AUSTIN REGIONAL
INTELLIGENT TRANSPORTATION SYSTEMS

ITS SYSTEM ARCHITECTURE
MASTER PLAN

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1 INTRODUCTION

1.2 OVERVIEW

With an overall understanding of the functions to be performed by the Austin Region ITS, a bridge can be developed between ITS operations/planning and a detailed system design. This bridge is an architecture, or framework, that will serve as a conceptual blueprint from which to design, implement, and operate the Regional ITS. It purposely does not, however, dictate a specific design for implementation. Instead, the architecture provides a common language, or framework, that designers can use to communicate during the development of the detailed design.

1.3 DOCUMENT PURPOSE

The primary mission of the Regional ITS is to enhance the safety and efficiency of the traveling public. To satisfy this mission, the Regional ITS Architecture will be developed using the National ITS Architecture and tailoring it to the requirements of the region. Since the National ITS Architecture employs concepts of synergy and beneficial linkages among related components, the Regional ITS will benefit from these as well.

This document presents a customized regional ITS architecture. It conceptually defines what the ITS will accomplish (i.e., functions) and how it will be accomplished (i.e., processes). It further describes the interactions that occur within the system, between the system and its partners (e.g., firms and agencies), and among its customers (e.g., motorists, media, etc.). Used as a planning tool, this document will present what the ITS will be capable of as it matures. Maturation will occur via planned and coordinated deployments of existing and future components for:

- Timely and efficiently detecting, verifying, and responding to highway incidents; and
- Disseminating appropriately detailed, timely, and accurate traffic congestion information to the traveling public

In short, this document provides a high level perspective of the Regional ITS and a definition of key elements and services of the system. With these understandings as a baseline, engineering efforts for evolving to a final design / implementation can commence.

The Regional ITS architecture is to be used as a conceptual blueprint to establish projects for implementation. As projects are defined and the implementation begins, it is possible that the needs of the Regional ITS will change somewhat from the original plan. Therefore, this Regional ITS architecture should be designated as a baseline. As modifications and future enhancements are made, this baseline should be revised to reflect the changes. Configuration control should be employed to ensure only approved changes are incorporated and to record and maintain an audit trail of revisions.

1.4 DOCUMENT ORGANIZATION

Following this introductory section, Section 2 highlights opportunities and benefits associated with integrating various operational subsystems. Section 3 presents an overview of the Regional Traffic Management Center's (TMC) functional architecture and how it fits into the National ITS Architecture Program. Several appendices follow the main body of the document. Appendix A lists the definitions of process specifications (pspecs), while Appendix B displays the definitions of the relative architecture flows. The standards associated with the architecture flows are listed in Appendix C. Finally, Appendix D and Appendix E each show the selection worksheets for the process specifications and the architecture flows respectively.

2 SUMMARY OF THE NATIONAL ITS ARCHITECTURE[1]

This section explains the terminology and concepts needed to understand, navigate, and use the National ITS Architecture. It also describes the functional view and the physical view of an ITS system. The functional view is called the logical architecture and the physical view is known as the physical architecture. Standards are introduced as the means for achieving an open system environment. They are based on the architecture interfaces and data flows. The following concepts and terms are explained in this section:

- Logical Architecture
- Physical Architecture
- Standards

2.2 LOGICAL ARCHITECTURE

A logical architecture is best described as a tool that helps organize complex entities and relationships. It focuses on the functional processes and information flows of a system. Developing a logical architecture not only helps to identify the system functions and information flows, but also guides development of functional requirements for new systems and improvements. A logical architecture should be independent of institutions and technology; that is, it should not define where or by whom functions are performed in the system, nor should it identify how functions are to be implemented.

The logical architecture of the National ITS Architecture is defined as a set of functions (or processes) and information flows (or data flows) that respond to the Market Packages described in the architecture. Processes and data flows are grouped to form particular transportation management functions (e.g., manage traffic) and are represented graphically by data flow diagrams (DFDs), or bubble charts, which decompose into several levels of detail. In these diagrams, processes are represented as bubbles and data flows as arrows. Figure 2-1 and Figure 2-2 depict simplified data flow diagrams from the National ITS Architecture documents. Note that each process (bubble) in the logical architecture describes some logical function to be performed.

For example, as shown in Figure 2-1, at the highest level of the National ITS Architecture, the manage traffic process (which includes traffic signal control functions) interacts with seven other processes.

Figure 2-2 illustrates how the manage traffic process is then further broken down into five sub-processes; how one of those processes, Provide Traffic Surveillance, is broken down into seven sub-processes; and so on. Each of these processes is then broken down even further so that a complete functional view of a system emerges. At the lowest level of detail in the functional hierarchy are the process specifications (referred to as pspecs in the

[1] Information from this section was taken from the *Key Concepts of the National ITS Architecture* found at http://www.its.dot.gov/arch/arch.htm

documentation). These process specifications can be thought of as the elemental functions to be performed in order to satisfy the user service requirements (i.e., they are not broken out any further). The information exchanges between processes and between pspecs are called the (logical) data flows.

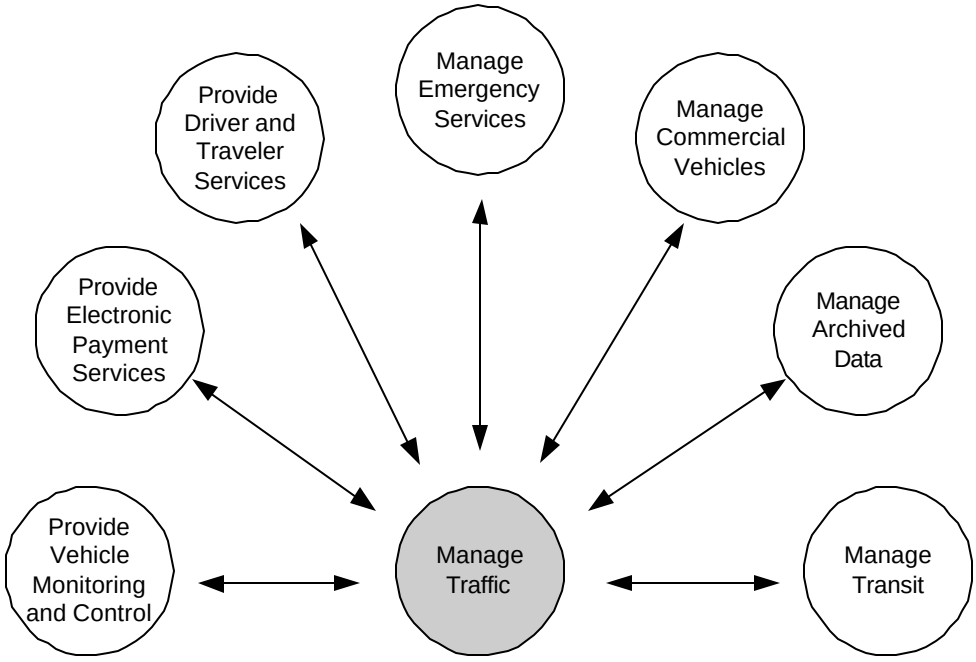


Figure 2-1. The Eight Major Processes within the Logical Architecture

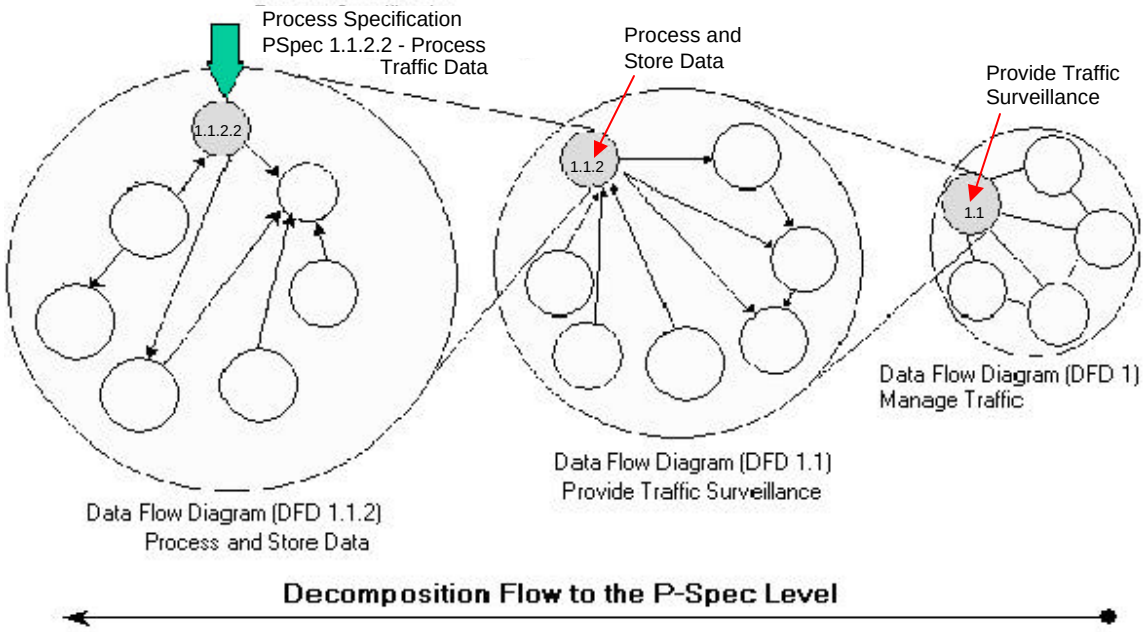


Figure 2-2. Example of Logical Architecture Functional Decomposition

2.3 PHYSICAL ARCHITECTURE

A physical architecture is the physical (versus functional) view of a system. A physical architecture provides agencies with a physical representation (though not a detailed design) of how the system should provide the required functionality. A physical architecture takes the processes (or pspecs) identified in the logical architecture and assigns them to physical entities (called subsystems in the National ITS Architecture). In addition, the data flows (from the logical architecture) that originate from one subsystem and end at another are grouped together into (physical) architecture flows. In other words, one architecture flow may contain a number of more detailed data flows. These architecture flows and their communication requirements define the interfaces required between subsystems, which form the basis for much of the ongoing standards work in the ITS program. Development of a physical architecture will identify the desired communications and interactions between different transportation management organizations. Figure 2-3 depicts the relationship between the logical and physical architecture. In the National ITS Architecture, two layers describe the physical architecture: the transportation layer and the communications layer. Each of these is briefly described below.

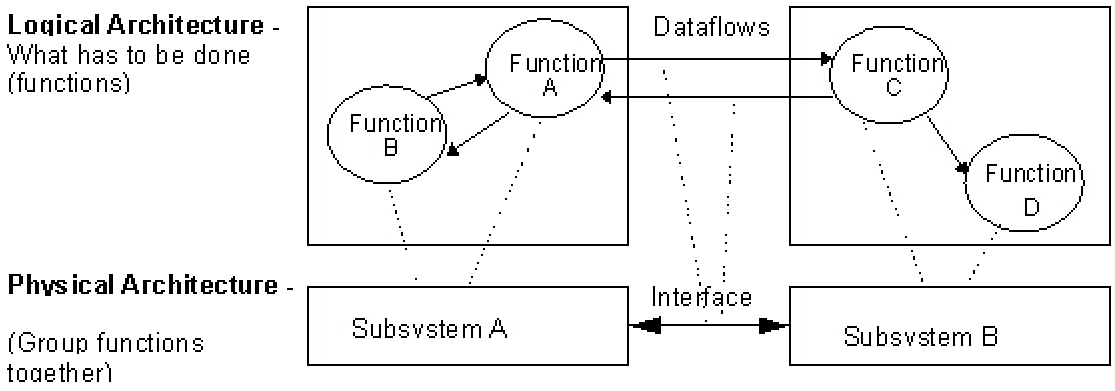


Figure 2-3. Representative Logical and Physical Architecture

2.3.1 Transportation Layer

The transportation layer of the physical architecture shows the relationships among the transportation management-related elements. It is composed of subsystems for travelers, vehicles, transportation management centers, and field devices, as well as external system interfaces at the boundaries (called terminators in the National ITS Architecture). It may include:

- Field devices for traffic surveillance and motorist information dissemination
- Traffic signal and ramp metering controllers
- Transportation management centers
- Emergency management centers

2.3.2 Communications Layer

The communications layer of the physical architecture provides the communications services that connect the transportation layer components. This layer depicts all of the communications necessary to transfer information and data among transportation entities, traveler information and emergency service providers, and other service providers such as towing and recovery. The communications layer clearly identifies system interface points where national standards and communications protocols can be used.

Wireline communications includes the equipment necessary for the various subsystems of the architecture to exchange data to perform their transportation functions. These communications services may be provided by agency-owned communications plants (e.g., twisted pair, coaxial, fiber, or spread-spectrum radio) or may be leased from a communications service provider. It should be noted that the term "wireline communication," as used in the National ITS Architecture, refers to communication between stationary points (e.g., traffic signal control central and field equipment). In this context, wireline communication may include wireless communication systems.

2.4 STANDARDS

Standards are fundamental to the establishment of an open environment. Standards facilitate implementation and deployment of interoperable systems at local, regional, and national levels without impeding innovation as technology advances and new approaches evolve.

Standards developed based on the architecture interfaces and data flows are continuously evolving. Several independent organizations are involved in the development of ITS standards, which allows for the overlapping of development activities. As standards are approved or published as works in progress, they provide a point of reference for effective coordination of activities when implementing ITS capabilities.

3 REGIONAL ITS ARCHITECTURE DEVELOPMENT PROCESS

Many different processes can be used to develop a regional ITS architecture. The development process used to create the Austin Regional ITS Architecture is shown in Table 3-1. Although these steps are shown in series, steps five, six, and seven each underwent several iterations to reach the desired outcome. The eight steps are described in this section.

Table 3-1. Eight Steps for Architecture Development

1. Identify and Interview Stakeholders
2. Formalize ITS theme priorities
3. Build Systems Inventory for region
4. Determine Market Packages to be implemented
5. Determine relevant equipment packages for region
6. Determine relevant Process Specifications for region
7. Determine relevant Architecture Flows for region
8. Build list of Standards relevant for region

3.2 IDENTIFY AND INTERVIEW STAKEHOLDERS

The first step in the development of the regional architecture is the establishment of the core stakeholder coalition - the ITS Advisory Committee. The committee is a collection of representatives for the various parties that have an interest in the future of the region. The knowledge and experiences of the committee members play a key role in the development of an ITS vision. The role of the committee is to guide the ITS planning efforts being performed to prepare the ITS Master Plan.

Interviews with the advisory committee members serve as the primary source for identifying current problems and defining and prioritizing appropriate ITS goals and objectives. The discussions provide an understanding of the impediments to the region's operations and the relationships with other agencies. In addition, ITS-related activities that are already in progress are identified.

3.3 FORMALIZE ITS THEME PRIORITIES

This step is used to build consensus on needs and services for the region. In prioritizing the needs and services (or ITS "themes"), a process called a Delphi Survey is used. The Delphi Survey is a decision-making process used to help a group of experts move toward consensus on subjective decisions. Delphi is an attempt to elicit expert opinion in a systematic manner for useful results. It involves iterative rounds of questionnaires administered to individual experts in a manner protecting the anonymity of their responses. Feedback of results

accompanies each round of the questionnaire, which continues until convergence of opinion, or a point of diminishing returns, is reached. The end product is the consensus of experts, including their commentary, on each of the items, usually organized as a written report by the Delphi investigator(s).

Market packages are used as the ITS themes to be prioritized. Within the National ITS Architecture, market packages are designed to address specific transportation problems and needs. The National ITS Architecture includes a total of 63 market packages that reflect the current definition of ITS and its evolving technology.

3.4 BUILD SYSTEMS INVENTORY FOR REGION

A systems inventory is built using the notes from the stakeholder interviews and data that may already be documented in Regional ITS Plans, ITS studies, ITS Project documentation, Request For Proposals (RFPs), or any other relevant documents. The inventory items consist of identified systems (existing or planned) and the owning agency. Each item is mapped to the National ITS Architecture subsystems and terminators. The National ITS Architecture is used to identify inventory gaps and identify additional inventory items to fill the gaps.

3.5 DETERMINE MARKET PACKAGES TO BE IMPLEMENTED

Based upon the Market Package priority ranking results of the Delphi survey, determine which market packages are to be considered as part of the regional architecture. Typically, a ten-year planning period is used. Therefore, only those market packages that realistically can be implemented in that time frame (given budget and appropriate resources) should be taken into consideration for the region.

3.6 DETERMINE RELEVANT EQUIPMENT PACKAGES FOR REGION

The Market packages are defined by sets of equipment packages (i.e., smallest units of ITS that can be purchased and deployed) required to work together to deliver a given transportation service and the major architecture flows between them and other important external systems. They identify the pieces of the National ITS Architecture required to implement a service. Referencing documents published in relation to the National ITS Architecture for Federal Highway Systems, equipment packages can be mapped to the relevant market packages selected for the regional plan.

3.7 DETERMINE RELEVANT PROCESS SPECIFICATIONS FOR REGION

Develop a high-level description of the required functionality for the region. The information employed to determine what functionality is required is gathered from the systems inventory, selected market packages, and information exchanges defined by the architecture flows. This step requires several iterations with participation of the key stakeholders.

3.8 DETERMINE RELEVANT ARCHITECTURE FLOWS FOR REGION

Identify and document the connections between systems in the region. This is determined by the systems inventory and the selected market packages for the region. This step also requires several iterations with participation of the key stakeholders.

3.9 BUILD LIST OF STANDARDS RELEVANT FOR REGION

Identify the ITS Standards that support the interfaces depicted in the regional ITS architecture. There are standards associated with several of the architecture flows in the National ITS Architecture. Standards for the exchange of information between ITS systems are important not only from an interoperability point but also from a risk and cost standpoint. Risk and Costs can be reduced using these standards since a region can select among multiple vendors for deployment products.

4 ELEMENTS OF THE NATIONAL ITS ARCHITECTURE

4.2 TOP-LEVEL CONSISTENCIES

The National ITS Architecture provides a structure for the design of intelligent transportation systems. It defines the framework in which multiple design approaches can be developed, each one specifically tailored to meet the individual needs of the user, while maintaining the benefits of a structured architecture. The architecture defines the functions that must be performed to implement a given user service, the physical entities or subsystems where these functions reside, the interfaces/information flows between the physical subsystems, and the communication requirements for the information flows.

The development and deployment of the Regional ITS benefits from the National ITS Architecture standards-setting activities and modular-based concepts of system inventory identification, functional analysis, and subsystem allocation of desired ITS capabilities. The current version of the National ITS Architecture, as of the start of the project, will be used.

Figure 4-1 illustrates the "very top level" physical architecture defined by the National ITS Architecture. This drawing depicts the various subsystems of the architecture and illustrates the communication connectivity. Detailed text descriptions of each subsystem can be found in the *Physical Architecture* sections of the National ITS Architecture website (http://www.iteris.com/itsarch/).

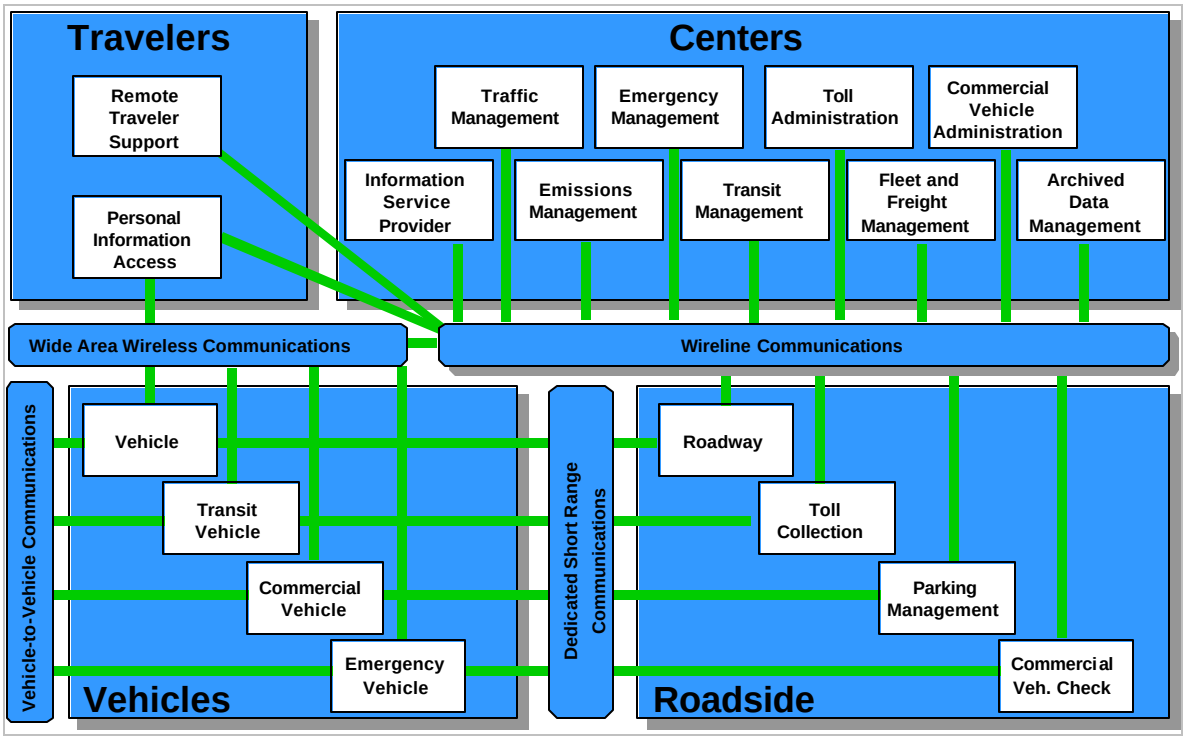


Figure 4-1. National ITS Physical Architecture Subsystems

Using the National ITS Physical Architecture as a starting point, the existing and desired functionality of the regional system is mapped to the physical architecture (Figure 4-2). This is part of an inventory process used to identify each physical entity applicable to the Regional ITS. The logical entity functional processes are presented in Section 4.3.

Finally, Figure 4-3 reformats the above to include participating agencies, users, and associated devices envisioned for deployment. Table 4-1 identifies existing and desired regional ITS elements and links them to applicable subsystems and terminators of the National ITS Architecture. This is referred to as the region's system inventory.

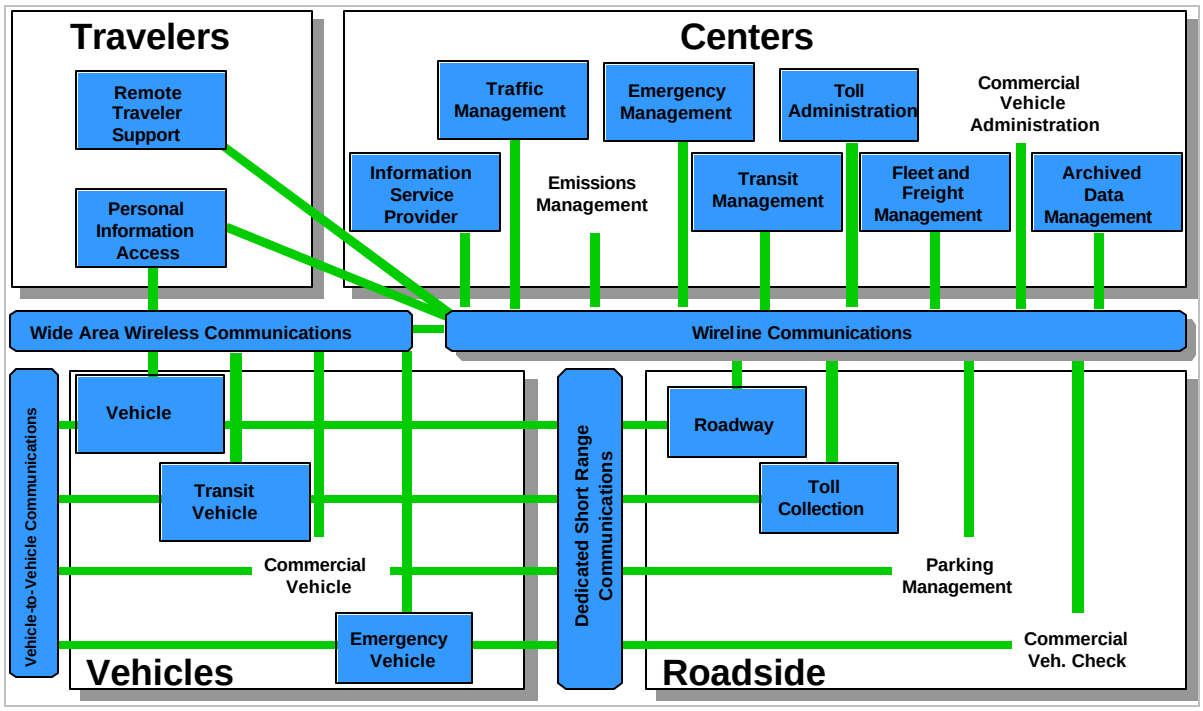


Figure 4-2. Austin Regional Architecture Subsystems

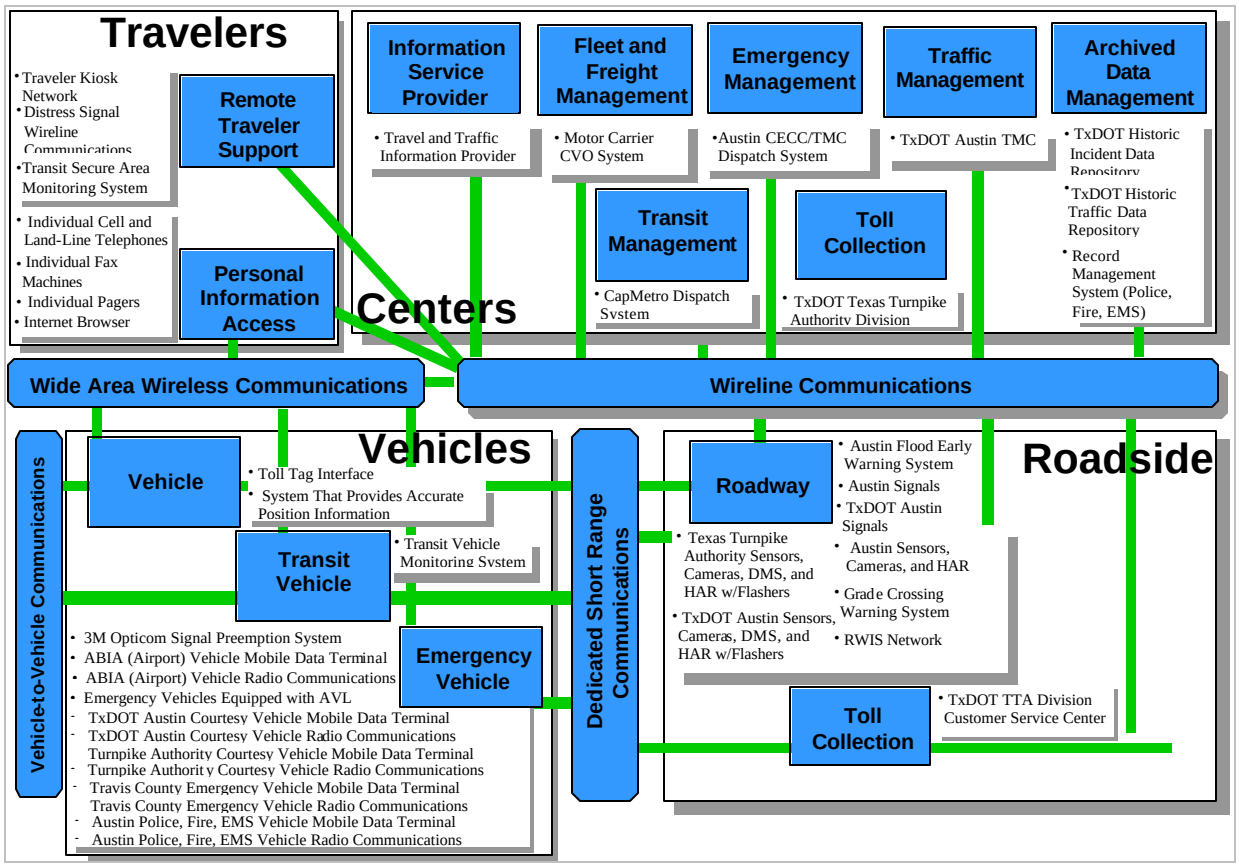


Figure 4-3. Austin ITS Physical Architecture Subsystem Entities

Table 4-1. Austin Regional ITS System Inventory

--- CENTER SUBSYSTEMS ---	
Archived Data Management	• TxDOT Austin Historical Incident Data Repository • TxDOT Austin Historical Traffic Data Repository • Record Management System (Police, Fire, EMS)
Emergency Management	• Austin CECC/TMC Dispatch System
Fleet and Freight Management	• Motor Carrier CVO System
Information Service Provider	• Travel and Traffic Information Provider
Toll Administration	• TxDOT Texas Turnpike Authority Division
Traffic Management	• TxDOT Austin TMC
Transit Management	• CapMetro Dispatch System
--- ROADSIDE SUBSYSTEMS ---	
Roadway Subsystem	• Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers • Austin Flood Early Warning System • Austin Signals • TxDOT Austin Signals • Austin Sensors, Cameras, and HAR • TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers • RWIS Network • Grade Crossing Warning System
Toll Collection	• TxDOT TTA Division Customer Service Center
--- TRAVELER SUBSYSTEMS ---	
Personal Info. Access	• Individual Cell- and Land-line Telephones • Individual Fax Machines • Individual Pagers • Internet Browser
Remote Traveler Support	• Traveler Kiosk Network • Distress Signal Wireline Communications • Transit Secure Area Monitoring System
--- VEHICLE SUBSYSTEMS ---	
Emergency Vehicle Subsystem	• Travis County Emergency Vehicle Radio Communications • Emergency Vehicles Equipped with AVL • TxDOT Austin Courtesy Vehicle Mobile Data Terminal • TxDOT Austin Courtesy Vehicle Radio Communications • Turnpike Authority Courtesy Vehicle Mobile Data Terminal • Travis County Emergency Vehicle Mobile Data Terminal • Austin Police, Fire, EMS Vehicle Radio Communications • Austin Police, Fire, EMS Vehicle Mobile Data Terminal • Turnpike Authority Courtesy Vehicle Radio Communications • 3M Opticom Signal Preemption System • ABIA (Airport) Vehicle Mobile Data Terminal • ABIA (Airport) Vehicle Radio Communications
Transit Vehicle Subsystem	• Transit Vehicle Monitoring System
Vehicle Subsystem	• System That Provides Accurate Position Information • Toll Tag Interface

Table 4-1. Austin Regional ITS System Inventory (continued…)

--- "ENVIRONMENT" INTERFACE ENTITIES ---	
Roadway Environment	• Conditions that may affect ITS equipment operations
Roadway Environment	• Conditions that will impact driving
Secure Area Environment	• Transit Stops and Stations
Traffic	• Vehicles on the Road
--- "HUMAN" INTERFACE ENTITIES ---	
Archive Data Administrator	• TxDOT Austin CECC Archive System Administrator
Driver	• Driver operating a vehicle
Emergency Personnel	• Turnpike Courtesy Patrol • TxDOT Austin Courtesy Patrol • Travis County Emergency Personnel • Austin Police, Fire, EMS Responders • ABIA (Airport) Police
Emergency System Operator	• Austin CECC/TMC Dispatchers • Emergency Call 911 Operator
ISP Operator	• Travel and Traffic Information Operator
Toll Administrator	• TTA Controller
Toll Operator	• Toll Operator / Supervisor
Traffic Operations Personnel	• TMC Operators / Dispatchers
Transit Driver	• Transit Vehicle Drivers
Transit Fleet Manager	• CapMetro Fleet Operations Manager
Transit Maintenance Personnel	• CapMetro Vehicle Maintenance
Transit System Operators	• Transit Operators (Day-to-Day Activity Managers)
Transit User	• Individual Using Transportation Services
Traveler	• Pre-trip Individual Using Transportation Services
--- "OTHER SYSTEM" INTERFACE ENTITIES ---	
Other Archives	• Statewide Historic Incident Data Network • Statewide Historic Traffic Data Network (TxDOT Planning and Programming)
Other EM	• Texas Highway Patrol Dispatch Center • Round Rock Dispatch System • Williamson County Dispatch Center
Other TM	• Austin Signal Control Center • Round Rock TMC

Table 4-1. Austin Regional ITS System Inventory (continued…)

--- "SYSTEM" INTERFACE ENTITIES ---	
Archived Data User Systems	• Academic / Research Organizations • Emergency Management Scenario Training • TxDOT Researchers
Basic Vehicle	• Individual Vehicle Car Radio / CB-Radio
Construction and Maintenance	• City of Austin Maintenance System • City of Round Rock Maintenance System • Travis County Construction and Maintenance Management System • TxDOT Highway Maintenance Management System • Williamson County Highway Maintenance Management System
DMV	• Vehicle Title and Registration Division
Emergency Telecommunications System	• Emergency Call 911 PSAP
Enforcement Agency	• Austin Police Department • Texas Traffic Law Enforcement
Event Promoters	• Special Event Sponsors and Promoters
Financial Institution	• Commercial Bank
Government Reporting Systems	• Highway Performance Monitoring System • Fatal Analysis Reporting System
Location Data Source	• Device That Provides Accurate Position Information
Map Update Provider	• City of Austin GIS Agency
Media	• Traffic and Travel Information System
Multimodal Crossings	• Rail Crossing Control Equipment
Payment Instrument	• Transponder Card
Transit Vehicle	• Vehicle Used for Transit
Wayside Equipment	• Train Interface Equipment
Weather Service	• Weather Network Subscription

4.3 FUNCTIONAL PROCESSES

The Regional ITS user requirements were mapped to the National ITS Architecture's functional "Market Packages" to provide links to the National ITS Architecture's "top level" service options tailored to fit real world transportation needs. Of the 63 packages that form the architecture, the following 17, listed in Table 4-2, were selected by the Austin Regional ITS Advisory Committee to be developed into the Regional ITS Architecture.

When combined with the Regional ITS system inventory listed in Table 4-1, a set of relevant functional processes was generated for each physical subsystem entity. These have been documented in the following paragraphs, and can assist project engineers in designing and developing each element's operations.

Table 4-2. Relevant National ITS Market Packages for the Regional ITS

Traffic Management:
- Network Surveillance
- Traffic Information Dissemination
- Regional Traffic Control
- Incident Management System
- Road Weather Information System
- Surface Street Control
- Freeway Control
- Traffic Forecast and Demand Management
- Electronic Toll Collection
- Standard Railroad Grade Crossing

Emergency Management:
- Emergency Response
- Emergency Routing
- Mayday Support

Traveler Information:
- Interactive Traveler Information

Public Transit Management:
- Transit Security
- Transit Traveler Information
- Transit Maintenance
- Transit Passenger and Fare Management
- Transit Vehicle Tracking
- Transit Fixed-Route Operations
- Demand Response Transit Operations

Commercial Vehicle Operations:
- HAZMAT Management

Archive Data Management (formerly ITS Planning):
- ITS Data Mart
- ITS Data Warehouse

4.3.1 Context

The National ITS Architecture program defines eight major functional areas for organizing ITS projects and providing context for system planners, designers, and analyzers. They are as follows:

1. Manage Traffic
2. Manage Commercial Vehicles
3. Provide Vehicle Monitoring and Control
4. Manage Transit
5. Manage Emergency Services
6. Provide Driver and Traveler Services
7. Provide Electronic Payment Services
8. Manage Archived Data / Plan System Deployment & Implementation

The National ITS Architecture Program further divides each of these functional areas into more specific subcategories. For example, the "Manage Traffic" category is decomposed by the architecture into the following six subcategories:

1.1 Provide Traffic Surveillance
1.2 Provide Device Control
1.3 Manage Incidents
1.4 Manage Travel Demand
1.5 Manage Emissions
1.6 Manage Highway Rail Intersections

These second-level subcategories are divided by the National ITS Architecture Program into third-level subcategories with even greater detail. For example, the "Manage Incidents" subcategory decomposes into:

1.3.1 Traffic Data Analysis for Incidents
1.3.2 Review and Manage Incident Data
1.3.3 Respond to Current Incidents
1.3.4 Provide Operator Interfaces for Incidents
1.3.5 Manage Possible Predetermined Responses Store
1.3.6 Manage Predetermined Incident Response Data
1.3.7 Analyze Incident Response Log

When this decomposition of each category and subcategory into finer and finer details is completed, the resulting final level of detail is called a "Process Specification" (pspec). A total 397 pspecs are defined for all areas of the National ITS Architecture. Each pspec not only represents unique and completely defined sets of actions to be implemented, but each pspec includes defined sets of corresponding data elements for enabling interoperability between the various pspecs. This is especially important when new processes are added in the future and when exchanging data with other ITS centers. However, pspecs have only been included as a consistent path for designing and implementing individual projects.

Accordingly, it will be the responsibility of the designer / implementer to provide the more intricate details of operations.

4.3.2 Identified Requirements

The following paragraphs itemize the 196 pspecs identified for the Austin Regional ITS.

Table 4-3 contains a listing of the pspecs as seen from the physical architecture perspective to represent the functionality that exists within each subsystem. The identification number listed with each pspec corresponds to a standard numbering scheme that is used by the National ITS Architecture Program. Detailed definitions and associated additional "requirements" for each pspec are included in Appendix A.

Table 4-3. Relevant Pspecs – Physical Architecture Perspective

Archived Data Management Subsystem	
Get Archive Data	8.1
Manage Archive	8.2
Manage Archive Data Administrator Interface	8.3
Coordinate Archives	8.4
Process Archived Data User System Requests	8.5
Analyze Archive	8.6
Process On Demand Archive Requests	8.7
Prepare Government Reporting Inputs	8.8
Manage Roadside Data Collection	8.9

Table 4-3. Relevant Pspecs – Physical Architecture Perspective (continued)

Emergency Management Subsystem	
Identify Emergencies from Inputs	5.1.1
Determine Coordinated Response Plan	5.1.2
Communicate Emergency Status	5.1.3
Manage Emergency Response	5.1.4
Manage Emergency Service Allocation Store	5.1.5
Process Mayday Messages	5.1.6
Provide Operator Interface for Emergency Data	5.2
Select Response Mode	5.3.1
Dispatch Vehicle	5.3.2
Assess Response Status	5.3.4
Maintain Vehicle Status	5.3.6
Provide Emergency Vehicle Route	5.3.7
Update Emergency Display Map Data	5.5
Manage Emergency Services Data	5.6
Emergency Vehicle Subsystem	
Track Vehicle	5.3.3
Provide Emergency Personnel Interface	5.3.5
Fleet and Freight Management Subsystem	
Manage Commercial Fleet Electronic Credentials and Tax Filing	2.1.1
Information Service Provider Subsystem	
Provide Media System Traffic Data Interface	1.1.4.5
Provide Traffic Data Retrieval Interface	1.1.4.6
Provide Transit Operations Data Distribution Interface	4.18
Provide Trip Planning Information to Traveler	6.1.1
Collect Service Requests and Confirmation for Archive	6.1.5
Manage Traveler Info Archive Data	6.1.6
Collect Traffic Data for Advisory Messages	6.2.1.1
Collect Transit Data for Advisory Messages	6.2.1.3
Provide Traffic and Transit Broadcast Messages	6.2.1.4
Provide ISP Operator Broadcast Parameters Interface	6.2.1.5
Collect and Update Traveler Information	6.5.1
Collect Price Data for ITS Use	7.4.2

Table 4-3. Relevant Pspecs – Physical Architecture Perspective (continued)

Personal Information Access Subsystem	
Provide Traveler Emergency Message Interface	6.8.1.5
Build Traveler Personal Security Message	6.8.2.1
Provide Traveler Emergency Communications Function	6.8.2.2
Provide Traveler with Personal Travel Information	6.8.3.2
Provide Traveler Personal Interface	6.8.3.3
Remote Traveler Support Subsystem	
Monitor Secure Area	4.4.1.7
Report Traveler Emergencies	4.4.1.8
Detect Transit User at Roadside	4.7.2.1
Determine Transit User Needs at Roadside	4.7.2.2
Determine Transit Fare at Roadside	4.7.2.3
Manage Transit Fare Billing at Roadside	4.7.2.4
Provide Transit User Roadside Fare Interface	4.7.2.5
Update Roadside Transit Fare Data	4.7.2.6
Provide Transit Roadside Passenger Data	4.7.2.7
Inform Traveler	6.3.2
Provide Traveler Kiosk Interface	6.3.3
Roadway Subsystem	
Process Traffic Sensor Data	1.1.1.1
Process Environmental Sensor Data	1.1.1.3
Manage Data Collection and Monitoring	1.1.1.4
Process Indicator Output Data for Roads	1.2.7.1
Monitor Roadside Equipment Operation for Faults	1.2.7.2
Manage Indicator Preemptions	1.2.7.3
Process Indicator Output Data for Freeways	1.2.7.5
Process Traffic Images	1.3.1.3
Control HRI Warnings and Barriers	1.6.1.2.2
Manage Device Control	1.6.1.2.5
Control Vehicle Traffic at Passive HRI	1.6.1.7.1
Control Vehicle Traffic at Active HRI	1.6.1.7.2
Determine HRI Status	1.6.5.2

Table 4-3. Relevant Pspecs – Physical Architecture Perspective (continued)

Toll Administration	
Process Violations for Tolls	5.4.2
Manage Bad Toll Payment Data	7.1.1.3
Update Toll Price Data	7.1.1.7
Register for Advanced Toll Payment	7.1.1.8
Manage Toll Financial Processing	7.1.1.9
Toll Collection	
Read Tag Data for Tolls	7.1.1.1
Determine Advanced Toll Bill	7.1.1.10
Calculate Vehicle Toll	7.1.1.2
Check for Advanced Tolls Payment	7.1.1.4
Bill Driver for Tolls	7.1.1.5
Produce Roadside Displays	7.1.2
Obtain Toll Violator Image	7.1.3
Detect Vehicle for Tolls	7.1.5
Traffic Management Subsystem	
Collect and Process Sensor Fault Data	1.1.1.2
Process Traffic Data for Storage	1.1.2.1
Process Traffic Data	1.1.2.2
Update Data Source Static Data	1.1.2.3
Generate Predictive Traffic Model	1.1.3
Retrieve Traffic Data	1.1.4.1
Provide Traffic Operations Personnel Traffic Data Interface	1.1.4.2
Provide Direct Media Traffic Data Interface	1.1.4.3
Update Traffic Display Map Data	1.1.4.4
Manage Traffic Archive Data	1.1.4.7
Exchange data with Other Traffic Centers	1.1.5
Select Strategy	1.2.1
Determine Indicator State for Freeway Management	1.2.2.1

Table 4-3. Relevant Pspecs – Physical Architecture Perspective (continued)

Traffic Management Subsystem (continued)	
Determine Indicator State for Road Management	1.2.2.2
Determine Ramp State	1.2.3
Output Control Data for Roads	1.2.4.1
Output Control Data for Freeways	1.2.4.2
Maintain Traffic and Sensor Static Data	1.2.6.1
Provide Static Data Store Output Interface	1.2.6.2
Collect Indicator Fault Data	1.2.8.1
Maintain Indicator Fault Data Store	1.2.8.2
Provide Indicator Fault Interface for C and M	1.2.8.3
Provide Traffic Operations Personnel Indicator Fault Interface	1.2.8.4
Analyze Traffic Data for Incidents	1.3.1.1
Maintain Static Data for Incident Management	1.3.1.2
Store Possible Incident Data	1.3.2.1
Review and Classify Possible Incidents	1.3.2.2
Review and Classify Planned Events	1.3.2.3
Provide Planned Events Store Interface	1.3.2.4
Provide Current Incidents Store Interface	1.3.2.5
Respond to Current Incidents	1.3.3
Retrieve Incident Data	1.3.4.1
Provide Traffic Operations Personnel Incident Data Interface	1.3.4.2
Provide Media Incident Data Interface	1.3.4.3
Update Incident Display Map Data	1.3.4.4
Manage Resources for Incidents	1.3.4.5
Manage Possible Predetermined Responses Store	1.3.5
Manage Predetermined Incident Response Data	1.3.6
Analyze Incident Response Log	1.3.7
Provide Traffic Operations Personnel Demand Interface	1.4.1
Collect Demand Forecast Data	1.4.2
Update Demand Display Map Data	1.4.3
Implement Demand Management Policy	1.4.4
Calculate Forecast Demand	1.4.5

Table 4-3. Relevant Pspecs – Physical Architecture Perspective (continued)

Transit Management Subsystem	
Provide Transit Vehicle Status Information	4.1.5
Manage Transit Vehicle Operations Data	4.1.6
Process Demand Responsive Transit Trip Request	4.2.1.1
Compute Demand Responsive Transit Vehicle Availability	4.2.1.2
Generate Demand Responsive Transit Schedule and Routes	4.2.1.3
Confirm Demand Responsive Transit Schedule and Route	4.2.1.4
Provide Transit Plans Store Interface	4.2.2
Generate Transit Routes	4.2.3.1
Generate Schedules	4.2.3.2
Produce Transit Service Data for External Use	4.2.3.3
Provide Transit Fleet Manager Interface for Services Generation	4.2.3.4
Manage Transit Operational Data Store	4.2.3.5
Produce Transit Service Data for Manage Transit Use	4.2.3.6
Update Transit Map Data	4.2.3.9
Monitor Transit Vehicle Condition	4.3.1
Generate Transit Vehicle Maintenance Schedules	4.3.2
Generate Technician Work Assignments	4.3.3
Monitor And Verify Maintenance Activity	4.3.4
Report Transit Vehicle Information	4.3.5
Update Transit Vehicle Information	4.3.6
Manage Transit Vehicle Operations Data Store	4.3.7
Manage Transit Security	4.4.1.1
Provide Transit System Operator Security Interface	4.4.1.3
Provide Transit External Interface for Emergencies	4.4.1.4
Collect Transit Vehicle Emergency Information	4.4.1.6
Coordinate Multiple Agency Responses to Incidents	4.4.2
Generate Responses for Incidents	4.4.3
Assess Transit Driver Performance	4.5.1
Assess Transit Driver Availability	4.5.2
Access Transit Driver Cost Effectiveness	4.5.3
Assess Transit Driver Eligibility	4.5.4
Generate Transit Driver Route Assignments	4.5.5
Update Transit Driver Information	4.5.6

Transit Management Subsystem (continued)	
Report Transit Driver Information	4.5.7
Provide Transit Driver Information Store Interface	4.5.8
Process Fare Payment Violations	5.4.4
Process Vehicle Fare Collection Violations	5.4.5
Process Roadside Fare Collection Violations	5.4.7
Register for Advanced Transit Fare Payment	7.3.1.1
Determine Advanced Transit Fares	7.3.1.2
Manage Transit Fare Financial Processing	7.3.1.3
Check for Advanced Transit Fare Payment	7.3.1.4
Update Transit Fare Data	7.3.1.7
Transit Vehicle Subsystem	
Process Transit Vehicle Sensor Trip Data	4.1.1
Determine Transit Vehicle Deviation and ETA	4.1.2.1
Determine Transit Vehicle Corrective Instructions	4.1.2.2
Provide Transit Vehicle Driver Interface	4.1.2.3
Provide Transit Vehicle Location Data	4.1.3
Process Transit Vehicle Sensor Maintenance Data	4.1.9
Process Demand Responsive Transit Vehicle Availability Data	4.2.1.5
Provide Demand Responsive Transit Driver Interface	4.2.1.6
Manage Transit Emergencies	4.4.1.2
Provide Transit Driver Interface for Emergencies	4.4.1.5
Detect Transit User on Vehicle	4.6.1
Determine Transit User Needs on Vehicle	4.6.2
Determine Transit Fare on Vehicle	4.6.3
Manage Transit Fare Billing on Vehicle	4.6.4
Provide Transit User Fare Payment Interface on Vehicle	4.6.5
Update Transit Vehicle Fare Data	4.6.6
Provide Transit Vehicle Passenger Data	4.6.7
Provide Transit Advisory Data On Vehicle	6.2.1.6
Provide Transit User Advisory Interface	6.2.3
Provide Transit Vehicle Payment Instrument Interface	7.3.5

Vehicle Subsystem	
Provide Communications Function	3.3.2
Build Automatic Collision Notification Message	3.3.3
Prepare and Output In-vehicle Displays	6.2.2
Build Driver Personal Security Message	6.7.1.1
Provide Driver In-vehicle Communications Function	6.7.1.2
Process Vehicle Location Data	6.7.2.2
Provide Driver Toll Payment Interface	7.1.4
Provide Payment Instrument Interface for Tolls	7.1.7
Provide Vehicle Payment Instrument Interface	7.5.1

Table 4-4, organizes the 196 pspecs listed above to show the National ITS Architecture logical perspective. This chart illustrates pspec relationships within the context of the eight major ITS functional categories and associated subcategories as discussed earlier (see Section 4.3.1). Please note that only a subset of the National ITS Architecture Program category titles are present. This is because not all titles contain pspecs that are relevant to the Regional ITS.

