to a DMS or coordination between traffic controllers on adjacent intersections), without center control.		
Requirement:	5 [User Defined] The field element shall include sensors (such as traffic) that provide data and status information to other field element devices (such as traffic signals), without center control.	Existing
Element: **KTC Rdwy Equip, Traffic Ops Division**		
Entity: **Roadway Subsystem**		
Functional Area: **Roadway Basic Surveillance**		

Architecture		Status
Clarksville Regional ITS Architecture (Region)		(Region)
Element: **KTC Rdwy Equip, Traffic Ops Division**		
Entity: **Roadway Subsystem**		
Functional Area: **Roadway Basic Surveillance** Field elements that monitor traffic conditions using loop detectors and CCTV cameras.		
Requirement:	2 The field element shall collect, process, and send traffic images to the center for further analysis and distribution.	Existing
Requirement:	4 The field element shall return sensor and CCTV system operational status to the controlling center.	Existing
Functional Area: **Roadway Freeway Control** Freeway control equipment including ramp meters, mainline metering, and lane control equipment which controls traffic on freeways, including indicators to drivers.		
Requirement:	1 The field element shall include ramp metering controllers, mainline meters, and lane controls for use on freeways, under center control.	Future (not funded)
Requirement:	2 The field element shall monitor operation of ramp meter, mainline meters, and lane control indicators and report to the center any instances in which the indicator response does not match that expected from the indicator control information.	Future (not funded)
Requirement:	3 The field element shall monitor operation of ramp meter, mainline meters, and lane control indicators and report to the center any instances in which the indicator response does not match that expected from known indicator preemptions.	Future (not funded)
Requirement:	4 The field element shall return ramp metering controller, mainline meters, and lane control operational status to the controlling center.	Future (not funded)
Requirement:	6 The field element shall provide indications to the driver that a freeway ramp or a lane is available for use, with possible usage data for the freeway lanes they are entering.	Future (not funded)
Functional Area: **Roadway Traffic Information Dissemination** Driver information systems, such as dynamic message signs and Highway Advisory Radio (HAR).		
Requirement:	1 The field element shall include dynamic messages signs for dissemination of traffic and other information to drivers, under center control; the DMS may be either those that display variable text messages, or those that have fixed format display(s) (e.g. vehicle restrictions, or lane open/close).	Existing
Functional Area: **Roadway Incident Detection** Field elements that monitor traffic conditions to identify incidents. It includes traffic detectors that collect traffic flow information and identify unusual traffic conditions and advanced CCTV cameras with built-in incident detection algorithms.		
Requirement:	1 The field element shall collect, process, and send traffic images to the center for further analysis and distribution.	Existing
Functional Area: **Roadway Equipment Coordination** Field elements that control and send data to other field elements (such as environmental sensors that send data to a DMS or coordination between traffic controllers on adjacent intersections), without center control.		

Architecture		Status
Clarksville Regional ITS Architecture (Region)		(Region)
Element: **KTC Rdwy Equip, Traffic Ops Division**		
Entity: **Roadway Subsystem**		
Functional Area: **Roadway Equipment Coordination** Field elements that control and send data to other field elements (such as environmental sensors that send data to a DMS or coordination between traffic controllers on adjacent intersections), without center control.		
Requirement:	5 [User Defined] The field element shall include sensors (such as traffic) that provide data and status information to other field element devices (such as traffic signals), without center control.	Existing
Element: **KY 511 System**		
Entity: **Information Service Provider**		
Functional Area: **Traveler Telephone Information** Collection and distribution of traveler information and wide-area alerts to traveler telephone information systems such as 511, based on voice-based traveler requests.		
Requirement:	1 The center shall provide the capability to process voice-formatted requests for traveler information from a traveler telephone information system, and return the information in the requested format.	Existing
Requirement:	2 The center shall provide the capability to process dual-tone multifrequency (DTMF)-based requests (touch-tone) for traveler information from a traveler telephone information system.	Existing
Requirement:	3 The center shall provide the capability to process traveler information requests from a traveler telephone information system.	Existing
Requirement:	4 The center shall collect and provide information on traffic conditions in the requested voice format and for the requested location.	Existing
Requirement:	5 The center shall collect and provide work zone and roadway maintenance information in the requested voice format and for the requested location.	Existing
Requirement:	6 The center shall collect and provide roadway environment conditions information in the requested voice format and for the requested location.	Future (not funded)
Requirement:	7 The center shall collect and provide weather and event information in the requested voice format and for the requested location.	Future (not funded)
Requirement:	8 The center shall collect and provide transit service information in the requested voice format and for the requested location.	Future (not funded)
Requirement:	9 The center shall collect and provide yellow pages services information in the requested voice format and for the requested location.	Future (not funded)
Requirement:	11 The center shall provide the capability to support both specific caller requests as well as bulk upload of regional traveler information.	Future (not funded)

Architecture		Status
Clarksville Regional ITS Architecture (Region)		(Region)
Element: **KY 511 System**		
Entity: **Information Service Provider**		
Functional Area: **Traveler Telephone Information** Collection and distribution of traveler information and wide-area alerts to traveler telephone information systems such as 511, based on voice-based traveler requests.		
Requirement:	12 The center shall receive and forward region-specific wide-area alert and advisory information to the traveler telephone information system, including major emergencies such as a natural or man-made disaster, civil emergency, child abductions, severe weather watches and warnings, military activities, and law enforcement warnings.	Future (not funded)
Element: **KY Comm Vehicle Inspection System**		
Entity: **Commercial Vehicle Check**		
Functional Area: **Roadside Electronic Screening** Roadside check facility equipment to communicate with commercial vehicles at mainline speeds - reading tag data, identification, weight and vehicle characteristics, and credential checking. Determines whether a pull-in message should be generated, allowing for inspectors to override.		
Requirement:	1 The roadside check facility equipment shall detect the presence of commercial vehicles and freight equipment approaching a facility. Sensors can differentiate between different types of vehicles and determine the number of axles, gross vehicle weight, and the identification of the vehicle and its cargo.	Existing
Requirement:	2 The roadside check facility equipment shall receive the credential and credentials status information (e.g. snapshots) from the commercial vehicle administration center to maintain an up to date list of which vehicles have been cleared (enrolled) to potentially pass through without stopping.	Existing
Requirement:	3 The roadside check facility equipment shall receive violation records from appropriate law enforcement agencies pertaining to commercial vehicles.	Existing
Requirement:	4 The roadside check facility equipment shall provide an interface to inspectors in the field to allow them to monitor and if necessary override the pull-in decisions made by the system.	Existing
Requirement:	5 The roadside check facility equipment shall request and input electronic screening data from the commercial vehicle's electronic tag data.	Existing
Requirement:	6 The roadside check facility equipment shall send a pass/pull-in notification to the commercial vehicle and its driver based on the information received from the vehicle, the administration center, enforcement agencies, and the inspector. The message may be sent to the on-board equipment in the commercial vehicle or transmitted to the driver using equipment such as dynamic message signs, red-green lights, flashing signs, etc.	Existing
Functional Area: **Roadside Safety and Security Inspection** Roadside check facility equipment to provide the capabilities to automate the roadside safety inspection process including use of hand held devices to rapidly inspect the vehicle and driver.		

Architecture		Status
Clarksville Regional ITS Architecture (Region)		(Region)
Element: **KY Comm Vehicle Inspection System**		
Entity: **Commercial Vehicle Check**		
Functional Area: **Roadside Safety and Security Inspection**	Roadside check facility equipment to provide the capabilities to automate the roadside safety inspection process including use of hand held devices to rapidly inspect the vehicle and driver.	
Requirement:	1 The roadside check facility equipment shall receive information concerning commercial vehicles and freight equipment approaching a facility that are being pulled in for safety inspections.	Existing
Requirement:	3 The roadside check facility equipment shall provide an interface to inspectors in the field to allow them to safety inspection data including overrides to the pull-in decisions made by the system.	Existing
Requirement:	4 The roadside check facility equipment shall request and input electronic safety data from the commercial vehicle's electronic tag data. This includes driver logs, on-board safety data, safety inspection records, commercial vehicle breach information, as well as freight equipment information.	Existing
Requirement:	5 The roadside check facility equipment shall send a pass/pull-in notification to the commercial vehicle and its driver based on the information received from the vehicle, the administration center, and the inspector. The message may be sent to the on-board equipment in the commercial vehicle or transmitted to the driver using equipment such as dynamic message signs, red-green lights, flashing signs, etc.	Existing
Requirement:	7 The roadside check facility equipment shall forward results of the roadside safety inspections to the commercial vehicle administration center.	Existing
Functional Area: **Citation and Accident Electronic Recording**	Roadside check facility equipment records results of roadside inspections and forwards information to the commercial vehicle administration center. Includes accident reports, violations, citations, and the daily site activity data.	
Requirement:	1 The roadside check facility equipment shall record the results of roadside inspections carried using an inspector's hand held terminal interface.	Existing
Requirement:	3 The roadside check facility equipment shall forward results of the roadside inspections to the commercial vehicle administration center either as needed or on a periodic (e.g. basis). These reports include accident reports, violation notifications, citations, and daily site activity logs.	Existing
Functional Area: **Roadside HAZMAT Detection**	Roadside check facility equipment to detect and identify commercial vehicles carrying hazardous materials. Compare data with registered credentials and determines whether a pull-in message should be generated - notify emergency management if a problem occurs.	
Requirement:	1 The roadside check facility equipment shall detect the presence of commercial vehicles and freight equipment approaching a facility. Sensors can differentiate between different types of vehicles and determine the number of axles, gross vehicle weight, presence of security sensitive hazardous materials, and the identification of the vehicle and its cargo.	Future (not funded)

Architecture		Status
Clarksville Regional ITS Architecture (Region)		(Region)
Element: **KY Comm Vehicle Inspection System**		
Entity: **Commercial Vehicle Check**		
Functional Area: **Roadside HAZMAT Detection** Roadside check facility equipment to detect and identify commercial vehicles carrying hazardous materials. Compare data with registered credentials and determines whether a pull-in message should be generated - notify emergency management if a problem occurs.		
Requirement:	2 The roadside check facility equipment shall detect the presence of security sensitive substance, e.g. detection of radiation or ammonia compounds, carried on-boar commercial vehicles and freight equipment approaching a facility. This data is acquired by roadside sensors from the freight equipment electronically, optically, or manually.	Future (not funded)
Requirement:	3 The roadside check facility equipment shall receive the credential information (e.g. snapshots) from the commercial vehicle administration center to maintain an up to date list of which vehicles with hazardous materials shipments have been cleared (enrolled).	Future (not funded)
Requirement:	4 The roadside check facility equipment shall send a pass/pull-in notification to the commercial vehicle and its driver based on the hazmat information received from the vehicle, the freight equipment, or the administration center. The message may be sent to the on-board equipment in the commercial vehicle or transmitted to the driver using equipment such as dynamic message signs, red-green lights, flashing signs, etc.	Future (not funded)
Requirement:	5 The roadside check facility equipment shall raise and forward an alarm to the appropriate emergency management center if the hazmat-carrying commercial vehicle does not stop, or in the case of a positive identification of an unpermitted security sensitive hazmat cargo, to coordinate a traffic stop or some other action with respect to the offending commercial vehicle. The alarm will include information concerning the security sensitive hazmat detected at the roadside including the location, appropriate identifiers, route deviation, or assignment mismatches between the driver, commercial vehicle, or the freight equipment.	Future (not funded)
Element: **KY Commercial Vehicle Admin Center**		
Entity: **Commercial Vehicle Administration**		
Functional Area: **CV Safety Administration** Provides commercial vehicle safety criteria to roadside check facilities, collects and reviews safety data from the field and distributes safety information to other centers, carriers, and enforcement agencies.		
Requirement:	1 The center shall provide commercial vehicle safety data to roadside check facilities.	Existing
Requirement:	2 The center shall collect and review safety inspection reports and violations from the roadside check facilities and pass on appropriate portions to other commercial vehicle administrative centers and commercial vehicle fleet operators.	Existing
Requirement:	3 The center shall notify enforcement agencies of commercial vehicle safety violations by individual commercial vehicles, drivers, or carriers.	Existing
Functional Area: **CV Information Exchange**		

Architecture		Status
Clarksville Regional ITS Architecture (Region)		(Region)
Element: **KY Commercial Vehicle Admin Center**		
Entity: **Commercial Vehicle Administration**		
Functional Area: **CV Information Exchange** Exchange information concerning safety, credentialing, and operations of commercial vehicles between the center and the roadside check stations, across jurisdictions, with fleet operators, enforcement agencies, and other information requestors.		
Requirement:	1 The center shall exchange information with roadside check facilities, including credentials and credentials status information, safety status information, daily site activity data, and citations.	Existing
Requirement:	2 The center shall exchange safety and credentials data among other commercial vehicle administration centers; includes border clearance status, credentials information, credentials status information, and safety status information.	Existing
Requirement:	5 The center shall provide commercial vehicle accident reports and citations to enforcement agencies.	Existing
Functional Area: **CV Data Collection** Collects and stores information related to Commercial Vehicle Operations. For use by operations personnel or data archives in the region.		
Requirement:	1 The center shall receive operational data from the roadside check systems as well as administration and credentials data.	Existing
Requirement:	4 The center shall be able to produce sample products of the data available.	Existing
Element: **KY District 2 Maintenance Center**		
Entity: **Maintenance and Construction Management**		
Functional Area: **MCM Vehicle and Equipment Maintenance Management** Monitors vehicle and equipment condition, tracks maintenance history, and schedules routine and corrective maintenance.		
Requirement:	1 The center shall collect and analyze vehicle diagnostics information from maintenance and construction vehicles. The information includes engine temperature, mileage, tire wear, brake wear, belt wear, and any warnings or alarms concerning the operational condition of the vehicle and ancillary equipment.	Existing
Requirement:	3 The center shall schedule preventive and corrective vehicle maintenance with the equipment repair facility based on fleet health reports, maintenance records, vehicle utilization and vehicle availability schedules.	Existing
Functional Area: **MCM Environmental Information Collection** Remotely controls environmental sensors and assimilates collected data with other current and forecast road conditions and surface weather information from weather service providers and transportation operations.		
Requirement:	4 The center shall assimilate current and forecast road conditions and surface weather information using a combination of weather service provider information (such as the National Weather Service and value-added sector specific meteorological services), data from traffic, emergency, and transit management, traveler information providers, and environmental data collected from sensors deployed on and about the roadway as well as the fleet of maintenance and construction vehicles.	Existing

Architecture		Status
Clarksville Regional ITS Architecture (Region)		(Region)
Element: **KY District 2 Maintenance Center**		
Entity: **Maintenance and Construction Management**		
Functional Area: **MCM Environmental Information Collection**	Remotely controls environmental sensors and assimilates collected data with other current and forecast road conditions and surface weather information from weather service providers and transportation operations.	
Requirement:	9 [User Defined] The center shall provide weather and road condition information to center personnel.	Existing
Functional Area: **MCM Environmental Information Processing**	Processes current and forecast weather data, road condition information, local environmental data, and uses internal models to develop specialized detailed forecasts of local weather and surface conditions. Disseminates road weather information to other agencies and centers.	
Requirement:	2 The center shall assimilate current and forecast road conditions and surface weather information using a combination of weather service provider information (such as the National Weather Service and value-added sector specific meteorological services) and local environmental sensor data.	Existing
Functional Area: **MCM Maintenance Decision Support**	Maintenance Decision Support Systems recommend courses of action based on current and forecast environmental and road conditions (filtered and fused for specific time horizons) and additional application specific information. Recommendations and dispatch instructions are generated based on this integrated information.	
Requirement:	1 The center shall provide the center personnel with tailored external information, including weather or road condition observations, forecasted weather information or road conditions, current usage of treatments and materials, available resources, equipment and vehicle availability, road network information, and source reliability information.	Existing
Requirement:	4 The center shall provide dispatch information to maintenance and construction vehicles based on the outputs of the decision support system, including recommended roadway treatment actions.	Existing
Functional Area: **MCM Winter Maintenance Management**	Manages winter road maintenance, tracking and controlling snow plow operations, roadway treatment (e.g., salt spraying and other material applications) based on weather information.	
Requirement:	1 The center shall respond to requests from emergency management and traffic management centers for hazard removal, field equipment repair, and other winter roadway maintenance.	Existing
Requirement:	2 The center shall exchange information with administrative systems to support the planning and scheduling of winter maintenance activities. This information includes: equipment and consumables resupply purchase request status, personnel qualifications including training and special certifications, environmental regulations and rules that may impact maintenance activities, and requests and project requirements from contract administration.	Existing

Architecture		Status
Clarksville Regional ITS Architecture (Region)		(Region)
Element: **KY District 2 Maintenance Center**		
Entity: **Maintenance and Construction Management**		
Functional Area: **MCM Winter Maintenance Management** Manages winter road maintenance, tracking and controlling snow plow operations, roadway treatment (e.g., salt spraying and other material applications) based on weather information.		
Requirement:	3 The center shall provide status information about scheduled winter maintenance activities including anticipated closures and impact to the roadway, alternate routes, anticipated delays, closure times, and durations. The information is provided to other management centers such as traffic, emergency, transit, traveler information providers, other maintenance centers, and the media.	Existing
Requirement:	4 The center shall receive equipment availability and materials storage status information from storage facilities to support the scheduling of winter maintenance activities.	Existing
Requirement:	6 The center shall collect current and forecast traffic and weather information from traffic management centers and weather service providers (such as the National Weather Service and value-added sector specific meteorological services).	Existing
Requirement:	7 The center shall dispatch and route winter maintenance vehicle drivers and support them with route- specific environmental, incident, advisory, threat, alert, and traffic congestion information.	Existing
Requirement:	8 The center shall determine the need for roadway treatment based on current and forecasted weather information, current usage of treatments and materials, available resources, requests for action from other agencies, and recommendations from the Maintenance Decision Support system, specifically under winter conditions. This supports winter maintenance such as plowing, treating, anti-icing, etc.	Existing
Requirement:	9 The center shall provide dispatch instructions for vehicle operators based on input parameters from center personnel, specifically for winter conditions. This could include a treatment route, treatment application rates, start and end times, and other treatment instructions.	Existing
Functional Area: **MCM Roadway Maintenance and Construction** Overall management and support for routine maintenance on the roadway or right-of-way. Includes landscape maintenance, hazard removal (roadway debris, dead animals), routine maintenance activities (roadway cleaning, grass cutting), and repair and maintenance of both ITS and non-ITS equipment.		
Requirement:	1 The center shall maintain an interface with asset management systems to track the inventory, restrictions, repair needs and status updates of transportation assets (pavement, bridges, signs, etc.) including location, installation and materials information, vendor/contractor, current maintenance status, standard height, width, and weight restrictions.	Existing
Requirement:	2 The center shall respond to requests from emergency management and traffic management centers for hazard removal, field equipment repair, and other roadway maintenance.	Existing

Architecture		Status
Clarksville Regional ITS Architecture (Region)		(Region)
Element: **KY District 2 Maintenance Center**		
Entity: **Maintenance and Construction Management**		
Functional Area: **MCM Roadway Maintenance and Construction** Overall management and support for routine maintenance on the roadway or right-of-way. Includes landscape maintenance, hazard removal (roadway debris, dead animals), routine maintenance activities (roadway cleaning, grass cutting), and repair and maintenance of both ITS and non-ITS equipment.		
Requirement:	3 The center shall exchange information with administrative systems to support the planning and scheduling of maintenance activities. This information includes: equipment and consumables resupply purchase request status, personnel qualifications including training and special certifications, environmental regulations and rules that may impact maintenance activities, and requests and project requirements from contract administration.	Existing
Requirement:	4 The center shall provide emergency management and traffic management centers with information about scheduled maintenance and construction work activities including anticipated closures and impact to the roadway, alternate routes, anticipated delays, closure times, and durations.	Existing
Requirement:	8 The center shall receive equipment availability and materials storage status information from storage facilities to support the scheduling of roadway maintenance and construction activities.	Existing
Requirement:	10 The center shall collect current and forecast traffic and weather information from traffic management centers and weather service providers (such as the National Weather Service and value-added sector specific meteorological services).	Existing
Requirement:	11 The center shall dispatch and route maintenance and construction vehicle drivers and support them with route- specific environmental, incident, advisory, threat, alert, and traffic congestion information.	Existing
Functional Area: **MCM Work Zone Management** Remotely monitors and supports work zone activities, controlling traffic through dynamic message signs (DMS), highway advisory radio, gates and barriers, and informing other groups of activity (e.g., traveler information systems, traffic management centers, other maintenance and construction centers).		
Requirement:	1 The center shall generate new work zone activity schedules for use by maintenance and construction vehicles, maintenance and construction operators, and for information coordination purposes.	Existing
Requirement:	3 The center shall disseminate work zone information to other agencies and centers including traffic, transit, emergency management centers, other maintenance centers, traveler information providers, and the media.	Existing

Architecture		Status
Clarksville Regional ITS Architecture (Region)		(Region)
Element: **KY District 2 Maintenance Center**		
Entity: **Maintenance and Construction Management**		
Functional Area: **MCM Work Zone Management** Remotely monitors and supports work zone activities, controlling traffic through dynamic message signs (DMS), highway advisory radio, gates and barriers, and informing other groups of activity (e.g., traveler information systems, traffic management centers, other maintenance and construction centers).		
Requirement:	5 The center shall exchange information with administrative systems to support the planning and scheduling of work zone activities. This information includes: equipment and consumables resupply purchase request status, personnel qualifications including training and special certifications, environmental regulations and rules that may impact maintenance activities, and requests and project requirements from contract administration.	Existing
Functional Area: **MCM Work Activity Coordination** Disseminates work activity schedules and current asset restrictions to other agencies. Work schedules are coordinated, factoring in the needs and activities of other agencies and adjacent jurisdictions.		
Requirement:	1 The center shall provide work zone activities affecting the road network including the nature of the maintenance or construction activity, location, impact to the roadway, expected time(s) and duration of impact, anticipated delays, alternate routes, and suggested speed limits. This information may be augmented with images that provide a visual indication of current work zone status and traffic impacts.	Existing
Requirement:	2 The center shall provide status information about scheduled maintenance and construction activities including anticipated closures and impact to the roadway, alternate routes, anticipated delays, closure times, and durations. The information is provided to other management centers such as traffic, emergency, transit, traveler information providers, other maintenance centers, multimodal transportation providers, rail operations, and the media.	Existing
Requirement:	3 The center shall collect and respond to feedback concerning scheduled maintenance and construction activities with other management centers such as traffic, emergency, transit, and rail operations.	Existing
Requirement:	4 The center shall collect and disseminate asset restriction information levied on transportation asset usage based on infrastructure design, surveys, tests, or analyses. This includes standard facility design height, width, and weight restrictions, special restrictions such as spring weight restrictions, and temporary facility restrictions that are imposed during maintenance and construction.	Existing
Requirement:	5 The center shall exchange information with administrative systems to support the planning and scheduling of maintenance and construction activities. This information includes: equipment and consumables resupply purchase request status, personnel qualifications including training and special certifications, environmental regulations and rules that may impact maintenance activities, and requests and project requirements from contract administration.	Existing

Architecture		Status
Clarksville Regional ITS Architecture (Region)		(Region)
Element: **KY District 2 Maintenance Center**		
Entity: **Maintenance and Construction Management**		
Functional Area: **MCM Data Collection** Collection and storage of maintenance and construction information. For use by operations personnel or data archives in the region.		
Requirement:	1 The center shall collect maintenance and construction data (such as field equipment status, infrastructure status, maintenance and construction activity data) gathered from roadway, traffic, and other maintenance and construction sources.	Existing
Requirement:	4 The center shall be able to produce sample products of the data available.	Existing
Element: **KY District 2 TMC**		
Entity: **Traffic Management**		
Functional Area: **Collect Traffic Surveillance** Management of traffic sensors and surveillance (CCTV) equipment, and distribution of the collected information to other centers and operators.		
Requirement:	[Not Defined]	
Functional Area: **TMC Signal Control** Remotely controls traffic signal controllers to implement traffic management strategies at signalized intersections based on traffic conditions, incidents, emergency vehicle preemptions, pedestrian crossings, etc.		
Requirement:	1 The center shall remotely control traffic signal controllers.	Existing
Requirement:	3 The center shall collect traffic signal controller operational status and compare against the control information sent by the center.	Existing
Requirement:	4 The center shall collect traffic signal controller fault data from the field.	Existing
Requirement:	5 The center shall implement control plans to coordinate signalized intersections, under control of center personnel, based on data from sensors and surveillance monitoring traffic conditions, incidents, emergency vehicle preemptions, the passage of commercial vehicles with unusual loads, equipment faults, pedestrian crossings, etc.	Existing
Functional Area: **Traffic Maintenance** Monitoring and remote diagnostics of field equipment - detect failures, issue problem reports, and track the repair or replacement of the failed equipment.		
Requirement:	1 The center shall collect and store sensor (traffic, pedestrian, multimodal crossing) operational status.	Existing
Functional Area: **Traffic Data Collection** Collection and storage of traffic management data. For use by operations personnel or data archives in the region.		
Requirement:	1 The center shall collect traffic management data such as operational data, event logs, etc.	Existing
Requirement:	4 The center shall be able to produce sample products of the data available.	Existing
Element: **KY Maintenance Vehicles**		
Entity: **Maintenance and Construction Vehicle**		
Functional Area: **MCV Environmental Monitoring**		

Architecture		Status
Clarksville Regional ITS Architecture (Region)		(Region)
Element: **KY Maintenance Vehicles**		
Entity: **Maintenance and Construction Vehicle**		
Functional Area: **MCV Environmental Monitoring** On-board systems that collect environmental and road condition data (including road surface or air temperature, wind speed, and road traction information - spatially located and time stamped) from sensors on-board the maintenance vehicle or located at the roadway.		
Requirement:	1 The maintenance and construction vehicle shall collect environmental data from on-board sensors, including air temperature, wind speed, surface temperature, traction conditions, etc.	Existing
Requirement:	2 The maintenance and construction vehicle shall transmit environmental sensor data to the center. The sensor data includes location and timestamp information.	Existing
Functional Area: **MCV Winter Maintenance** On-board systems that support snow plow operations and other roadway treatments (e.g., salt spraying and other material applications). Supports information sharing between snow plows.		
Requirement:	3 The maintenance and construction vehicle shall monitor materials information including remaining quantity and current application rate of materials on the vehicle.	Existing
Requirement:	4 The maintenance and construction vehicle shall respond to dispatch information from the center, presented to the vehicle operator for acknowledgement and returning status.	Existing
Functional Area: **MCV Infrastructure Monitoring** On-board systems to monitor the condition of pavement, bridges, tunnels, associated hardware, and other transportation-related infrastructure (e.g., culverts). Includes vehicle-based sensors and communications with roadway-based infrastructure monitoring sensors.		
Requirement:	1 The maintenance and construction vehicle shall collect infrastructure data from on-board sensors relating to the physical characteristics of the roadway infrastructure, including pavement, bridges, culverts, signs, etc.	Existing
Requirement:	5 The maintenance and construction vehicle shall provide infrastructure sensor equipment operational status to the center.	Existing
Functional Area: **MCV Work Zone Support** On-board systems that provide communications and support for local management of a work zone.		
Requirement:	4 [User Defined] The maintenance and construction vehicle shall monitor, operate, and control work zone devices located at or alongside the roadway. The devices operated on board the vehicle include driver information devices (e.g. dynamic message signs) and/or other devices.	Existing
Element: **KY Rdwy Equip, Planning Division**		
Entity: **Roadway Subsystem**		
Functional Area: **Roadway Basic Surveillance** Field elements that monitor traffic conditions using loop detectors and CCTV cameras.		

Architecture		Status
Clarksville Regional ITS Architecture (Region)		(Region)
Element: **KY Rdwy Equip, Planning Division**		
Entity: **Roadway Subsystem**		
Functional Area: **Roadway Basic Surveillance** Field elements that monitor traffic conditions using loop detectors and CCTV cameras.		
Requirement:	1 The field element shall collect, process, digitize, and send traffic sensor data (speed, volume, and occupancy) to the center for further analysis and storage, under center control.	Future (not funded)
Functional Area: **Roadway Signal Controls** Field elements including traffic signal controllers for use at signalized intersections; also supports pedestrian crossings.		
Requirement:	8 [User Defined] The field element shall collect pedestrian sensor data, and respond to pedestrian crossing requests via display, audio signal, or other manner.	Existing
Functional Area: **Roadway Field Device Monitoring** Monitors field equipment operational status and detects and reports fault conditions. Device status, configuration, and fault information are provided to a remote center and a user interface provides information locally to field personnel.		
Requirement:	1 The field element shall monitor the operational status (state of the device, configuration, and fault data) of connected sensors (such as traffic, infrastructure, environmental, security, speed) and devices (such as highway advisory radio, dynamic message signs, automated roadway treatment systems, barrier and safeguard systems, cameras, traffic signals, ramp meters, beacons, security surveillance equipment).	Future (not funded)
Requirement:	2 The field element shall send operational status of connected field equipment to the maintenance center.	Future (not funded)
Requirement:	3 The field element shall send collected fault data to the maintenance center for repair.	Future (not funded)
Requirement:	4 The field element shall include a local interface that provides operational status and fault data for connected field equipment to field personnel.	Future (not funded)
Requirement:	5 The field element shall include a local interface that allows field personnel to command diagnostic tests on connected field equipment.	Future (not funded)
Functional Area: **Roadway Data Collection** Field elements to collect traffic, road, and environmental conditions information for use in transportation planning, research, and other off-line applications. Includes the sensors, supporting roadside infrastructure, and communications equipment.		
Requirement:	3 The field element shall collect sensor status and sensor faults from roadside equipment and send it along with the recorded data to a center for archival.	Existing
Requirement:	4 [User Defined] The field element shall collect traffic and classification information.	Existing
Requirement:	5 [User Defined] The field element shall include the sensors and supporting roadside devices that sense and collect traffic information.	Existing

Architecture		Status
Clarksville Regional ITS Architecture (Region)		(Region)
Element: **KY Roadway Weather Info System**		
Entity: **Roadway Subsystem**		
Functional Area: **Roadway Probe Beacons** Field elements to collect traffic and road conditions from passing vehicles; both anonymous toll/parking tag readings for link time calculations and smart probe data supported.		
Requirement:	2 The field element shall include equipment that monitors traffic conditions (e.g., average speed) by communicating with passing vehicles equipped with a transponder or other short range communications device; also called smart probes.	Future (not funded)
Functional Area: **Roadway Environmental Monitoring** Environmental sensors, surface and sub-surface, that collect weather and road surface information. Weather conditions measured include temperature, wind, humidity, precipitation, and visibility. Sensors measure road surface temperature, moisture, icing, salinity, etc.		
Requirement:	1 The field element shall include surface and sub-surface environmental sensors that measure road surface temperature, moisture, icing, salinity, and other measures.	Existing
Requirement:	2 The field element shall include environmental sensors that measure weather conditions including temperature, wind, humidity, precipitation, and visibility.	Existing
Requirement:	7 The field element shall provide environmental sensor equipment operational status to the controlling center or maintenance vehicle.	Existing
Requirement:	10 The field element shall provide weather and road surface condition data to centers.	Existing
Element: **KY Statewide TOC**		
Entity: **Traffic Management**		
Functional Area: **Collect Traffic Surveillance** Management of traffic sensors and surveillance (CCTV) equipment, and distribution of the collected information to other centers and operators.		
Requirement:	1 The center shall monitor, analyze, and store traffic sensor data (speed, volume, occupancy) collected from field elements under remote control of the center.	Existing
Requirement:	4 The center shall distribute road network conditions data (raw or processed) based on collected and analyzed traffic sensor and surveillance data to other centers.	Future (not funded)
Requirement:	5 The center shall respond to control data from center personnel regarding sensor and surveillance data collection, analysis, storage, and distribution.	Existing
Requirement:	6 The center shall maintain a database of surveillance and sensors and the freeways, surface street and rural roadways, e.g. where they are located, to which part(s) of the network their data applies, the type of data, and the ownership of each link (that is, the agency or entity responsible for collecting and storing surveillance of the link) in the network.	Existing
Requirement:	7 The center shall support an interface with a map update provider, or other appropriate data sources, through which updates of digitized map data can be obtained and used as a background for traffic data.	Existing

Architecture		Status
Clarksville Regional ITS Architecture (Region)		(Region)
Element: **KY Statewide TOC**		
Entity: **Traffic Management**		
Functional Area: **TMC Freeway Management** Remotely controls ramp meters, interchange connector meters, lane control signals, mainline meters, and variable speed control systems.		
Requirement:	1 The center shall remotely control systems to manage use of the freeways, including ramp meters, mainline metering, and lane controls.	Future (not funded)
Requirement:	4 The center shall implement control strategies, under control of center personnel, on some or all of the freeway network devices (e.g. ramp meters, mainline metering, and lane controls), based on data from sensors monitoring traffic conditions upstream, downstream, and queue data on the ramps themselves.	Future (not funded)
Functional Area: **TMC Traffic Information Dissemination** Controls dissemination of traffic-related data to other centers, the media, and travelers via the driver information systems (DMS, HAR) that it operates.		
Requirement:	1 The center shall remotely control dynamic messages signs for dissemination of traffic and other information to drivers.	Existing
Requirement:	5 The center shall retrieve locally stored traffic information, including current and forecasted traffic information, road and weather conditions, traffic incident information, information on diversions and alternate routes, closures, and special traffic restrictions (lane/shoulder use, weight restrictions, width restrictions, HOV requirements), etc.	Existing
Requirement:	8 The center shall provide the capability for center personnel to control the nature of the data that is available to non-traffic operations centers and the media.	Existing
Requirement:	9 [User Defined] The center shall distribute traffic data to the media upon request.	Future (not funded)
Functional Area: **TMC Incident Detection** Remotely controls traffic and video sensors to support incident detection and verification; exchange information with other agencies including emergency management, maintenance and construction, alerting and advisory systems, event promoters, intermodal freight depots, and traveler information systems.		
Requirement:	2 The center shall collect and store traffic flow and image data from the field equipment to detect and verify incidents.	Existing
Requirement:	3 The center shall receive inputs concerning upcoming events that would effect the traffic network from event promoters, traveler information service providers, and intermodal freight depots.	Future (not funded)
Requirement:	4 The center shall exchange incident and threat information with emergency management centers as well as maintenance and construction centers; including notification of existence of incident and expected severity, location, time and nature of incident.	Future (not funded)
Requirement:	7 The center shall provide video and traffic sensor control commands to the field equipment to detect and verify incidents.	Future (not funded)
Functional Area: **TMC Incident Dispatch Coordination/Communication**		

Architecture		Status
Clarksville Regional ITS Architecture (Region)		(Region)
Element: **KY Statewide TOC**		
Entity: **Traffic Management**		
Functional Area: **TMC Incident Dispatch Coordination/Communication** Center-based capability to formulate an incident response that takes into account the incident potential, incident impacts, and/or resources required for incident management including proposing and facilitating the dispatch of emergency response and service vehicles as well as coordinating response with all appropriate cooperating agencies.		
Requirement:	1 The center shall exchange alert information and status with emergency management centers. The information includes notification of a major emergency such as a natural or man-made disaster, civil emergency, or child abduction for distribution to the public. The information may include the alert originator, the nature of the emergency, the geographic area affected by the emergency, the effective time period, and information and instructions necessary for the public to respond to the alert. This may also identify specific information that should not be released to the public.	Future (not funded)
Requirement:	2 The center shall coordinate planning for incidents with emergency management centers - including pre-planning activities for disaster response, evacuation, and recovery operations.	Future (not funded)
Requirement:	5 The center shall respond to requests from emergency management to provide traffic management resources to implement special traffic control measures, assist in clean up, verify an incident, etc. This may also involve coordination with maintenance centers.	Future (not funded)
Requirement:	6 The center shall receive inputs concerning upcoming events that would effect the traffic network from event promoters, traveler information service providers, media, and rail operations centers.	Future (not funded)
Requirement:	7 The center shall provide road network conditions and traffic images to emergency management centers, maintenance and construction centers, and traveler information service providers.	Future (not funded)
Functional Area: **TMC Evacuation Support** Development, coordination, and execution of special traffic management strategies during evacuation and subsequent reentry of a population in the vicinity of a disaster or major emergency. Interfaces with emergency management and other traffic management centers.		
Requirement:	1 The center shall coordinate planning for evacuation with emergency management centers - including pre-planning activities such as establishing routes, areas to be evacuated, timing, etc.	Future (not funded)
Requirement:	4 The center shall coordinate execution of evacuation strategies with emergency management centers - including activities such as setting closures and detours, establishing routes, updating areas to be evacuated, timing the process, etc.	Future (not funded)
Functional Area: **TMC Environmental Monitoring** Management of environmental sensors and assimilation of collected data with other current and forecast road conditions and surface weather information from weather service providers and roadway maintenance operations.		

