APPENDIX A – MARKET PACKAGE DEFINITIONS

Market Package	Market Package Name	Description
Traffic Management Service Area		
ATMS01	Network Surveillance	Includes traffic detectors, CCTV cameras, other surveillance equipment, supporting field equipment, and fixed point-to-point communications to transmit the collected data back to a traffic management center.
ATMS02	Traffic Probe Surveillance	Provides an alternative approach for surveillance of the roadway network. Probe vehicles are tracked and the vehicle's position and speed information is utilized to determine road network conditions such as average speed and congestion conditions.
ATMS03	Surface Street Control	Provides the central control and monitoring equipment, communication links, and signal control equipment that support local street and/or arterial traffic management. This market package is consistent with typical urban traffic signal control systems.
ATMS04	Freeway Control	Provides the communications and roadside equipment to support ramp control, lane controls, and interchange control for freeways. This market package is consistent with typical urban traffic freeway control systems. Also includes the capability to utilize surveillance information for detection of incidents.
ATMS05	HOV Lane Management	Manages HOV lanes by coordinating freeway ramp meters and connector signals with HOV lane usage signals. Vehicle occupancy detectors may be installed to verify HOV compliance and notify enforcement agencies of violations.
ATMS06	Traffic Information Dissemination	Provides driver information using roadway equipment such as dynamic message signs or highway advisory radio. Information can include traffic and road conditions, closure and detour information, incident information, emergency alerts, disaster traveler information, and driver advisories. This package also covers the sharing of traffic information with media, transit, emergency management, and other service providers.
ATMS07	Regional Traffic Management	Sharing of traffic information and control among traffic management centers to support a regional management strategy. This package relies principally on roadside instrumentation of each traffic management jurisdiction and provides the communications links and cooperative control strategies that enable integrated interjurisdictional traffic management. The nature of optimization and extent of information and control sharing is determined through working arrangements between jurisdictions
ATMS08	Traffic Incident Management System	Manages both unexpected incidents and planned events so that the impact to the transportation network and traveler safety is minimized. This market package includes incident detection capabilities through roadside surveillance devices as well as notification from other agencies. It supports traffic operations personnel in developing an appropriate response in coordination with emergency management, maintenance and construction management, and other incident response personnel.
ATMS09	Traffic Forecast and Demand Management	Includes advanced algorithms, processing, and mass storage capabilities that support historical evaluation, real-time assessment, and forecasts of the roadway network performance and link travel times.
ATMS10	Electronic Toll Collection	Provides toll operators with the ability to collect tolls electronically and detect and process violations. The toll tags and roadside readers that these systems use could also be used to collect road use statistics for highway authorities.
ATMS11	Emissions Monitoring and Management	Monitors individual vehicle emissions and provides general air quality monitoring using distributed sensors to collect the data. The gathered information can be used to implement environmentally sensitive travel demand management programs, policies, and regulations.
ATMS12	Roadside Lighting System Control	Manages electrical lighting systems by monitoring operational conditions and using the lighting controls to vary the amount of light provided along the roadside.
ATMS13	Standard Railroad Grade Crossing	Manages highway traffic at highway-rail intersections (HRIs) where rail operational speeds are less than 80 mph. Passive and active warning signs are supported.
ATMS14	Advanced Railroad Grade Crossing	Manages highway traffic at highway-rail intersections (HRIs) where operational speeds are greater than 80 mph. Augments Standard Railroad Grade Crossing market package with additional safety features to mitigate the risks associated with higher rail speeds.

Market Package	Market Package Name	Description
Traffic Management Service Area (continued)		
ATMS15	Railroad Operations Coordination	Provides an additional level of strategic coordination between freight rail operations and traffic management centers. Information shared could include train schedules, maintenance schedules, or any other anticipated HRI closures.
ATMS16	Parking Facility Management	Provides enhanced monitoring and management of parking facilities. Market package assists in the management of parking operations, coordinates with transportation authorities, and supports electronic collection of parking fees.
ATMS17	Regional Parking Management	Supports coordination between parking facilities to enable regional parking management strategies.
ATMS18	Reversible Lane Management	Provides for the management of reversible lane facilities and includes the field equipment, physical lane access controls, and associated control electronics.
ATMS19	Speed Monitoring	Monitors the speeds of vehicles traveling through a roadway system.
ATMS20	Drawbridge Management	Supports systems that manage drawbridges at rivers and canals and other multimodal crossings. Includes control devices as well as traveler information systems.
ATMS21	Roadway Closure Management	Closes roadways to vehicular traffic when driving conditions are unsafe, maintenance must be performed, or other situations. Market package covers general road closures applications. Specific closure systems that are used at railroad grade crossings, drawbridges, reversible lanes, etc. are covered by other market packages.
Emergency Management Service Area		
EM01	Emergency Call-Taking and Dispatch	Provides basic public safety call-taking and dispatch services. Includes emergency vehicle equipment, equipment used to receive and route emergency calls, wireless communications, and coordination between emergency management agencies.
EM02	Emergency Routing	Supports automated vehicle location and dynamic routing of emergency vehicles. Traffic information, road conditions, and suggested routing information are provided to enhance emergency vehicle routing. Includes signal preemption and priority applications.
EM03	Mayday and Alarms Support	Allows the user to initiate a request for emergency assistance and enables the emergency management subsystem to locate the user, gather information about the incident, and determine the appropriate response.
EM04	Roadway Service Patrols	Supports the roadway service patrol vehicles that aid motorists, offering rapid response to minor incidents (flat tire, accidents, or out of gas) to minimize disruption to traffic. This market package monitors service patrol vehicle locations and supports vehicle dispatch.
EM05	Transportation Infrastructure Protection	Includes the monitoring of transportation infrastructure (bridges, tunnels and management centers) for potential threats (acts of nature, terrorist attacks, or other incidents causing damage to the infrastructure) using sensors and surveillance equipment and barriers and safeguard systems to preclude an incident, control access during and after an incident, or mitigate the impact of an incident.
EM06	Wide-Area Alert	Uses ITS driver and traveler information systems to alert the public in emergency situations such as child abductions, severe weather, civil emergencies, or other situations that pose a threat to life and property.
EM07	Early Warning System	Monitors and detects potential, looming, and actual disasters including natural, technological, and man-made disasters.
EM08	Disaster Response and Recovery	Enhances the ability of the surface transportation system to respond to and recover from disasters. Supports coordination of emergency response plans including evacuation plans, provides enhanced access to the scene and better information about the transportation system in the vicinity of the disaster, and maintains situation awareness.

Market Package	Market Package Name	Description
Emergency Management Service Area (continued)		
EM09	Evacuation and Reentry Management	Supports evacuation of the general public from a disaster area and manages subsequent reentry to the disaster area. This market package supports both anticipated, well-planned, and orderly evacuations such as for a hurricane as well as sudden evacuations with little or no time for preparation or public warning such as a terrorist act. Employs a number of strategies to maximize capacity along an evacuation route including coordination with transit.
EM10	Disaster Traveler Information	Use of ITS to provide disaster-related traveler information to the general public including evacuation and reentry information and other information concerning the operation of the transportation system during a disaster.
Maintenance and Construction Management Service Area		
MC01	Maintenance and Construction Vehicle and Equipment Tracking	Tracks the location of maintenance and construction vehicles and other equipment to ascertain the progress of their activities. This market package requires on-board tracking devices for maintenance and construction vehicles and a location tracking map to be maintained.
MC02	Maintenance and Construction Vehicle Maintenance	Performs vehicle maintenance scheduling and manages both routine and corrective maintenance activities. Includes on-board sensors capable of automatically performing diagnostics.
MC03	Road Weather Data Collection	Collects current road weather conditions using data collected from environmental sensors deployed on and about the roadway.
MC04	Weather Information Processing and Distribution	Processes and distributes the environmental information collected from the Road Weather Data Collection market package. This market package uses the environmental data to detect environmental hazards such as icy road conditions, high winds, dense fog, etc. to allow system operators to make decisions on corrective actions to take.
MC05	Roadway Automated Treatment	Automatically treats a roadway section based on environmental or atmospheric conditions. Includes the sensors that detect adverse conditions, automated treatment (such as anti-icing chemicals), and associated driver information systems.
MC06	Winter Maintenance	Monitors environmental conditions and weather forecasts and uses the information to schedule winter maintenance activities.
MC07	Roadway Maintenance and Construction	Supports numerous services for scheduled and unscheduled maintenance and construction on a roadway system or right-of-way. Environmental conditions information is also received from various weather sources to aid in scheduling maintenance and construction activities.
MC08	Work Zone Management	Directs activity in work zones by controlling traffic through portable dynamic message signs and informing other groups of activity for better coordination management. Also provides speed and delay information to motorists prior to the work zone.
MC09	Work Zone Safety Monitoring	Includes systems that improve work crew safety and reduce collisions between the motoring public and maintenance and construction vehicles. Detects vehicle intrusions in work zones and warns workers and drivers of safety hazards when encroachment occurs.
MC10	Maintenance and Construction Activity Coordination	Supports the dissemination of maintenance and construction activity to centers that can utilize it as part of their operations. (i.e., traffic management, transit, emergency management)
MC11	Environmental Probe Surveillance	Collects data from vehicles in the road network that can be used to directly measure or infer current environmental conditions.
MC12	Infrastructure Monitoring	Monitors the condition of pavement, bridges, tunnels, associated hardware, and other transportation-related infrastructure using both fixed and vehicle-based infrastructure monitoring sensors. Monitors vehicle probes used to determine current pavement conditions.

Market Package	Market Package Name	Description
Public Transportation Service Area		
APTS01	Transit Vehicle Tracking	Monitors current transit vehicle location using an automated vehicle location system. Location data may be used to determine real time schedule adherence and update the transit system's schedule in real time.
APTS02	Transit Fixed-Route Operations	Performs vehicle routing and scheduling, operator assignment, and system monitoring for fixed-route and flexible-route transit services.
APTS03	Demand Response Transit Operations	Performs vehicle routing and scheduling, operator assignment, and system monitoring for demand responsive transit services.
APTS04	Transit Fare Collection Management	Manages transit fare collection on-board transit vehicles and at transit stops using electronic means. Allows the use of a traveler card or other electronic payment device.
APTS05	Transit Security	Provides for the physical security of transit passengers and transit vehicle operators. Includes on-board security cameras and panic buttons.
APTS06	Transit Fleet Management	Supports automatic transit maintenance scheduling and monitoring for both routine and corrective maintenance.
APTS07	Multi-modal Coordination	Establishes two way communications between multiple transit and traffic agencies to improve service coordination.
APTS08	Transit Traveler Information	Provides transit users at transit stops and on board transit vehicles with ready access to transit information. Services include stop annunciation, imminent arrival signs, and real-time transit schedule displays. Systems that provide custom transit trip itineraries and other tailored transit information services are also represented by this market package.
APTS09	Transit Signal Priority	Determines the need for transit priority on routes and at certain intersections and requests transit vehicle priority at these locations to improve on-time performance of the transit system.
APTS10	Transit Passenger Counting	Counts the number of passengers entering and exiting a transit vehicle using sensors mounted on the vehicle and communicates the collected passenger data back to the management center.
Commercial Vehicle Operations Service Area		
CVO01	Fleet Administration	Provides the capabilities to manage a fleet of commercial vehicles. Vehicle routing and tracking as well as notification of emergency management of any troublesome route deviations (such as a HAZMAT vehicle) are part of this market package.
CVO02	Freight Administration	Tracks the movement of cargo and monitors the cargo condition. Connection between freight shippers and depots allows tracking from source to destination.
CVO03	Electronic Clearance	Provides for automatic clearance at roadside check facilities. Allows a good driver/vehicle/carrier to pass roadside facilities at highway speeds using transponders and dedicated short range communications to the roadside.
CVO04	CV Administrative Processes	Provides for electronic application, processing, fee collection, issuance, and distribution of CVO credentials and tax filing.
CVO05	International Border Electronic Clearance	Provides for automated clearance at international border crossings. Processes entry documentation for vehicle, cargo, and driver; checks compliance with regulations; and reports the results for passing across an international border.
CVO06	Weigh-In-Motion	Provides for high speed weigh-in-motion with or without automated vehicle identification capabilities.
CVO07	Roadside CVO Safety	Provides for automated roadside safety monitoring and reporting. Automates commercial vehicle safety inspections at roadside check facilities.
CVO08	On-board CVO and Freight Safety and Security	Provides for on-board commercial vehicle safety monitoring and reporting as well as roadside support for reading on-board safety data via tags.
CVO09	CVO Fleet Maintenance	Supports maintenance of CVO fleet vehicles with on-board monitoring equipment and automated vehicle location capabilities.
CVO10	HAZMAT Management	Integrates incident management capabilities with commercial vehicle tracking to assure effective treatment of HAZMAT material and incidents.

Market Package	Market Package Name	Description
Commercial Vehicle Operations Service Area (continued)		
CVO11	Roadside HAZMAT Security Detection and Mitigation	Provides the capability to detect and classify security sensitive HAZMAT on commercial vehicles using roadside sensing and imaging technology. Credentials information can be accessed to verify if the commercial driver, vehicle, and carrier are permitted to transport the identified HAZMAT.
CVO12	CV Driver Security Authentication	Provides the ability for fleet and freight management to detect when an unauthorized commercial vehicle driver attempts to drive a vehicle based on stored identity information. If an unauthorized driver has been detected the commercial vehicle can be disabled.
CVO13	Freight Assignment Tracking	Provides for the planning and tracking of the commercial vehicle, the freight equipment, and the commercial vehicle driver for consistency with the planned assignment.
Traveler Information Service Area		
ATIS01	Broadcast Traveler Information	Collects information on traffic conditions, travel advisories, public transportation, toll and parking facilities, incidents, roadway maintenance and construction, air quality, and weather and broadly disseminates this information through existing infrastructures (radio, cell phones, etc).
ATIS02	Interactive Traveler Information	Provides tailored information in response to a traveler request. The traveler can obtain current information regarding traffic conditions, roadway maintenance and construction, transit services, ride share/ride match, parking management, detours and pricing information.
ATIS03	Autonomous Route Guidance	Using vehicle location and other information, this market package enables route planning and detailed route guidance based on static, stored information.
ATIS04	Dynamic Route Guidance	Offers advanced route planning and guidance that is responsive to current conditions.
ATIS05	ISP Based Trip Planning and Route Guidance	Offers the user pre-trip route planning and en-route guidance services. Routes may be based on static or real time network conditions.
ATIS06	Transportation Operations Data Sharing	Collects, processes, and stores current information on traffic and travel conditions and other information about the current state of the transportation network and makes the information available to transportation system operators.
ATIS07	Yellow Pages and Reservation	Provides yellow pages and reservations services to the user.
ATIS08	Dynamic Ridesharing	Provides dynamic ridesharing/ride matching services to travelers.
ATIS09	In-Vehicle Signing	Supports the distribution of traffic and travel advisory information to drivers through in-vehicle devices.
ATIS10	VII Traveler Information	Provides location specific information to travelers in vehicles using Vehicle Infrastructure Integration (VII). These devices use dedicated short range communications to deliver real-time traveler information to vehicles as they pass the VII roadside equipment along their route.
Archived Data Management Service Area		
AD1	ITS Data Mart	Provides a focused archive that houses data collected and owned by a single agency or other organization, typically covering a single transportation mode and one jurisdiction.
AD2	ITS Data Warehouse	Includes all the data collection and management capabilities of the ITS Data Mart and adds the functionality to allow collection of data from multiple agencies and data sources across modal and jurisdictional boundaries.
AD3	ITS Virtual Data Warehouse	Provides the same broad access to multimodal, multidimensional data from varied sources as in the ITS Data Warehouse Market Package, but provides this access using enhanced interoperability between physically distributed ITS archives that are each locally managed.

Market Package	Market Package Name	Description
Vehicle Safety Service Area		
AVSS01	Vehicle Safety Monitoring	Diagnoses critical components of the vehicle and warns the driver of potential dangers. On-board sensors will determine the vehicle's condition, performance, and on-board safety data and display that information to the driver.
AVSS02	Driver Safety Monitoring	Determines the driver's condition and warns the driver of potential dangers. On-board sensors will determine the driver's condition, performance, and on-board safety data and display that information to the driver.
AVSS03	Longitudinal Safety Monitoring	Uses on-board safety sensors and collision sensors to monitor the areas in front of and behind the vehicle and present warnings to the driver about potential hazards.
AVSS04	Lateral Safety Warning	Uses on-board safety sensors and collision sensors to monitor the areas to the sides of the vehicle and present warnings to the driver about potential hazards.
AVSS05	Intersection Safety Warning	Determines the probability of a collision in an equipped intersection (either highway-highway or highway-rail) and provides timely warnings to drivers in response to hazardous conditions. Monitors in the roadway infrastructure assess vehicle locations and speeds near an intersection. Using this information, a warning is determined and communicated to the approaching vehicle using a short range communications system. Information can be provided to the driver through the ATIS09 – In-Vehicle Signing market package.
AVSS06	Pre-Crash Restraint Deployment	Provides in-vehicle sensors to monitor the vehicle's local environment (lateral and longitudinal gaps, weather, and roadway conditions), determine collision probability, and deploy a pre-crash safety system.
AVSS07	Driver Visibility Improvement	Enhances the driver visibility using an enhanced vision system. On-board display hardware is needed.
AVSS08	Advanced Vehicle Longitudinal Control	Automates the speed and headway control functions on board the vehicle utilizing safety sensors and collision sensors combined with vehicle dynamics processing to control the throttle and brakes. Requires on-board sensors to measure longitudinal gaps and a processor for controlling the vehicle speed.
AVSS09	Advanced Vehicle Lateral Control	Automates the steering control on board the vehicle utilizing safety sensors and collision sensors combined with vehicle dynamics processing to control the steering. Requires on-board sensors to measure lane position and lateral deviations and a processor for controlling the vehicle steering.
AVSS10	Intersection Collision Avoidance	Determines the probability of an intersection collision and provides timely warnings to approaching vehicles so that avoidance actions can be taken. This market package builds on the intersection collision warning infrastructure and in-vehicle equipment and adds equipment in the vehicle that can take control of the vehicle in emergency situations.
AVSS11	Automated Highway System	Enables "hands-off" operation of the vehicle on the automated portion of the highway system. Implementation requires lateral lane holding, vehicle speed and steering control, and automated highway system check-in and check-out.
AVSS12	Cooperative Vehicle Safety Systems	Enhances the on-board longitudinal and lateral warning stand-alone systems by exchanging messages wirelessly with other surrounding vehicles. Vehicles send out information concerning their location, speed, and direction to any surrounding vehicles. Special messages from approaching emergency vehicles may also be received and processed.

APPENDIX B – CUSTOMIZED MARKET PACKAGES

APPENDIX B

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APPENDIX B

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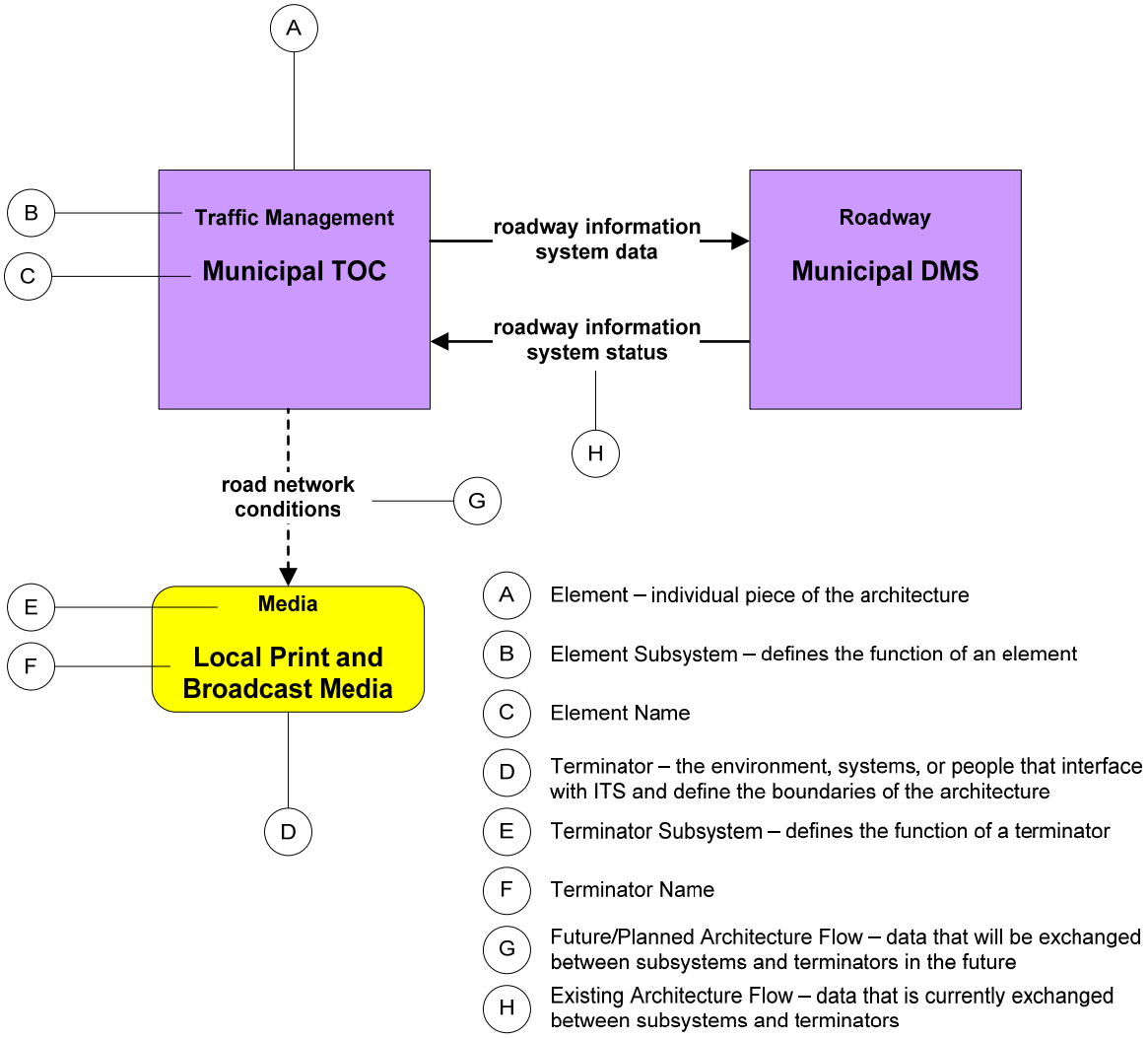
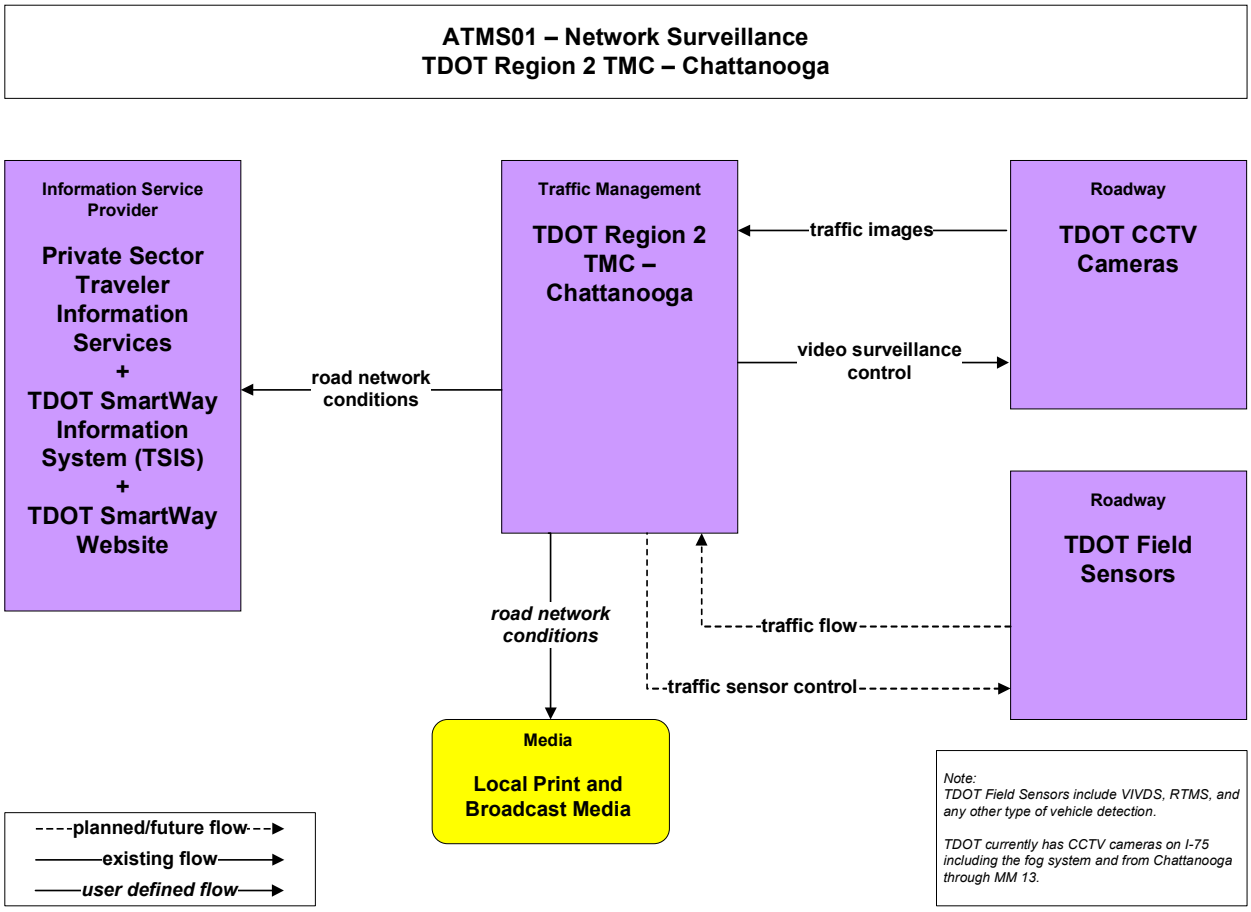
APPENDIX B