Table 4-4. Relevant Pspecs - Logical Architecture Perspective

FUNCTION					PSPEC
1	**Manage Traffic**				
	1.1	*Provide Traffic Surveillance*			
		1.1.1	Process Sensor Data		
			1.1.1.1	Process Traffic Sensor Data	1.1.1.1
			1.1.1.2	Collect and Process Sensor Fault Data	1.1.1.2
			1.1.1.3	Process Environmental Sensor Data	1.1.1.3
			1.1.1.4	Manage Data Collection and Monitoring	1.1.1.4
		1.1.2	Process and Store Traffic Data		
			1.1.2.1	Process Traffic Data for Storage	1.1.2.1
			1.1.2.2	Process Traffic Data	1.1.2.2
			1.1.2.3	Update Data Source Static Data	1.1.2.3
		1.1.3	Generate Predictive Traffic Model		1.1.3

Table 4-4. Relevant Pspecs - Logical Architecture Perspective (continued)

		1.1.4	Manage Data Collection and Monitoring		
			1.1.4.1	Retrieve Traffic Data	1.1.4.1
			1.1.4.2	Provide Traffic Operations Personnel Traffic Data Interface	1.1.4.2
			1.1.4.3	Provide Direct Media Traffic Data Interface	1.1.4.3
			1.1.4.4	Update Traffic Display Map Data	1.1.4.4
			1.1.4.5	Provide Media System Traffic Data Interface	1.1.4.5
			1.1.4.6	Provide Traffic Data Retrieval Interface	1.1.4.6
			1.1.4.7	Manage Traffic Archive Data	1.1.4.7
		1.1.5	Exchange data with Other Traffic Centers		1.1.5
	1.2	*Provide Device Control*			
		1.2.1	Select Strategy		1.2.1
		1.2.2	Determine Road and Freeway State		
			1.2.2.1	Determine Indicator State for Freeway Management	1.2.2.1
			1.2.2.2	Determine Indicator State for Road Management	1.2.2.2
		1.2.3	Determine Ramp State		1.2.3
		1.2.4	Output Control Data		
			1.2.4.1	Output Control Data for Roads	1.2.4.1
			1.2.4.2	Output Control Data for Freeways	1.2.4.2
		1.2.6	Maintain Static Data for TMC		
			1.2.6.1	Maintain Traffic and Sensor Static Data	1.2.6.1
			1.2.6.2	Provide Static Data Store Output Interface	1.2.6.2
		1.2.7	Provide Roadside Control Facilities		
			1.2.7.1	Process Indicator Output Data for Roads	1.2.7.1
			1.2.7.2	Monitor Roadside Equipment Operation for Faults	1.2.7.2
			1.2.7.3	Manage Indicator Preemptions	1.2.7.3
			1.2.7.5	Process Indicator Output Data for Freeways	1.2.7.5
		1.2.8	Collect and Process Indicator Fault Data		
			1.2.8.1	Collect Indicator Fault Data	1.2.8.1
			1.2.8.2	Maintain Indicator Fault Data Store	1.2.8.2
			1.2.8.3	Provide Indicator Fault Interface for C and M	1.2.8.3
			1.2.8.4	Provide Traffic Operations Personnel Indicator Fault Interface	1.2.8.4

Table 4-4. Relevant Pspecs - Logical Architecture Perspective (continued)

	1.3	*Manage Incidents*			
		1.3.1	Traffic Data Analysis for Incidents		
			1.3.1.1	Analyze Traffic Data for Incidents	1.3.1.1
			1.3.1.2	Maintain Static Data for Incident Management	1.3.1.2
			1.3.1.3	Process Traffic Images	1.3.1.3
		1.3.2	Review and Manage Incident Data		
			1.3.2.1	Store Possible Incident Data	1.3.2.1
			1.3.2.2	Review and Classify Possible Incidents	1.3.2.2
			1.3.2.3	Review and Classify Planned Events	1.3.2.3
			1.3.2.4	Provide Planned Events Store Interface	1.3.2.4
			1.3.2.5	Provide Current Incidents Store Interface	1.3.2.5
		1.3.3	Respond to Current Incidents		1.3.3
		1.3.4	Provide Operator Interfaces for Incidents		
			1.3.4.1	Retrieve Incident Data	1.3.4.1
			1.3.4.2	Provide Traffic Operations Personnel Incident Data Interface	1.3.4.2
			1.3.4.3	Provide Media Incident Data Interface	1.3.4.3
			1.3.4.4	Update Incident Display Map Data	1.3.4.4
			1.3.4.5	Manage Resources for Incidents	1.3.4.5
		1.3.5	Manage Possible Predetermined Responses Store		1.3.5
		1.3.6	Manage Predetermined Incident Response Data		1.3.6
		1.3.7	Analyze Incident Response Log		1.3.7
	1.4	*Manage Travel Demand*			
		1.4.1	Provide Traffic Operations Personnel Demand Interface		1.4.1
		1.4.2	Collect Demand Forecast Data		1.4.2
		1.4.3	Update Demand Display Map Data		1.4.3
		1.4.4	Implement Demand Management Policy		1.4.4
		1.4.5	Calculate Forecast Demand		1.4.5

Table 4-4. Relevant Pspecs – Logical Architecture Perspective (continued)

	1.6	*Manage Highway Rail Intersections*				
		1.6.1	Manage HRI Vehicle Traffic			
			1.6.1.2	Activate HRI Device Controls		
				1.6.1.2.2	Control HRI Warnings and Barriers	1.6.1.2.2
				1.6.1.2.5	Manage Device Control	1.6.1.2.5
			1.6.1.7	Execute Local Control Strategy		
				1.6.1.7.1	Control Vehicle Traffic at Passive HRI	1.6.1.7.1
				1.6.1.7.2	Control Vehicle Traffic at Active HRI	1.6.1.7.2
		1.6.5	Monitor HRI Status			
			1.6.5.2	Determine HRI Status		1.6.5.2
2	**Manage Commercial Vehicles**					
	2.1	*Manage Commercial Vehicle Fleet Operations*				
		2.1.1	Manage Commercial Fleet Electronic Credentials and Tax Filing			2.1.1
3	**Provide Vehicle Monitoring and Control**					
	3.3	*Provide Automatic Emergency Notification*				
		3.3.2	Provide Communications Function			3.3.2
		3.3.3	Build Automatic Collision Notification Message			3.3.3
4	**Manage Transit**					
	4.1	*Operate Vehicles and Facilities*				
		4.1.1	Process Transit Vehicle Sensor Trip Data			4.1.1
		4.1.2	Determine Transit Vehicle Deviation and Corrections			
			4.1.2.1	Determine Transit Vehicle Deviation and ETA		4.1.2.1
			4.1.2.2	Determine Transit Vehicle Corrective Instructions		4.1.2.2
			4.1.2.3	Provide Transit Vehicle Driver Interface		4.1.2.3
		4.1.3	Provide Transit Vehicle Location Data			4.1.3
		4.1.5	Provide Transit Vehicle Status Information			4.1.5
		4.1.6	Manage Transit Vehicle Operations Data			4.1.6
		4.1.8	Provide Transit Operations Data Distribution Interface			4.1.8
		4.1.9	Process Transit Vehicle Sensor Maintenance Data			4.1.9

Table 4-4. Relevant Pspecs – Logical Architecture Perspective (continued)

	4.2	*Plan and Schedule Transit Services*			
		4.2.1	Provide Demand Responsive Transit Service		
			4.2.1.1	Process Demand Responsive Transit Trip Request	4.2.1.1
			4.2.1.2	Compute Demand Responsive Transit Vehicle Availability	4.2.1.2
			4.2.1.3	Generate Demand Responsive Transit Schedule and Routes	4.2.1.3
			4.2.1.4	Confirm Demand Responsive Transit Schedule and Route	4.2.1.4
			4.2.1.5	Process Demand Responsive Transit Vehicle Availability Data	4.2.1.5
			4.2.1.6	Provide Demand Responsive Transit Driver Interface	4.2.1.6
		4.2.2	Provide Transit Plans Store Interface		4.2.2
		4.2.3	Generate Transit Routes and Schedules		
			4.2.3.1	Generate Transit Routes	4.2.3.1
			4.2.3.2	Generate Schedules	4.2.3.2
			4.2.3.3	Produce Transit Service Data for External Use	4.2.3.3
			4.2.3.4	Provide Transit Fleet Manager Interface for Services Generation	4.2.3.4
			4.2.3.5	Manage Transit Operational Data Store	4.2.3.5
			4.2.3.6	Produce Transit Service Data for Manage Transit Use	4.2.3.6
			4.2.3.9	Update Transit Map Data	4.2.3.9
	4.3	*Schedule Transit Vehicle Maintenance*			
		4.3.1	Monitor Transit Vehicle Condition		4.3.1
		4.3.2	Generate Transit Vehicle Maintenance Schedules		4.3.2
		4.3.3	Generate Technician Work Assignments		4.3.1
		4.3.4	Monitor And Verify Maintenance Activity		4.3.4
		4.3.5	Report Transit Vehicle Information		4.3.5
		4.3.6	Update Transit Vehicle Information		4.3.6
		4.3.7	Manage Transit Vehicle Operations Data Store		4.3.7

Table 4-4. Relevant Pspecs – Logical Architecture Perspective (continued)

	4.4	*Support Security and Coordination*			
		4.4.1	Provide Transit Security and Emergency Management		
			4.4.1.1	Manage Transit Security	4.4.1.1
			4.4.1.2	Manage Transit Emergencies	4.4.1.2
			4.4.1.3	Provide Transit System Operator Security Interface	4.4.1.3
			4.4.1.4	Provide Transit External Interface for Emergencies	4.4.1.4
			4.4.1.5	Provide Transit Driver Interface for Emergencies	4.4.1.5
			4.4.1.6	Collect Transit Vehicle Emergency Information	4.4.1.6
			4.4.1.7	Monitor Secure Area	4.4.1.7
			4.4.1.8	Report Traveler Emergencies	4.4.1.8
		4.4.2	Coordinate Multiple Agency Responses to Incidents		4.4.2
		4.4.3	Generate Responses for Incidents		4.4.3
	4.5	*Generate Transit Driver Schedules*			
		4.5.1	Assess Transit Driver Performance		4.5.1
		4.5.2	Assess Transit Driver Availability		4.5.2
		4.5.3	Access Transit Driver Cost Effectiveness		4.5.3
		4.5.4	Assess Transit Driver Eligibility		4.5.4
		4.5.5	Generate Transit Driver Route Assignments		4.5.5
		4.5.6	Update Transit Driver Information		4.5.6
		4.5.7	Report Transit Driver Information		4.5.7
		4.5.8	Provide Transit Driver Information Store Interface		4.5.8
	4.6	*Collect Transit Fares in the Vehicle*			
		4.6.1	Detect Transit User on Vehicle		4.6.1
		4.6.2	Determine Transit User Needs on Vehicle		4.6.2
		4.6.3	Determine Transit Fare on Vehicle		4.6.3
		4.6.4	Manage Transit Fare Billing on Vehicle		4.6.4
		4.6.5	Provide Transit User Fare Payment Interface on Vehicle		4.6.5
		4.6.6	Update Transit Vehicle Fare Data		4.6.6
		4.6.7	Provide Transit Vehicle Passenger Data		4.6.7

Table 4-4. Relevant Pspecs – Logical Architecture Perspective (continued)

	4.7	*Provide Transit User Roadside Facilities*			
		4.7.2	Collect Transit Fares at the Roadside		
			4.7.2.1	Detect Transit User at Roadside	4.7.2.1
			4.7.2.2	Determine Transit User Needs at Roadside	4.7.2.2
			4.7.2.3	Determine Transit Fare at Roadside	4.7.2.3
			4.7.2.4	Manage Transit Fare Billing at Roadside	4.7.2.4
			4.7.2.5	Provide Transit User Roadside Fare Interface	4.7.2.5
			4.7.2.6	Update Roadside Transit Fare Data	4.7.2.6
			4.7.2.7	Provide Transit Roadside Passenger Data	4.7.2.7
5	**Manage Emergency Services**				
	5.1	*Provide Emergency Service Allocation*			
		5.1.1	Identify Emergencies from Inputs		5.1.1
		5.1.2	Determine Coordinated Response Plan		5.1.2
		5.1.3	Communicate Emergency Status		5.1.3
		5.1.4	Manage Emergency Response		5.1.4
		5.1.5	Manage Emergency Service Allocation Store		5.1.5
		5.1.6	Process Mayday Messages		5.1.6
	5.2	*Provide Operator Interface for Emergency Data*			5.2
	5.3	*Manage Emergency Vehicles*			
		5.3.1	Select Response Mode		5.3.1
		5.3.2	Dispatch Vehicle		5.3.2
		5.3.3	Track Vehicle		5.3.3
		5.3.4	Assess Response Status		5.3.4
		5.3.5	Provide Emergency Personnel Interface		5.3.5
		5.3.6	Maintain Vehicle Status		5.3.6
		5.3.7	Provide Emergency Vehicle Route		5.3.7
	5.4	*Provide Law Enforcement Allocation*			
		5.4.2	Process Violations for Tolls		5.4.2
		5.4.4	Process Fare Payment Violations		5.4.4
		5.4.5	Process Vehicle Fare Collection Violations		5.4.5
		5.4.7	Process Roadside Fare Collection Violations		5.4.7
	5.5	*Update Emergency Display Map Data*			5.5
	5.6	*Manage Emergency Services Data*			5.6

Table 4-4. Relevant Pspecs – Logical Architecture Perspective (continued)

6	**Provide Driver and Traveler Services**				
	6.1	*Provide Trip Planning Services*			
		6.1.1	Provide Trip Planning Information to Traveler		6.1.1
		6.1.5	Collect Service Requests and Confirmation for Archive		6.1.5
		6.1.6	Manage Traveler Info Archive Data		6.1.6
	6.2	*Provide Information Services*			
		6.2.1	Provide Advisory and Broadcast Data		
			6.2.1.1	Collect Traffic Data for Advisory Messages	6.2.1.1
			6.2.1.3	Collect Transit Data for Advisory Messages	6.2.1.3
			6.2.1.4	Provide Traffic and Transit Broadcast Messages	6.2.1.4
			6.2.1.5	Provide ISP Operator Broadcast Parameters Interface	6.2.1.5
			6.2.1.6	Provide Transit Advisory Data On Vehicle	6.2.1.6
		6.2.2	Prepare and Output In-vehicle Displays		6.2.2
		6.2.3	Provide Transit User Advisory Interface		6.2.3
		6.3.2	Inform Traveler		6.3.2
		6.3.3	Provide Traveler Kiosk Interface		6.3.3
	6.5	*Manage Yellow Pages Services*			
		6.5.1	Collect and Update Traveler Information		6.5.1
	6.7	*Provide Driver Personal Services*			
		6.7.1	Provide Driver Personal Security		
			6.7.1.1	Build Driver Personal Security Message	6.7.1.1
			6.7.1.2	Provide Driver In-vehicle Communications Function	6.7.1.2
		6.7.2	Provide On-line Vehicle Guidance		
			6.7.2.2	Process Vehicle Location Data	6.7.2.2
	6.8	*Provide Traveler Personal Services*			
		6.8.1	Provide On-line Traveler Guidance		
			6.8.1.5	Provide Traveler Emergency Message Interface	6.8.1.5
		6.8.2	Provide Traveler Personal Security		
			6.8.2.1	Build Traveler Personal Security Message	6.8.2.1
			6.8.2.2	Provide Traveler Emergency Communications Function	6.8.2.2
		6.8.3	Provide Traveler Services at Personal Devices		
			6.8.3.2	Provide Traveler with Personal Travel Information	6.8.3.2
			6.8.3.3	Provide Traveler Personal Interface	6.8.3.3

Table 4-4. Relevant Pspecs – Logical Architecture Perspective (continued)

7	**Provide Electronic Payment Services**				
	7.1	*Provide Electronic Toll Payment*			
		7.1.1	Process Electronic Toll Payment		
			7.1.1.1	Read Tag Data for Tolls	7.1.1.1
			7.1.1.2	Calculate Vehicle Toll	7.1.1.2
			7.1.1.3	Manage Bad Toll Payment Data	7.1.1.3
			7.1.1.4	Check for Advanced Tolls Payment	7.1.1.4
			7.1.1.5	Bill Driver for Tolls	7.1.1.5
			7.1.1.7	Update Toll Price Data	7.1.1.7
			7.1.1.8	Register for Advanced Toll Payment	7.1.1.8
			7.1.1.9	Manage Toll Financial Processing	7.1.1.9
			7.1.1.10	Determine Advanced Toll Bill	7.1.1.10
		7.1.2	Produce Roadside Displays		7.1.2
		7.1.3	Obtain Toll Violator Image		7.1.3
		7.1.4	Provide Driver Toll Payment Interface		7.1.4
		7.1.5	Detect Vehicle for Tolls		7.1.5
		7.1.7	Provide Payment Instrument Interface for Tolls		7.1.7
	7.3	*Carry-out Centralized Payments Processing*			
		7.3.1	Process Electronic Transit Fare Payment		
			7.3.1.1	Register for Advanced Transit Fare Payment	7.3.1.1
			7.3.1.2	Determine Advanced Transit Fares	7.3.1.2
			7.3.1.3	Manage Transit Fare Financial Processing	7.3.1.3
			7.3.1.4	Check for Advanced Transit Fare Payment	7.3.1.4
			7.3.1.7	Update Transit Fare Data	7.3.1.7
		7.3.5	Provide Transit Vehicle Payment Instrument Interface		7.3.5
	7.4	*Carry-out Centralized Payments Processing*			
		7.4.2	Collect Price Data for ITS Use		7.4.2
	7.5	*Provide Payment Instrument Interfaces*			
		7.5.1	Provide Vehicle Payment Instrument Interface		7.5.1

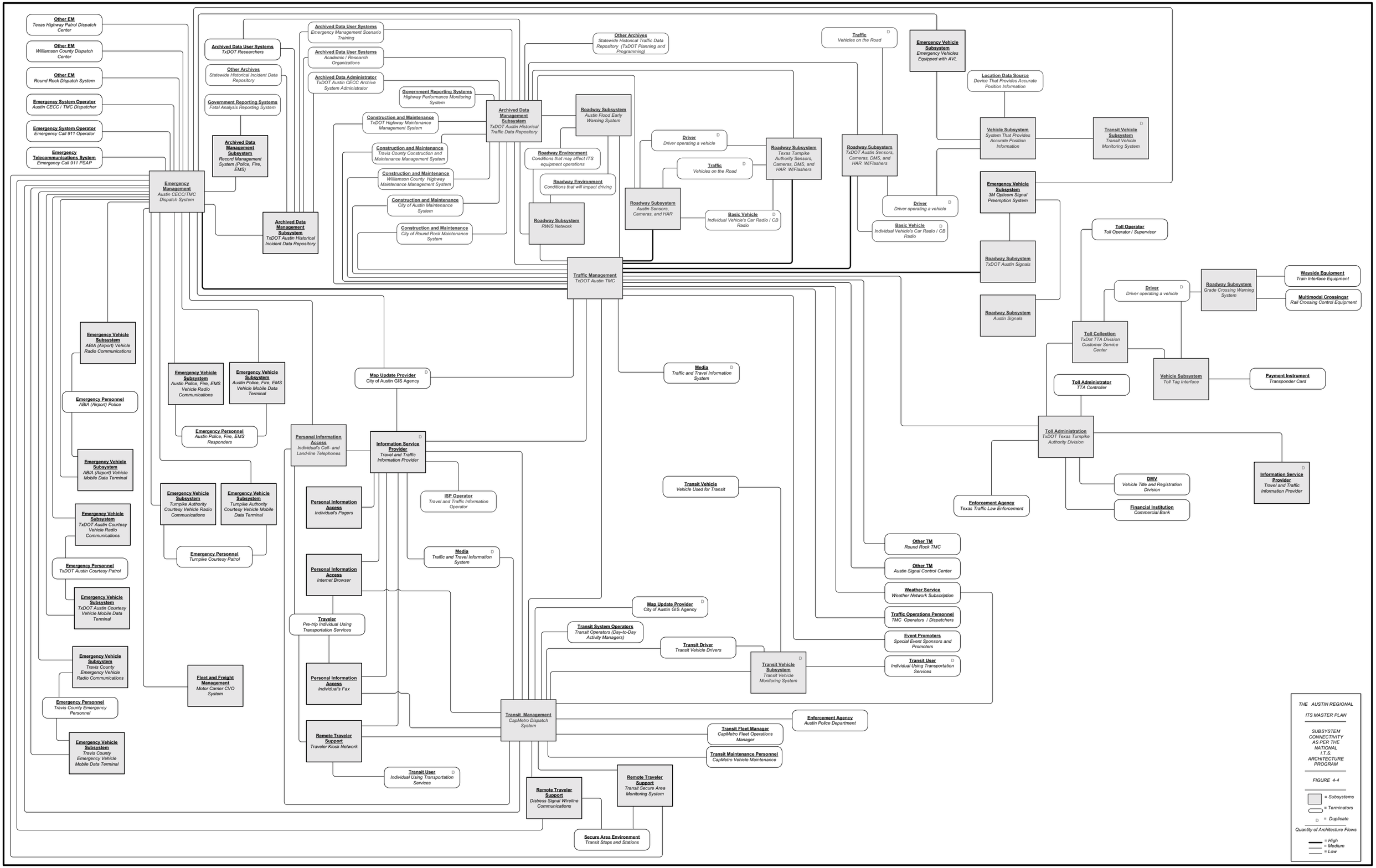
Table 4-4. Relevant Pspecs – Logical Architecture Perspective (continued)

8	**Manage Archived Data**		
	8.1	*Get Archive Data*	8.1
	8.2	*Manage Archive*	8.2
	8.3	*Manage Archive Data Administrator Interface*	8.3
	8.4	*Coordinate Archives*	8.4
	8.5	*Process Archived Data User System Requests*	8.5
	8.6	*Analyze Archive*	8.6
	8.7	*Process On Demand Archive Requests*	8.7
	8.8	*Prepare Government Reporting Inputs*	8.8
	8.9	*Manage Roadside Data Collection*	8.9

4.4 ORGANIZATIONAL CONNECTIVITY

The organizational connectivity for the Regional ITS identifies the interconnections between subsystems and terminators. Figure 4-4 shows the top-level connectivity. The diagram presents the inventory of included and related Regional ITS functional elements that are compatible with the National ITS Architecture Program. Only those entities that are within the scope of this project are highlighted. Each entity's connectivity and functionality will be specified in greater detail throughout the remaining sections.

Each line connecting the various entities represents information exchanges between the entities. These exchanges are further detailed through architecture flows, data flows, and data stores.


Other EM
Texas Highway Patrol Dispatch Center
Other EM
Williamson County Dispatch Center
Other EM
Round Rock Dispatch System
Emergency System Operator
Austin CECC / TMC Dispatcher
Emergency System Operator
Emergency Call 911 Operator
Emergency Telecommunications System
Emergency Call 911 PSAP
Emergency Management
Austin CECC/TMC Dispatch System
Archived Data User Systems
TxDOT Researchers
Other Archives
Statewide Historical Incident Data Repository
Government Reporting Systems
Fatal Analysis Reporting System
Archived Data Management Subsystem
Record Management System (Police, Fire, EMS)
Archived Data User Systems
Emergency Management Scenario Training
Archived Data User Systems
Academic / Research Organizations
Archived Data Administrator
TxDOT Austin CECC Archive System Administrator
Archived Data Management Subsystem
TxDOT Austin Historical Incident Data Repository
Other Archives
Statewide Historical Traffic Data Repository (TxDOT Planning and Programming)
Government Reporting Systems
Highway Performance Monitoring System
Construction and Maintenance
TxDOT Highway Maintenance Management System
Construction and Maintenance
Travis County Construction and Maintenance Management System
Construction and Maintenance
Williamson County Highway Maintenance Management System
Construction and Maintenance
City of Austin Maintenance System
Construction and Maintenance
City of Round Rock Maintenance System
Archived Data Management Subsystem
TxDOT Austin Historical Traffic Data Repository
Roadway Subsystem
Austin Flood Early Warning System
Roadway Environment
Conditions that may affect ITS equipment operations
Roadway Environment
Conditions that will impact driving
Roadway Subsystem
RWIS Network
Roadway Subsystem
Austin Sensors, Cameras, and HAR
Driver
Driver operating a vehicle
Traffic
Vehicles on the Road
Basic Vehicle
Individual Vehicle's Car Radio / CB Radio
Roadway Subsystem
Texas Turnpike Authority Sensors, Cameras, DMS, and HAR W/Flashers
Traffic
Vehicles on the Road
Roadway Subsystem
TxDOT Austin Sensors, Cameras, DMS, and HAR W/Flashers
Driver
Driver operating a vehicle
Basic Vehicle
Individual Vehicle's Car Radio / CB Radio
Emergency Vehicle Subsystem
Emergency Vehicles Equipped with AVL
Location Data Source
Device That Provides Accurate Position Information
Vehicle Subsystem
System That Provides Accurate Position Information
Transit Vehicle Subsystem
Transit Vehicle Monitoring System
Emergency Vehicle Subsystem
3M Opticom Signal Preemption System
Roadway Subsystem
TxDOT Austin Signals
Roadway Subsystem
Austin Signals
Toll Operator
Toll Operator / Supervisor
Driver
Driver operating a vehicle
Roadway Subsystem
Grade Crossing Warning System
Wayside Equipment
Train Interface Equipment
Multimodal Crossingsr
Rail Crossing Control Equipment
Toll Collection
TxDot TTA Division Customer Service Center
Vehicle Subsystem
Toll Tag Interface
Payment Instrument
Transponder Card
Toll Administrator
TTA Controller
Toll Administration
TxDOT Texas Turnpike Authority Division
DMV
Vehicle Title and Registration Division
Financial Institution
Commercial Bank
Information Service Provider
Travel and Traffic Information Provider
Enforcement Agency
Texas Traffic Law Enforcement
Traffic Management
TxDOT Austin TMC
Map Update Provider
City of Austin GIS Agency
Media
Traffic and Travel Information System
Information Service Provider
Travel and Traffic Information Provider
ISP Operator
Travel and Traffic Information Operator
Media
Traffic and Travel Information System
Personal Information Access
Individual's Cell- and Land-line Telephones
Personal Information Access
Individual's Pagers
Personal Information Access
Internet Browser
Traveler
Pre-trip Individual Using Transportation Services
Personal Information Access
Individual's Fax
Remote Traveler Support
Traveler Kiosk Network
Transit User
Individual Using Transportation Services
Emergency Vehicle Subsystem
ABIA (Airport) Vehicle Radio Communications
Emergency Personnel
ABIA (Airport) Police
Emergency Vehicle Subsystem
ABIA (Airport) Vehicle Mobile Data Terminal
Emergency Vehicle Subsystem
TxDOT Austin Courtesy Vehicle Radio Communications
Emergency Personnel
TxDOT Austin Courtesy Patrol
Emergency Vehicle Subsystem
TxDOT Austin Courtesy Vehicle Mobile Data Terminal
Emergency Vehicle Subsystem
Travis County Emergency Vehicle Radio Communications
Emergency Personnel
Travis County Emergency Personnel
Emergency Vehicle Subsystem
Travis County Emergency Vehicle Mobile Data Terminal
Emergency Vehicle Subsystem
Austin Police, Fire, EMS Vehicle Radio Communications
Emergency Personnel
Austin Police, Fire, EMS Responders
Emergency Vehicle Subsystem
Austin Police, Fire, EMS Vehicle Mobile Data Terminal
Emergency Vehicle Subsystem
Turnpike Authority Courtesy Vehicle Radio Communications
Emergency Vehicle Subsystem
Turnpike Authority Courtesy Vehicle Mobile Data Terminal
Emergency Personnel
Turnpike Courtesy Patrol
Fleet and Freight Management
Motor Carrier CVO System
Personal Information Access
Individual's Cell- and Land-line Telephones
Transit Vehicle
Vehicle Used for Transit
Map Update Provider
City of Austin GIS Agency
Transit System Operators
Transit Operators (Day-to-Day Activity Managers)
Transit Driver
Transit Vehicle Drivers
Transit Vehicle Subsystem
Transit Vehicle Monitoring System
Transit Management
CapMetro Dispatch System
Transit Fleet Manager
CapMetro Fleet Operations Manager
Transit Maintenance Personnel
CapMetro Vehicle Maintenance
Enforcement Agency
Austin Police Department
Remote Traveler Support
Distress Signal Wireline Communications
Remote Traveler Support
Transit Secure Area Monitoring System
Secure Area Environment
Transit Stops and Stations
Other TM
Round Rock TMC
Other TM
Austin Signal Control Center
Weather Service
Weather Network Subscription
Traffic Operations Personnel
TMC Operators / Dispatchers
Event Promoters
Special Event Sponsors and Promoters
Transit User
Individual Using Transportation Services
THE AUSTIN REGIONAL ITS MASTER PLAN
SUBSYSTEM CONNECTIVITY AS PER THE NATIONAL I.T.S. ARCHITECTURE PROGRAM
FIGURE 4-4
= Subsystems
= Terminators
D = Duplicate
Quantity of Architecture Flows
= High
= Medium
= Low

The architecture flows represent a physical perspective of the functionality required by the Austin Region. The architecture flows and the entities they connect are shown below. The architecture flows are centered on a main entity. The flows from the main entity to each destination entity appear to the left of the diagram and the flows to the main entity from each source entity are shown on the right of the diagram. For example, Figure 4-5 provides a sample set of architecture flows between the main entity of Traffic Management and the two entities in which information will be exchanged, Emergency Management and Roadway Subsystem.

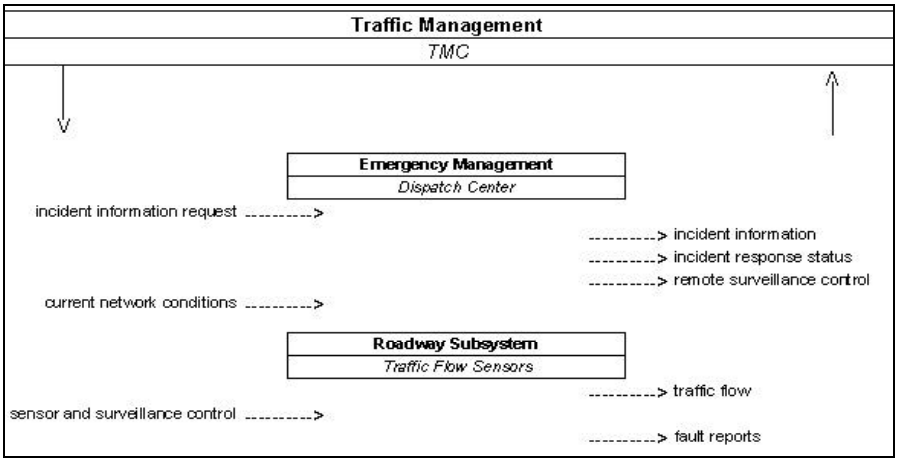


Figure 4-5. Sample Information Exchanges Between Entities

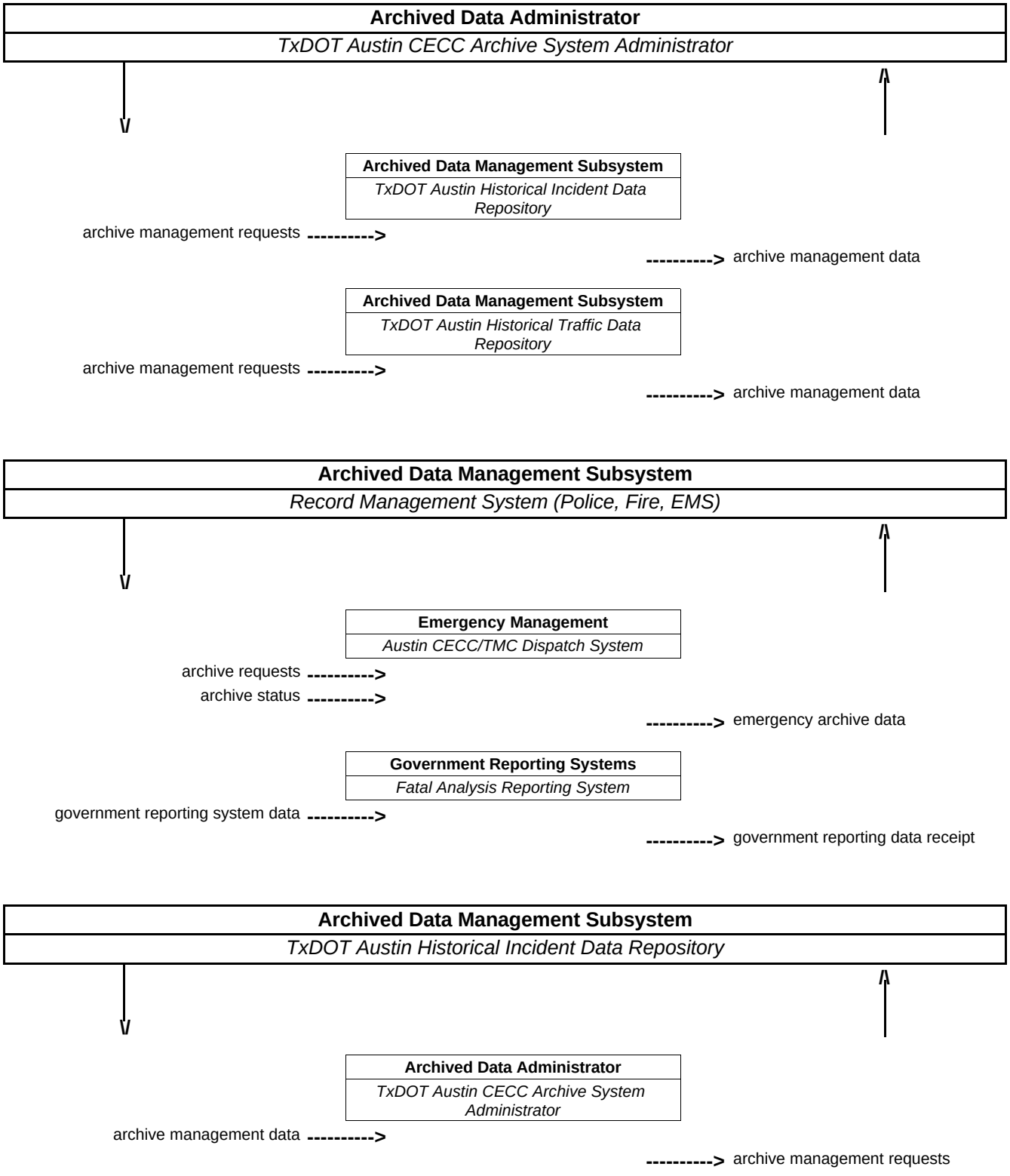
The required entity integration between the Emergency Management (EM) and Traffic Management (TM) subsystems is now understood to be the following five information items for exchange:

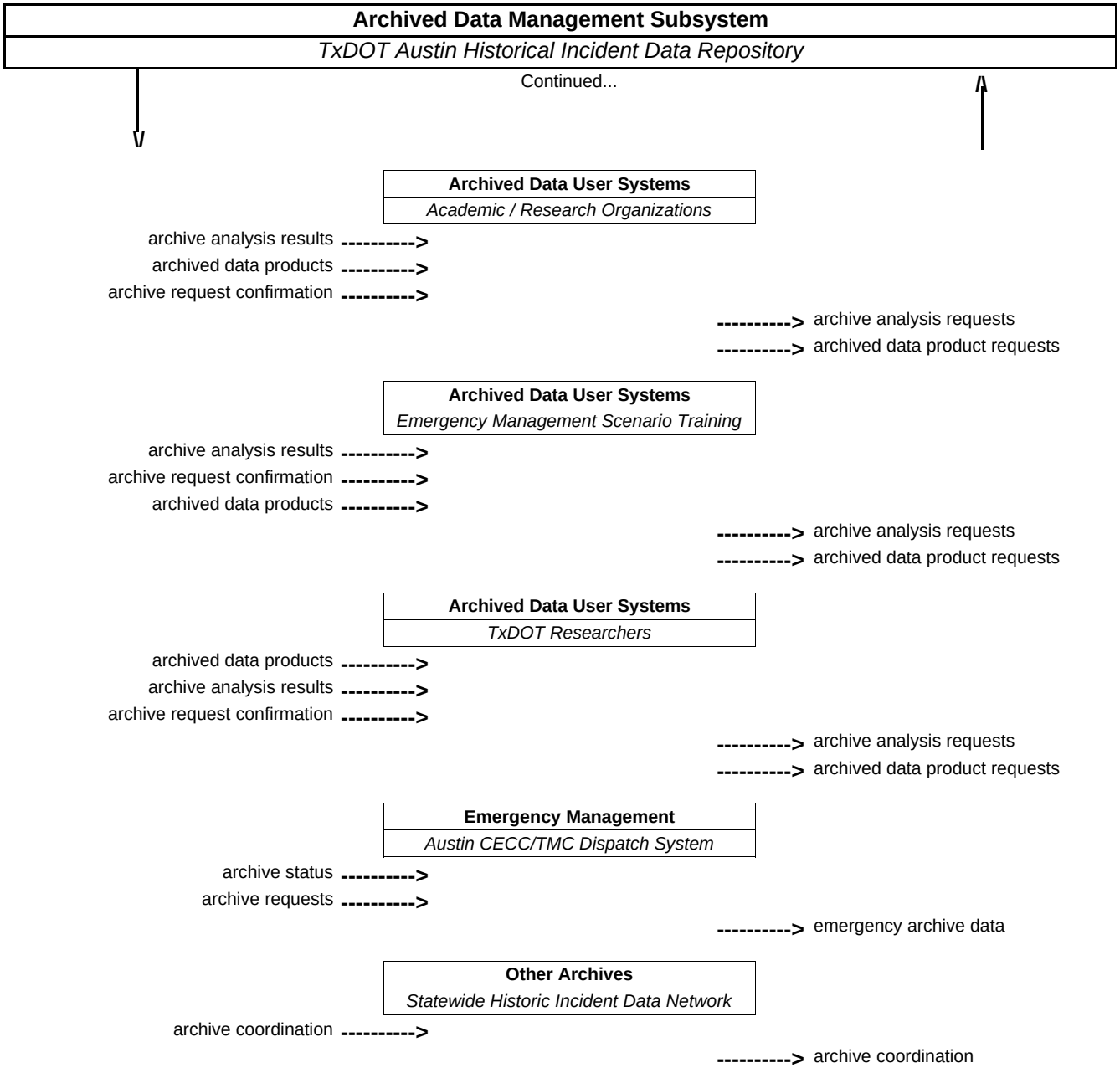
(1)	*incident information request*	(from TM to EM)
(2)	*current network conditions*	(from TM to EM)
(3)	*incident information*	(from EM to TM)
(4)	*incident response status*	(from EM to TM)
(5)	*remote surveillance control*	(from EM to TM)

Similarly, the required entity integration between the Traffic Management (TM) and Roadway Subsystems (RS) is now understood to be the following three information items for exchange:

(1)	*sensor and surveillance control*	(from TM to RS)
(2)	*traffic flow*	(from RS to TM)
(3)	*fault reports*	(from RS to TM)

The definitions of these architecture flows can be found in Appendix B. Architecture flows must adhere to defined standards to maintain compatibility within the National ITS Architecture and to provide operational consistency and interoperability. The standards associated with the regional ITS architecture are compiled in Appendix C. Each Architecture flow is listed with its associated set of standards. Some architecture flows however currently do not have standards defined for them. The appendix lists the architecture flow, the inventory systems it connects, and the standards associated with the architecture flow.