Architecture		Status
Clarksville Regional ITS Architecture (Region)		(Region)
Element: **KY Statewide TOC**		
Entity: **Traffic Management**		
Functional Area: **TMC Environmental Monitoring**	Management of environmental sensors and assimilation of collected data with other current and forecast road conditions and surface weather information from weather service providers and roadway maintenance operations.	
Requirement:	1 The center shall remotely control environmental sensors that measure road surface temperature, moisture, icing, salinity, and other measures.	Existing
Requirement:	2 The center shall remotely control environmental sensors that measure weather conditions including temperature, wind, humidity, precipitation, and visibility.	Existing
Functional Area: **Traffic Maintenance**	Monitoring and remote diagnostics of field equipment - detect failures, issue problem reports, and track the repair or replacement of the failed equipment.	
Requirement:	5 The center shall collect environmental sensor operational status.	Existing
Functional Area: **TMC Input to In-Vehicle Signing**	Formats and outputs information to field equipment that supports in-vehicle signage equipment communications.	
Requirement:	1 The center shall format and output road condition and environmental information to field equipment that supports in-vehicle signage communications.	Future (not funded)
Requirement:	2 The center shall format and output advisory information, such as evacuation information, wide-area alerts, incident information, work zone intrusion information, and other special information to field equipment that supports in-vehicle signage communications.	Future (not funded)
Requirement:	3 The center shall format and output indicator and fixed sign information, such as actual intersection traffic signal states, stop, or yield signs to field equipment that supports in-vehicle signage communications.	Future (not funded)
Element: **KY Traffic Data Stations**		
Entity: **Roadway Subsystem**		
Functional Area: **Roadway Data Collection**	Field elements to collect traffic, road, and environmental conditions information for use in transportation planning, research, and other off-line applications. Includes the sensors, supporting roadside infrastructure, and communications equipment.	
Requirement:	4 [User Defined] The field element shall collect traffic and classification information.	Existing
Requirement:	5 [User Defined] The field element shall include the sensors and supporting roadside devices that sense and collect traffic information.	Existing
Element: **KY Traveler Info Kiosks**		
Entity: **Remote Traveler Support**		
Functional Area: **Remote Basic Information Reception**	Public traveler interface, such as a kiosk, that provides formatted traffic advisories, transit, event, and other traveler information, as well as broadcast alerts.	

Architecture		Status
Clarksville Regional ITS Architecture (Region)		(Region)
Element: **KY Traveler Info Kiosks**		
Entity: **Remote Traveler Support**		
Functional Area: **Remote Basic Information Reception** Public traveler interface, such as a kiosk, that provides formatted traffic advisories, transit, event, and other traveler information, as well as broadcast alerts.		
Requirement:	1 The public interface for travelers shall receive traffic information from a center and present it to the traveler.	Existing
Requirement:	3 The public interface for travelers shall receive event information from a center and present it to the traveler.	Existing
Requirement:	4 This public interface for travelers shall receive evacuation information from a center and present it to the traveler.	Existing
Requirement:	5 The public interface for travelers shall receive wide-area alerts and present it to the traveler.	Existing
Requirement:	6 The public interface for travelers shall provide the capability for digitized map data to act as the background to the information presented to the traveler.	Existing
Functional Area: **Remote Interactive Information Reception** Public traveler interface, such as a kiosk, that provides traffic, transit, yellow pages, special event, and other personalized traveler information services upon request.		
Requirement:	1 The public interface for travelers shall receive traffic information from a center and present it to the traveler upon request.	Future (not funded)
Requirement:	3 The public interface for travelers shall receive yellow pages information (such as lodging, restaurants, theaters, bicycle facilities, and other tourist activities) from a center and present it to the traveler upon request.	Future (not funded)
Requirement:	4 The public interface for travelers shall receive event information from a center and present it to the traveler upon request.	Future (not funded)
Requirement:	5 The public interface for travelers shall receive evacuation information from a center and present it to the traveler.	Future (not funded)
Requirement:	6 The public interface for travelers shall receive wide-area alerts and present it to the traveler.	Future (not funded)
Requirement:	10 The public interface for travelers shall base requests from the traveler on the traveler's current location or a specific location identified by the traveler, and filter the provided information accordingly.	Future (not funded)
Requirement:	11 The public interface for travelers shall provide digitized map data to act as the background to the information presented to the traveler.	Future (not funded)
Element: **KY Weigh-In-Motion**		
Entity: **Commercial Vehicle Check**		
Functional Area: **Roadside WIM** Roadside check facility equipment to detect and measure the weight commercial vehicles at high speed. Can include an interface to the credential checking or it can be a stand alone package with display.		

Architecture		Status
Clarksville Regional ITS Architecture (Region)		(Region)
Element: **KY Weigh-In-Motion**		
Entity: **Commercial Vehicle Check**		
Functional Area: **Roadside WIM**	Roadside check facility equipment to detect and measure the weight commercial vehicles at high speed. Can include an interface to the credential checking or it can be a stand alone package with display.	
Requirement:	1 The roadside check facility equipment shall detect the presence of commercial vehicles and freight equipment approaching a facility. Sensors can differentiate between different types of vehicles and determine the number of axles, gross vehicle weight, weight per axle, and the identification of the vehicle and its cargo.	Existing
Requirement:	2 The roadside check facility equipment shall request and input electronic screening data from the commercial vehicle's electronic tag data.	Existing
Requirement:	3 The roadside check facility equipment shall send a pass/pull-in notification to the commercial vehicle and its driver based on the information received from the vehicle and the measurements taken. The message may be sent to the on-board equipment in the commercial vehicle or transmitted to the driver using equipment such as dynamic message signs, red-green lights, flashing signs, etc.	Existing
Element: **MontCo E-911 System**		
Entity: **Emergency Management**		
Functional Area: **Emergency Call-Taking**	Provides interface to the emergency call-taking systems such as the Emergency Telecommunications System (e.g., 911) that correlate call information with emergencies reported by transit agencies, commercial vehicle operators, or other public safety agencies. Allows the operator to verify the incident and forward the information to the responding agencies.	
Requirement:	1 The center shall support the interface to the Emergency Telecommunications System (e.g. 911 or 7-digit call routing) to receive emergency notification information and provide it to the emergency system operator.	Existing
Requirement:	9 The center shall forward the verified emergency information to the responding agency based on the location and nature of the emergency.	Existing
Requirement:	10 The center shall update the incident information log once the emergency system operator has verified the incident.	Existing
Functional Area: **Emergency Dispatch**	Dispatch emergency vehicles to incidents, tracking their location and status. Pertinent incident information is gathered and relayed to the responding units.	
Requirement:	1 The center shall dispatch emergency vehicles to respond to verified emergencies under center personnel control.	Existing
Requirement:	2 The center shall store the current status of all emergency vehicles available for dispatch and those that have been dispatched.	Existing
Requirement:	3 The center shall relay location and incident details to the responding vehicles.	Existing

Architecture		Status
Clarksville Regional ITS Architecture (Region)		(Region)
Element: **MontCo E-911 System**		
Entity: **Emergency Management**		
Functional Area: **Emergency Dispatch** Dispatch emergency vehicles to incidents, tracking their location and status. Pertinent incident information is gathered and relayed to the responding units.		
Requirement:	4 The center shall track the location and status of emergency vehicles responding to an emergency based on information from the emergency vehicle.	Existing
Requirement:	5 The center shall store and maintain the emergency service responses in an action log.	Existing
Requirement:	9 The center shall coordinate response to incidents with other Emergency Management centers to ensure appropriate resources are dispatched and utilized.	Existing
Functional Area: **Emergency Routing** Routing of emergency vehicles to facilitate the quickest/safest arrival. Routes may be determined based on real-time traffic information and road conditions or routes may be provided by Traffic Management on request.		
Requirement:	1 The center shall collect current traffic and road condition information from traffic management centers for emergency vehicle route calculation.	Future (not funded)
Requirement:	2 The center shall receive inputs from traffic management and maintenance centers on the location and status of traffic control equipment and work zones along potential emergency routes.	Future (not funded)
Requirement:	3 The center shall receive status information from care facilities to determine the appropriate facility and its location.	Existing
Functional Area: **Emergency Data Collection** Collection and storage of information related to Emergency Management. For use by operations personnel or data archives in the region.		
Requirement:	1 The center shall collect emergency service data, emergency vehicle management data, emergency vehicle data, sensor and surveillance data, threat data, and incident data.	Existing
Requirement:	4 The center shall be able to produce sample products of the data available.	Existing
Element: **MontCo Early Warning System**		
Entity: **Emergency Management**		
Functional Area: **Emergency Early Warning System** Monitors alerting and advisory systems, information collected by ITS surveillance and sensors, and reports from other agencies in order to identify potential, imminent, or in-progress major incidents or disasters. Notification is provided to other ITS centers to notify the traveling public.		
Requirement:	1 The center shall monitor information from Alerting and Advisory Systems such as the Information Sharing and Analysis Centers (ISACs), the National Infrastructure Protection Center (NIPC), the Homeland Security Advisory System (HSAS), etc. The information may include assessments (general incident and vulnerability awareness information), advisories (identification of threats or recommendations to increase preparedness levels), or alerts (information on imminent or in-progress emergencies).	Future (not funded)

Architecture		Status
Clarksville Regional ITS Architecture (Region)		(Region)
Element: **MontCo Early Warning System**		
Entity: **Emergency Management**		
Functional Area: **Emergency Early Warning System**	Monitors alerting and advisory systems, information collected by ITS surveillance and sensors, and reports from other agencies in order to identify potential, imminent, or in-progress major incidents or disasters. Notification is provided to other ITS centers to notify the traveling public.	
Requirement:	17 [User Defined] The center shall provide the capability to correlate alerts, advisories, and incident information, from partner organizations.	Existing
Requirement:	18 [User Defined] The center shall broadcast wide-area alerts and advisories to traffic management centers for emergency situations such as severe weather events and other situations that pose a threat to life and property.	Future (not funded)
Requirement:	19 [User Defined] The center shall broadcast wide-area alerts and advisories to other emergency management centers for emergency situations such as severe weather events and other situations that pose a threat to life and property.	Future (not funded)
Requirement:	20 [User Defined] The center shall broadcast wide-area alerts to the Montgomery County public via "reverse E-911" for emergency situations such as severe weather events and other situations that pose a threat to life and property.	Existing
Functional Area: **Emergency Environmental Monitoring**	Current and forecast road and weather information assimilated from weather service providers and emergency vehicles equipped with environmental sensors; used by the operator to more effectively manage incidents.	
Requirement:	1 The center shall collect current and forecast road and weather information from weather service providers (such as the National Weather Service and value-added sector specific meteorological services).	Existing
Element: **MontCo Emergency Mgmt Headquarters**		
Entity: **Emergency Management**		
Functional Area: **Emergency Early Warning System**	Monitors alerting and advisory systems, information collected by ITS surveillance and sensors, and reports from other agencies in order to identify potential, imminent, or in-progress major incidents or disasters. Notification is provided to other ITS centers to notify the traveling public.	
Requirement:	1 The center shall monitor information from Alerting and Advisory Systems such as the Information Sharing and Analysis Centers (ISACs), the National Infrastructure Protection Center (NIPC), the Homeland Security Advisory System (HSAS), etc. The information may include assessments (general incident and vulnerability awareness information), advisories (identification of threats or recommendations to increase preparedness levels), or alerts (information on imminent or in-progress emergencies).	Future (not funded)
Requirement:	17 [User Defined] The center shall provide the capability to correlate alerts, advisories, and incident information, from partner organizations.	Existing

Architecture		Status
Clarksville Regional ITS Architecture (Region)		(Region)
Element: **MontCo Emergency Mgmt Headquarters**		
Entity: **Emergency Management**		
Functional Area: **Emergency Early Warning System**	Monitors alerting and advisory systems, information collected by ITS surveillance and sensors, and reports from other agencies in order to identify potential, imminent, or in-progress major incidents or disasters. Notification is provided to other ITS centers to notify the traveling public.	
Requirement:	18 [User Defined] The center shall broadcast wide-area alerts and advisories to traffic management centers for emergency situations such as severe weather events and other situations that pose a threat to life and property.	Future (not funded)
Requirement:	19 [User Defined] The center shall broadcast wide-area alerts and advisories to other emergency management centers for emergency situations such as severe weather events and other situations that pose a threat to life and property.	Future (not funded)
Requirement:	20 [User Defined] The center shall broadcast wide-area alerts to the Montgomery County public via "reverse E-911" for emergency situations such as severe weather events and other situations that pose a threat to life and property.	Existing
Functional Area: **Emergency Evacuation Support**	Evacuation planning and coordination to manage evacuation and reentry of a population in the vicinity of a disaster or other emergency that poses a risk to public safety.	
Requirement:	1 The center shall manage inter-agency coordination of evacuation operations, from initial planning through the evacuation process and reentry.	Existing
Requirement:	2 The center shall develop and exchange evacuation plans with allied agencies prior to the occurrence of a disaster.	Future (not funded)
Requirement:	5 The center shall provide evacuation information to traffic, transit, maintenance and construction, rail operations, and other emergency management centers as needed.	Existing
Requirement:	8 The center shall provide traveler information systems with evacuation guidance including basic information to assist potential evacuees in determining whether evacuation is necessary and when it is safe to return.	Existing
Requirement:	10 The center shall monitor the progress of the reentry process.	Existing
Requirement:	12 [User Defined] The center shall monitor the progress or status of the evacuation once it begins and exchange plans with allied agencies.	Existing
Element: **MontCo Highways Headquarters**		
Entity: **Maintenance and Construction Management**		
Functional Area: **MCM Vehicle Tracking**	Remotely tracks the location of maintenance and construction vehicles and other equipment; presented to the center personnel.	
Requirement:	1 The center shall monitor the locations of all maintenance and construction vehicles and other equipment under its jurisdiction.	Future (not funded)
Requirement:	2 The center shall present location data to center personnel for the fleet of maintenance and construction vehicles and other equipment.	Future (not funded)

Architecture		Status
Clarksville Regional ITS Architecture (Region)		(Region)
Element: **MontCo Highways Headquarters**		
Entity: **Maintenance and Construction Management**		
Functional Area: **MCM Vehicle and Equipment Maintenance Management** Monitors vehicle and equipment condition, tracks maintenance history, and schedules routine and corrective maintenance.		
Requirement:	1 The center shall collect and analyze vehicle diagnostics information from maintenance and construction vehicles. The information includes engine temperature, mileage, tire wear, brake wear, belt wear, and any warnings or alarms concerning the operational condition of the vehicle and ancillary equipment.	Existing
Requirement:	2 The center shall exchange information with equipment repair facilities including status and history of repairs concerning maintenance and construction vehicles. This information includes vehicle status and diagnostic information, vehicle utilization, and coordination of when vehicles will be available for preventative and corrective maintenance.	Existing
Requirement:	3 The center shall schedule preventive and corrective vehicle maintenance with the equipment repair facility based on fleet health reports, maintenance records, vehicle utilization and vehicle availability schedules.	Existing
Functional Area: **MCM Environmental Information Collection** Remotely controls environmental sensors and assimilates collected data with other current and forecast road conditions and surface weather information from weather service providers and transportation operations.		
Requirement:	1 The center shall remotely control environmental sensors that measure road surface temperature, moisture, icing, salinity, and other measures.	Future (not funded)
Requirement:	2 The center shall remotely control environmental sensors that measure weather conditions including temperature, wind, humidity, precipitation, and visibility.	Future (not funded)
Requirement:	4 The center shall assimilate current and forecast road conditions and surface weather information using a combination of weather service provider information (such as the National Weather Service and value-added sector specific meteorological services), data from traffic, emergency, and transit management, traveler information providers, and environmental data collected from sensors deployed on and about the roadway as well as the fleet of maintenance and construction vehicles.	Future (not funded)
Requirement:	6 The center shall respond to control data from center personnel regarding environmental sensor control and weather data collection and processing.	Future (not funded)
Requirement:	9 [User Defined] The center shall provide weather and road condition information to center personnel.	Future (not funded)
Functional Area: **MCM Environmental Information Processing** Processes current and forecast weather data, road condition information, local environmental data, and uses internal models to develop specialized detailed forecasts of local weather and surface conditions. Disseminates road weather information to other agencies and centers.		
Requirement:	1 The center shall respond to control data from center personnel regarding environmental sensor control and weather data collection and processing.	Future (not funded)

Architecture		Status
Clarksville Regional ITS Architecture (Region)		(Region)
Element: **MontCo Highways Headquarters**		
Entity: **Maintenance and Construction Management**		
Functional Area: **MCM Environmental Information Processing** Processes current and forecast weather data, road condition information, local environmental data, and uses internal models to develop specialized detailed forecasts of local weather and surface conditions. Disseminates road weather information to other agencies and centers.		
Requirement:	2 The center shall assimilate current and forecast road conditions and surface weather information using a combination of weather service provider information (such as the National Weather Service and value-added sector specific meteorological services) and local environmental sensor data.	Future (not funded)
Requirement:	3 The center shall use the various data inputs of environmental sensors and road weather data to develop a view of current and predicted road weather and road conditions.	Future (not funded)
Functional Area: **MCM Automated Treatment System Control** Remotely controls automated roadway treatment systems (to disperse anti-icing chemicals, etc.) directly, or via control of the environmental sensors that activate the treatment systems automatically in the field.		
Requirement:	1 The center shall remotely control automated roadway treatment systems. Treatments can be in the form of fog dispersion, anti-icing chemicals, etc.	Future (not funded)
Requirement:	2 The center shall remotely control the environmental sensors that upon detecting changes in environmental or atmospheric conditions, automatically activate roadway treatment systems.	Future (not funded)
Requirement:	3 The center shall collect automated roadway treatment system and associated environmental sensor operational status.	Future (not funded)
Requirement:	5 The center shall accept requests for automated roadway treatment system activation from center personnel.	Future (not funded)
Functional Area: **MCM Maintenance Decision Support** Maintenance Decision Support Systems recommend courses of action based on current and forecast environmental and road conditions (filtered and fused for specific time horizons) and additional application specific information. Recommendations and dispatch instructions are generated based on this integrated information.		
Requirement:	1 The center shall provide the center personnel with tailored external information, including weather or road condition observations, forecasted weather information or road conditions, current usage of treatments and materials, available resources, equipment and vehicle availability, road network information, and source reliability information.	Future (not funded)
Requirement:	4 The center shall provide dispatch information to maintenance and construction vehicles based on the outputs of the decision support system, including recommended roadway treatment actions.	Future (not funded)
Functional Area: **MCM Winter Maintenance Management** Manages winter road maintenance, tracking and controlling snow plow operations, roadway treatment (e.g., salt spraying and other material applications) based on weather information.		

Architecture		Status
Clarksville Regional ITS Architecture (Region)		(Region)
Element: **MontCo Highways Headquarters**		
Entity: **Maintenance and Construction Management**		
Functional Area: **MCM Winter Maintenance Management**	Manages winter road maintenance, tracking and controlling snow plow operations, roadway treatment (e.g., salt spraying and other material applications) based on weather information.	
Requirement:	1 The center shall respond to requests from emergency management and traffic management centers for hazard removal, field equipment repair, and other winter roadway maintenance.	Future (not funded)
Requirement:	2 The center shall exchange information with administrative systems to support the planning and scheduling of winter maintenance activities. This information includes: equipment and consumables resupply purchase request status, personnel qualifications including training and special certifications, environmental regulations and rules that may impact maintenance activities, and requests and project requirements from contract administration.	Future (not funded)
Requirement:	3 The center shall provide status information about scheduled winter maintenance activities including anticipated closures and impact to the roadway, alternate routes, anticipated delays, closure times, and durations. The information is provided to other management centers such as traffic, emergency, transit, traveler information providers, other maintenance centers, and the media.	Future (not funded)
Requirement:	4 The center shall receive equipment availability and materials storage status information from storage facilities to support the scheduling of winter maintenance activities.	Future (not funded)
Requirement:	6 The center shall collect current and forecast traffic and weather information from traffic management centers and weather service providers (such as the National Weather Service and value-added sector specific meteorological services).	Future (not funded)
Requirement:	7 The center shall dispatch and route winter maintenance vehicle drivers and support them with route- specific environmental, incident, advisory, threat, alert, and traffic congestion information.	Future (not funded)
Requirement:	8 The center shall determine the need for roadway treatment based on current and forecasted weather information, current usage of treatments and materials, available resources, requests for action from other agencies, and recommendations from the Maintenance Decision Support system, specifically under winter conditions. This supports winter maintenance such as plowing, treating, anti-icing, etc.	Future (not funded)
Requirement:	9 The center shall provide dispatch instructions for vehicle operators based on input parameters from center personnel, specifically for winter conditions. This could include a treatment route, treatment application rates, start and end times, and other treatment instructions.	Future (not funded)
Requirement:	11 The center shall assess the current status of all winter maintenance activities, including actual work activities performed, current locations and operational conditions of vehicles, materials and equipment inventories, field equipment status, environmental information, etc.	Future (not funded)

Architecture		Status
Clarksville Regional ITS Architecture (Region)		(Region)
Element: **MontCo Highways Headquarters**		
Entity: **Maintenance and Construction Management**		
Functional Area: **MCM Roadway Maintenance and Construction** Overall management and support for routine maintenance on the roadway or right-of-way. Includes landscape maintenance, hazard removal (roadway debris, dead animals), routine maintenance activities (roadway cleaning, grass cutting), and repair and maintenance of both ITS and non-ITS equipment.		
Requirement:	1 The center shall maintain an interface with asset management systems to track the inventory, restrictions, repair needs and status updates of transportation assets (pavement, bridges, signs, etc.) including location, installation and materials information, vendor/contractor, current maintenance status, standard height, width, and weight restrictions.	Future (not funded)
Requirement:	2 The center shall respond to requests from emergency management and traffic management centers for hazard removal, field equipment repair, and other roadway maintenance.	Future (not funded)
Requirement:	3 The center shall exchange information with administrative systems to support the planning and scheduling of maintenance activities. This information includes: equipment and consumables resupply purchase request status, personnel qualifications including training and special certifications, environmental regulations and rules that may impact maintenance activities, and requests and project requirements from contract administration.	Future (not funded)
Requirement:	4 The center shall provide emergency management and traffic management centers with information about scheduled maintenance and construction work activities including anticipated closures and impact to the roadway, alternate routes, anticipated delays, closure times, and durations.	Future (not funded)
Requirement:	7 The center shall remotely control and collect data from infrastructure monitoring sensors located along the roadway infrastructure or on maintenance and construction vehicles.	Future (not funded)
Requirement:	8 The center shall receive equipment availability and materials storage status information from storage facilities to support the scheduling of roadway maintenance and construction activities.	Future (not funded)
Requirement:	10 The center shall collect current and forecast traffic and weather information from traffic management centers and weather service providers (such as the National Weather Service and value-added sector specific meteorological services).	Future (not funded)
Requirement:	11 The center shall dispatch and route maintenance and construction vehicle drivers and support them with route- specific environmental, incident, advisory, threat, alert, and traffic congestion information.	Future (not funded)
Functional Area: **MCM Work Zone Management** Remotely monitors and supports work zone activities, controlling traffic through dynamic message signs (DMS), highway advisory radio, gates and barriers, and informing other groups of activity (e.g., traveler information systems, traffic management centers, other maintenance and construction centers).		

Architecture		Status
Clarksville Regional ITS Architecture (Region)		(Region)
Element: **MontCo Highways Headquarters**		
Entity: **Maintenance and Construction Management**		
Functional Area: **MCM Work Zone Management** Remotely monitors and supports work zone activities, controlling traffic through dynamic message signs (DMS), highway advisory radio, gates and barriers, and informing other groups of activity (e.g., traveler information systems, traffic management centers, other maintenance and construction centers).		
Requirement:	1 The center shall generate new work zone activity schedules for use by maintenance and construction vehicles, maintenance and construction operators, and for information coordination purposes.	Future (not funded)
Requirement:	3 The center shall disseminate work zone information to other agencies and centers including traffic, transit, emergency management centers, other maintenance centers, traveler information providers, and the media.	Future (not funded)
Requirement:	4 The center shall control traffic in work zones by providing remote control of dynamic message signs, highway advisory radio systems, gates, and barriers located in or near the work zone.	Future (not funded)
Requirement:	5 The center shall exchange information with administrative systems to support the planning and scheduling of work zone activities. This information includes: equipment and consumables resupply purchase request status, personnel qualifications including training and special certifications, environmental regulations and rules that may impact maintenance activities, and requests and project requirements from contract administration.	Future (not funded)
Functional Area: **MCM Speed Monitoring** Remotely monitors vehicle speeds, and informs an enforcement agency if excessive speeds are detected; primarily used in work zones.		
Requirement:	1 The center shall remotely control vehicle speed sensors typically placed in work zones; control parameters may include environmental and traffic conditions.	Future (not funded)
Functional Area: **MCM Work Zone Safety Management** Remotely monitors work zone safety systems that detect vehicle intrusions in work zones and warns crew workers and drivers of imminent encroachment. Crew movements are also monitored so that the crew can be warned of movement beyond the designated safe zone.		
Requirement:	1 The center shall provide remote monitoring and control of work zone safety devices - including intrusion detection devices that have been installed in work zones or maintenance areas.	Future (not funded)
Functional Area: **MCM Work Activity Coordination** Disseminates work activity schedules and current asset restrictions to other agencies. Work schedules are coordinated, factoring in the needs and activities of other agencies and adjacent jurisdictions.		

Architecture		Status
Clarksville Regional ITS Architecture (Region)		(Region)
Element: **MontCo Highways Headquarters**		
Entity: **Maintenance and Construction Management**		
Functional Area: **MCM Work Activity Coordination** Disseminates work activity schedules and current asset restrictions to other agencies. Work schedules are coordinated, factoring in the needs and activities of other agencies and adjacent jurisdictions.		
Requirement:	1 The center shall provide work zone activities affecting the road network including the nature of the maintenance or construction activity, location, impact to the roadway, expected time(s) and duration of impact, anticipated delays, alternate routes, and suggested speed limits. This information may be augmented with images that provide a visual indication of current work zone status and traffic impacts.	Future (not funded)
Requirement:	2 The center shall provide status information about scheduled maintenance and construction activities including anticipated closures and impact to the roadway, alternate routes, anticipated delays, closure times, and durations. The information is provided to other management centers such as traffic, emergency, transit, traveler information providers, other maintenance centers, multimodal transportation providers, rail operations, and the media.	Future (not funded)
Requirement:	3 The center shall collect and respond to feedback concerning scheduled maintenance and construction activities with other management centers such as traffic, emergency, transit, and rail operations.	Future (not funded)
Requirement:	4 The center shall collect and disseminate asset restriction information levied on transportation asset usage based on infrastructure design, surveys, tests, or analyses. This includes standard facility design height, width, and weight restrictions, special restrictions such as spring weight restrictions, and temporary facility restrictions that are imposed during maintenance and construction.	Future (not funded)
Requirement:	5 The center shall exchange information with administrative systems to support the planning and scheduling of maintenance and construction activities. This information includes: equipment and consumables resupply purchase request status, personnel qualifications including training and special certifications, environmental regulations and rules that may impact maintenance activities, and requests and project requirements from contract administration.	Future (not funded)
Requirement:	6 The center shall exchange rail schedules and work plans with rail operations centers.	Future (not funded)
Functional Area: **MCM Data Collection** Collection and storage of maintenance and construction information. For use by operations personnel or data archives in the region.		
Requirement:	1 The center shall collect maintenance and construction data (such as field equipment status, infrastructure status, maintenance and construction activity data) gathered from roadway, traffic, and other maintenance and construction sources.	Future (not funded)
Requirement:	4 The center shall be able to produce sample products of the data available.	Future (not funded)
Element: **MontCo Maintenance Vehicles**		

Architecture		Status
Clarksville Regional ITS Architecture (Region)		(Region)
Element: **MontCo Maintenance Vehicles**		
Entity: **Maintenance and Construction Vehicle**		
Functional Area: **MCV Vehicle Location Tracking** On-board systems to track vehicle location and reports the position and timestamp information to the dispatch center.		
Requirement:	1 The maintenance and construction vehicle shall compute the location of the vehicle based on inputs from a vehicle location determination function.	Future (not funded)
Requirement:	2 The maintenance and construction vehicle shall send the timestamped vehicle location to the controlling center.	Future (not funded)
Functional Area: **MCV Vehicle System Monitoring and Diagnostics** On-board sensors capable of monitoring the condition of each of the vehicle systems and diagnostics that can be used to support vehicle maintenance.		
Requirement:	1 The maintenance and construction vehicle shall collect vehicle diagnostics and operating status data from the maintenance vehicle platform including engine temperature, mileage, tire wear, brake wear, belt wear, and other operational status measures as well as the status of maintenance and construction-specific systems on the vehicle.	Future (not funded)
Requirement:	2 The maintenance and construction vehicle shall use the diagnostic and status information to support scheduling vehicle maintenance, monitoring safety status, and informing the vehicle operator of the conditions.	Future (not funded)
Requirement:	4 The maintenance and construction vehicle shall send the vehicle diagnostic and safety information to the controlling maintenance center.	Future (not funded)
Functional Area: **MCV Environmental Monitoring** On-board systems that collect environmental and road condition data (including road surface or air temperature, wind speed, and road traction information - spatially located and time stamped) from sensors on-board the maintenance vehicle or located at the roadway.		
Requirement:	2 The maintenance and construction vehicle shall transmit environmental sensor data to the center. The sensor data includes location and timestamp information.	Future (not funded)
Requirement:	3 The maintenance and construction vehicle shall provide environmental sensor equipment operational status to the center.	Future (not funded)
Requirement:	9 [User Defined] The maintenance and construction vehicle shall collect environmental data from on-board sensors, including air temperature, surface temperature, etc.	Future (not funded)
Functional Area: **MCV Winter Maintenance** On-board systems that support snow plow operations and other roadway treatments (e.g., salt spraying and other material applications). Supports information sharing between snow plows.		
Requirement:	1 The maintenance and construction vehicle shall track the location and status of safety systems on-board the vehicle.	Future (not funded)
Requirement:	2 The maintenance and construction vehicle shall respond to control information from the center to allow remote operation of the on-board vehicle systems. These systems include winter maintenance equipment for plowing, treating, and anti-icing.	Future (not funded)

Architecture		Status
Clarksville Regional ITS Architecture (Region)		(Region)
Element: **MontCo Maintenance Vehicles**		
Entity: **Maintenance and Construction Vehicle**		
Functional Area: **MCV Winter Maintenance** On-board systems that support snow plow operations and other roadway treatments (e.g., salt spraying and other material applications). Supports information sharing between snow plows.		
Requirement:	3 The maintenance and construction vehicle shall monitor materials information including remaining quantity and current application rate of materials on the vehicle.	Future (not funded)
Requirement:	4 The maintenance and construction vehicle shall respond to dispatch information from the center, presented to the vehicle operator for acknowledgement and returning status.	Future (not funded)
Functional Area: **MCV Roadway Maintenance and Construction** On-board systems that support routine non-winter maintenance on the roadway or right-of-way. Includes landscape maintenance, hazard removal (roadway debris, dead animals), routine maintenance activities (roadway cleaning, grass cutting), and repair and maintenance of equipment on the roadway.		
Requirement:	1 The maintenance and construction vehicle shall track the location and status of safety systems on-board the vehicle.	Future (not funded)
Requirement:	3 The maintenance and construction vehicle shall monitor materials information including remaining quantity and current application rate of materials on the vehicle.	Future (not funded)
Requirement:	4 The maintenance and construction vehicle shall respond to dispatch information from the center, presented to the vehicle operator for acknowledgement and returning status.	Future (not funded)
Functional Area: **MCV Infrastructure Monitoring** On-board systems to monitor the condition of pavement, bridges, tunnels, associated hardware, and other transportation-related infrastructure (e.g., culverts). Includes vehicle-based sensors and communications with roadway-based infrastructure monitoring sensors.		
Requirement:	1 The maintenance and construction vehicle shall collect infrastructure data from on-board sensors relating to the physical characteristics of the roadway infrastructure, including pavement, bridges, culverts, signs, etc.	Future (not funded)
Functional Area: **MCV Work Zone Support** On-board systems that provide communications and support for local management of a work zone.		
Requirement:	1 The maintenance and construction vehicle shall monitor, operate, and control work zone devices located at or alongside the roadway. The devices operated on board the vehicle include driver information devices (e.g. dynamic message signs) and work zone intrusion detection and alert devices.	Future (not funded)
Requirement:	2 The maintenance and construction vehicle shall provide an interface for field personnel to input status of their work zone activities.	Future (not funded)
Requirement:	3 The maintenance and construction vehicle shall collect inputs from field personnel and from work zone devices on-board the maintenance and construction vehicle and send them to the controlling center.	Future (not funded)

Architecture	Status
Clarksville Regional ITS Architecture (Region)	(Region)
Element: **MontCo Maintenance Vehicles**	
Entity: **Maintenance and Construction Vehicle**	
Functional Area: **MCV Work Zone Support** On-board systems that provide communications and support for local management of a work zone.	
Requirement: 4 [User Defined] The maintenance and construction vehicle shall monitor, operate, and control work zone devices located at or alongside the roadway. The devices operated on board the vehicle include driver information devices (e.g. dynamic message signs) and/or other devices.	Future (not funded)
Functional Area: **MCV Vehicle Safety Monitoring** On-board systems to detect vehicle intrusions and warn crew workers and drivers of imminent encroachment. Crew movements are monitored so that the crew can be warned of movement beyond the designated safe zone. Used for stationary work zones or in mobile applications where a safe zone is maintained around the moving vehicle.	
Requirement: 1 The maintenance and construction vehicle shall detect that a vehicle has intruded upon the boundary of a work zone. The boundary of the work zone represents an area around the maintenance and construction vehicle, which may be stationary or moving.	Future (not funded)
Requirement: 2 The maintenance and construction vehicle shall receive work zone warnings from the field equipment at the roadside, other maintenance and construction vehicles.	Future (not funded)
Element: **MontCo Sheriff Headquarters**	
Entity: **Emergency Management**	
Functional Area: **Emergency Evacuation Support** Evacuation planning and coordination to manage evacuation and reentry of a population in the vicinity of a disaster or other emergency that poses a risk to public safety.	
Requirement: 2 The center shall develop and exchange evacuation plans with allied agencies prior to the occurrence of a disaster.	Existing
Requirement: 3 The center shall provide an interface to the emergency system operator to enter evacuation plans and procedures and present the operator with other agencies' plans.	Existing
Requirement: 7 The center shall request traffic management agencies to implement special traffic control strategies and to control evacuation traffic, including traffic on local streets and arterials as well as the major evacuation routes.	Existing
Requirement: 12 [User Defined] The center shall monitor the progress or status of the evacuation once it begins and exchange plans with allied agencies.	Future (not funded)
Requirement: 13 [User Defined] The center shall provide evacuation information to traffic, transit, maintenance and construction and other emergency management centers as needed.	Existing
Element: **MontCo Sheriff Roadway Equipment**	
Entity: **Roadway Subsystem**	
Functional Area: **Roadway Speed Monitoring** Vehicle speed sensors that detect excessive vehicle speeds, informing drivers, centers and/or enforcement agencies of speed violations.	