MARKET PACKAGE DIAGRAM COMPONENT AND TERMINOLOGY KEY

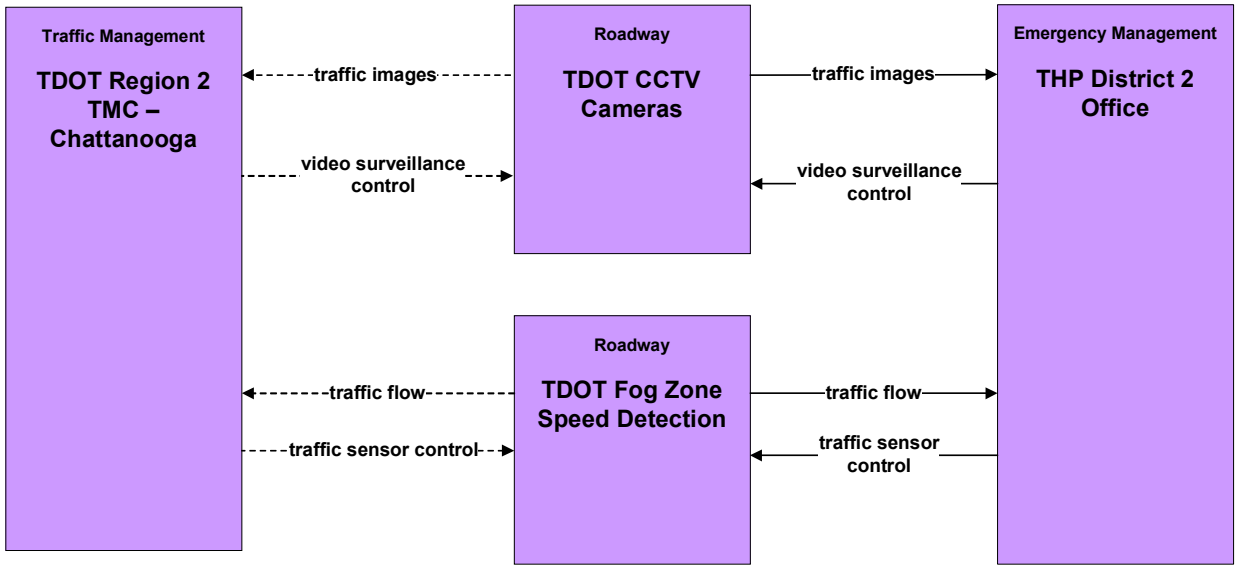


- A – Element – individual piece of the architecture
- B – Element Subsystem – defines the function of an element
- C – Element Name
- D – Terminator – the environment, systems, or people that interface with ITS and define the boundaries of the architecture
- E – Terminator Subsystem – defines the function of a terminator
- F – Terminator Name
- G – Future/Planned Architecture Flow – data that will be exchanged between subsystems and terminators in the future
- H – Existing Architecture Flow – data that is currently exchanged between subsystems and terminators

Advanced Traffic Management System



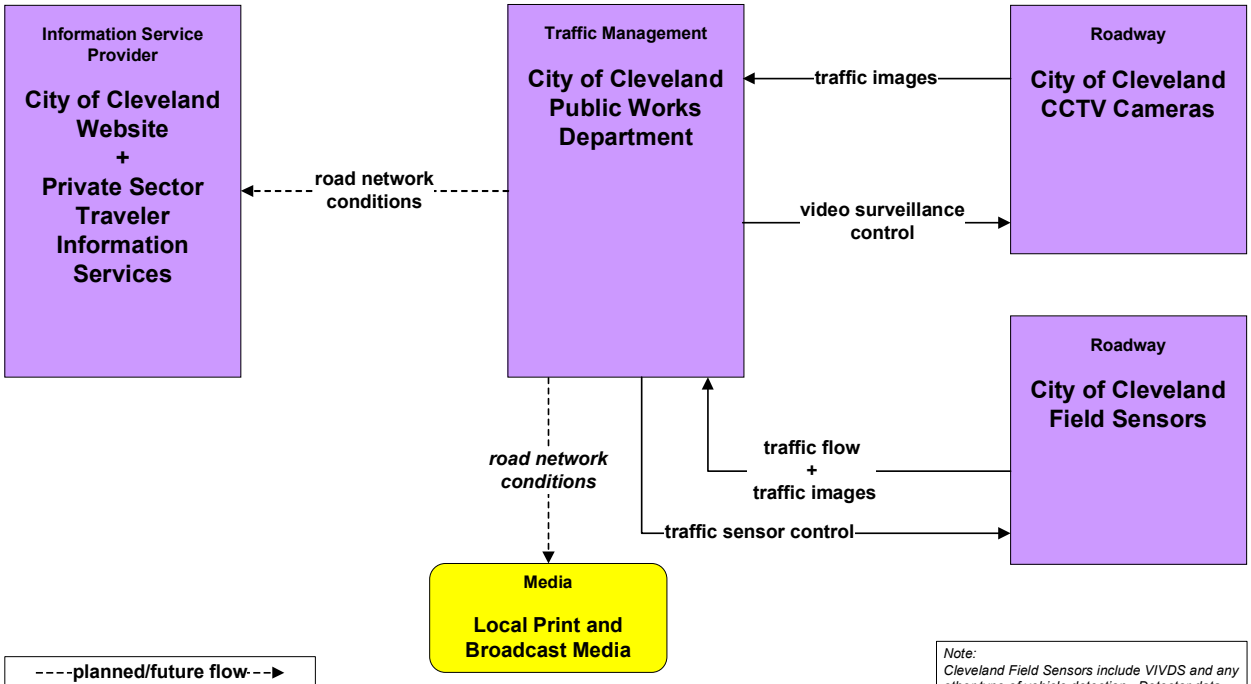
ATMS01 – Network Surveillance
TDOT Fog Management System



planned/future flow
existing flow
user defined flow

Note:
Other portions of the fog management system can be found in ATMS19, ATMS21, MC03 and MC04.

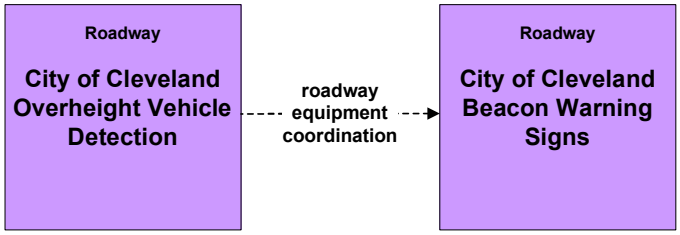
ATMS01 – Network Surveillance
City of Cleveland

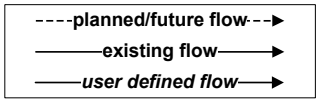


planned/future flow
existing flow
user defined flow

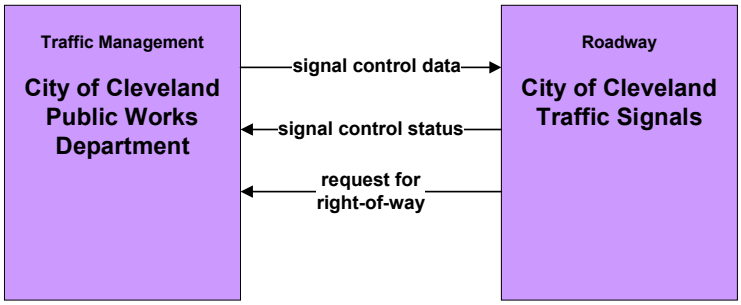
Note:
Cleveland Field Sensors include VIVDS and any other type of vehicle detection. Detector data that includes count and classification data will be collected by the TOC and archived by the MPO as part of AD1.

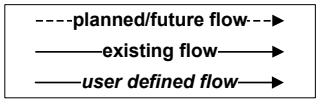
ATMS01 – Network Surveillance
City of Cleveland Overheight Vehicle Detection



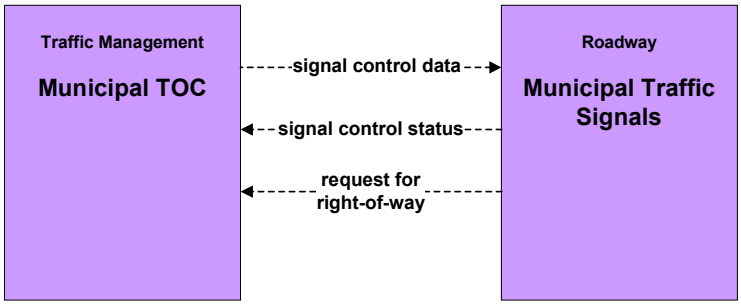


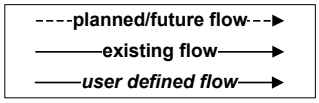
ATMS03 – Surface Street Control
City of Cleveland Signal System





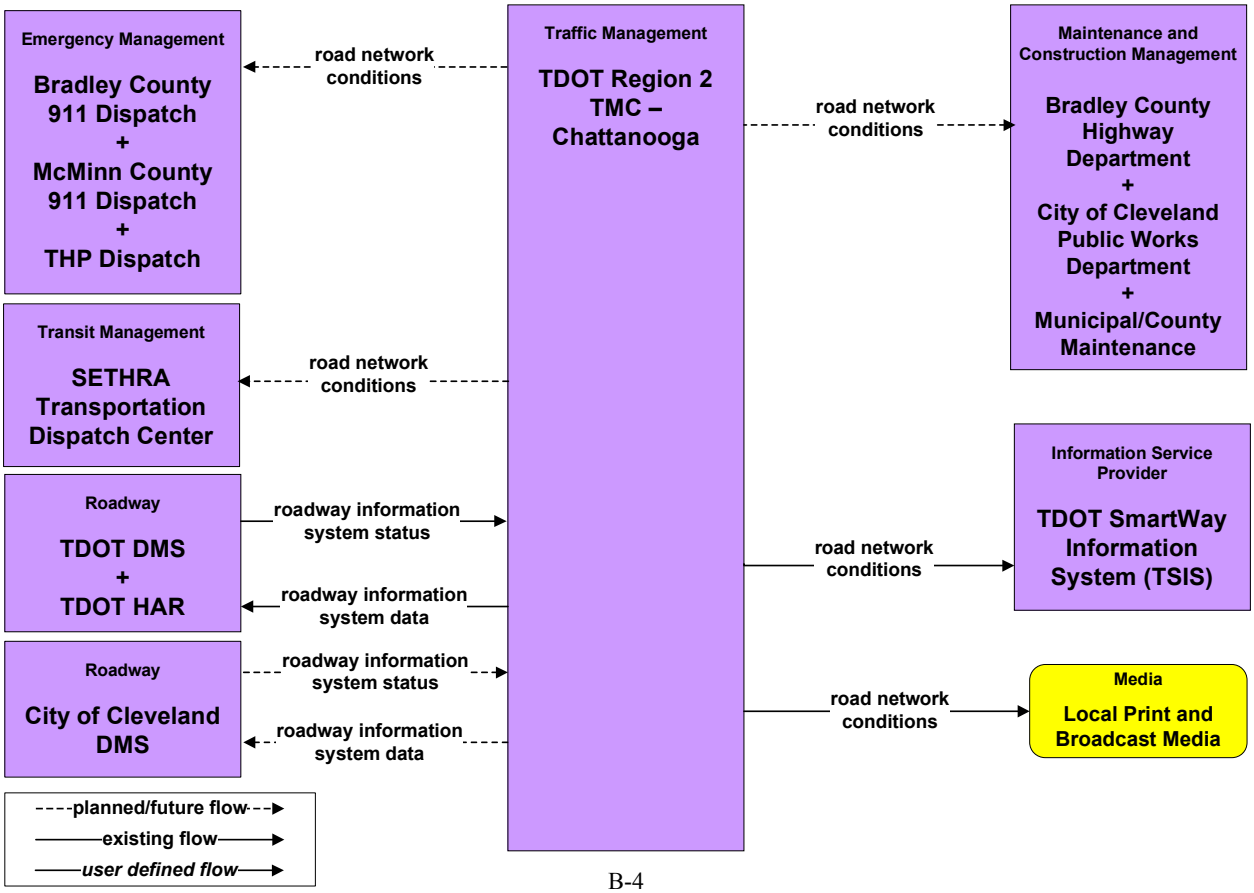
ATMS03 – Surface Street Control
Municipal Signal System



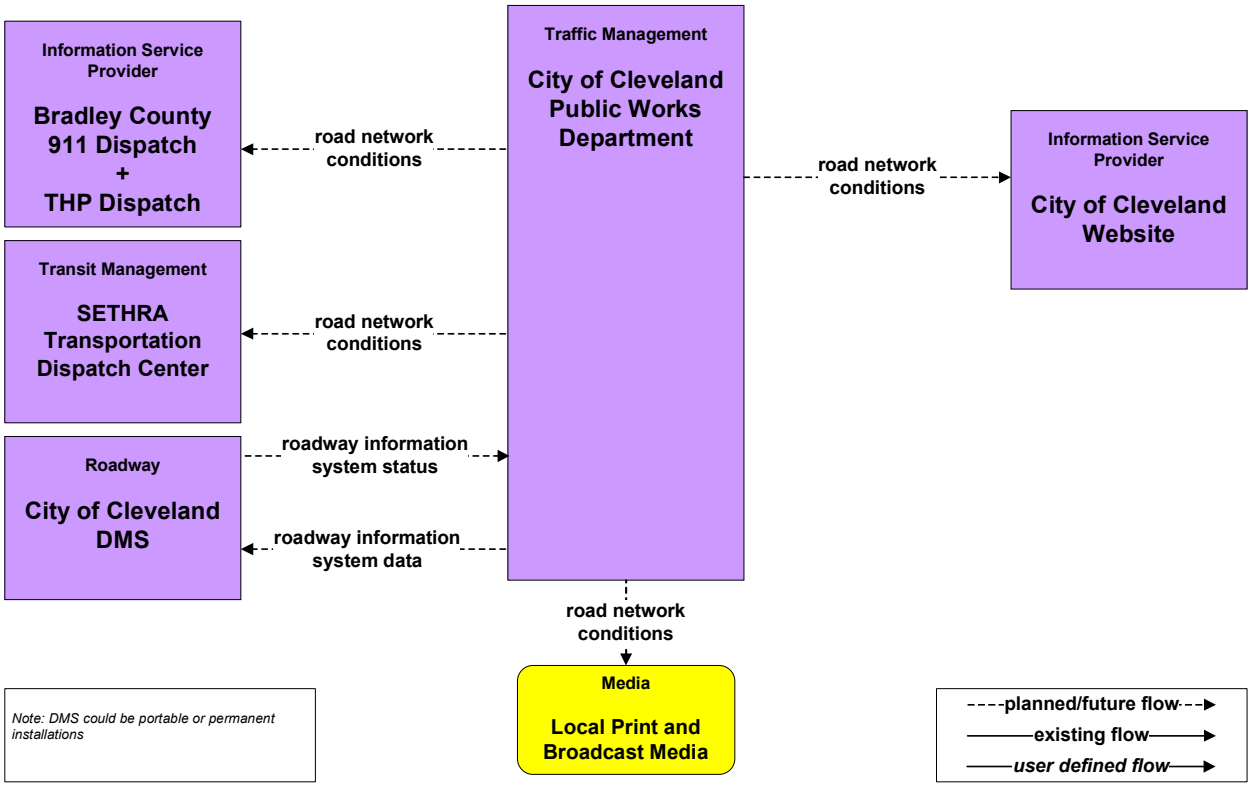


Note:
Municipal includes Bradley County, McMinn County, and the City of Charleston.

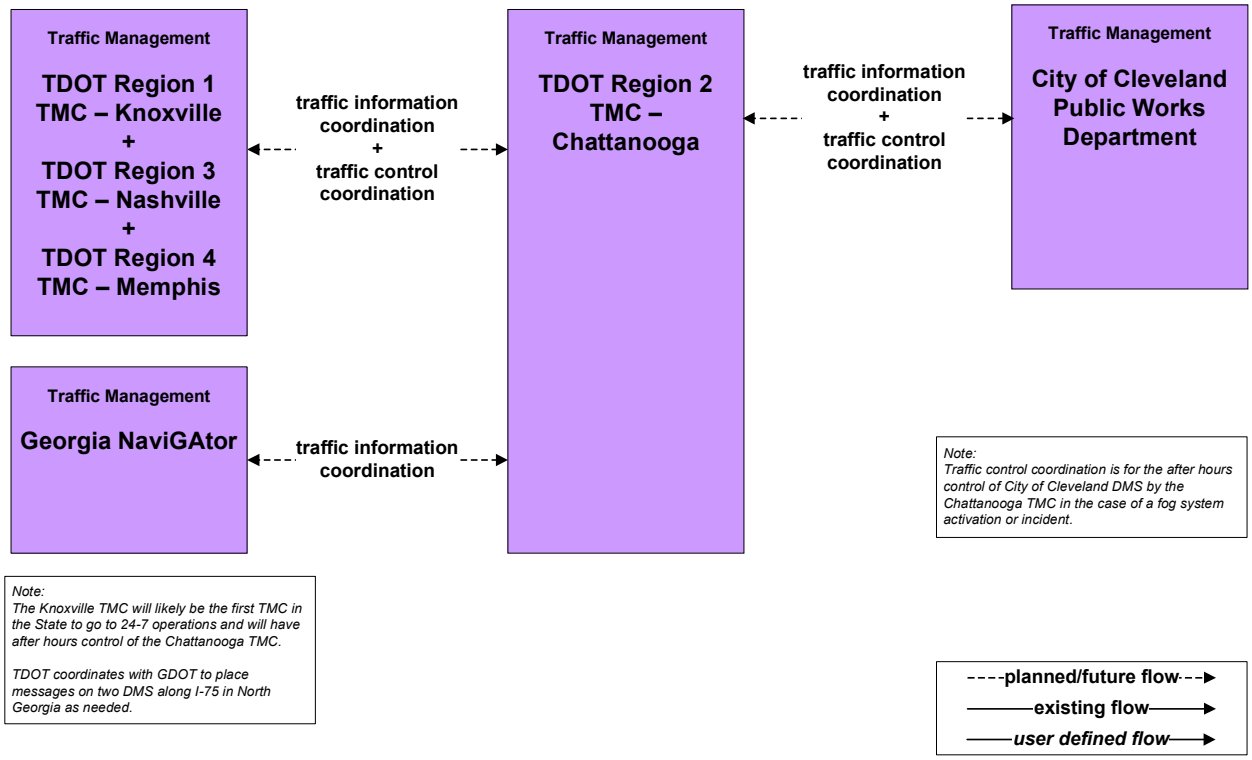
ATMS06 – Traffic Information Dissemination
TDOT Region 2 TMC – Chattanooga



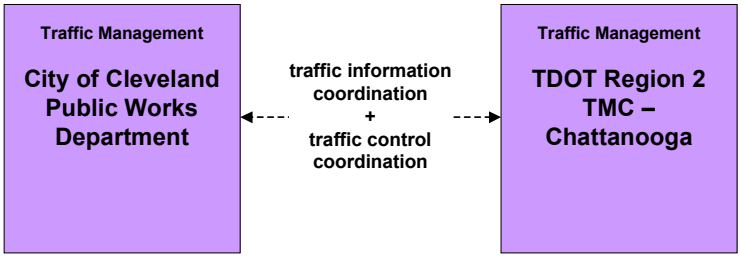
ATMS06 – Traffic Information Dissemination
City of Cleveland



ATMS07 – Regional Traffic Management
TDOT Region 2 TMC – Chattanooga



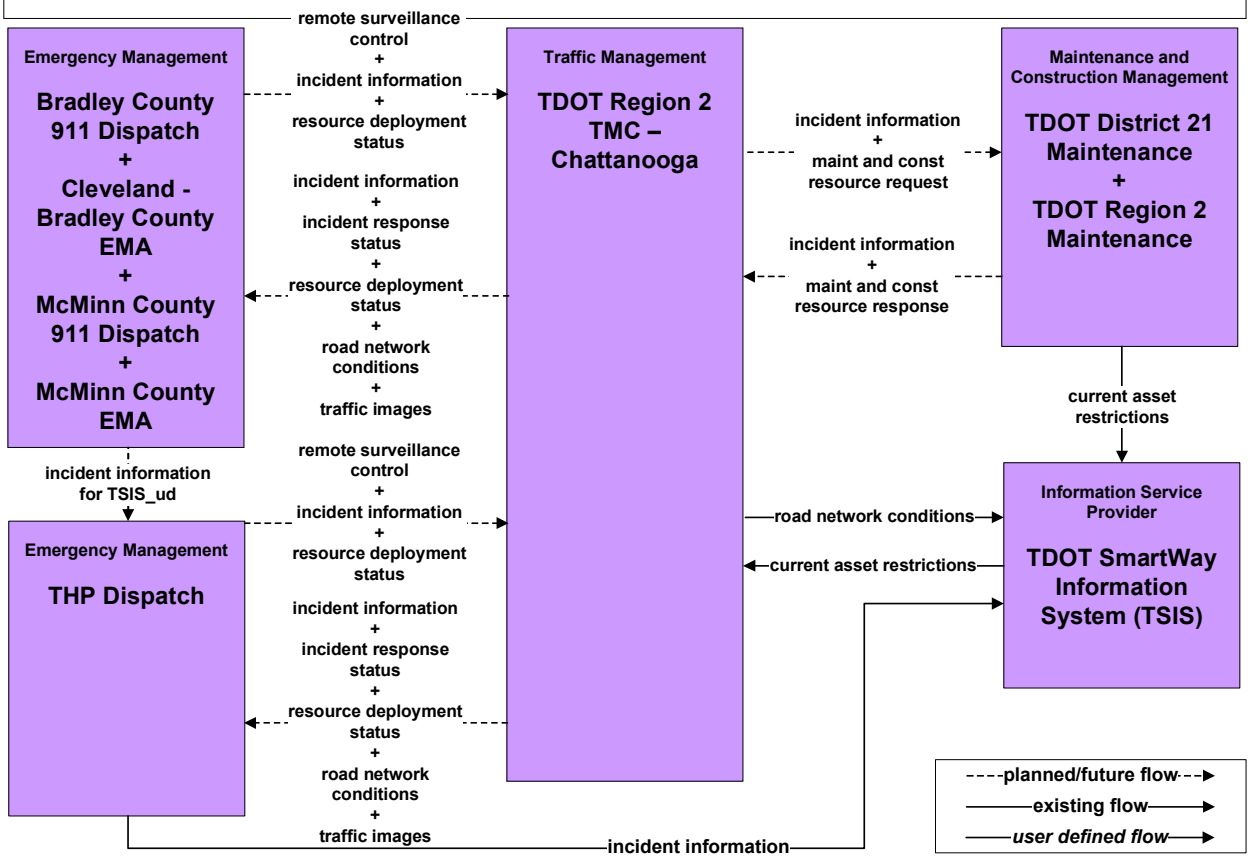
ATMS07 – Regional Traffic Management
City of Cleveland