Archived Data Administrator
TxDOT Austin CECC Archive System Administrator
Archived Data Management Subsystem
TxDOT Austin Historical Incident Data Repository
archive management requests
archive management data
Archived Data Management Subsystem
TxDOT Austin Historical Traffic Data Repository
archive management requests
archive management data
Archived Data Management Subsystem
Record Management System (Police, Fire, EMS)
Emergency Management
Austin CECC/TMC Dispatch System
archive requests
archive status
emergency archive data
Government Reporting Systems
Fatal Analysis Reporting System
government reporting system data
government reporting data receipt
Archived Data Management Subsystem
TxDOT Austin Historical Incident Data Repository
Archived Data Administrator
TxDOT Austin CECC Archive System Administrator
archive management data
archive management requests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TxDOT Austin Historical Incident Data Repository
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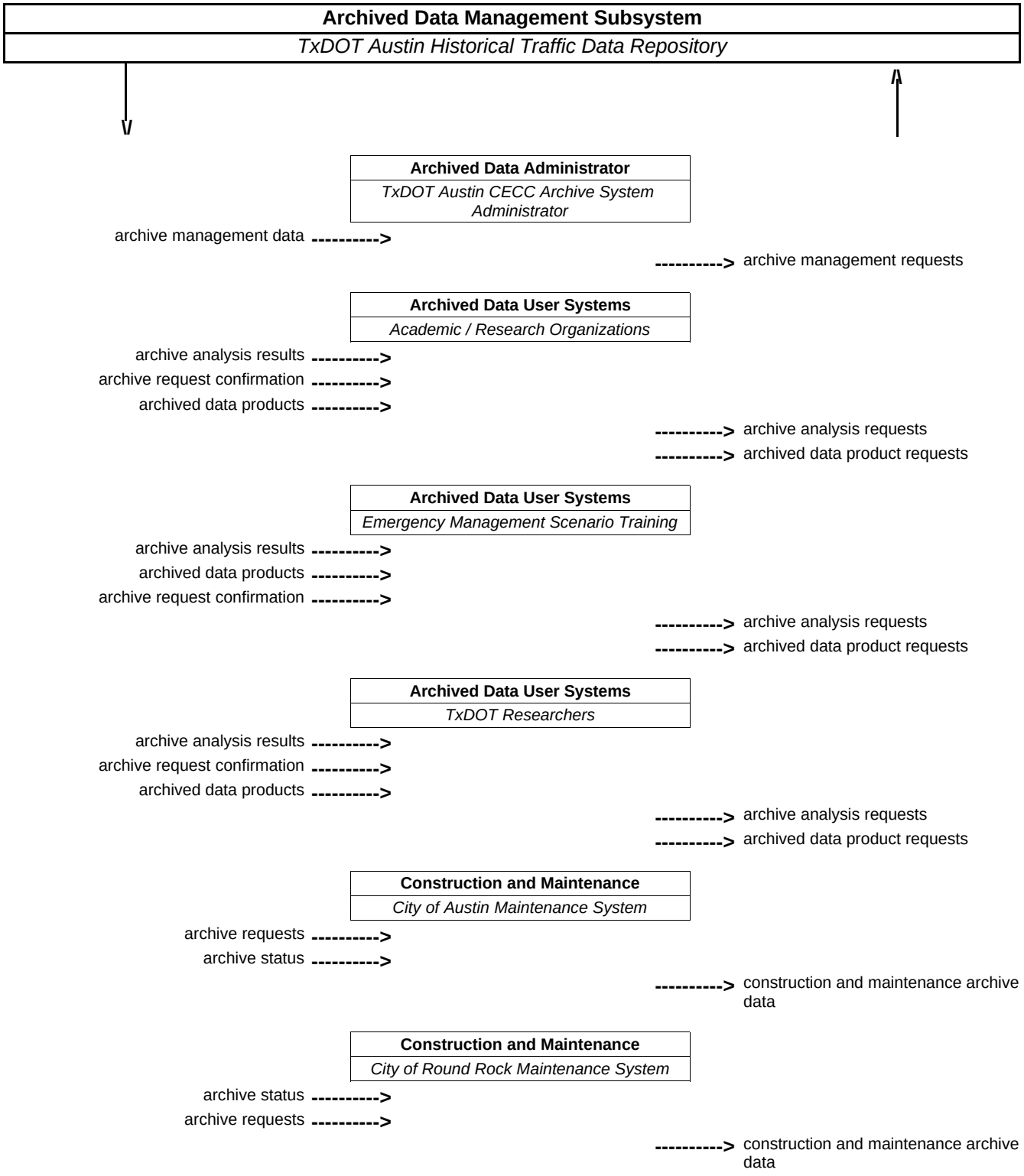
Academic / Research Organizations
archive analysis results
archived data products
archive request confirmation
archive analysis requests
archived data product requests
Archived Data User Systems
Emergency Management Scenario Training
archive analysis results
archive request confirmation
archived data products
archive analysis requests
archived data product requests
Archived Data User Systems
TxDOT Researchers
archived data products
archive analysis results
archive request confirmation
archive analysis requests
archived data product requests
Emergency Management
Austin CECC/TMC Dispatch System
archive status
archive requests
emergency archive data
Other Archives
Statewide Historic Incident Data Network
archive coordination
archive coordination


Archived Data Management Subsystem
TxDOT Austin Historical Traffic Data Repository
Archived Data Administrator
TxDOT Austin CECC Archive System Administrator
archive management data
archive management requests
Archived Data User Systems
Academic / Research Organizations
archive analysis results
archive request confirmation
archived data products
archive analysis requests
archived data product requests
Archived Data User Systems
Emergency Management Scenario Training
archive analysis results
archived data products
archive request confirmation
archive analysis requests
archived data product requests
Archived Data User Systems
TxDOT Researchers
archive analysis results
archive request confirmation
archived data products
archive analysis requests
archived data product requests
Construction and Maintenance
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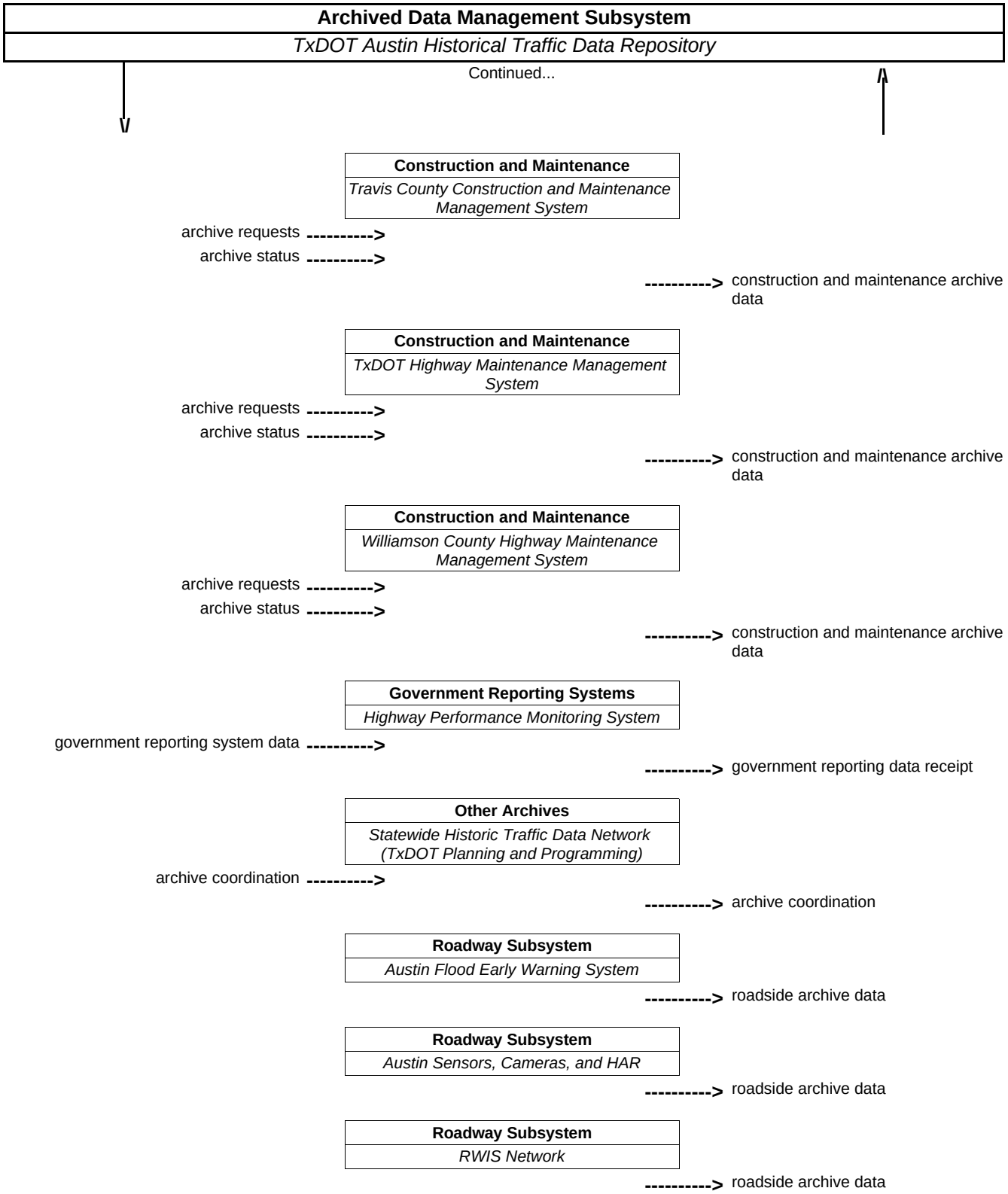
archive status
construction and maintenance archive data
Construction and Maintenance
City of Round Rock Maintenance System
archive status
archive requests
construction and maintenance archive data


Archived Data Management Subsystem
TxDOT Austin Historical Traffic Data Repository
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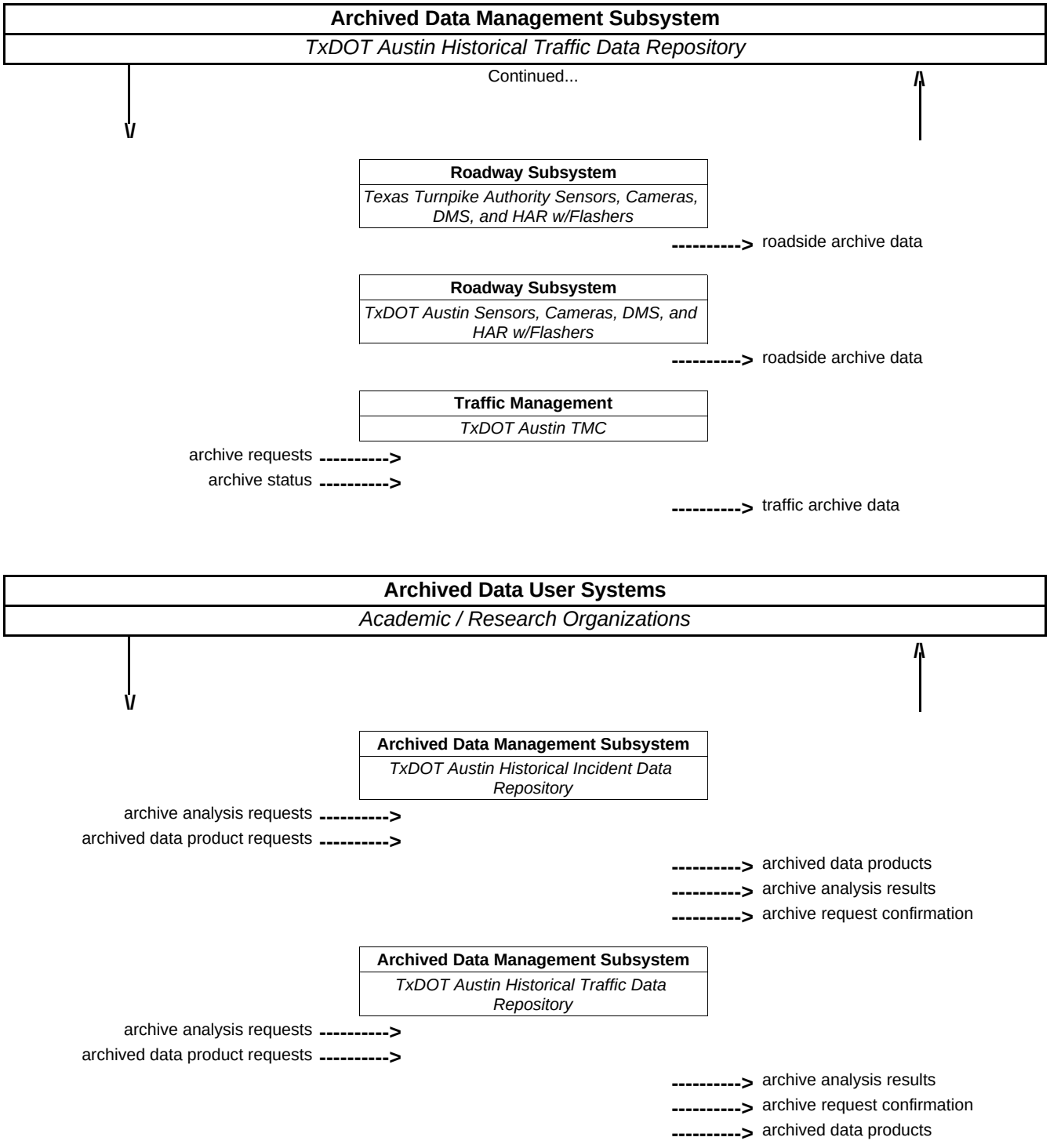
Construction and Maintenance
Travis County Construction and Maintenance Management System
archive requests
archive status
construction and maintenance archive data
Construction and Maintenance
TxDOT Highway Maintenance Management System
archive requests
archive status
construction and maintenance archive data
Construction and Maintenance
Williamson County Highway Maintenance Management System
archive requests
archive status
construction and maintenance archive data
Government Reporting Systems
Highway Performance Monitoring System
government reporting system data
government reporting data receipt
Other Archives
Statewide Historic Traffic Data Network (TxDOT Planning and Programming)
archive coordination
archive coordination
Roadway Subsystem
Austin Flood Early Warning System
roadside archive data
Roadway Subsystem
Austin Sensors, Cameras, and HAR
roadside archive data
Roadway Subsystem
RWIS Network
roadside archive data


Archived Data Management Subsystem
TxDOT Austin Historical Traffic Data Repository
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Roadway Subsystem
Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers
roadside archive data
Roadway Subsystem
TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers
roadside archive data
Traffic Management
TxDOT Austin TMC
archive requests
archive status
traffic archive data
Archived Data User Systems
Academic / Research Organizations
Archived Data Management Subsystem
TxDOT Austin Historical Incident Data Repository
archive analysis requests
archived data product requests
archived data products
archive analysis results
archive request confirmation
Archived Data Management Subsystem
TxDOT Austin Historical Traffic Data Repository
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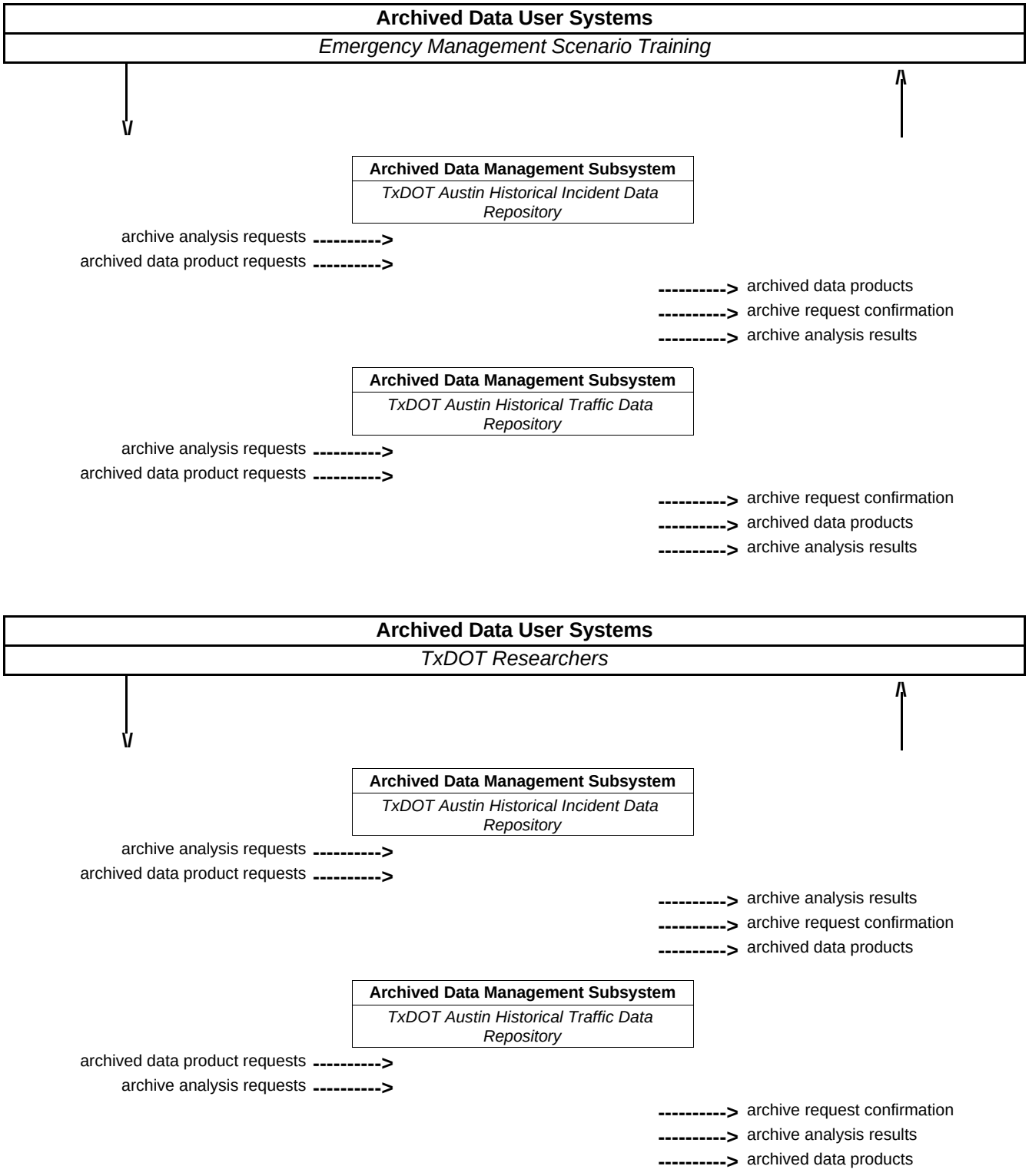
archived data product requests
archive analysis results
archive request confirmation
archived data products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Archived Data Management Subsystem
TxDOT Austin Historical Incident Data Repository
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archived data product requests
archived data products
archive request confirmation
archive analysis results
Archived Data Management Subsystem
TxDOT Austin Historical Traffic Data Repository
archive analysis requests
archived data product requests
archive request confirmation
archived data products
archive analysis results
Archived Data User Systems
TxDOT Researchers
Archived Data Management Subsystem
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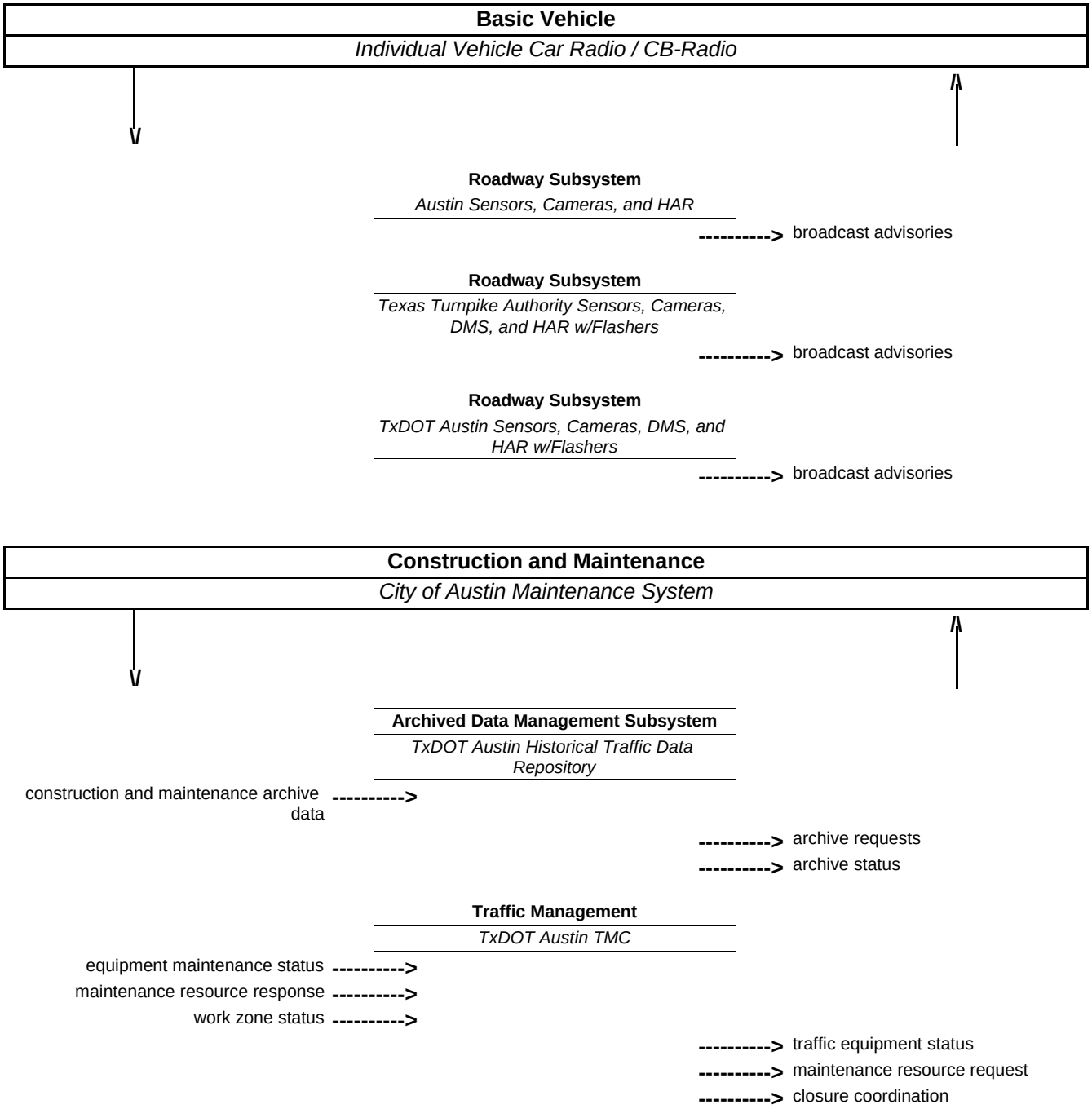
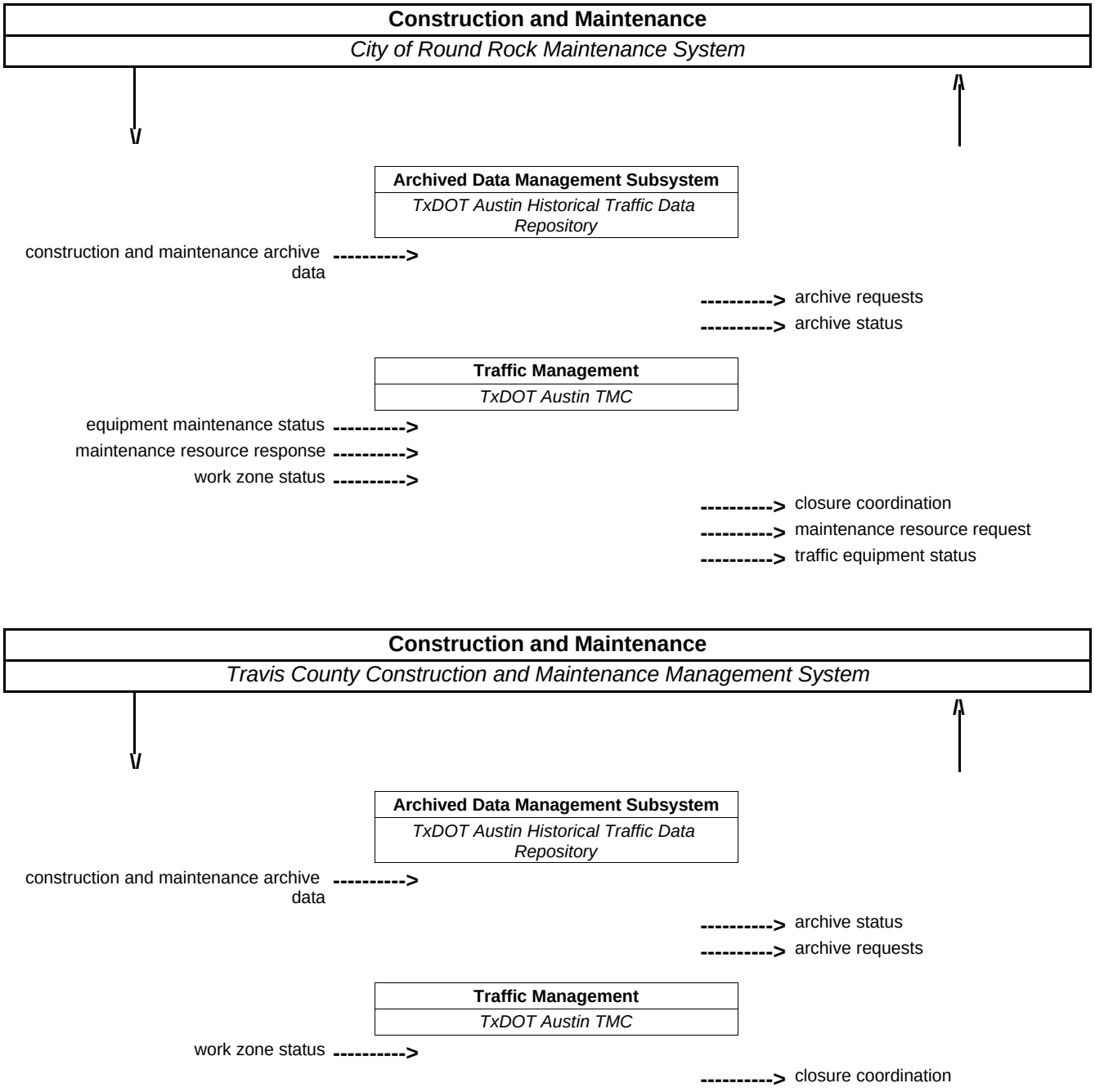
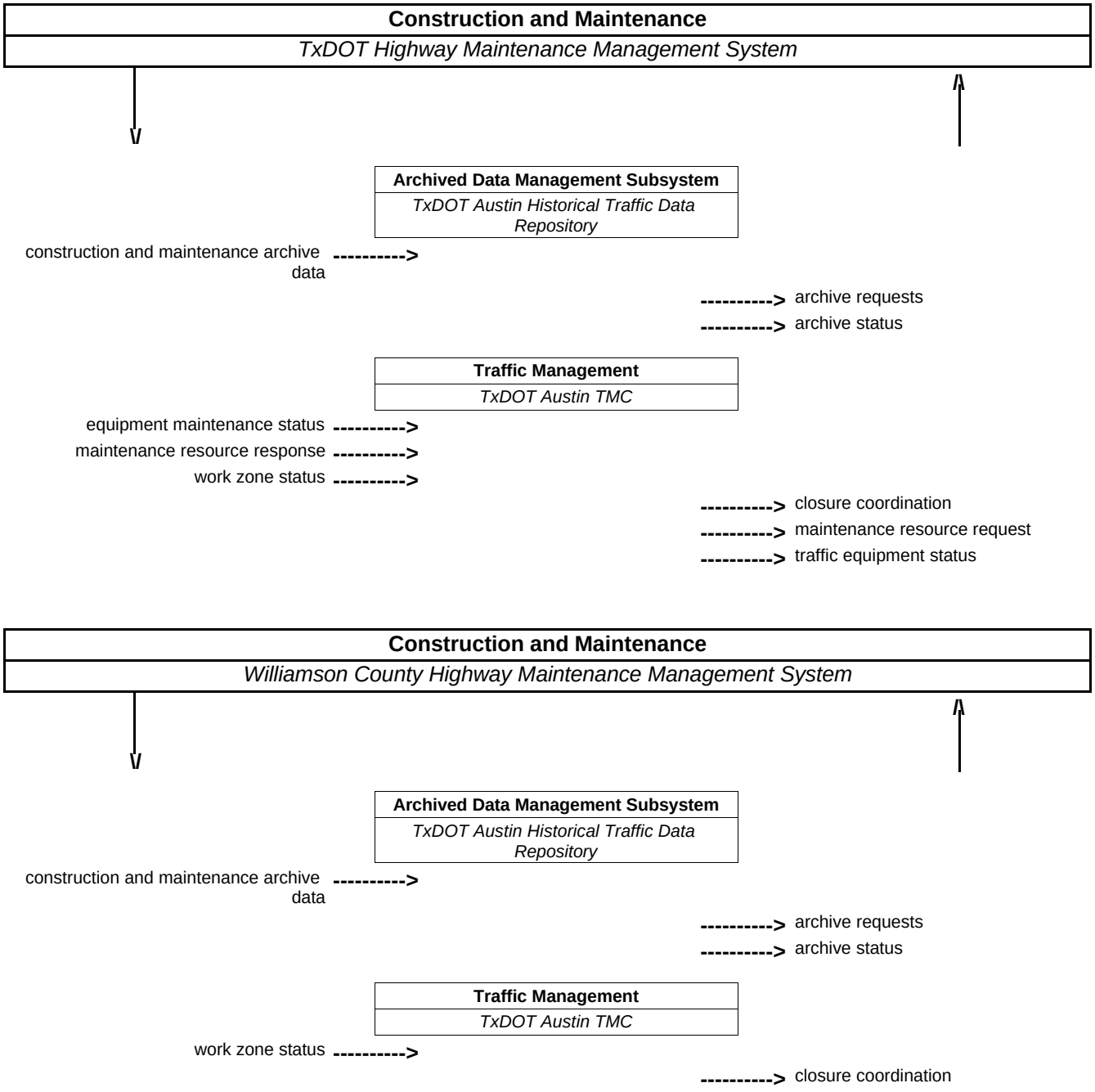
archive request confirmation
archive analysis results
archived data products


Basic Vehicle
Individual Vehicle Car Radio / CB-Radio
Roadway Subsystem
Austin Sensors, Cameras, and HAR
broadcast advisories
Roadway Subsystem
Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers
broadcast advisories
Roadway Subsystem
TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers
broadcast advisories
Construction and Maintenance
City of Austin Maintenance System
Archived Data Management Subsystem
TxDOT Austin Historical Traffic Data Repository
construction and maintenance archive data
archive requests
archive status
Traffic Management
TxDOT Austin TMC
equipment maintenance status
maintenance resource response
work zone status
traffic equipment status
maintenance resource request
closure coordination


Construction and Maintenance
City of Round Rock Maintenance System
Archived Data Management Subsystem
TxDOT Austin Historical Traffic Data Repository
construction and maintenance archive data
archive requests
archive status
Traffic Management
TxDOT Austin TMC
equipment maintenance status
maintenance resource response
work zone status
closure coordination
maintenance resource request
traffic equipment status
Construction and Maintenance
Travis County Construction and Maintenance Management System
Archived Data Management Subsystem
TxDOT Austin Historical Traffic Data Repository
construction and maintenance archive data
archive status
archive requests
Traffic Management
TxDOT Austin TMC
work zone status
closure coordination


Construction and Maintenance
TxDOT Highway Maintenance Management System
Archived Data Management Subsystem
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construction and maintenance archive data
archive requests
archive status
Traffic Management
TxDOT Austin TMC
equipment maintenance status
maintenance resource response
work zone status
closure coordination
maintenance resource request
traffic equipment status
Construction and Maintenance
Williamson County Highway Maintenance Management System
Archived Data Management Subsystem
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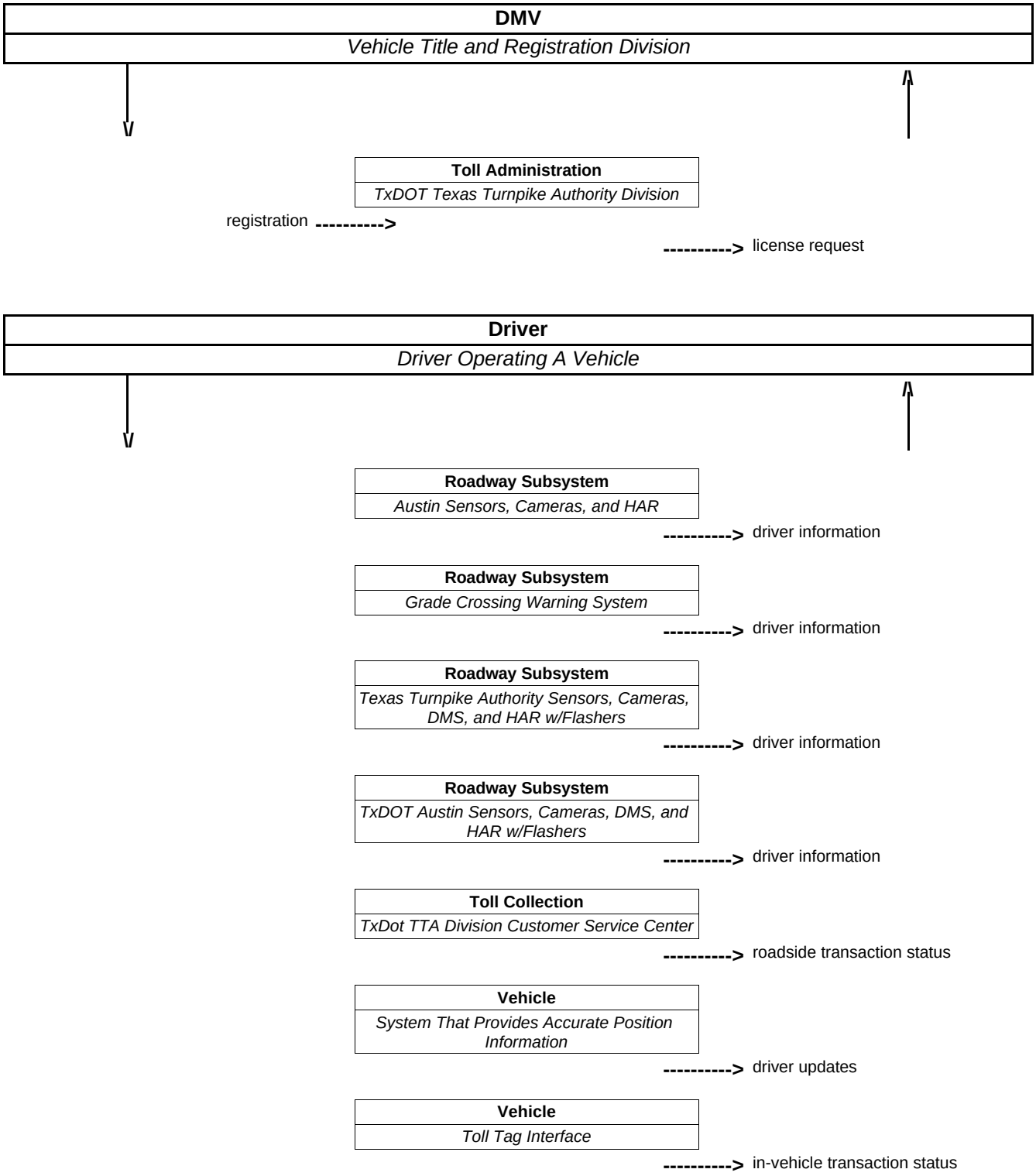
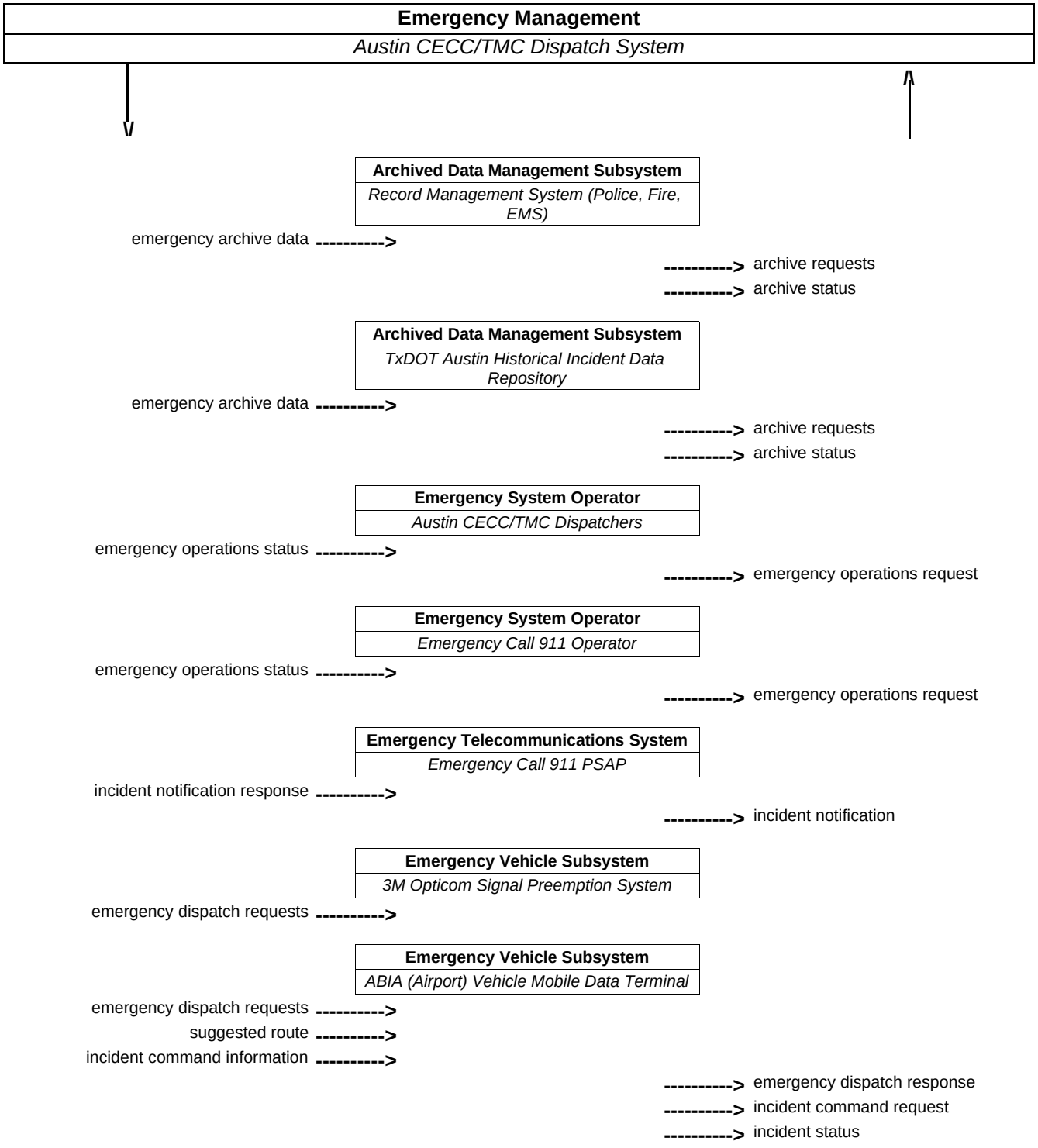
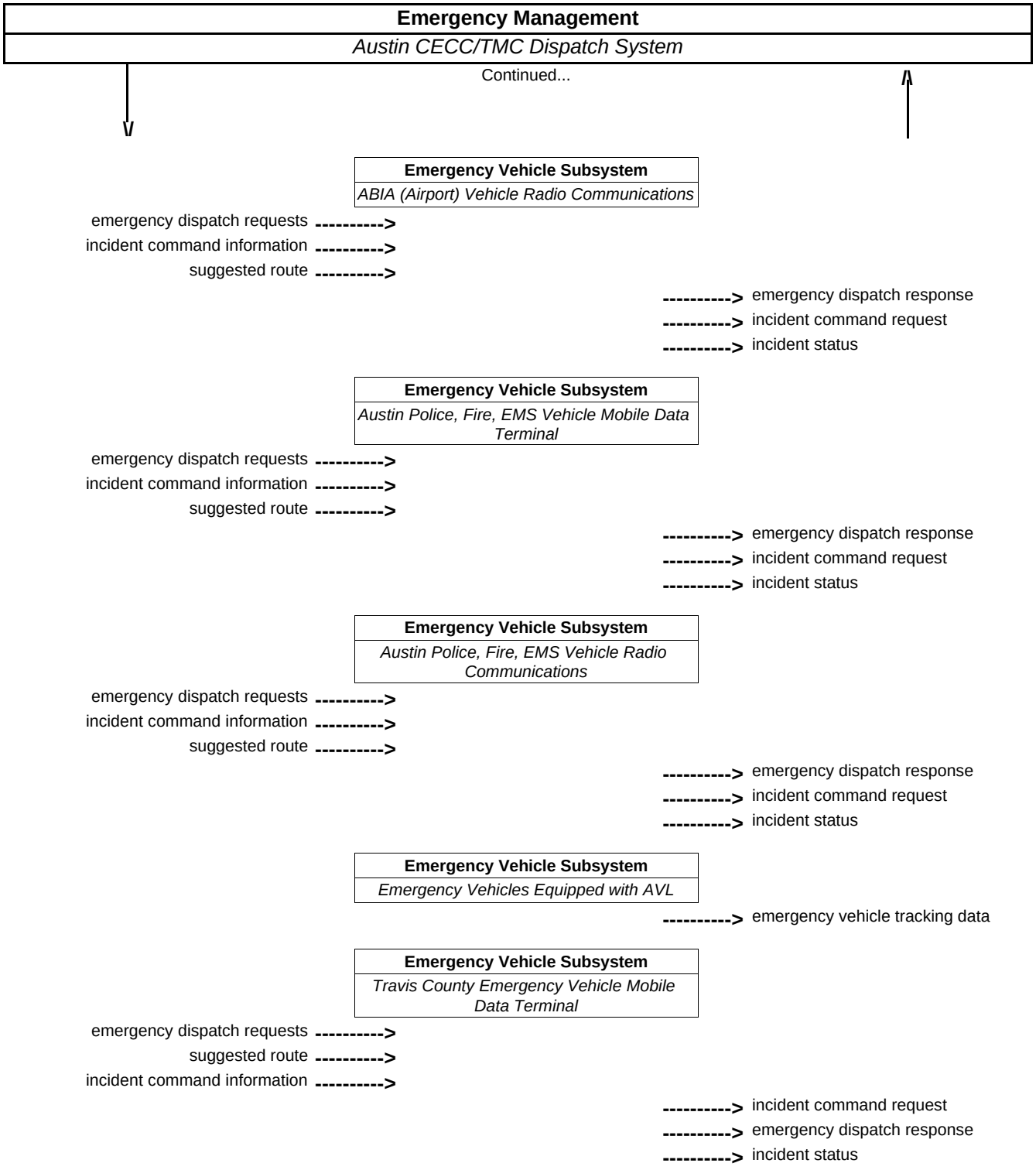
archive requests
archive status
Traffic Management
TxDOT Austin TMC
work zone status
closure coordination


DMV
Vehicle Title and Registration Division
Toll Administration
TxDOT Texas Turnpike Authority Division
registration
license request
Driver
Driver Operating A Vehicle
Roadway Subsystem
Austin Sensors, Cameras, and HAR
driver information
Roadway Subsystem
Grade Crossing Warning System
driver information
Roadway Subsystem
Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers
driver information
Roadway Subsystem
TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers
driver information
Toll Collection
TxDot TTA Division Customer Service Center
roadside transaction status
Vehicle
System That Provides Accurate Position Information
driver updates
Vehicle
Toll Tag Interface
in-vehicle transaction status