Architecture		Status
Clarksville Regional ITS Architecture (Region)		(Region)
Element: **MontCo Sheriff Roadway Equipment**		
Entity: **Roadway Subsystem**		
Functional Area: **Roadway Speed Monitoring** Vehicle speed sensors that detect excessive vehicle speeds, informing drivers, centers and/or enforcement agencies of speed violations.		
Requirement:	2 The field element shall include sensors to detect vehicle speeds, under enforcement agency control.	Existing
Requirement:	3 If the speed detected by vehicle speed sensors is determined to be excessive, the field element shall provide a safe speed advisory to passing drivers via a driver information system (such as portable messages signs, etc.).	Future (not funded)
Element: **OG E-911**		
Entity: **Emergency Management**		
Functional Area: **Emergency Call-Taking** Provides interface to the emergency call-taking systems such as the Emergency Telecommunications System (e.g., 911) that correlate call information with emergencies reported by transit agencies, commercial vehicle operators, or other public safety agencies. Allows the operator to verify the incident and forward the information to the responding agencies.		
Requirement:	1 The center shall support the interface to the Emergency Telecommunications System (e.g. 911 or 7-digit call routing) to receive emergency notification information and provide it to the emergency system operator.	Existing
Requirement:	9 The center shall forward the verified emergency information to the responding agency based on the location and nature of the emergency.	Existing
Requirement:	10 The center shall update the incident information log once the emergency system operator has verified the incident.	Existing
Functional Area: **Emergency Dispatch** Dispatch emergency vehicles to incidents, tracking their location and status. Pertinent incident information is gathered and relayed to the responding units.		
Requirement:	1 The center shall dispatch emergency vehicles to respond to verified emergencies under center personnel control.	Existing
Requirement:	2 The center shall store the current status of all emergency vehicles available for dispatch and those that have been dispatched.	Existing
Requirement:	3 The center shall relay location and incident details to the responding vehicles.	Existing
Requirement:	5 The center shall store and maintain the emergency service responses in an action log.	Existing
Element: **OG Early Warning System**		
Entity: **Emergency Management**		
Functional Area: **Emergency Early Warning System** Monitors alerting and advisory systems, information collected by ITS surveillance and sensors, and reports from other agencies in order to identify potential, imminent, or in-progress major incidents or disasters. Notification is provided to other ITS centers to notify the traveling public.		

Architecture		Status
Clarksville Regional ITS Architecture (Region)		(Region)
Element: **OG Early Warning System**		
Entity: **Emergency Management**		
Functional Area: **Emergency Early Warning System** Monitors alerting and advisory systems, information collected by ITS surveillance and sensors, and reports from other agencies in order to identify potential, imminent, or in-progress major incidents or disasters. Notification is provided to other ITS centers to notify the traveling public.		
Requirement:	14 [User Defined] The center shall broadcast wide-area alerts and advisories to traffic management centers for emergency situations such as severe weather events or other situations that pose a threat to life and property.	Existing
Requirement:	15 [User Defined] The center shall broadcast wide-area alerts and advisories to maintenance centers for emergency situations such as severe weather events.	Existing
Requirement:	16 [User Defined] The center shall broadcast wide-area alerts and advisories to other emergency management centers for emergency situations such as severe weather events.	Existing
Functional Area: **Emergency Environmental Monitoring** Current and forecast road and weather information assimilated from weather service providers and emergency vehicles equipped with environmental sensors; used by the operator to more effectively manage incidents.		
Requirement:	1 The center shall collect current and forecast road and weather information from weather service providers (such as the National Weather Service and value-added sector specific meteorological services).	Existing
Requirement:	3 The center shall collect current road and weather information from roadway maintenance operations.	Planned (funded)
Element: **TDOT District maintenance garage and equipment**		
Entity: **Maintenance and Construction Management**		
Functional Area: **MCM Maintenance Decision Support** Maintenance Decision Support Systems recommend courses of action based on current and forecast environmental and road conditions (filtered and fused for specific time horizons) and additional application specific information. Recommendations and dispatch instructions are generated based on this integrated information.		
Requirement:	1 The center shall provide the center personnel with tailored external information, including weather or road condition observations, forecasted weather information or road conditions, current usage of treatments and materials, available resources, equipment and vehicle availability, road network information, and source reliability information.	Existing
Functional Area: **MCM Roadway Maintenance and Construction** Overall management and support for routine maintenance on the roadway or right-of-way. Includes landscape maintenance, hazard removal (roadway debris, dead animals), routine maintenance activities (roadway cleaning, grass cutting), and repair and maintenance of both ITS and non-ITS equipment.		
Requirement:	2 The center shall respond to requests from emergency management and traffic management centers for hazard removal, field equipment repair, and other roadway maintenance.	Existing

Architecture		Status
Clarksville Regional ITS Architecture (Region)		(Region)
Element: **TDOT District maintenance garage and equipment**		
Entity: **Maintenance and Construction Management**		
Functional Area: **MCM Roadway Maintenance and Construction** Overall management and support for routine maintenance on the roadway or right-of-way. Includes landscape maintenance, hazard removal (roadway debris, dead animals), routine maintenance activities (roadway cleaning, grass cutting), and repair and maintenance of both ITS and non-ITS equipment.		
Requirement:	3 The center shall exchange information with administrative systems to support the planning and scheduling of maintenance activities. This information includes: equipment and consumables resupply purchase request status, personnel qualifications including training and special certifications, environmental regulations and rules that may impact maintenance activities, and requests and project requirements from contract administration.	Existing
Requirement:	4 The center shall provide emergency management and traffic management centers with information about scheduled maintenance and construction work activities including anticipated closures and impact to the roadway, alternate routes, anticipated delays, closure times, and durations.	Existing
Requirement:	7 The center shall remotely control and collect data from infrastructure monitoring sensors located along the roadway infrastructure or on maintenance and construction vehicles.	Future (not funded)
Requirement:	8 The center shall receive equipment availability and materials storage status information from storage facilities to support the scheduling of roadway maintenance and construction activities.	Existing
Requirement:	10 The center shall collect current and forecast traffic and weather information from traffic management centers and weather service providers (such as the National Weather Service and value-added sector specific meteorological services).	Existing
Functional Area: **MCM Work Zone Management** Remotely monitors and supports work zone activities, controlling traffic through dynamic message signs (DMS), highway advisory radio, gates and barriers, and informing other groups of activity (e.g., traveler information systems, traffic management centers, other maintenance and construction centers).		
Requirement:	3 The center shall disseminate work zone information to other agencies and centers including traffic, transit, emergency management centers, other maintenance centers, traveler information providers, and the media.	Existing
Requirement:	4 The center shall control traffic in work zones by providing remote control of dynamic message signs, highway advisory radio systems, gates, and barriers located in or near the work zone.	Existing
Requirement:	5 The center shall exchange information with administrative systems to support the planning and scheduling of work zone activities. This information includes: equipment and consumables resupply purchase request status, personnel qualifications including training and special certifications, environmental regulations and rules that may impact maintenance activities, and requests and project requirements from contract administration.	Existing

Architecture	Status
Clarksville Regional ITS Architecture (Region)	(Region)
Element: **TDOT District maintenance garage and equipment**	
Entity: **Maintenance and Construction Management**	
Entity: **Maintenance and Construction Vehicle**	
Functional Area: **MCV Roadway Maintenance and Construction** On-board systems that support routine non-winter maintenance on the roadway or right-of-way. Includes landscape maintenance, hazard removal (roadway debris, dead animals), routine maintenance activities (roadway cleaning, grass cutting), and repair and maintenance of equipment on the roadway.	
Requirement: 4 The maintenance and construction vehicle shall respond to dispatch information from the center, presented to the vehicle operator for acknowledgement and returning status.	Existing
Functional Area: **MCV Work Zone Support** On-board systems that provide communications and support for local management of a work zone.	
Requirement: 4 [User Defined] The maintenance and construction vehicle shall monitor, operate, and control work zone devices located at or alongside the roadway. The devices operated on board the vehicle include driver information devices (e.g. dynamic message signs) and/or other devices.	Existing
Element: **TDOT Region 3 TOC**	
Entity: **Traffic Management**	
Functional Area: **TMC Probe Information Collection** Collects, assimilates, and disseminates vehicle probe data collected from roadside beacons and centers controlling transit vehicles, emergency vehicles, toll collection points, and route-guided vehicles.	
Requirement: 4 The center shall collect traffic data from traveler information centers based on data from their subscriber vehicles; the data may be aggregated and initial link time calculations performed at the sending center.	Planned (funded)
Functional Area: **TMC Incident Detection** Remotely controls traffic and video sensors to support incident detection and verification; exchange information with other agencies including emergency management, maintenance and construction, alerting and advisory systems, event promoters, intermodal freight depots, and traveler information systems.	
Requirement: 7 The center shall provide video and traffic sensor control commands to the field equipment to detect and verify incidents.	Future (not funded)
Functional Area: **TMC Environmental Monitoring** Management of environmental sensors and assimilation of collected data with other current and forecast road conditions and surface weather information from weather service providers and roadway maintenance operations.	
Requirement: 6 [User Defined] The center shall provide weather and road condition information to center personnel.	Existing
Functional Area: **Traffic Data Collection** Collection and storage of traffic management data. For use by operations personnel or data archives in the region.	

Architecture		Status
Clarksville Regional ITS Architecture (Region)		(Region)
Element: **TDOT Region 3 TOC**		
Entity: **Traffic Management**		
Functional Area: **Traffic Data Collection**	Collection and storage of traffic management data. For use by operations personnel or data archives in the region.	
Requirement:	3 The center shall receive and respond to requests from ITS Archives for either a catalog of the traffic data or for the data itself.	Existing
Requirement:	4 The center shall be able to produce sample products of the data available.	Existing
Element: **TN 511 System**		
Entity: **Information Service Provider**		
Functional Area: **ISP Traveler Data Collection**	Collects traveler information from other centers, consolidates and refines the collected data, and makes this data available to traveler information applications.	
Requirement:	1 The center shall collect, process, and store traffic and highway condition information, including incident information, detours and road closures, event information, recommended routes, and current speeds on specific routes.	Existing
Requirement:	2 The center shall collect, process, and store maintenance and construction information, including scheduled maintenance and construction work activities and work zone activities.	Existing
Functional Area: **Interactive Infrastructure Information**	Collection, processing, storage, and personalized dissemination of traffic, transit, maintenance and construction, multimodal, event, and weather information to traveler interface systems and vehicles, upon request.	
Requirement:	1 The center shall collect, process, store, and disseminate customized traffic and highway condition information to travelers, including incident information, detours and road closures, recommended routes, and current speeds on specific routes upon request.	Existing
Requirement:	2 The center shall collect, process, store, and disseminate customized maintenance and construction information to travelers, including scheduled maintenance and construction work activities and work zone activities upon request.	Existing
Functional Area: **Traveler Telephone Information**	Collection and distribution of traveler information and wide-area alerts to traveler telephone information systems such as 511, based on voice-based traveler requests.	
Requirement:	1 The center shall provide the capability to process voice-formatted requests for traveler information from a traveler telephone information system, and return the information in the requested format.	Planned (funded)
Requirement:	2 The center shall provide the capability to process dual-tone multifrequency (DTMF)-based requests (touch-tone) for traveler information from a traveler telephone information system.	Planned (funded)
Requirement:	4 The center shall collect and provide information on traffic conditions in the requested voice format and for the requested location.	Planned (funded)

Architecture		Status
Clarksville Regional ITS Architecture (Region)		(Region)
Element: **TN 511 System**		
Entity: **Information Service Provider**		
Functional Area: **Traveler Telephone Information** Collection and distribution of traveler information and wide-area alerts to traveler telephone information systems such as 511, based on voice-based traveler requests.		
Requirement:	5 The center shall collect and provide work zone and roadway maintenance information in the requested voice format and for the requested location.	Planned (funded)
Entity: **Remote Traveler Support**		
Functional Area: **Remote Interactive Information Reception** Public traveler interface, such as a kiosk, that provides traffic, transit, yellow pages, special event, and other personalized traveler information services upon request.		
Requirement:	1 The public interface for travelers shall receive traffic information from a center and present it to the traveler upon request.	Future (not funded)
Element: **TN Comm Vehicle Inspection System**		
Entity: **Commercial Vehicle Check**		
Functional Area: **Roadside Safety and Security Inspection** Roadside check facility equipment to provide the capabilities to automate the roadside safety inspection process including use of hand held devices to rapidly inspect the vehicle and driver.		
Requirement:	1 The roadside check facility equipment shall receive information concerning commercial vehicles and freight equipment approaching a facility that are being pulled in for safety inspections.	Existing
Requirement:	3 The roadside check facility equipment shall provide an interface to inspectors in the field to allow them to safety inspection data including overrides to the pull-in decisions made by the system.	Existing
Requirement:	4 The roadside check facility equipment shall request and input electronic safety data from the commercial vehicle's electronic tag data. This includes driver logs, on-board safety data, safety inspection records, commercial vehicle breach information, as well as freight equipment information.	Existing
Requirement:	5 The roadside check facility equipment shall send a pass/pull-in notification to the commercial vehicle and its driver based on the information received from the vehicle, the administration center, and the inspector. The message may be sent to the on-board equipment in the commercial vehicle or transmitted to the driver using equipment such as dynamic message signs, red-green lights, flashing signs, etc.	Existing
Requirement:	6 The roadside check facility equipment shall receive information about a breach or tamper event on a commercial vehicle or its attached freight equipment which includes identity, type of breach, location, and time.	Existing
Requirement:	7 The roadside check facility equipment shall forward results of the roadside safety inspections to the commercial vehicle administration center.	Existing
Functional Area: **Citation and Accident Electronic Recording**		

Architecture		Status
Clarksville Regional ITS Architecture (Region)		(Region)
Element: **TN Comm Vehicle Inspection System**		
Entity: **Commercial Vehicle Check**		
Functional Area: **Citation and Accident Electronic Recording** Roadside check facility equipment records results of roadside inspections and forwards information to the commercial vehicle administration center. Includes accident reports, violations, citations, and the daily site activity data.		
Requirement:	1 The roadside check facility equipment shall record the results of roadside inspections carried using an inspector's hand held terminal interface.	Existing
Requirement:	2 The roadside check facility equipment shall provide an interface for an inspector to add comments to the inspection results.	Existing
Requirement:	3 The roadside check facility equipment shall forward results of the roadside inspections to the commercial vehicle administration center either as needed or on a periodic (e.g. basis). These reports include accident reports, violation notifications, citations, and daily site activity logs.	Existing
Element: **TN Highway Patrol Regional Headquarters**		
Entity: **Emergency Management**		
Functional Area: **Emergency Call-Taking** Provides interface to the emergency call-taking systems such as the Emergency Telecommunications System (e.g., 911) that correlate call information with emergencies reported by transit agencies, commercial vehicle operators, or other public safety agencies. Allows the operator to verify the incident and forward the information to the responding agencies.		
Requirement:	2 The center shall receive emergency call information from 911 services and present the possible incident information to the emergency system operator.	Existing
Requirement:	5 The center shall receive emergency notification information from other public safety agencies and present the possible incident information to the emergency system operator.	Existing
Requirement:	7 The center shall coordinate, correlate, and verify all emergency inputs, including those identified based on external calls and internal analysis of security sensor and surveillance data, and assign each a level of confidence.	Existing
Functional Area: **Emergency Dispatch** Dispatch emergency vehicles to incidents, tracking their location and status. Pertinent incident information is gathered and relayed to the responding units.		
Requirement:	1 The center shall dispatch emergency vehicles to respond to verified emergencies under center personnel control.	Existing
Requirement:	2 The center shall store the current status of all emergency vehicles available for dispatch and those that have been dispatched.	Existing
Requirement:	3 The center shall relay location and incident details to the responding vehicles.	Existing
Requirement:	4 The center shall track the location and status of emergency vehicles responding to an emergency based on information from the emergency vehicle.	Existing
Requirement:	5 The center shall store and maintain the emergency service responses in an action log.	Existing

Architecture		Status
Clarksville Regional ITS Architecture (Region)		(Region)
Element: **TN Highway Patrol Regional Headquarters**		
Entity: **Emergency Management**		
Functional Area: **Emergency Dispatch** Dispatch emergency vehicles to incidents, tracking their location and status. Pertinent incident information is gathered and relayed to the responding units.		
Requirement:	9 The center shall coordinate response to incidents with other Emergency Management centers to ensure appropriate resources are dispatched and utilized.	Future (not funded)
Functional Area: **Emergency Routing** Routing of emergency vehicles to facilitate the quickest/safest arrival. Routes may be determined based on real-time traffic information and road conditions or routes may be provided by Traffic Management on request.		
Requirement:	1 The center shall collect current traffic and road condition information from traffic management centers for emergency vehicle route calculation.	Existing
Requirement:	2 The center shall receive inputs from traffic management and maintenance centers on the location and status of traffic control equipment and work zones along potential emergency routes.	Existing
Requirement:	5 The center shall calculate emergency vehicle routes, under center personnel control, based on information from traffic management and maintenance centers.	Existing
Requirement:	6 The center shall request and receive ingress and egress routes or other specialized emergency access routes from the traffic management center.	Existing
Functional Area: **Emergency Data Collection** Collection and storage of information related to Emergency Management. For use by operations personnel or data archives in the region.		
Requirement:	1 The center shall collect emergency service data, emergency vehicle management data, emergency vehicle data, sensor and surveillance data, threat data, and incident data.	Existing
Requirement:	4 The center shall be able to produce sample products of the data available.	Existing
Element: **TN Highway Patrol Vehicles**		
Entity: **Emergency Vehicle Subsystem**		
Functional Area: **On-board EV En Route Support** On-board systems for gathering of dispatch and routing information for emergency vehicle personnel, vehicle tracking, communications with care facilities, and signal preemption via short range communication directly with traffic control equipment at the roadside.		
Requirement:	1 The emergency vehicle, including roadway service patrols, shall compute the location of the emergency vehicle based on inputs from a vehicle location determination function.	Existing
Requirement:	2 The emergency vehicle, including roadway service patrols, shall send the vehicle's location and operational data to the center for emergency management and dispatch.	Existing
Requirement:	3 The emergency vehicle, including roadway service patrols, shall receive incident details and a suggested route when dispatched to a scene.	Existing

Architecture		Status
Clarksville Regional ITS Architecture (Region)		(Region)
Element: **TN Highway Patrol Vehicles**		
Entity: **Emergency Vehicle Subsystem**		
Functional Area: **On-board EV En Route Support** On-board systems for gathering of dispatch and routing information for emergency vehicle personnel, vehicle tracking, communications with care facilities, and signal preemption via short range communication directly with traffic control equipment at the roadside.		
Requirement:	4 The emergency vehicle shall send the current en route status (including estimated time of arrival) and requests for emergency dispatch updates.	Existing
Requirement:	6 The emergency vehicle shall provide the personnel on-board with dispatch information, including incident type and location, and forward an acknowledgment from personnel to the center that the vehicle is on its way to the incident scene.	Existing
Element: **TN Maintenance Vehicles**		
Entity: **Maintenance and Construction Vehicle**		
Functional Area: **MCV Winter Maintenance** On-board systems that support snow plow operations and other roadway treatments (e.g., salt spraying and other material applications). Supports information sharing between snow plows.		
Requirement:	3 The maintenance and construction vehicle shall monitor materials information including remaining quantity and current application rate of materials on the vehicle.	Existing
Requirement:	4 The maintenance and construction vehicle shall respond to dispatch information from the center, presented to the vehicle operator for acknowledgement and returning status.	Existing
Element: **TN SmartWay Website**		
Entity: **Personal Information Access**		
Functional Area: **Personal Basic Information Reception** Personal traveler interface that provides formatted traffic advisories, transit, event, and other traveler information, as well as broadcast alerts. Devices include personal computers and personal portable devices such as PDAs and pagers.		
Requirement:	1 The personal traveler interface shall receive traffic information from a center and present it to the traveler.	Existing
Requirement:	2 The personal traveler interface shall receive transit information from a center and present it to the traveler.	Future (not funded)
Requirement:	6 The personal traveler interface shall provide the capability for digitized map data to act as the background to the information presented to the traveler.	Existing
Element: **TN Traffic Data Stations**		
Entity: **Roadway Subsystem**		
Functional Area: **Roadway Data Collection** Field elements to collect traffic, road, and environmental conditions information for use in transportation planning, research, and other off-line applications. Includes the sensors, supporting roadside infrastructure, and communications equipment.		
Requirement:	4 [User Defined] The field element shall collect traffic and classification information.	Existing

Architecture		Status
Clarksville Regional ITS Architecture (Region)		(Region)
Element: **TN Traffic Data Stations**		
Entity: **Roadway Subsystem**		
Functional Area: **Roadway Data Collection** Field elements to collect traffic, road, and environmental conditions information for use in transportation planning, research, and other off-line applications. Includes the sensors, supporting roadside infrastructure, and communications equipment.		
Requirement:	5 [User Defined] The field element shall include the sensors and supporting roadside devices that sense and collect traffic information.	Existing
Element: **TN Traveler Info Kiosks**		
Entity: **Remote Traveler Support**		
Functional Area: **Remote Basic Information Reception** Public traveler interface, such as a kiosk, that provides formatted traffic advisories, transit, event, and other traveler information, as well as broadcast alerts.		
Requirement:	1 The public interface for travelers shall receive traffic information from a center and present it to the traveler.	Existing
Requirement:	2 The public interface for travelers shall receive transit information from a center and present it to the traveler.	Future (not funded)
Requirement:	6 The public interface for travelers shall provide the capability for digitized map data to act as the background to the information presented to the traveler.	Existing
Functional Area: **Remote Interactive Information Reception** Public traveler interface, such as a kiosk, that provides traffic, transit, yellow pages, special event, and other personalized traveler information services upon request.		
Requirement:	1 The public interface for travelers shall receive traffic information from a center and present it to the traveler upon request.	Existing
Requirement:	2 The public interface for travelers shall receive transit information from a center and present it to the traveler upon request.	Future (not funded)
Element: **TN Weigh-In-Motion**		
Entity: **Commercial Vehicle Check**		
Functional Area: **Roadside WIM** Roadside check facility equipment to detect and measure the weight commercial vehicles at high speed. Can include an interface to the credential checking or it can be a stand alone package with display.		
Requirement:	1 The roadside check facility equipment shall detect the presence of commercial vehicles and freight equipment approaching a facility. Sensors can differentiate between different types of vehicles and determine the number of axles, gross vehicle weight, weight per axle, and the identification of the vehicle and its cargo.	Existing
Requirement:	2 The roadside check facility equipment shall request and input electronic screening data from the commercial vehicle's electronic tag data.	Existing

Architecture	Status
Clarksville Regional ITS Architecture (Region)	(Region)
Element: **TN Weigh-In-Motion**	
Entity: **Commercial Vehicle Check**	
Functional Area: **Roadside WIM** Roadside check facility equipment to detect and measure the weight commercial vehicles at high speed. Can include an interface to the credential checking or it can be a stand alone package with display.	
Requirement: 3 The roadside check facility equipment shall send a pass/pull-in notification to the commercial vehicle and its driver based on the information received from the vehicle and the measurements taken. The message may be sent to the on-board equipment in the commercial vehicle or transmitted to the driver using equipment such as dynamic message signs, red-green lights, flashing signs, etc.	Existing
Element: **TN Work Zone Equipment**	
Entity: **Roadway Subsystem**	
Functional Area: **Roadway Work Zone Traffic Control** Field elements in maintenance and construction areas including CCTV cameras, driver information systems (such as DMS), and gates/barriers that monitor and control traffic and provide information directly to drivers in affected areas.	
Requirement: 3 Under the control of field personnel within maintenance vehicles, the field element shall include driver information systems (such as dynamic messages signs and highway advisory radios) that advise drivers of activity around a work zone through which they are currently passing.	Existing
Element: **Transit Center**	
Entity: **Transit Management**	
Functional Area: **Transit Center Paratransit Operations** Management of demand response transit services, including paratransit. Planning and scheduling of these services. Supports automated vehicle dispatch and automatically updates customer service operator systems.	
Requirement: 1 The center shall process trip requests for demand responsive transit services, i.e. paratransit. Sources of the requests may include traveler information service providers.	Existing
Requirement: 2 The center shall monitor the operational status of the demand response vehicles including status of passenger pick-up and drop-off.	Existing
Requirement: 3 The center shall generate demand response transit (including paratransit) routes and schedules based on such factors as parameters input by the system operator, what other demand responsive transit schedules have been planned, the availability and location of vehicles, the relevance of any fixed transit routes and schedules, and road network information.	Existing
Requirement: 4 The center shall dispatch demand response (paratransit) transit vehicles.	Existing
Functional Area: **Transit Center Fare and Load Management** Management of fare collection at the center - includes setting and distributing fare information, central processing of fares for transit as well as other ITS services, links to financial institutions and enforcement agencies.	
Requirement: 4 The center shall support the payment of transit fare transactions using data provided by the traveler cards / payment instruments.	Existing

Architecture		Status
Clarksville Regional ITS Architecture (Region)		(Region)
Element: **Transit Center**		
Entity: **Transit Management**		
Functional Area: **Transit Center Security** Monitor transit vehicle operator or traveler activated alarms; authenticate transit vehicle operators; remotely disable a transit vehicle; alert operators, travelers, and police to potential incidents identified by these security features.		
Requirement:	1 The center shall monitor transit vehicle operational data to determine if the transit vehicle is off-route and assess whether a security incident is occurring.	Existing
Requirement:	2 The center shall receive reports of emergencies on-board transit vehicles entered directly be the transit vehicle operator or from a traveler through interfaces such as panic buttons or alarm switches.	Existing
Requirement:	5 The center shall receive information pertaining to a wide-area alert such as weather alerts, disaster situations, or child abductions. This information may come from Emergency Management or from other Alerting and Advisory Systems.	Existing
Requirement:	7 The center shall coordinate the response to security incidents involving transit with other agencies including Emergency Management, other transit agencies, media, traffic management, and traveler information service providers.	Existing
Requirement:	8 The center shall receive threat information and status on the integrity of the transit infrastructure.	Existing
Functional Area: **Transit Vehicle Operator Scheduling** Assignment of transit vehicles and operators to routes or service areas in a fair manner while minimizing labor and overtime services, considering operator preferences, qualifications, accumulated work hours, and other information about each operator.		
Requirement:	1 The center shall maintain records of a transit vehicle operator's performance. This may be done utilizing standardized performance evaluation criteria set forth by governmental regulations and transit operating company policies, assessing the transit vehicle operator's driving history, and assessing comments from the transit vehicle operator's supervisor(s) as well as noting any moving violations or accidents, supervisor comments, government regulations, and company policies.	Existing
Requirement:	2 The center shall assess the transit vehicle operator's availability based on previous work assignments, accumulated hours, plus health and vacation commitments.	Existing
Requirement:	3 The center shall assign transit vehicle operators to transit schedules based on their eligibility, route preferences, seniority, and transit vehicle availability.	Existing
Functional Area: **Transit Garage Maintenance** Collect operational and maintenance data from transit vehicles, manage vehicle service histories, automatically generate preventative maintenance schedules, and provide information to service personnel.		
Requirement:	1 The center shall collect operational and maintenance data from transit vehicles.	Existing

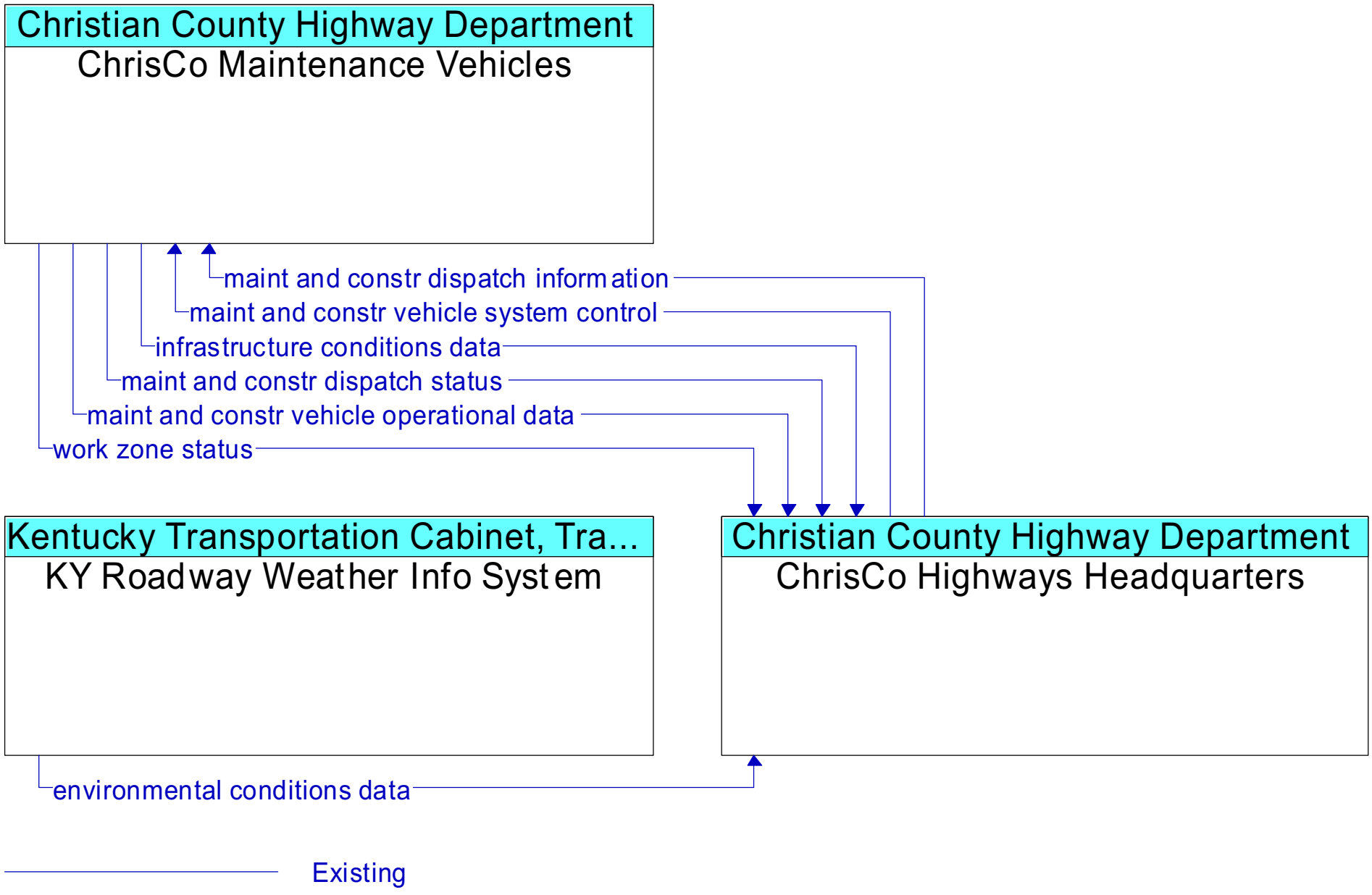
Architecture		Status
Clarksville Regional ITS Architecture (Region)		(Region)
Element: **Transit Center**		
Entity: **Transit Management**		
Functional Area: **Transit Garage Maintenance**	Collect operational and maintenance data from transit vehicles, manage vehicle service histories, automatically generate preventative maintenance schedules, and provide information to service personnel.	
Requirement:	2 The center shall monitor the condition of a transit vehicle to analyze brake, drive train, sensors, fuel, steering, tire, processor, communications equipment, and transit vehicle mileage to identify mileage based maintenance, out-of-specification or imminent failure conditions.	Existing
Requirement:	3 The center shall generate transit vehicle maintenance schedules, includes what and when the maintenance or repair is to be performed.	Existing
Requirement:	4 The center shall generate transit vehicle availability listings, current and forecast, to support transit vehicle assignment planning based, in part, on the transit vehicle maintenance schedule.	Existing
Requirement:	5 The center shall assign technicians to a transit vehicle maintenance schedule, based upon such factors as personnel eligibility, work assignments, preferences and seniority.	Existing
Requirement:	7 The center shall generate a time-stamped maintenance log of all maintenance activities performed on a transit vehicle.	Existing
Functional Area: **Transit Center Information Services**	Provide interactive traveler information to travelers (on-board transit vehicles, at stops/stations, using personal devices), traveler information service providers, media, and other transit organizations. Includes routes, schedules, transfer options, fares, real-time schedule adherence, current incidents, weather conditions, yellow pages, and special events.	
Requirement:	1 The center shall provide travelers using public transportation with traffic and advisory information upon request. Such information may include transit routes, schedules, transfer options, fares, real-time schedule adherence, current incidents, weather conditions, and special events.	Existing
Requirement:	4 The center shall provide transit service information to traveler information service providers including routes, schedules, schedule adherence, and fare information as well as transit service information during evacuation.	Existing
Functional Area: **Transit Center Multi-Modal Coordination**	Generate requests for transit priority on routes and at certain intersections. Coordinate schedules with other agencies and modes, including transit transfer cluster and transfer point information.	
Requirement:	1 The center shall analyze transit vehicle schedule performance to determine the need for priority along certain routes or at certain intersections.	Future (not funded)
Requirement:	2 The center shall send requests for priority along routes or at intersections to traffic management.	Future (not funded)
Requirement:	3 The center shall coordinate schedules and services between transit agencies, traffic management, maintenance and construction operations, parking management, and other surface or air transportation modes.	Future (not funded)