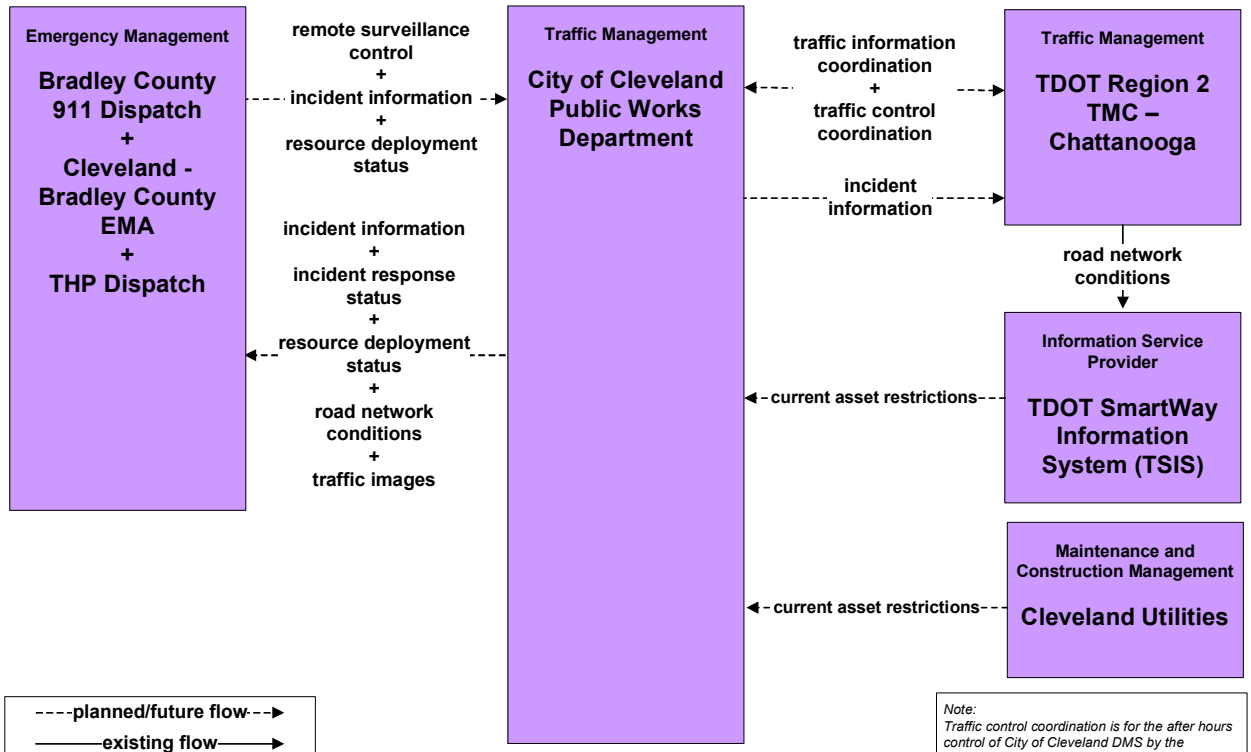
Note:
Traffic control coordination is for the after hours control of City of Cleveland DMS by the Chattanooga TMC in the case of a fog system activation or incident.

----planned/future flow--->
————existing flow————>
——*user defined flow*——>

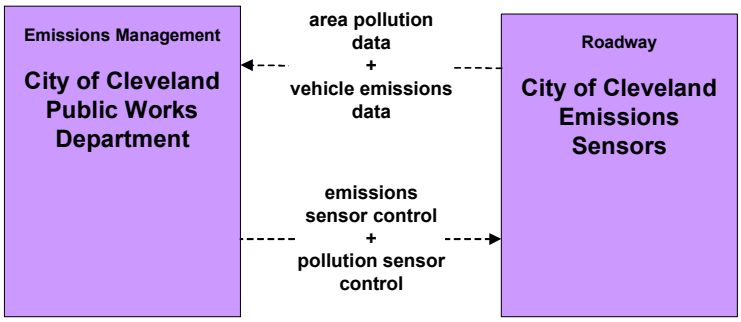
ATMS08 – Traffic Incident Management System
TDOT Region 2 TMC – Chattanooga



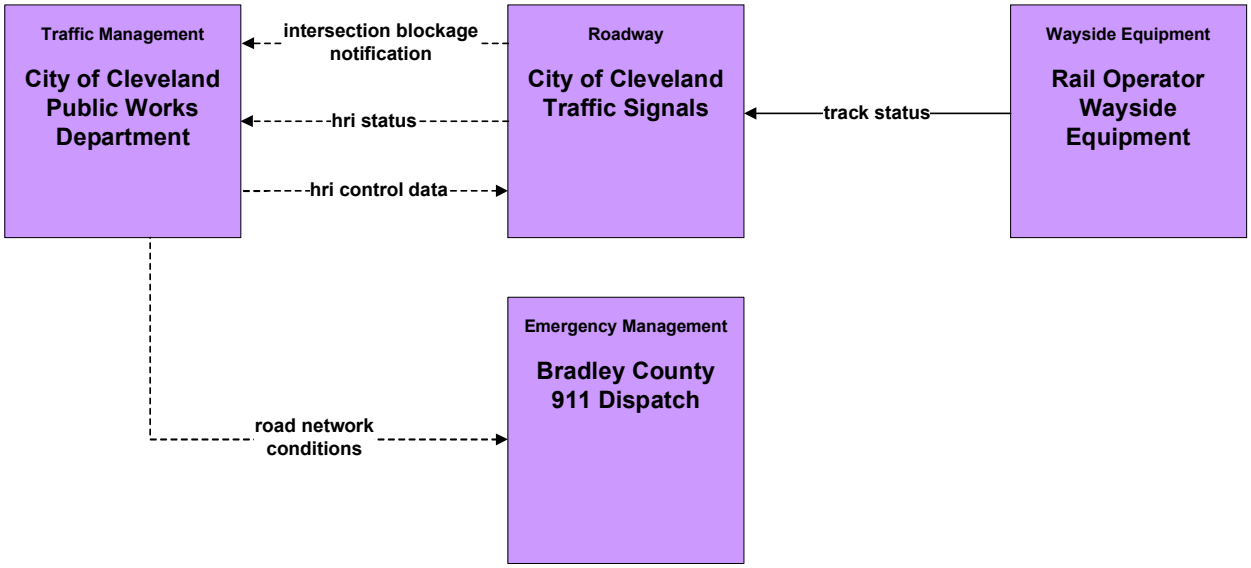
ATMS08 – Traffic Incident Management System
City of Cleveland

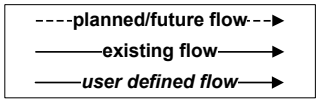


ATMS11 – Emissions Monitoring and Management
City of Cleveland



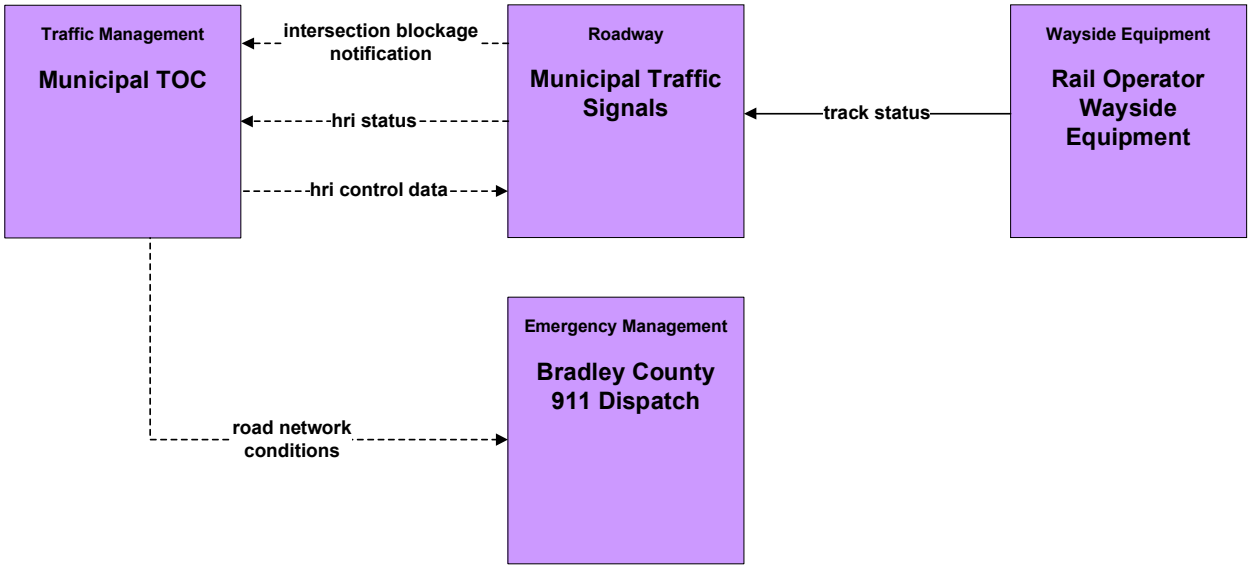
ATMS13 – Standard Railroad Grade Crossing
City of Cleveland

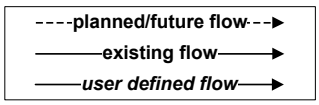




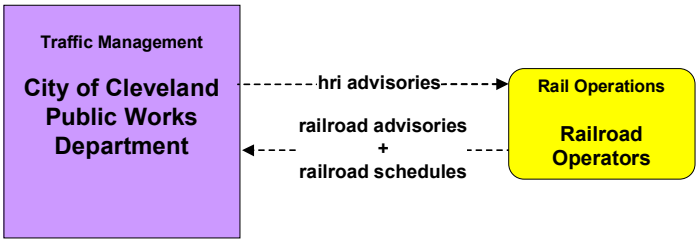
Note: The road network conditions flow contains the intersection blockage notification information.

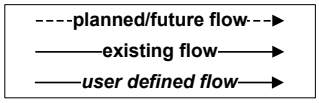
ATMS13 – Standard Railroad Grade Crossing
Municipal



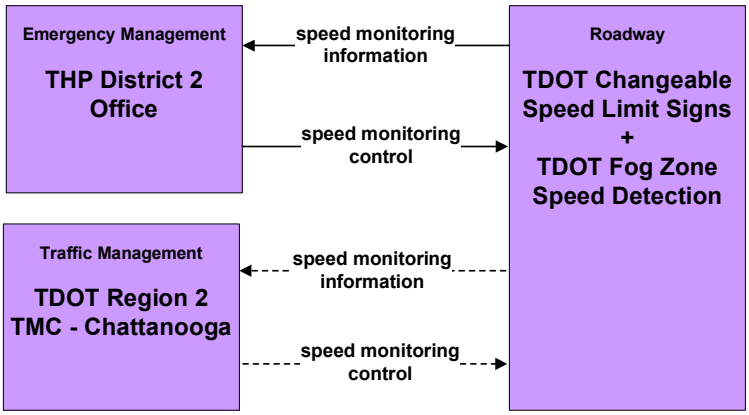


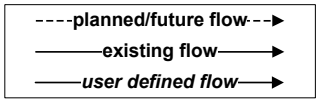
ATMS15 – Railroad Operations Coordination
City of Cleveland





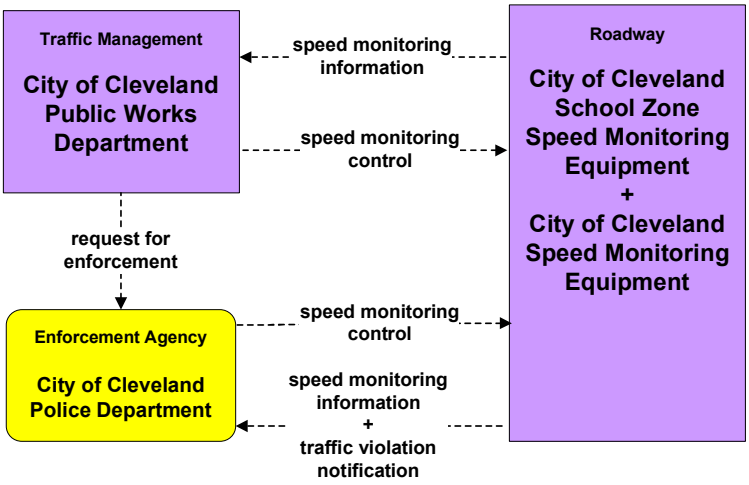
ATMS19 – Speed Monitoring
TDOT Fog Management System

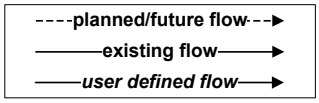




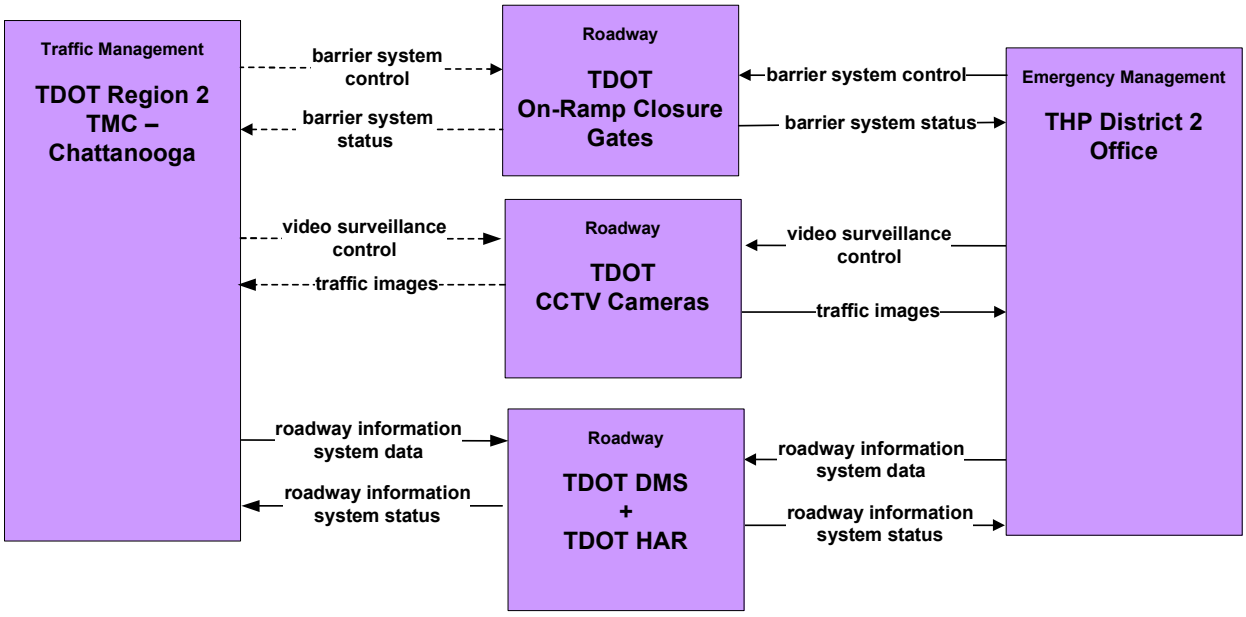
Note:
Other portions of the fog management system can be found in ATMS01, ATMS21, MC03 and MC04.

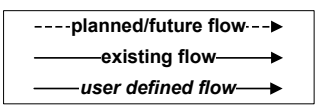
ATMS19 – Speed Monitoring
City of Cleveland





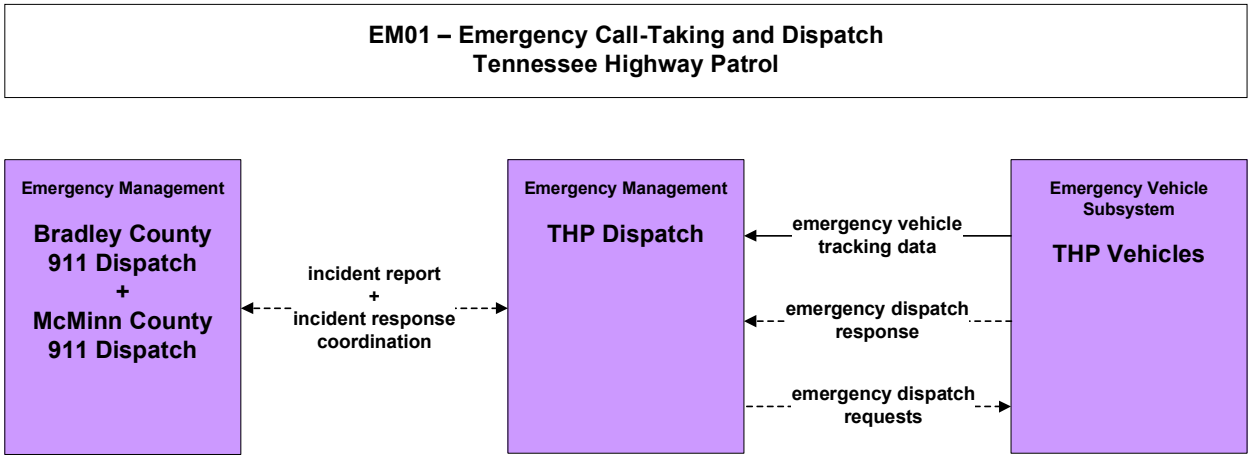
ATMS21 – Roadway Closure Management
TDOT Fog Management System

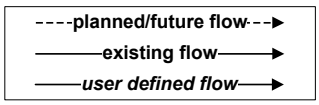




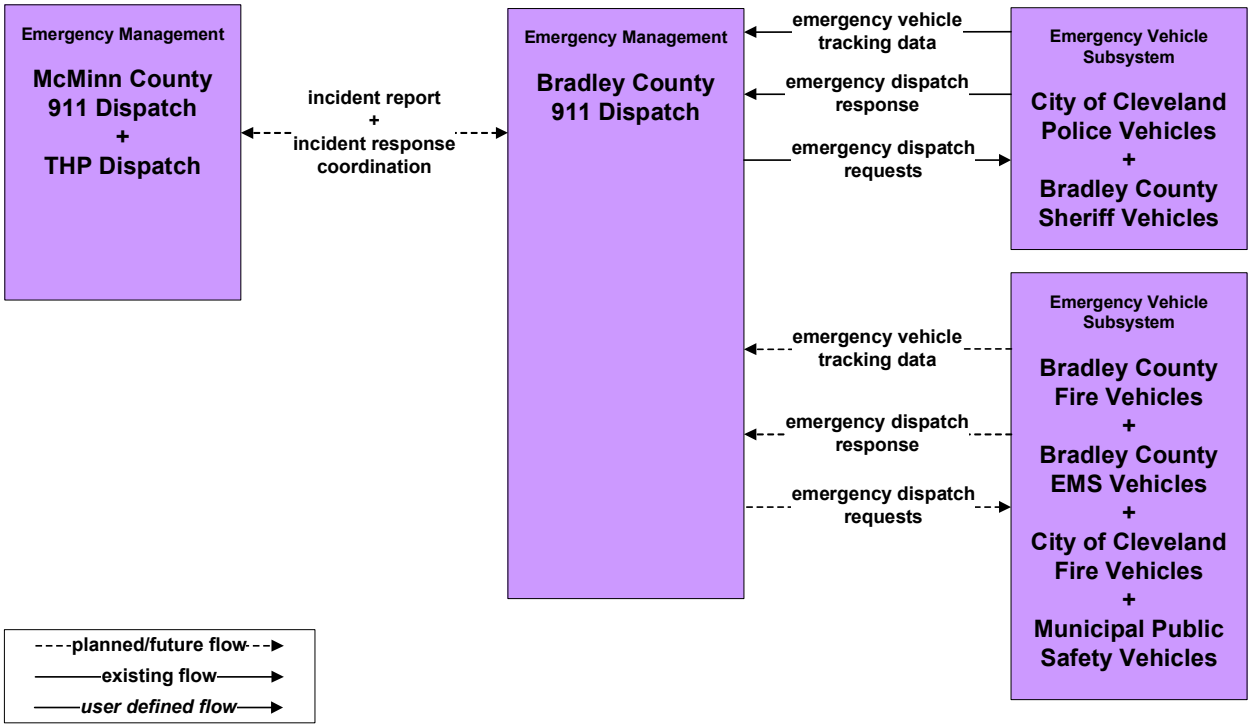
Note:
Other portions of the fog management system can be found in ATMS01, ATMS19, MC03 and MC04.