Emergency Management
Austin CECC/TMC Dispatch System
Archived Data Management Subsystem
Record Management System (Police, Fire, EMS)
emergency archive data
archive requests
archive status
Archived Data Management Subsystem
TxDOT Austin Historical Incident Data Repository
emergency archive data
archive requests
archive status
Emergency System Operator
Austin CECC/TMC Dispatchers
emergency operations status
emergency operations request
Emergency System Operator
Emergency Call 911 Operator
emergency operations status
emergency operations request
Emergency Telecommunications System
Emergency Call 911 PSAP
incident notification response
incident notification
Emergency Vehicle Subsystem
3M Opticom Signal Preemption System
emergency dispatch requests
Emergency Vehicle Subsystem
ABIA (Airport) Vehicle Mobile Data Terminal
emergency dispatch requests
suggested route
incident command information
emergency dispatch response
incident command request
incident status


Emergency Management
Austin CECC/TMC Dispatch System
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Emergency Vehicle Subsystem
ABIA (Airport) Vehicle Radio Communications
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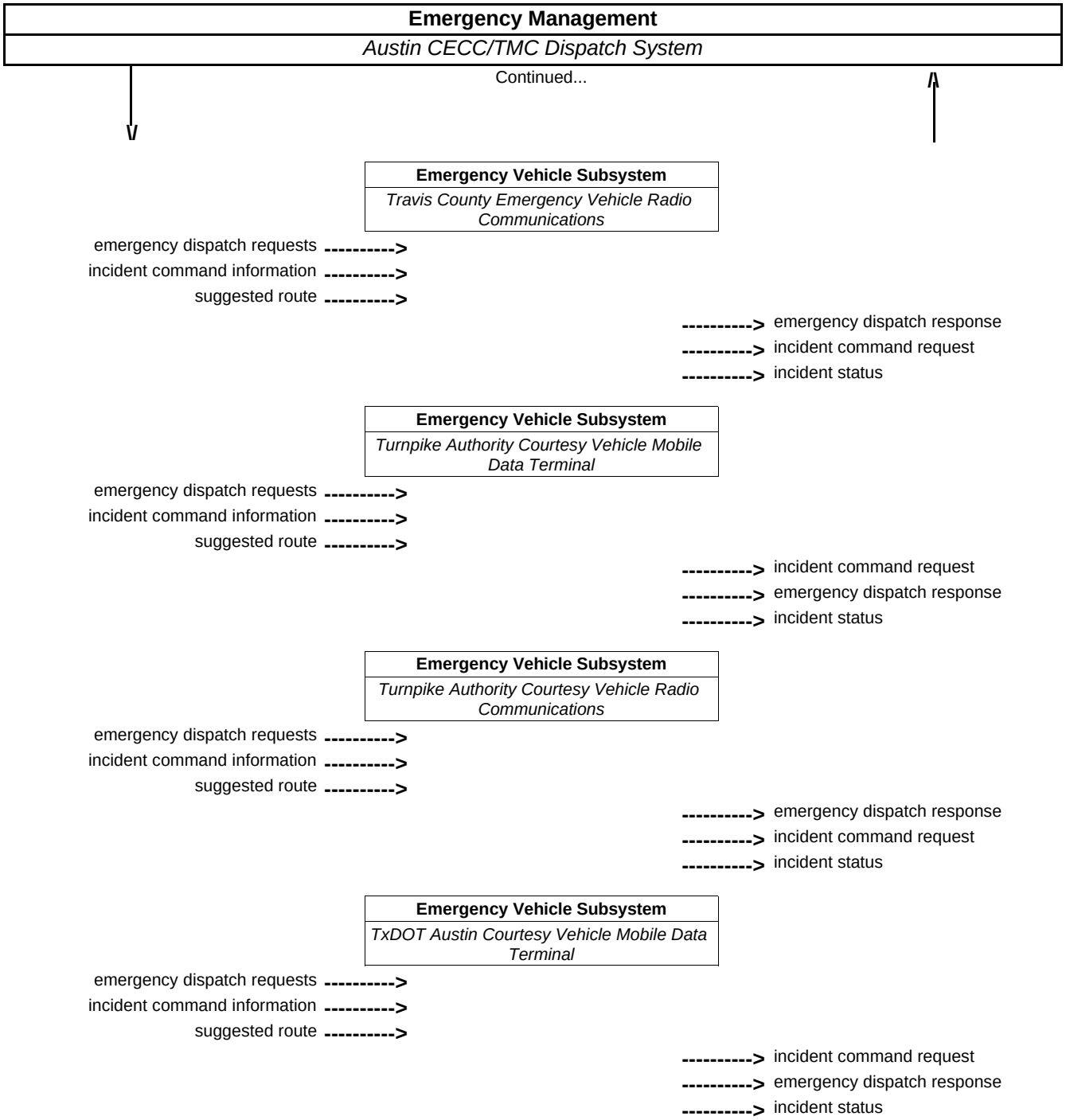
incident command request
incident status
Emergency Vehicle Subsystem
Austin Police, Fire, EMS Vehicle Mobile Data Terminal
emergency dispatch requests
incident command information
suggested route
emergency dispatch response
incident command request
incident status
Emergency Vehicle Subsystem
Austin Police, Fire, EMS Vehicle Radio Communications
emergency dispatch requests
incident command information
suggested route
emergency dispatch response
incident command request
incident status
Emergency Vehicle Subsystem
Emergency Vehicles Equipped with AVL
emergency vehicle tracking data
Emergency Vehicle Subsystem
Travis County Emergency Vehicle Mobile Data Terminal
emergency dispatch requests
suggested route
incident command information
incident command request
emergency dispatch response
incident status


Emergency Management
Austin CECC/TMC Dispatch System
Continued...
Emergency Vehicle Subsystem
Travis County Emergency Vehicle Radio Communications
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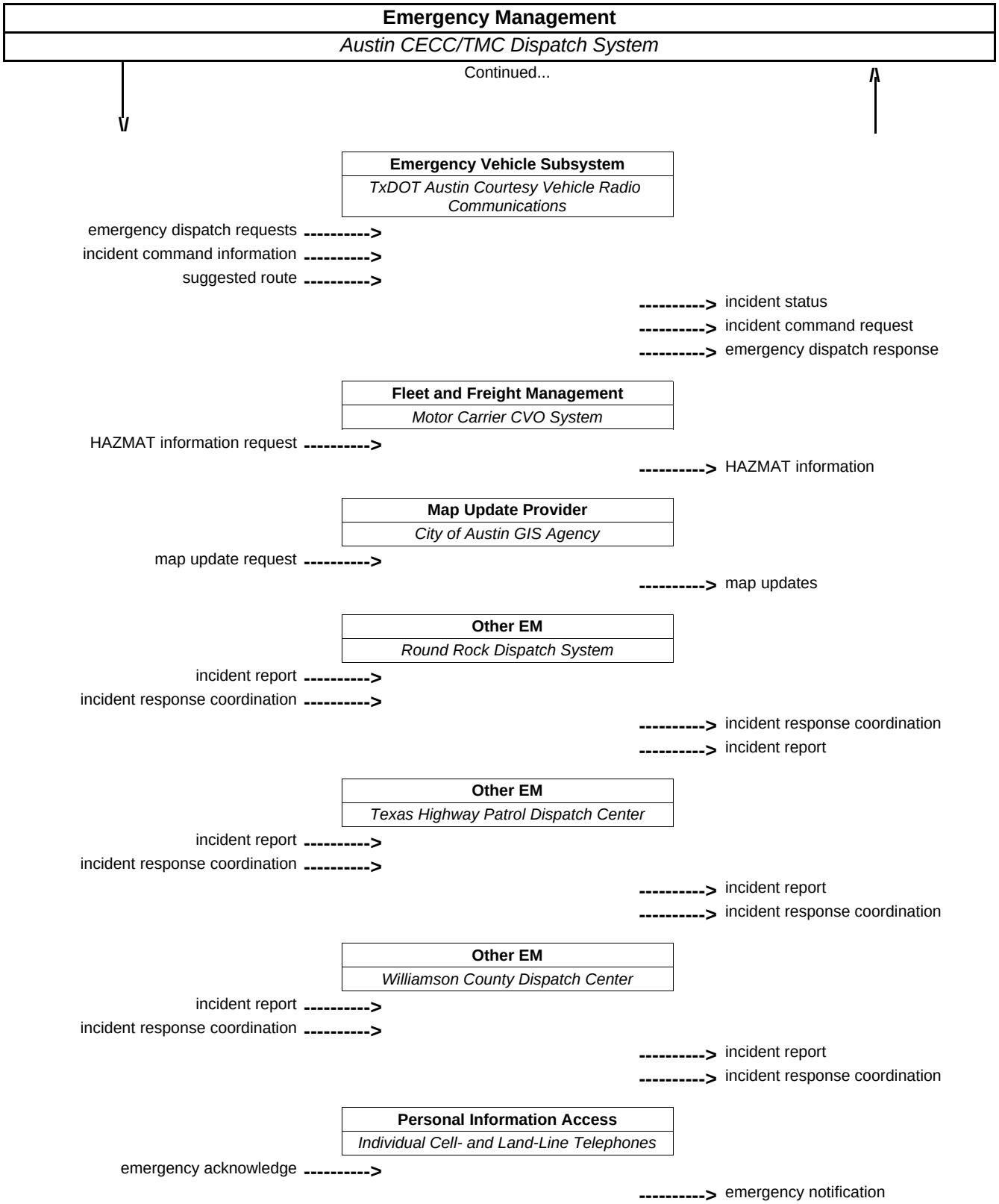
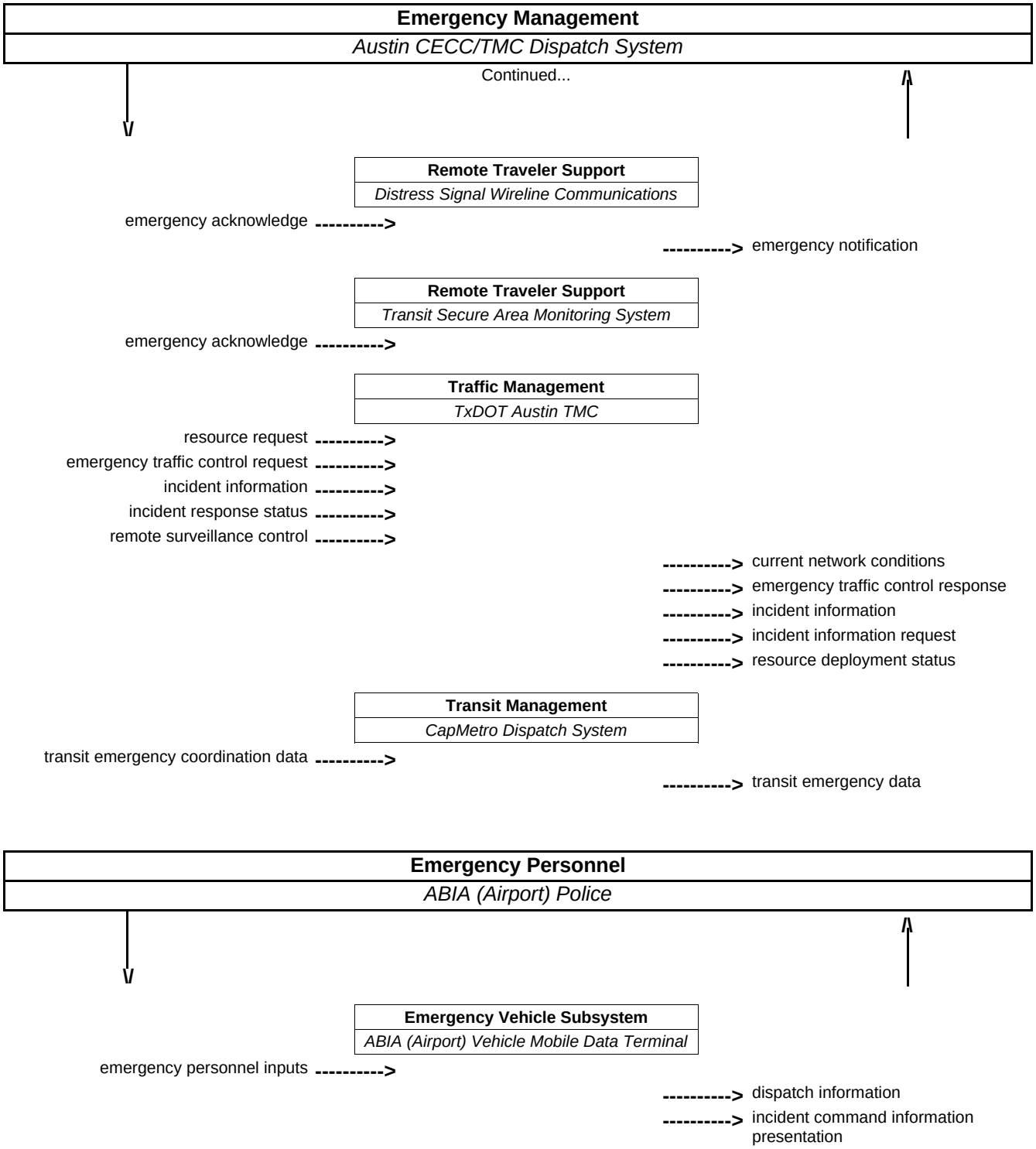
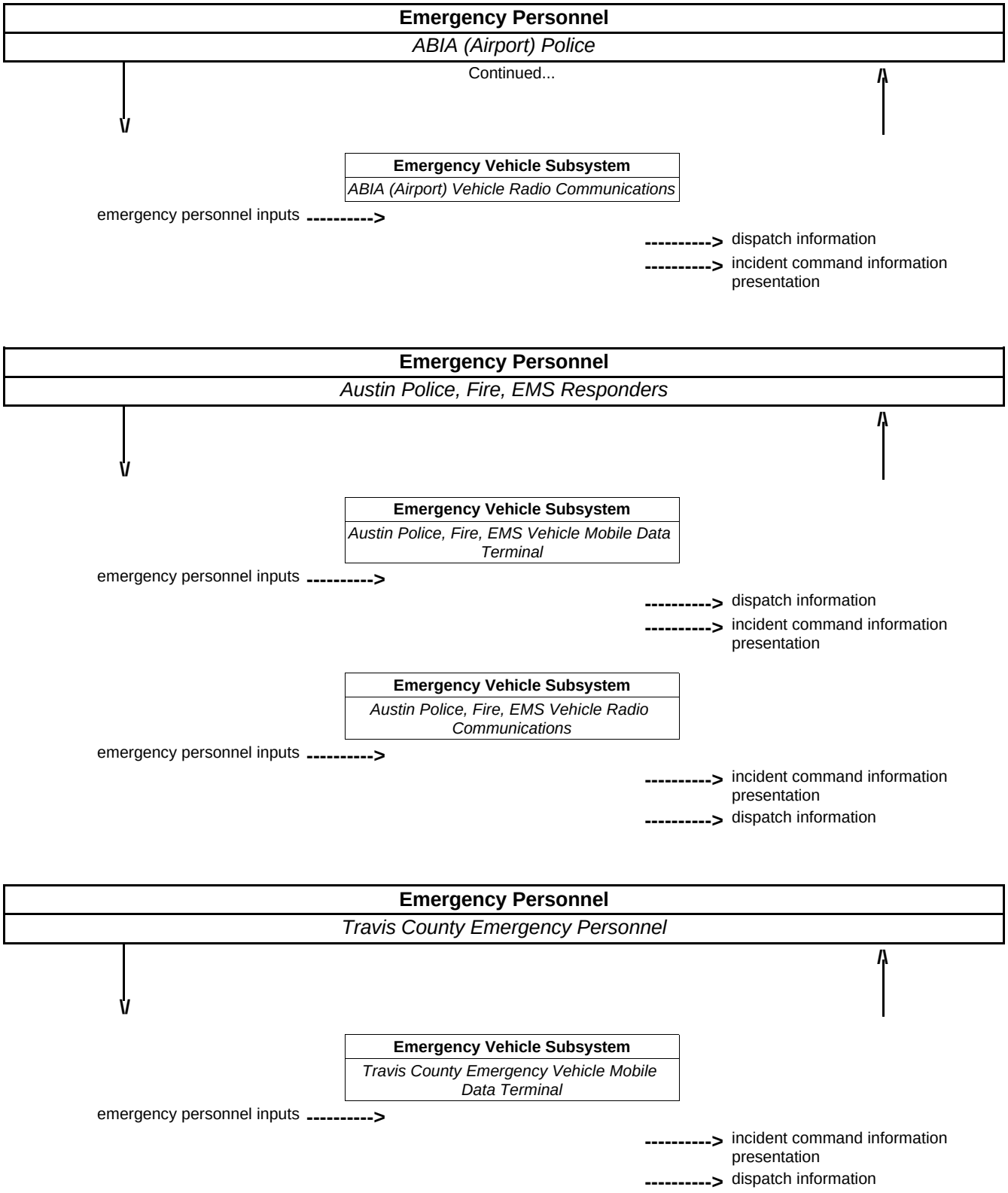
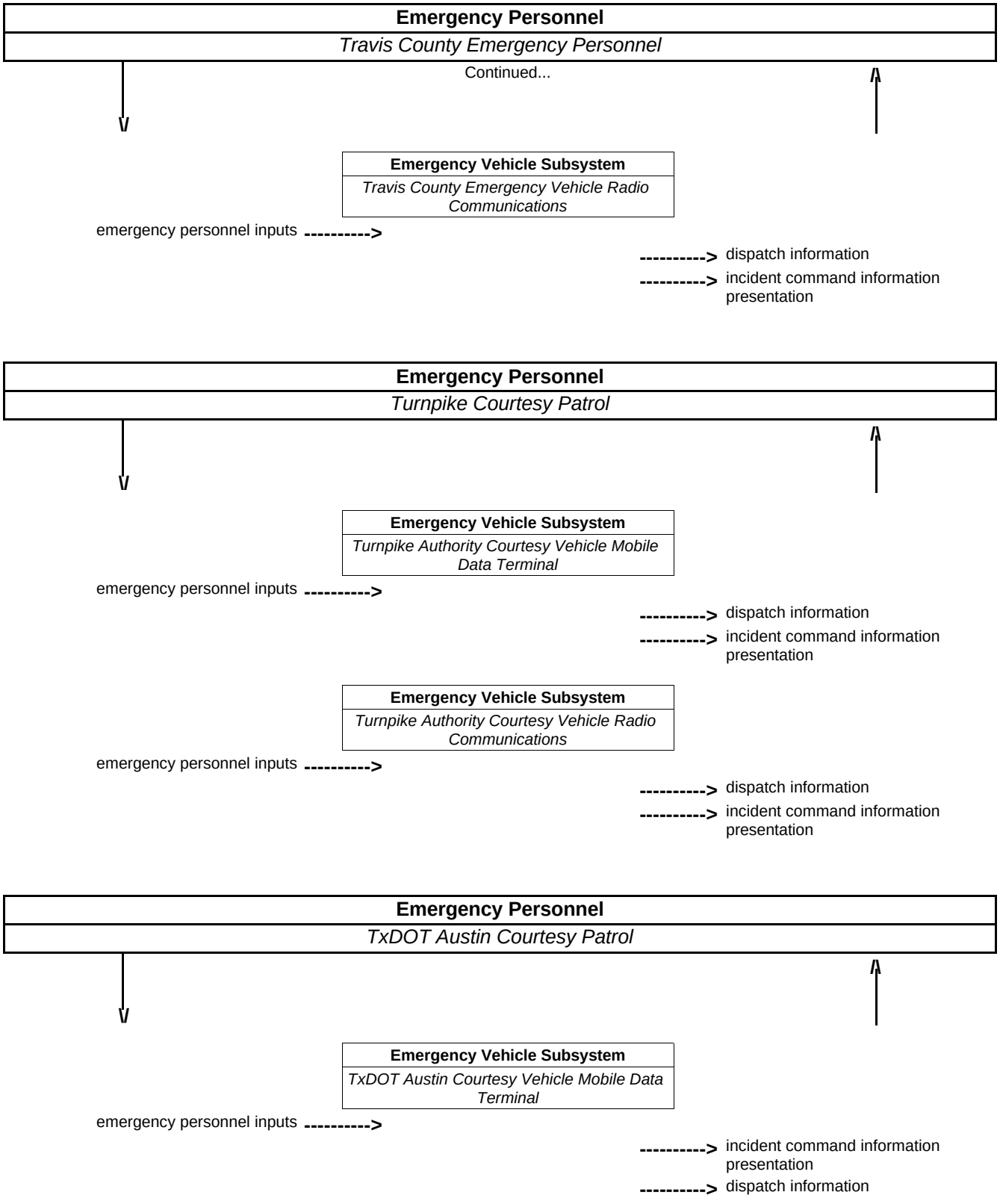
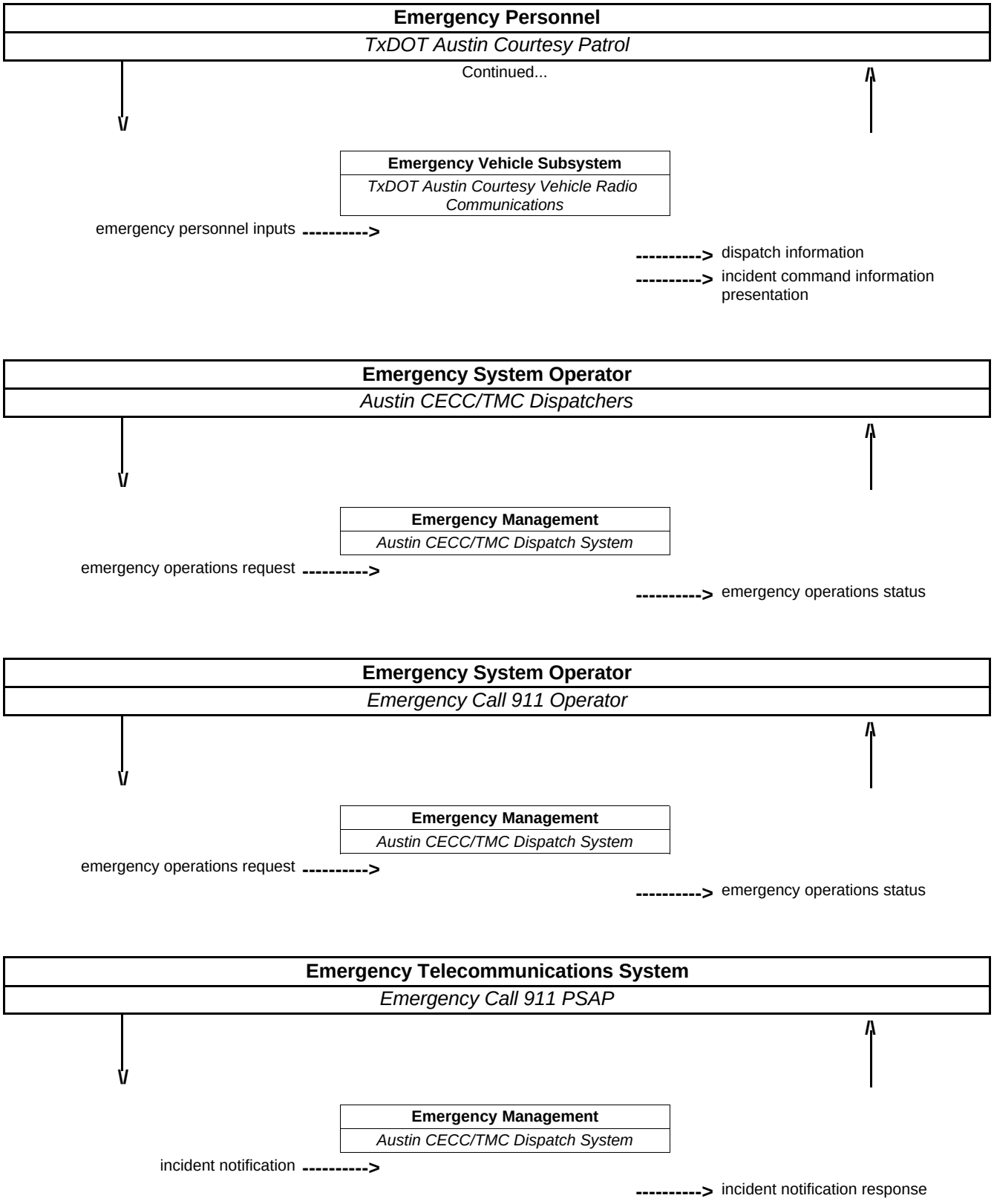
incident command information
suggested route
emergency dispatch response
incident command request
incident status
Emergency Vehicle Subsystem
Turnpike Authority Courtesy Vehicle Mobile Data Terminal
emergency dispatch requests
incident command information
suggested route
incident command request
emergency dispatch response
incident status
Emergency Vehicle Subsystem
Turnpike Authority Courtesy Vehicle Radio Communications
emergency dispatch requests
incident command information
suggested route
emergency dispatch response
incident command request
incident status
Emergency Vehicle Subsystem
TxDOT Austin Courtesy Vehicle Mobile Data Terminal
emergency dispatch requests
incident command information
suggested route
incident command request
emergency dispatch response
incident status

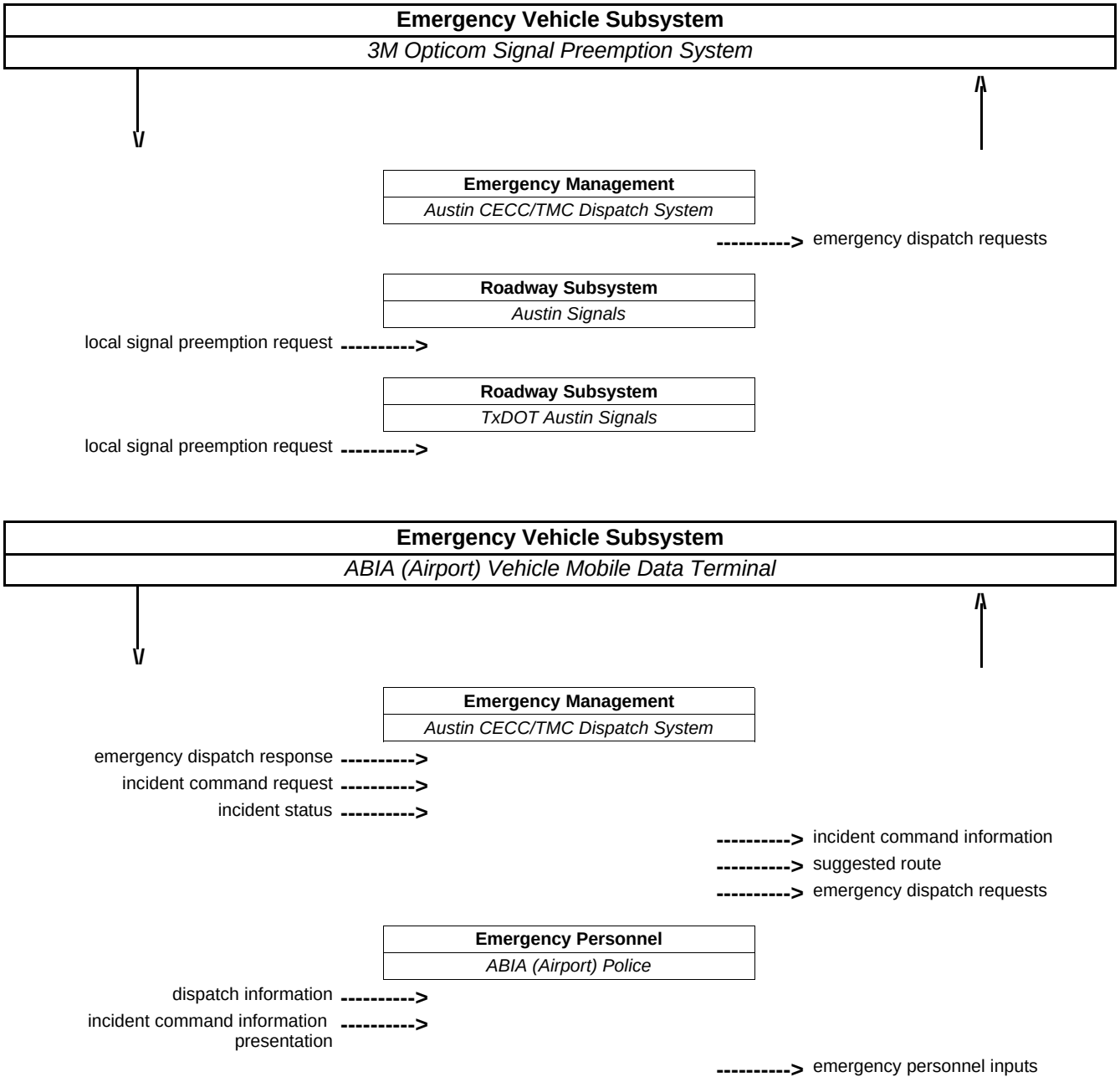

Emergency Management
Austin CECC/TMC Dispatch System
Continued...
Emergency Vehicle Subsystem
TxDOT Austin Courtesy Vehicle Radio Communications
emergency dispatch requests
incident command information
suggested route
incident status
incident command request
emergency dispatch response
Fleet and Freight Management
Motor Carrier CVO System
HAZMAT information request
HAZMAT information
Map Update Provider
City of Austin GIS Agency
map update request
map updates
Other EM
Round Rock Dispatch System
incident report
incident response coordination
incident response coordination
incident report
Other EM
Texas Highway Patrol Dispatch Center
incident report
incident response coordination
incident report
incident response coordination
Other EM
Williamson County Dispatch Center
incident report
incident response coordination
incident report
incident response coordination
Personal Information Access
Individual Cell- and Land-Line Telephones
emergency acknowledge
emergency notification

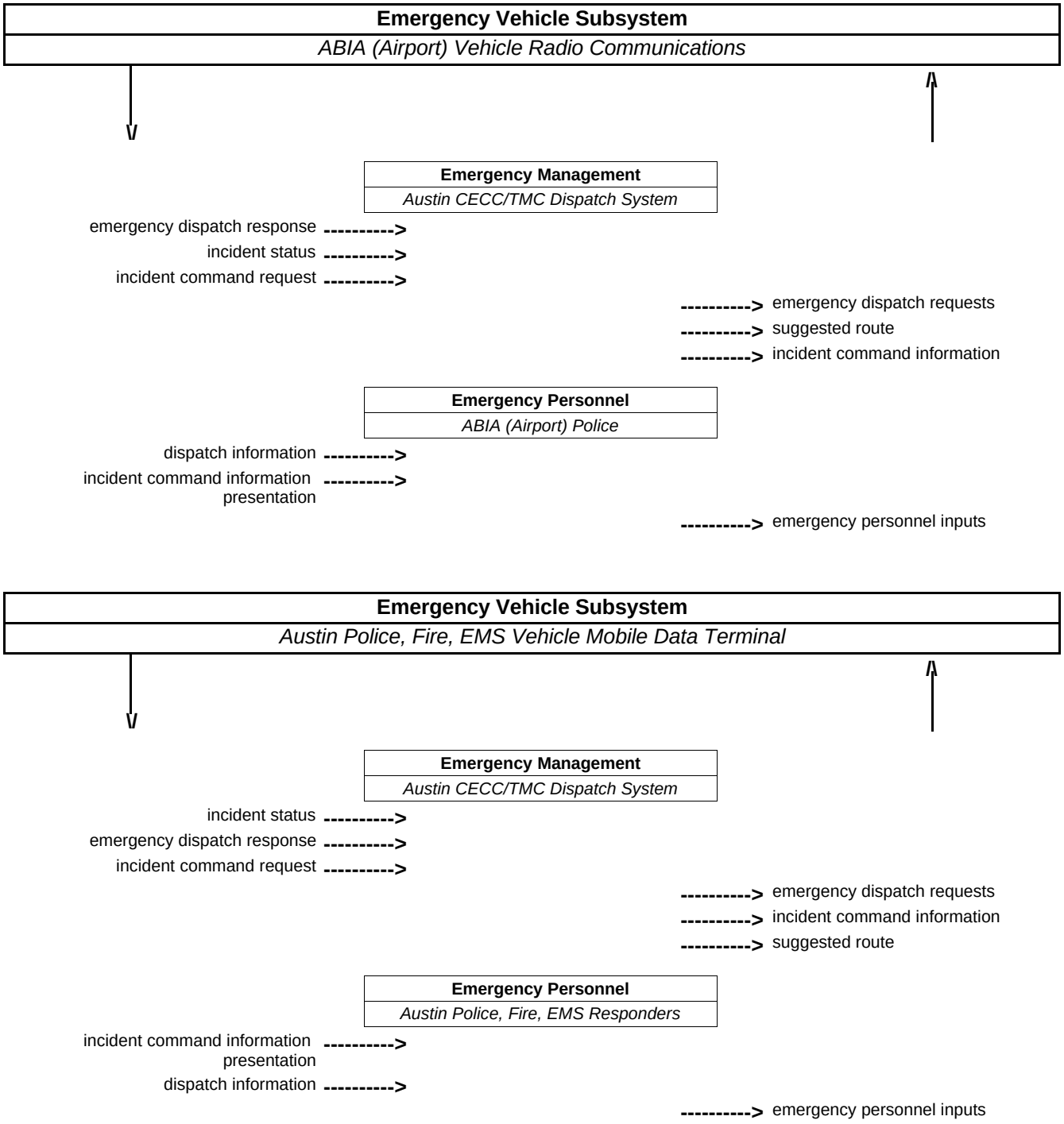

Emergency Management
Austin CECC/TMC Dispatch System
Continued...
Remote Traveler Support
Distress Signal Wireline Communications
emergency acknowledge
emergency notification
Remote Traveler Support
Transit Secure Area Monitoring System
emergency acknowledge
Traffic Management
TxDOT Austin TMC
resource request
emergency traffic control request
incident information
incident response status
remote surveillance control
current network conditions
emergency traffic control response
incident information
incident information request
resource deployment status
Transit Management
CapMetro Dispatch System
transit emergency coordination data
transit emergency data
Emergency Personnel
ABIA (Airport) Police
Emergency Vehicle Subsystem
ABIA (Airport) Vehicle Mobile Data Terminal
emergency personnel inputs
dispatch information
incident command information presentation

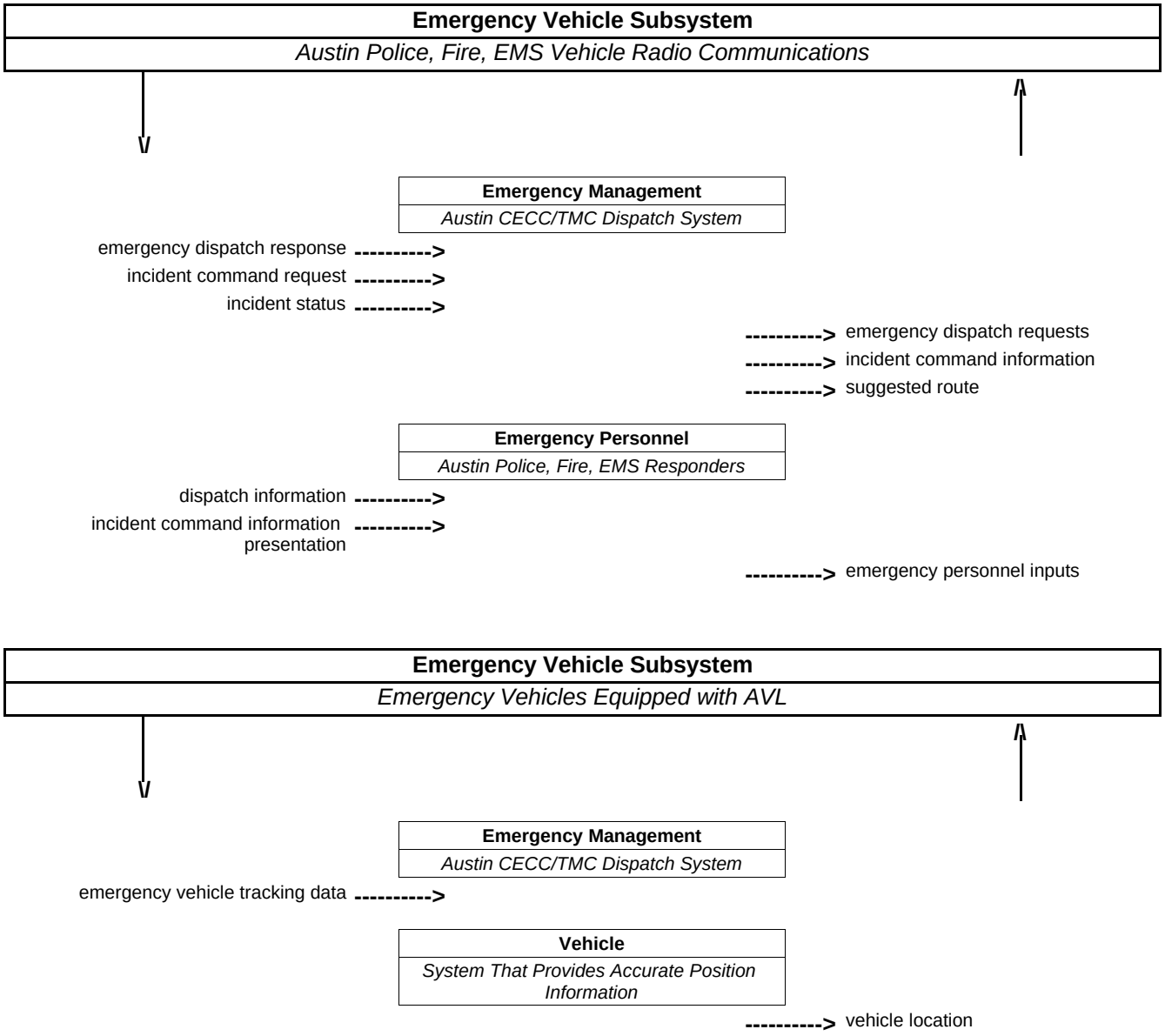

Emergency Personnel
ABIA (Airport) Police
Continued...
Emergency Vehicle Subsystem
ABIA (Airport) Vehicle Radio Communications
emergency personnel inputs
dispatch information
incident command information presentation
Emergency Personnel
Austin Police, Fire, EMS Responders
Emergency Vehicle Subsystem
Austin Police, Fire, EMS Vehicle Mobile Data Terminal
emergency personnel inputs
dispatch information
incident command information presentation
Emergency Vehicle Subsystem
Austin Police, Fire, EMS Vehicle Radio Communications
emergency personnel inputs
incident command information presentation
dispatch information
Emergency Personnel
Travis County Emergency Personnel
Emergency Vehicle Subsystem
Travis County Emergency Vehicle Mobile Data Terminal
emergency personnel inputs
incident command information presentation
dispatch information

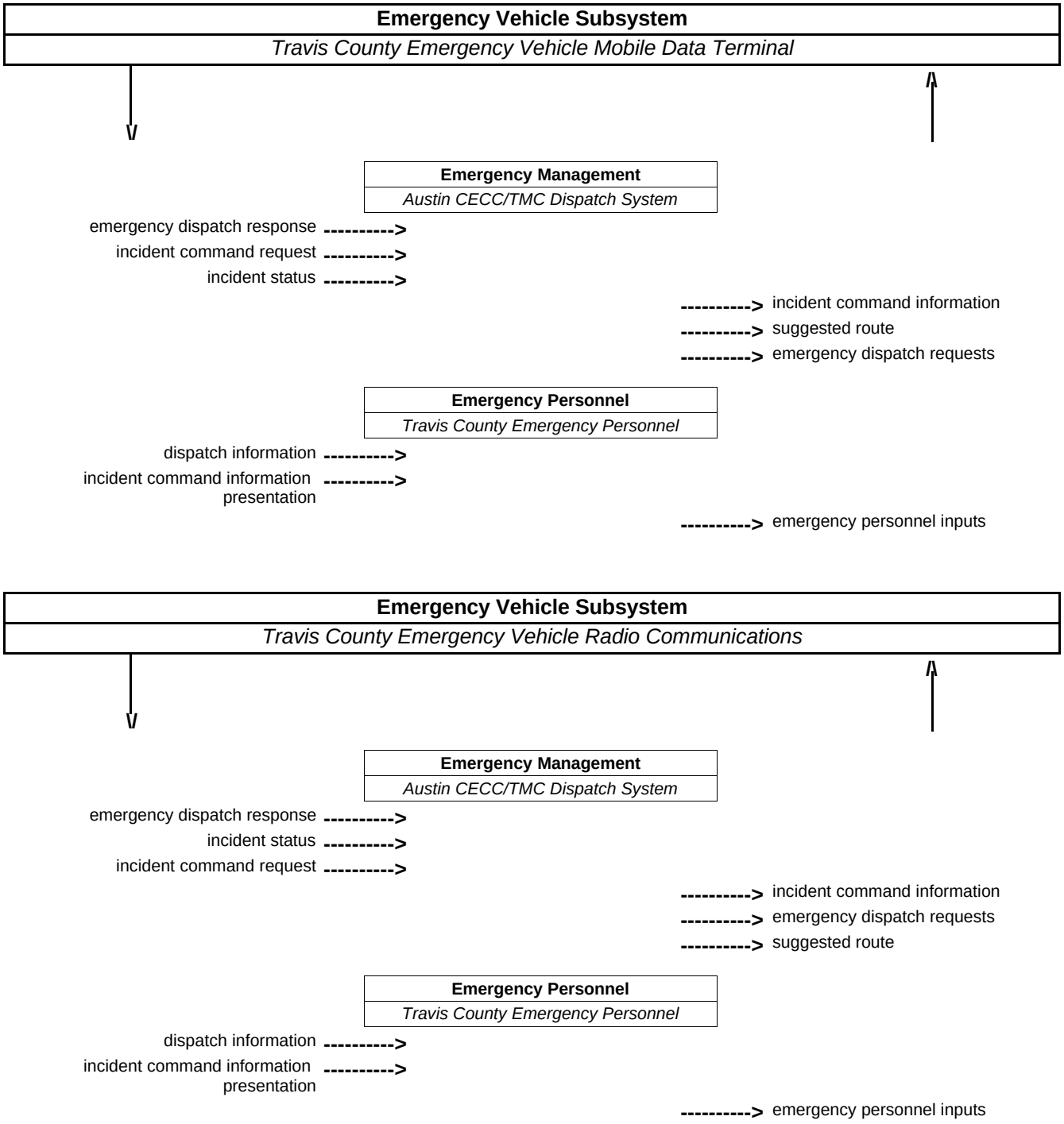

Emergency Personnel
Travis County Emergency Personnel
Continued...
Emergency Vehicle Subsystem
Travis County Emergency Vehicle Radio Communications
emergency personnel inputs
dispatch information
incident command information presentation
Emergency Personnel
Turnpike Courtesy Patrol
Emergency Vehicle Subsystem
Turnpike Authority Courtesy Vehicle Mobile Data Terminal
emergency personnel inputs
dispatch information
incident command information presentation
Emergency Vehicle Subsystem
Turnpike Authority Courtesy Vehicle Radio Communications
emergency personnel inputs
dispatch information
incident command information presentation
Emergency Personnel
TxDOT Austin Courtesy Patrol
Emergency Vehicle Subsystem
TxDOT Austin Courtesy Vehicle Mobile Data Terminal
emergency personnel inputs
incident command information presentation
dispatch information