Architecture		Status
Clarksville Regional ITS Architecture (Region)		(Region)
Element: **Transit Center**		
Entity: **Transit Management**		
Functional Area: **Transit Center Multi-Modal Coordination** Generate requests for transit priority on routes and at certain intersections. Coordinate schedules with other agencies and modes, including transit transfer cluster and transfer point information.		
Requirement:	4 The center shall share transfer cluster and transfer point information with multimodal transportation service providers, other transit agencies, and traveler information service providers. A transfer cluster is a collection of stops, stations, or terminals where transfers can be made conveniently.	Future (not funded)
Functional Area: **Transit Data Collection** Collection and storage of transit management data. For use by operations personnel or data archives in the region.		
Requirement:	1 The center shall collect transit management data such as transit fares and passenger use, transit services, paratransit operations, transit vehicle maintenance data, etc.	Existing
Requirement:	4 The center shall be able to produce sample products of the data available.	Existing
Element: **Transit Fare Card System**		
Entity: **Transit Vehicle Subsystem**		
Functional Area: **On-board Transit Fare and Load Management** On-board systems provide variable and flexible fare collection using a travelers fare medium (stored value cards or other payment instrument). Collect data required to determine accurate ridership levels and fare statistics.		
Requirement:	1 The transit vehicle shall detect embarking travelers on-board a transit vehicle and read data from the traveler card / payment instrument that they are carrying.	Planned (funded)
Requirement:	6 The transit vehicle shall provide a transit fare payment interface that is suitable for travelers with physical disabilities.	Planned (funded)
Requirement:	10 The transit vehicle shall provide passenger loading and fare statistics data to the center.	Planned (funded)
Element: **Transit Vehicles**		
Entity: **Transit Vehicle Subsystem**		
Functional Area: **On-board Paratransit Operations** On-board systems to manage paratransit and flexible-route dispatch requests, including multi-stop runs. Inputs based on the transit vehicle's type and passenger capacity.		
Requirement:	1 The transit vehicle shall manage data input to sensor(s) on-board a transit vehicle to determine the vehicle's availability for use in demand responsive and flexible-route transit services based on identity, type, and passenger capacity.	Existing
Requirement:	2 The transit vehicle shall receive the status of demand responsive or flexible-route transit schedules and passenger loading from the transit vehicle operator.	Existing
Requirement:	3 The transit vehicle shall provide the transit vehicle operator instructions about the demand responsive or flexible-route transit schedule that has been confirmed from the center.	Existing

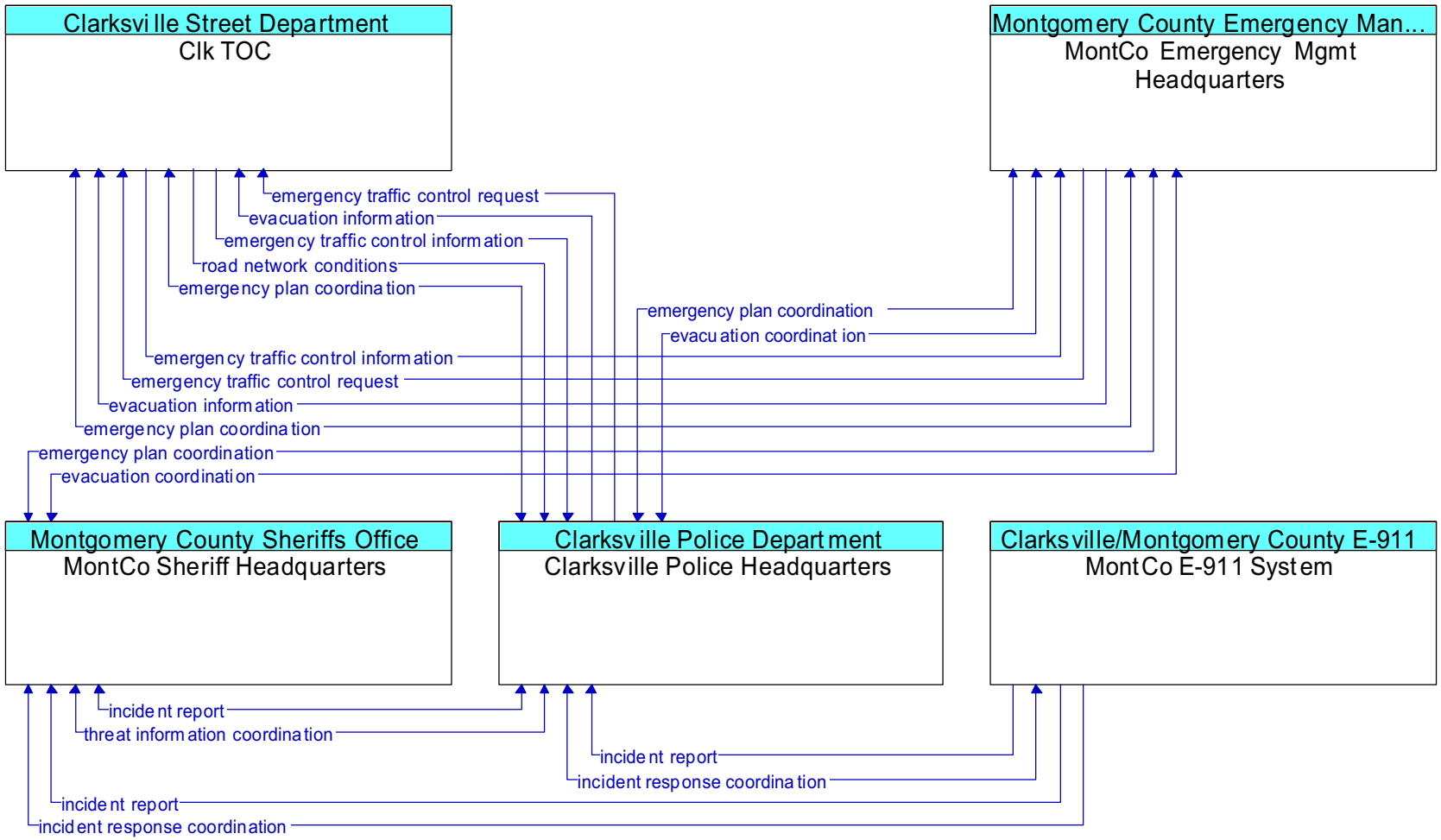
Architecture		Status
Clarksville Regional ITS Architecture (Region)		(Region)
Element: **Transit Vehicles**		
Entity: **Transit Vehicle Subsystem**		
Functional Area:	**On-board Transit Fare and Load Management** On-board systems provide variable and flexible fare collection using a travelers fare medium (stored value cards or other payment instrument). Collect data required to determine accurate ridership levels and fare statistics.	
Requirement:	6 The transit vehicle shall provide a transit fare payment interface that is suitable for travelers with physical disabilities.	Future (not funded)
Requirement:	10 The transit vehicle shall provide passenger loading and fare statistics data to the center.	Future (not funded)
Functional Area:	**On-board Transit Signal Priority** On-board systems request signal priority through short range communication directly with traffic control equipment at the roadside (intersections, ramps, interchanges, etc.).	
Requirement:	2 The transit vehicle shall send priority requests to traffic signal controllers at intersections, pedestrian crossings, and multimodal crossings on the roads (surface streets) and freeway (ramp controls) network that enable a transit vehicle schedule deviation to be corrected.	Future (not funded)
Requirement:	3 The transit vehicle shall send the schedule deviation data and status of priority requests to the transit vehicle operator.	Future (not funded)
Functional Area:	**On-Board Environmental Monitoring** On-board systems to collect current environmental conditions, including road surface or air temperature, wind speed, and road traction information - spatially located and time stamped.	
Requirement:	1 The transit vehicle shall collect environmental data from on-board sensors, including air temperature, wind speed, surface temperature, traction conditions, etc.	Future (not funded)
Requirement:	2 The transit vehicle shall transmit environmental sensor data to the center along with location and timestamp information.	Future (not funded)
Requirement:	3 The transit vehicle shall provide environmental sensor equipment operational status to the center.	Future (not funded)

APPENDIX D

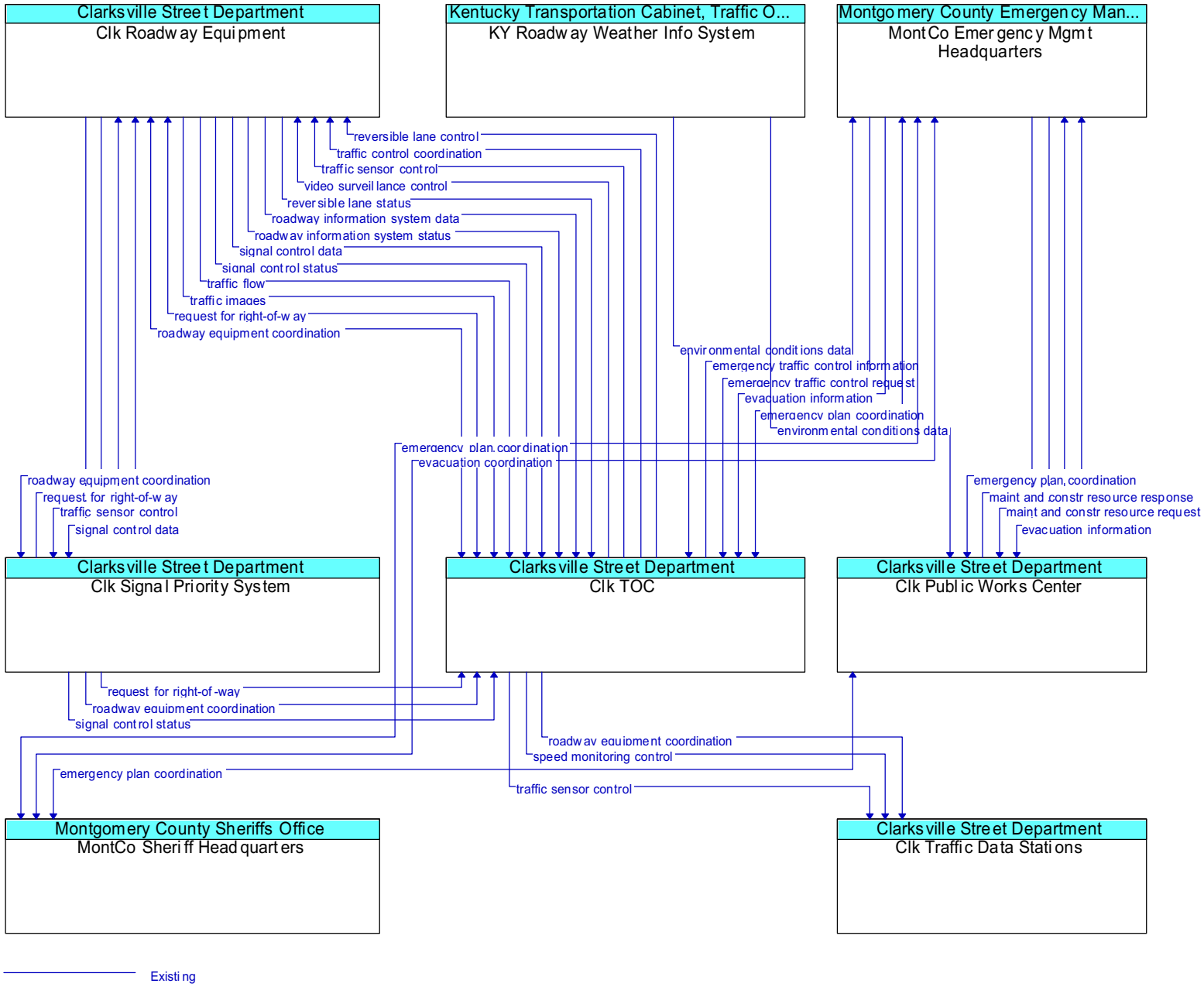
Existing Flows - Christian County Highway Department



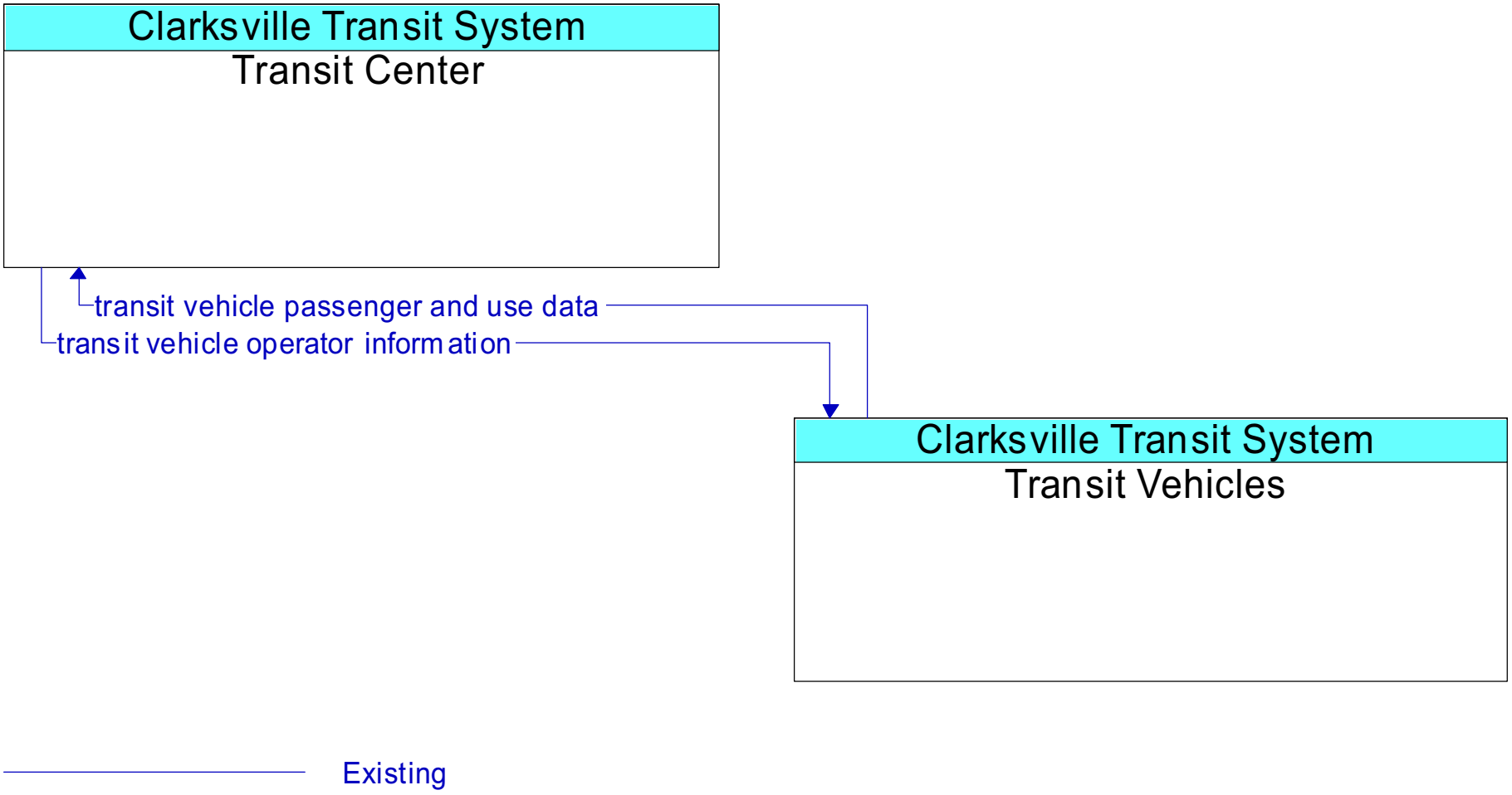
Existing Flows - Clarksville Police Department



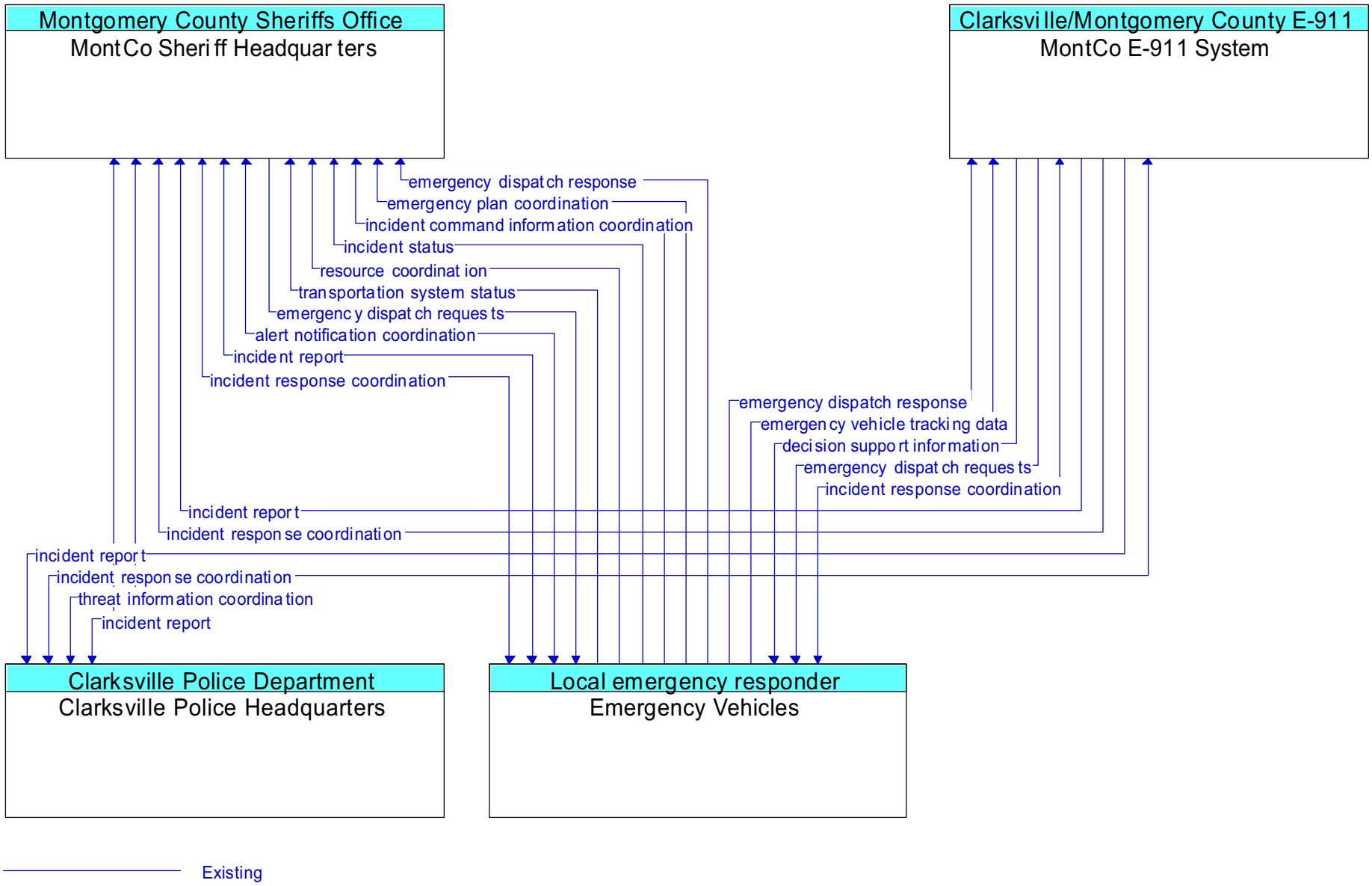
Existing Flows - Clarksville Street Department



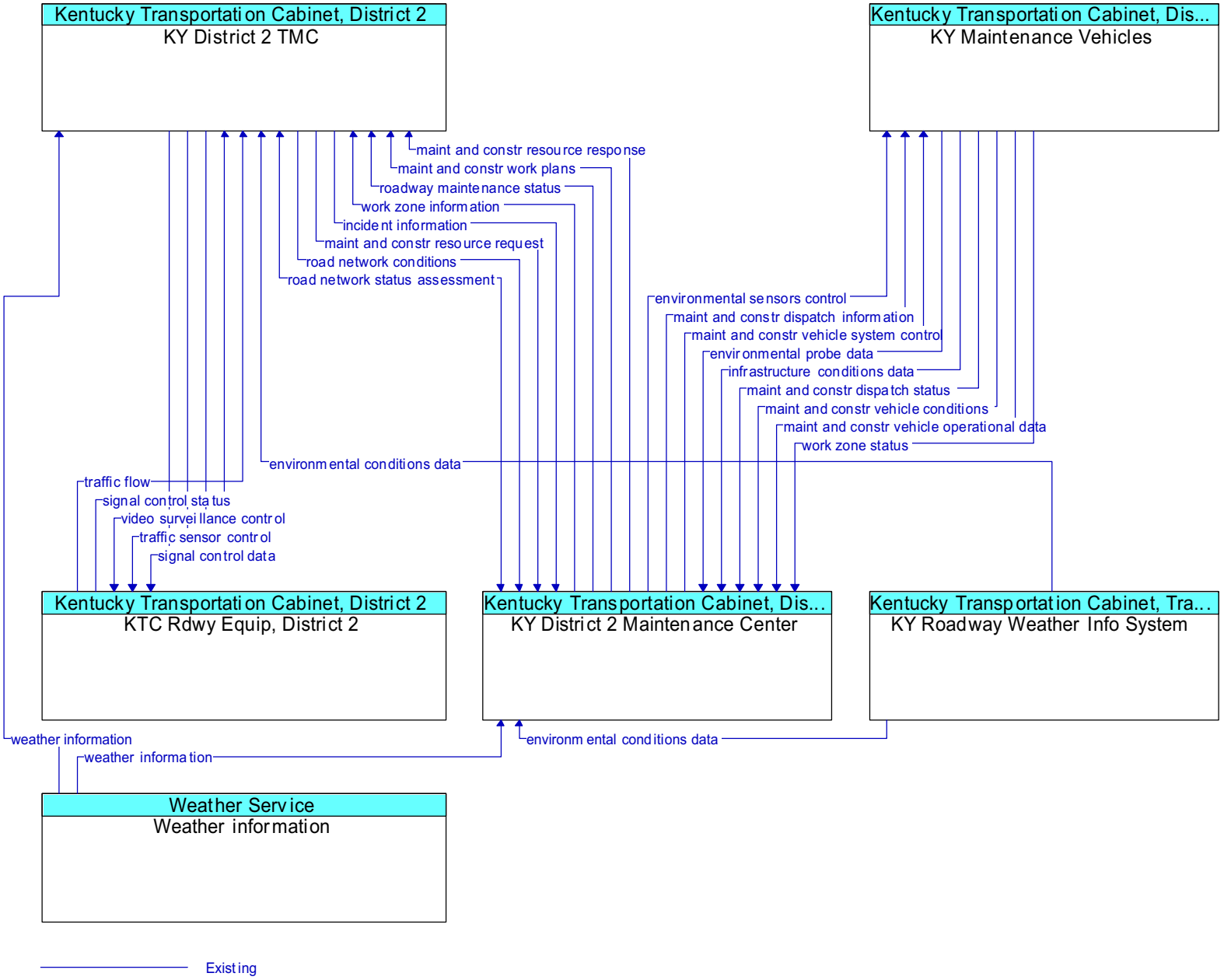
Existing Flows - Clarksville Transit System



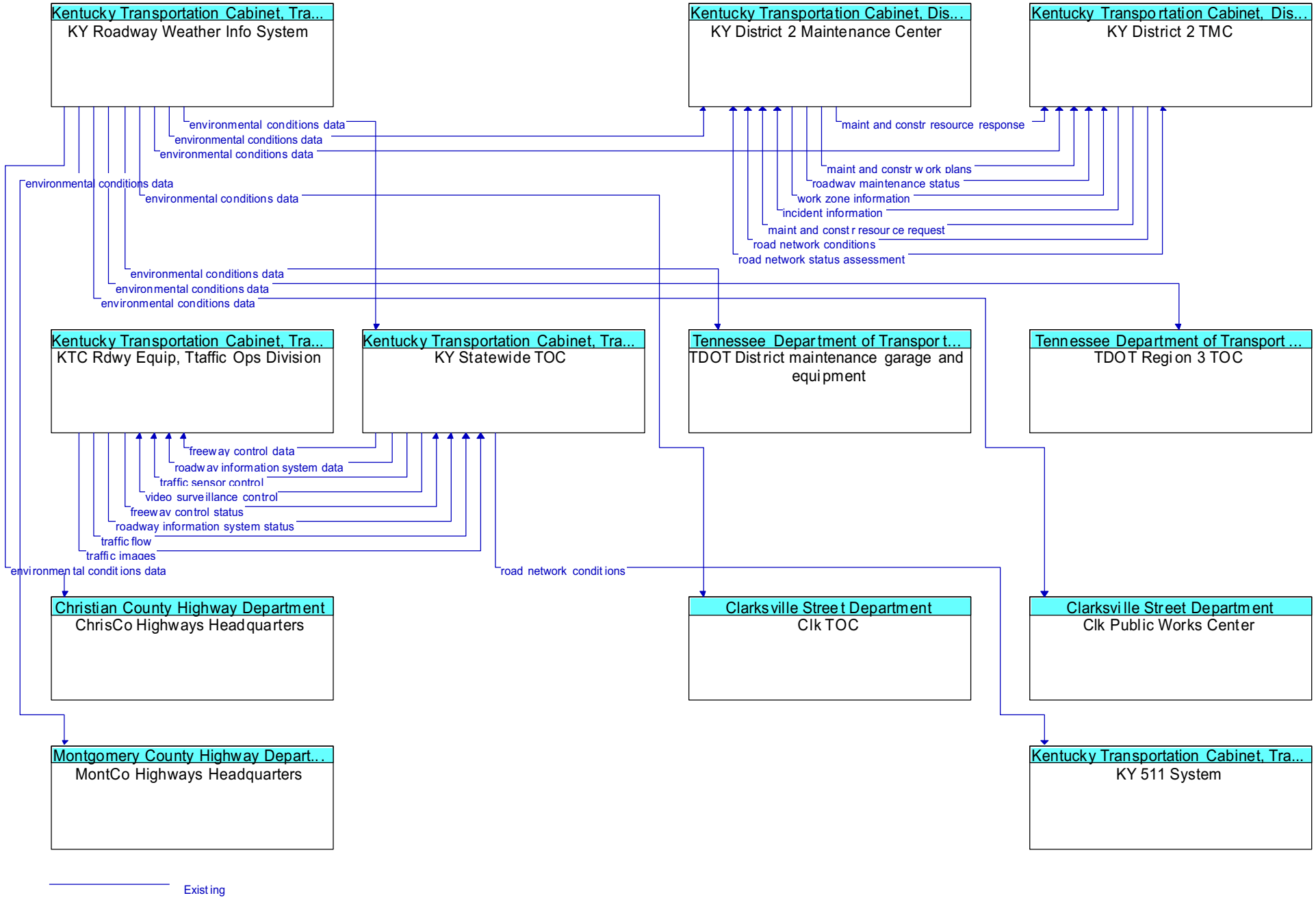
Existing Flows - Clarksville/Montgomery County E-911



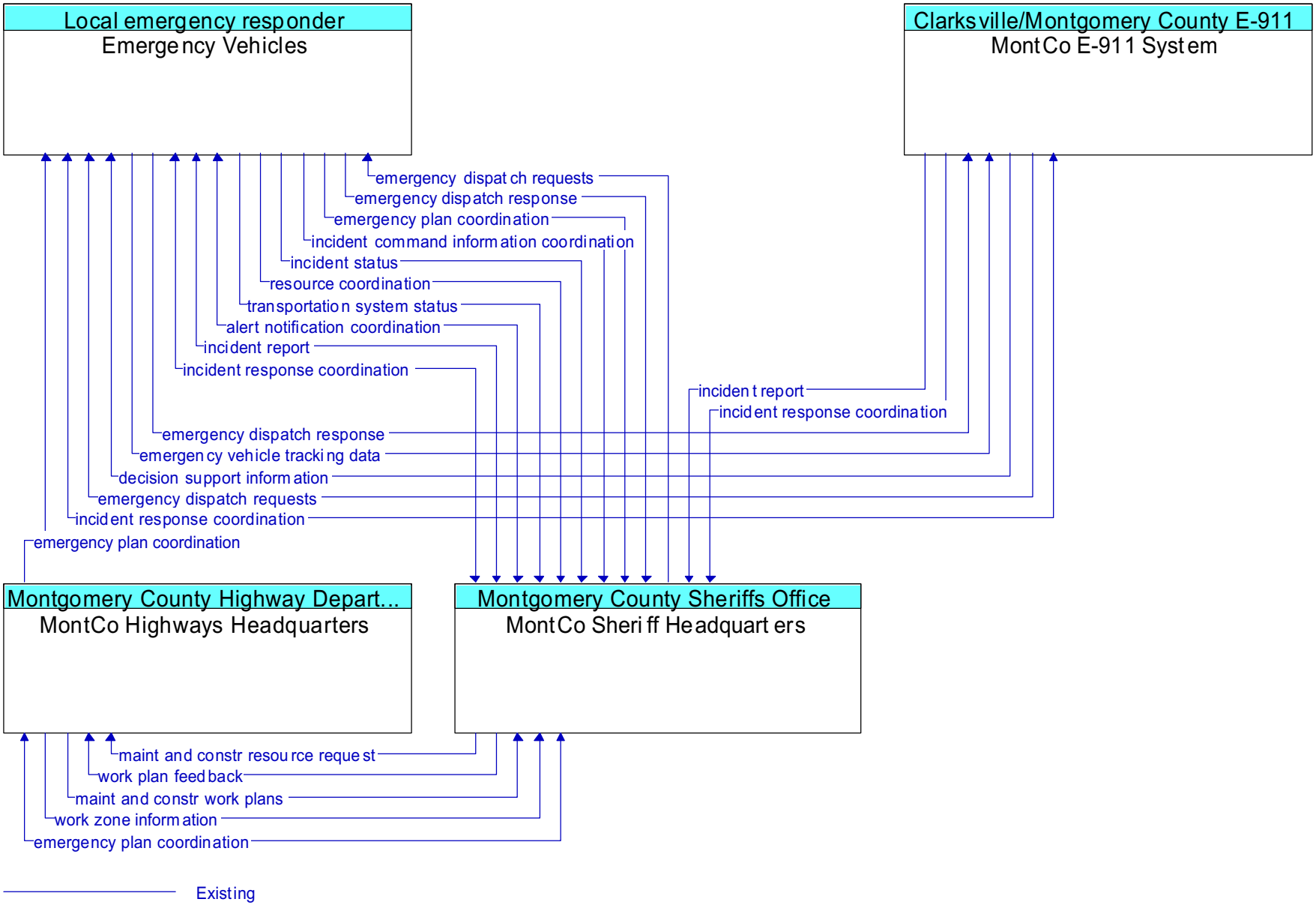
Existing Flows - Kentucky Transportation Cabinet, District 2