Emergency Management

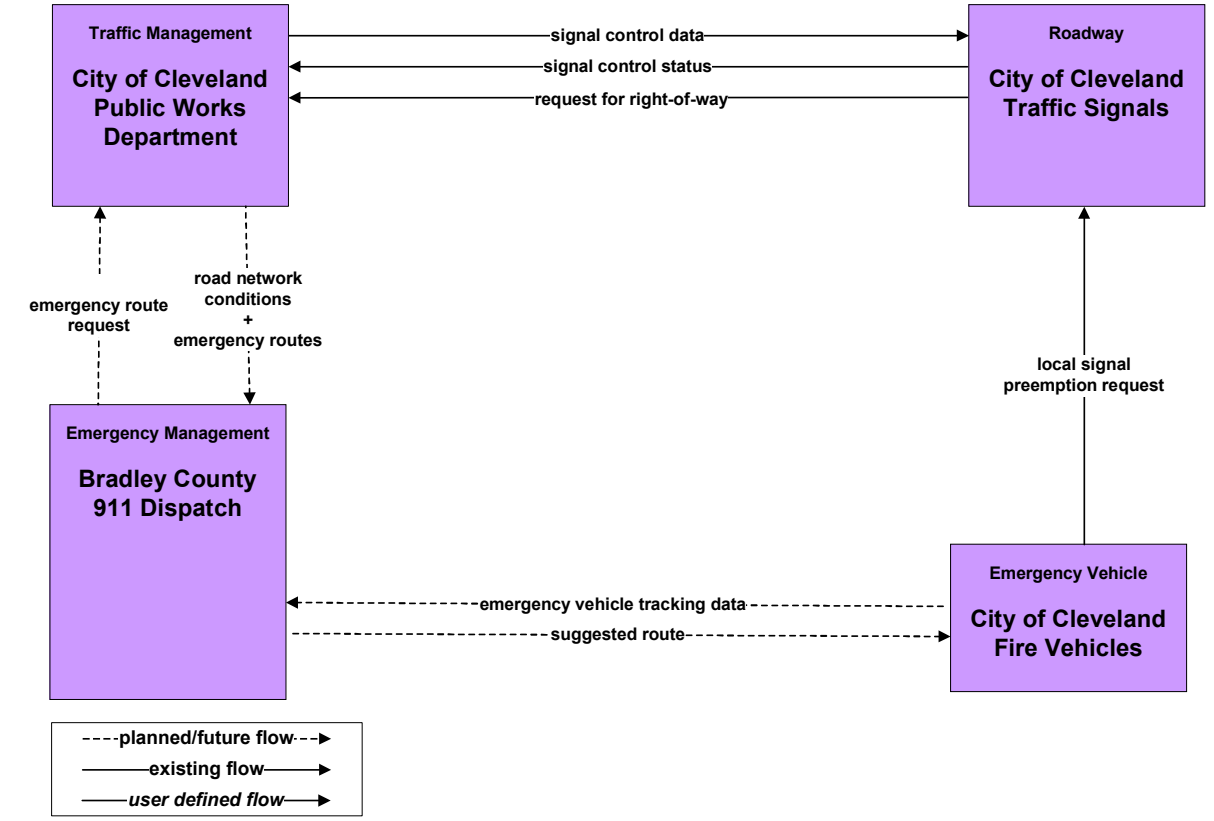




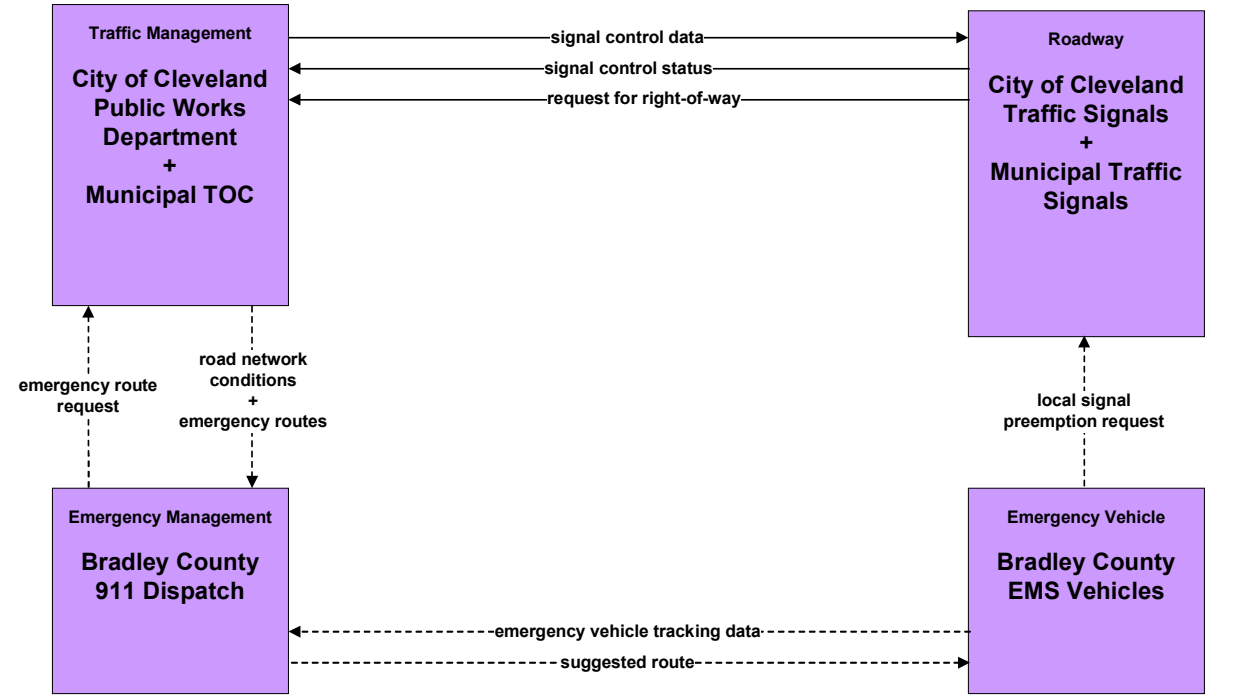
EM01 – Emergency Call-Taking and Dispatch
Bradley County 911 Dispatch



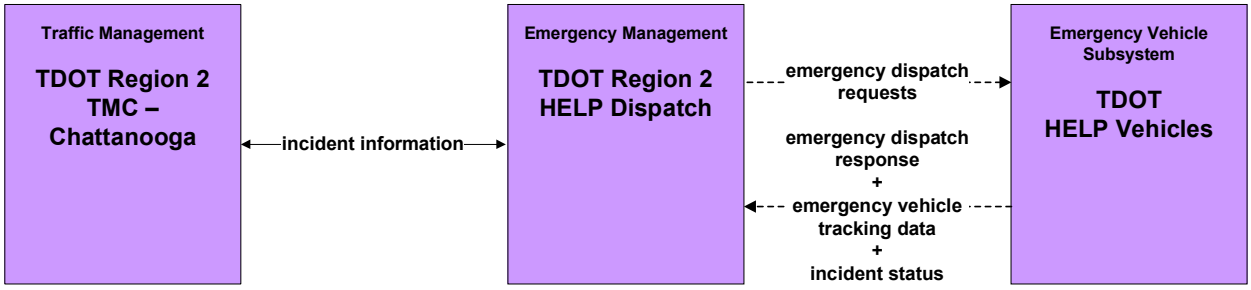
EM02 – Emergency Routing
City of Cleveland Fire Department



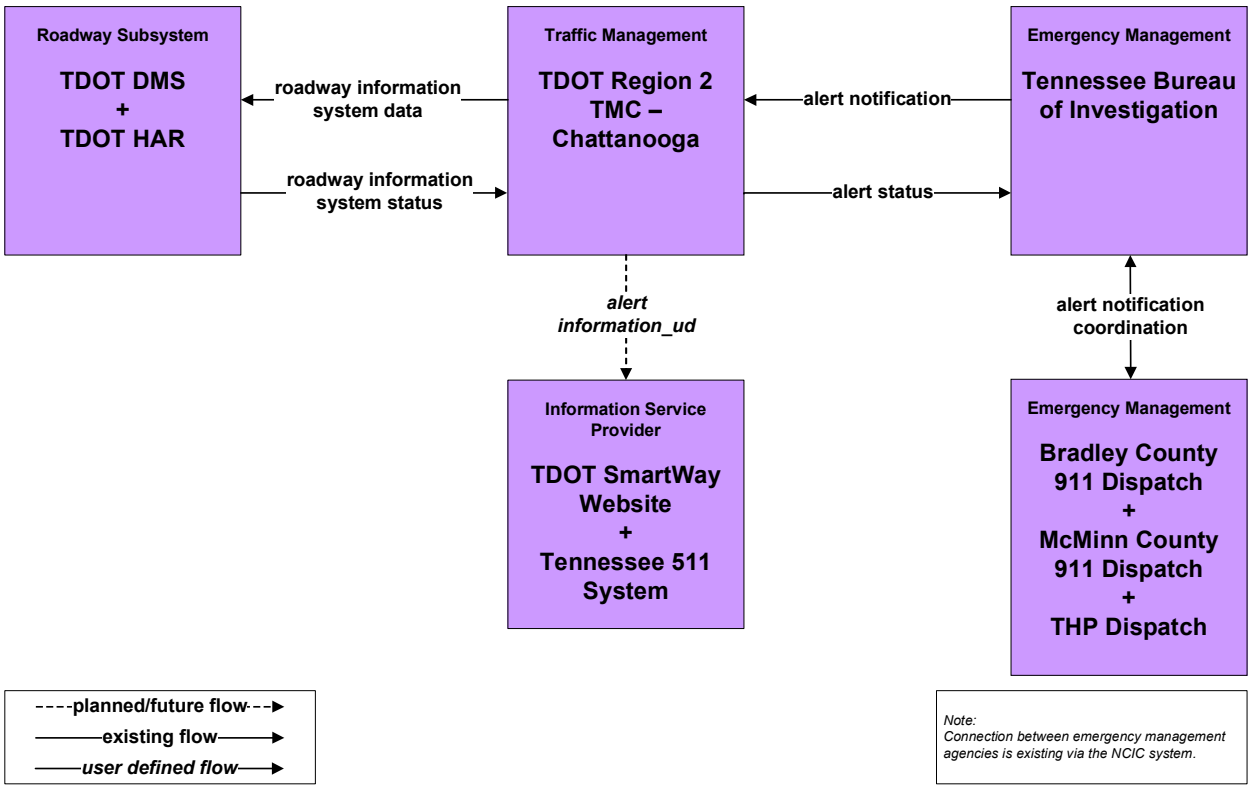
EM02 – Emergency Routing
Bradley County EMS



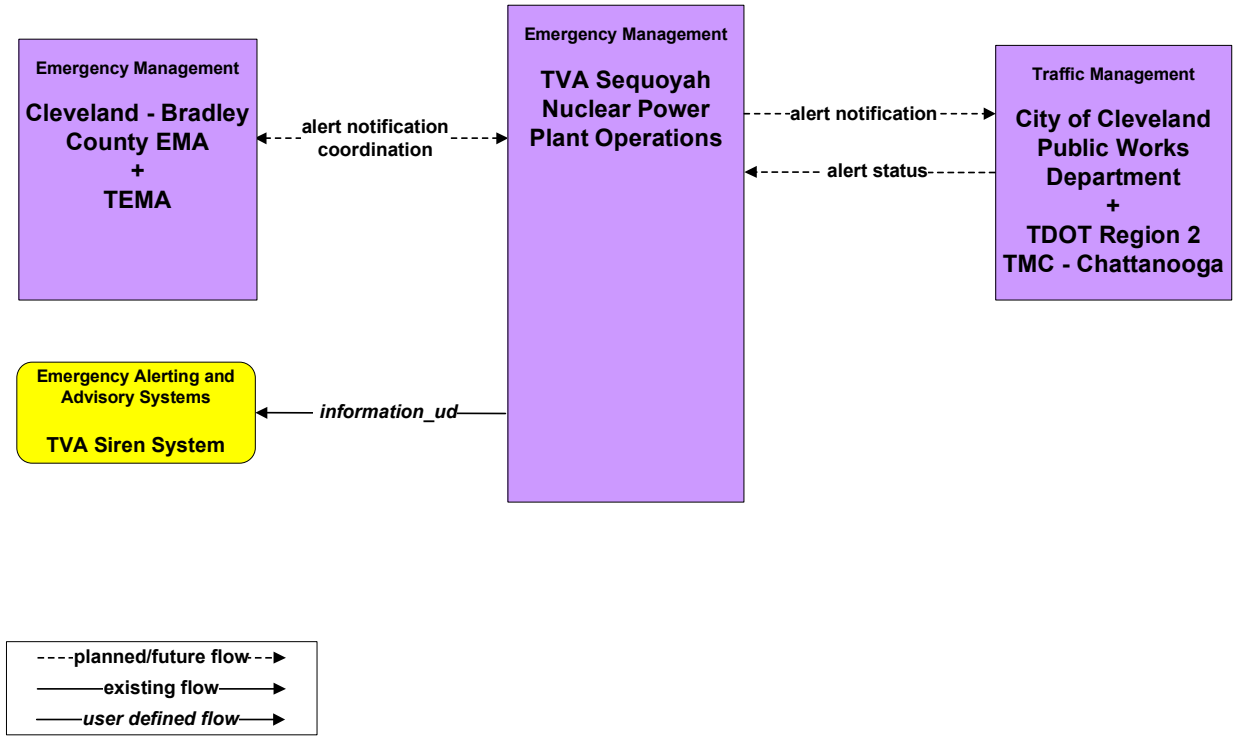
EM04 – Roadway Service Patrols
HELP



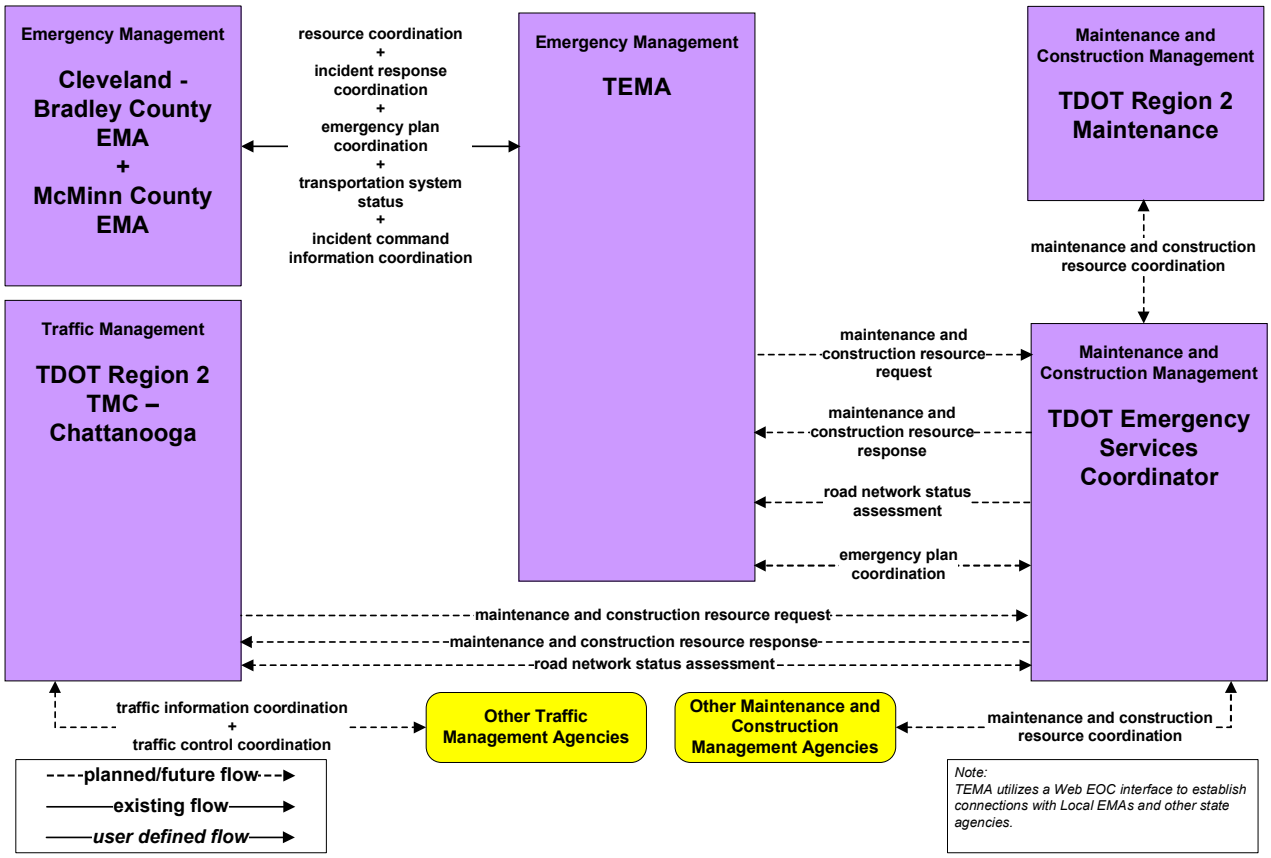
EM06 – Wide-Area Alert
Tennessee AMBER Alert



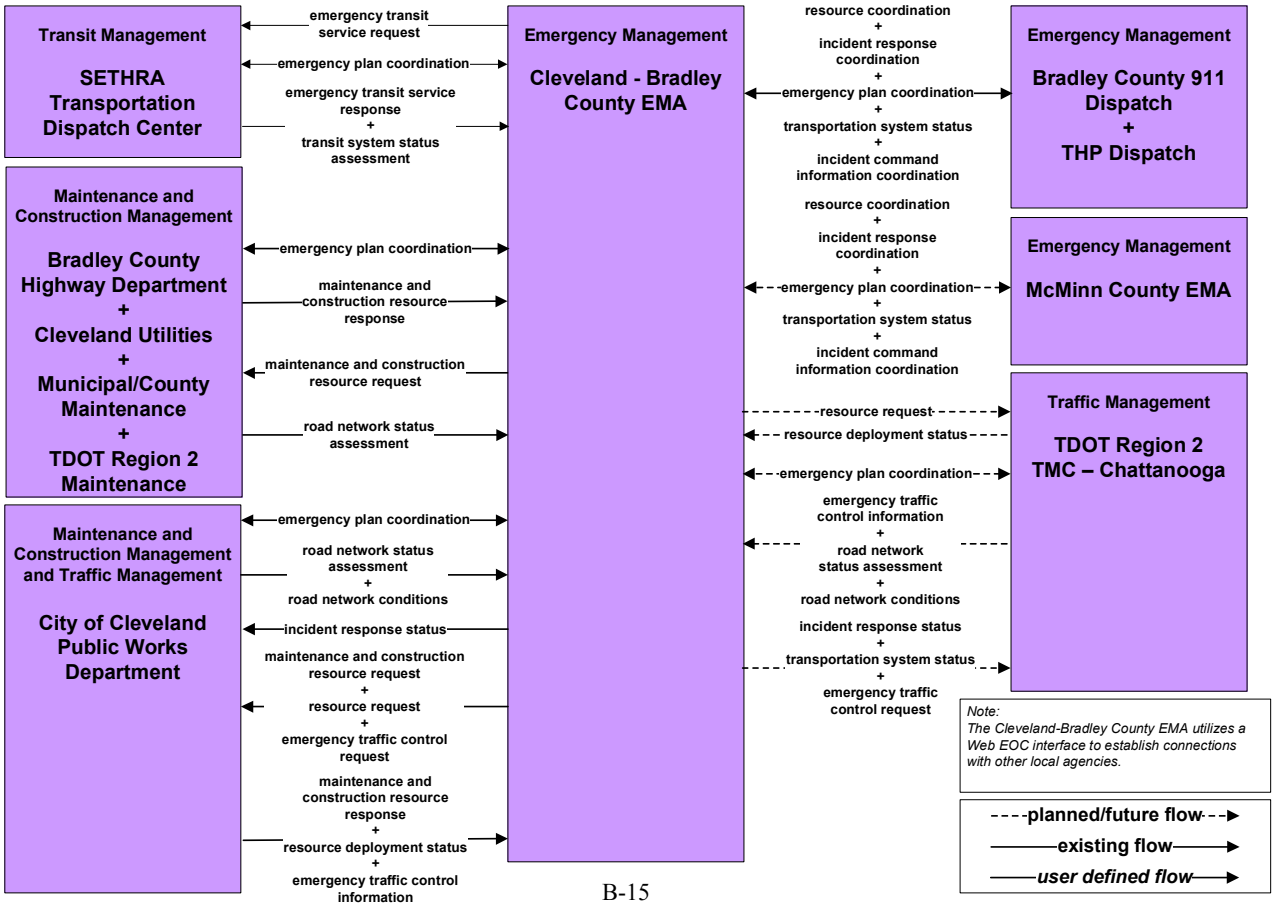
EM06 – Wide-Area Alert
Tennessee Valley Authority



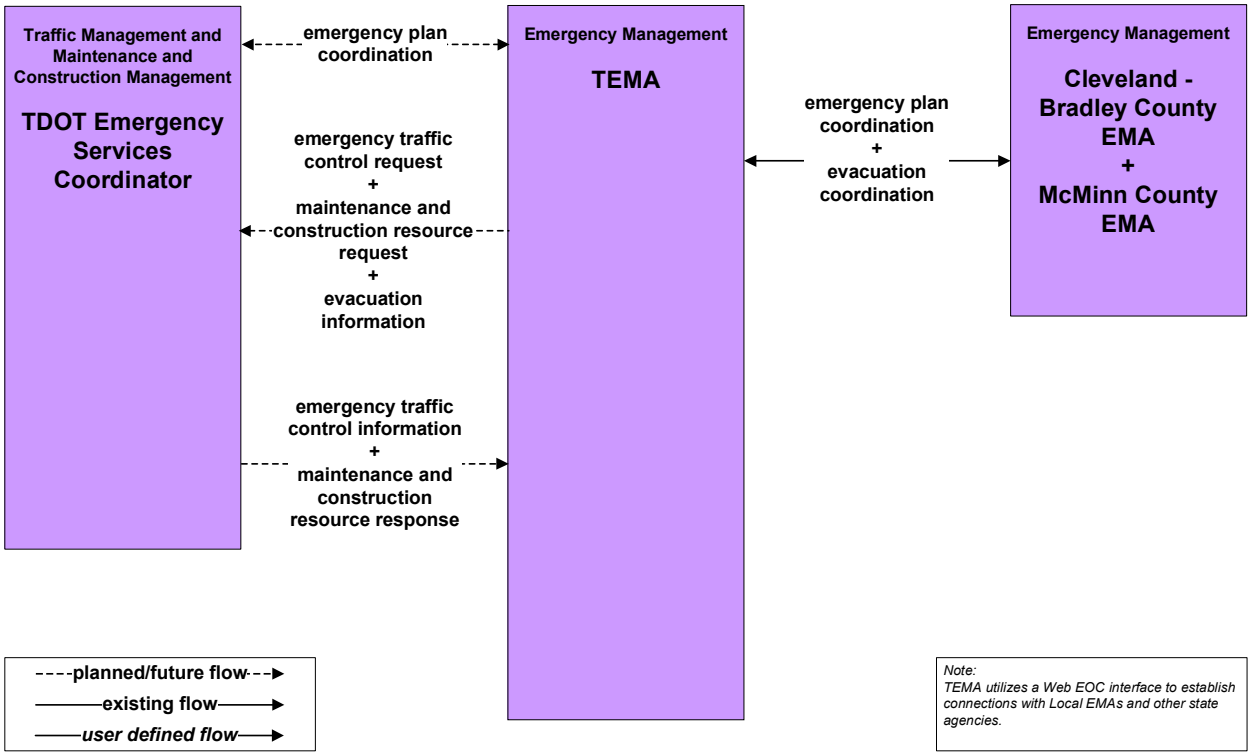
EM08 – Disaster Response and Recovery
TEMA



EM08 – Disaster Response and Recovery
Cleveland - Bradley County EMA

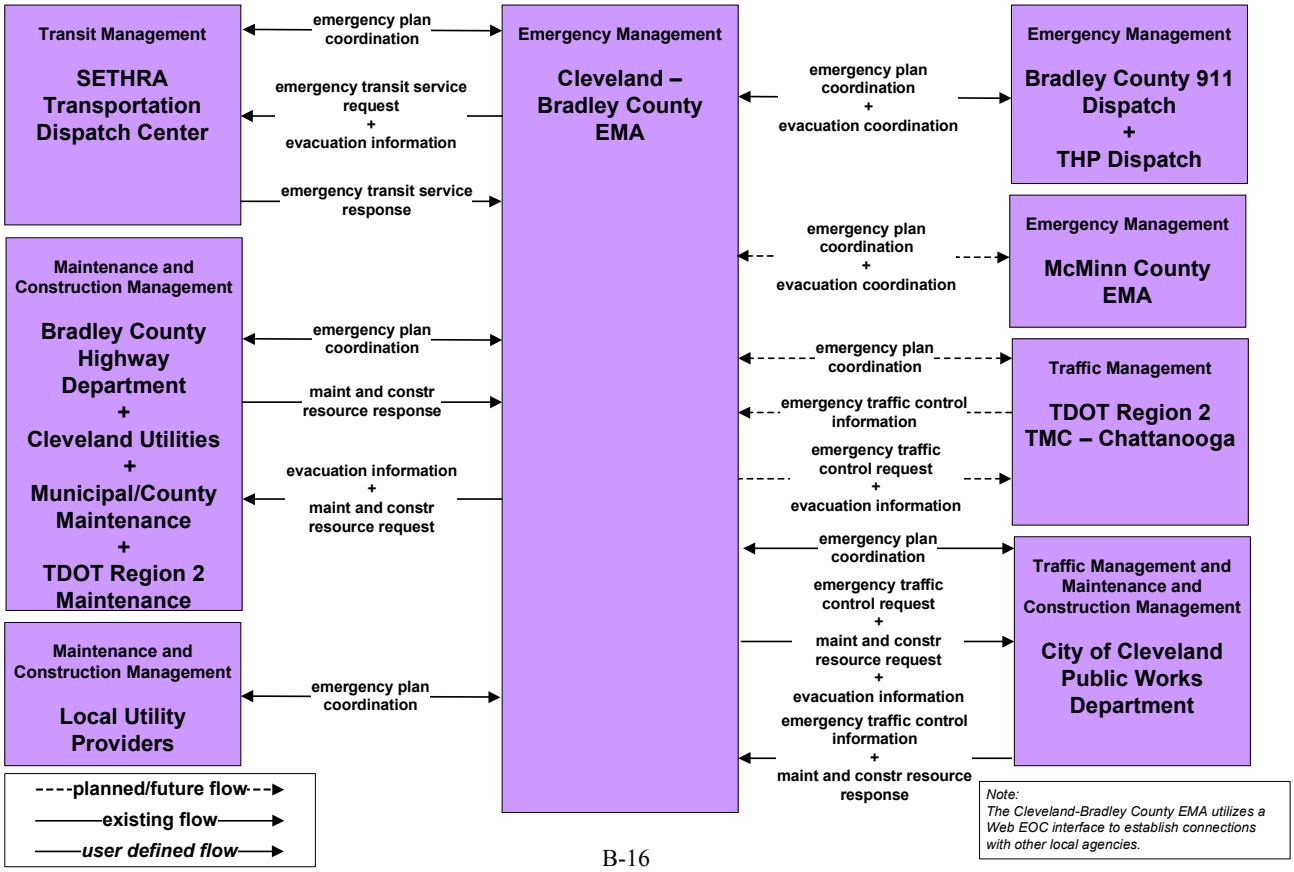


EM09 – Evacuation and Reentry Management
TEMA



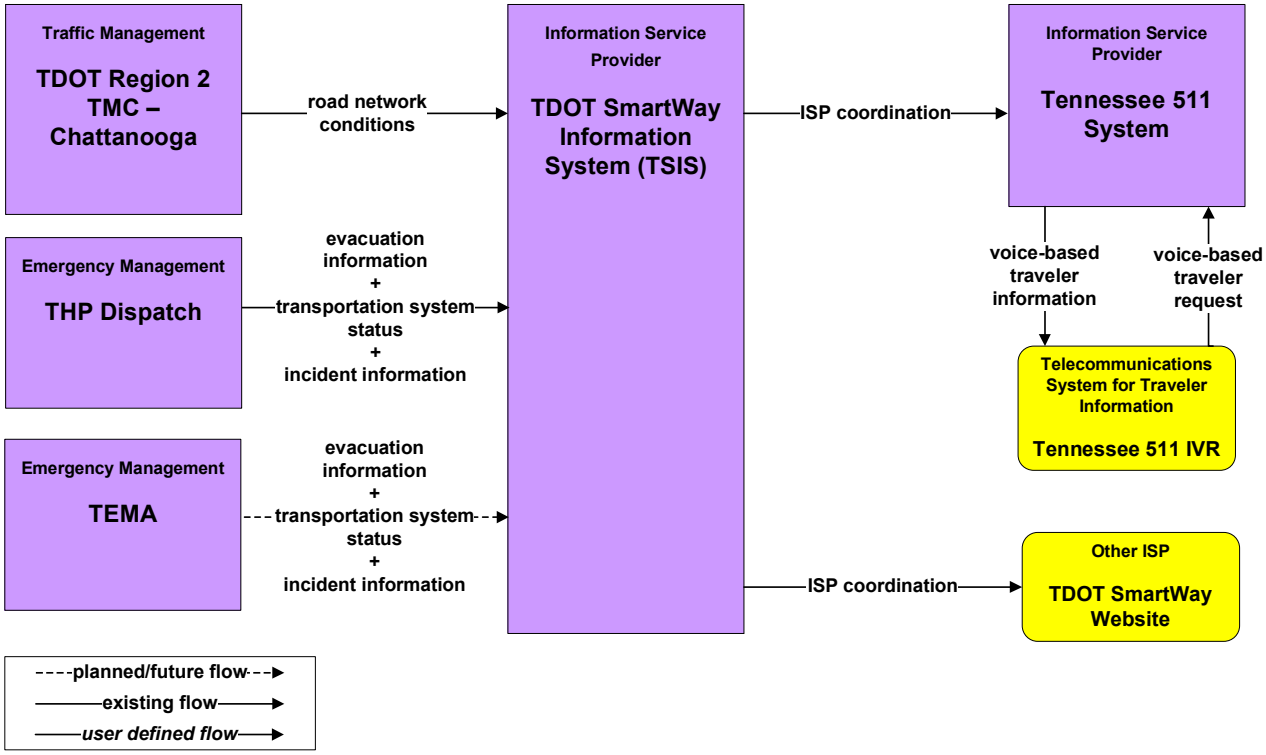
Note:
TEMA utilizes a Web EOC interface to establish connections with Local EMAs and other state agencies.