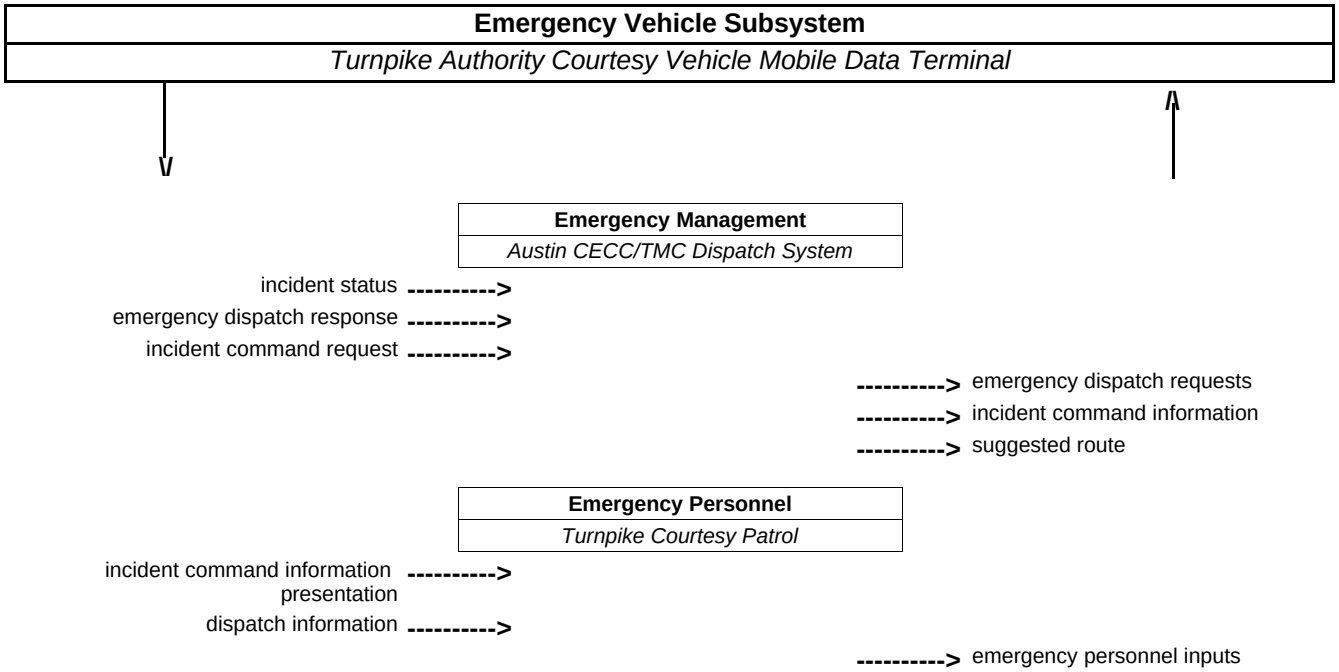

Emergency Personnel
TxDOT Austin Courtesy Patrol
Continued...
Emergency Vehicle Subsystem
TxDOT Austin Courtesy Vehicle Radio Communications
emergency personnel inputs
dispatch information
incident command information
presentation
Emergency System Operator
Austin CECC/TMC Dispatchers
Emergency Management
Austin CECC/TMC Dispatch System
emergency operations request
emergency operations status
Emergency System Operator
Emergency Call 911 Operator
Emergency Management
Austin CECC/TMC Dispatch System
emergency operations request
emergency operations status
Emergency Telecommunications System
Emergency Call 911 PSAP
Emergency Management
Austin CECC/TMC Dispatch System
incident notification
incident notification response

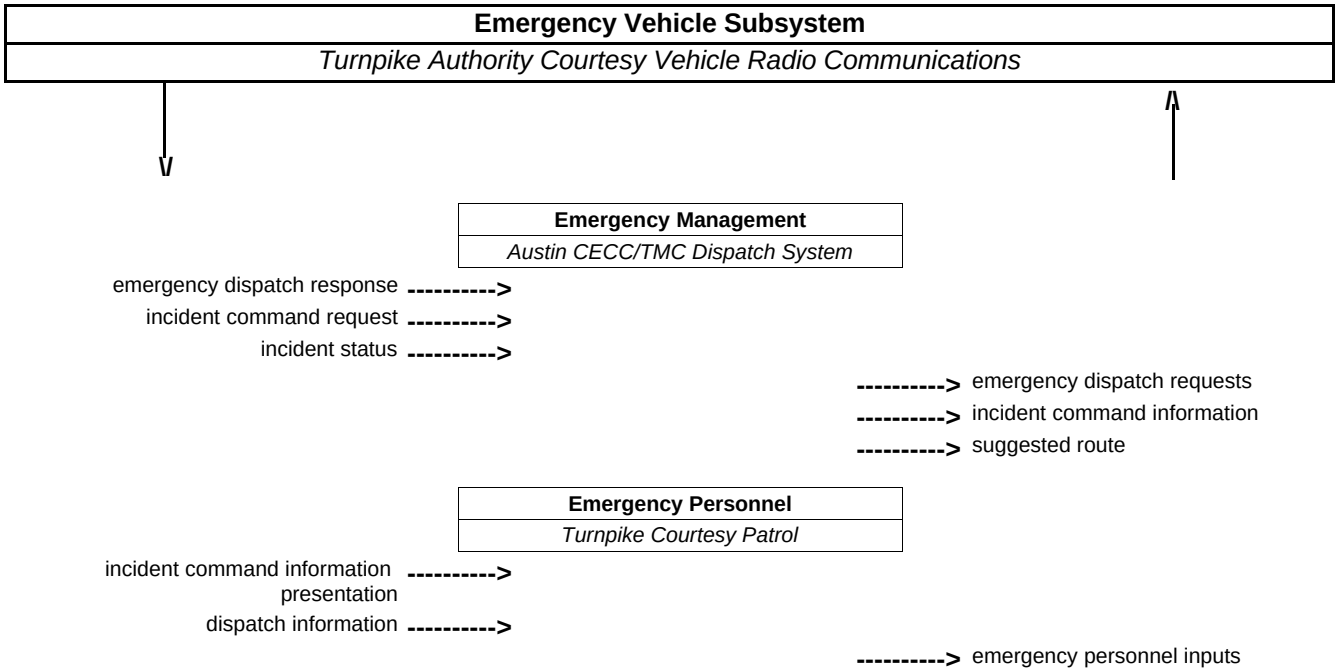

Emergency Vehicle Subsystem
3M Opticom Signal Preemption System
Emergency Management
Austin CECC/TMC Dispatch System
emergency dispatch requests
Roadway Subsystem
Austin Signals
local signal preemption request
Roadway Subsystem
TxDOT Austin Signals
local signal preemption request
Emergency Vehicle Subsystem
ABIA (Airport) Vehicle Mobile Data Terminal
Emergency Management
Austin CECC/TMC Dispatch System
emergency dispatch response
incident command request
incident status
incident command information
suggested route
emergency dispatch requests
Emergency Personnel
ABIA (Airport) Police
dispatch information
incident command information presentation
emergency personnel inputs

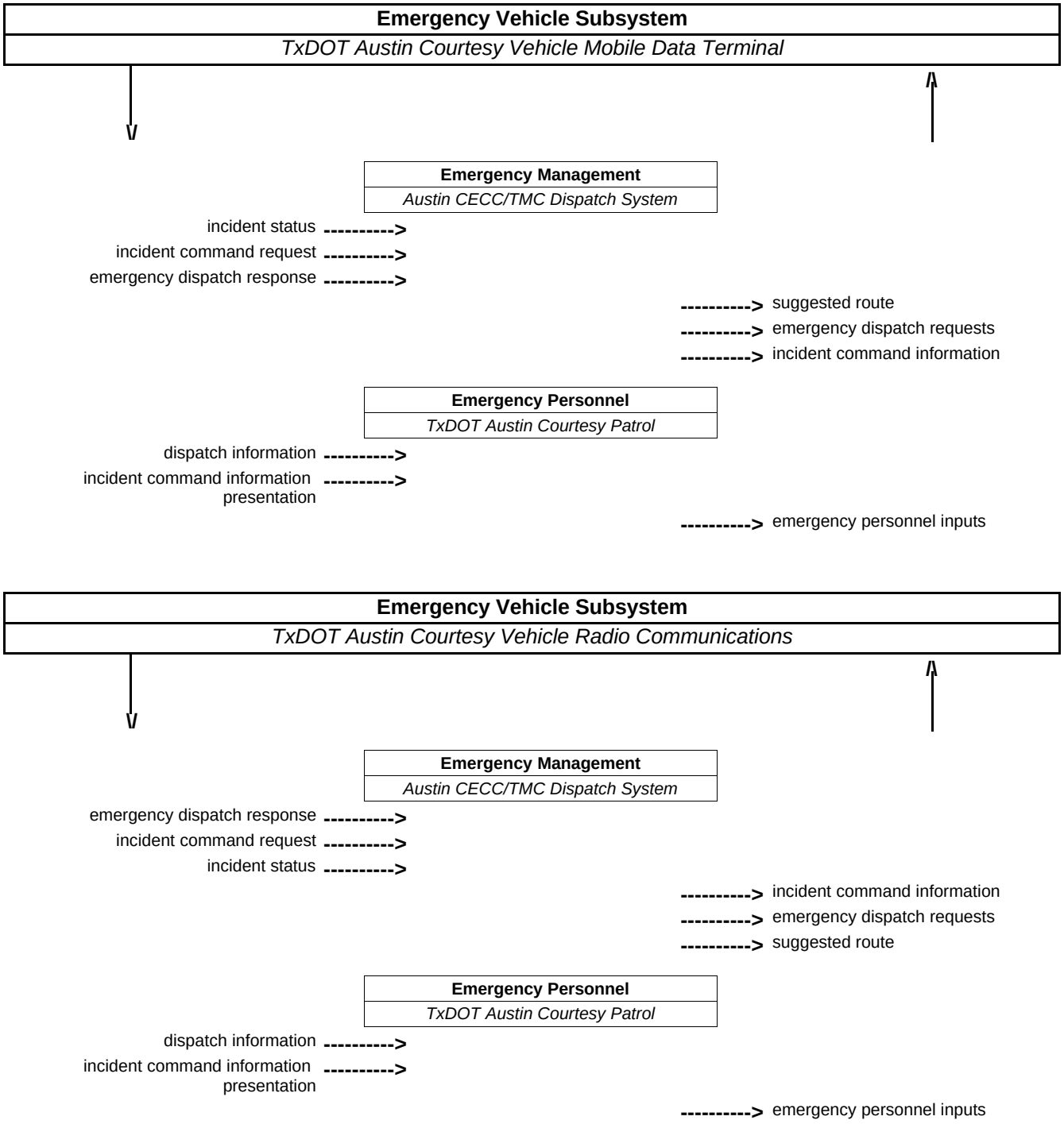

Emergency Vehicle Subsystem
ABIA (Airport) Vehicle Radio Communications
Emergency Management
Austin CECC/TMC Dispatch System
emergency dispatch response
incident status
incident command request
emergency dispatch requests
suggested route
incident command information
Emergency Personnel
ABIA (Airport) Police
dispatch information
incident command information presentation
emergency personnel inputs
Emergency Vehicle Subsystem
Austin Police, Fire, EMS Vehicle Mobile Data Terminal
Emergency Management
Austin CECC/TMC Dispatch System
incident status
emergency dispatch response
incident command request
emergency dispatch requests
incident command information
suggested route
Emergency Personnel
Austin Police, Fire, EMS Responders
incident command information presentation
dispatch information
emergency personnel inputs

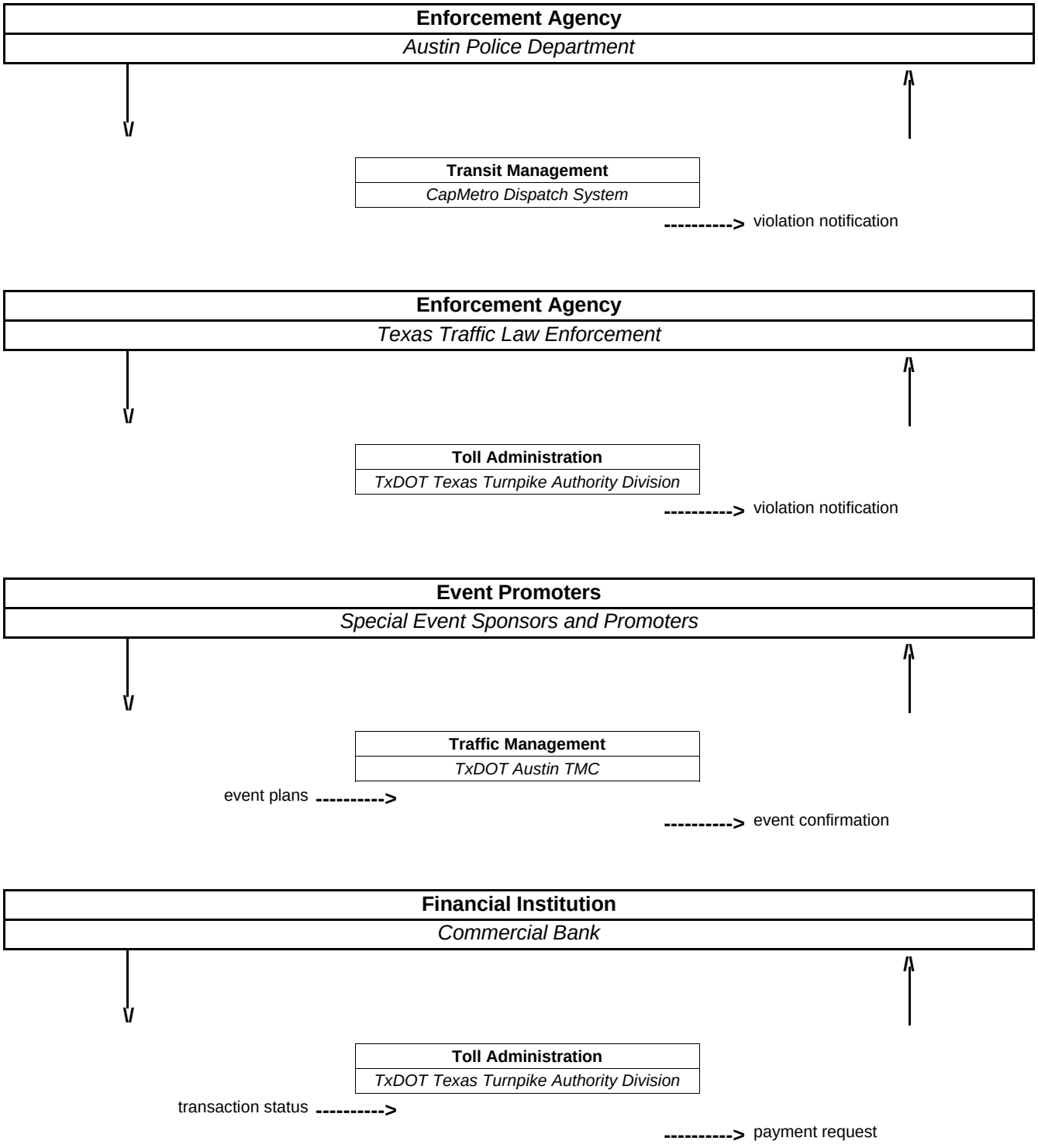

Emergency Vehicle Subsystem
Austin Police, Fire, EMS Vehicle Radio Communications
Emergency Management
Austin CECC/TMC Dispatch System
emergency dispatch response
incident command request
incident status
emergency dispatch requests
incident command information
suggested route
Emergency Personnel
Austin Police, Fire, EMS Responders
dispatch information
incident command information presentation
emergency personnel inputs
Emergency Vehicle Subsystem
Emergency Vehicles Equipped with AVL
Emergency Management
Austin CECC/TMC Dispatch System
emergency vehicle tracking data
Vehicle
System That Provides Accurate Position Information
vehicle location

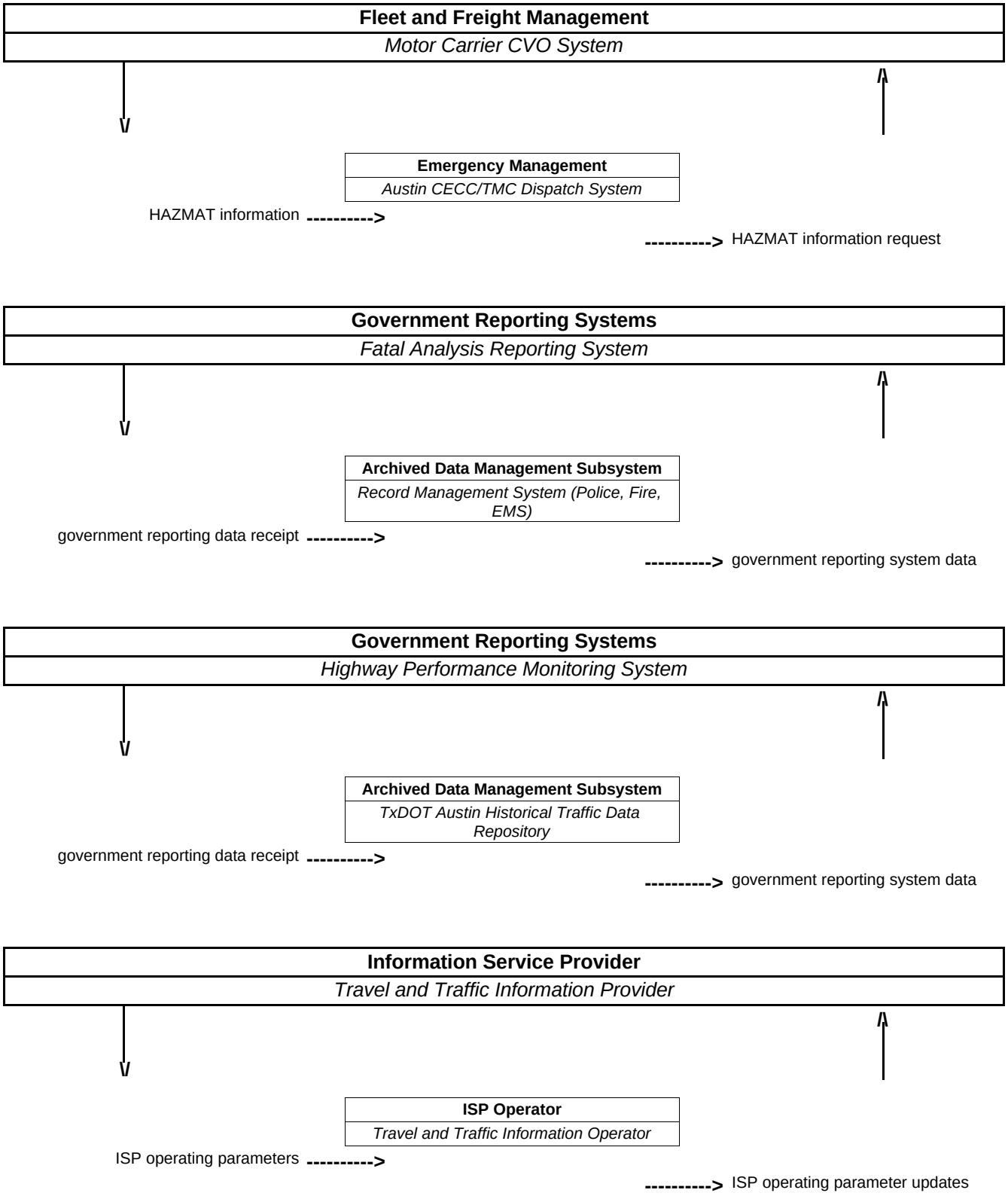

Emergency Vehicle Subsystem
Travis County Emergency Vehicle Mobile Data Terminal
Emergency Management
Austin CECC/TMC Dispatch System
emergency dispatch response
incident command request
incident status
incident command information
suggested route
emergency dispatch requests
Emergency Personnel
Travis County Emergency Personnel
dispatch information
incident command information presentation
emergency personnel inputs
Emergency Vehicle Subsystem
Travis County Emergency Vehicle Radio Communications
Emergency Management
Austin CECC/TMC Dispatch System
emergency dispatch response
incident status
incident command request
incident command information
emergency dispatch requests
suggested route
Emergency Personnel
Travis County Emergency Personnel
dispatch information
incident command information presentation
emergency personnel inputs

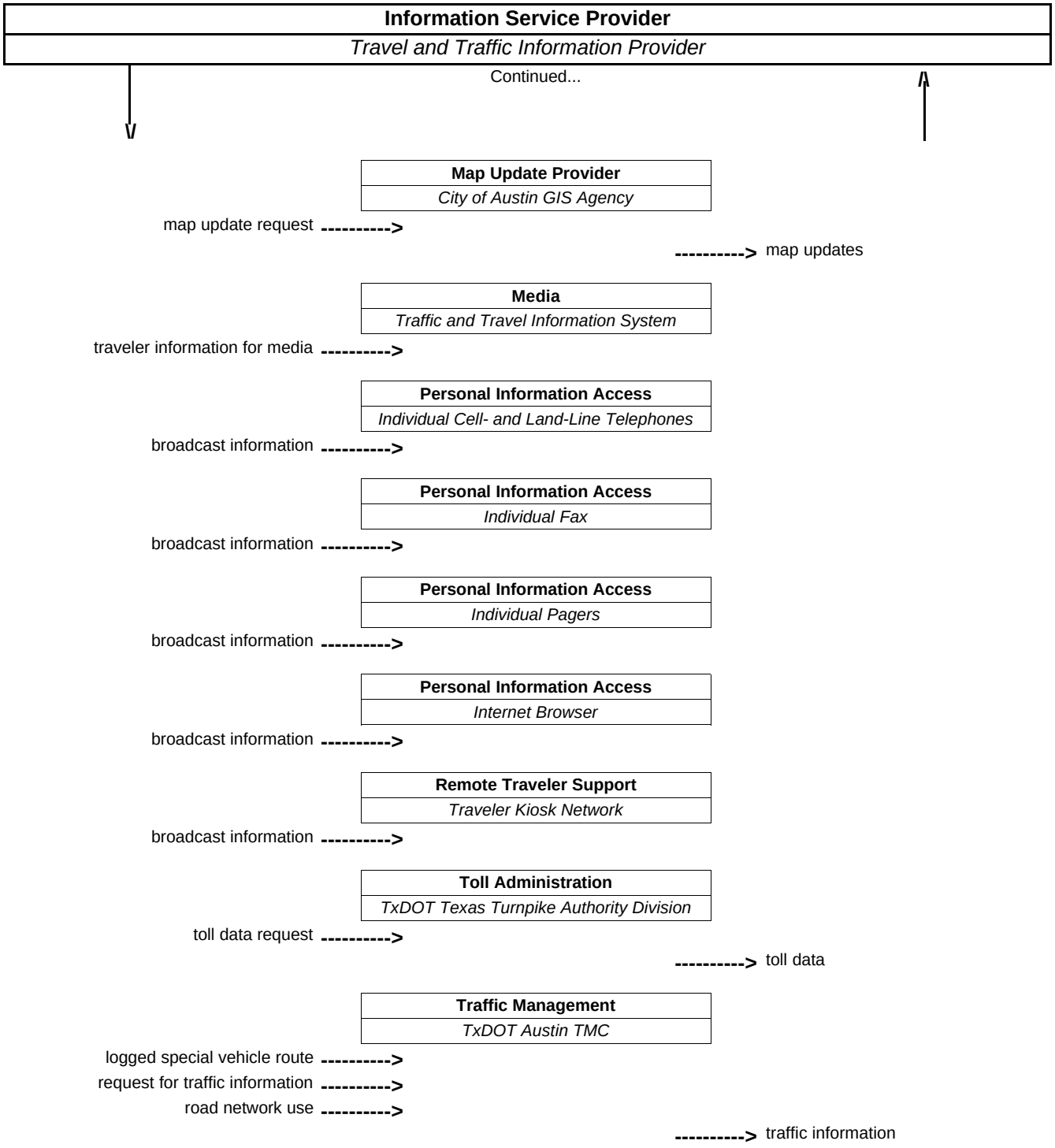

Emergency Vehicle Subsystem
Turnpike Authority Courtesy Vehicle Mobile Data Terminal
Emergency Management
Austin CECC/TMC Dispatch System
incident status
emergency dispatch response
incident command request
emergency dispatch requests
incident command information
suggested route
Emergency Personnel
Turnpike Courtesy Patrol
incident command information presentation
dispatch information
emergency personnel inputs

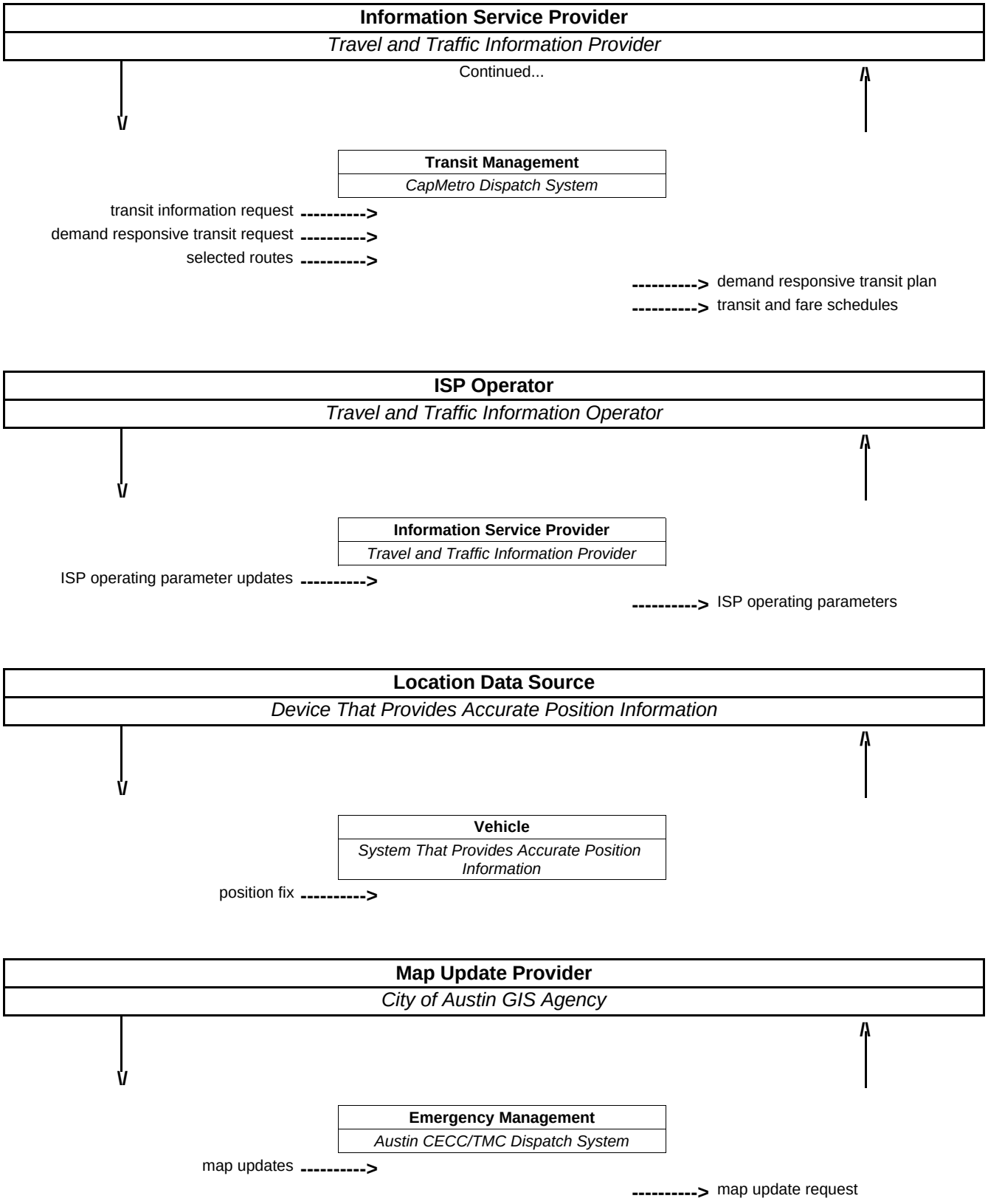

Emergency Vehicle Subsystem
Turnpike Authority Courtesy Vehicle Radio Communications
Emergency Management
Austin CECC/TMC Dispatch System
emergency dispatch response
incident command request
incident status
emergency dispatch requests
incident command information
suggested route
Emergency Personnel
Turnpike Courtesy Patrol
incident command information presentation
dispatch information
emergency personnel inputs

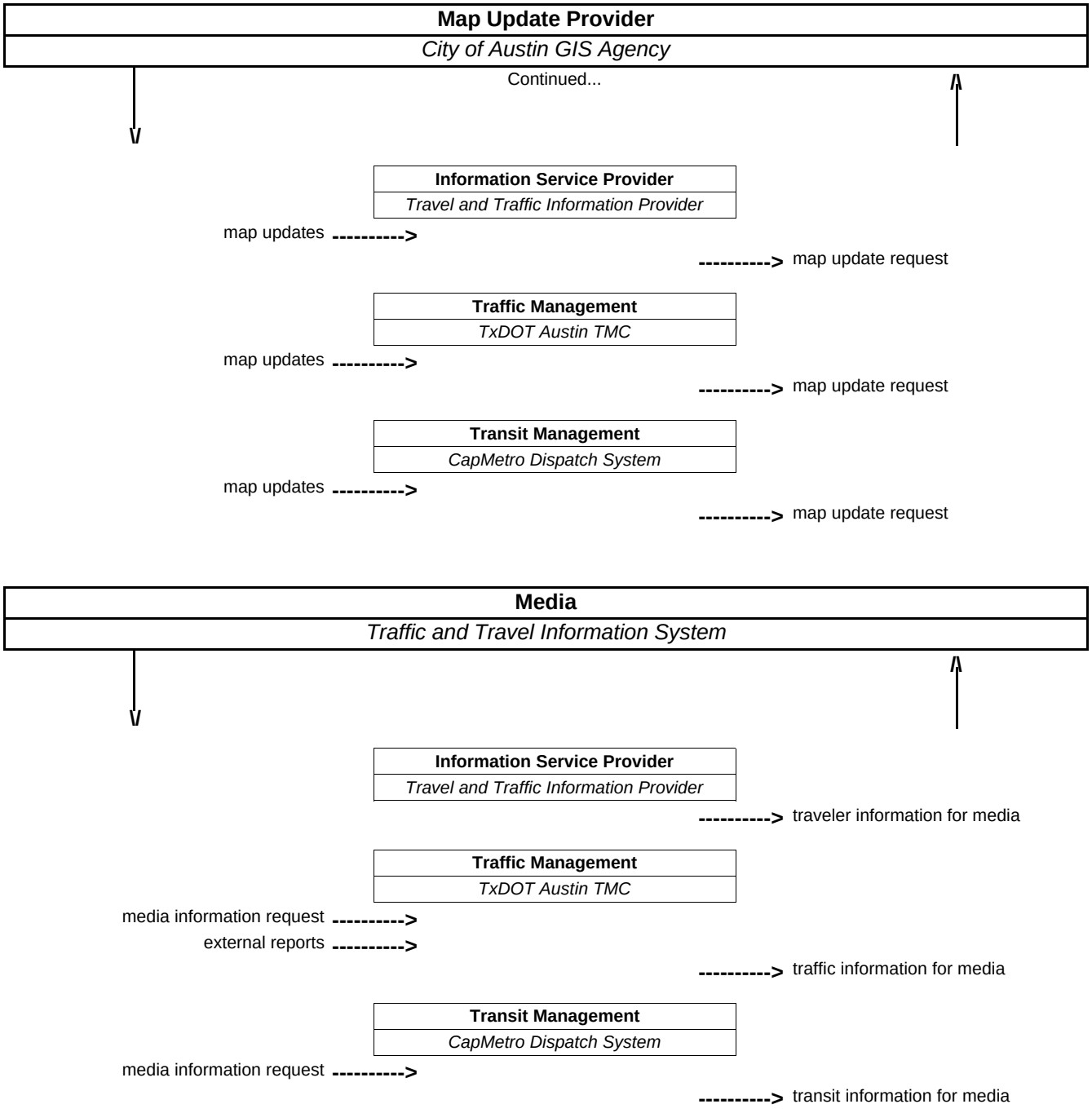

Emergency Vehicle Subsystem
TxDOT Austin Courtesy Vehicle Mobile Data Terminal
Emergency Management
Austin CECC/TMC Dispatch System
incident status
incident command request
emergency dispatch response
suggested route
emergency dispatch requests
incident command information
Emergency Personnel
TxDOT Austin Courtesy Patrol
dispatch information
incident command information presentation
emergency personnel inputs
Emergency Vehicle Subsystem
TxDOT Austin Courtesy Vehicle Radio Communications
Emergency Management
Austin CECC/TMC Dispatch System
emergency dispatch response
incident command request
incident status
incident command information
emergency dispatch requests
suggested route
Emergency Personnel
TxDOT Austin Courtesy Patrol
dispatch information
incident command information presentation
emergency personnel inputs

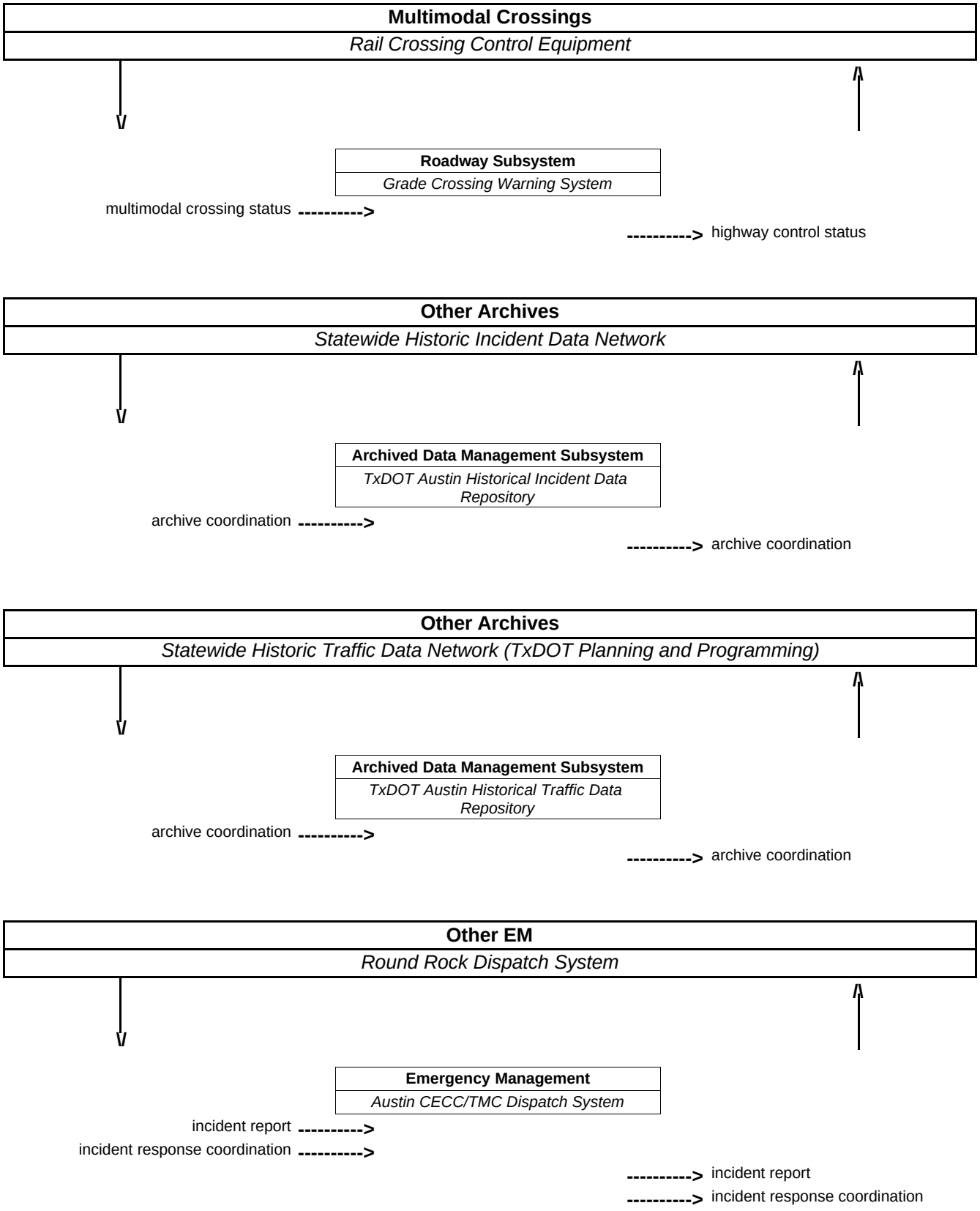

Enforcement Agency
Austin Police Department
Transit Management
CapMetro Dispatch System
violation notification
Enforcement Agency
Texas Traffic Law Enforcement
Toll Administration
TxDOT Texas Turnpike Authority Division
violation notification
Event Promoters
Special Event Sponsors and Promoters
Traffic Management
TxDOT Austin TMC
event plans
event confirmation
Financial Institution
Commercial Bank
Toll Administration
TxDOT Texas Turnpike Authority Division
transaction status
payment request

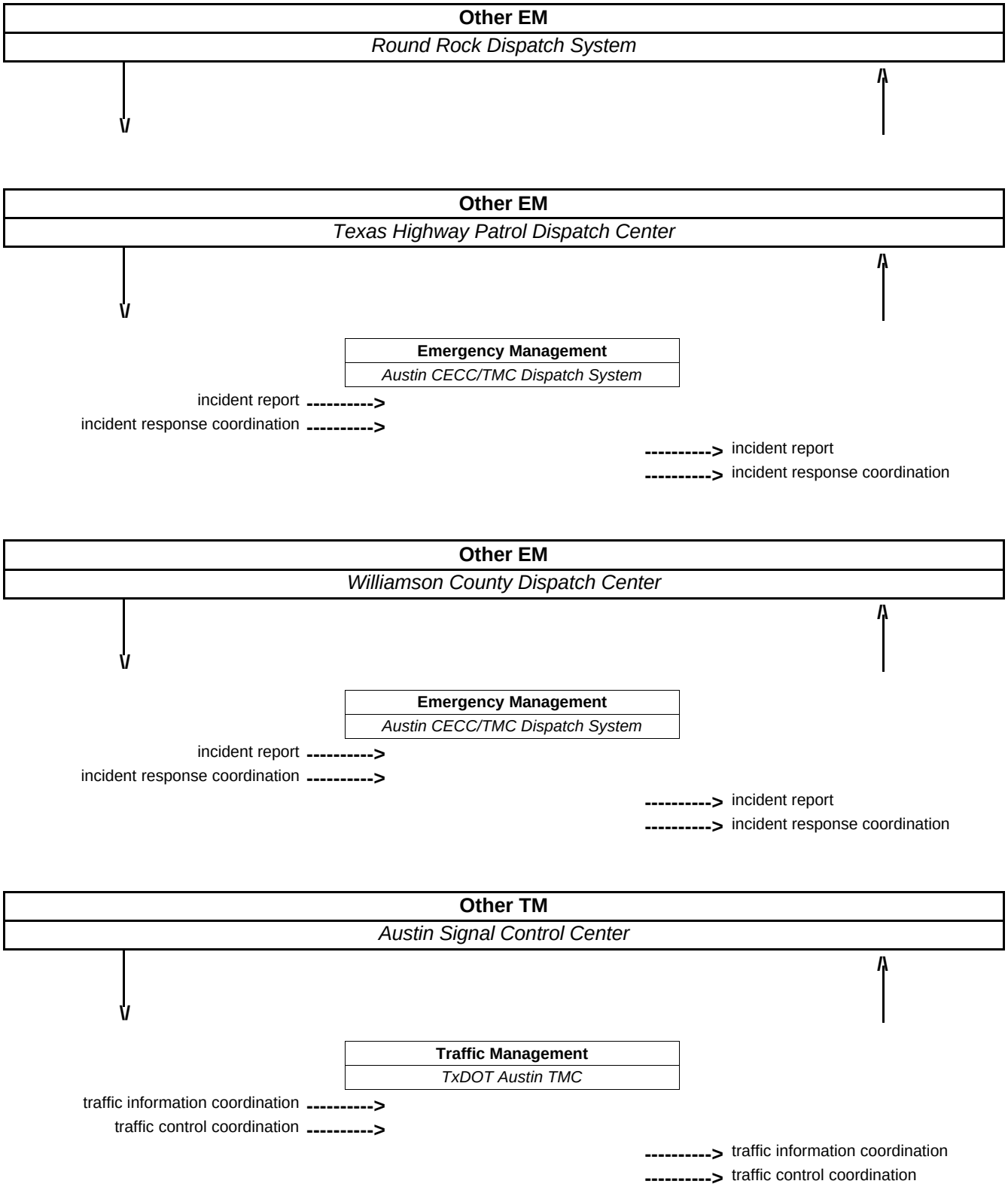

Fleet and Freight Management
Motor Carrier CVO System
Emergency Management
Austin CECC/TMC Dispatch System
HAZMAT information ---------->
----------> HAZMAT information request
Government Reporting Systems
Fatal Analysis Reporting System
Archived Data Management Subsystem
Record Management System (Police, Fire, EMS)
government reporting data receipt ---------->
----------> government reporting system data
Government Reporting Systems
Highway Performance Monitoring System
Archived Data Management Subsystem
TxDOT Austin Historical Traffic Data Repository
government reporting data receipt ---------->
----------> government reporting system data
Information Service Provider
Travel and Traffic Information Provider
ISP Operator
Travel and Traffic Information Operator
ISP operating parameters ---------->
----------> ISP operating parameter updates

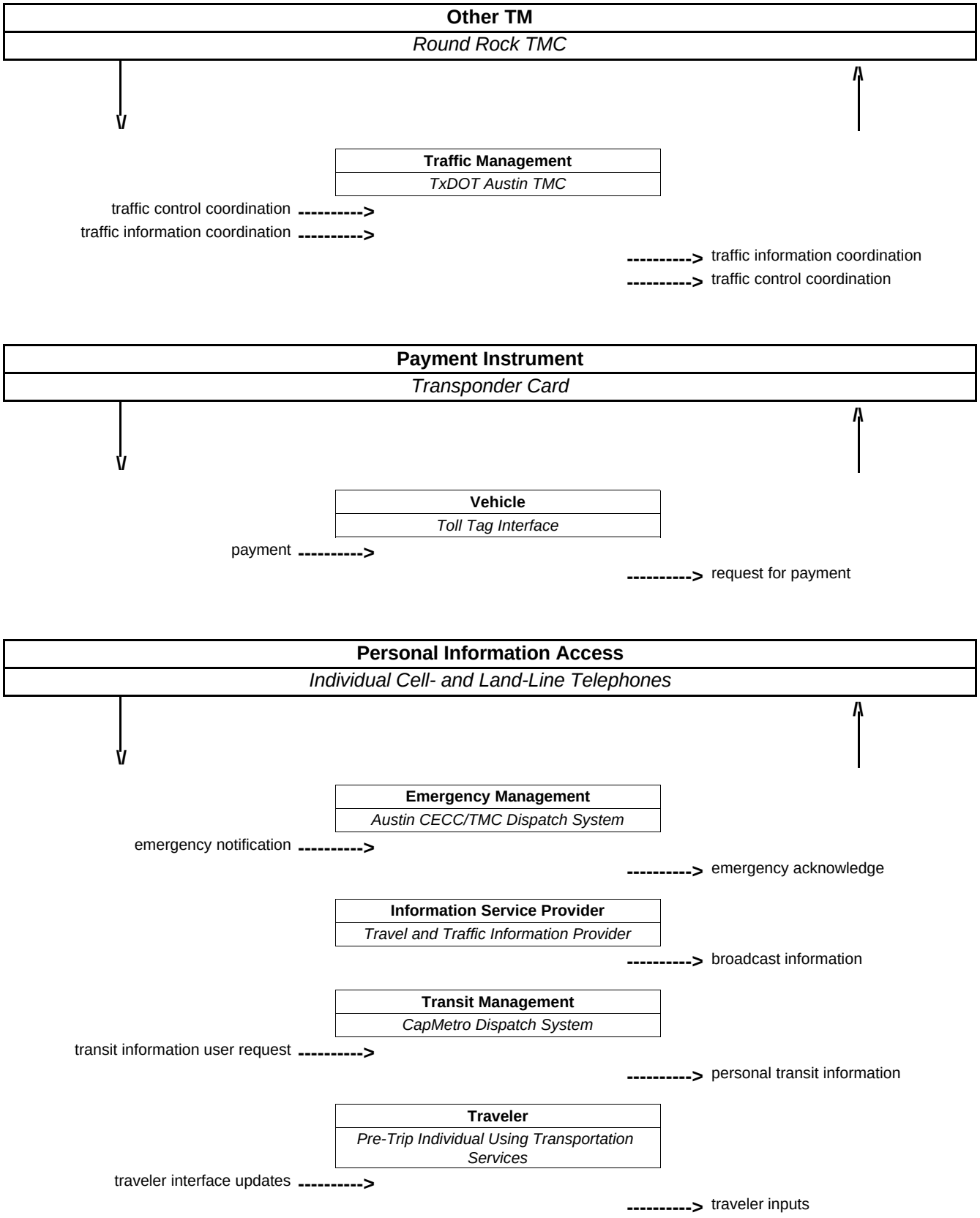

Information Service Provider
Travel and Traffic Information Provider
Continued...
Map Update Provider
City of Austin GIS Agency
map update request
map updates
Media
Traffic and Travel Information System
traveler information for media
Personal Information Access
Individual Cell- and Land-Line Telephones
broadcast information
Personal Information Access
Individual Fax
broadcast information
Personal Information Access
Individual Pagers
broadcast information
Personal Information Access
Internet Browser
broadcast information
Remote Traveler Support
Traveler Kiosk Network
broadcast information
Toll Administration
TxDOT Texas Turnpike Authority Division
toll data request
toll data
Traffic Management
TxDOT Austin TMC
logged special vehicle route
request for traffic information
road network use
traffic information