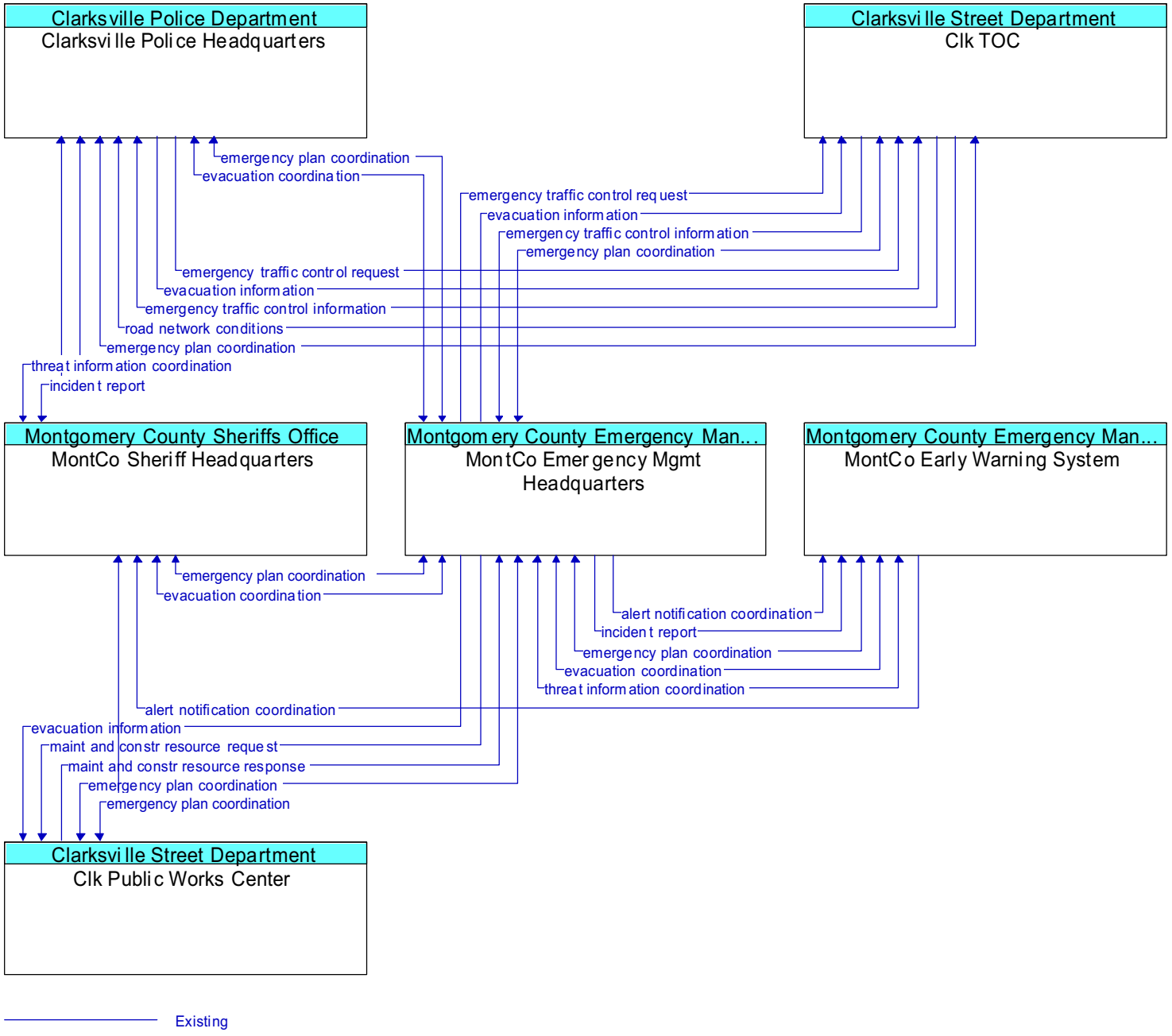
Existing Flows - Kentucky Transportation Cabinet, Traffic Operations Division



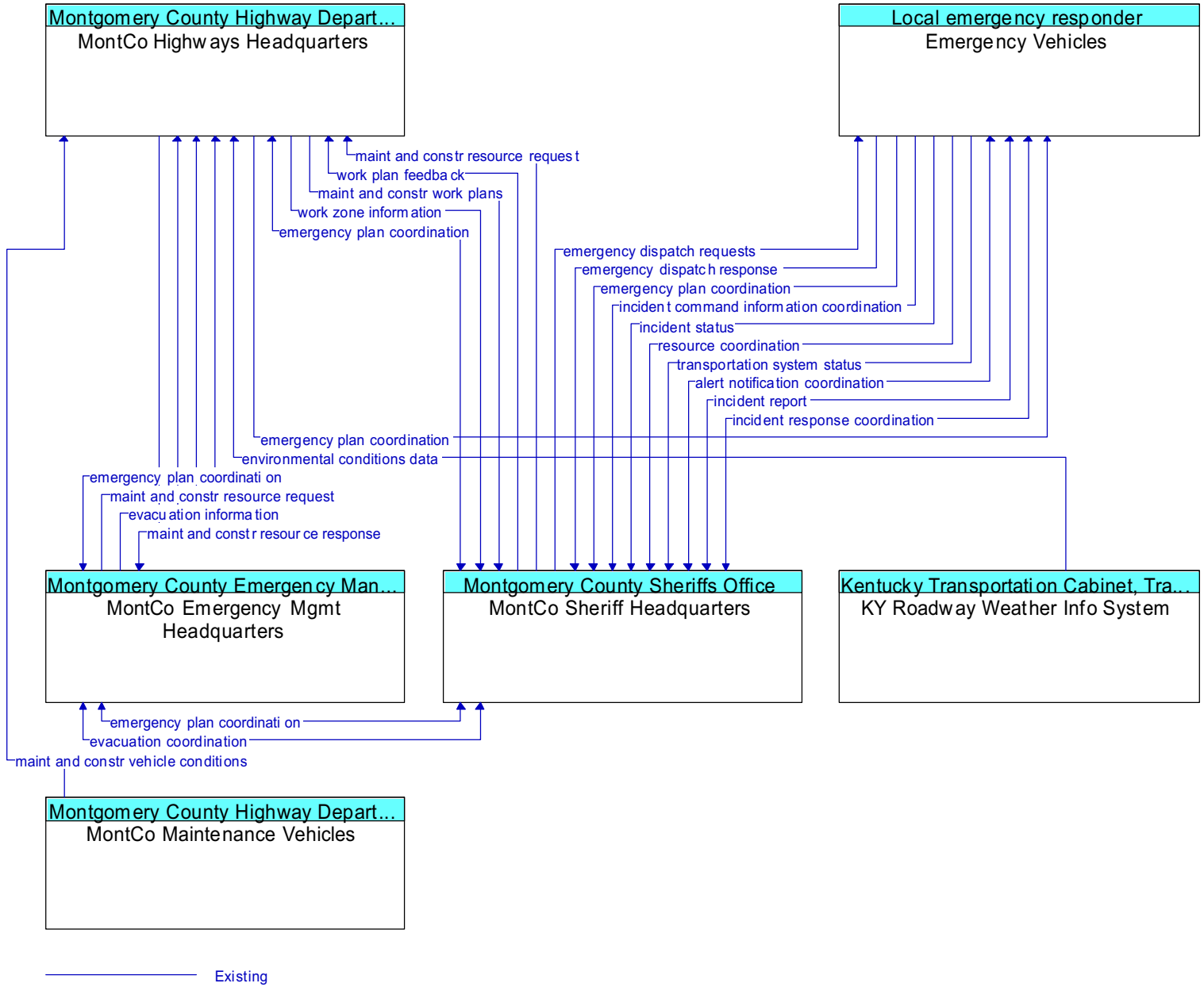
Existing Flows - Local Emergency Responders



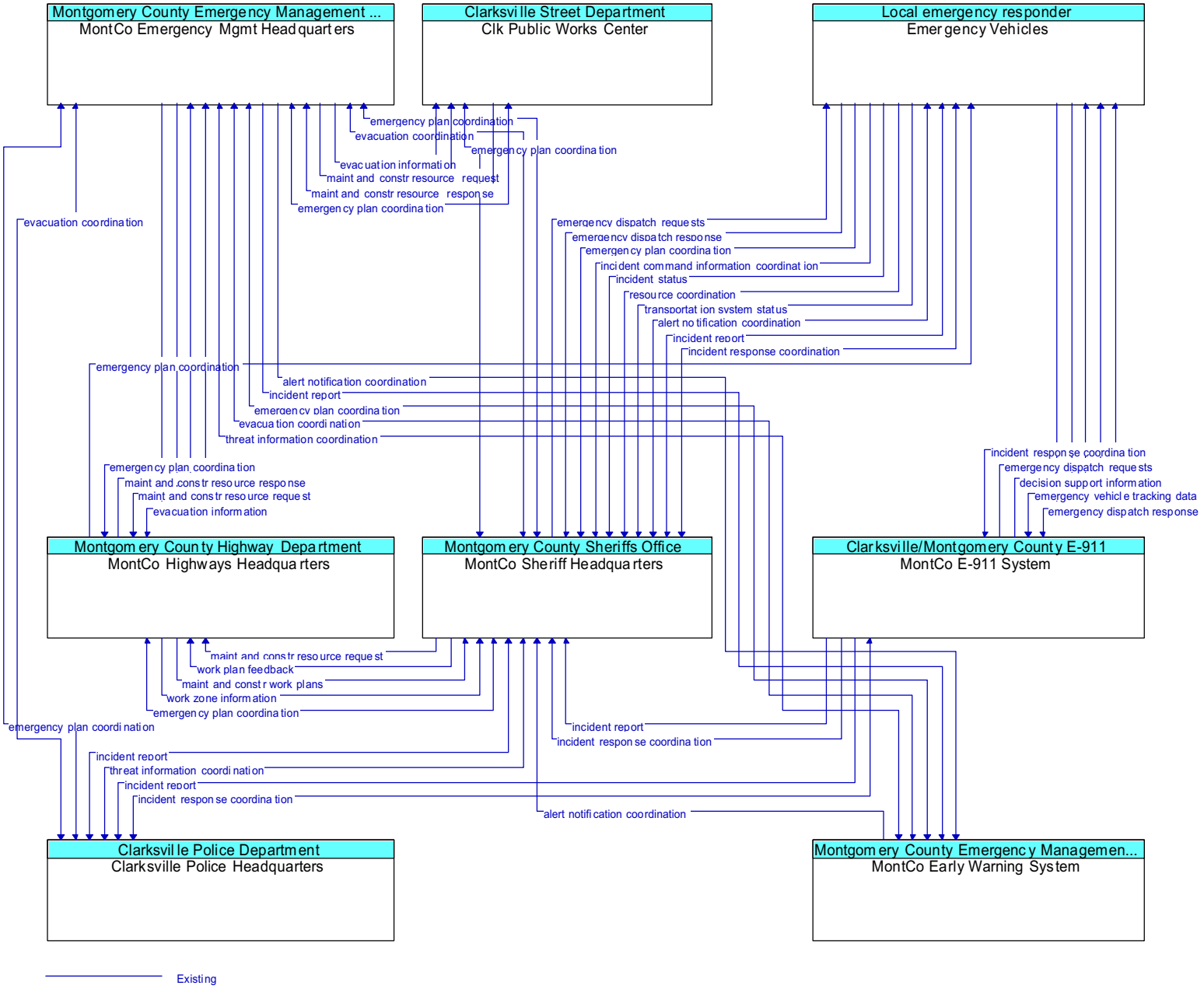
Existing Flows - Montgomery County Emergency Management Agency



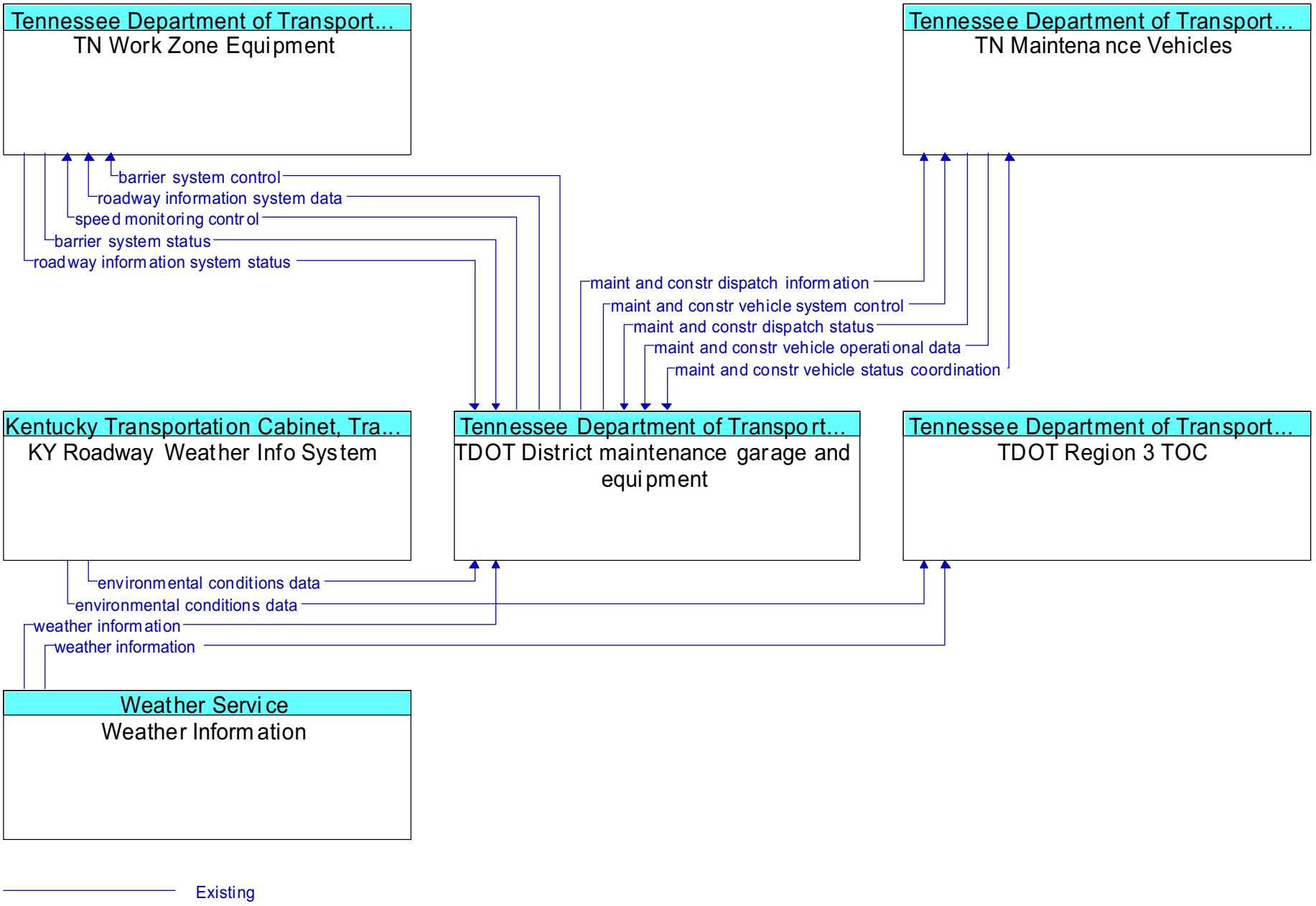
Existing Flows - Montgomery County Highway Department



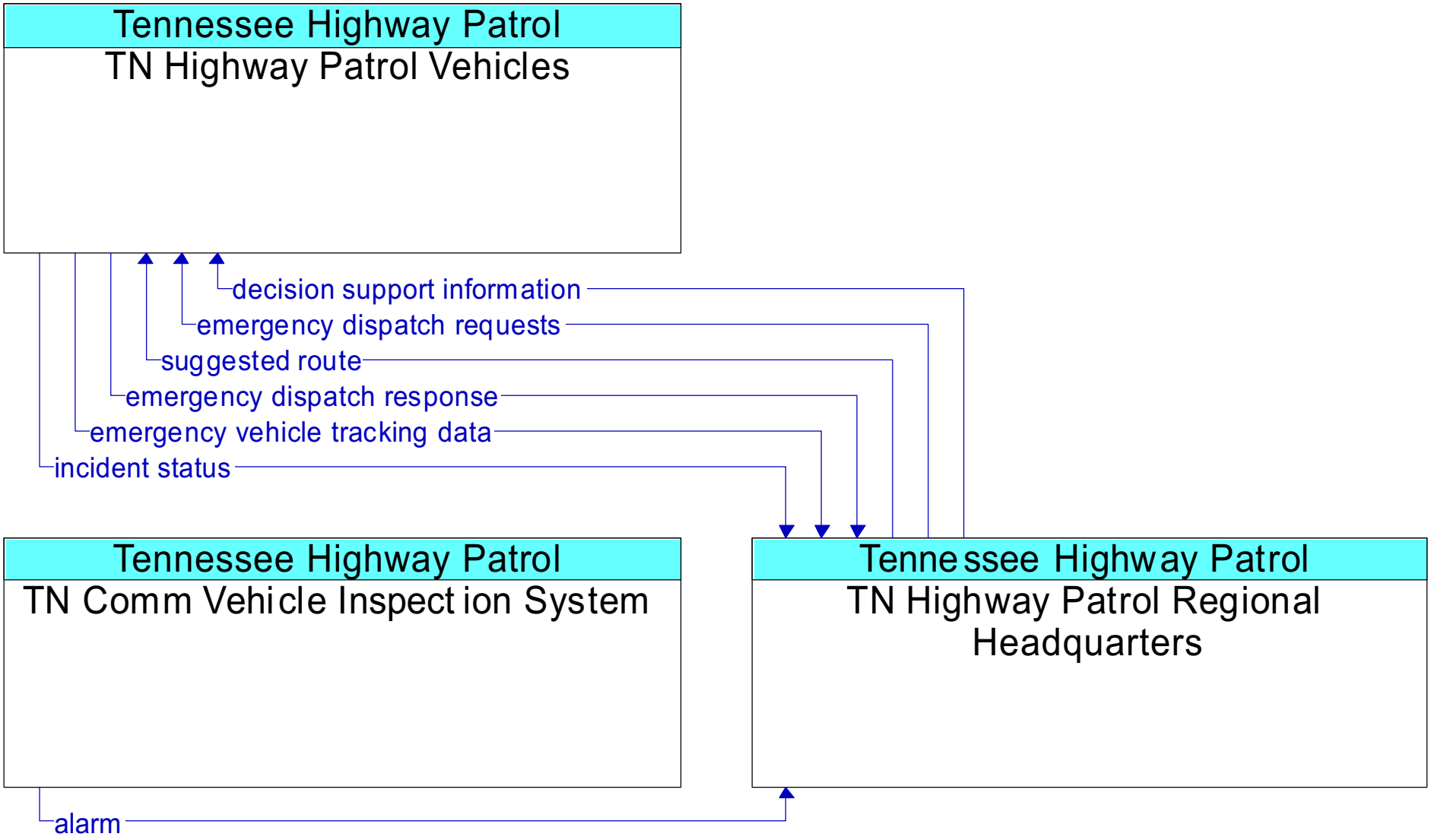
Existing Flows - Montgomery County Sheriff's Office



Existing Flows - Tennessee Department of Transportation

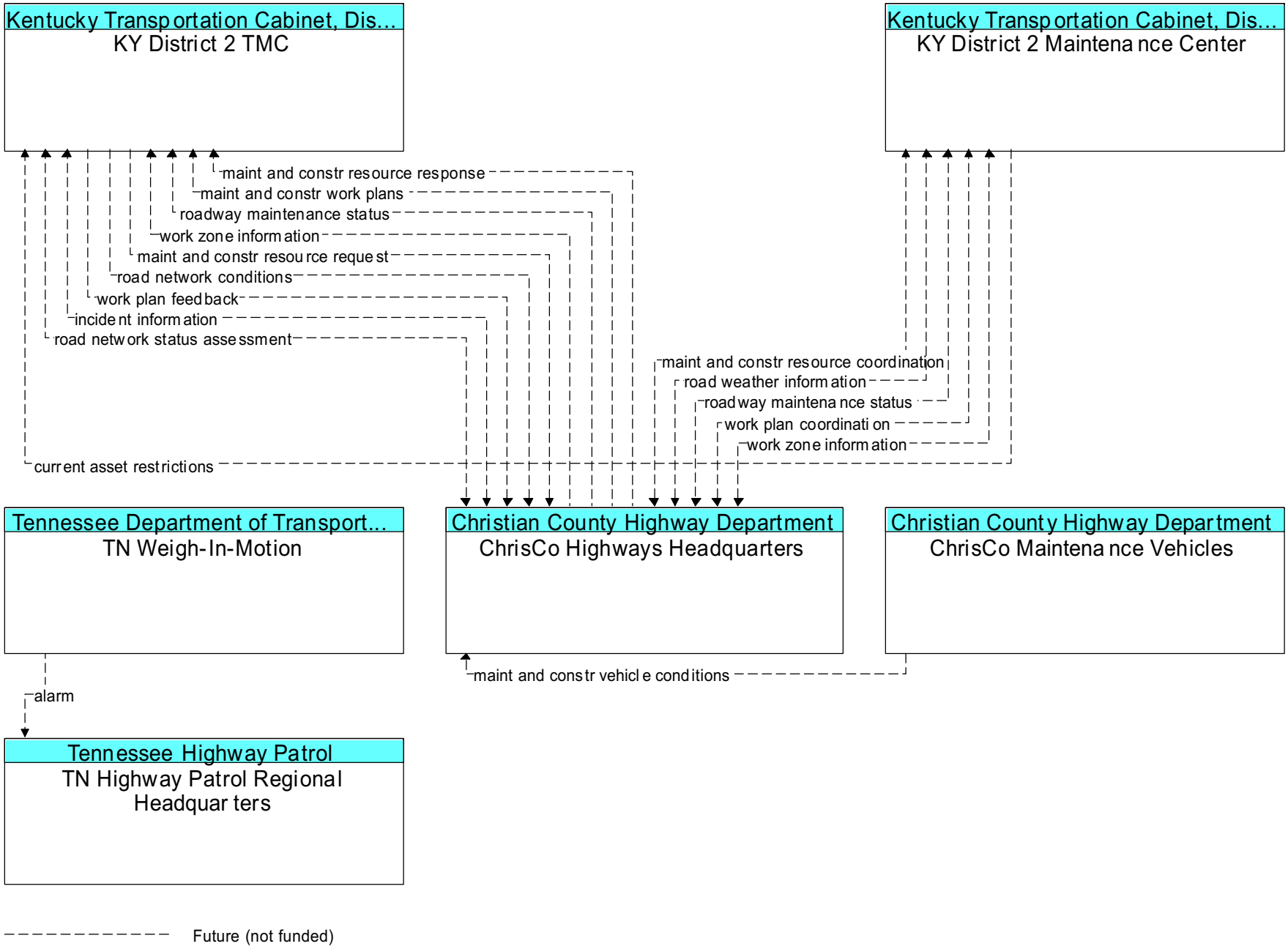


Existing Flows - Tennessee Highway Patrol

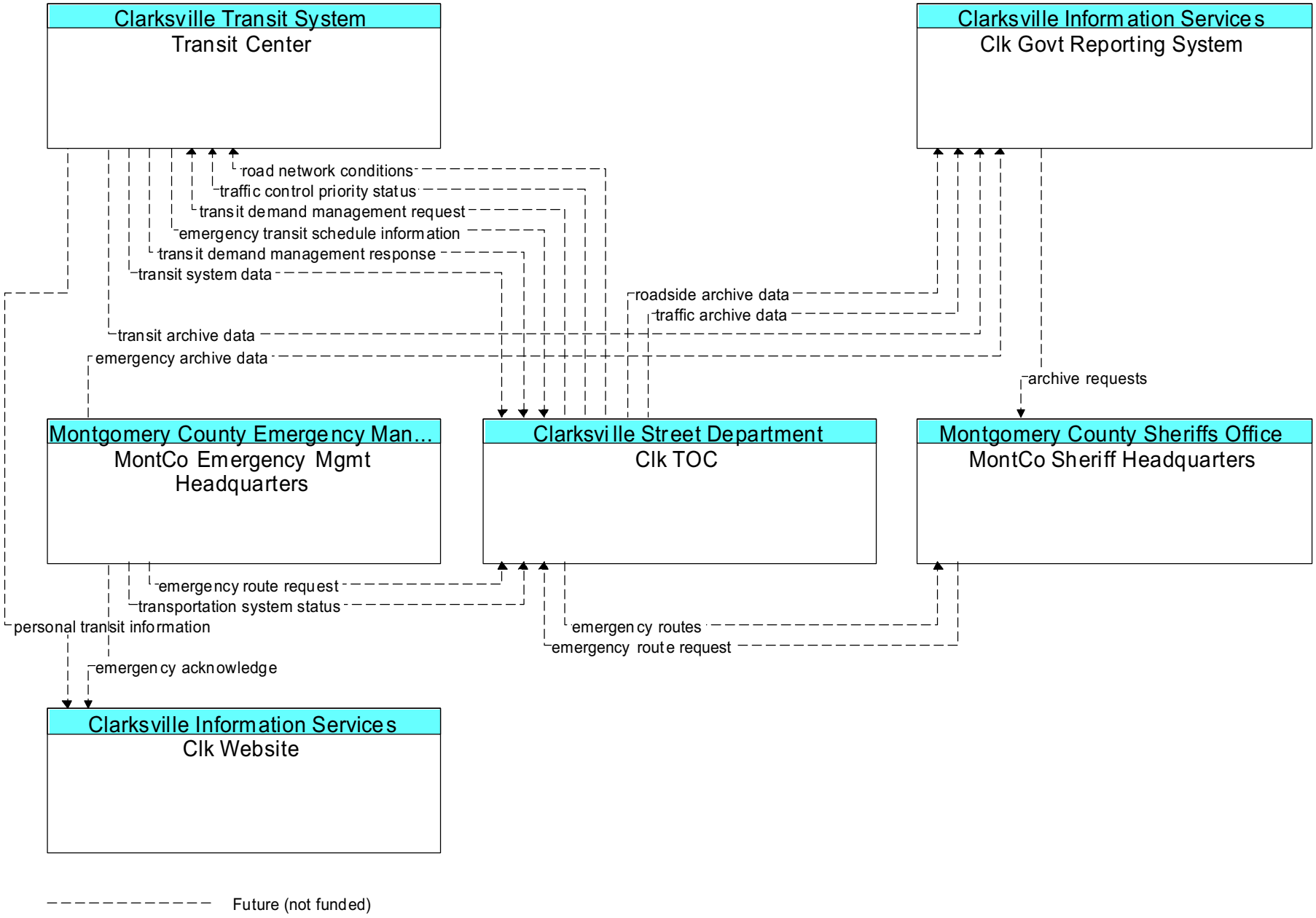


APPENDIX E

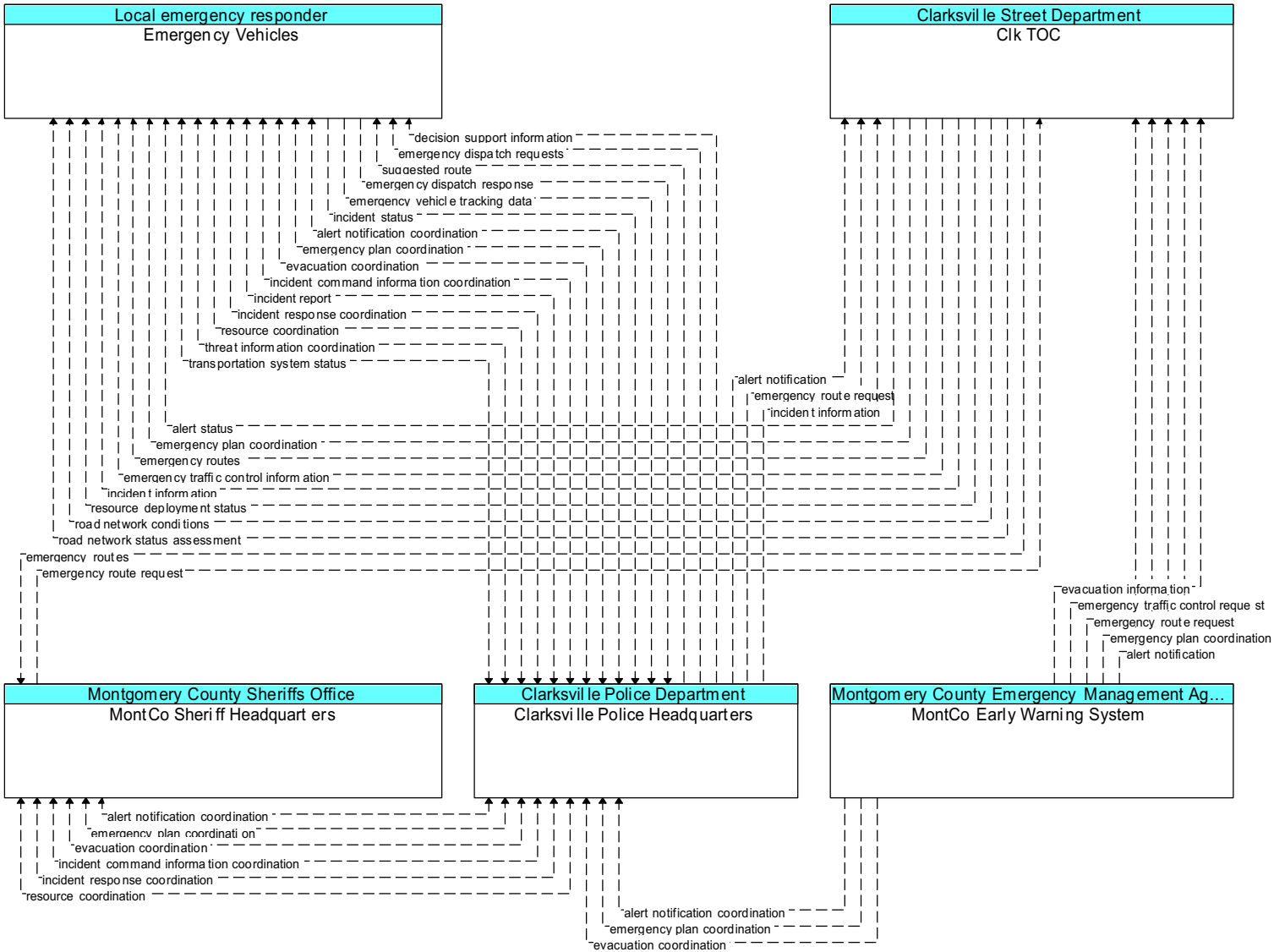
Future Flows - Christian County Highway Department