EM09 – Evacuation and Reentry Management
Cleveland - Bradley County EMA



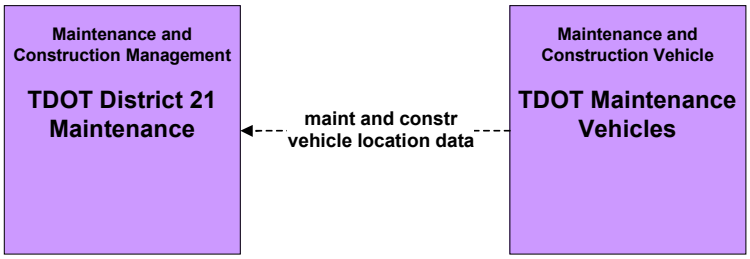
Note:
The Cleveland-Bradley County EMA utilizes a Web EOC interface to establish connections with other local agencies.

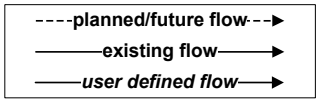
EM10 – Disaster Traveler Information
Tennessee 511 and TSIS



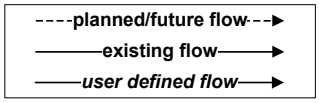
Maintenance and Construction Management

MC01 – Maintenance and Construction Vehicle and Equipment Tracking
TDOT District 21 Maintenance

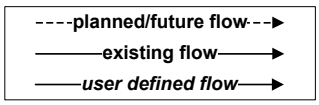




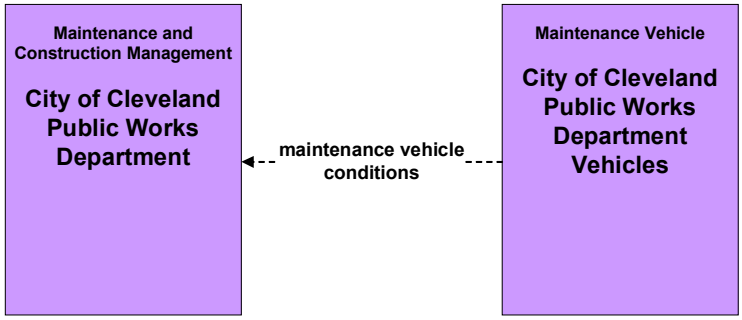
MC01 – Maintenance and Construction Vehicle and Equipment Tracking
City of Cleveland

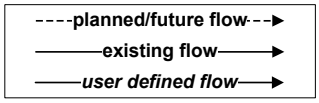


MC01 – Maintenance and Construction Vehicle and Equipment Tracking
Bradley County

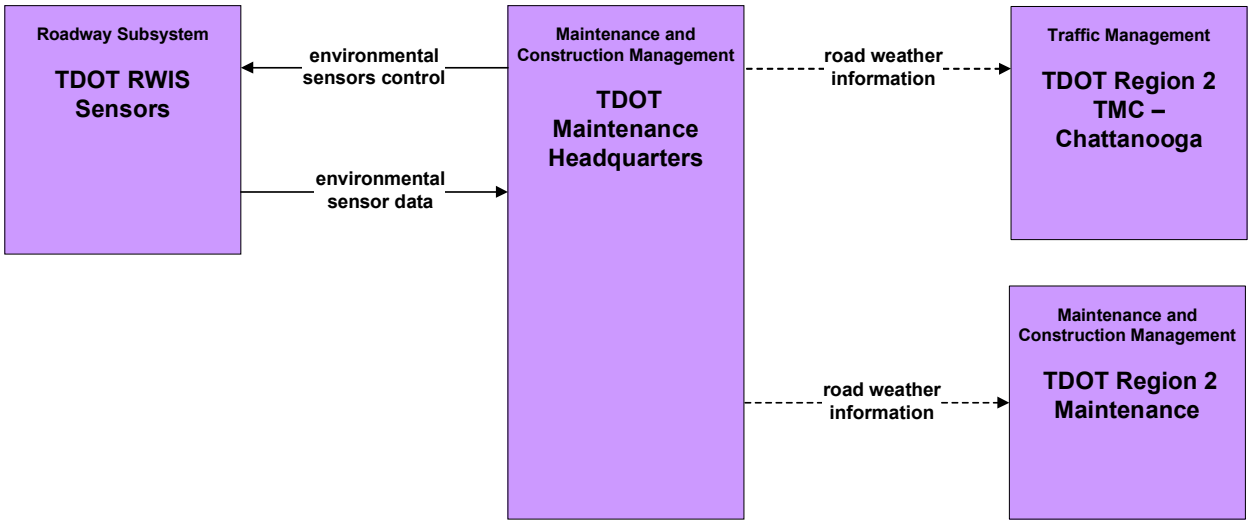


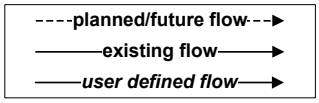
MC02 – Maintenance and Construction Vehicle Maintenance
City of Cleveland



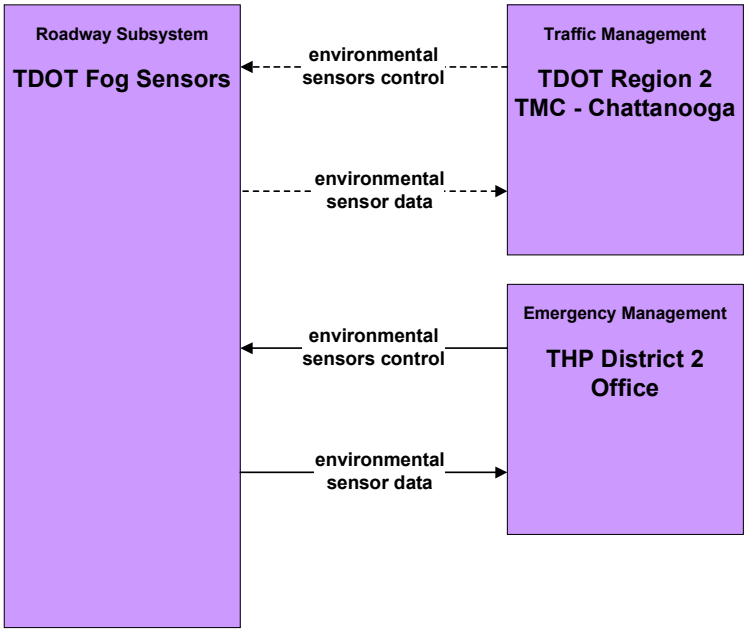


MC03 – Road Weather Data Collection
TDOT RWIS





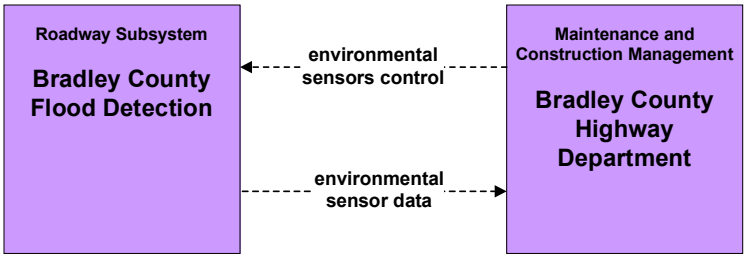
MC03 – Road Weather Data Collection
TDOT Fog Management System



----planned/future flow--->
————existing flow————>
——*user defined flow*——>

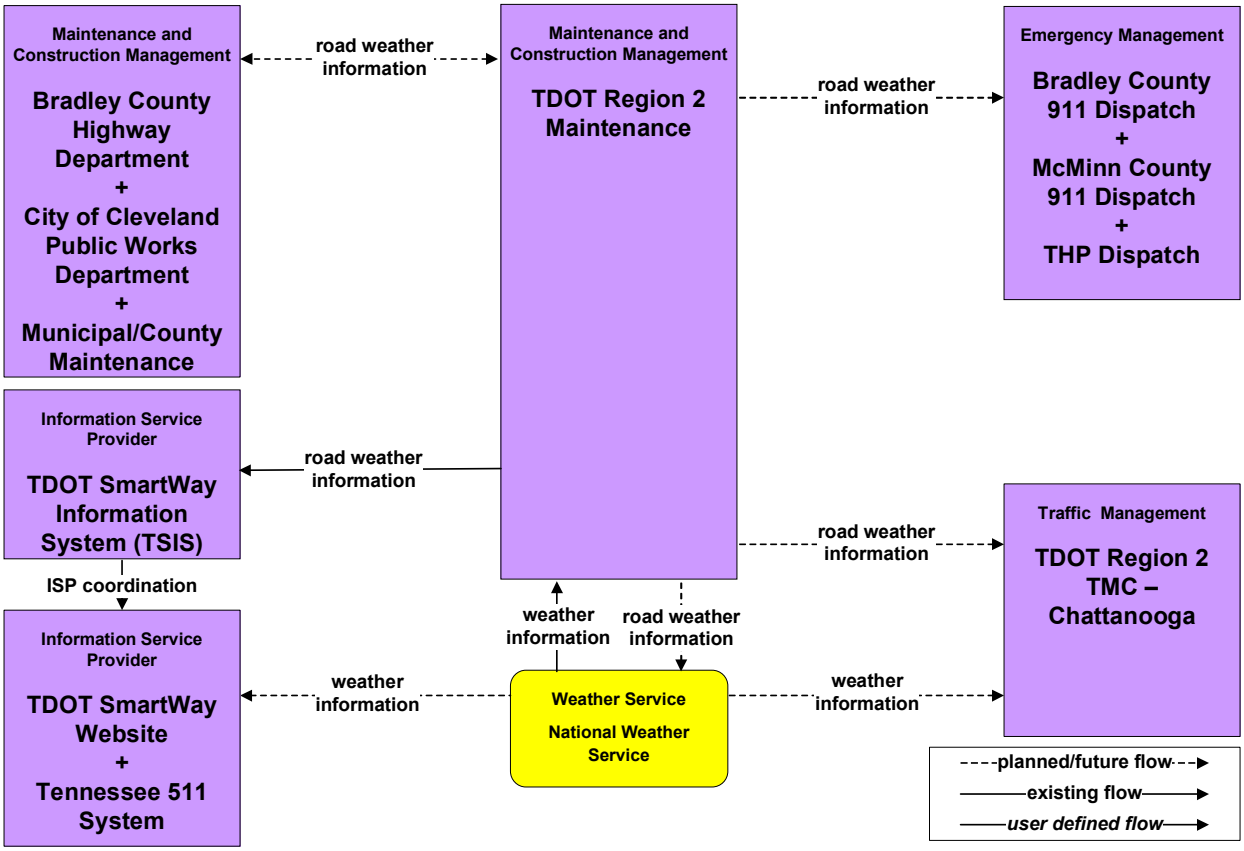
Note:
Other portions of the fog management system can be found in ATMS01, ATMS19, ATMS21, and MC04.

MC03 – Road Weather Data Collection
Bradley County Flood Detection

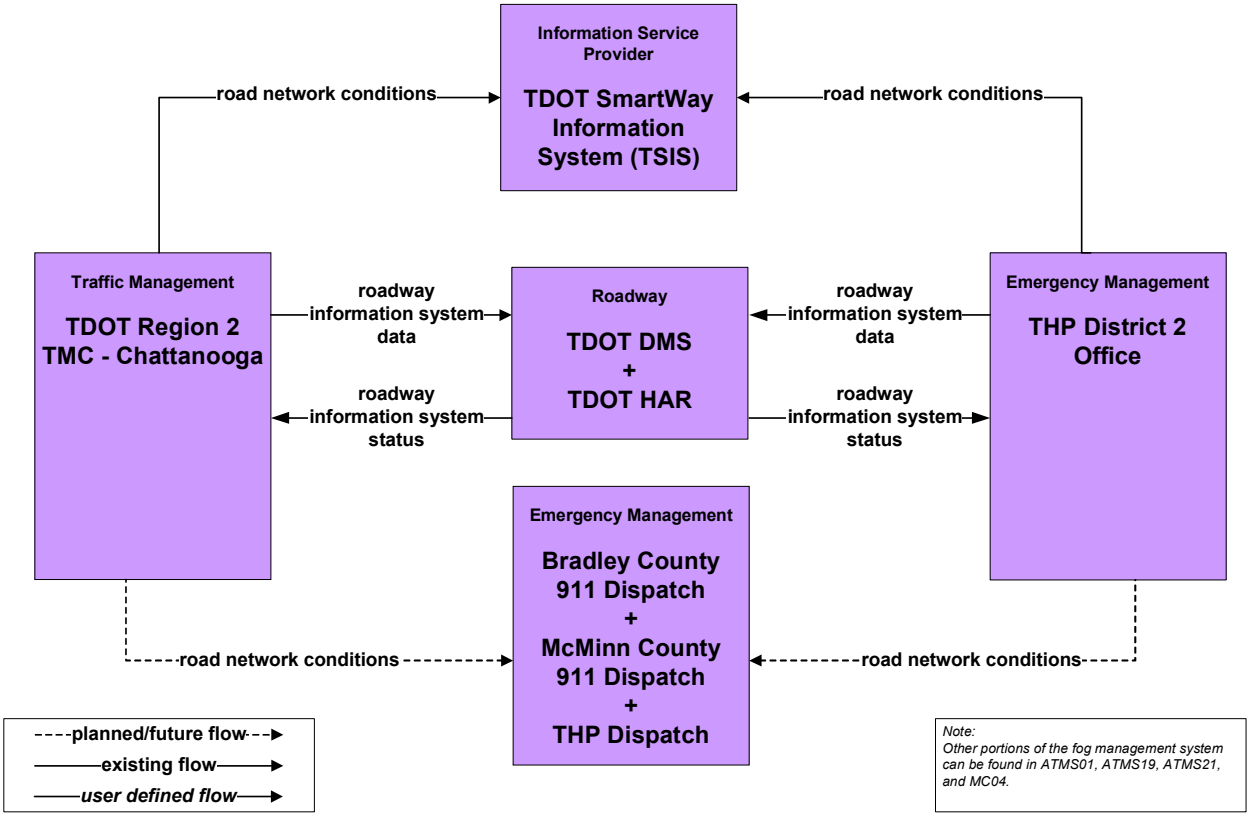


----planned/future flow--->
————existing flow————>
——*user defined flow*——>

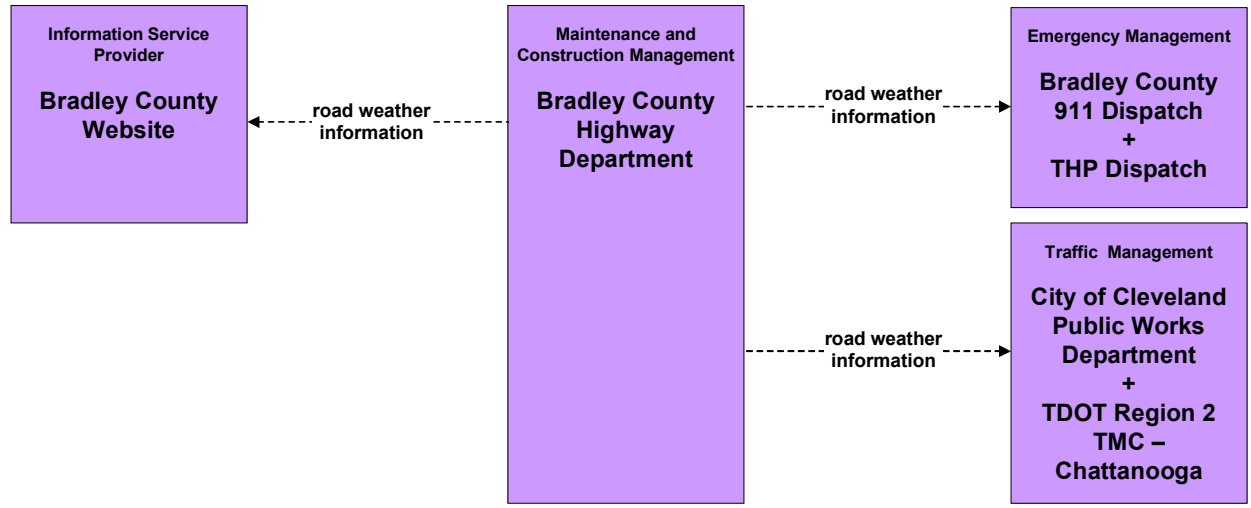
MC04 – Weather Information Processing and Distribution
TDOT Region 2 Maintenance

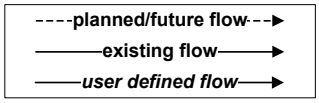


MC04 – Weather Information Processing and Distribution
TDOT Fog Management System