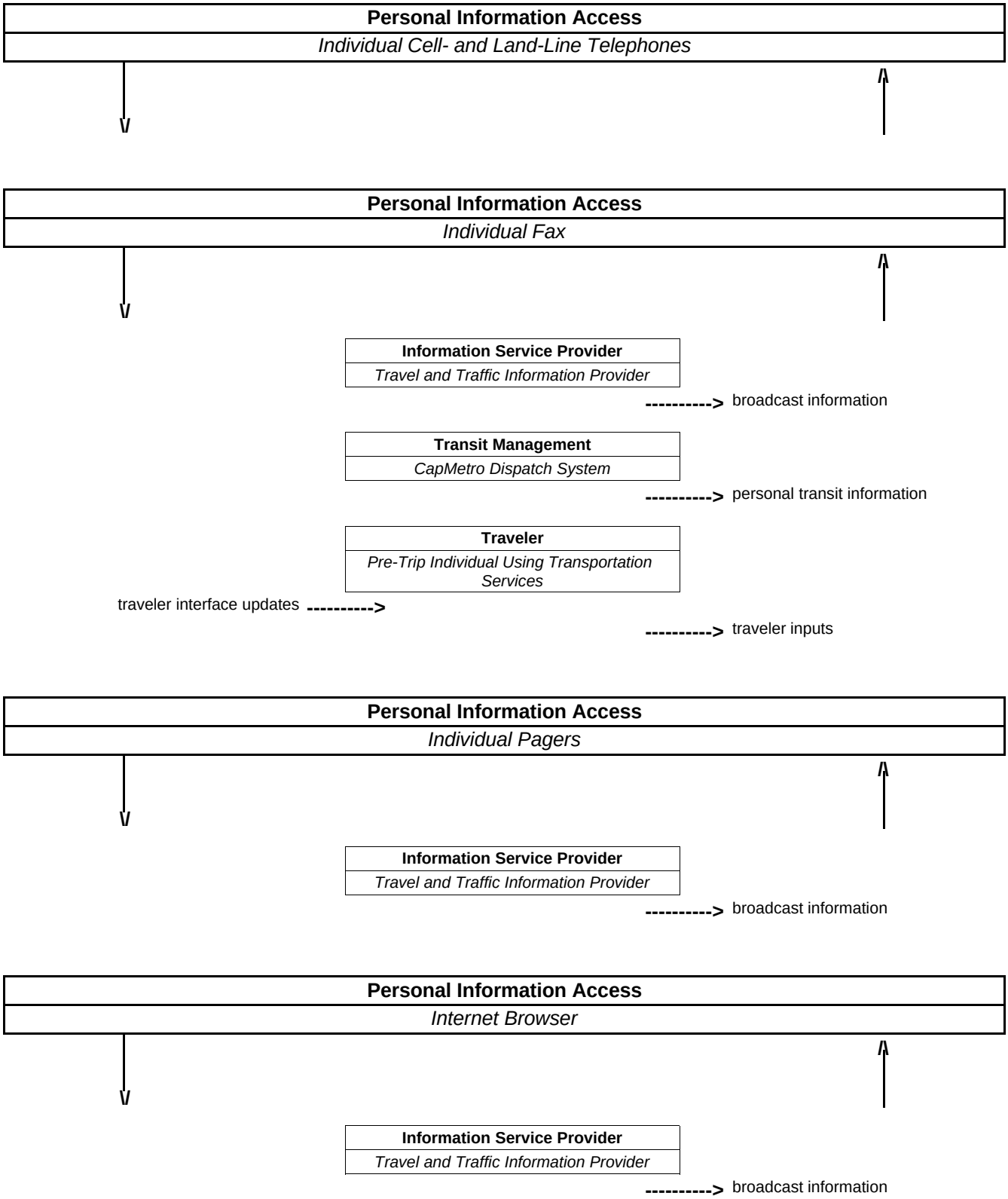

Information Service Provider
Travel and Traffic Information Provider
Continued...
Transit Management
CapMetro Dispatch System
transit information request
demand responsive transit request
selected routes
demand responsive transit plan
transit and fare schedules
ISP Operator
Travel and Traffic Information Operator
Information Service Provider
Travel and Traffic Information Provider
ISP operating parameter updates
ISP operating parameters
Location Data Source
Device That Provides Accurate Position Information
Vehicle
System That Provides Accurate Position Information
position fix
Map Update Provider
City of Austin GIS Agency
Emergency Management
Austin CECC/TMC Dispatch System
map updates
map update request

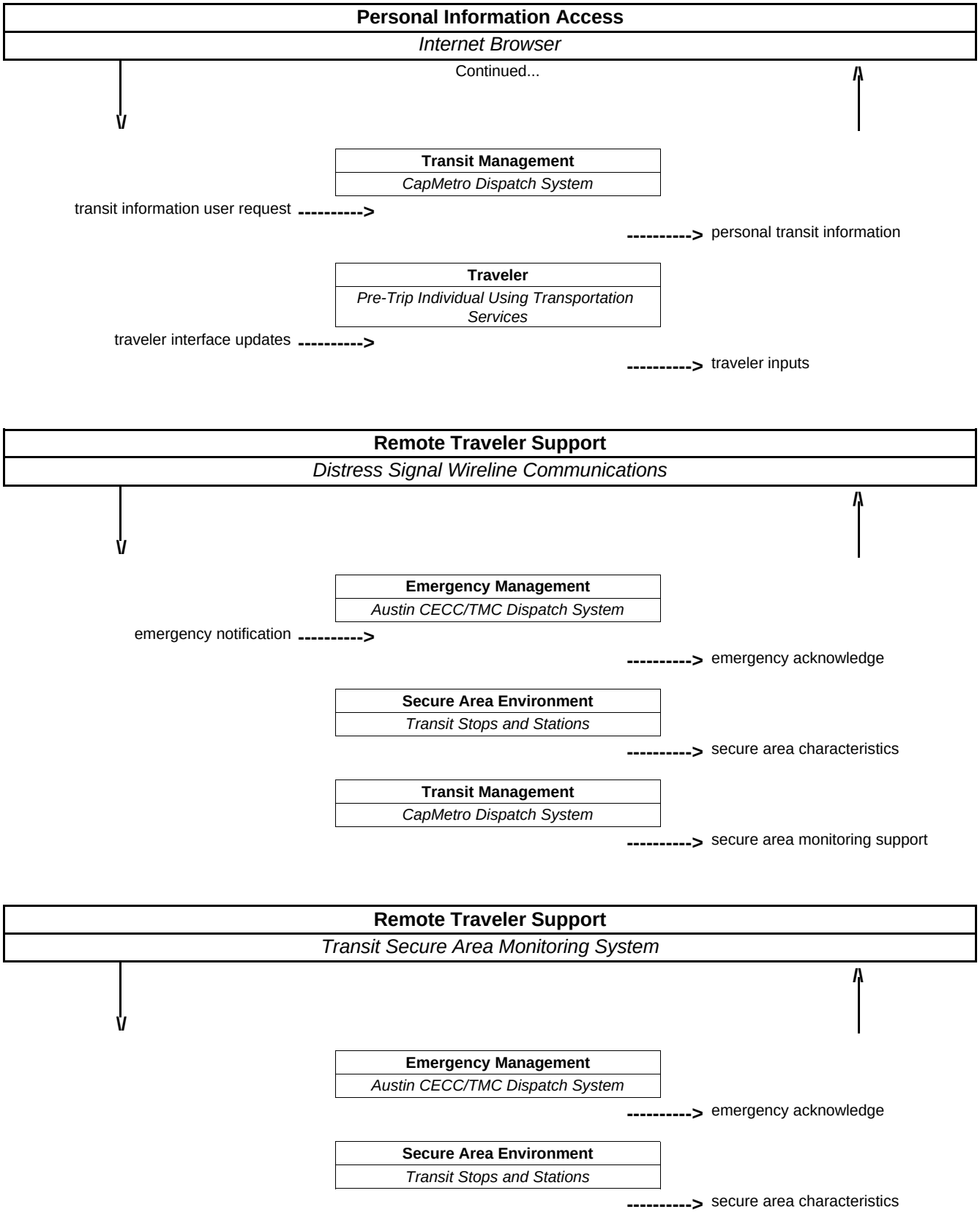

Map Update Provider
City of Austin GIS Agency
Continued...
Information Service Provider
Travel and Traffic Information Provider
map updates
map update request
Traffic Management
TxDOT Austin TMC
map updates
map update request
Transit Management
CapMetro Dispatch System
map updates
map update request
Media
Traffic and Travel Information System
Information Service Provider
Travel and Traffic Information Provider
traveler information for media
Traffic Management
TxDOT Austin TMC
media information request
external reports
traffic information for media
Transit Management
CapMetro Dispatch System
media information request
transit information for media

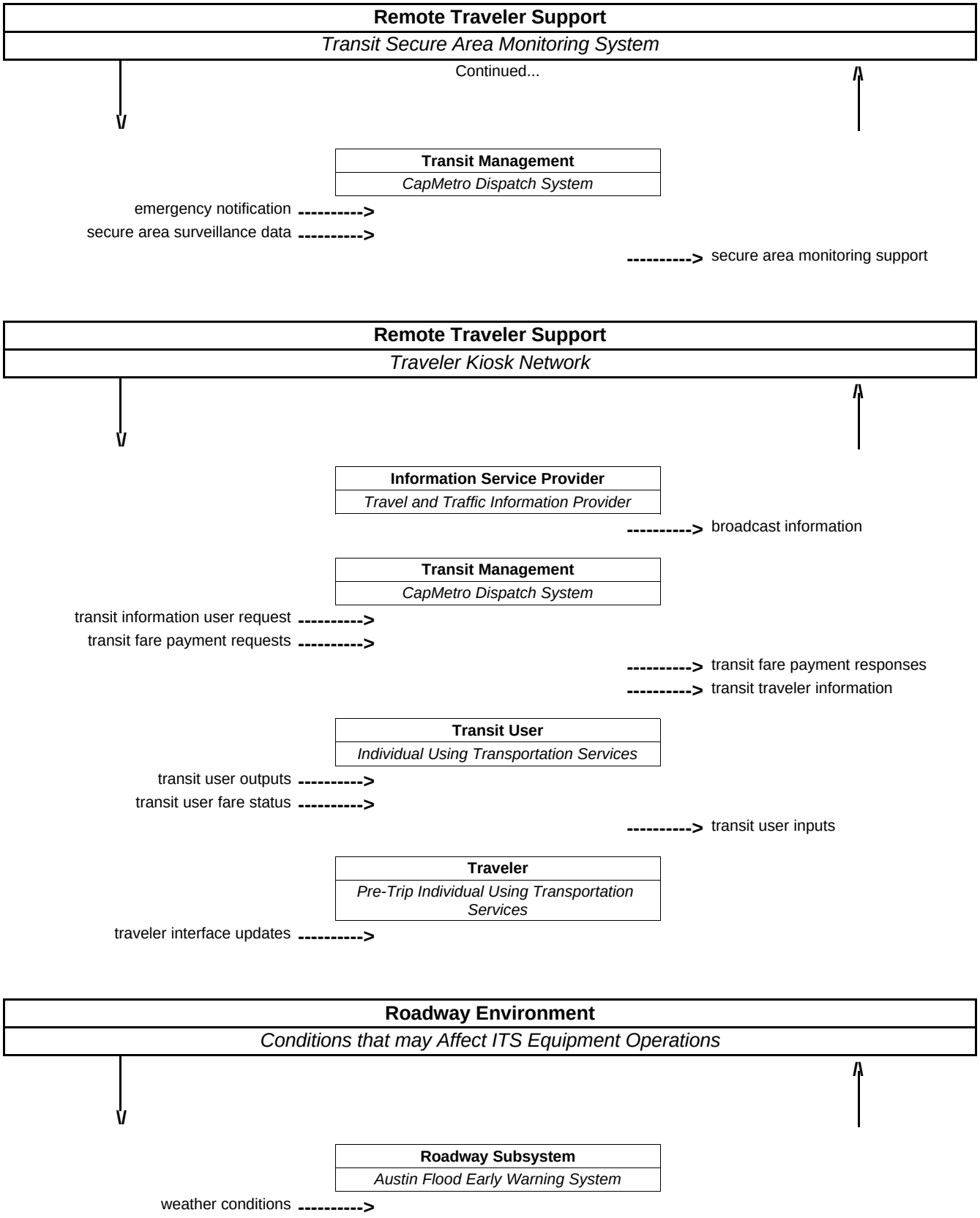

Multimodal Crossings
Rail Crossing Control Equipment
Roadway Subsystem
Grade Crossing Warning System
multimodal crossing status
highway control status
Other Archives
Statewide Historic Incident Data Network
Archived Data Management Subsystem
TxDOT Austin Historical Incident Data Repository
archive coordination
archive coordination
Other Archives
Statewide Historic Traffic Data Network (TxDOT Planning and Programming)
Archived Data Management Subsystem
TxDOT Austin Historical Traffic Data Repository
archive coordination
archive coordination
Other EM
Round Rock Dispatch System
Emergency Management
Austin CECC/TMC Dispatch System
incident report
incident response coordination
incident report
incident response coordination

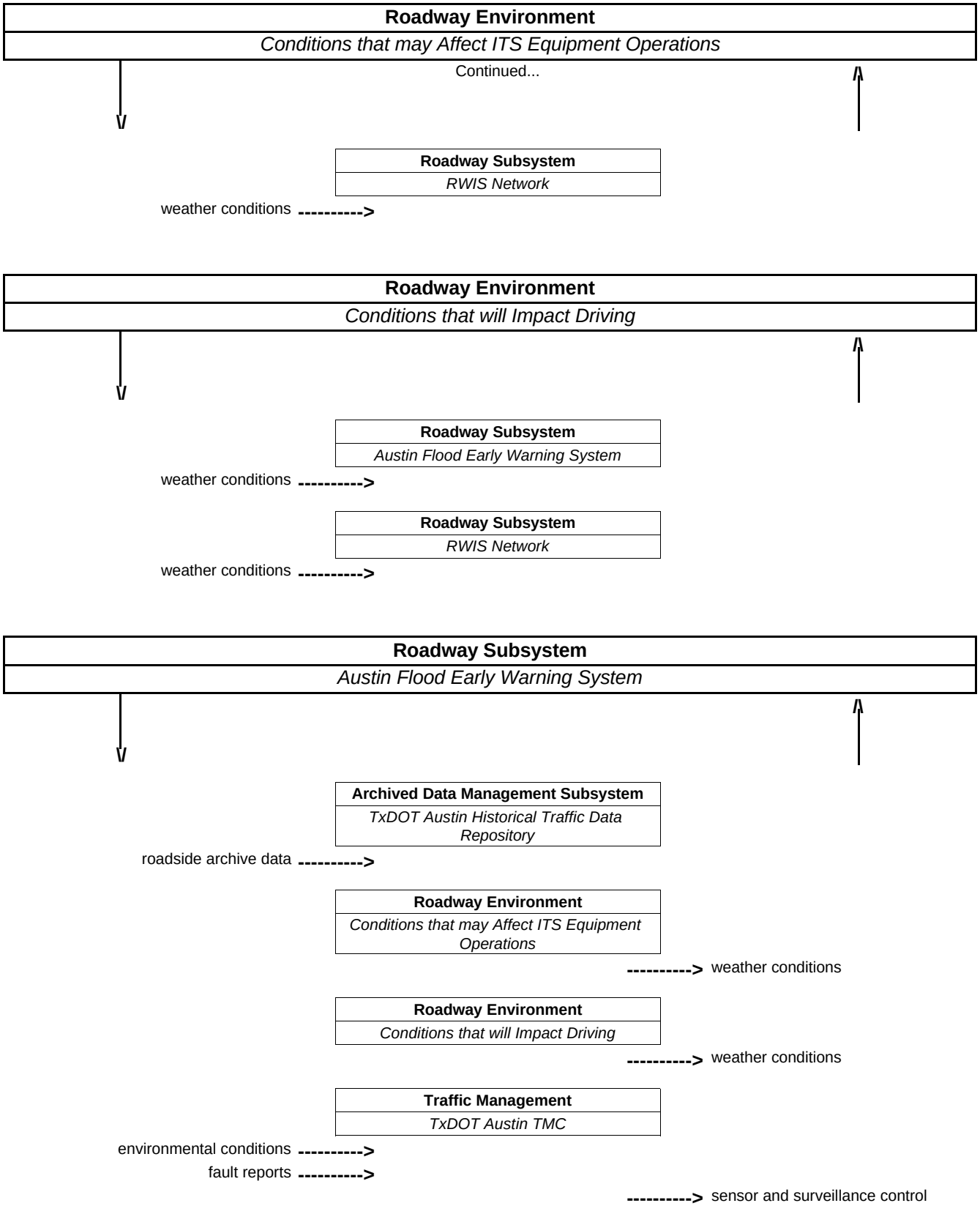

Other EM
Round Rock Dispatch System
Other EM
Texas Highway Patrol Dispatch Center
Emergency Management
Austin CECC/TMC Dispatch System
incident report
incident response coordination
incident report
incident response coordination
Other EM
Williamson County Dispatch Center
Emergency Management
Austin CECC/TMC Dispatch System
incident report
incident response coordination
incident report
incident response coordination
Other TM
Austin Signal Control Center
Traffic Management
TxDOT Austin TMC
traffic information coordination
traffic control coordination
traffic information coordination
traffic control coordination

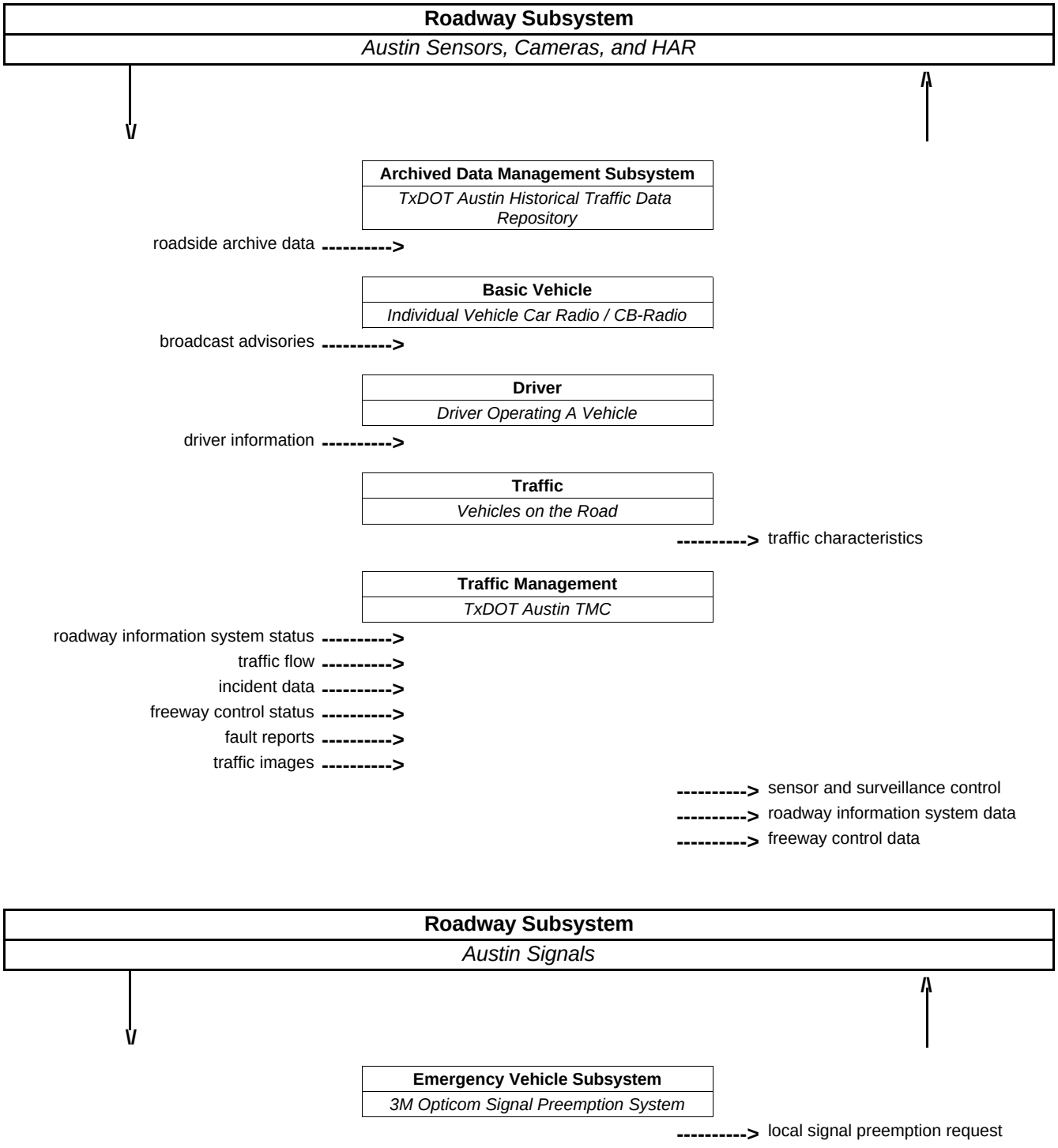

Other TM
Round Rock TMC
Traffic Management
TxDOT Austin TMC
traffic control coordination
traffic information coordination
traffic information coordination
traffic control coordination
Payment Instrument
Transponder Card
Vehicle
Toll Tag Interface
payment
request for payment
Personal Information Access
Individual Cell- and Land-Line Telephones
Emergency Management
Austin CECC/TMC Dispatch System
emergency notification
emergency acknowledge
Information Service Provider
Travel and Traffic Information Provider
broadcast information
Transit Management
CapMetro Dispatch System
transit information user request
personal transit information
Traveler
Pre-Trip Individual Using Transportation Services
traveler interface updates
traveler inputs

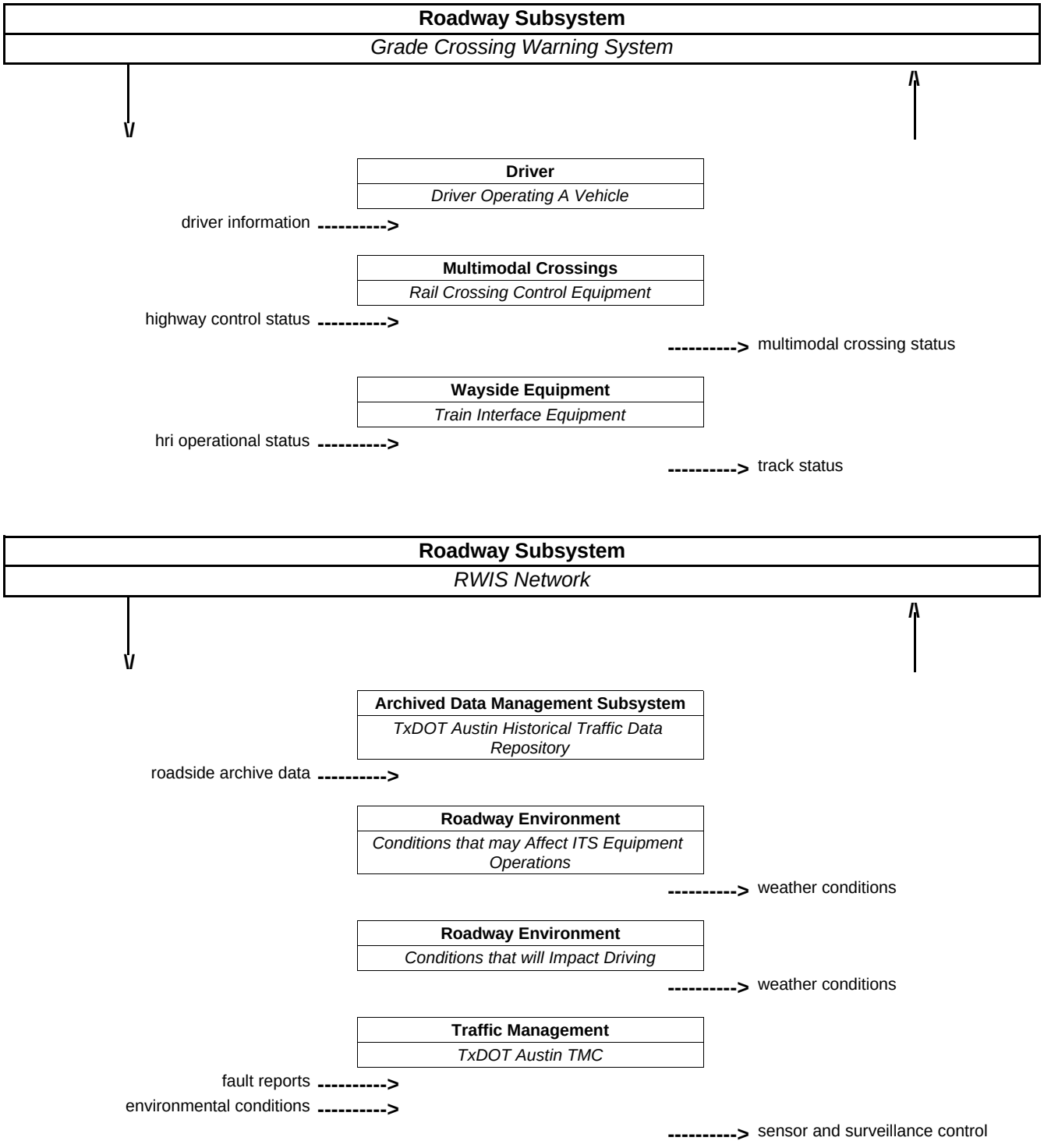

Personal Information Access
Individual Cell- and Land-Line Telephones
Personal Information Access
Individual Fax
Information Service Provider
Travel and Traffic Information Provider
broadcast information
Transit Management
CapMetro Dispatch System
personal transit information
Traveler
Pre-Trip Individual Using Transportation Services
traveler interface updates
traveler inputs
Personal Information Access
Individual Pagers
Information Service Provider
Travel and Traffic Information Provider
broadcast information
Personal Information Access
Internet Browser
Information Service Provider
Travel and Traffic Information Provider
broadcast information

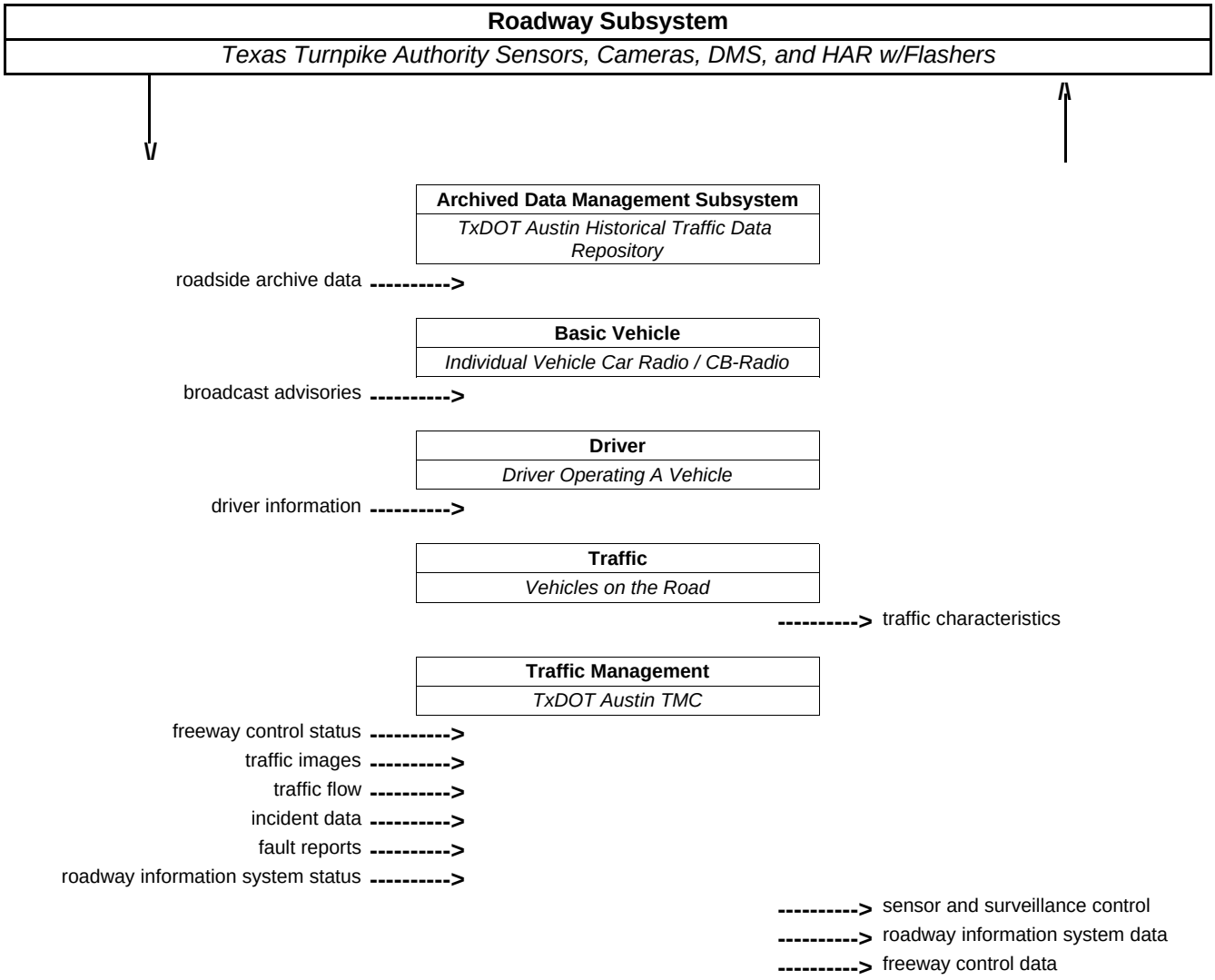

Personal Information Access
Internet Browser
Continued...
Transit Management
CapMetro Dispatch System
transit information user request
personal transit information
Traveler
Pre-Trip Individual Using Transportation Services
traveler interface updates
traveler inputs
Remote Traveler Support
Distress Signal Wireline Communications
Emergency Management
Austin CECC/TMC Dispatch System
emergency notification
emergency acknowledge
Secure Area Environment
Transit Stops and Stations
secure area characteristics
Transit Management
CapMetro Dispatch System
secure area monitoring support
Remote Traveler Support
Transit Secure Area Monitoring System
Emergency Management
Austin CECC/TMC Dispatch System
emergency acknowledge
Secure Area Environment
Transit Stops and Stations
secure area characteristics


Remote Traveler Support
Transit Secure Area Monitoring System
Continued...
Transit Management
CapMetro Dispatch System
emergency notification
secure area surveillance data
secure area monitoring support
Remote Traveler Support
Traveler Kiosk Network
Information Service Provider
Travel and Traffic Information Provider
broadcast information
Transit Management
CapMetro Dispatch System
transit information user request
transit fare payment requests
transit fare payment responses
transit traveler information
Transit User
Individual Using Transportation Services
transit user outputs
transit user fare status
transit user inputs
Traveler
Pre-Trip Individual Using Transportation Services
traveler interface updates
Roadway Environment
Conditions that may Affect ITS Equipment Operations
Roadway Subsystem
Austin Flood Early Warning System
weather conditions


Roadway Environment
Conditions that may Affect ITS Equipment Operations
Continued...
Roadway Subsystem
RWIS Network
weather conditions
Roadway Environment
Conditions that will Impact Driving
Roadway Subsystem
Austin Flood Early Warning System
weather conditions
Roadway Subsystem
RWIS Network
weather conditions
Roadway Subsystem
Austin Flood Early Warning System
Archived Data Management Subsystem
TxDOT Austin Historical Traffic Data Repository
roadside archive data
Roadway Environment
Conditions that may Affect ITS Equipment Operations
weather conditions
Roadway Environment
Conditions that will Impact Driving
weather conditions
Traffic Management
TxDOT Austin TMC
environmental conditions
fault reports
sensor and surveillance control


Roadway Subsystem
Austin Sensors, Cameras, and HAR
Archived Data Management Subsystem
TxDOT Austin Historical Traffic Data Repository
roadside archive data
Basic Vehicle
Individual Vehicle Car Radio / CB-Radio
broadcast advisories
Driver
Driver Operating A Vehicle
driver information
Traffic
Vehicles on the Road
traffic characteristics
Traffic Management
TxDOT Austin TMC
roadway information system status
traffic flow
incident data
freeway control status
fault reports
traffic images
sensor and surveillance control
roadway information system data
freeway control data
Roadway Subsystem
Austin Signals
Emergency Vehicle Subsystem
3M Opticom Signal Preemption System
local signal preemption request


Roadway Subsystem
Grade Crossing Warning System
Driver
Driver Operating A Vehicle
driver information
Multimodal Crossings
Rail Crossing Control Equipment
highway control status
multimodal crossing status
Wayside Equipment
Train Interface Equipment
hri operational status
track status
Roadway Subsystem
RWIS Network
Archived Data Management Subsystem
TxDOT Austin Historical Traffic Data Repository
roadside archive data
Roadway Environment
Conditions that may Affect ITS Equipment Operations
weather conditions
Roadway Environment
Conditions that will Impact Driving
weather conditions
Traffic Management
TxDOT Austin TMC
fault reports
environmental conditions
sensor and surveillance control


Roadway Subsystem
Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers
Archived Data Management Subsystem
TxDOT Austin Historical Traffic Data Repository
roadside archive data
Basic Vehicle
Individual Vehicle Car Radio / CB-Radio
broadcast advisories
Driver
Driver Operating A Vehicle
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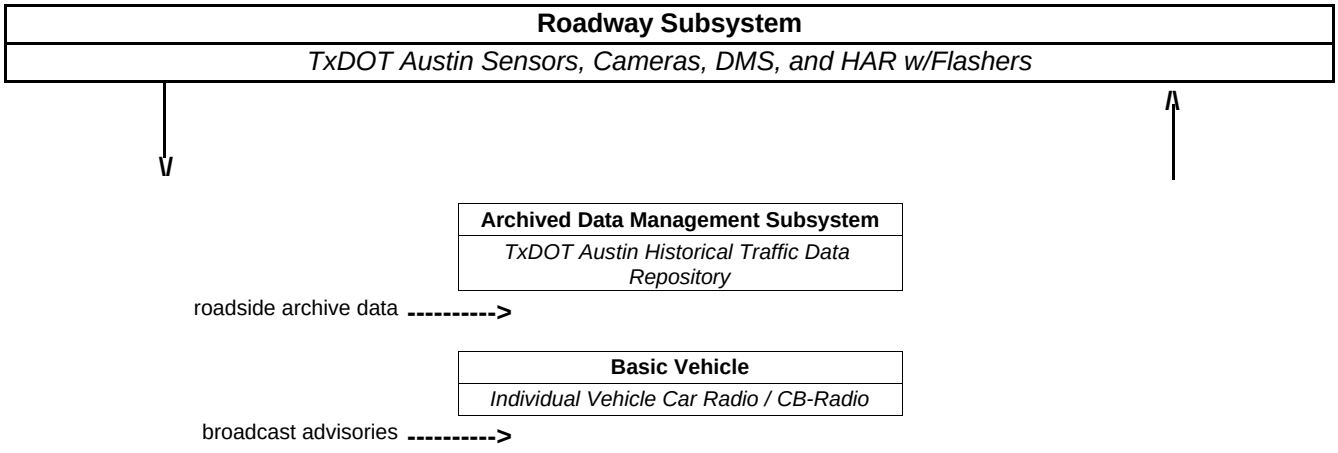
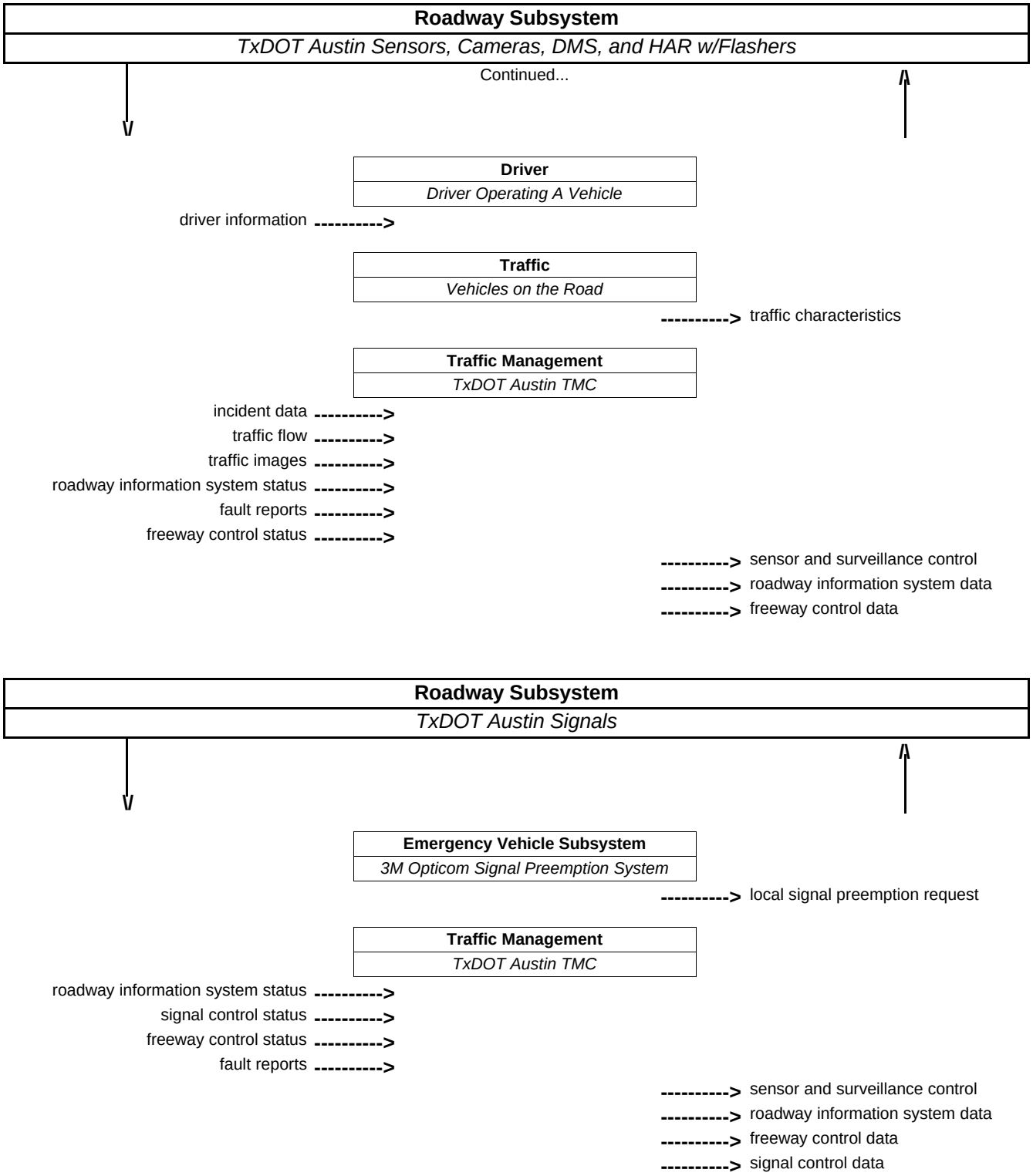
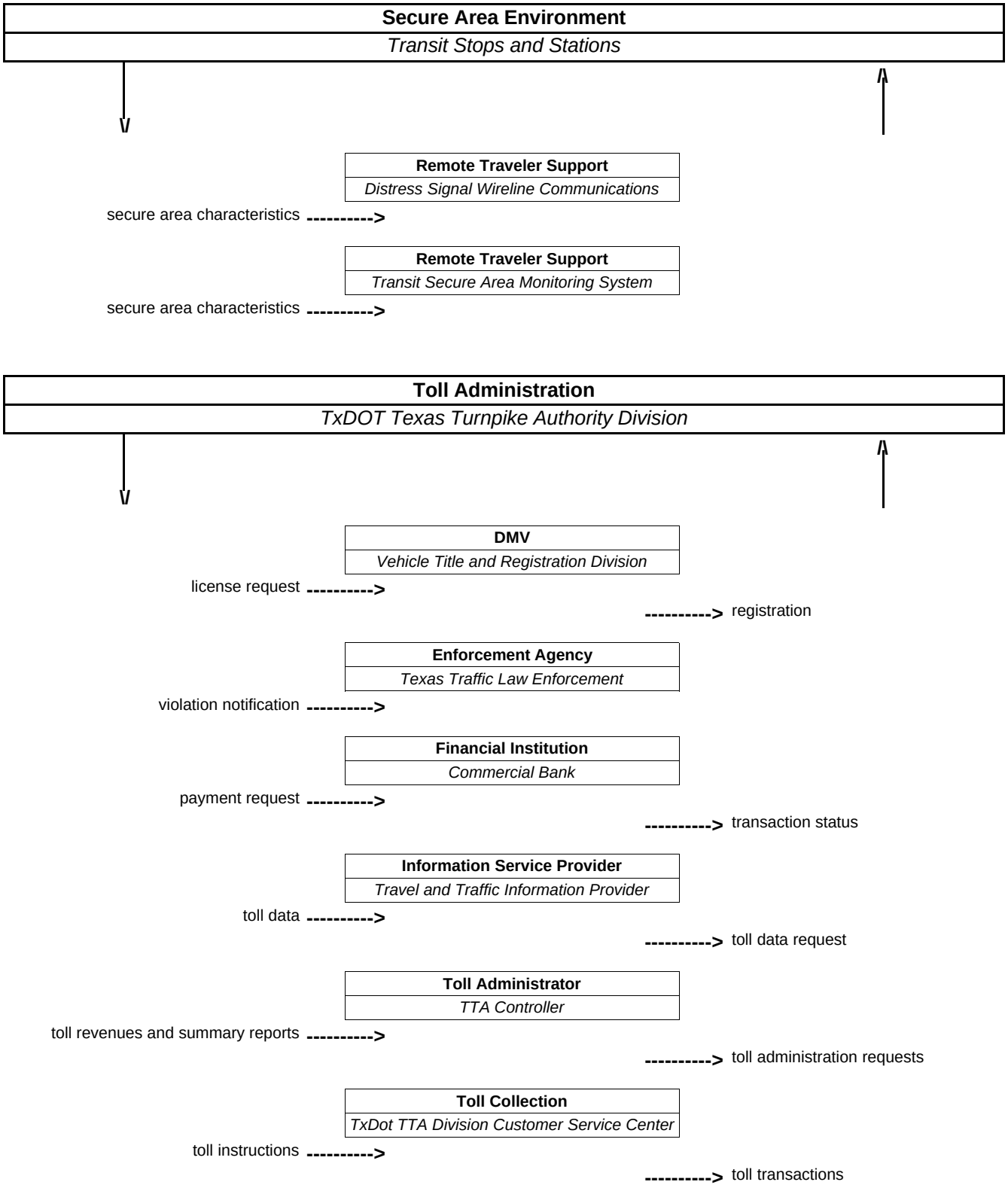
Traffic
Vehicles on the Road
traffic characteristics
Traffic Management
TxDOT Austin TMC
freeway control status
traffic images
traffic flow
incident data
fault reports
roadway information system status
sensor and surveillance control
roadway information system data
freeway control data


Roadway Subsystem
TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers
Archived Data Management Subsystem
TxDOT Austin Historical Traffic Data Repository
roadside archive data
Basic Vehicle
Individual Vehicle Car Radio / CB-Radio
broadcast advisories