Future Flows - Clarksville Information Services

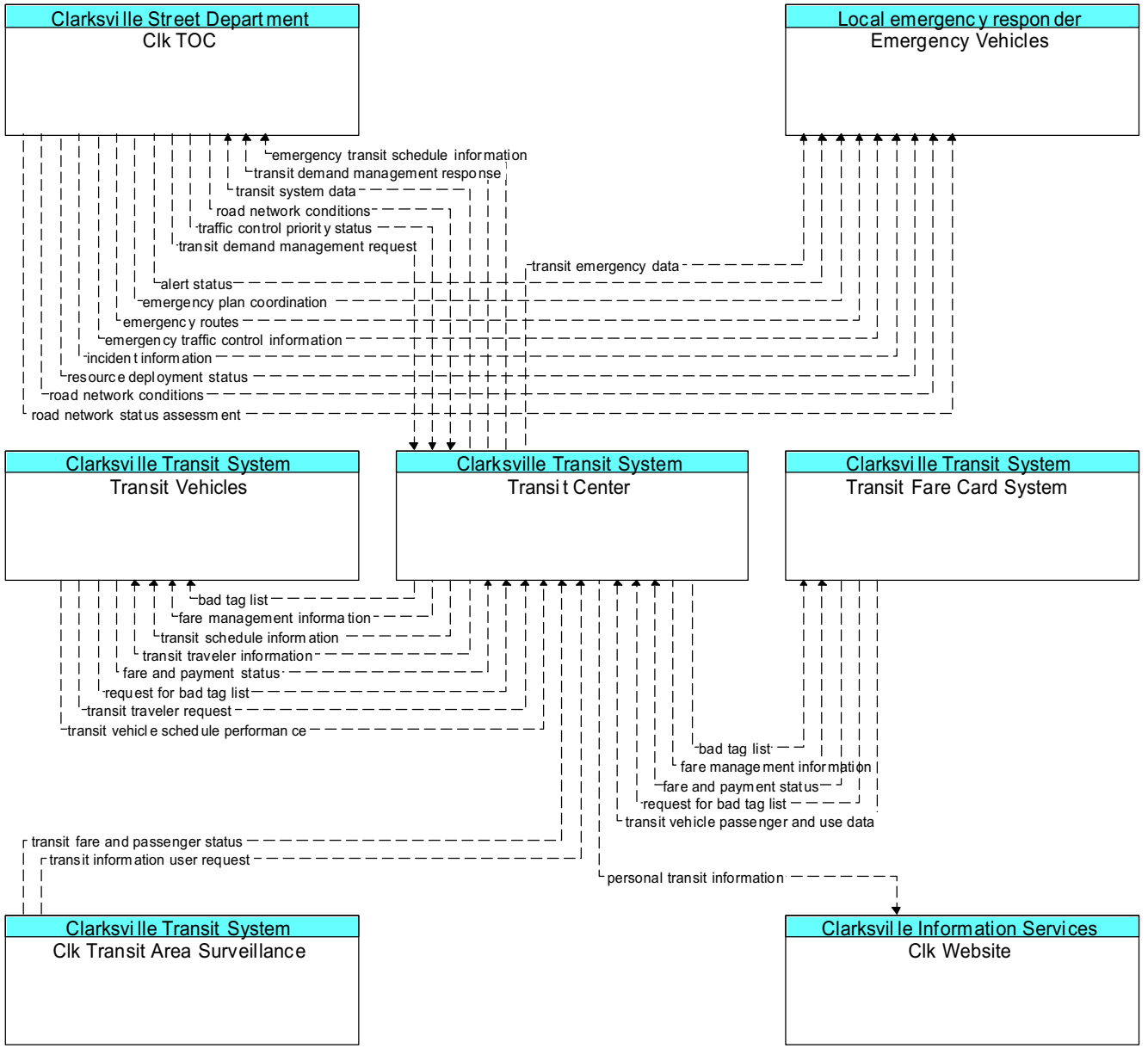


Future Flows - Clarksville Police Department

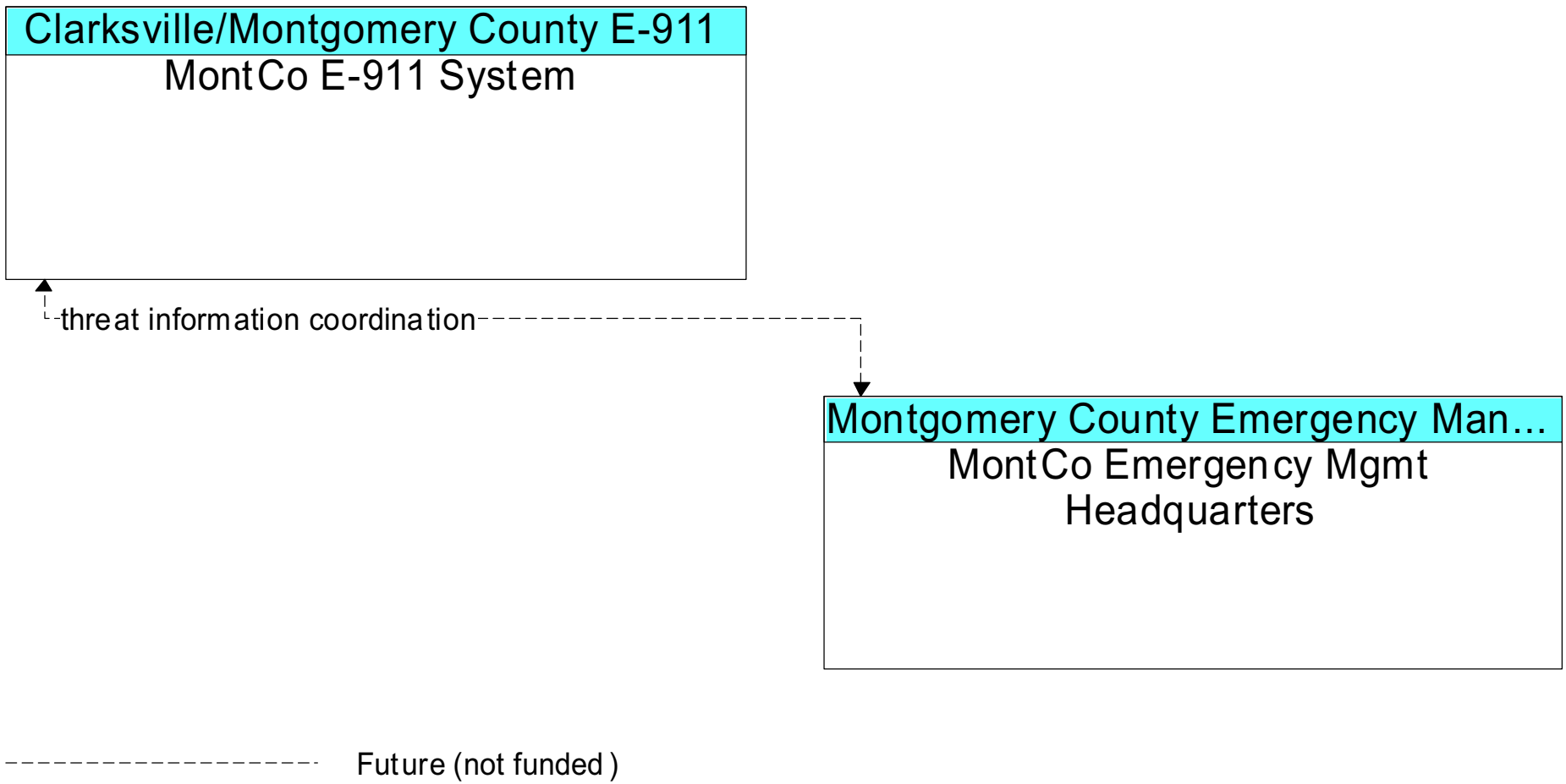


Future Flows - Clarksville Street Department

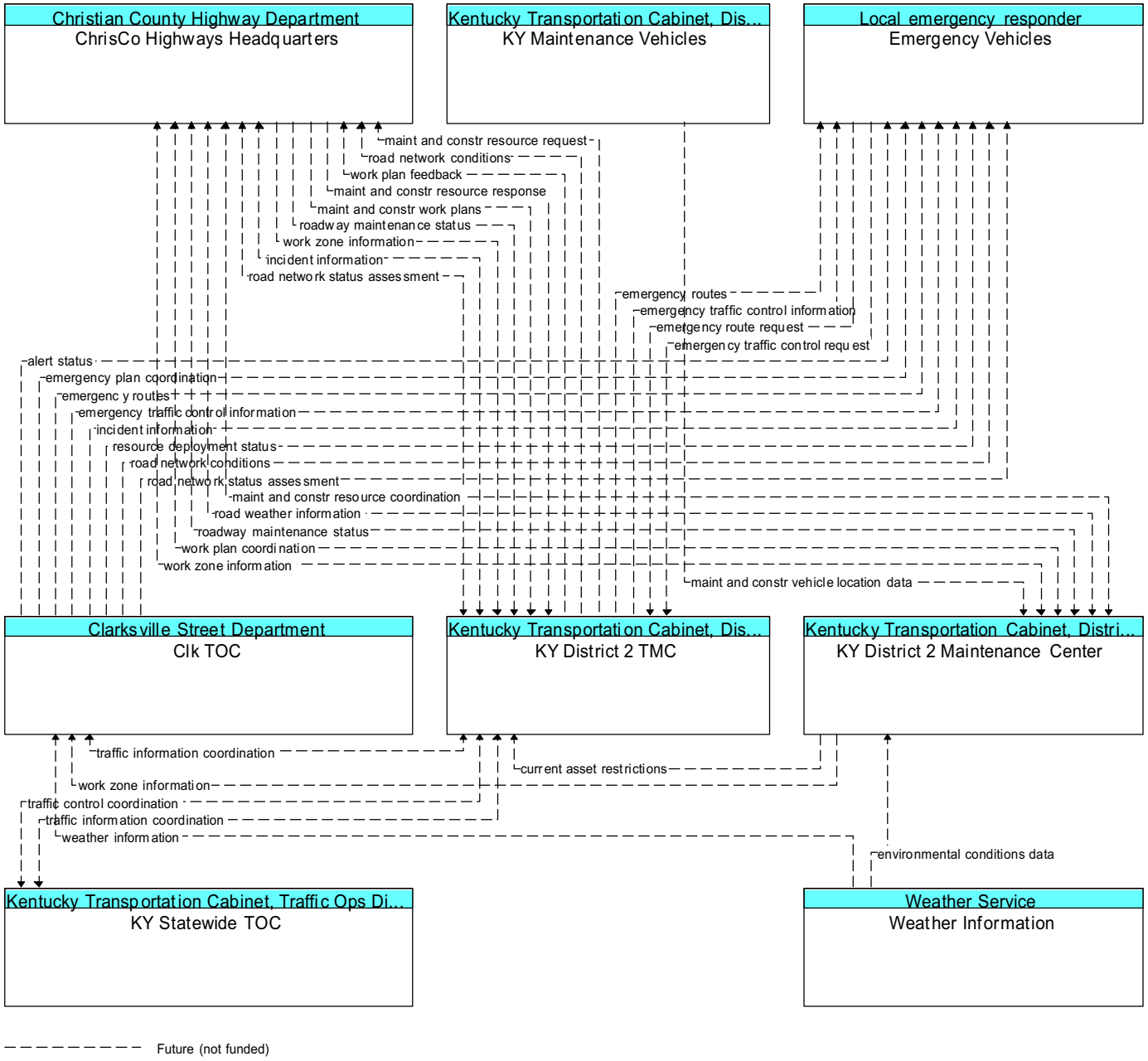
Future Flows - Clarksville Transit System



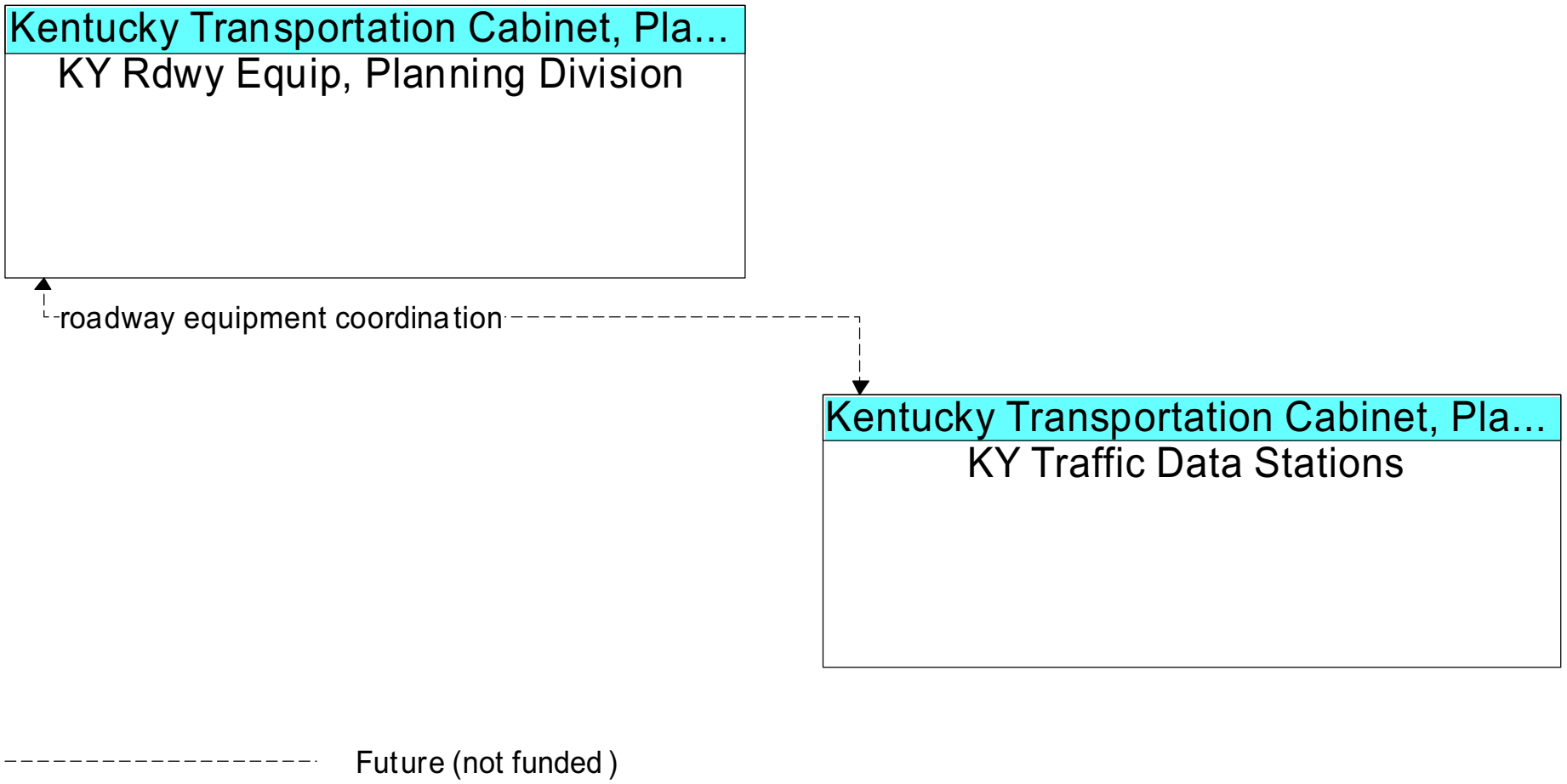
Future Flows - Clarksville/Montgomery County E-911



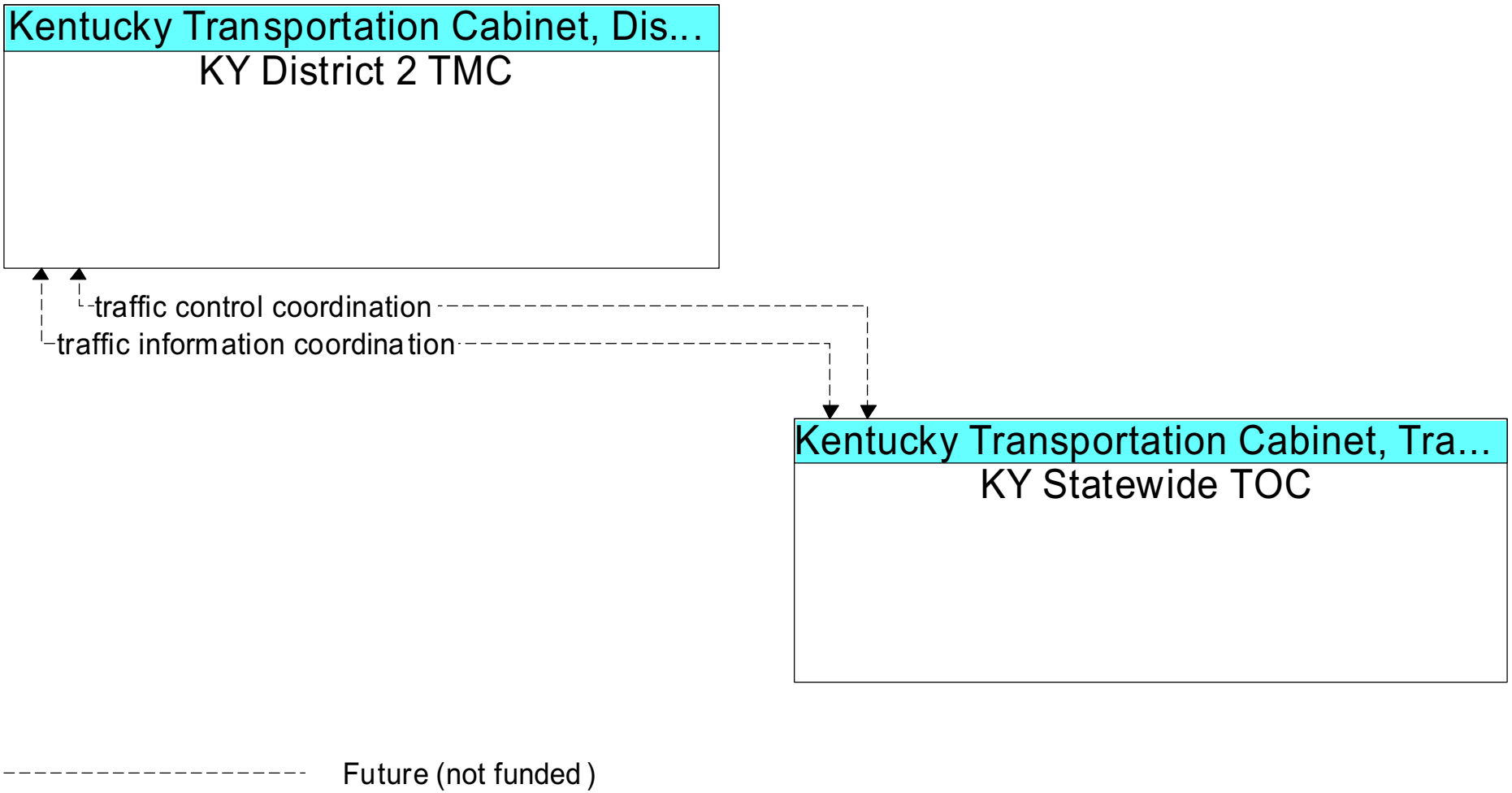
Future Flows - Kentucky Transportation Cabinet, District 2



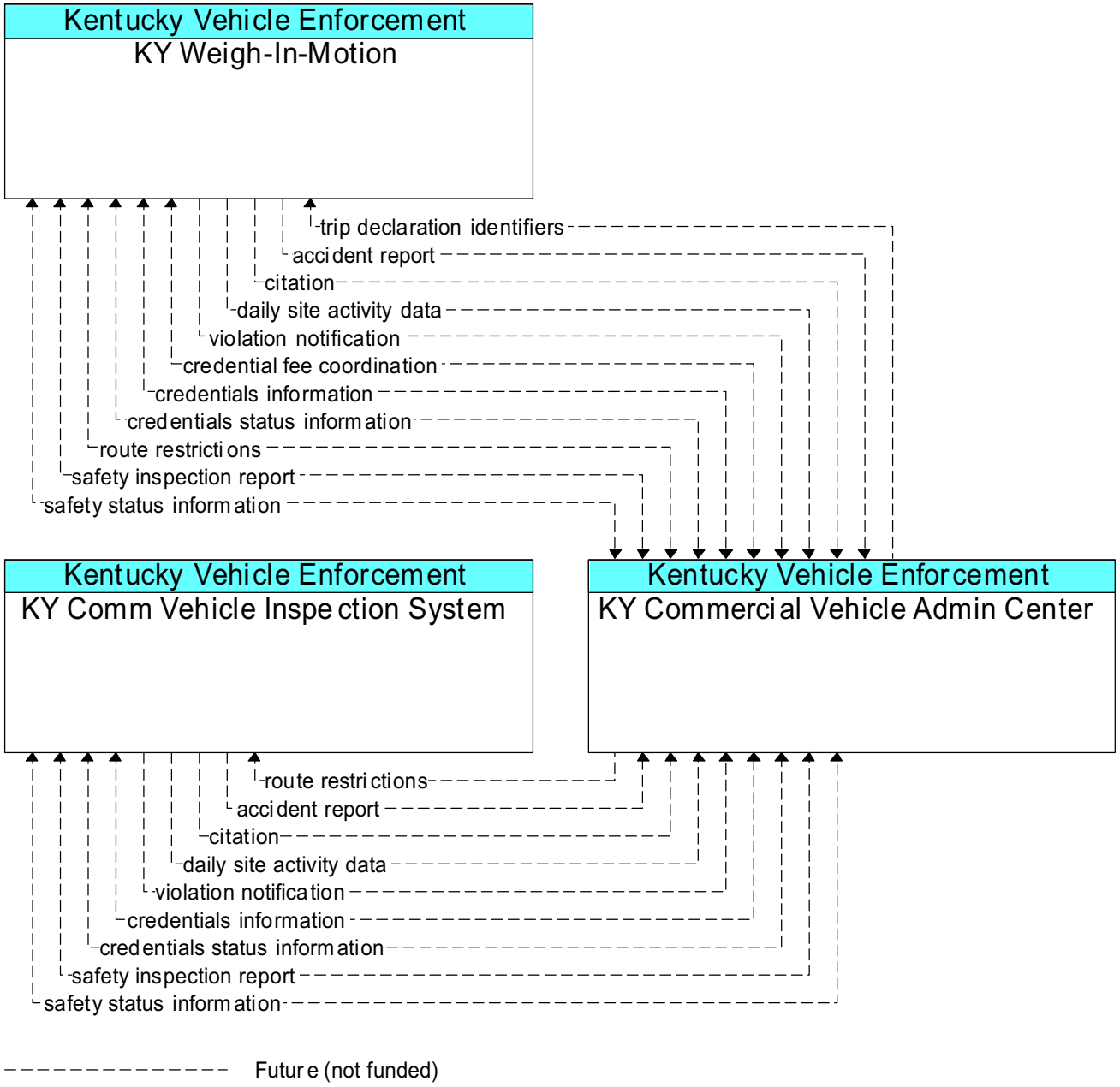
Future Flows - Kentucky Transportation Cabinet, Planning Division



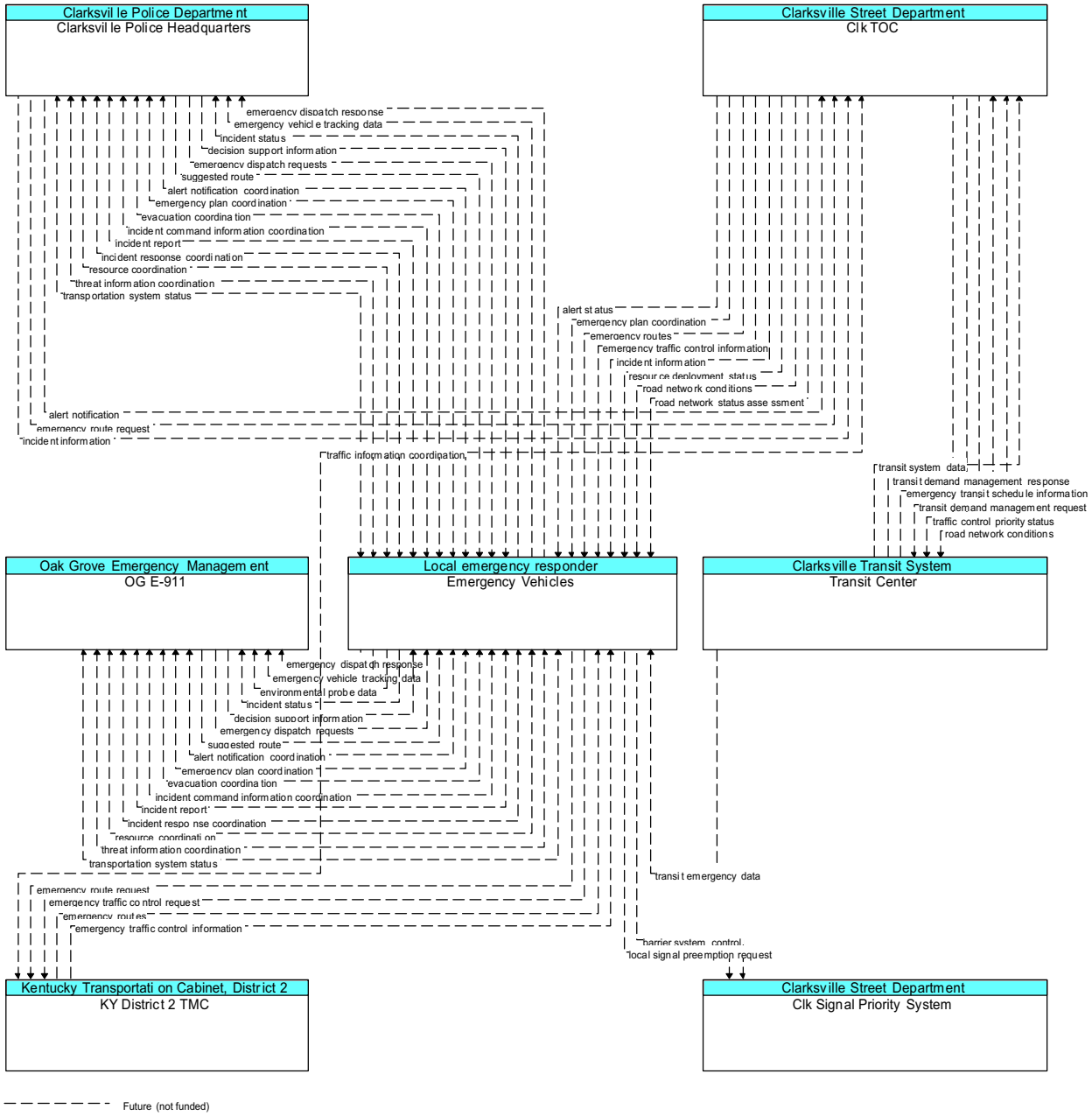
Future Flows - Kentucky Transportation Cabinet, Traffic Operations Division



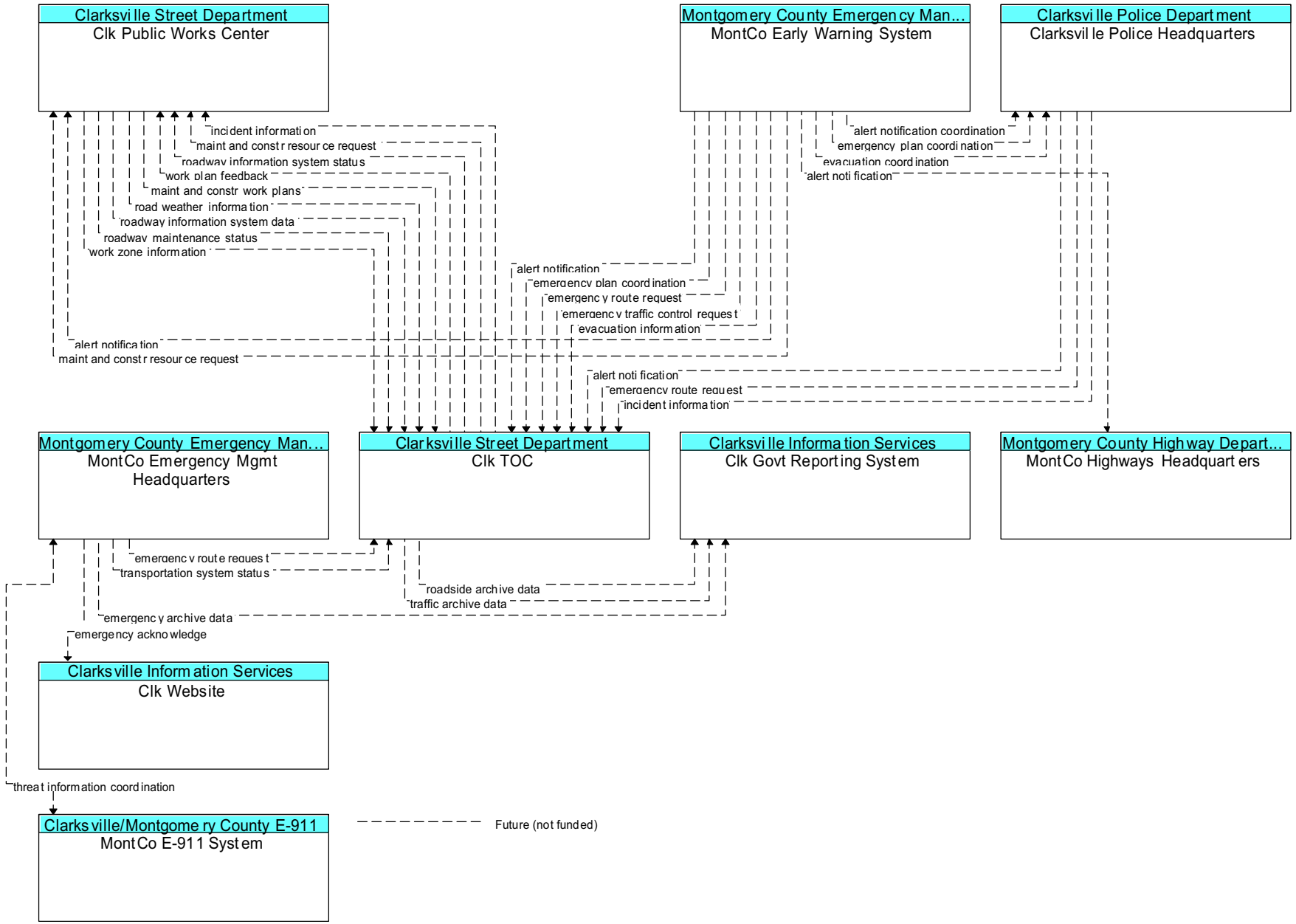
Future Flows - Kentucky Vehicle Enforcement



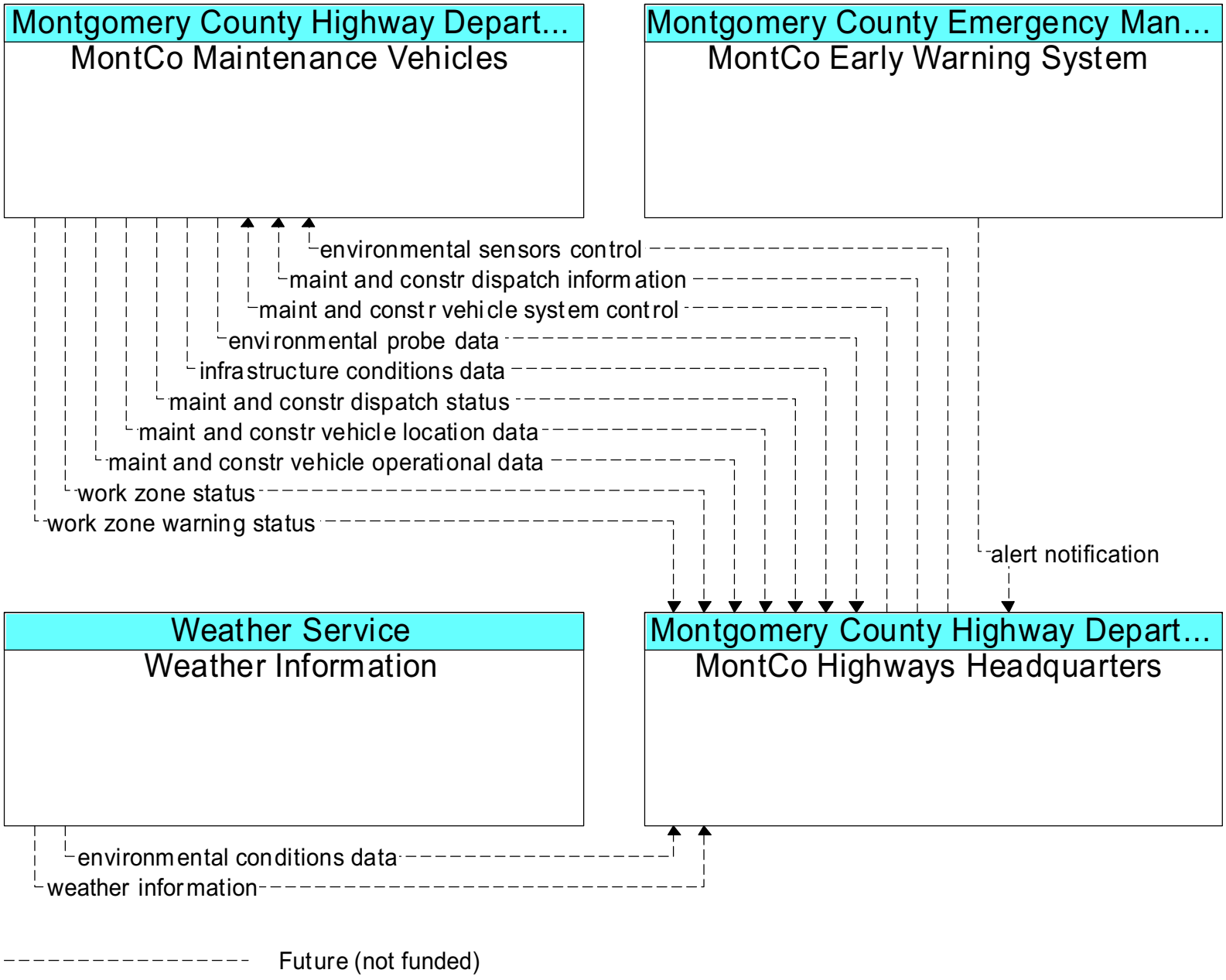
Future Flows - Local Emergency Responders



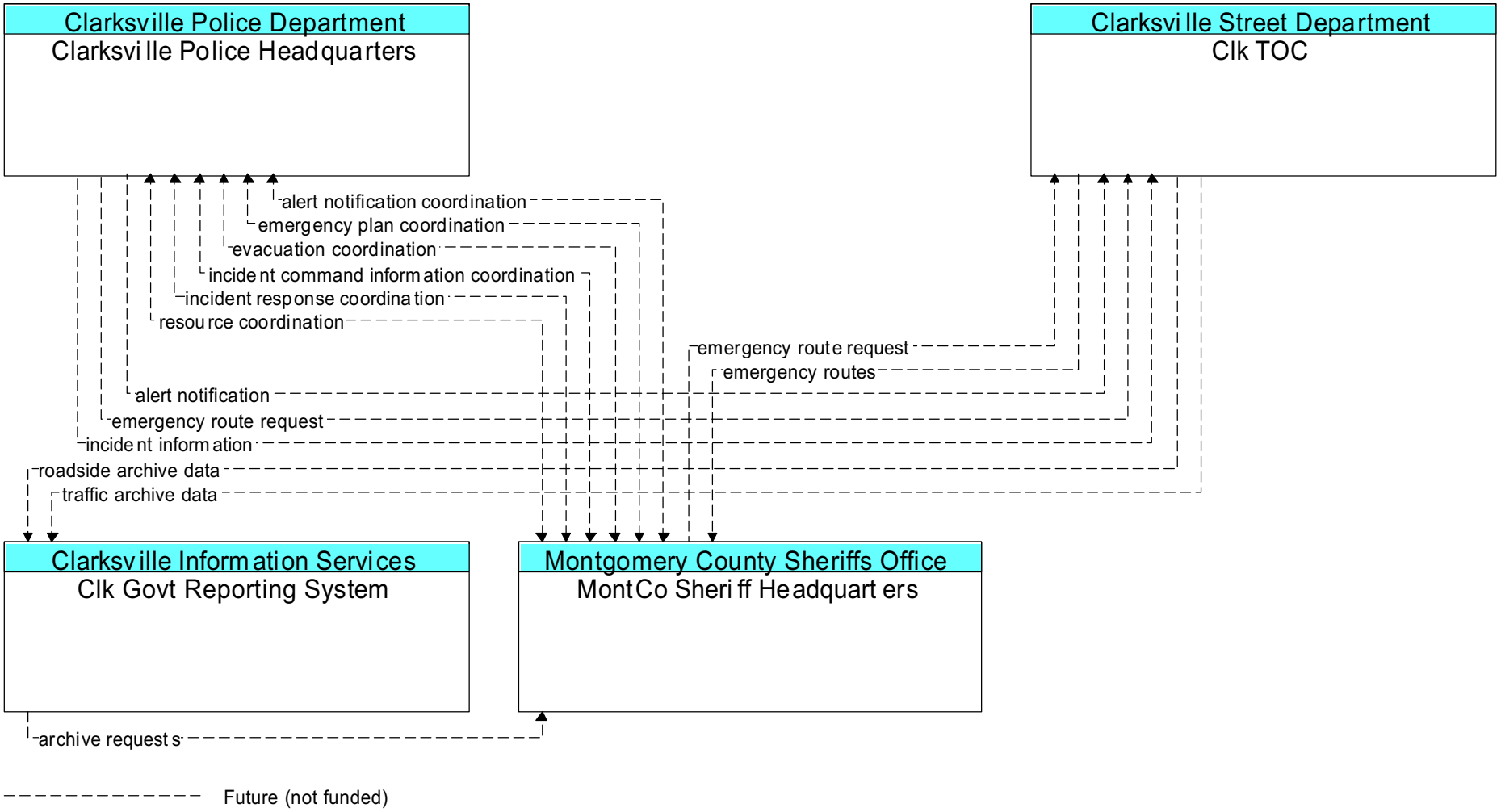
Future Flows - Montgomery County Emergency Management Agency