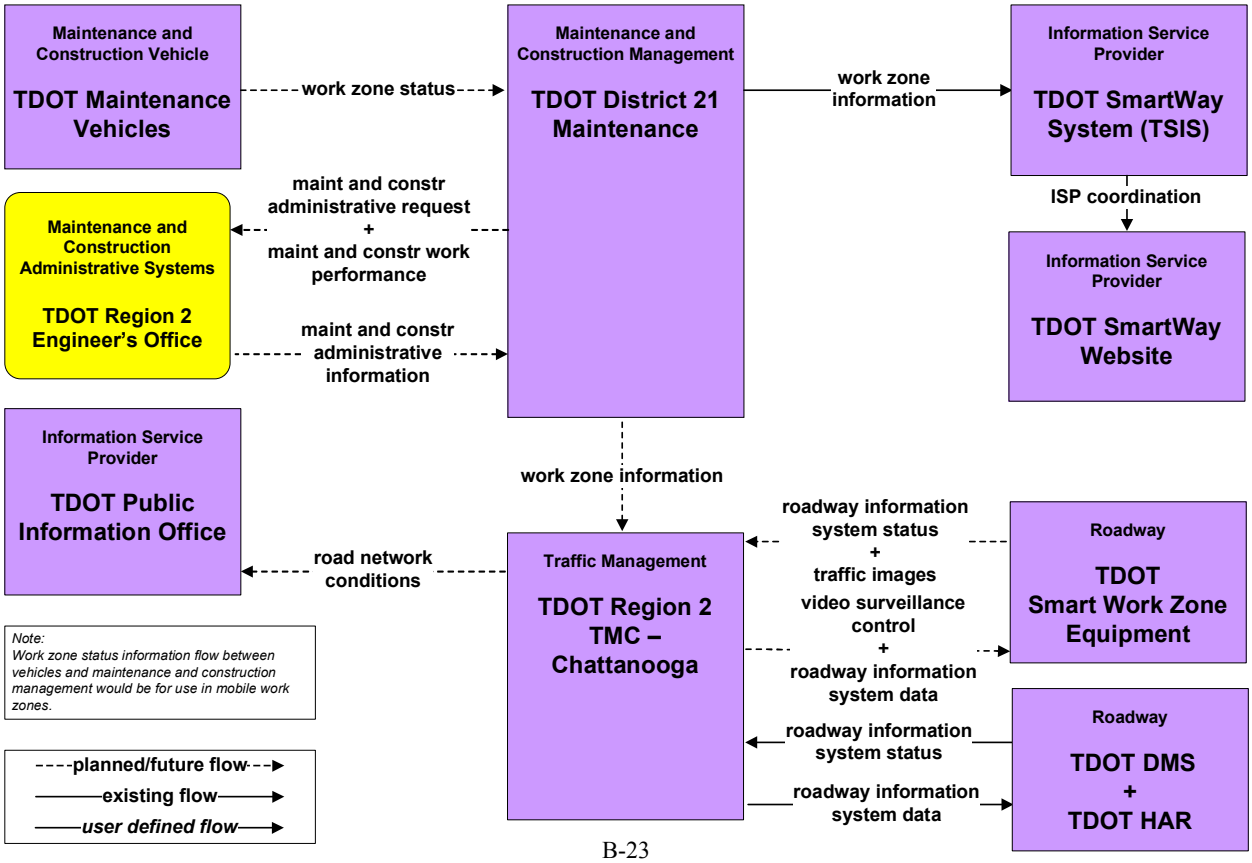


MC04 – Weather Information Processing and Distribution
Bradley County

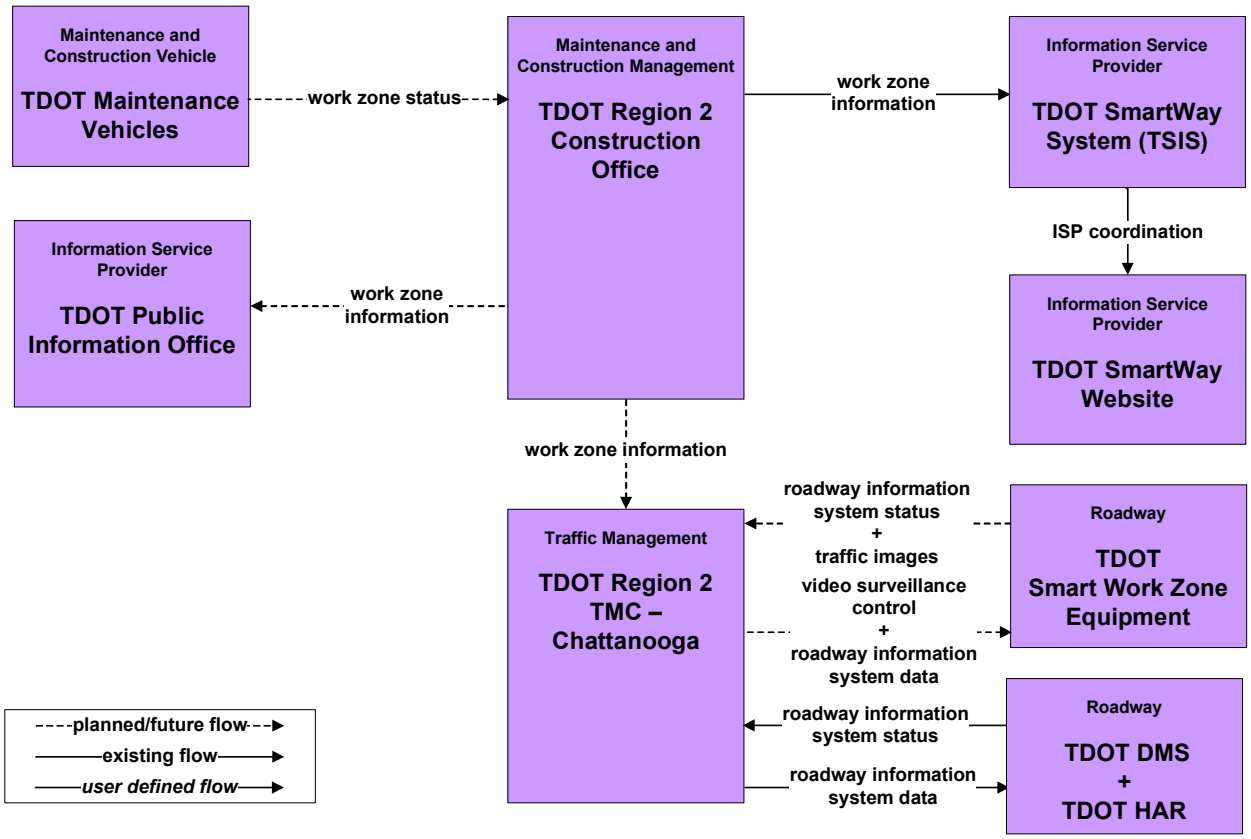




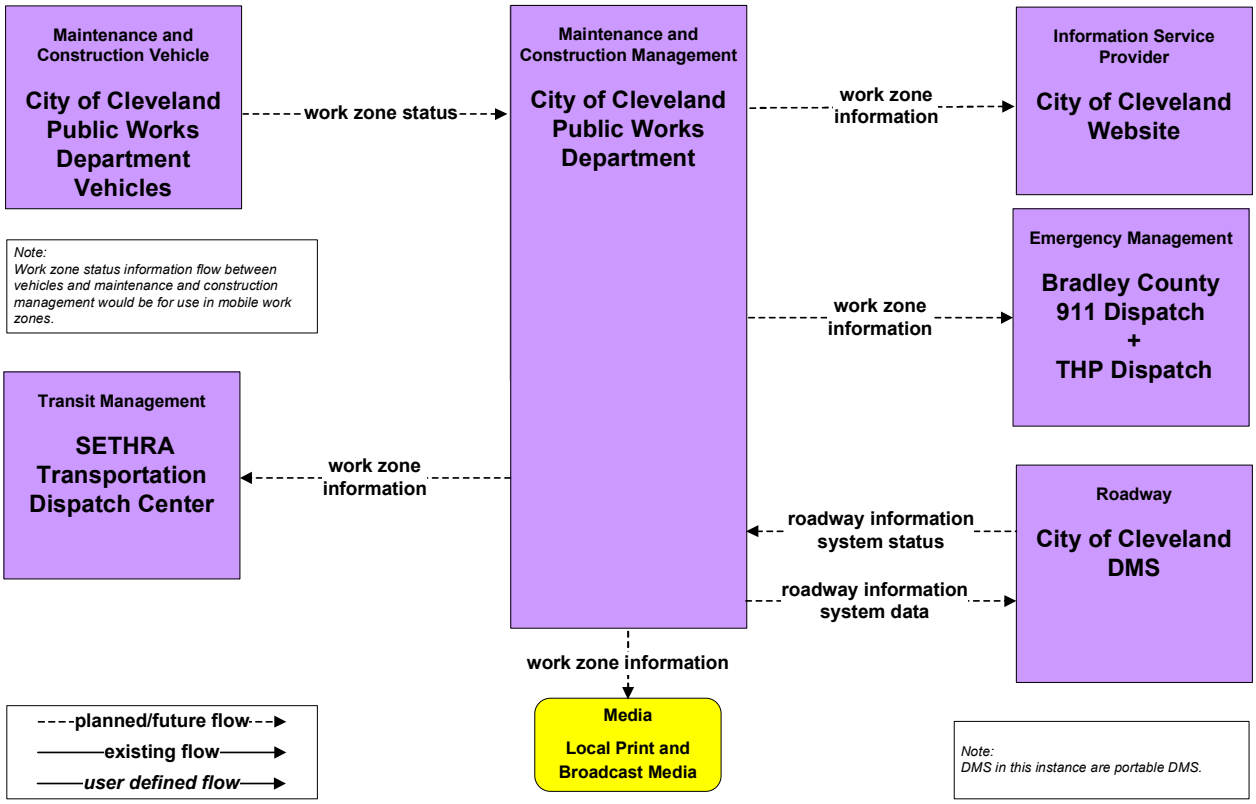
MC08 – Work Zone Management
TDOT District 21 Maintenance



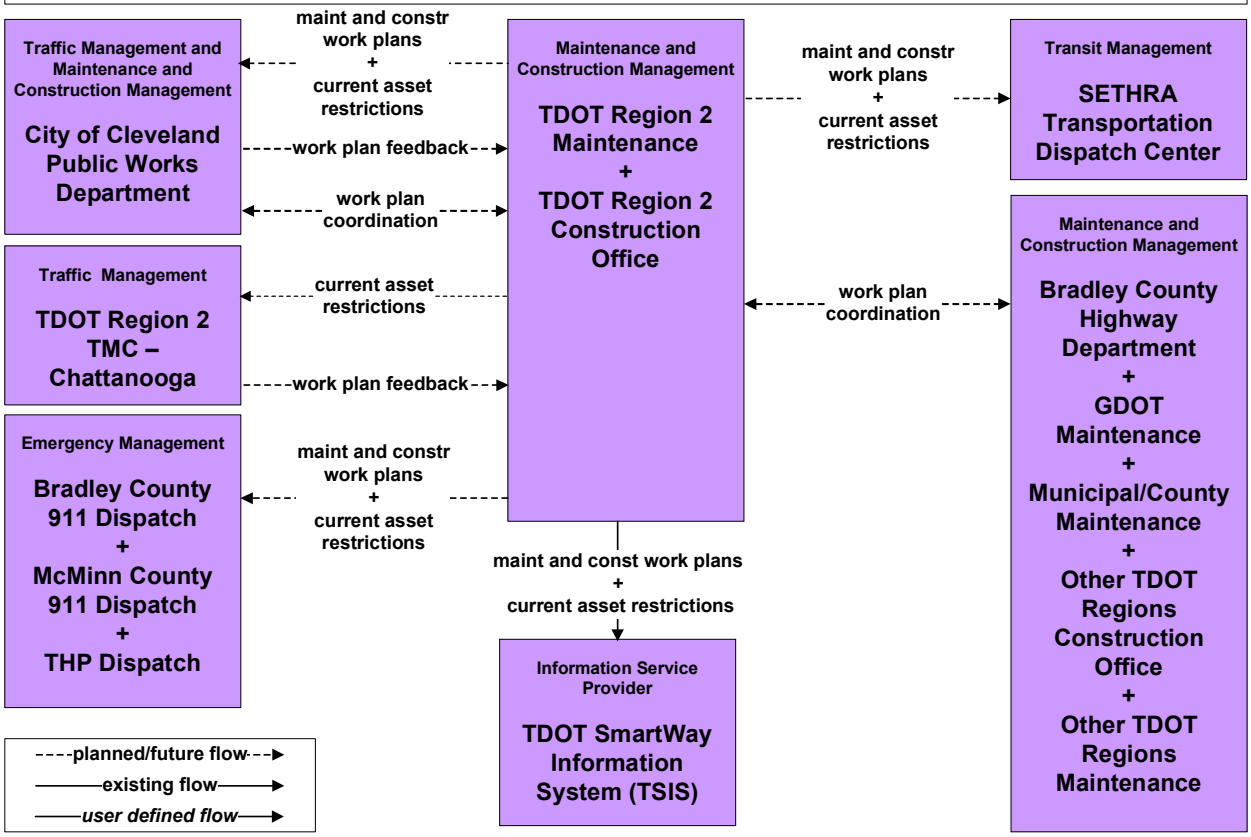
MC08 – Work Zone Management
TDOT Region 2 Construction Office



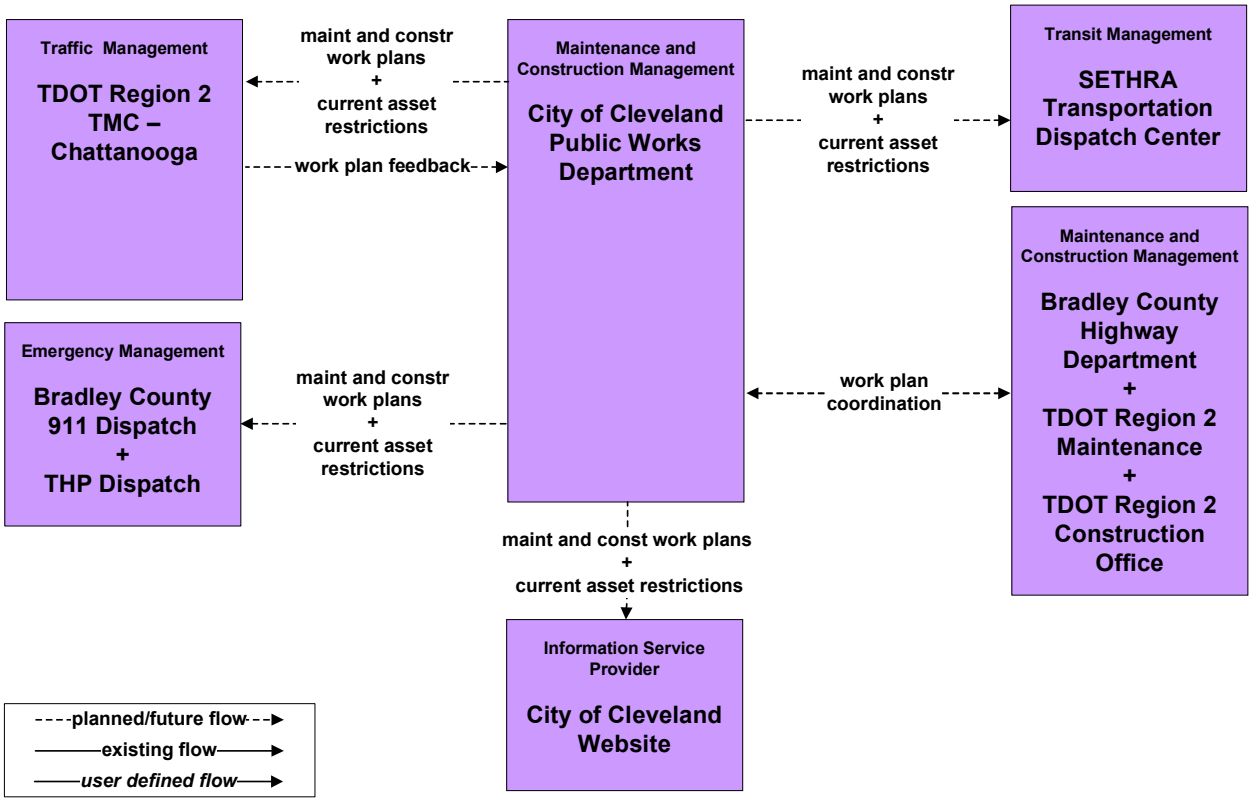
MC08 – Work Zone Management
City of Cleveland



MC10 – Maintenance and Construction Activity Coordination
TDOT Region 2

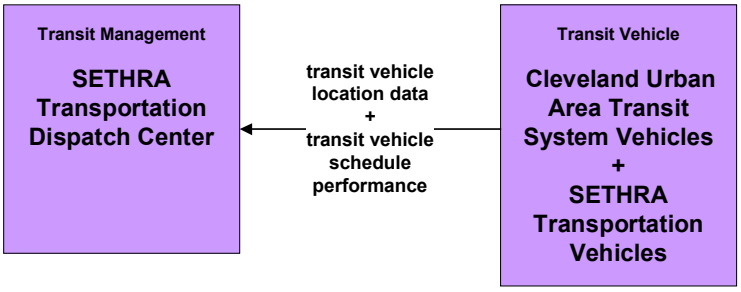


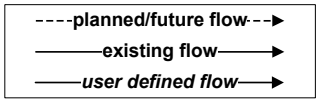
MC10 – Maintenance and Construction Activity Coordination
City of Cleveland



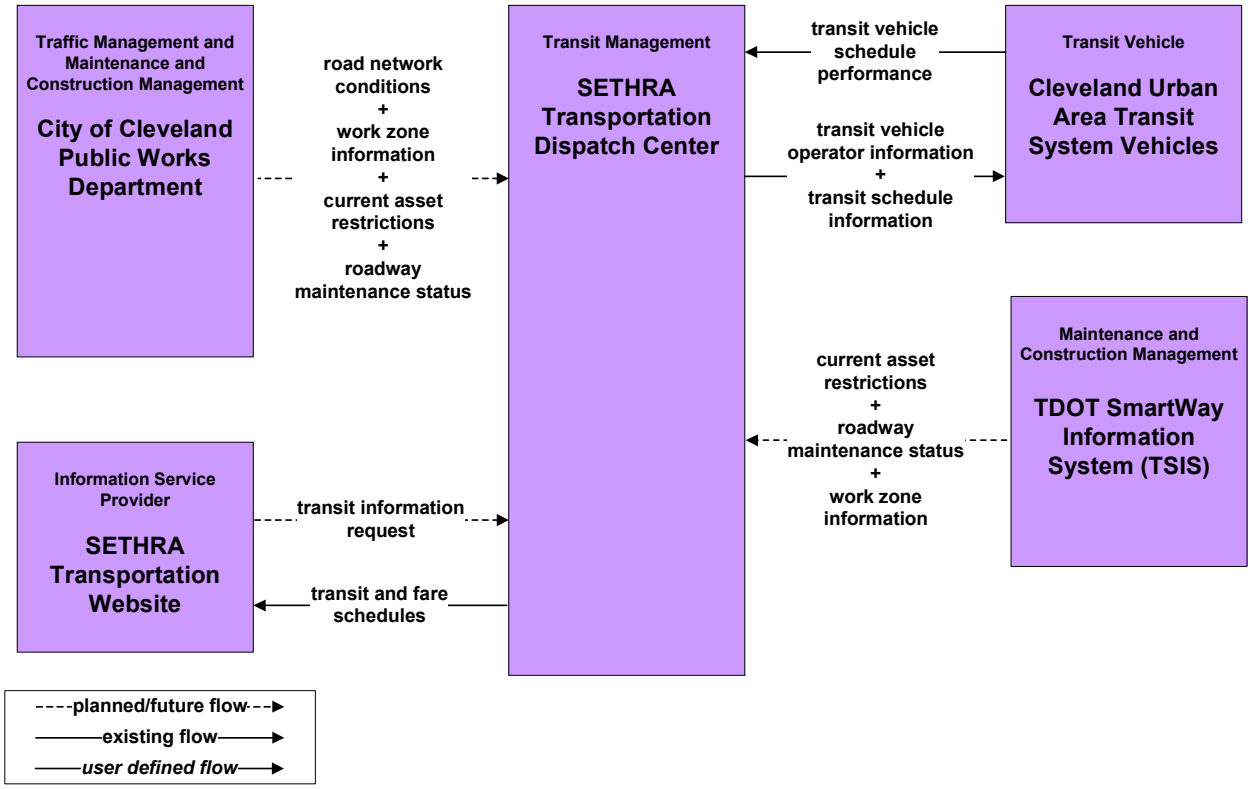
Advanced Public Transportation Systems

APTS01 – Transit Vehicle Tracking
SETHRA Transportation

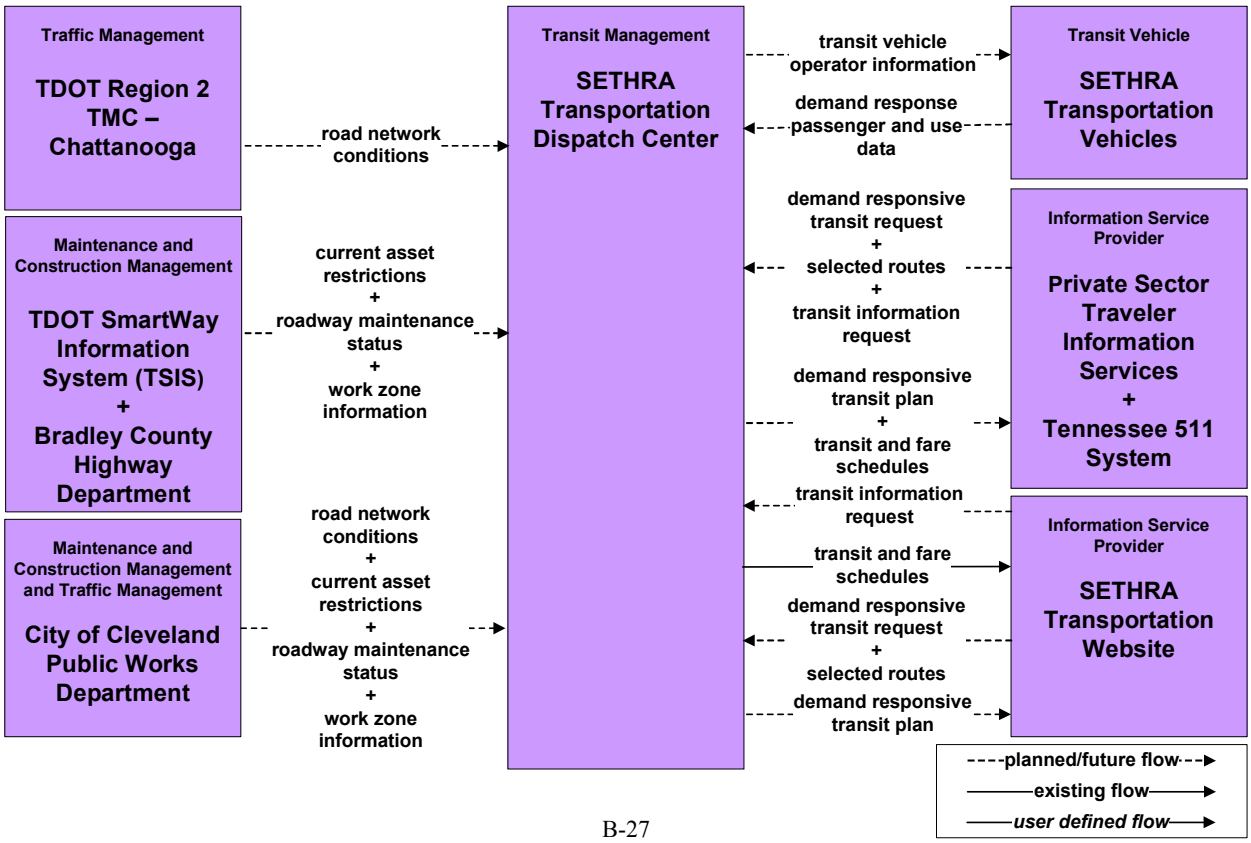




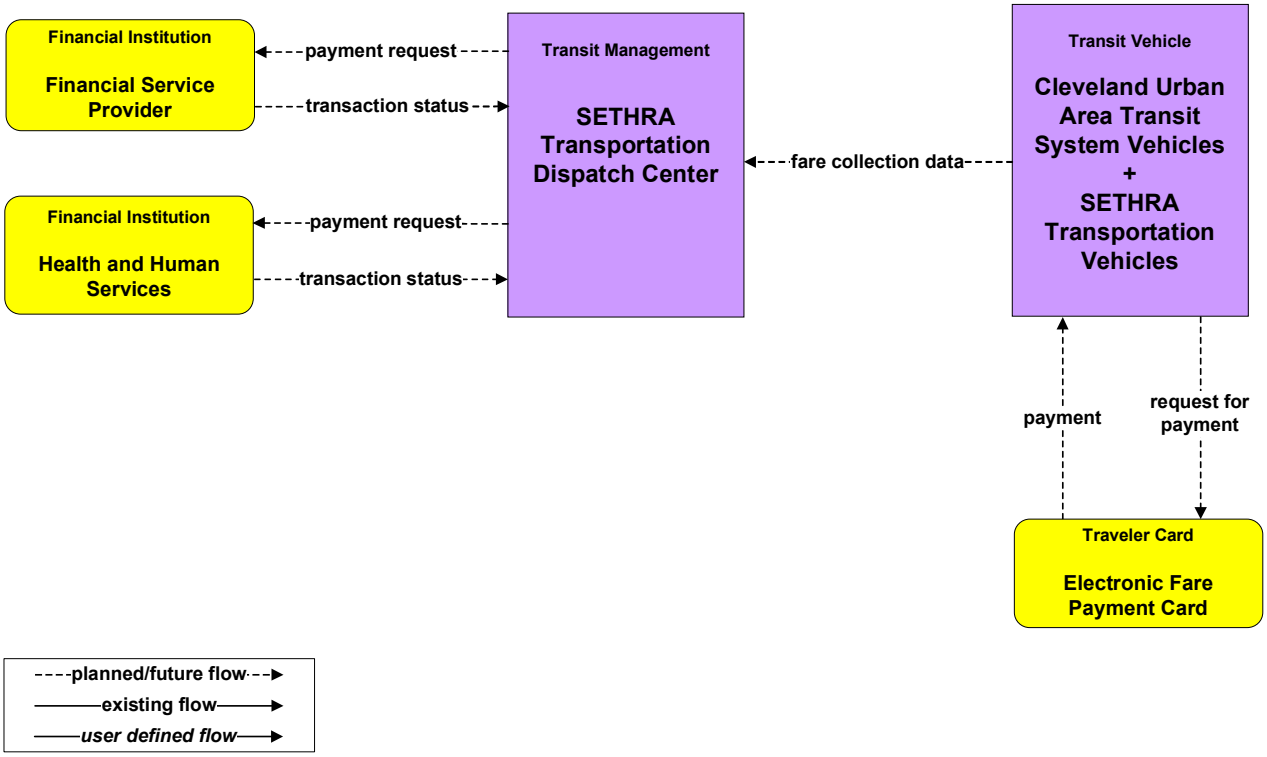
APTS02 – Transit Fixed Route Operations
SETHRA Transportation