Roadway Subsystem
TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers
Continued...
Driver
Driver Operating A Vehicle
driver information
Traffic
Vehicles on the Road
traffic characteristics
Traffic Management
TxDOT Austin TMC
incident data
traffic flow
traffic images
roadway information system status
fault reports
freeway control status
sensor and surveillance control
roadway information system data
freeway control data
Roadway Subsystem
TxDOT Austin Signals
Emergency Vehicle Subsystem
3M Opticom Signal Preemption System
local signal preemption request
Traffic Management
TxDOT Austin TMC
roadway information system status
signal control status
freeway control status
fault reports
sensor and surveillance control
roadway information system data
freeway control data
signal control data


Secure Area Environment
Transit Stops and Stations
Remote Traveler Support
Distress Signal Wireline Communications
secure area characteristics
Remote Traveler Support
Transit Secure Area Monitoring System
secure area characteristics
Toll Administration
TxDOT Texas Turnpike Authority Division
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Vehicle Title and Registration Division
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Enforcement Agency
Texas Traffic Law Enforcement
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Commercial Bank
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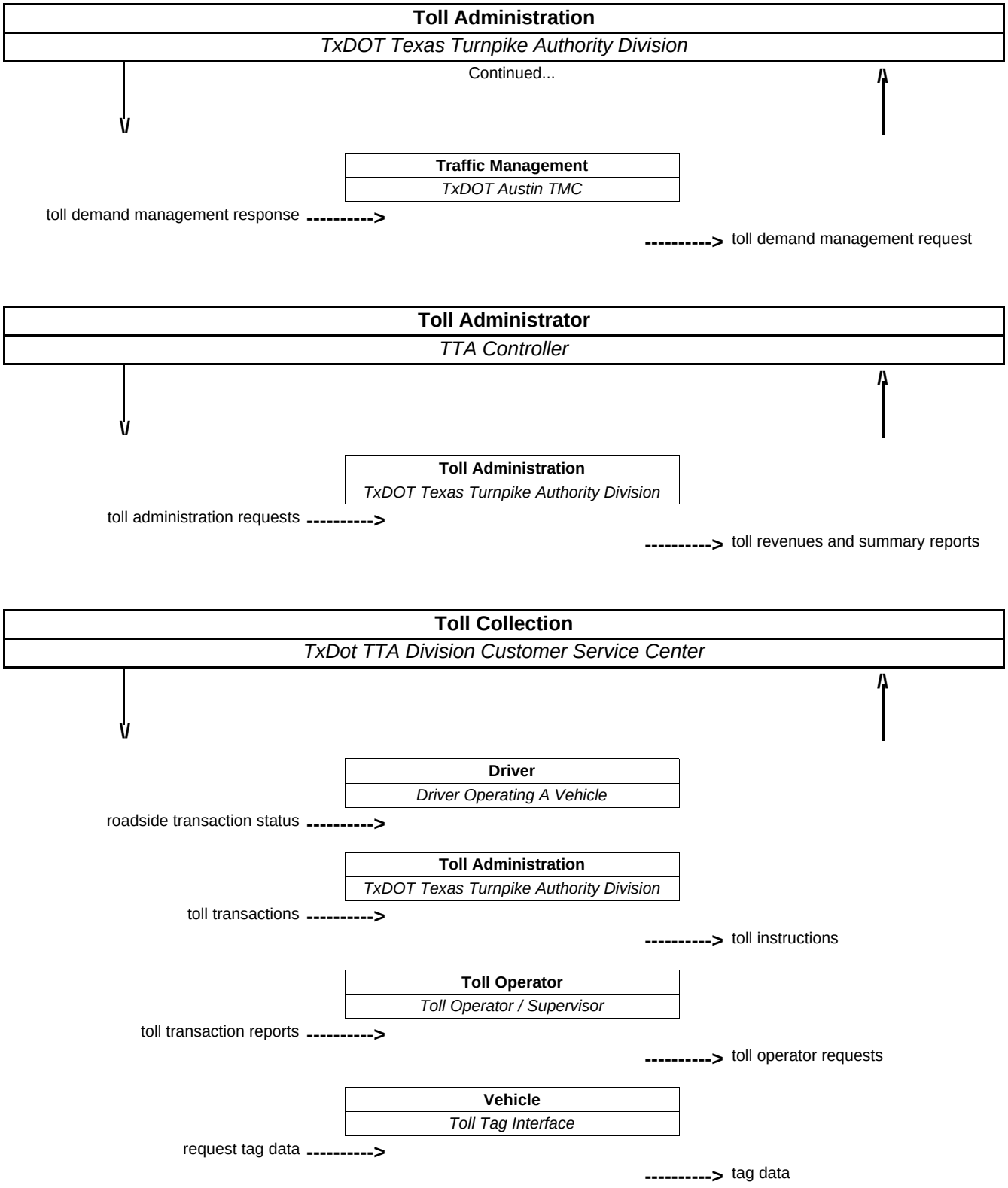
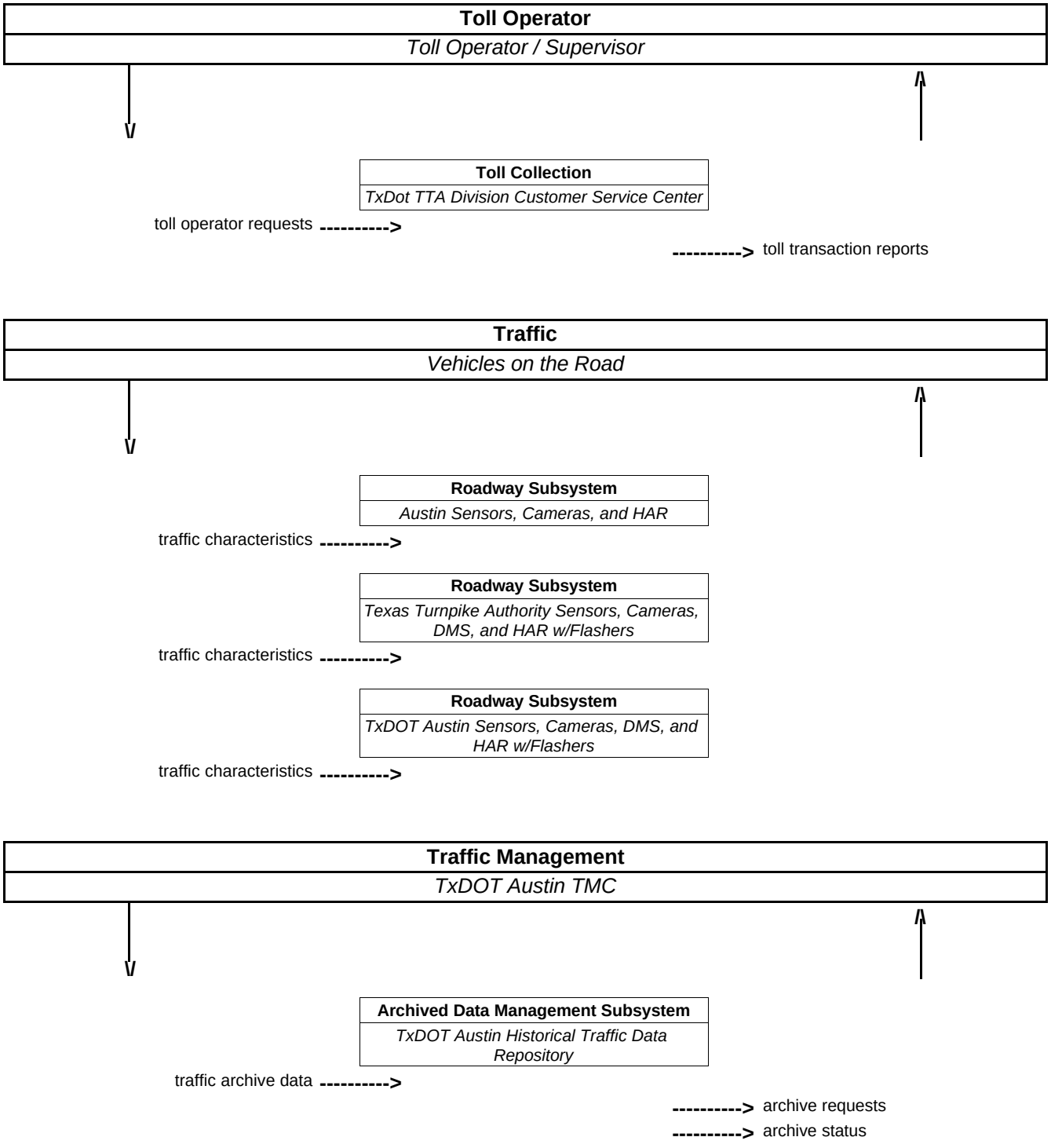
Travel and Traffic Information Provider
toll data
toll data request
Toll Administrator
TTA Controller
toll revenues and summary reports
toll administration requests
Toll Collection
TxDot TTA Division Customer Service Center
toll instructions
toll transactions


Toll Administration
TxDOT Texas Turnpike Authority Division
Continued...
Traffic Management
TxDOT Austin TMC
toll demand management response
toll demand management request
Toll Administrator
TTA Controller
Toll Administration
TxDOT Texas Turnpike Authority Division
toll administration requests
toll revenues and summary reports
Toll Collection
TxDot TTA Division Customer Service Center
Driver
Driver Operating A Vehicle
roadside transaction status
Toll Administration
TxDOT Texas Turnpike Authority Division
toll transactions
toll instructions
Toll Operator
Toll Operator / Supervisor
toll transaction reports
toll operator requests
Vehicle
Toll Tag Interface
request tag data
tag data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Toll Collection
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toll transaction reports
Traffic
Vehicles on the Road
Roadway Subsystem
Austin Sensors, Cameras, and HAR
traffic characteristics
Roadway Subsystem
Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers
traffic characteristics
Roadway Subsystem
TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers
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TxDOT Austin TMC
Archived Data Management Subsystem
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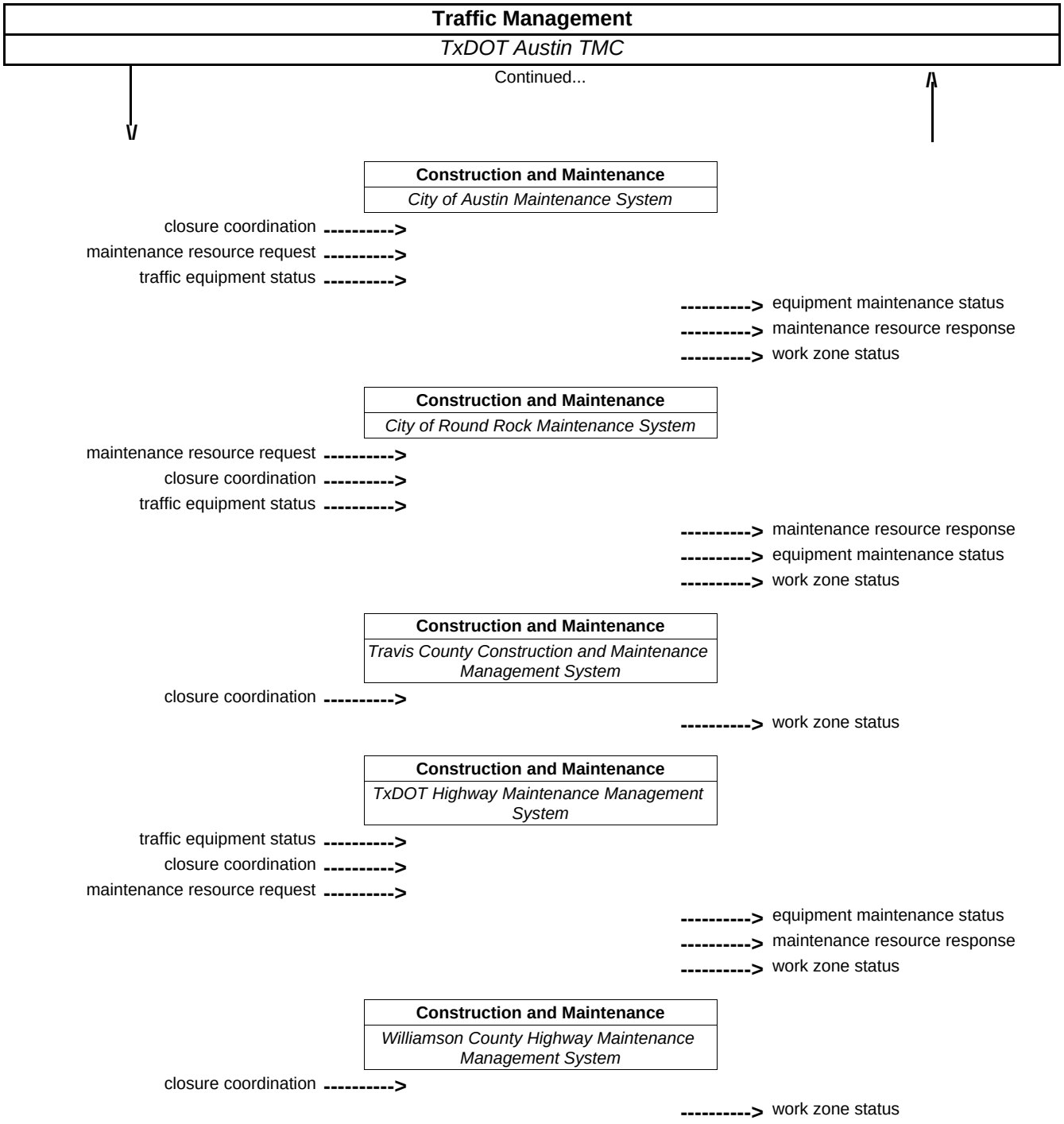
archive requests
archive status


Traffic Management
TxDOT Austin TMC
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Construction and Maintenance
City of Austin Maintenance System
closure coordination
maintenance resource request
traffic equipment status
equipment maintenance status
maintenance resource response
work zone status
Construction and Maintenance
City of Round Rock Maintenance System
maintenance resource request
closure coordination
traffic equipment status
maintenance resource response
equipment maintenance status
work zone status
Construction and Maintenance
Travis County Construction and Maintenance Management System
closure coordination
work zone status
Construction and Maintenance
TxDOT Highway Maintenance Management System
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maintenance resource request
equipment maintenance status
maintenance resource response
work zone status
Construction and Maintenance
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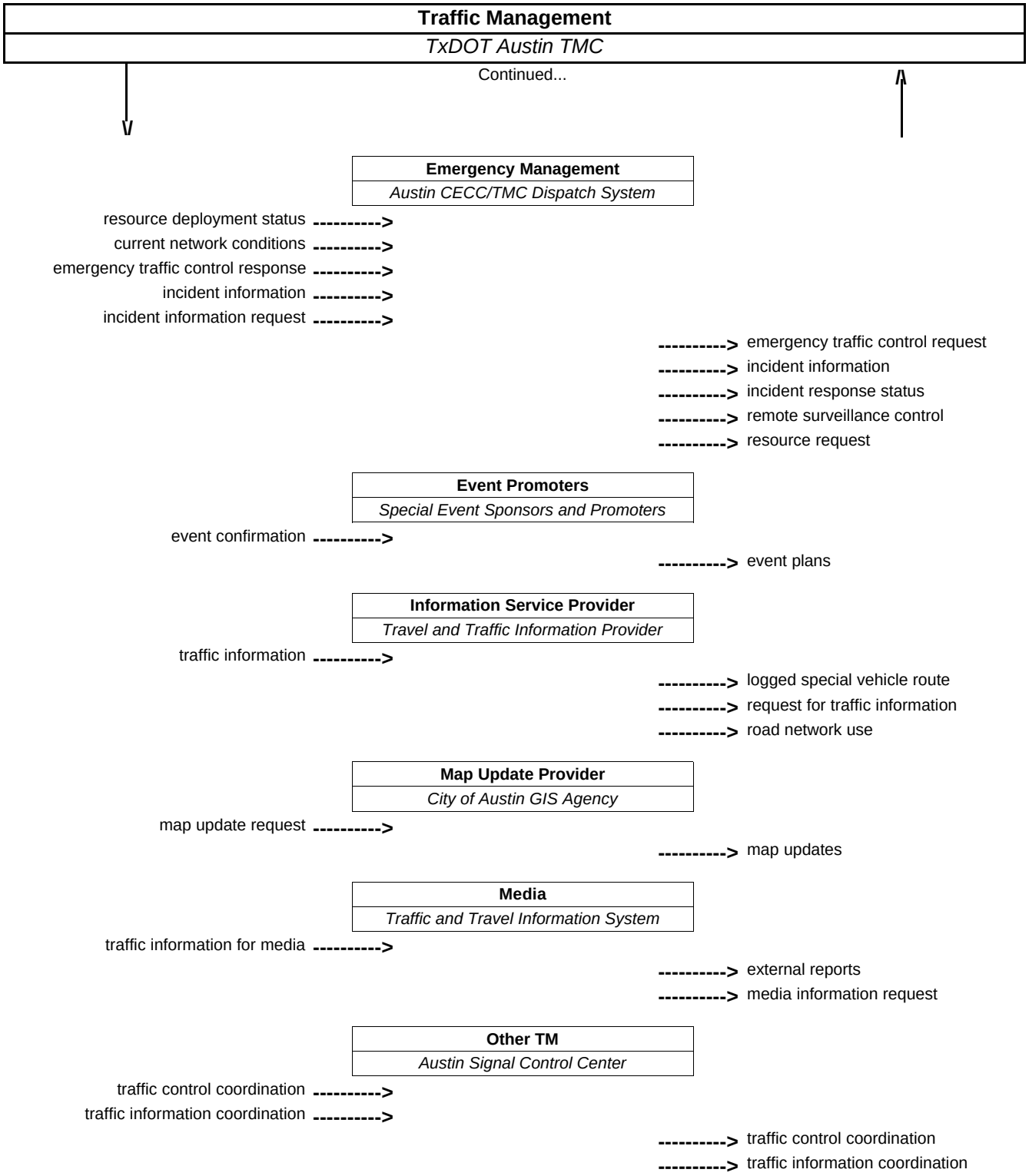
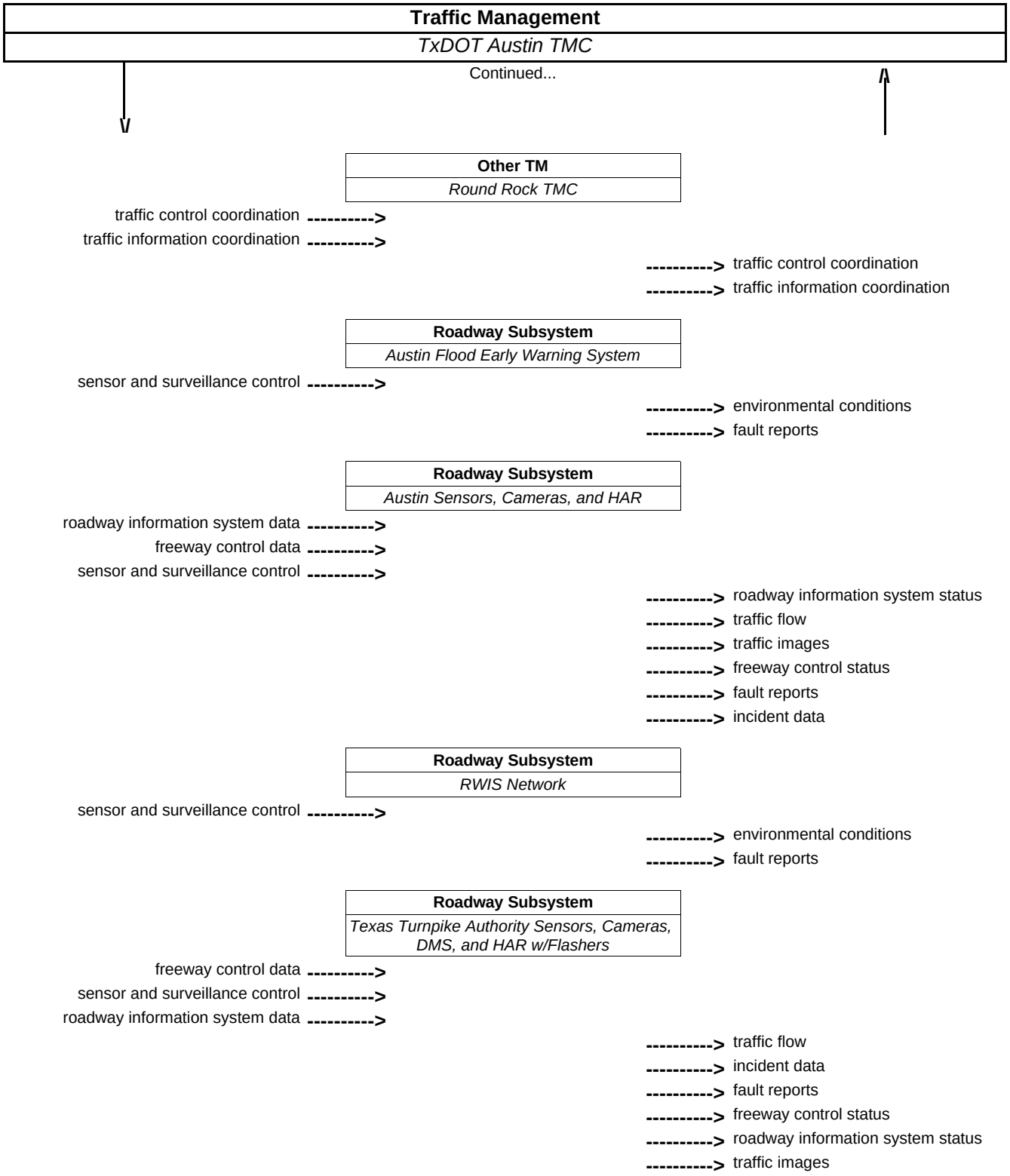
work zone status


Traffic Management
TxDOT Austin TMC
Continued...
Emergency Management
Austin CECC/TMC Dispatch System
resource deployment status
current network conditions
emergency traffic control response
incident information
incident information request
emergency traffic control request
incident information
incident response status
remote surveillance control
resource request
Event Promoters
Special Event Sponsors and Promoters
event confirmation
event plans
Information Service Provider
Travel and Traffic Information Provider
traffic information
logged special vehicle route
request for traffic information
road network use
Map Update Provider
City of Austin GIS Agency
map update request
map updates
Media
Traffic and Travel Information System
traffic information for media
external reports
media information request
Other TM
Austin Signal Control Center
traffic control coordination
traffic information coordination
traffic control coordination
traffic information coordination


Traffic Management
TxDOT Austin TMC
Continued...
Other TM
Round Rock TMC
traffic control coordination
traffic information coordination
traffic control coordination
traffic information coordination
Roadway Subsystem
Austin Flood Early Warning System
sensor and surveillance control
environmental conditions
fault reports
Roadway Subsystem
Austin Sensors, Cameras, and HAR
roadway information system data
freeway control data
sensor and surveillance control
roadway information system status
traffic flow
traffic images
freeway control status
fault reports
incident data
Roadway Subsystem
RWIS Network
sensor and surveillance control
environmental conditions
fault reports
Roadway Subsystem
Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers
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sensor and surveillance control
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traffic flow
incident data
fault reports
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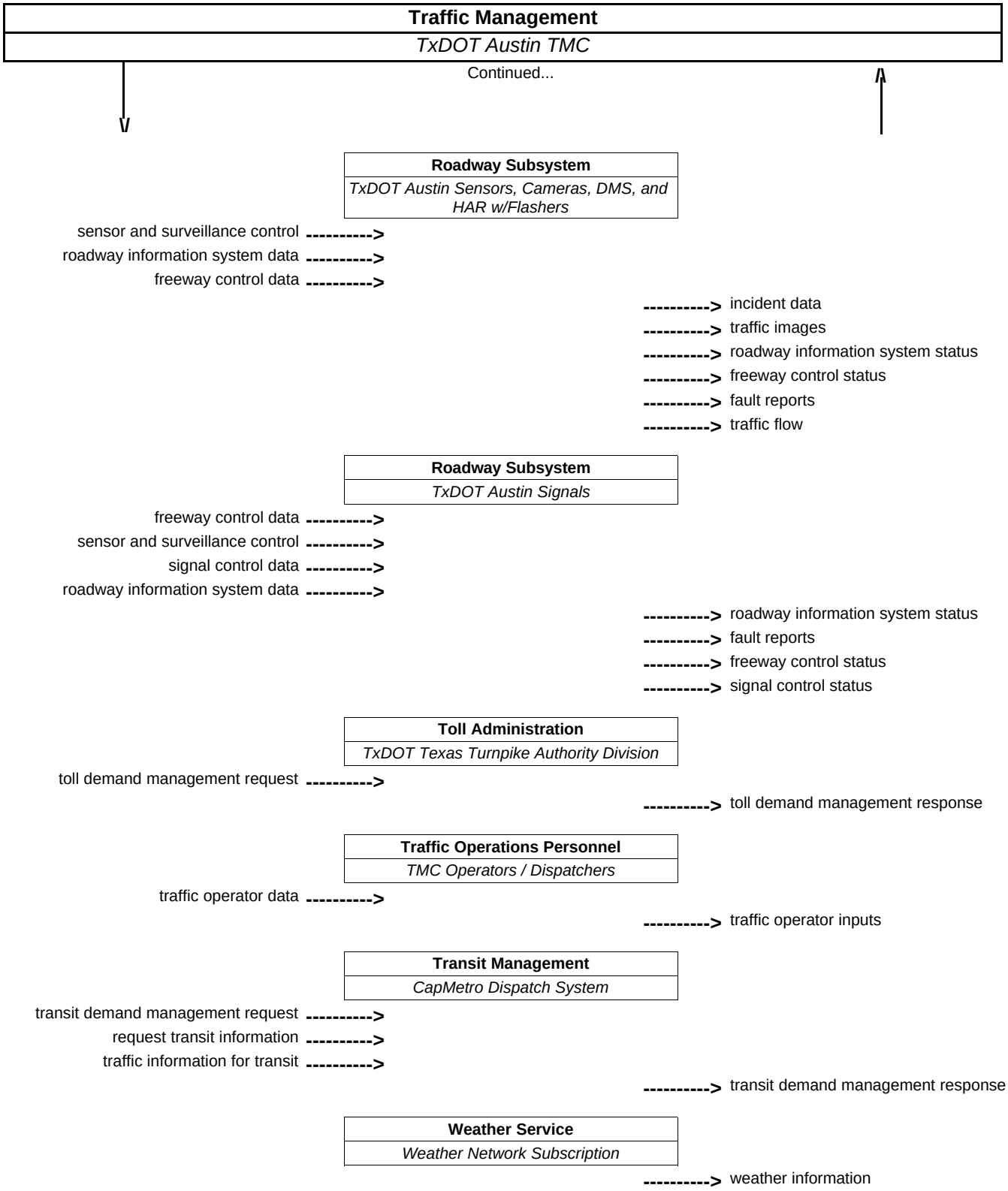
roadway information system status
traffic images


Traffic Management
TxDOT Austin TMC
Continued...
Roadway Subsystem
TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers
sensor and surveillance control
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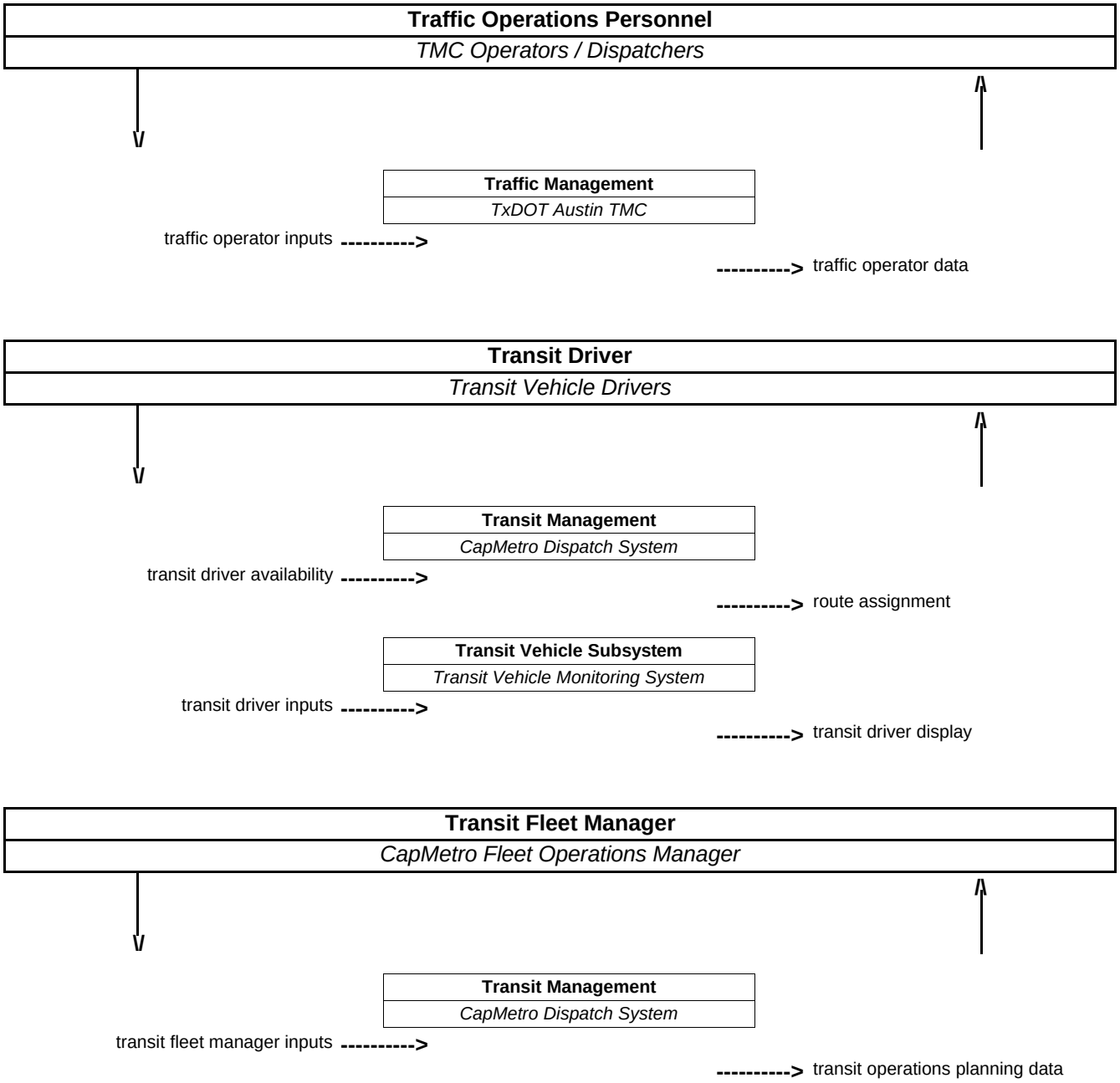
freeway control data
incident data
traffic images
roadway information system status
freeway control status
fault reports
traffic flow
Roadway Subsystem
TxDOT Austin Signals
freeway control data
sensor and surveillance control
signal control data
roadway information system data
roadway information system status
fault reports
freeway control status
signal control status
Toll Administration
TxDOT Texas Turnpike Authority Division
toll demand management request
toll demand management response
Traffic Operations Personnel
TMC Operators / Dispatchers
traffic operator data
traffic operator inputs
Transit Management
CapMetro Dispatch System
transit demand management request
request transit information
traffic information for transit
transit demand management response
Weather Service
Weather Network Subscription
weather information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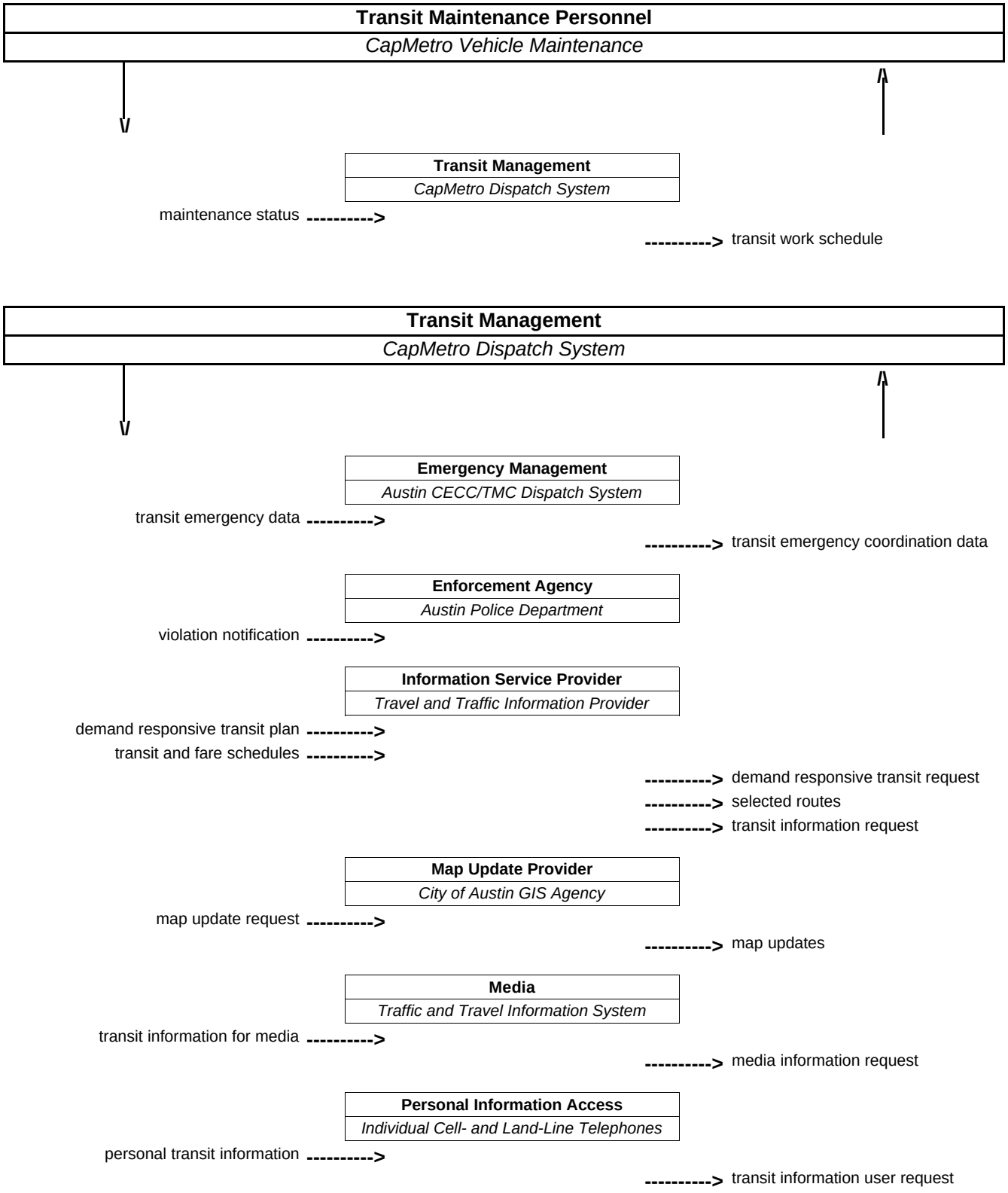
TMC Operators / Dispatchers
Traffic Management
TxDOT Austin TMC
traffic operator inputs
traffic operator data
Transit Driver
Transit Vehicle Drivers
Transit Management
CapMetro Dispatch System
transit driver availability
route assignment
Transit Vehicle Subsystem
Transit Vehicle Monitoring System
transit driver inputs
transit driver display
Transit Fleet Manager
CapMetro Fleet Operations Manager
Transit Management
CapMetro Dispatch System
transit fleet manager inputs
transit operations planning data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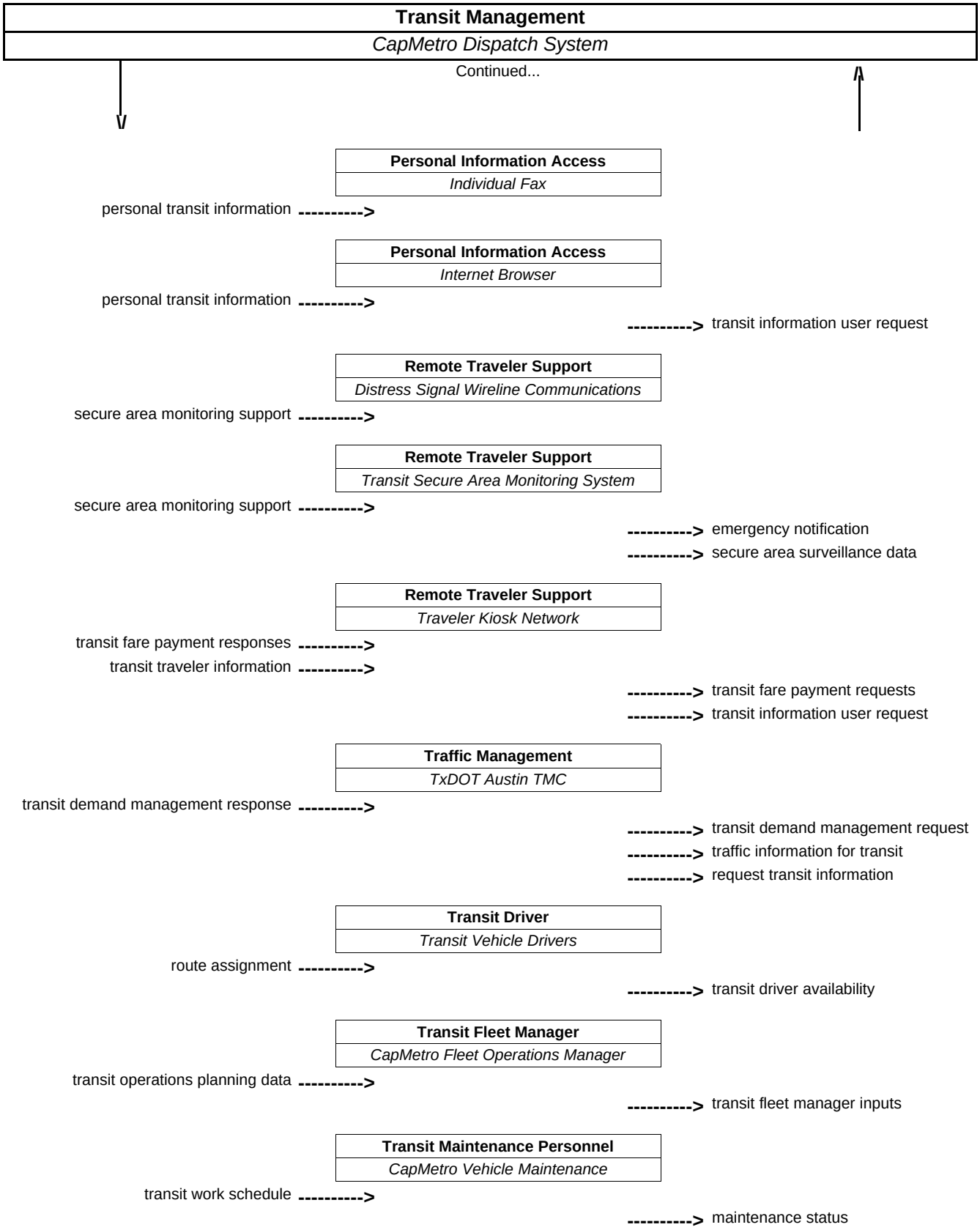
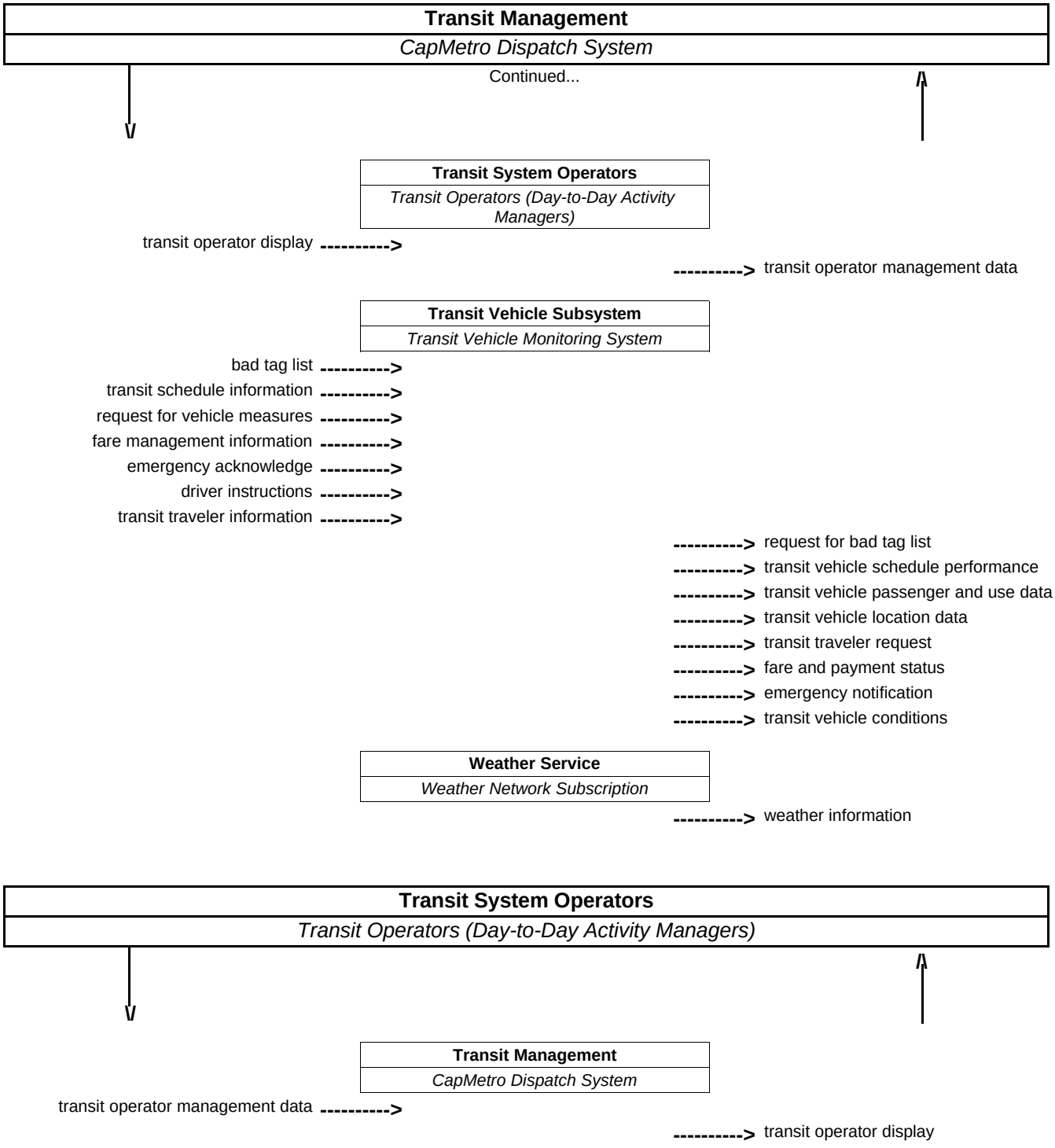
CapMetro Vehicle Maintenance
Transit Management
CapMetro Dispatch System
maintenance status
transit work schedule
Transit Management
CapMetro Dispatch System
Emergency Management
Austin CECC/TMC Dispatch System
transit emergency data
transit emergency coordination data
Enforcement Agency
Austin Police Department
violation notification
Information Service Provider
Travel and Traffic Information Provider
demand responsive transit plan
transit and fare schedules
demand responsive transit request
selected routes
transit information request
Map Update Provider
City of Austin GIS Agency
map update request
map updates
Media
Traffic and Travel Information System
transit information for media
media information request
Personal Information Access
Individual Cell- and Land-Line Telephones
personal transit information
transit information user request


Transit Management
CapMetro Dispatch System
Continued...
Personal Information Access
Individual Fax
personal transit information
Personal Information Access
Internet Browser
personal transit information
transit information user request
Remote Traveler Support
Distress Signal Wireline Communications
secure area monitoring support
Remote Traveler Support
Transit Secure Area Monitoring System
secure area monitoring support
emergency notification
secure area surveillance data
Remote Traveler Support
Traveler Kiosk Network
transit fare payment responses
transit traveler information
transit fare payment requests
transit information user request
Traffic Management
TxDOT Austin TMC
transit demand management response
transit demand management request
traffic information for transit
request transit information
Transit Driver
Transit Vehicle Drivers
route assignment
transit driver availability
Transit Fleet Manager
CapMetro Fleet Operations Manager
transit operations planning data
transit fleet manager inputs
Transit Maintenance Personnel
CapMetro Vehicle Maintenance
transit work schedule
maintenance status