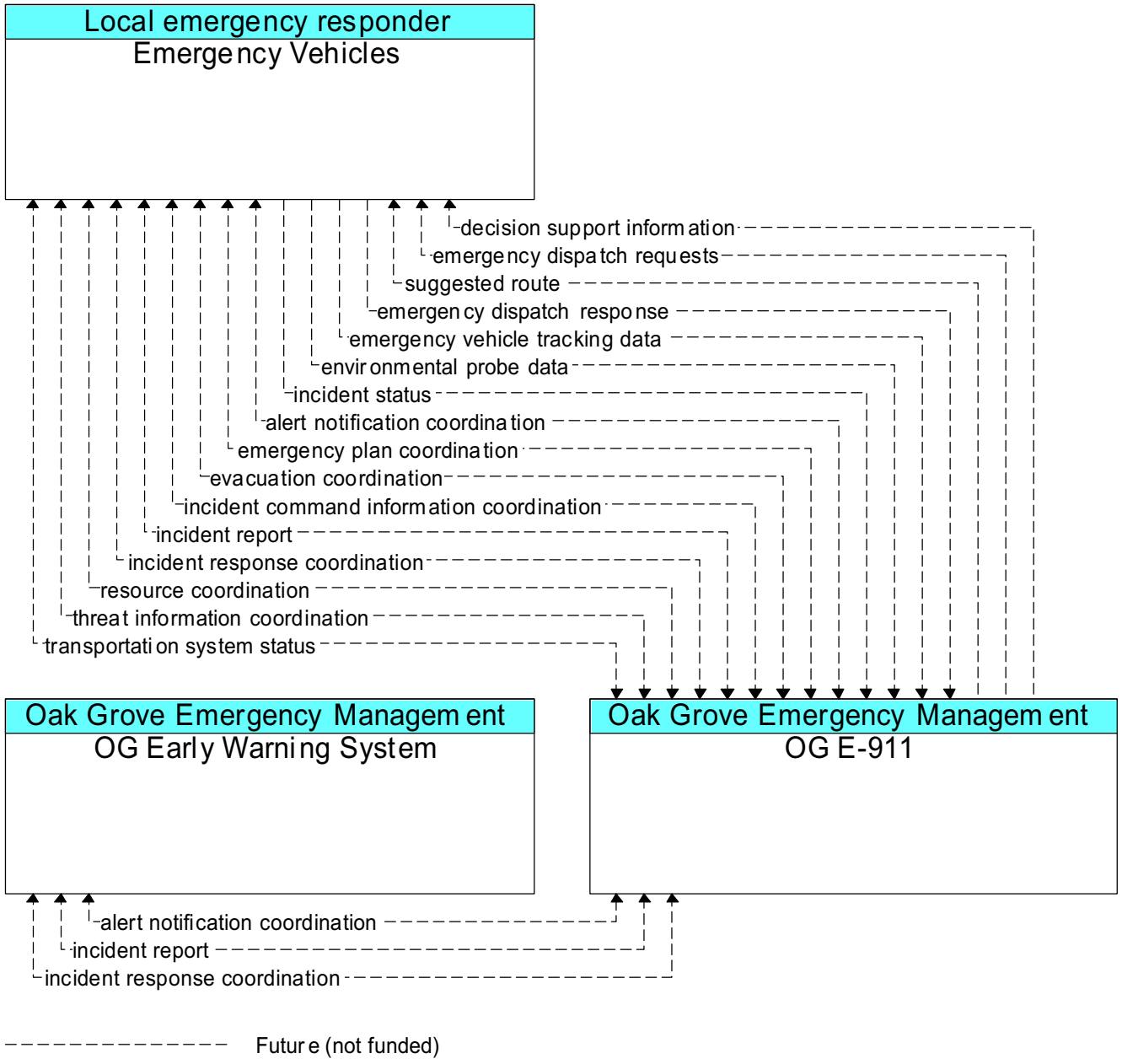
Future Flows - Montgomery County Highway Department



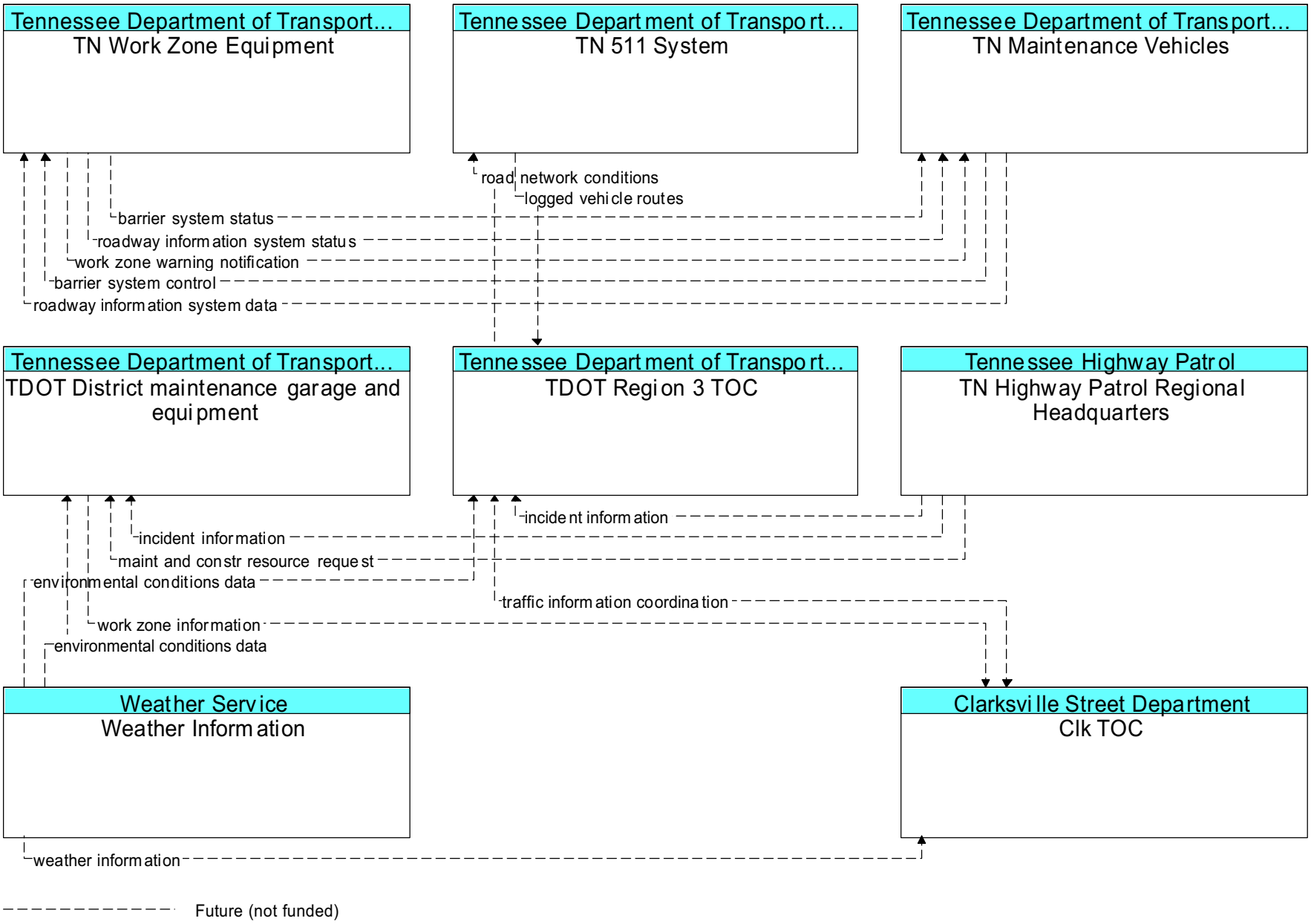
Future Flows - Montgomery County Sheriff's Office



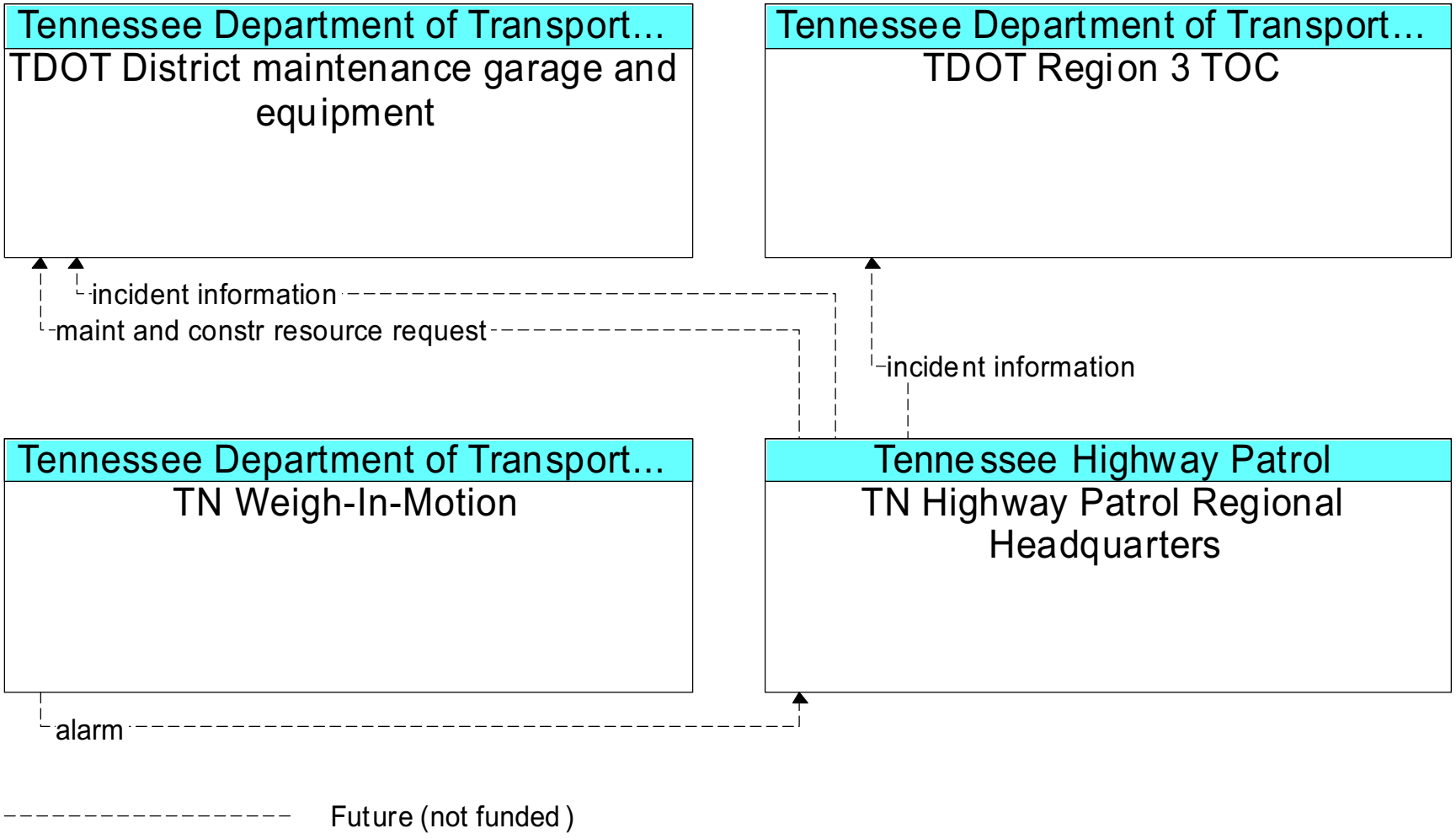
Future Flows - Oak Grove Emergency Management Agency



Future Flows - Tennessee Department of Transportation



Future Flows - Tennessee Highway Patrol



APPENDIX F

Regional Architecture

6/20/2006 7:24:24AM

Clarksville Regional ITS Architecture

FlowName: maint and constr resource coordination	**Status:** Future (not	**In Regional Architecture**
Source: ChrisCo Highways Headquarters	**Destination:** KY District 2 Maintenance Center	
FlowName: road weather information	**Status:** Future (not	**In Regional Architecture**
Source: ChrisCo Highways Headquarters	**Destination:** KY District 2 Maintenance Center	
FlowName: roadway maintenance status	**Status:** Future (not	**In Regional Architecture**
Source: ChrisCo Highways Headquarters	**Destination:** KY District 2 Maintenance Center	
FlowName: work plan coordination	**Status:** Future (not	**In Regional Architecture**
Source: ChrisCo Highways Headquarters	**Destination:** KY District 2 Maintenance Center	
FlowName: work zone information	**Status:** Future (not	**In Regional Architecture**
Source: ChrisCo Highways Headquarters	**Destination:** KY District 2 Maintenance Center	
FlowName: incident information	**Status:** Future (not	**In Regional Architecture**
Source: ChrisCo Highways Headquarters	**Destination:** KY District 2 TMC	
FlowName: maint and constr resource response	**Status:** Future (not	**In Regional Architecture**
Source: ChrisCo Highways Headquarters	**Destination:** KY District 2 TMC	
FlowName: maint and constr work plans	**Status:** Future (not	**In Regional Architecture**
Source: ChrisCo Highways Headquarters	**Destination:** KY District 2 TMC	
FlowName: road network status assessment	**Status:** Future (not	**In Regional Architecture**
Source: ChrisCo Highways Headquarters	**Destination:** KY District 2 TMC	
FlowName: roadway maintenance status	**Status:** Future (not	**In Regional Architecture**
Source: ChrisCo Highways Headquarters	**Destination:** KY District 2 TMC	
FlowName: work zone information	**Status:** Future (not	**In Regional Architecture**
Source: ChrisCo Highways Headquarters	**Destination:** KY District 2 TMC	
FlowName: maint and constr vehicle conditions	**Status:** Future (not	**In Regional Architecture**
Source: ChrisCo Maintenance Vehicles	**Destination:** ChrisCo Highways Headquarters	
FlowName: alert notification	**Status:** Future (not	**In Regional Architecture**
Source: Clarksville Police Headquarters	**Destination:** Clk TOC	
FlowName: emergency route request	**Status:** Future (not	**In Regional Architecture**
Source: Clarksville Police Headquarters	**Destination:** Clk TOC	
FlowName: incident information	**Status:** Future (not	**In Regional Architecture**
Source: Clarksville Police Headquarters	**Destination:** Clk TOC	
FlowName: alert notification coordination	**Status:** Future (not	**In Regional Architecture**
Source: Clarksville Police Headquarters	**Destination:** Emergency Vehicles	

FlowName: decision support information **Status:** Future (not **In Regional Architecture**
Source: Clarksville Police Headquarters **Destination:** Emergency Vehicles

FlowName: emergency dispatch requests **Status:** Future (not **In Regional Architecture**
Source: Clarksville Police Headquarters **Destination:** Emergency Vehicles

FlowName: emergency plan coordination **Status:** Future (not **In Regional Architecture**
Source: Clarksville Police Headquarters **Destination:** Emergency Vehicles

FlowName: evacuation coordination **Status:** Future (not **In Regional Architecture**
Source: Clarksville Police Headquarters **Destination:** Emergency Vehicles

FlowName: incident command information coordination **Status:** Future (not **In Regional Architecture**
Source: Clarksville Police Headquarters **Destination:** Emergency Vehicles

FlowName: incident report **Status:** Future (not **In Regional Architecture**
Source: Clarksville Police Headquarters **Destination:** Emergency Vehicles

FlowName: incident response coordination **Status:** Future (not **In Regional Architecture**
Source: Clarksville Police Headquarters **Destination:** Emergency Vehicles

FlowName: resource coordination **Status:** Future (not **In Regional Architecture**
Source: Clarksville Police Headquarters **Destination:** Emergency Vehicles

FlowName: suggested route **Status:** Future (not **In Regional Architecture**
Source: Clarksville Police Headquarters **Destination:** Emergency Vehicles

FlowName: threat information coordination **Status:** Future (not **In Regional Architecture**
Source: Clarksville Police Headquarters **Destination:** Emergency Vehicles

FlowName: transportation system status **Status:** Future (not **In Regional Architecture**
Source: Clarksville Police Headquarters **Destination:** Emergency Vehicles

FlowName: alert notification coordination **Status:** Future (not **In Regional Architecture**
Source: Clarksville Police Headquarters **Destination:** MontCo Sheriff Headquarters

FlowName: emergency plan coordination **Status:** Future (not **In Regional Architecture**
Source: Clarksville Police Headquarters **Destination:** MontCo Sheriff Headquarters

FlowName: evacuation coordination **Status:** Future (not **In Regional Architecture**
Source: Clarksville Police Headquarters **Destination:** MontCo Sheriff Headquarters

FlowName: incident command information coordination **Status:** Future (not **In Regional Architecture**
Source: Clarksville Police Headquarters **Destination:** MontCo Sheriff Headquarters

FlowName: incident response coordination **Status:** Future (not **In Regional Architecture**
Source: Clarksville Police Headquarters **Destination:** MontCo Sheriff Headquarters

FlowName: resource coordination **Status:** Future (not **In Regional Architecture**
Source: Clarksville Police Headquarters **Destination:** MontCo Sheriff Headquarters

FlowName: archive requests **Status:** Future (not **In Regional Architecture**
Source: Clk Govt Reporting System **Destination:** MontCo Sheriff Headquarters

FlowName: environmental probe data	**Status:** Future (not	**In Regional Architecture**
Source: Clk Maintenance Vehicles	**Destination:** Clk Public Works Center	
FlowName: maint and constr dispatch status	**Status:** Future (not	**In Regional Architecture**
Source: Clk Maintenance Vehicles	**Destination:** Clk Public Works Center	
FlowName: maint and constr resource request	**Status:** Future (not	**In Regional Architecture**
Source: Clk Maintenance Vehicles	**Destination:** Clk Public Works Center	
FlowName: maint and constr vehicle location data	**Status:** Future (not	**In Regional Architecture**
Source: Clk Maintenance Vehicles	**Destination:** Clk Public Works Center	
FlowName: maint and constr vehicle operational data	**Status:** Future (not	**In Regional Architecture**
Source: Clk Maintenance Vehicles	**Destination:** Clk Public Works Center	
FlowName: road network conditions	**Status:** Future (not	**In Regional Architecture**
Source: Clk Maintenance Vehicles	**Destination:** Clk Public Works Center	
FlowName: road weather information	**Status:** Future (not	**In Regional Architecture**
Source: Clk Maintenance Vehicles	**Destination:** Clk Public Works Center	
FlowName: roadway maintenance status	**Status:** Future (not	**In Regional Architecture**
Source: Clk Maintenance Vehicles	**Destination:** Clk Public Works Center	
FlowName: work zone information	**Status:** Future (not	**In Regional Architecture**
Source: Clk Maintenance Vehicles	**Destination:** Clk Public Works Center	
FlowName: work zone status	**Status:** Future (not	**In Regional Architecture**
Source: Clk Maintenance Vehicles	**Destination:** Clk Public Works Center	
FlowName: environmental sensors control	**Status:** Future (not	**In Regional Architecture**
Source: Clk Public Works Center	**Destination:** Clk Maintenance Vehicles	
FlowName: incident information	**Status:** Future (not	**In Regional Architecture**
Source: Clk Public Works Center	**Destination:** Clk Maintenance Vehicles	
FlowName: maint and constr dispatch information	**Status:** Future (not	**In Regional Architecture**
Source: Clk Public Works Center	**Destination:** Clk Maintenance Vehicles	
FlowName: maint and constr resource response	**Status:** Future (not	**In Regional Architecture**
Source: Clk Public Works Center	**Destination:** Clk Maintenance Vehicles	
FlowName: maint and constr vehicle system control	**Status:** Future (not	**In Regional Architecture**
Source: Clk Public Works Center	**Destination:** Clk Maintenance Vehicles	
FlowName: road weather information	**Status:** Future (not	**In Regional Architecture**
Source: Clk Public Works Center	**Destination:** Clk Maintenance Vehicles	
FlowName: roadway maintenance status	**Status:** Future (not	**In Regional Architecture**
Source: Clk Public Works Center	**Destination:** Clk Maintenance Vehicles	
FlowName: work zone information	**Status:** Future (not	**In Regional Architecture**
Source: Clk Public Works Center	**Destination:** Clk Maintenance Vehicles	

FlowName: maint and constr work plans	**Status:** Future (not	**In Regional Architecture**
Source: Clk Public Works Center	**Destination:** Clk TOC	
FlowName: road weather information	**Status:** Future (not	**In Regional Architecture**
Source: Clk Public Works Center	**Destination:** Clk TOC	
FlowName: roadway information system data	**Status:** Future (not	**In Regional Architecture**
Source: Clk Public Works Center	**Destination:** Clk TOC	
FlowName: roadway maintenance status	**Status:** Future (not	**In Regional Architecture**
Source: Clk Public Works Center	**Destination:** Clk TOC	
FlowName: work zone information	**Status:** Future (not	**In Regional Architecture**
Source: Clk Public Works Center	**Destination:** Clk TOC	
FlowName: roadside archive data	**Status:** Future (not	**In Regional Architecture**
Source: Clk TOC	**Destination:** Clk Govt Reporting System	
FlowName: traffic archive data	**Status:** Future (not	**In Regional Architecture**
Source: Clk TOC	**Destination:** Clk Govt Reporting System	
FlowName: incident information	**Status:** Future (not	**In Regional Architecture**
Source: Clk TOC	**Destination:** Clk Public Works Center	
FlowName: maint and constr resource request	**Status:** Future (not	**In Regional Architecture**
Source: Clk TOC	**Destination:** Clk Public Works Center	
FlowName: roadway information system status	**Status:** Future (not	**In Regional Architecture**
Source: Clk TOC	**Destination:** Clk Public Works Center	
FlowName: work plan feedback	**Status:** Future (not	**In Regional Architecture**
Source: Clk TOC	**Destination:** Clk Public Works Center	
FlowName: alert status	**Status:** Future (not	**In Regional Architecture**
Source: Clk TOC	**Destination:** Emergency Vehicles	
FlowName: emergency plan coordination	**Status:** Future (not	**In Regional Architecture**
Source: Clk TOC	**Destination:** Emergency Vehicles	
FlowName: emergency routes	**Status:** Future (not	**In Regional Architecture**
Source: Clk TOC	**Destination:** Emergency Vehicles	
FlowName: emergency traffic control information	**Status:** Future (not	**In Regional Architecture**
Source: Clk TOC	**Destination:** Emergency Vehicles	
FlowName: incident information	**Status:** Future (not	**In Regional Architecture**
Source: Clk TOC	**Destination:** Emergency Vehicles	
FlowName: resource deployment status	**Status:** Future (not	**In Regional Architecture**
Source: Clk TOC	**Destination:** Emergency Vehicles	
FlowName: road network conditions	**Status:** Future (not	**In Regional Architecture**
Source: Clk TOC	**Destination:** Emergency Vehicles	

FlowName: road network status assessment	**Status:** Future (not	**In Regional Architecture**
Source: Clk TOC	**Destination:** Emergency Vehicles	
FlowName: traffic information coordination	**Status:** Future (not	**In Regional Architecture**
Source: Clk TOC	**Destination:** KY District 2 TMC	
FlowName: emergency routes	**Status:** Future (not	**In Regional Architecture**
Source: Clk TOC	**Destination:** MontCo Sheriff Headquarters	
FlowName: traffic information coordination	**Status:** Future (not	**In Regional Architecture**
Source: Clk TOC	**Destination:** TDOT Region 3 TOC	
FlowName: road network conditions	**Status:** Future (not	**In Regional Architecture**
Source: Clk TOC	**Destination:** Transit Center	
FlowName: traffic control priority status	**Status:** Future (not	**In Regional Architecture**
Source: Clk TOC	**Destination:** Transit Center	
FlowName: transit demand management request	**Status:** Future (not	**In Regional Architecture**
Source: Clk TOC	**Destination:** Transit Center	
FlowName: environmental conditions data	**Status:** Future (not	**In Regional Architecture**
Source: Clk Traffic Data Stations	**Destination:** Clk TOC	
FlowName: intersection blockage notification	**Status:** Future (not	**In Regional Architecture**
Source: Clk Traffic Data Stations	**Destination:** Clk TOC	
FlowName: speed monitoring information	**Status:** Future (not	**In Regional Architecture**
Source: Clk Traffic Data Stations	**Destination:** Clk TOC	
FlowName: traffic flow	**Status:** Future (not	**In Regional Architecture**
Source: Clk Traffic Data Stations	**Destination:** Clk TOC	
FlowName: transit fare and passenger status	**Status:** Future (not	**In Regional Architecture**
Source: Clk Transit Area Surveillance	**Destination:** Transit Center	
FlowName: transit information user request	**Status:** Future (not	**In Regional Architecture**
Source: Clk Transit Area Surveillance	**Destination:** Transit Center	
FlowName: alert notification coordination	**Status:** Future (not	**In Regional Architecture**
Source: Emergency Vehicles	**Destination:** Clarksville Police Headquarters	
FlowName: emergency dispatch response	**Status:** Future (not	**In Regional Architecture**
Source: Emergency Vehicles	**Destination:** Clarksville Police Headquarters	
FlowName: emergency plan coordination	**Status:** Future (not	**In Regional Architecture**
Source: Emergency Vehicles	**Destination:** Clarksville Police Headquarters	
FlowName: emergency vehicle tracking data	**Status:** Future (not	**In Regional Architecture**
Source: Emergency Vehicles	**Destination:** Clarksville Police Headquarters	
FlowName: evacuation coordination	**Status:** Future (not	**In Regional Architecture**
Source: Emergency Vehicles	**Destination:** Clarksville Police Headquarters	

FlowName: incident command information coordination	**Status:** Future (not	**In Regional Architecture**
Source: Emergency Vehicles	**Destination:** Clarksville Police Headquarters	
FlowName: incident report	**Status:** Future (not	**In Regional Architecture**
Source: Emergency Vehicles	**Destination:** Clarksville Police Headquarters	
FlowName: incident response coordination	**Status:** Future (not	**In Regional Architecture**
Source: Emergency Vehicles	**Destination:** Clarksville Police Headquarters	
FlowName: incident status	**Status:** Future (not	**In Regional Architecture**
Source: Emergency Vehicles	**Destination:** Clarksville Police Headquarters	
FlowName: resource coordination	**Status:** Future (not	**In Regional Architecture**
Source: Emergency Vehicles	**Destination:** Clarksville Police Headquarters	
FlowName: threat information coordination	**Status:** Future (not	**In Regional Architecture**
Source: Emergency Vehicles	**Destination:** Clarksville Police Headquarters	
FlowName: transportation system status	**Status:** Future (not	**In Regional Architecture**
Source: Emergency Vehicles	**Destination:** Clarksville Police Headquarters	
FlowName: barrier system control	**Status:** Future (not	**In Regional Architecture**
Source: Emergency Vehicles	**Destination:** Clk Signal Priority System	
FlowName: local signal preemption request	**Status:** Future (not	**In Regional Architecture**
Source: Emergency Vehicles	**Destination:** Clk Signal Priority System	
FlowName: emergency route request	**Status:** Future (not	**In Regional Architecture**
Source: Emergency Vehicles	**Destination:** KY District 2 TMC	
FlowName: emergency traffic control request	**Status:** Future (not	**In Regional Architecture**
Source: Emergency Vehicles	**Destination:** KY District 2 TMC	
FlowName: alert notification coordination	**Status:** Future (not	**In Regional Architecture**
Source: Emergency Vehicles	**Destination:** OG E-911	
FlowName: emergency dispatch response	**Status:** Future (not	**In Regional Architecture**
Source: Emergency Vehicles	**Destination:** OG E-911	
FlowName: emergency plan coordination	**Status:** Future (not	**In Regional Architecture**
Source: Emergency Vehicles	**Destination:** OG E-911	
FlowName: emergency vehicle tracking data	**Status:** Future (not	**In Regional Architecture**
Source: Emergency Vehicles	**Destination:** OG E-911	
FlowName: environmental probe data	**Status:** Future (not	**In Regional Architecture**
Source: Emergency Vehicles	**Destination:** OG E-911	
FlowName: evacuation coordination	**Status:** Future (not	**In Regional Architecture**
Source: Emergency Vehicles	**Destination:** OG E-911	
FlowName: incident command information coordination	**Status:** Future (not	**In Regional Architecture**
Source: Emergency Vehicles	**Destination:** OG E-911	

FlowName: incident report	**Status:** Future (not	**In Regional Architecture**
Source: Emergency Vehicles	**Destination:** OG E-911	
FlowName: incident response coordination	**Status:** Future (not	**In Regional Architecture**
Source: Emergency Vehicles	**Destination:** OG E-911	
FlowName: incident status	**Status:** Future (not	**In Regional Architecture**
Source: Emergency Vehicles	**Destination:** OG E-911	
FlowName: resource coordination	**Status:** Future (not	**In Regional Architecture**
Source: Emergency Vehicles	**Destination:** OG E-911	
FlowName: threat information coordination	**Status:** Future (not	**In Regional Architecture**
Source: Emergency Vehicles	**Destination:** OG E-911	
FlowName: transportation system status	**Status:** Future (not	**In Regional Architecture**
Source: Emergency Vehicles	**Destination:** OG E-911	
FlowName: accident report	**Status:** Future (not	**In Regional Architecture**
Source: KY Comm Vehicle Inspection System	**Destination:** KY Commercial Vehicle Admin Center	
FlowName: citation	**Status:** Future (not	**In Regional Architecture**
Source: KY Comm Vehicle Inspection System	**Destination:** KY Commercial Vehicle Admin Center	
FlowName: credentials information	**Status:** Future (not	**In Regional Architecture**
Source: KY Comm Vehicle Inspection System	**Destination:** KY Commercial Vehicle Admin Center	
FlowName: credentials status information	**Status:** Future (not	**In Regional Architecture**
Source: KY Comm Vehicle Inspection System	**Destination:** KY Commercial Vehicle Admin Center	
FlowName: daily site activity data	**Status:** Future (not	**In Regional Architecture**
Source: KY Comm Vehicle Inspection System	**Destination:** KY Commercial Vehicle Admin Center	
FlowName: safety inspection report	**Status:** Future (not	**In Regional Architecture**
Source: KY Comm Vehicle Inspection System	**Destination:** KY Commercial Vehicle Admin Center	
FlowName: safety status information	**Status:** Future (not	**In Regional Architecture**
Source: KY Comm Vehicle Inspection System	**Destination:** KY Commercial Vehicle Admin Center	
FlowName: violation notification	**Status:** Future (not	**In Regional Architecture**
Source: KY Comm Vehicle Inspection System	**Destination:** KY Commercial Vehicle Admin Center	
FlowName: credentials information	**Status:** Future (not	**In Regional Architecture**
Source: KY Commercial Vehicle Admin Center	**Destination:** KY Comm Vehicle Inspection System	
FlowName: credentials status information	**Status:** Future (not	**In Regional Architecture**
Source: KY Commercial Vehicle Admin Center	**Destination:** KY Comm Vehicle Inspection System	
FlowName: route restrictions	**Status:** Future (not	**In Regional Architecture**
Source: KY Commercial Vehicle Admin Center	**Destination:** KY Comm Vehicle Inspection System	
FlowName: safety inspection report	**Status:** Future (not	**In Regional Architecture**
Source: KY Commercial Vehicle Admin Center	**Destination:** KY Comm Vehicle Inspection System	

FlowName: safety status information **Status:** Future (not **In Regional Architecture**
Source: KY Commercial Vehicle Admin Center **Destination:** KY Comm Vehicle Inspection System

FlowName: credential fee coordination **Status:** Future (not **In Regional Architecture**
Source: KY Commercial Vehicle Admin Center **Destination:** KY Weigh-In-Motion

FlowName: credentials information **Status:** Future (not **In Regional Architecture**
Source: KY Commercial Vehicle Admin Center **Destination:** KY Weigh-In-Motion

FlowName: credentials status information **Status:** Future (not **In Regional Architecture**
Source: KY Commercial Vehicle Admin Center **Destination:** KY Weigh-In-Motion

FlowName: route restrictions **Status:** Future (not **In Regional Architecture**
Source: KY Commercial Vehicle Admin Center **Destination:** KY Weigh-In-Motion

FlowName: safety inspection report **Status:** Future (not **In Regional Architecture**
Source: KY Commercial Vehicle Admin Center **Destination:** KY Weigh-In-Motion

FlowName: safety status information **Status:** Future (not **In Regional Architecture**
Source: KY Commercial Vehicle Admin Center **Destination:** KY Weigh-In-Motion

FlowName: trip declaration identifiers **Status:** Future (not **In Regional Architecture**
Source: KY Commercial Vehicle Admin Center **Destination:** KY Weigh-In-Motion

FlowName: maint and constr resource coordination **Status:** Future (not **In Regional Architecture**
Source: KY District 2 Maintenance Center **Destination:** ChrisCo Highways Headquarters

FlowName: road weather information **Status:** Future (not **In Regional Architecture**
Source: KY District 2 Maintenance Center **Destination:** ChrisCo Highways Headquarters

FlowName: roadway maintenance status **Status:** Future (not **In Regional Architecture**
Source: KY District 2 Maintenance Center **Destination:** ChrisCo Highways Headquarters

FlowName: work plan coordination **Status:** Future (not **In Regional Architecture**
Source: KY District 2 Maintenance Center **Destination:** ChrisCo Highways Headquarters

FlowName: work zone information **Status:** Future (not **In Regional Architecture**
Source: KY District 2 Maintenance Center **Destination:** ChrisCo Highways Headquarters

FlowName: work zone information **Status:** Future (not **In Regional Architecture**
Source: KY District 2 Maintenance Center **Destination:** Clk TOC

FlowName: current asset restrictions **Status:** Future (not **In Regional Architecture**
Source: KY District 2 Maintenance Center **Destination:** KY District 2 TMC

FlowName: incident information **Status:** Future (not **In Regional Architecture**
Source: KY District 2 TMC **Destination:** ChrisCo Highways Headquarters

FlowName: maint and constr resource request **Status:** Future (not **In Regional Architecture**
Source: KY District 2 TMC **Destination:** ChrisCo Highways Headquarters

FlowName: road network conditions **Status:** Future (not **In Regional Architecture**
Source: KY District 2 TMC **Destination:** ChrisCo Highways Headquarters