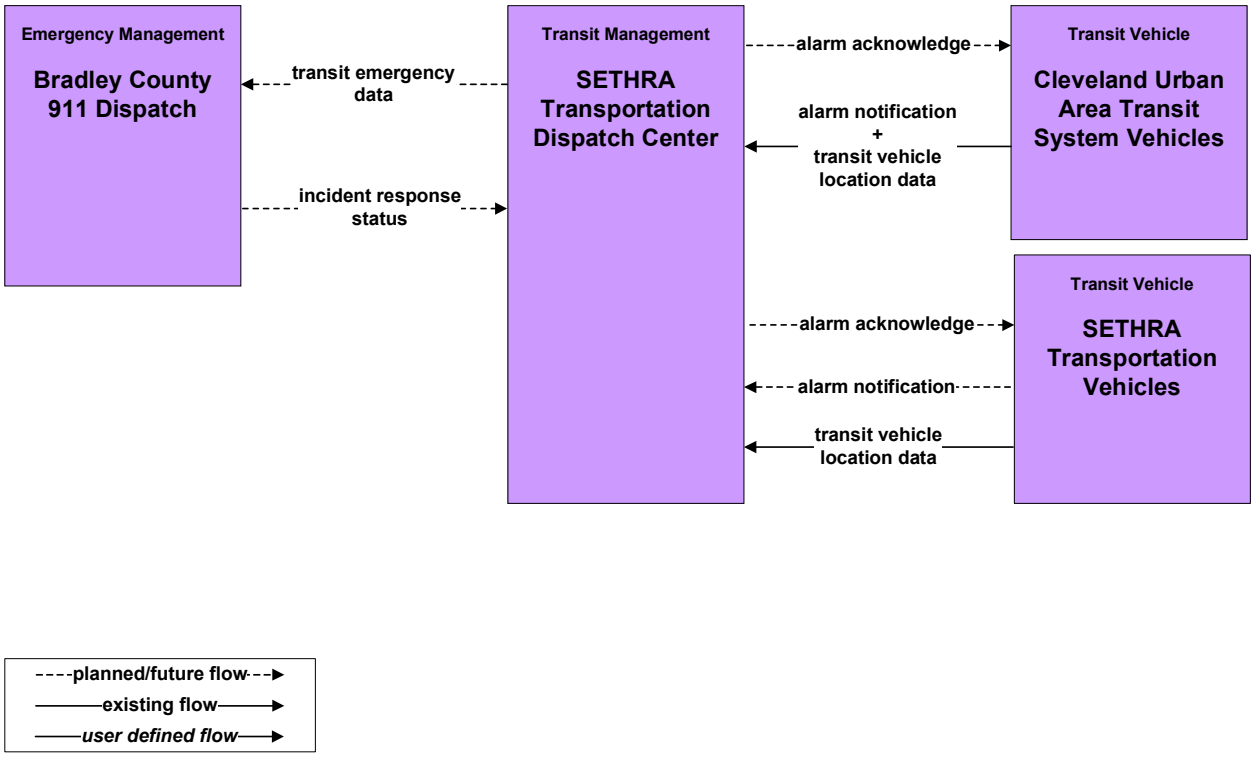
APTS03 – Demand Response Transit Operations
SETHRA Transportation



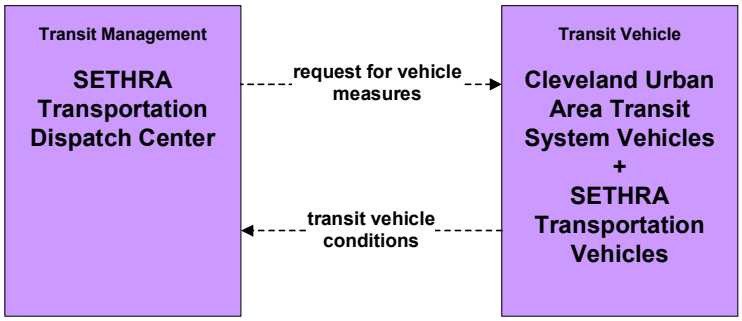
APTS04 – Transit Fare Collection Management
SETHRA Transportation

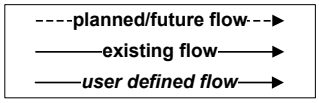


APTS05 – Transit Security
SETHRA Transportation

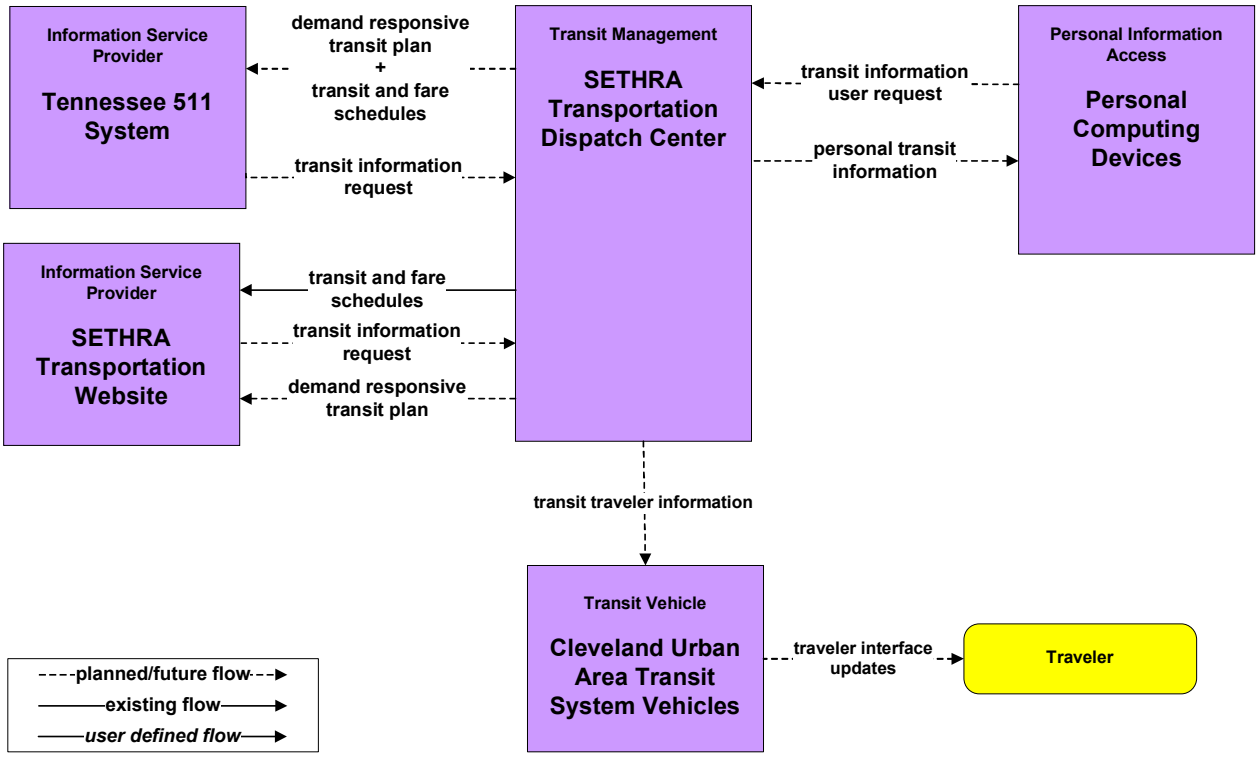


APTS06 – Transit Fleet Management
SETHRA Transportation

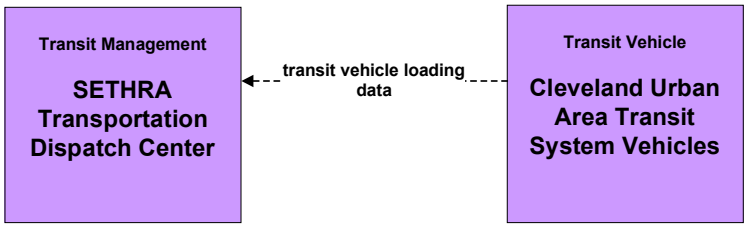


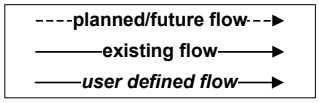


APTS08 – Transit Traveler Information
SETHRA Transportation

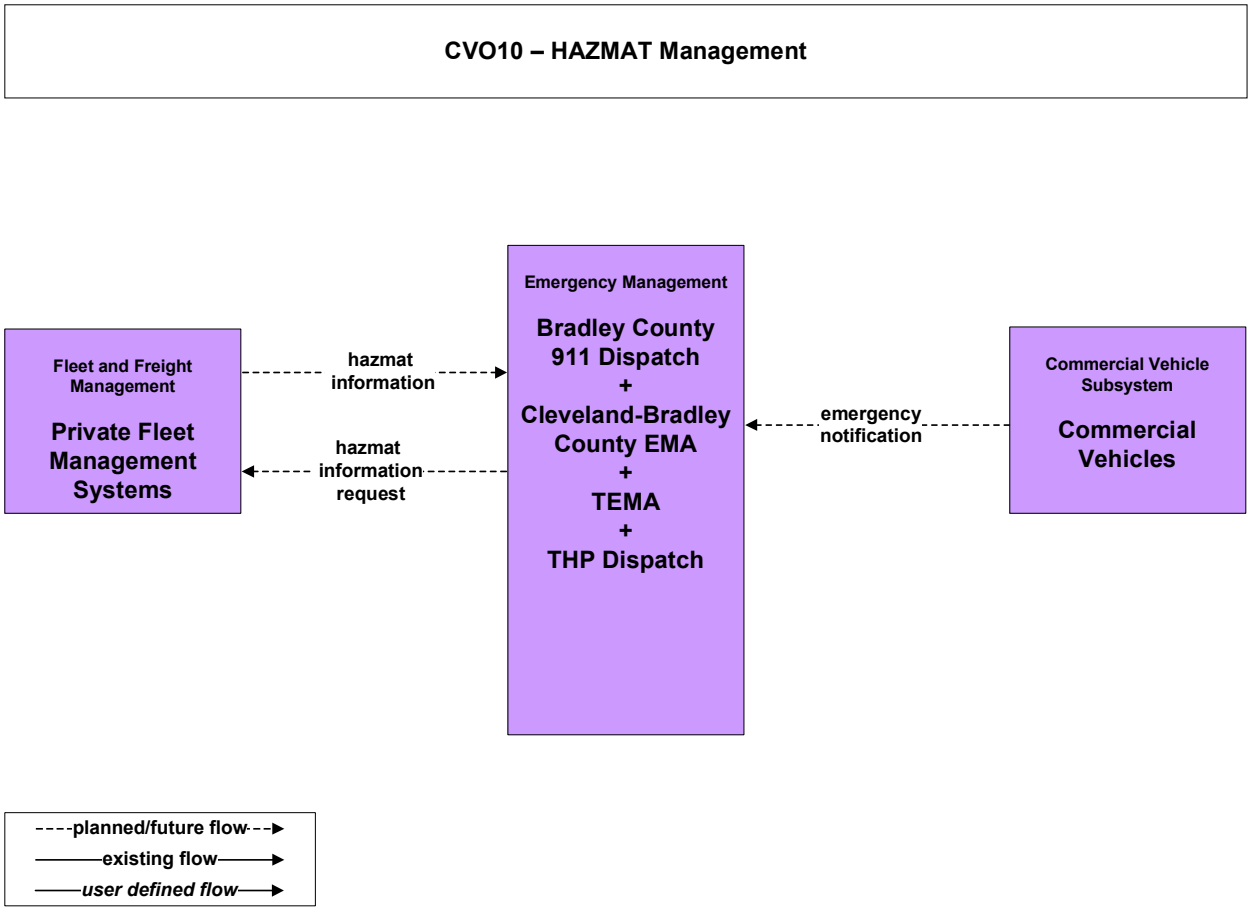


APTS10 – Transit Passenger Counting
SETHRA Transportation

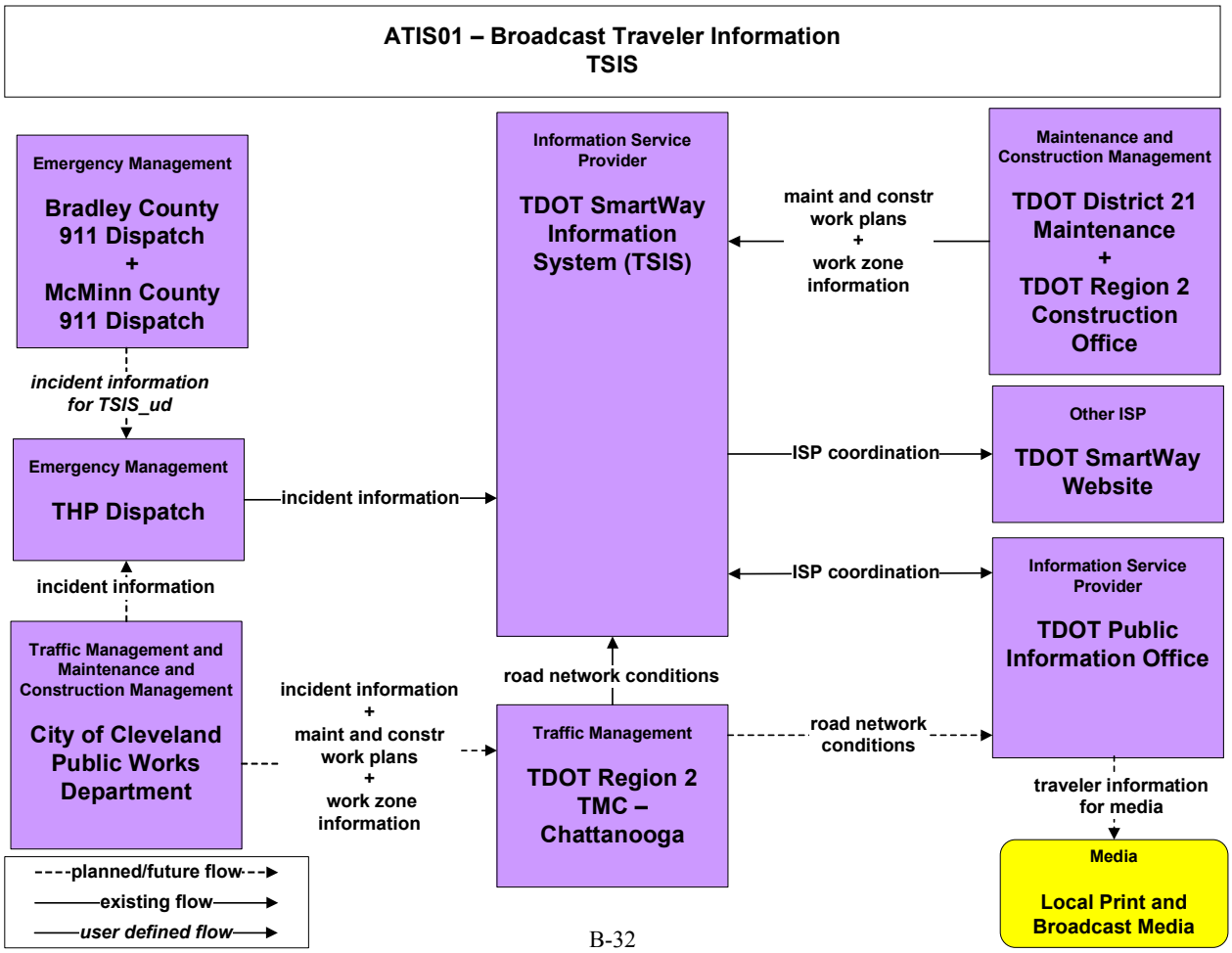




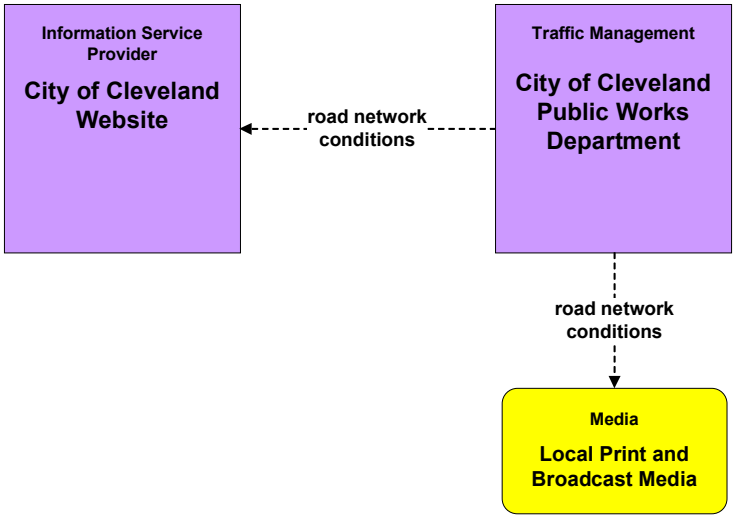
Commercial Vehicle Operations

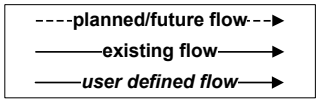


Advanced Traveler Information System

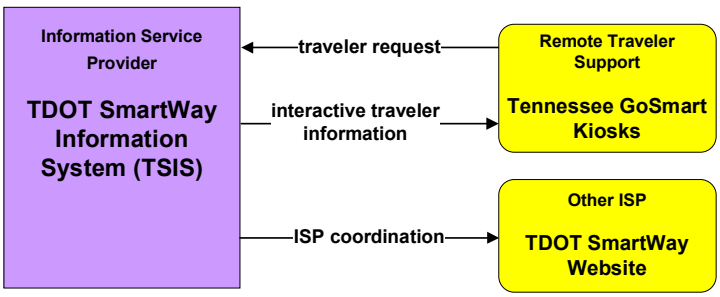


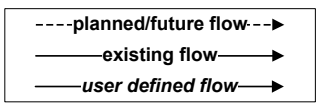
ATIS01 – Broadcast Traveler Information
City of Cleveland



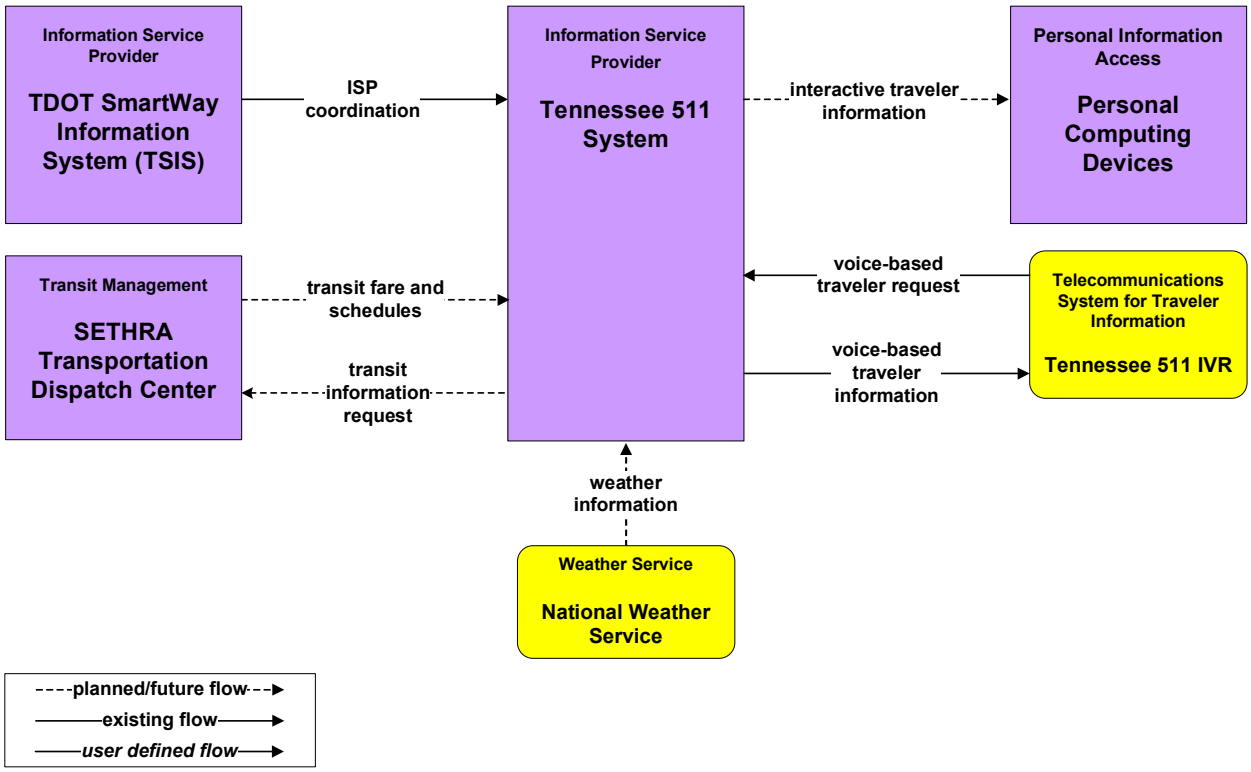


ATIS02 – Interactive Traveler Information
GoSmart Kiosks and SmartWay Website



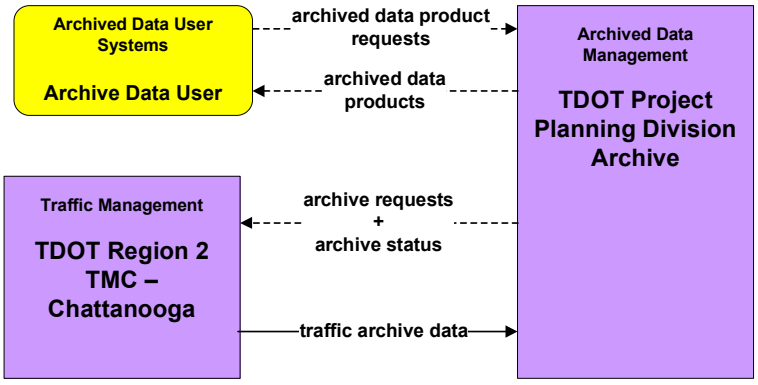


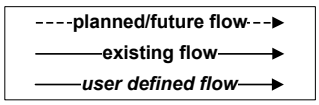
ATIS02 – Interactive Traveler Information
Tennessee 511



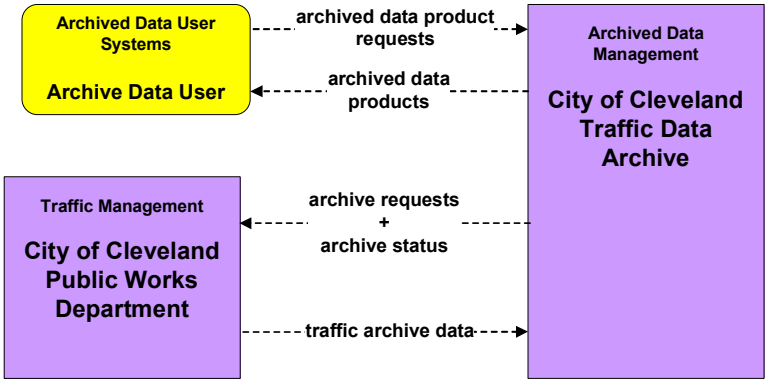
Archived Data

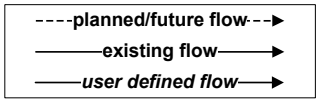
AD1 – ITS Data Mart
TDOT



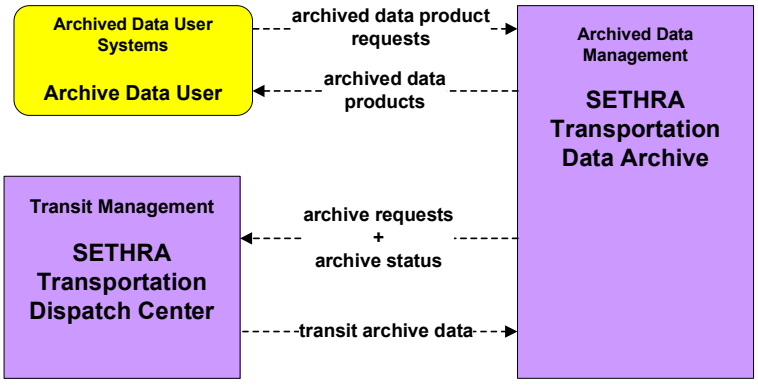


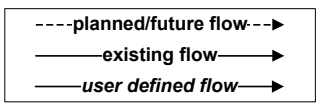
AD1 – ITS Data Mart
City of Cleveland

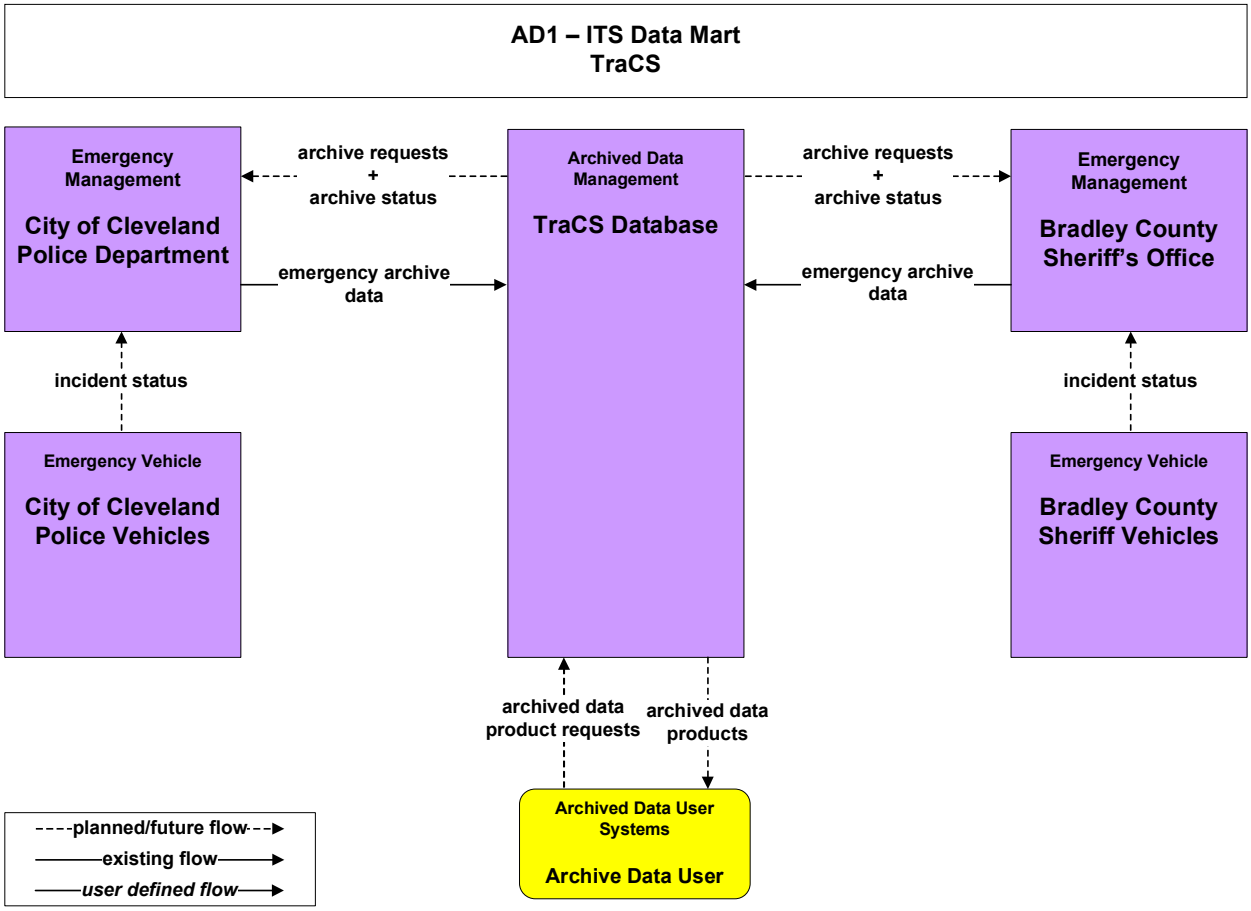


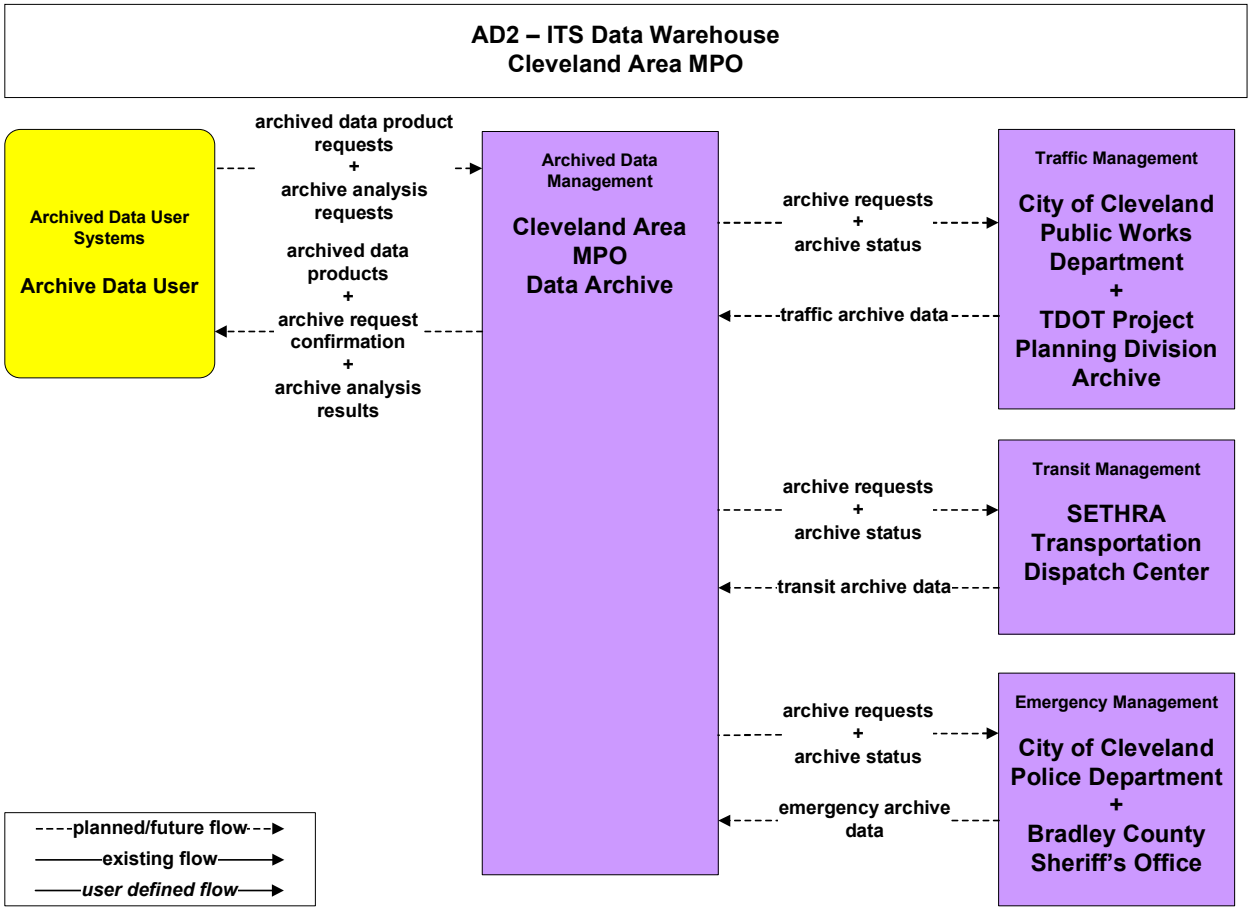


AD1 – ITS Data Mart
SETHRA Transportation






AD1 – ITS Data Mart
TraCS
Emergency Management
City of Cleveland Police Department
archive requests + archive status
emergency archive data
Archived Data Management
TraCS Database
archive requests + archive status
emergency archive data
Emergency Management
Bradley County Sheriff's Office
incident status
Emergency Vehicle
City of Cleveland Police Vehicles
incident status
Emergency Vehicle
Bradley County Sheriff Vehicles
archived data product requests
archived data products
Archived Data User Systems
Archive Data User
planned/future flow
existing flow
user defined flow


AD2 – ITS Data Warehouse
Cleveland Area MPO
Archived Data User Systems
Archive Data User
archived data product requests + archive analysis requests
archived data products + archive request confirmation + archive analysis results
Archived Data Management
Cleveland Area MPO Data Archive
archive requests + archive status
traffic archive data
Traffic Management
City of Cleveland Public Works Department + TDOT Project Planning Division Archive
archive requests + archive status
transit archive data
Transit Management
SETHRA Transportation Dispatch Center
archive requests + archive status
emergency archive data
Emergency Management
City of Cleveland Police Department + Bradley County Sheriff's Office
planned/future flow
existing flow
user defined flow

APPENDIX C – ELEMENT FUNCTIONS

Element Name	Equipment Package (Function)
Bradley County 911 Dispatch	Emergency Call-Taking
	Emergency Commercial Vehicle Response
	Emergency Dispatch
	Emergency Evacuation Support
	Emergency Response Management
	Emergency Routing
	Incident Command
	Mayday Support
Bradley County EMS Vehicles	On-board EV En Route Support
Bradley County Fire Vehicles	On-board EV En Route Support
Bradley County Flood Detection	Roadway Environmental Monitoring
Bradley County Highway Department	MCM Environmental Information Collection
	MCM Environmental Information Processing
	MCM Incident Management
	MCM Roadway Maintenance and Construction
	MCM Vehicle Tracking
	MCM Work Activity Coordination
Bradley County Highway Department Vehicles	MCV Vehicle Location Tracking
Bradley County Sheriff's Office	Emergency Data Collection
Bradley County Sheriff Vehicles	On-board EV En Route Support
Bradley County Website	Basic Information Broadcast
	ISP Traveler Data Collection
City of Cleveland Beacon Warning Signs	Roadway Equipment Coordination
City of Cleveland CCTV Cameras	Roadway Basic Surveillance
City of Cleveland DMS	Roadway Equipment Coordination
	Roadway Traffic Information Dissemination
	Roadway Work Zone Traffic Control
City of Cleveland Emissions Sensors	Roadway Emissions Monitoring

Element Name	Equipment Package (Function)
City of Cleveland Field Sensors	Roadway Basic Surveillance
	Roadway Equipment Coordination
City of Cleveland Fire Vehicles	On-board EV En Route Support
City of Cleveland Overheight Vehicle Detection	Roadway Basic Surveillance
	Roadway Equipment Coordination
City of Cleveland Police Department	Emergency Data Collection
City of Cleveland Police Vehicles	On-board EV En Route Support
City of Cleveland Public Works Department	Collect Traffic Surveillance
	Emissions Data Collection
	Emissions Data Management
	HRI Traffic Management
	MCM Incident Management
	MCM Roadway Maintenance and Construction
	MCM Vehicle and Equipment Maintenance Management
	MCM Vehicle Tracking
	MCM Work Activity Coordination
	MCM Work Zone Management
	Rail Operations Coordination
	TMC Environmental Monitoring
	TMC Evacuation Support
	TMC Incident Detection
	TMC Incident Dispatch Coordination/Communication
	TMC Regional Traffic Management
	TMC Signal Control
	TMC Speed Monitoring
	TMC Traffic Information Dissemination
	TMC Work Zone Traffic Management
	Traffic Data Collection
	Traffic Maintenance

Element Name	Equipment Package (Function)
City of Cleveland Public Works Department Vehicles	MCV Vehicle Location Tracking
	MCV Vehicle System Monitoring and Diagnostics
	MCV Work Zone Support
City of Cleveland School Zone Speed Monitoring Equipment	Roadway Equipment Coordination
	Roadway Speed Monitoring
City of Cleveland Speed Monitoring Equipment	Roadway Equipment Coordination
	Roadway Speed Monitoring
City of Cleveland Traffic Data Archive	Government Reporting Systems Support
	ITS Data Repository
City of Cleveland Traffic Signals	Roadway Equipment Coordination
	Roadway Signal Controls
	Roadway Signal Priority
	Standard Rail Crossing
City of Cleveland Website	Basic Information Broadcast
	ISP Traveler Data Collection
Cleveland Urban Area MPO Data Archive	Government Reporting Systems Support
	ITS Data Repository
Cleveland Urban Area Transit System Vehicles	On-board Maintenance
	On-board Passenger Counting
	On-board Schedule Management
	On-board Transit Fare Management
	On-board Transit Information Services
	On-board Transit Security
	On-board Transit Trip Monitoring
Cleveland Utilities	MCM Incident Management
	MCM Roadway Maintenance and Construction
Cleveland-Bradley County EMA	Emergency Commercial Vehicle Response
	Emergency Evacuation Support
	Emergency Response Management

Element Name	Equipment Package (Function)
Cleveland-Bradley County EMA (continued)	Incident Command
	Mayday Support
Commercial Vehicles	On-board Cargo Monitoring
GDOT Maintenance	MCM Work Activity Coordination
Georgia NaviGAtor	TMC Regional Traffic Management
Local Utility Providers	MCM Incident Management
McMinn County 911 Dispatch	Emergency Call-Taking
	Emergency Dispatch
	Emergency Response Management
	Incident Command
McMinn County EMA	Emergency Evacuation Support
	Emergency Response Management
	Incident Command
Municipal Public Safety Vehicles	On-board EV En Route Support
Municipal TOC	HRI Traffic Management
	TMC Incident Dispatch Coordination/Communication
	TMC Signal Control
	Traffic Maintenance
Municipal Traffic Signals	Roadway Basic Surveillance
	Roadway Equipment Coordination
	Roadway Signal Controls
	Roadway Signal Priority
	Standard Rail Crossing
Municipal/County Maintenance	MCM Incident Management
	MCM Roadway Maintenance and Construction
	MCM Work Activity Coordination
Other TDOT Regions Construction Office	MCM Work Activity Coordination
Other TDOT Regions Maintenance	MCM Work Activity Coordination
Personal Computing Devices	Personal Interactive Information Reception

Element Name	Equipment Package (Function)
Private Fleet Management Systems	Fleet HAZMAT Management
SETHRA Transportation Data Archive	Government Reporting Systems Support
	ITS Data Repository
SETHRA Transportation Dispatch Center	Transit Center Fare Management
	Transit Center Fixed-Route Operations
	Transit Center Information Services
	Transit Center Multi-Modal Coordination
	Transit Center Paratransit Operations
	Transit Center Passenger Counting
	Transit Center Security
	Transit Center Vehicle Tracking
	Transit Data Collection
	Transit Evacuation Support
	Transit Garage Maintenance
SETHRA Transportation Vehicles	On-board Maintenance
	On-board Paratransit Operations
	On-board Schedule Management
	On-board Transit Fare Management
	On-board Transit Security
	On-board Transit Trip Monitoring
SETHRA Transportation Website	Basic Information Broadcast
	Infrastructure Provided Trip Planning
	ISP Traveler Data Collection
TDOT CCTV Cameras	Roadway Basic Surveillance
	Roadway Work Zone Traffic Control
TDOT Changeable Speed Limit Signs	Roadway Equipment Coordination
	Roadway Speed Monitoring

Element Name	Equipment Package (Function)
TDOT District 21 Maintenance	MCM Incident Management
	MCM Vehicle Tracking
	MCM Work Zone Management
TDOT DMS	Roadway Traffic Information Dissemination
	Roadway Work Zone Traffic Control
TDOT Emergency Services Coordinator	MCM Incident Management
	MCM Roadway Maintenance and Construction
	TMC Evacuation Support
	TMC Incident Dispatch Coordination/Communication
TDOT Field Sensors	Roadway Basic Surveillance
TDOT Fog Sensors	Roadway Environmental Monitoring
TDOT Fog Zone Speed Detection	Roadway Basic Surveillance
	Roadway Speed Monitoring
TDOT HAR	Roadway Traffic Information Dissemination
	Roadway Work Zone Traffic Control
TDOT HELP Vehicles	On-board EV En Route Support
	On-board EV Incident Management Communication
TDOT Maintenance Headquarters	MCM Environmental Information Collection
TDOT Maintenance Vehicles	MCV Vehicle Location Tracking
	MCV Work Zone Support
TDOT On-Ramp Closure Gates	Field Barrier System Control
	Roadway Equipment Coordination
TDOT Project Planning Division Archive	Government Reporting Systems Support
	ITS Data Repository
	Traffic Data Collection
TDOT Public Information Office	Basic Information Broadcast
	ISP Traveler Data Collection
TDOT Region 1 TMC - Knoxville	TMC Regional Traffic Management

Element Name	Equipment Package (Function)
TDOT Region 2 Construction Office	MCM Work Activity Coordination
	MCM Work Zone Management
TDOT Region 2 HELP Dispatch	Service Patrol Management
TDOT Region 2 Maintenance	MCM Environmental Information Collection
	MCM Environmental Information Processing
	MCM Incident Management
	MCM Roadway Maintenance and Construction
	MCM Work Activity Coordination
TDOT Region 2 TMC - Chattanooga	Barrier System Management
	Collect Traffic Surveillance
	TMC Environmental Monitoring
	TMC Evacuation Support
	TMC Freeway Management
	TMC Incident Detection
	TMC Incident Dispatch Coordination/Communication
	TMC Regional Traffic Management
	TMC Speed Monitoring
	TMC Traffic Information Dissemination
	TMC Work Zone Traffic Management
	Traffic Data Collection
	Traffic Maintenance
TDOT Region 3 TMC - Nashville	TMC Regional Traffic Management
TDOT Region 4 TMC - Memphis	TMC Regional Traffic Management
TDOT RWIS Sensors	Roadway Environmental Monitoring
TDOT Smart Work Zone Equipment	Roadway Work Zone Traffic Control
TDOT SmartWay Information System (TSIS)	ISP Traveler Data Collection
	MCM Environmental Information Processing
	MCM Work Activity Coordination

Element Name	Equipment Package (Function)
TDOT SmartWay Website	Basic Information Broadcast
	Interactive Infrastructure Information
	ISP Emergency Traveler Information
	ISP Traveler Data Collection
TEMA	Emergency Commercial Vehicle Response
	Emergency Early Warning System
	Emergency Evacuation Support
	Emergency Response Management
	Incident Command
	Mayday Support
Tennessee 511 System	Interactive Infrastructure Information
	ISP Emergency Traveler Information
	ISP Traveler Data Collection
	Traveler Telephone Information
Tennessee Bureau of Investigation	Emergency Early Warning System
	Incident Command
Tennessee GoSmart Kiosks	Remote Interactive Information Reception
THP Dispatch	Emergency Call-Taking
	Emergency Commercial Vehicle Response
	Emergency Dispatch
	Emergency Evacuation Support
	Emergency Response Management
	Incident Command
	Mayday Support
THP District 2 Office	Barrier System Management
	Collect Traffic Surveillance
	Emergency Response Management
	TMC Environmental Monitoring

Element Name	Equipment Package (Function)
THP District 2 Office (continued)	TMC Speed Monitoring
	TMC Traffic Information Dissemination
THP Vehicles	On-board EV En Route Support
TraCS Database	Government Reporting Systems Support
	ITS Data Repository
TVA Sequoyah Nuclear Power Plant Operations	Emergency Early Warning System
	Emergency Response Management

APPENDIX D – STAKEHOLDER DATABASE

Cleveland Regional ITS Architecture Stakeholder Attendance Record

Invitees			Workshop Attendance			
Organization	First Name	Last Name	Kick-Off	ITS Architecture	ITS Deployment Plan	Comment Resolution
Benton Police Department			☐	☐	☐	☐
Bradley County EMS	Danny	Lawson	☐	☐	☐	☐
Bradley County Engineering	Sandra	Knight	☑	☐	☐	☐
Bradley County Engineering Office	Shane	Ware	☑	☐	☐	☐
Bradley County Fire Department	Dewey	Woody	☐	☐	☐	☐
Bradley County Highway Department	Tom	Collins	☐	☐	☐	☐
Bradley County Mayor	Gary	Davis	☐	☐	☐	☐
Bradley County Sheriff's Office	Bill	Dyer	☐	☐	☐	☐
Bradley County Sheriff's Office	Tim	Gobble	☐	☐	☐	☐
Bradley/Cleveland Developmental Services	Walter	Hunt	☐	☐	☐	☐
Calhoun Police Department			☐	☐	☐	☐
Charleston Police Department			☐	☐	☐	☐
Chattanooga-Hamilton County/North Georgia TPO	RC	Hoff	☑	☐	☑	☐
City of Cleveland	Tom	Grant	☑	☐	☑	☑
City of Cleveland	Janice	Casteel	☐	☐	☑	☐
City of Cleveland	Megan	Wilson	☑	☐	☐	☑
City of Cleveland	James	Long	☑	☐	☐	☐
City of Cleveland Fire Department	Chuck	Atchley	☑	☐	☐	☐
City of Cleveland Police Department	Wes	Snyder	☑	☐	☐	☐
Cleveland - Bradley County EMA	Jerry	Johnson	☐	☑	☐	☐

Organization	*First Name*	*Last Name*	*Kick-Off*	*ITS Architecture*	*ITS Deployment Plan*	*Comment Resolution*
Cleveland - Bradley County EMA	Brian	Teague	☑	☐	☐	☐
Cleveland - Bradley County EMA	Matthew	Cason	☐	☑	☐	☐
Cleveland - Bradley County EMA	Troy	Spence	☑	☑	☐	☐
Cleveland Transit	Bill	Walker	☑	☐	☑	☑
Cleveland Urban Area MPO	Anthony	Casteel	☑	☐	☑	☑
Cleveland Urban Area MPO	Tom	Rowland	☑	☐	☐	☐
Cleveland Urban Area MPO	Greg	Thomas	☑	☐	☐	☐
Cleveland Utlities	Ken	Longley	☑	☐	☐	☐
Cleveland Utlities	Bart	Borden	☑	☐	☐	☐
Ducktown Fire Department			☐	☐	☐	☐
FHWA - TN Division	Don	Gedge	☑	☑	☑	☐
McMinn County 911			☐	☐	☐	☐
McMinn County Highway Department	Randall	Ross	☐	☐	☐	☐
McMinn County Sheriff's Office	Steve	Frisbie	☐	☐	☐	☐
North Georgia Regional Development Center	Michael	Hatfield	☐	☐	☐	☐
Office of Homeland Security	Dwayne	Collins	☐	☐	☐	☐
Riceville Volunteer Fire Department			☐	☐	☐	☐
Southeast Tennessee Human Resource Agency	Ray	Evans	☑	☐	☐	☐
Southeast Tennessee Human Resource Agency	Chris	Kleehammer	☑	☐	☐	☐
Southeast Tennessee Human Resource Agency	David	Tortorich Jr.	☐	☑	☐	☐
State of Tennessee Office of Homeland Security	Dan	Gilley	☐	☐	☑	☐
TDOT Long Range Planning	Deborah	Fleming	☑	☐	☑	☐
TDOT Long Range Planning	Ralph	Comer	☐	☐	☐	☑

Organization	*First Name*	*Last Name*	*Kick-Off*	*ITS Architecture*	*ITS Deployment Plan*	*Comment Resolution*
TDOT Long Range Planning	Teresa	Estes	☐	☐	☐	☐
TDOT Long Range Planning	Joseph	Roach	☑	☑	☑	☑
TDOT Region 2	Jeff	Blevins	☑	☐	☐	☐
TDOT Region 2	Alan	Wolfe	☑	☑	☑	☑
TDOT Region 2	Ray	Rucker	☐	☐	☐	☐
TDOT Region 2	Jennifer	Flynn	☑	☐	☑	☑
TDOT Region 2	Bob	Brown	☐	☐	☐	☐
TDOT Region 2 HELP Operations	Bob	Van Horn	☑	☑	☑	☐
TDOT Region 2 Project Management Office	Scott	Medlin	☑	☑	☐	☑
TEMA (East Region)	Richard	Taylor	☐	☐	☐	☐
Tennessee Department of Safety	Cheryl	Sanders	☐	☐	☐	☐
Tennessee Department of Transportation	Pete	Hiett, P.E.	☐	☐	☐	☐
TVA	Gary	Lima	☐	☐	☐	☐

APPENDIX E – ARCHITECTURE MAINTENANCE DOCUMENTATION FORM

Cleveland Regional ITS Architecture
Architecture Maintenance Documentation Form

Please complete the following questionnaire to document changes to the Cleveland Regional ITS Architecture. Modifications will be made during the next Regional ITS Architecture update.

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

Change Information

Please indicate the type of change:

- ☐ Administrative: Basic changes that do not affect the structure of the architecture
  Examples include: Changes to stakeholder or element name, element status, or data flow status
- ☐ Functional – Single Agency: Structural changes that impact only one agency
  Examples include: Addition of a new market package or modifications to an existing market package that involves only one agency
- ☐ Functional – Multiple Agency: Structural changes that have the potential to impact multiple agencies
  Examples include: Addition of a new market package or modifications to an existing market package that involves multiple agencies; incorporation of a new stakeholder into the Regional ITS Architecture; implementation of a new transportation mode or service into the Region

Describe requested change	
What, if any, market packages are impacted by the proposed change? Note: If the proposed change involves creating or modifying a market package please attach a sketch of the new or modified market package.	

Does the proposed change affect any additional stakeholders?	
Has coordination occurred with any impacted stakeholders? Please describe the results.	

Please submit change forms to:

Senior Planner
Cleveland Urban Area MPO
185 2nd Street NE
Cleveland, TN 37311

Date Request Filed: _____