FlowName: road network status assessment	**Status:** Future (not	**In Regional Architecture**
Source: KY District 2 TMC	**Destination:** ChrisCo Highways Headquarters	
FlowName: work plan feedback	**Status:** Future (not	**In Regional Architecture**
Source: KY District 2 TMC	**Destination:** ChrisCo Highways Headquarters	
FlowName: traffic information coordination	**Status:** Future (not	**In Regional Architecture**
Source: KY District 2 TMC	**Destination:** Clk TOC	
FlowName: emergency routes	**Status:** Future (not	**In Regional Architecture**
Source: KY District 2 TMC	**Destination:** Emergency Vehicles	
FlowName: emergency traffic control information	**Status:** Future (not	**In Regional Architecture**
Source: KY District 2 TMC	**Destination:** Emergency Vehicles	
FlowName: traffic control coordination	**Status:** Future (not	**In Regional Architecture**
Source: KY District 2 TMC	**Destination:** KY Statewide TOC	
FlowName: traffic information coordination	**Status:** Future (not	**In Regional Architecture**
Source: KY District 2 TMC	**Destination:** KY Statewide TOC	
FlowName: maint and constr vehicle location data	**Status:** Future (not	**In Regional Architecture**
Source: KY Maintenance Vehicles	**Destination:** KY District 2 Maintenance Center	
FlowName: roadway equipment coordination	**Status:** Future (not	**In Regional Architecture**
Source: KY Rdwy Equip, Planning Division	**Destination:** KY Traffic Data Stations	
FlowName: traffic control coordination	**Status:** Future (not	**In Regional Architecture**
Source: KY Statewide TOC	**Destination:** KY District 2 TMC	
FlowName: traffic information coordination	**Status:** Future (not	**In Regional Architecture**
Source: KY Statewide TOC	**Destination:** KY District 2 TMC	
FlowName: roadway equipment coordination	**Status:** Future (not	**In Regional Architecture**
Source: KY Traffic Data Stations	**Destination:** KY Rdwy Equip, Planning Division	
FlowName: accident report	**Status:** Future (not	**In Regional Architecture**
Source: KY Weigh-In-Motion	**Destination:** KY Commercial Vehicle Admin Center	
FlowName: citation	**Status:** Future (not	**In Regional Architecture**
Source: KY Weigh-In-Motion	**Destination:** KY Commercial Vehicle Admin Center	
FlowName: credential fee coordination	**Status:** Future (not	**In Regional Architecture**
Source: KY Weigh-In-Motion	**Destination:** KY Commercial Vehicle Admin Center	
FlowName: credentials information	**Status:** Future (not	**In Regional Architecture**
Source: KY Weigh-In-Motion	**Destination:** KY Commercial Vehicle Admin Center	
FlowName: credentials status information	**Status:** Future (not	**In Regional Architecture**
Source: KY Weigh-In-Motion	**Destination:** KY Commercial Vehicle Admin Center	
FlowName: daily site activity data	**Status:** Future (not	**In Regional Architecture**
Source: KY Weigh-In-Motion	**Destination:** KY Commercial Vehicle Admin Center	

FlowName: route restrictions **Status:** Future (not **In Regional Architecture**
Source: KY Weigh-In-Motion **Destination:** KY Commercial Vehicle Admin Center

FlowName: safety inspection report **Status:** Future (not **In Regional Architecture**
Source: KY Weigh-In-Motion **Destination:** KY Commercial Vehicle Admin Center

FlowName: safety status information **Status:** Future (not **In Regional Architecture**
Source: KY Weigh-In-Motion **Destination:** KY Commercial Vehicle Admin Center

FlowName: violation notification **Status:** Future (not **In Regional Architecture**
Source: KY Weigh-In-Motion **Destination:** KY Commercial Vehicle Admin Center

FlowName: threat information coordination **Status:** Future (not **In Regional Architecture**
Source: MontCo E-911 System **Destination:** MontCo Emergency Mgmt Headquarters

FlowName: alert notification coordination **Status:** Future (not **In Regional Architecture**
Source: MontCo Early Warning System **Destination:** Clarksville Police Headquarters

FlowName: emergency plan coordination **Status:** Future (not **In Regional Architecture**
Source: MontCo Early Warning System **Destination:** Clarksville Police Headquarters

FlowName: evacuation coordination **Status:** Future (not **In Regional Architecture**
Source: MontCo Early Warning System **Destination:** Clarksville Police Headquarters

FlowName: alert notification **Status:** Future (not **In Regional Architecture**
Source: MontCo Early Warning System **Destination:** Clk Public Works Center

FlowName: maint and constr resource request **Status:** Future (not **In Regional Architecture**
Source: MontCo Early Warning System **Destination:** Clk Public Works Center

FlowName: alert notification **Status:** Future (not **In Regional Architecture**
Source: MontCo Early Warning System **Destination:** Clk TOC

FlowName: emergency plan coordination **Status:** Future (not **In Regional Architecture**
Source: MontCo Early Warning System **Destination:** Clk TOC

FlowName: emergency route request **Status:** Future (not **In Regional Architecture**
Source: MontCo Early Warning System **Destination:** Clk TOC

FlowName: emergency traffic control request **Status:** Future (not **In Regional Architecture**
Source: MontCo Early Warning System **Destination:** Clk TOC

FlowName: evacuation information **Status:** Future (not **In Regional Architecture**
Source: MontCo Early Warning System **Destination:** Clk TOC

FlowName: alert notification **Status:** Future (not **In Regional Architecture**
Source: MontCo Early Warning System **Destination:** MontCo Highways Headquarters

FlowName: emergency archive data **Status:** Future (not **In Regional Architecture**
Source: MontCo Emergency Mgmt Headquarters **Destination:** Clk Govt Reporting System

FlowName: emergency route request **Status:** Future (not **In Regional Architecture**
Source: MontCo Emergency Mgmt Headquarters **Destination:** Clk TOC

FlowName: transportation system status	**Status:** Future (not	**In Regional Architecture**
Source: MontCo Emergency Mgmt Headquarters	**Destination:** Clk TOC	
FlowName: emergency acknowledge	**Status:** Future (not	**In Regional Architecture**
Source: MontCo Emergency Mgmt Headquarters	**Destination:** Clk Website	
FlowName: threat information coordination	**Status:** Future (not	**In Regional Architecture**
Source: MontCo Emergency Mgmt Headquarters	**Destination:** MontCo E-911 System	
FlowName: environmental sensors control	**Status:** Future (not	**In Regional Architecture**
Source: MontCo Highways Headquarters	**Destination:** MontCo Maintenance Vehicles	
FlowName: maint and constr dispatch information	**Status:** Future (not	**In Regional Architecture**
Source: MontCo Highways Headquarters	**Destination:** MontCo Maintenance Vehicles	
FlowName: maint and constr vehicle system control	**Status:** Future (not	**In Regional Architecture**
Source: MontCo Highways Headquarters	**Destination:** MontCo Maintenance Vehicles	
FlowName: environmental probe data	**Status:** Future (not	**In Regional Architecture**
Source: MontCo Maintenance Vehicles	**Destination:** MontCo Highways Headquarters	
FlowName: infrastructure conditions data	**Status:** Future (not	**In Regional Architecture**
Source: MontCo Maintenance Vehicles	**Destination:** MontCo Highways Headquarters	
FlowName: maint and constr dispatch status	**Status:** Future (not	**In Regional Architecture**
Source: MontCo Maintenance Vehicles	**Destination:** MontCo Highways Headquarters	
FlowName: maint and constr vehicle location data	**Status:** Future (not	**In Regional Architecture**
Source: MontCo Maintenance Vehicles	**Destination:** MontCo Highways Headquarters	
FlowName: maint and constr vehicle operational data	**Status:** Future (not	**In Regional Architecture**
Source: MontCo Maintenance Vehicles	**Destination:** MontCo Highways Headquarters	
FlowName: work zone status	**Status:** Future (not	**In Regional Architecture**
Source: MontCo Maintenance Vehicles	**Destination:** MontCo Highways Headquarters	
FlowName: work zone warning status	**Status:** Future (not	**In Regional Architecture**
Source: MontCo Maintenance Vehicles	**Destination:** MontCo Highways Headquarters	
FlowName: alert notification coordination	**Status:** Future (not	**In Regional Architecture**
Source: MontCo Sheriff Headquarters	**Destination:** Clarksville Police Headquarters	
FlowName: emergency plan coordination	**Status:** Future (not	**In Regional Architecture**
Source: MontCo Sheriff Headquarters	**Destination:** Clarksville Police Headquarters	
FlowName: evacuation coordination	**Status:** Future (not	**In Regional Architecture**
Source: MontCo Sheriff Headquarters	**Destination:** Clarksville Police Headquarters	
FlowName: incident command information coordination	**Status:** Future (not	**In Regional Architecture**
Source: MontCo Sheriff Headquarters	**Destination:** Clarksville Police Headquarters	
FlowName: incident response coordination	**Status:** Future (not	**In Regional Architecture**
Source: MontCo Sheriff Headquarters	**Destination:** Clarksville Police Headquarters	

FlowName: resource coordination	**Status:** Future (not	**In Regional Architecture**
Source: MontCo Sheriff Headquarters	**Destination:** Clarksville Police Headquarters	
FlowName: emergency route request	**Status:** Future (not	**In Regional Architecture**
Source: MontCo Sheriff Headquarters	**Destination:** Clk TOC	
FlowName: alert notification coordination	**Status:** Future (not	**In Regional Architecture**
Source: OG E-911	**Destination:** Emergency Vehicles	
FlowName: decision support information	**Status:** Future (not	**In Regional Architecture**
Source: OG E-911	**Destination:** Emergency Vehicles	
FlowName: emergency dispatch requests	**Status:** Future (not	**In Regional Architecture**
Source: OG E-911	**Destination:** Emergency Vehicles	
FlowName: emergency plan coordination	**Status:** Future (not	**In Regional Architecture**
Source: OG E-911	**Destination:** Emergency Vehicles	
FlowName: evacuation coordination	**Status:** Future (not	**In Regional Architecture**
Source: OG E-911	**Destination:** Emergency Vehicles	
FlowName: incident command information coordination	**Status:** Future (not	**In Regional Architecture**
Source: OG E-911	**Destination:** Emergency Vehicles	
FlowName: incident report	**Status:** Future (not	**In Regional Architecture**
Source: OG E-911	**Destination:** Emergency Vehicles	
FlowName: incident response coordination	**Status:** Future (not	**In Regional Architecture**
Source: OG E-911	**Destination:** Emergency Vehicles	
FlowName: resource coordination	**Status:** Future (not	**In Regional Architecture**
Source: OG E-911	**Destination:** Emergency Vehicles	
FlowName: suggested route	**Status:** Future (not	**In Regional Architecture**
Source: OG E-911	**Destination:** Emergency Vehicles	
FlowName: threat information coordination	**Status:** Future (not	**In Regional Architecture**
Source: OG E-911	**Destination:** Emergency Vehicles	
FlowName: transportation system status	**Status:** Future (not	**In Regional Architecture**
Source: OG E-911	**Destination:** Emergency Vehicles	
FlowName: alert notification coordination	**Status:** Future (not	**In Regional Architecture**
Source: OG E-911	**Destination:** OG Early Warning System	
FlowName: incident report	**Status:** Future (not	**In Regional Architecture**
Source: OG E-911	**Destination:** OG Early Warning System	
FlowName: incident response coordination	**Status:** Future (not	**In Regional Architecture**
Source: OG E-911	**Destination:** OG Early Warning System	
FlowName: alert notification coordination	**Status:** Future (not	**In Regional Architecture**
Source: OG Early Warning System	**Destination:** OG E-911	

FlowName: incident report	**Status:** Future (not	**In Regional Architecture**
Source: OG Early Warning System	**Destination:** OG E-911	
FlowName: incident response coordination	**Status:** Future (not	**In Regional Architecture**
Source: OG Early Warning System	**Destination:** OG E-911	
FlowName: work zone information	**Status:** Future (not	**In Regional Architecture**
Source: TDOT District maintenance garage and equipment	**Destination:** Clk TOC	
FlowName: traffic information coordination	**Status:** Future (not	**In Regional Architecture**
Source: TDOT Region 3 TOC	**Destination:** Clk TOC	
FlowName: road network conditions	**Status:** Future (not	**In Regional Architecture**
Source: TDOT Region 3 TOC	**Destination:** TN 511 System	
FlowName: logged vehicle routes	**Status:** Future (not	**In Regional Architecture**
Source: TN 511 System	**Destination:** TDOT Region 3 TOC	
FlowName: incident information	**Status:** Future (not	**In Regional Architecture**
Source: TN Highway Patrol Regional Headquarters	**Destination:** TDOT District maintenance garage and equipment	
FlowName: maint and constr resource request	**Status:** Future (not	**In Regional Architecture**
Source: TN Highway Patrol Regional Headquarters	**Destination:** TDOT District maintenance garage and equipment	
FlowName: incident information	**Status:** Future (not	**In Regional Architecture**
Source: TN Highway Patrol Regional Headquarters	**Destination:** TDOT Region 3 TOC	
FlowName: barrier system control	**Status:** Future (not	**In Regional Architecture**
Source: TN Maintenance Vehicles	**Destination:** TN Work Zone Equipment	
FlowName: roadway information system data	**Status:** Future (not	**In Regional Architecture**
Source: TN Maintenance Vehicles	**Destination:** TN Work Zone Equipment	
FlowName: alarm	**Status:** Future (not	**In Regional Architecture**
Source: TN Weigh-In-Motion	**Destination:** TN Highway Patrol Regional Headquarters	
FlowName: barrier system status	**Status:** Future (not	**In Regional Architecture**
Source: TN Work Zone Equipment	**Destination:** TN Maintenance Vehicles	
FlowName: roadway information system status	**Status:** Future (not	**In Regional Architecture**
Source: TN Work Zone Equipment	**Destination:** TN Maintenance Vehicles	
FlowName: work zone warning notification	**Status:** Future (not	**In Regional Architecture**
Source: TN Work Zone Equipment	**Destination:** TN Maintenance Vehicles	
FlowName: transit archive data	**Status:** Future (not	**In Regional Architecture**
Source: Transit Center	**Destination:** Clk Govt Reporting System	
FlowName: emergency transit schedule information	**Status:** Future (not	**In Regional Architecture**
Source: Transit Center	**Destination:** Clk TOC	
FlowName: transit demand management response	**Status:** Future (not	**In Regional Architecture**
Source: Transit Center	**Destination:** Clk TOC	

FlowName: transit system data	**Status:** Future (not	**In Regional Architecture**
Source: Transit Center	**Destination:** Clk TOC	
FlowName: personal transit information	**Status:** Future (not	**In Regional Architecture**
Source: Transit Center	**Destination:** Clk Traffic Information Stations	
FlowName: personal transit information	**Status:** Future (not	**In Regional Architecture**
Source: Transit Center	**Destination:** Clk Website	
FlowName: transit emergency data	**Status:** Future (not	**In Regional Architecture**
Source: Transit Center	**Destination:** Emergency Vehicles	
FlowName: bad tag list	**Status:** Future (not	**In Regional Architecture**
Source: Transit Center	**Destination:** Transit Fare Card System	
FlowName: fare management information	**Status:** Future (not	**In Regional Architecture**
Source: Transit Center	**Destination:** Transit Fare Card System	
FlowName: bad tag list	**Status:** Future (not	**In Regional Architecture**
Source: Transit Center	**Destination:** Transit Vehicles	
FlowName: fare management information	**Status:** Future (not	**In Regional Architecture**
Source: Transit Center	**Destination:** Transit Vehicles	
FlowName: transit schedule information	**Status:** Future (not	**In Regional Architecture**
Source: Transit Center	**Destination:** Transit Vehicles	
FlowName: transit traveler information	**Status:** Future (not	**In Regional Architecture**
Source: Transit Center	**Destination:** Transit Vehicles	
FlowName: fare and payment status	**Status:** Future (not	**In Regional Architecture**
Source: Transit Fare Card System	**Destination:** Transit Center	
FlowName: request for bad tag list	**Status:** Future (not	**In Regional Architecture**
Source: Transit Fare Card System	**Destination:** Transit Center	
FlowName: transit vehicle passenger and use data	**Status:** Future (not	**In Regional Architecture**
Source: Transit Fare Card System	**Destination:** Transit Center	
FlowName: fare and payment status	**Status:** Future (not	**In Regional Architecture**
Source: Transit Vehicles	**Destination:** Transit Center	
FlowName: request for bad tag list	**Status:** Future (not	**In Regional Architecture**
Source: Transit Vehicles	**Destination:** Transit Center	
FlowName: transit traveler request	**Status:** Future (not	**In Regional Architecture**
Source: Transit Vehicles	**Destination:** Transit Center	
FlowName: transit vehicle schedule performance	**Status:** Future (not	**In Regional Architecture**
Source: Transit Vehicles	**Destination:** Transit Center	
FlowName: environmental conditions data	**Status:** Future (not	**In Regional Architecture**
Source: Weather Information	**Destination:** Clk Public Works Center	

FlowName: weather information **Status:** Future (not **In Regional Architecture**
Source: Weather Information **Destination:** Clk Public Works Center

FlowName: weather information **Status:** Future (not **In Regional Architecture**
Source: Weather Information **Destination:** Clk TOC

FlowName: environmental conditions data **Status:** Future (not **In Regional Architecture**
Source: Weather Information **Destination:** KY District 2 Maintenance Center

FlowName: environmental conditions data **Status:** Future (not **In Regional Architecture**
Source: Weather Information **Destination:** MontCo Highways Headquarters

FlowName: weather information **Status:** Future (not **In Regional Architecture**
Source: Weather Information **Destination:** MontCo Highways Headquarters

FlowName: environmental conditions data **Status:** Future (not **In Regional Architecture**
Source: Weather Information **Destination:** TDOT District maintenance garage and equipment

FlowName: environmental conditions data **Status:** Future (not **In Regional Architecture**
Source: Weather Information **Destination:** TDOT Region 3 TOC

Clarksville Regional ITS Architecture

Status Value Legend

Name	Description
Existing	
Planned (funded)	
Future (not funded)	
Not Planned	

Filters

Entity Class

Show	Class
Yes	Center
Yes	Field
Yes	Traveler
Yes	Vehicle

Entity Type

Show	Type
Yes	System
Yes	Human
Yes	Environment

Interconnects

Show	Interconnect
Yes	Center to Center
Yes	Center to Field
Yes	Center to Traveler
Yes	Center to Vehicle
Yes	Field to Field
Yes	Field to Vehicle
Yes	Traveler to Field
Yes	Traveler to Traveler
Yes	Traveler to Vehicle
Yes	Vehicle to Vehicle

Flow Type

Show	Type
Yes	Request
Yes	Information

Flow Status

Show	Status
No	Existing
Yes	Planned (funded)
Yes	Future (not funded)

Flow Futuristic

Show	Futuristic
Yes	Futuristic

Market Package

Show	Market Package
Yes	All

APPENDIX G

CRITS Stakeholders

Organization Name	
Prefix	Mr.
First Name	Wally
Last Name	Crow
Address	
City	
State	
Postal Code	
Work Phone	931-320-2594
Email Address	croww1@earthlink.net

Organization Name	Christian Co. Highway
Prefix	Mr.
First Name	Chuck
Last Name	Chambers
Address	515 Weber Street
City	Hopkinsville
State	KY
Postal Code	42240
Work Phone	270-887-4122
Email Address	ccroad@hesenergy.net

Organization Name	Clarksville Fire Dept.
Prefix	Mr.
First Name	Mike
Last Name	Roberts
Address	802 Main St.
City	Clarksville
State	TN
Postal Code	37040
Work Phone	931-645-7456
Email Address	mroberts@cityofclarksvi

Organization Name	Clarksville Information
Prefix	Mr.
First Name	Dirk
Last Name	Protonentis
Address	1 Public Square
City	Clarksville
State	TN
Postal Code	37040
Work Phone	931-645-4593
Email Address	dirk@cityofclarksville.c

Organization Name	Clarksville Information
Prefix	Mr.
First Name	Mike
Last Name	Smith
Address	1 Public Square
City	Clarksville
State	TN
Postal Code	37040
Work Phone	931-645-4593
Email Address	mikesmith@cityofclarks

Organization Name	Clarksville Police Dept.
Prefix	Mr.
First Name	Mark
Last Name	Smith
Address	135 Commerce St.
City	Clarksville
State	TN
Postal Code	37040
Work Phone	931-553-2402
Email Address	msmith@clarksvillepd.or

Organization Name	Clarksville Street Dept.
Prefix	Mr.
First Name	Jim
Last Name	Durrett
Address	199 Tenth Street
City	Clarksville
State	TN
Postal Code	37040
Work Phone	931-645-7464
Email Address	jdurrett@cityofclarksvill

Organization Name	Clarksville Street Dept.
Prefix	Mr.
First Name	Jack
Last Name	Frazier
Address	199 Tenth Street
City	Clarksville
State	TN
Postal Code	37040
Work Phone	931-645-7464
Email Address	jfrazier@cityofclarksvill

Organization Name	Clarksville Street Dept.
Prefix	Mr.
First Name	Justin
Last Name	McCaig
Address	199 Tenth Street
City	Clarksville
State	TN
Postal Code	37040
Work Phone	931-645-7464
Email Address	jmccaig@cityofclarksvill

Organization Name	Clarksville Transit Syste
Prefix	Mr.
First Name	Arthur
Last Name	Bing
Address	430 Boillin Ln.
City	Clarksville
State	TN
Postal Code	37040
Work Phone	931-645-7414
Email Address	abing@cityofclarksville.

Organization Name	Clarksville Transit Syste
Prefix	Mr.
First Name	D.K.
Last Name	Davis
Address	430 Boillin Ln.
City	Clarksville
State	TN
Postal Code	37040
Work Phone	931-553-2430
Email Address	

Organization Name	Clarksville/Montgomery
Prefix	Mr.
First Name	Max
Last Name	Baker
Address	329 Main Street
City	Clarksville
State	TN
Postal Code	37040
Work Phone	931-645-7448
Email Address	maxbaker@cityofclarksv

Organization Name	Clarksville/Montgomery
Prefix	Mr.
First Name	David
Last Name	Riggins
Address	329 Main Street
City	Clarksville
State	TN
Postal Code	37040
Work Phone	931-645-7448
Email Address	davidriggins@cityofclar

Organization Name	Clarksville/Montgomery
Prefix	Mr.
First Name	Stan
Last Name	Williams
Address	329 Main Street
City	Clarksville
State	TN
Postal Code	37040
Work Phone	931-645-7448
Email Address	stanwilliams@cityofclar

Organization Name	Fort Campbell
Prefix	Mr.
First Name	Michael
Last Name	Bowers
Address	
City	
State	
Postal Code	
Work Phone	270-798-9165
Email Address	Michael.F.Bowers@cam

Organization Name	Ft. Campbell Emergency
Prefix	Mr.
First Name	Frank
Last Name	Coghill
Address	
City	
State	
Postal Code	
Work Phone	270-798-7587
Email Address	frank.coghill@campbell.

Organization Name	Ft. Campbell Emergency
Prefix	Mr.
First Name	Danny
Last Name	Greene
Address	
City	
State	
Postal Code	
Work Phone	270-798-3623
Email Address	danny.e.greene@campbe

Organization Name	Ft. Campbell Programs
Prefix	Mr.
First Name	Chris
Last Name	Brown
Address	234 Oklahoma Ave.
City	Fort Campbell
State	KY
Postal Code	42223
Work Phone	270-798-3897
Email Address	christopher.j.brown2@u

Organization Name	Ft. Campbell Public Wor
Prefix	Mr.
First Name	David
Last Name	Terrell
Address	Bldg. 865
City	Fort Campbell
State	KY
Postal Code	42223
Work Phone	270-956-2459
Email Address	David.Terrell1@us.army

Organization Name	GNRC
Prefix	Mrs.
First Name	Tanisha
Last Name	Hall
Address	501 Union Street, Suite 600
City	Nashville
State	TN
Postal Code	37219
Work Phone	615-862-8843
Email Address	thall@gnrc.org

Organization Name	KTC Planning
Prefix	Mr.
First Name	Hamid
Last Name	Beykzadeh
Address	200 Mero 5th Floor
City	Frankfort
State	KY
Postal Code	40601
Work Phone	
Email Address	hamid.beykzadeh@ky.go

Organization Name	KTC Planning
Prefix	Mr.
First Name	John
Last Name	Crossfield
Address	200 Mero St., 3 – 8
City	Frankfort
State	KY
Postal Code	40622
Work Phone	502-564-3020
Email Address	john.crossfield@ky.gov

Organization Name	KTC Planning
Prefix	Mr.
First Name	David
Last Name	Hamilton
Address	200 Mero 5th Floor
City	Frankfort
State	KY
Postal Code	40622
Work Phone	502-564-7183
Email Address	DavidA.Hamilton@ky.g

Organization Name	KTC, District 2
Prefix	Mr.
First Name	Kenny
Last Name	Potts
Address	PO Box 6000
City	Madisonville
State	KY
Postal Code	42431
Work Phone	270-824-7080
Email Address	kenny.potts@ky.gov

Organization Name	KY Division FHWA
Prefix	Mr.
First Name	Michael
Last Name	Loyselle
Address	330 West Broadway, Room 265
City	Frankfort
State	KY
Postal Code	40601
Work Phone	502-223-6734
Email Address	michael.loyselle@fhwa.d

Organization Name	KY State Police, Post 8
Prefix	Ms.
First Name	Leslie
Last Name	Gannon
Address	1000 Western Kentucky Parkway
City	Nortonville
State	KY
Postal Code	42442
Work Phone	270-676-3313
Email Address	leslie.gannon@ky.gov

Organization Name	KY Transportation Cent
Prefix	Mr.
First Name	Joe
Last Name	Crabtree
Address	176 Raymond Bldg.
City	Lexington
State	KY
Postal Code	40506
Work Phone	859-259-4513
Email Address	crabtree@engr.uky.edu

Organization Name	KY Vehicle Enforcemen
Prefix	Mr.
First Name	David
Last Name	Caldwell
Address	
City	
State	
Postal Code	
Work Phone	270-388-2979
Email Address	dcaldwell@ky.gov

Organization Name	KY Vehicle Enforcemen
Prefix	Mr.
First Name	David
Last Name	Cullen
Address	
City	
State	
Postal Code	
Work Phone	812-425-2613
Email Address	david.cullen@ky.gov

Organization Name	Montgomery Co. Ambul
Prefix	Mr.
First Name	Wes
Last Name	Klein
Address	1610 Haynes Street
City	Clarksville
State	TN
Postal Code	37043
Work Phone	931-648-5737
Email Address	wkklein@montgomeryco

Organization Name	Montgomery Co. E-911
Prefix	Mr.
First Name	Larry
Last Name	Bryant
Address	130 S. First Street
City	Clarksville
State	TN
Postal Code	37040
Work Phone	931-552-1011
Email Address	lbryant@montgomeryco

Organization Name	Montgomery Co. Emerg
Prefix	Mr.
First Name	Jeff
Last Name	Davidson
Address	130 S First Street
City	Clarksville
State	TN
Postal Code	37191
Work Phone	931-648-5702
Email Address	djdavidson@montgomer

Organization Name	Montgomery Co. Emerg
Prefix	Mr.
First Name	Steve
Last Name	Jones
Address	130 S First Street
City	Clarksville
State	TN
Postal Code	37191
Work Phone	931-648-5702
Email Address	

Organization Name	Montgomery Co. Highw
Prefix	Mr.
First Name	Mike
Last Name	Frost
Address	1213 Highway Drive
City	Clarksville
State	TN
Postal Code	37040
Work Phone	931-553-5740
Email Address	rmfrost@montgomeryco

Organization Name	Montgomery County She
Prefix	Mr.
First Name	Norman
Last Name	Lewis
Address	120 Commerce Street
City	Clarksville
State	TN
Postal Code	37040
Work Phone	931-648-0611
Email Address	nelewis@montgomeryco

Organization Name	Montgomery County She
Prefix	Mr.
First Name	Edgar
Last Name	Patterson
Address	120 Commerce Street
City	Clarksville
State	TN
Postal Code	37040
Work Phone	931-648-5790
Email Address	efpatterson@montgomer

Organization Name	Oak Grove EMS
Prefix	Mr.
First Name	
Last Name	Beach
Address	
City	
State	
Postal Code	
Work Phone	270-439-4646
Email Address	tbeach@hopkinsvilleky.

Organization Name	Oak Grove Fire Dept.
Prefix	Mr.
First Name	Greg
Last Name	Bequette
Address	P.O. Box 250
City	Oak Grove
State	KY
Postal Code	42262
Work Phone	270-980-9853
Email Address	gregory.j.bequette@us.ar

Organization Name	Oak Grove Fire Dept.
Prefix	Mr.
First Name	Bill
Last Name	Johnson
Address	P.O. Box 250
City	Oak Grove
State	KY
Postal Code	42262
Work Phone	270-439-4941
Email Address	ogfd202@hotmail.com

Organization Name	Oak Grove Planning Dep
Prefix	Mr.
First Name	Joshua
Last Name	Sommer
Address	P.O. Box 250
City	Oak Grove
State	KY
Postal Code	42262
Work Phone	270-439-5979
Email Address	ogcp@oakgroveky.org

Organization Name	Oak Grove Police Dept.
Prefix	Mr.
First Name	Milton
Last Name	Perry
Address	P.O. Box 250
City	Oak Grove
State	KY
Postal Code	42262
Work Phone	270-439-4602
Email Address	chief@oakgroveky.org

Organization Name	Pennryrile Area Develop
Prefix	Mr.
First Name	Craig
Last Name	Morris
Address	300 Hammond Drive
City	Hopkinsville
State	KY
Postal Code	42240
Work Phone	270-886-9484
Email Address	Craig.morris@ky.gov

Organization Name	TDOT Planning Div.
Prefix	Mr.
First Name	Joe
Last Name	Roach
Address	505 Deaderick St., Suite 900
City	Nashville
State	TN
Postal Code	37243
Work Phone	
Email Address	joseph.roach@state.tn.us

Organization Name	TDOT Planning Div.
Prefix	Mr.
First Name	Rusty
Last Name	Staggs
Address	505 Deaderick St., Suite 900
City	Nashville
State	TN
Postal Code	37243
Work Phone	
Email Address	rusty.staggs@state.tn.us

Organization Name	TDOT Planning Div.
Prefix	Ms.
First Name	Jeanne
Last Name	Stevens
Address	505 Deaderick St., Suite 900
City	Nashville
State	TN
Postal Code	37243
Work Phone	615-741-3421
Email Address	jeanne.stevens@state.tn.

Organization Name	TDOT Planning Divi.
Prefix	Ms.
First Name	Teresa
Last Name	Estes
Address	505 Deaderick St., Suite 900
City	Nashville
State	TN
Postal Code	37243
Work Phone	615-741-3629
Email Address	teresa.estes@state.tn.us

Organization Name	TN Division FHWA
Prefix	Mr.
First Name	Donald
Last Name	Gedge
Address	640 Grassmere Park Rd., Suite 112
City	Nashville
State	TN
Postal Code	37211
Work Phone	615-781-5769
Email Address	donald.gedge@fhwa.dot.

Organization Name	TN Highway Patrol, Dist
Prefix	Mr.
First Name	Arthur
Last Name	Williams
Address	1603 Murfreesboro Road
City	Nashville
State	TN
Postal Code	37217
Work Phone	615-741-2060
Email Address	arthur.williams@state.tn.

Organization Name	TN Highway Patrol, Dist
Prefix	Mr.
First Name	Danny
Last Name	Wilson
Address	1603 Murfreesboro Road
City	Nashville
State	TN
Postal Code	37217
Work Phone	615-741-3085
Email Address	danny.l.wilson@state.tn.

Douglas Weiland
County Executive

Montgomery County Government
P.O. Box 368
Clarksville, TN 37041-0368

Phone (931) 648-5787
Fax (931) 553-5177

December 14, 2001

To Local Agencies and the Citizens of Montgomery County:

Montgomery County has been and will continue to be subjected to a wide variety of hazards that have the potential of causing significant damage and./or loss of life. It is imperative that local governmental agencies, as well as the citizens at large be prepared to deal effectively with the results brought about by the occurrence of such events. Additionally, it is prudent to take appropriate steps to lessen the potential effects of such events or to prevent their occurrence altogether. This Emergency Management Plan is one of many mechanisms through which this can be accomplished.

By virtue of the powers and authority vested in me by the Constitution of the State of Tennessee, and in accordance with the provisions of the Tennessee Code Annotated and the federal Civil Defense Act of 1950, as amended, as the County Executive of Montgomery County, I hereby promulgate and issue, effective this date, the Montgomery County Emergency Management Plan. Further, I declare this plan to be the official emergency management plan for Montgomery County and its municipalities and mandatory upon all agencies and political subdivisions within.

This plan is effective upon receipt and for execution when directed. The director of the Emergency Management Agency is responsible for maintaining and updating this plan, as required, in coordination with the appropriate agencies.

Sincerely,

Douglas Weiland
County Executive
Montgomery County

ABSTRACT

The Montgomery County Emergency Management Plan (hereinafter referred to as "the plan" is organized into three (3) parts: The Introduction, the Basic Plan, and the 16 Emergency Support Function (ESF) annexes (plus supporting documentation).

The Introduction contains the following: table of contents, a preface (which describes the process used to develop this plan and its related documents), a form for recording changes, a list of offices and personnel who receive a copy of the plan, a list of definitions and acronyms used throughout the plan, the authorities and references used as bases for the development of the document, and a comprehensive hazard analysis for the state of Tennessee. Included are maps delineating areas subject to seismic risk, areas potentially targets for nuclear attack, Nuclear Power Plant locations, and other maps showing the various portions of the state subject to particular hazards.

The Basic Plan describes, in general, the concept of operations for emergency management activities within the County given the hazards presented in the Introduction. The purpose and scope of the plan are provided, as are the situations and assumptions upon which the plan is based. A description of the emergency management organization and assigned responsibilities follows, as does a section on the direction and control mechanisms utilized in the emergency management process, a description of continuity of government principles, and sections dedicated to describing the upkeep and promulgation of the plan itself. Finally, a series of appendices are provided that describe the Emergency Operations Center, the Emergency Services Coordinator (ESC) program, and a wide variety of other support documentation.

The third part of the plan consists of 16 Emergency Support Function (ESF) annexes. These are: Transportation, Communications, Infrastructure, Firefighting, Information and Planning, Human Services, Resource Support, Health and Medical, Urban Search and Rescue, Environmental Response, Food, Energy, Law Enforcement, Donations/Volunteers, Recovery, and Animals Housing & Care Services. These correspond with the ESFs of the Tennessee Emergency Management Plan as promulgated on March 31, 1995. Each ESF may be broken down into smaller components. For each annex, supporting documentation in the form of maps, organizational charts, checklists, etc., are provided as necessary.