Transit Management
CapMetro Dispatch System
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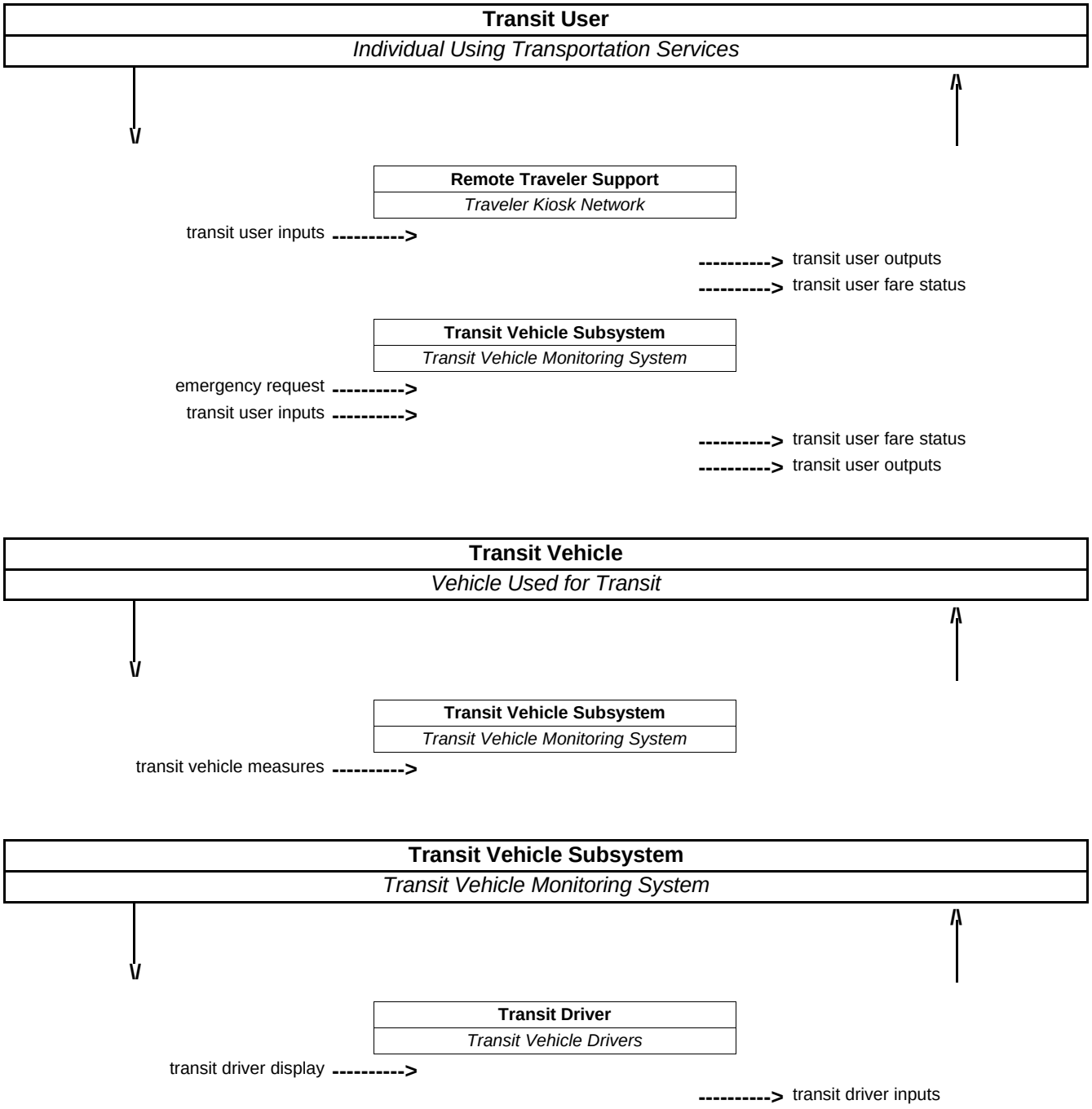
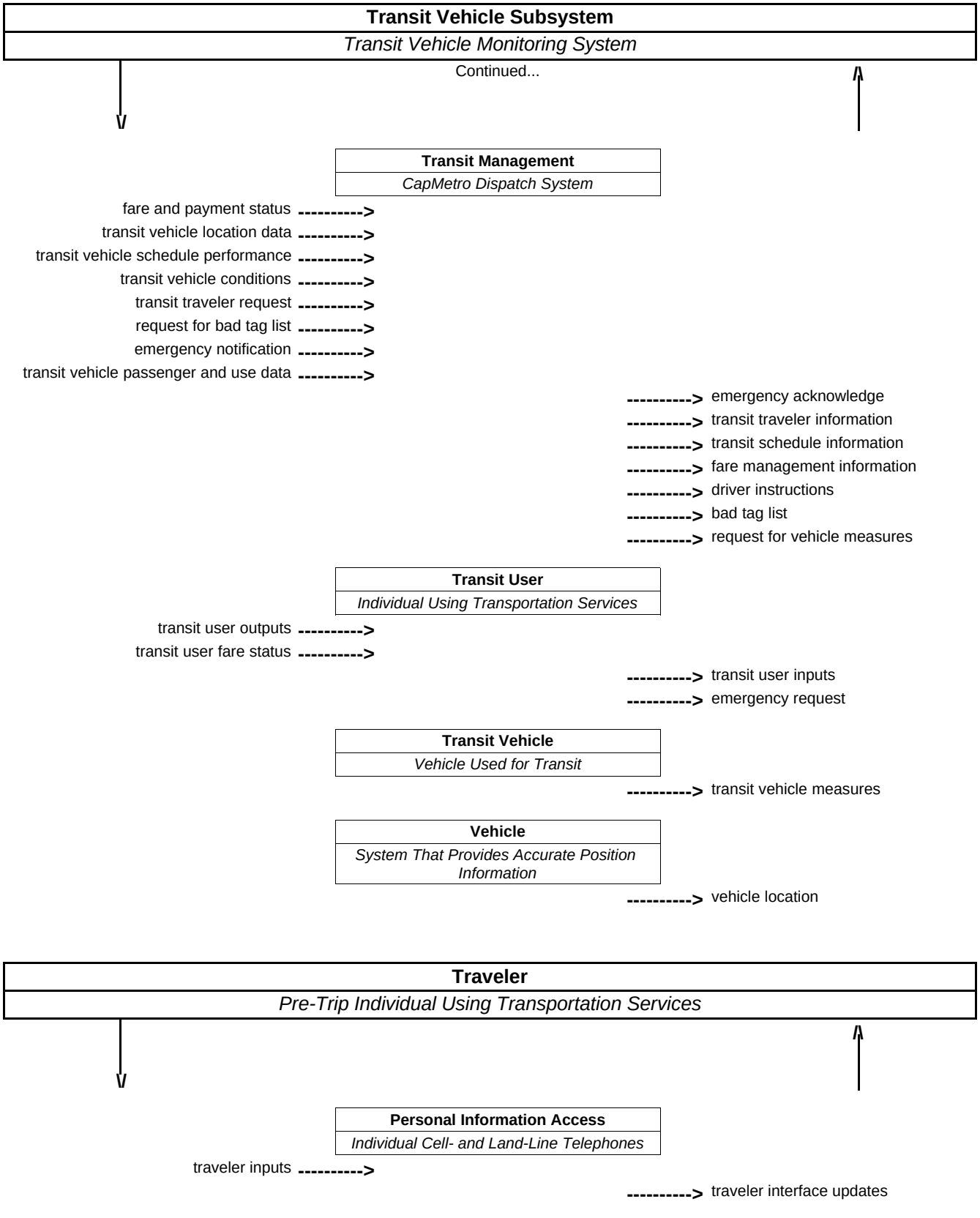
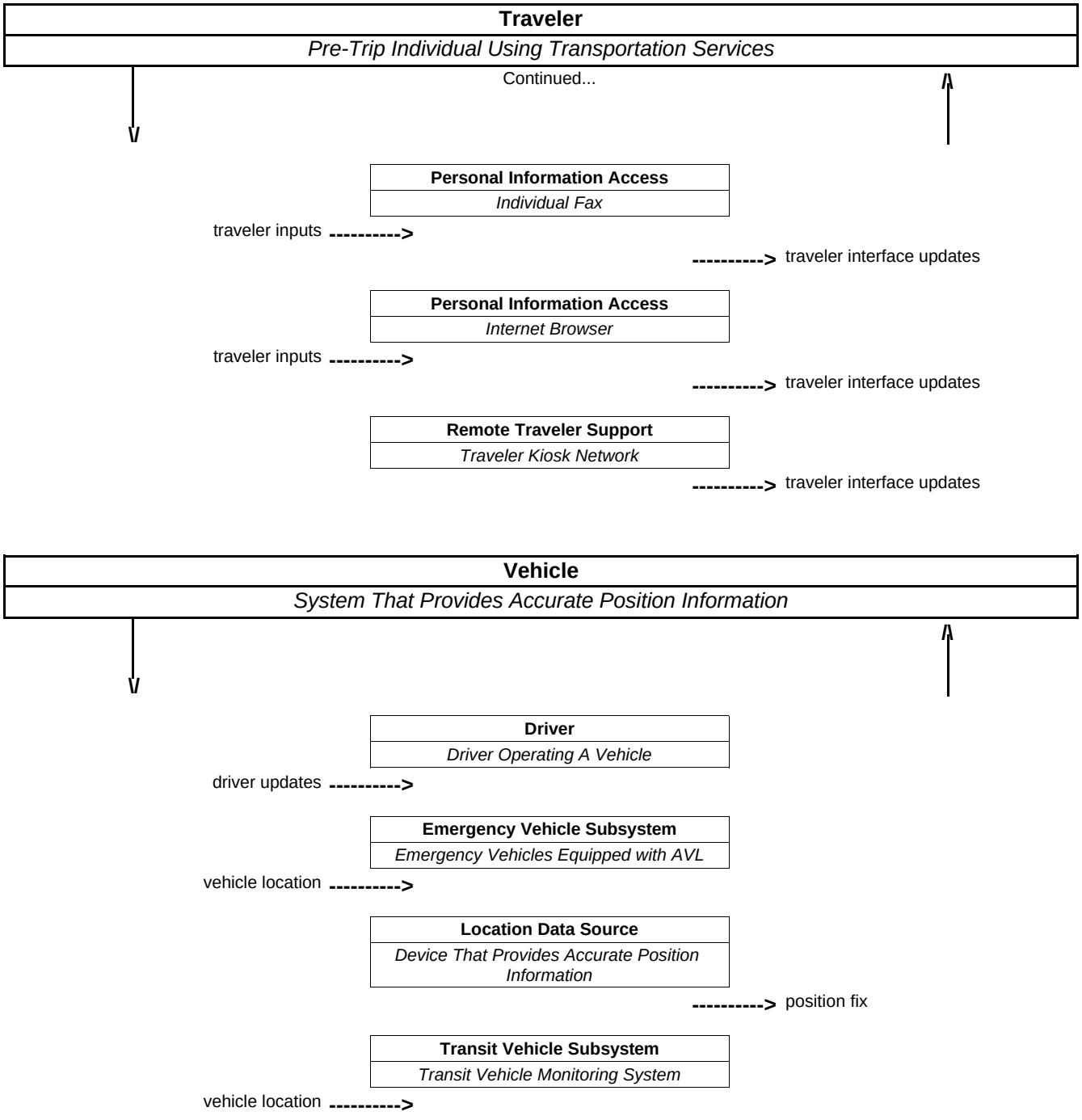
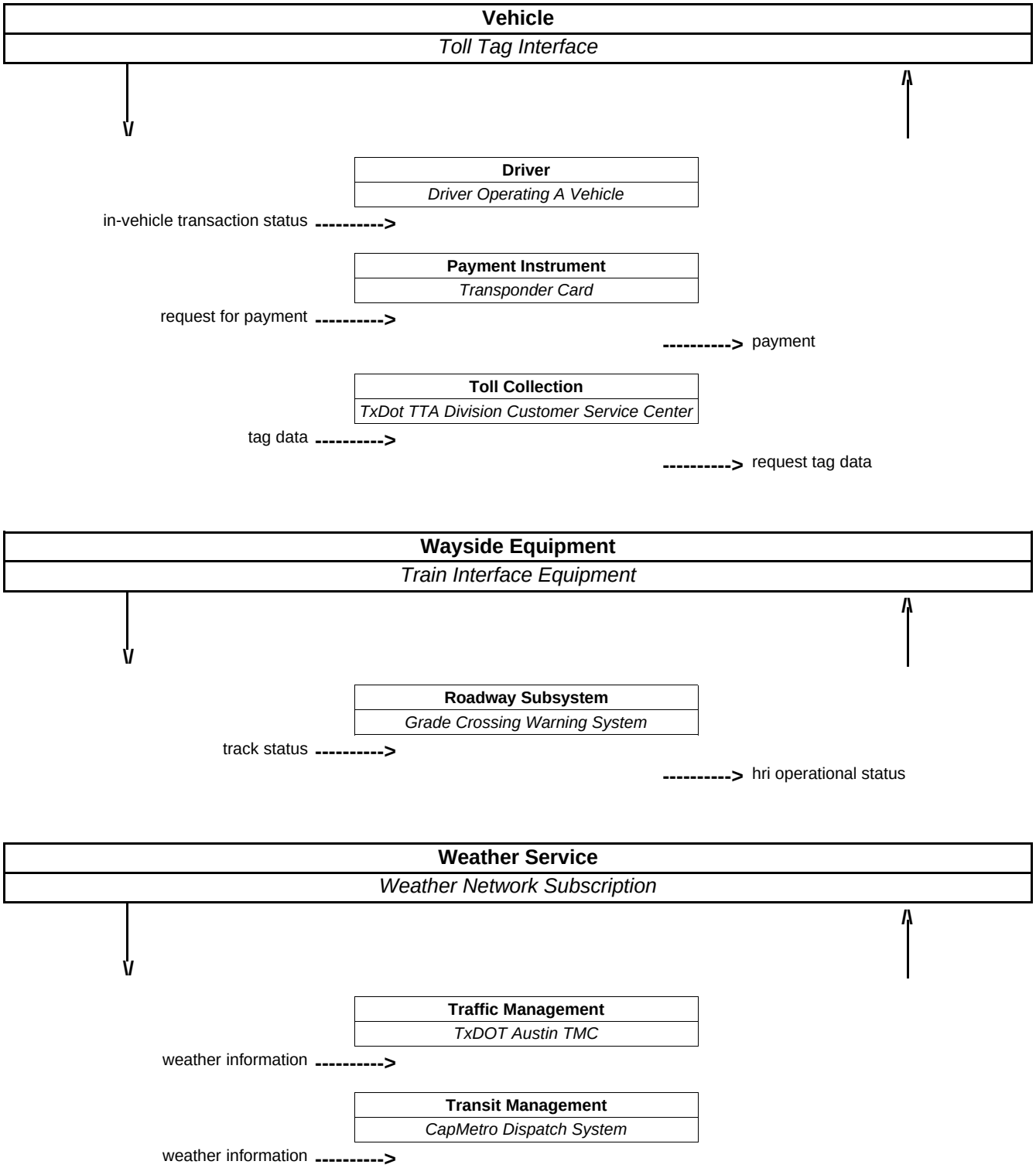
Transit System Operators
Transit Operators (Day-to-Day Activity Managers)
transit operator display
transit operator management data
Transit Vehicle Subsystem
Transit Vehicle Monitoring System
bad tag list
transit schedule information
request for vehicle measures
fare management information
emergency acknowledge
driver instructions
transit traveler information
request for bad tag list
transit vehicle schedule performance
transit vehicle passenger and use data
transit vehicle location data
transit traveler request
fare and payment status
emergency notification
transit vehicle conditions
Weather Service
Weather Network Subscription
weather information
Transit System Operators
Transit Operators (Day-to-Day Activity Managers)
Transit Management
CapMetro Dispatch System
transit operator management data
transit operator display


Transit User
Individual Using Transportation Services
Remote Traveler Support
Traveler Kiosk Network
transit user inputs
transit user outputs
transit user fare status
Transit Vehicle Subsystem
Transit Vehicle Monitoring System
emergency request
transit user inputs
transit user fare status
transit user outputs
Transit Vehicle
Vehicle Used for Transit
Transit Vehicle Subsystem
Transit Vehicle Monitoring System
transit vehicle measures
Transit Vehicle Subsystem
Transit Vehicle Monitoring System
Transit Driver
Transit Vehicle Drivers
transit driver display
transit driver inputs


Transit Vehicle Subsystem
Transit Vehicle Monitoring System
Continued...
Transit Management
CapMetro Dispatch System
fare and payment status
transit vehicle location data
transit vehicle schedule performance
transit vehicle conditions
transit traveler request
request for bad tag list
emergency notification
transit vehicle passenger and use data
emergency acknowledge
transit traveler information
transit schedule information
fare management information
driver instructions
bad tag list
request for vehicle measures
Transit User
Individual Using Transportation Services
transit user outputs
transit user fare status
transit user inputs
emergency request
Transit Vehicle
Vehicle Used for Transit
transit vehicle measures
Vehicle
System That Provides Accurate Position Information
vehicle location
Traveler
Pre-Trip Individual Using Transportation Services
Personal Information Access
Individual Cell- and Land-Line Telephones
traveler inputs
traveler interface updates


Traveler
Pre-Trip Individual Using Transportation Services
Continued...
Personal Information Access
Individual Fax
traveler inputs
traveler interface updates
Personal Information Access
Internet Browser
traveler inputs
traveler interface updates
Remote Traveler Support
Traveler Kiosk Network
traveler interface updates
Vehicle
System That Provides Accurate Position Information
Driver
Driver Operating A Vehicle
driver updates
Emergency Vehicle Subsystem
Emergency Vehicles Equipped with AVL
vehicle location
Location Data Source
Device That Provides Accurate Position Information
position fix
Transit Vehicle Subsystem
Transit Vehicle Monitoring System
vehicle location


Vehicle
Toll Tag Interface
Driver
Driver Operating A Vehicle
in-vehicle transaction status
Payment Instrument
Transponder Card
request for payment
payment
Toll Collection
TxDot TTA Division Customer Service Center
tag data
request tag data
Wayside Equipment
Train Interface Equipment
Roadway Subsystem
Grade Crossing Warning System
track status
hri operational status
Weather Service
Weather Network Subscription
Traffic Management
TxDOT Austin TMC
weather information
Transit Management
CapMetro Dispatch System
weather information

APPENDIX A
RELEVANT PROCESS SPECIFICATION DEFINITIONS

1.1.1.1 Process Traffic Sensor Data

Overview: This process shall be responsible for collecting surveillance obtained from the roadside, vehicles, pedestrians (travelers using other modes of transport), railroad grade and multimodal crossings. Where any of the data is provided in analog form, the process shall be responsible for converting it into digital form and calibrating. The converted data shall be sent to other processes for distribution, further analysis and storage.

Data Flows: All inputs are received as solicited inputs as a result of its regular scan of data input sources and all outputs are solicited.

Functional Requirements: This process shall :
(a) continuously monitor the solicited data input flows shown above;
(b) where necessary convert the data obtained in (a) from analog to digital form, and calibrate the data;
(c) periodically send all of the surveillance data to other processes in the Manage Traffic function via the solicited output data flows shown above;
(d) complete a full scan of all inputs and generate the outputs in less than the time interval between successive activations.

1.1.1.2 Collect and Process Sensor Fault Data

Overview: This process shall be responsible for collecting sensor status, identifying faults, and logging faults that have been detected by processes in other parts of the Manage Traffic function. It shall be possible for the faults to have been detected locally at the sensors, or centrally through communications links with the sensors. The process shall pass on new fault data to another processes for communication to the Construction and Maintenance terminator and shall receive fault clearances from the same terminator. It shall also maintain a store of the current fault state of all sensors. The process shall provide facilities that enable traffic operations personnel to review and update the current fault status of all sensors. Details of faulty and fixed equipment shall be passed by the process to the traffic control strategy selection process so that it can adjust its strategy to take account of the fault(s).

Data Flows: All input flows are unsolicited and all output flows are solicited.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the unsolicited input flows listed above;
(b) the process shall be responsible for the maintenance of the store of the sensor fault data, using the appropriate mechanism(s) such as RDBMS, for storing the data.

1.1.1.3 Process Environmental Sensor Data

Overview: This process shall be responsible for collecting data obtained from environmental sensors. Where any of the data is provided in analog form, the process shall be responsible for converting it into digital form and calibrating. The converted data shall be sent to other processes for distribution, further analysis and storage.

Data Flows: All inputs are unsolicited and all outputs are solicited.

Functional Requirements: This process shall :
(a) continuously monitor the solicited data input flows shown above;
(b) where necessary convert the data obtained in (a) from analog to digital form, and calibrate the data;
(c) periodically send all of the surveillance data to other processes in the Manage Traffic function via the solicited output data flows shown above;
(d) complete a full scan of all inputs and generate the outputs in less than the time interval between successive activations.

1.1.1.4 Manage Data Collection and Monitoring

Overview: This process shall collect and monitor sensor data from the roadside. The process shall collect the sensor data including sensor status and sensor faults from roadside equipment and distribute it to the Manage Archive Data function. The process shall run when a request for data is received from an external source.

Data Flows: All input data flows are unsolicited with the exception of roadside_archive_data and all output flows which are solicited.

Functional Requirements: This process shall:
(a) continuously monitor for receipt of the unsolicited input flows listed above;
(b) when any of the unsolicited inputs shown above are received, the process shall immediately generate the solicited output shown above;
(c) data shall only be sent to the source from which the data request originated.

1.1.2.1 Process Traffic Data for Storage

Overview: This process shall receive data from other processes and store the data into the long term and current data stores. The data shall comprise sensor data, both smoothed and unsmoothed: processed sensor surveillance data, data sent to control indicators (output devices e.g. intersection controllers, pedestrian controllers, dynamic message signs, ramp metering equipment), parking lot management data and other street equipment, the status data received from the indicators, plus current traffic conditions, planned events, current incidents, parking lot states, freeway ramp states, link travel times, roadway conditions provided by vehicle probes, and selected traffic control strategy. The data stored by the process in the current data store shall be the values collected over a relatively short period of time. The data stored in the long term data store shall be retained for a longer period. The data retained in the long term data store may be aggregated so as to reduce the storage requirements for long historical records, the amount of aggregation to be an implementation decision.

Data Flows: All input flows are unsolicited and all output flows are solicited.

Functional Requirements: This process shall :
(a) continuously monitor for receipt of the unsolicited input flows listed above;
(b) maintain the store of current data in such a way that it contains data obtained over a limited time window, so that it presents a rolling picture of the current status and traffic conditions in the network, which is continually updated in real time;
(c) maintain the store of long term data in such a way that it contains the data from the current data store (optionally aggregated) to provide a complete historical record of the state of the system over a longer time window;
(d) the process shall be responsible for the maintenance of both current and long term data stores.

1.1.2.2 Process Traffic Data

Overview: This process shall receive and process data from sensors (both traffic and environmental) at the roadway. The process distributes data to Provide Device Control processes that are responsible for freeway, highway rail intersections, parking lot, surface street and freeway management. It also sends the data to another Provide Traffic Surveillance process for loading into the stores of current and long term data. Information about the various sensors to aid in this processing and distribution of data is accessed from the data store static_data_for_sensor_processing.

Data Flows: All inputs are unsolicited except for static_data_for_sensor_processing which is received as a result of requests for data retrieval. All outputs are solicited.

Functional Requirements: This process shall :
(a) run whenever any of the unsolicited input data flows listed above are received;
(b) use the data store 'static_data_for_sensor_processing' to analyze sensor data and determine how to allocate the received data to the various solicited output flows shown in (a) through (g) above, and send them to the appropriate processes in the Provide Device Control facility;
(c)analyze the input data to detect congestion and to pass this through the solicited output flow 'unusual_data' to the Manage Incidents facility;
(d) read data from the static data store 'static_data_for_sensor_processing'.

1.1.2.3 Update Data Source Static Data

Overview: This process shall be responsible for the maintenance of the store of static data used in the processing of sensor data. This sensor data shall be used to provide traffic surveillance information for use by other processes within the Manage Traffic function. The store shall contain data showing the relationship between sensors and the surface street and freeway network, i.e. where they are located, to which part(s) of the network their data applies, the type of data, etc. It shall also hold information about the ownership of each link (that is, the agency or entity responsible for collecting and storing surveillance of the link) in the network which shall be used by processes involved in exchanging surveillance information (and optionally control) with other Traffic Management Subsystems (TMS's). The contents of the store shall be provided by the Plan System Deployment function.

Data Flows: All inputs are unsolicited and all outputs are solicited.

Functional Requirements: This process shall:
(a) continuously monitor for receipt of the unsolicited input flows listed above;
(b) on receipt of 'link_data_update' or 'new_sensor_static_data'the process shall update the store of static data using the 'static_data_for sensor_processing' flow.
(c) on receipt of 'request_sensor_static_data', the process shall send the contents of the 'static_data_for_sensor_processing' store on the 'existing_sensor_static_data' flow.

1.1.3 Generate Predictive Traffic Model

Overview: This process shall be responsible for continually producing and updating a predictive model of the traffic flow conditions in the road or freeway network served by the Manage Traffic function that an instance of this process is allocated to. The prediction shall be based on current surveillance, historic traffic data and surveillance, current incidents, planned events, current traffic control strategy, data received from other Traffic Management Subsystems (TMS's) serving other geographic and/or jurisdictional areas, and current and predicted weather conditions. The predictive model of traffic flow produced by this process shall be used by processes in the Manage Traffic function and other ITS functions.

Unsolicited Input Processing: This process shall receive the following unsolicited input data flows:
(a) 'current_incident_data';
(b) 'fws-predicted_weather';
(c) 'planned_events';
(d) 'selected_strategy'.

Solicited Input Processing: This process shall receive the following data flows as a result of requests for data retrieval from local data stores:
(a) 'historical_data';
(b) 'other_traffic_center_data'.

Solicited Output Processing: This process shall provide the following output flows as a result of the above inputs being received:
(a) 'prediction_data';
(b) 'predictive_model_data';
(c) 'unusual_congestion'.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the unsolicited input flows listed above storing the received data internally to the process;
(b) periodically or continuously produce an updated predictive estimate of the traffic flow conditions within the road network served by the specific instance of the Manage Traffic function, identifying any segments on which unusual congestion will form;
(c) the process shall be responsible for the maintenance of the store of predictive data.

1.1.4.1 Retrieve Traffic Data

Overview: This process shall on request retrieve traffic data from the data stores managed by other processes in the Provide Traffic Surveillance facility of the Manage Traffic function. It shall be possible for requests to originate from traffic operations personnel, the media operator, the Manage Demand facility within the Manage Traffic function, the Plan System Deployment function and the Provide Driver and Traveler Services function. With the exception of those from the Manage Demand facility and the Plan System Deployment function, all requests shall be provided by interface processes. The process shall also generate traffic data for output by other processes to in-vehicle signage functions.

Unsolicited Input Processing: This process shall receive the following unsolicited input data flows:
(a) 'request_traffic_operations_data';
(b) 'traffic_data_distribution_request';
(c) 'traffic_data_demand_request';
(d) 'request_traffic_media_data';
(e) 'traffic_data_for_deployment'.

Solicited Input Processing: This process shall receive the following data flows as a result of output being sent to other processes and requests for data retrieval:
(a) 'current_data';
(b) 'long_term_data';
(c) 'predictive_model_data'.

Solicited Output Processing: This process shall provide the following output flows as a result of the above inputs being received:
(a) 'retrieved_traffic_operations_data';
(b) 'traffic_data_for_demand';
(c) 'traffic_data_for_distribution';
(d) 'traffic_data_for_signage';
(e) 'traffic_data_for_transit';
(f) 'retrieved_traffic_media_data;'
(g) 'incident_video_for_emergency_services;'
(h) 'operator_log_for_traffic_data';
(i) 'traffic_data_deployment_request'.

Functional Requirements: This process shall:
(a) continuously monitor for receipt of the unsolicited data flows listed above;
(b) when any of the flows in (a) are received, retrieve data from the current, long term and predictive model data stores, using the solicited input data flows listed above;
(c) generate and issue the solicited output flow listed above that corresponds to the input flow, loading into it the data appropriate to the recipient;
(d) periodically or on an event driven basis generate the data flow sent to the traffic control process responsible for sending data to processes that broadcast to in-vehicle signage equipment;
(e) the process shall retrieve data from the stores of current, long term and predictive data as needed to support its other processing requirements.

1.1.4.2 Provide Traffic Operations Personnel Traffic Data Interface

Overview: This process shall provide the interface through which traffic operations personnel can obtain access to the data stored by other processes in the Provide Traffic Surveillance facility of the Manage Traffic function, and set up the parameters that govern the data that is available to non-traffic operations people via a separate process to the media operator. This stored data shall comprise current and long term (historic) data on traffic conditions, weather conditions and roadside equipment activity, plus prediction estimates of traffic conditions. The data shall apply to some or all of the surface street and freeway network served by the specific instance of the Manage Traffic function. Where appropriate and/or requested by the traffic operations personnel, the process shall provide the data output in the form of an overlay onto a map of the relevant part(s) of the surface street and freeway network served by the instance of the function. The process shall obtain the map from a local data store, which it shall enable the traffic operations personnel to update as and when required.

all outputs, is solicited.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor the input data flows and provide acknowledgment of receipt through a human interface of those from traffic operations personnel;
(b) be capable of carrying out its own verification of input data received from traffic operations personnel and generating the correct solicited output data flow as a result of input data being received;
(c) as part of the output generation process, carrying out checks for data out of range, missing or containing spurious values and requesting re-input where required;
(d) be capable of simultaneously handling multiple independent input/output data channels, i.e. supporting access by more than one traffic operations personnel;
(e) providing all output to traffic operations personnel in a form that is readily understood by a human operator;
(f) only generate the outputs listed above as a result of receiving inputs from the traffic operations personnel or other processes;

1.1.4.3 Provide Direct Media Traffic Data Interface

Overview: This process shall be responsible for providing the interface between the media and the process responsible for obtaining data from the stores of traffic data maintained by other processes within the Provide Traffic Surveillance facility of the Manage Traffic function. The process shall enable the media to request and be provided with current, long term (historic) and predicted traffic data. The data may be provided in one or more formats: as a data stream, as processed and displayed to Traffic Operations Personnel (e.g. graphical summaries of link speeds),or as a display (with data included on a map of relevant part(s) of the road and freeway served by the Manage Traffic function. The media shall only be able to request and see displayed that data that the traffic operations personnel have made available, through the use of the definition in the traffic data media parameters.

Unsolicited Input Processing: This process shall receive the following unsolicited input data flows:
(a) 'fm-traffic_data_request'.

Solicited Input Processing: This process shall receive the following data flows as a result of output being sent to other processes and requests for data retrieval from local data stores:
(a) 'map_data_for_traffic_display';
(b) 'retrieved_traffic_media_data'.

Solicited Output Processing: This process shall provide the following output flows as a result of the above inputs being received:
(a) 'request_traffic_media_data';
(b) 'tm-traffic_data'.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor the input data flows and provide acknowledgment of receipt of those from the media;
(b) be capable of accepting input from the media in audio or other forms, where the latter may comprise input from any combination of keyboards or other forms of push-button devices, pointing devices, etc.;
(c) be capable of carrying out its own verification of input data received from the media and generating the correct solicited output data flow as a result of input being received;
(d) as part of the output generation process, carrying out checks for data out of range, missing or spurious values and requesting re-input where necessary;
(e) be capable of simultaneously handling a large number of independent input/output data channels, i.e. supporting very many media, some of whom may be remote;
(f) providing all output to the media in a form that is readily understood by a human operator and which may be in audio or visual form, with the latter being available in a variety of formats, e.g. displays, or hardcopy (paper) output;
(g) only generate the outputs listed above as a result of receiving inputs from the media or the other processes;
(h) the use of the digitized map display shall be automatic and shall be at a resolution best suited to the quantity and scope of data being displayed, i.e. the map shall be to the largest possible scale.

1.1.4.4 Update Traffic Display Map Data

Overview: This process shall provide updates to a store of digitized map data when a request is received from traffic operations personnel via their interface process. The map data shall be for use as the background for displays of traffic data requested by traffic operations personnel and media operators through their respective interface processes. This process shall obtain the new map data from either a specialized data supplier or some other appropriate data source.

Unsolicited Input Processing: This process shall receive the following unsolicited input data flow:
(a) 'request_traffic_map_display_update'.

Solicited Input Processing: This process shall receive the following data flows as a result of output being sent to external functions:
(a) 'fmup-traffic_display_update'.

Solicited Output Processing: This process shall provide the following output flows as a result of the above inputs being received:
(a) 'tmup-request_traffic_display_update';
(b) 'map_data_for_traffic_display'.

Functional Requirements: This process shall:
(a) continuously monitor for the receipt of the unsolicited data flow shown above;
(b) when the data flow 'request_traffic_map_display_update' is received, generate the 'tmup-request_traffic_display_update' output data flow and continuously monitor for receipt of the solicited input data flow 'fmup-traffic_display_update';
(c) when the flow 'fmup-traffic_display_update' is received, prepare and output the 'map_data_for_traffic_display' data flow;

1.1.4.5 Provide Media System Traffic Data Interface

Overview: This process shall provide the interface through which traffic and incident data can be output to the Media. The output shall comprise traffic and incident data that is suitable for output to the Media System as determined by traffic managers. This interface is only for the output of data that has been requested by the Media.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the 'information_for_media' data flow;
(b) when received convert information_for_media into a form for output to the media.

1.1.4.6 Provide Traffic Data Retrieval Interface

Overview: This process shall provide customized sets of traffic data for broadcast, advisories, and personalized data to travelers, traveler information data archive, and the media. This process shall use the parameters in the data store 'traffic_data_retreival_parameters' to define exactly what data shall be retrieved as a result of each request. The process shall select the appropriate subset of traffic data which will be sent to each ITS function which is requesting data. The process shall accept traveler profiles for use in determining what personalized data to send to the traveler. The process shall send kiosk and personal traffic requests to the archival process.

Unsolicited Input Processing: This process shall receive the following unsolicited input data flows:
(a) 'incident_details_from_media';
(b) 'traffic_data_advisory_request';
(c) 'traffic_data_guidance_request';
(d) 'traffic_data_personal_request';
(e) 'traffic_data_kiosk_request';
(f) 'traffic_data_portables_request';
(g) 'traffic_data_ridesharing_request';
(h) 'traveler_traffic_profile';
(i) 'current_traffic_pollution_data'.

Solicited Input Processing: This process shall receive the following data flows as a result of output being sent to other processes and requests for data retrieval:
(a) 'traffic_data_retrieval parameters';
(b) 'traffic_data_for_distribution';
(c) 'sensor_data_for_distribution'.

Solicited Output Processing: This process shall provide the following output flows as a result of the above inputs being received:
(a) 'information_for_media';
(b) 'traffic_data_distribution_request';
(c) 'traffic_data_for_advisory_output';
(d) 'traffic_data_for_guidance'
(e) 'traffic_data_for_kiosks';
(f) 'traffic_data_for_portables';
(g) 'traffic_data_for_ridesharing';
(h) 'traffic_data_personal_request_for_archive';
(i) 'traffic_data_kiosk_request_for_archive';
(j) 'traffic_data_for_broadcast_to_kiosks';
(k) 'traffic_data_for_broadcast_to_personal_devices'.

Functional Requirements: This process shall:
(a) continuously monitor for receipt of any of the unsolicited input data flows listed above;
(b) when the flow received in (a) is a request for data, send the request to the data retrieval process and data archival process using the request solicited output data flow shown above;
(c) when the response to the request flow in (b) is received, assemble the data for output according to the data in the 'traffic_data_retrieval_parameters' data store;
(d) when (c) is complete, send the retrieved data to the requesting process in the corresponding solicited output flow shown above;
(e) if the data flow in (a) contains new data for the store of traffic data retrieval parameters, load it into the 'traffic_data_retreival_parameters' data store.

1.1.4.7 Manage Traffic Archive Data

Overview: This process shall collect traffic data and ahs operational data to distribute to the Manage Archive Data function. The process shall run when a request for data is received from an external source, or when fresh data is received.

Unsolicited Input Processing: This process shall receive the following unsolicited input data flows:
(a) 'archive_traffic_data_for_deployment';
(b) 'traffic_management_archive_request';
(c) 'ahs_operational_data';
(d) 'traffic_data_for_deployment';
(e) 'static_data_for_archive';
(f) 'ftop-archive_command';
(g) 'traffic_management_archive_status'.

Solicited Input Processing: This process shall receive the following data flows as a result of output being sent to other processes and requests for data retrieval:
(a) 'traffic_data_archive';
(b) 'traffic_management_archive_status'.

Solicited Output Processing: This process shall provide the following output flows as a result of the above inputs being received:
(a) 'traffic_management_archive_data';
(b) 'traffic_data_deployment_request';
(c) 'ttop-archive_status'.

1.1.5 Exchange data with Other Traffic Centers

Overview: This process shall exchange data with similar processes in other Traffic Management Subsystems (TMS's). The other TMS can be adjacent geographically, under control of a different jurisdiction, or part of a more complex hierarchy. The exchange of data shall be triggered by either a request from a remote TMS for data from the TMS to which the Manage Traffic function belongs, or because data needs to be sent from the local TMS to a remote TMS. This data shall include traffic control preemption for vehicle routes which
pass through the local network but have a destination in an area served by a remote TMS, or include data about an incident that has an impact on the traffic conditions in the network served by a remote TMS. The data received from remote TMS's shall be used either to vary the current traffic control strategy to give signal preemption to emergency vehicles or enable the passage of commercial vehicles with unusual loads, or as input to the local traffic predictive model estimation process.

Unsolicited Input Processing: This process shall receive the following unsolicited input data flows:
(a) 'cv_incidents_for_other_TMC';
(b) 'emergency_data_for_other_TMC';
(c) 'fotc-data_request';
(d) 'fotc-identity';
(e) 'fotc-transfer_data';
(f) 'request_other_TMC_data';
(g) 'request_other_current_incidents_data';
(h) 'request_other_predicted_incidents_data'.

Solicited Input Processing: This process shall receive the following data flows as a result of requests for data retrieval from local data stores:
(a) 'link_details';
(b) 'historical_data';
(c) 'current_data'.

Solicited Input Processing: This process shall receive the following data flows as a result of requests for data retrieval from the other TM terminator:
(a) 'fotc-identity';
(b) 'fotc-transfer_data'.

Solicited Output Processing: This process shall provide the following output flows as a result of the above inputs being received:
(a) 'other_current_incidents';
(b) 'other_planned_events';
(c) 'other_TMC_cv_incidents';
(d) 'other_TMC_emergency_data';
(e) 'other_TMC_strategy_data';
(f) 'other_traffic_center_data';
(g) 'request_local_current_incidents_data';
(h) 'request_local_planned_events_data';
(i) 'totc-data_request';
(j) 'totc-identity';
(k) 'totc-transfer_data'.

Functional Requirements: This process shall:
(a) continuously monitor for receipt of the unsolicited input flows listed above;
(b) when either 'cv_incidents_for_other_TMC' or 'emergency_data_for_other_TMC' unsolicited inputs are received, generate the 'totc-identity' and 'totc-transfer_data' solicited output data flows (and issue them to the other TM terminator);
(c) when the 'fotc-data_request' and 'fotc-identity' unsolicited input data flows are received, and if requested in those data flows, read the data from the long term data store that is relevant to the requesting TMS, and generate the 'totc-identity' and 'totc-transfer_data' solicited output data flows, (and issue them to the other TM terminator);
(d) when the 'fotc-identity' and 'fotc-transfer_data' unsolicited input data flows are received, generate those of the 'other_current_incidents', 'other_planned_events', 'other_TMC_cv_incidents'

or 'other_TMC_emergency_data' solicited output data flows for which data has been provided and send them to their receiving processes, or in the case of the 'other_TMC_emergency_data' flow load the data into the store containing other traffic center data;
(e) when any of the 'request_other_TMC_data', 'request_other_current_incidents_data' or 'request_other_planned_events_data' unsolicited input data flows is received, generate the 'totc-data_request' and 'totc-identity' solicited output data flows and send them to the other TM terminator;
(f) the process shall be responsible for the maintenance of the store of data from other TMC's for use by the predictive modeling process.

1.2.1 Select Strategy

Overview: This process shall select the appropriate traffic control strategy to be implemented over a road and/or freeway section served by the specific instance of the Manage Traffic function. The strategy shall be selected by the process from a number that are available, e.g. adaptive control, fixed time control, local operations. The selected strategy shall be passed by the process to the actual control processes for implementation according to the part of the network to which it is to be applied, i.e. surface roads, freeways (i.e. limited access roads), ramps and/or parking lots. The definition of strategy can be extended to include a strategy for the operations of sensors such as video cameras used to provide traffic surveillance data. The process shall make it possible for the current strategy selection to be modified to accommodate the effects of such things as incidents, emergency vehicle preemption, the passage of commercial vehicles with unusual loads, equipment faults and overrides from the traffic operations personnel. The strategy for control of freeways and parking lots is through use of DMS signs and lane indicators. The strategy for control of ramps is through the timing plans for ramp meters. The selected strategy shall be sent to the process within the Provide Traffic Surveillance facility responsible for maintaining the store of long term data.

Unsolicited Input Processing: This process shall receive the following unsolicited input data flows:
(a) 'current_road_network_use';
(b) 'cv_incident_override';
(c) 'demand_overrides';
(d) 'emergency_traffic_control_request';
(e) 'ftop-strategy_override';
(f) 'ftop-video_camera_strategy_change';
(g) 'incident_strategy_override';
(h) 'indicator_fault_state';
(i) 'indicator_input_state_for_highways';
(j) 'indicator_input_state_for_roads';
(k) 'special_vehicle_priority_routing';
(l) 'other_TMC_cv_incidents';
(m) 'other_TMC_emergency_data';
(n) 'other_TMC_strategy_data'.

Solicited Input Processing: This process shall receive the following data flows as a result of requests for data retrieval from local data stores:
(a) 'static_data_for_strategy'.

Unsolicited Output Processing: This process shall provide the following output flows regardless of any inputs that are received:
(a) 'request_other_TMC_data';
(b) 'video_camera_control_strategy'.

Solicited Output Processing: This process shall provide the following output flows as a result of the above inputs being received:
(a) 'cv_incidents_for_other_TMC';
(b) 'emergency_data_for_other_TMC';
(c) 'selected_parking_lot_control_strategy';
(d) 'selected_ramp_control_strategy';
(e) 'selected_highway_control_strategy';
(f) 'selected_road_control_strategy';
(g) 'selected_strategy';
(h) 'emergency_traffic_control_response'.

Functional Requirements: This process shall:
(a) continuously monitor for receipt of the unsolicited input flows listed above;
(b) determine the traffic control strategy that provides the best possible traffic conditions within the road network served by the Manage Traffic function. The definition of 'best' shall be a local policy decision. (An example might be a strategy that minimizes stops and delays thus reducing 'stop-start' travel and fuel consumption and the environmental impact of travel.);
(c) in determining the strategy, the process shall be able to use data provided as input from

other parts of the Manage Traffic function, unless countermanded by input from the traffic operations personnel, or the default strategy in the store of static data, as well as the fault state of all indicator equipment;
(d) if no input is available from other parts of the Manage Traffic function, then the strategy defined in the store of static data shall be used;
(e) if in (d) no strategy is specified, the process shall allow all controlled equipment to operate under local control, setting all variable message sign (dms) outputs to 'blank face' indicating that there is no message;
(f) where the inputs from other parts of the Manage Traffic function lead to conflicts in the required strategy to be selected, the process shall observe a locally determined order of priority. For example, the following order of priority might be followed: emergency vehicle route, incident strategy override, multimodal crossing inputs, operator strategy override, demand strategy override, low traffic volume route, commercial vehicle route, analysis of the road network use and background strategy selection from the store of static data;
(g) data for emergency and commercial vehicle routes sent from other Traffic Management Subsystems (TMS's) shall be given the same level of importance as those that originate locally (unless locally overridden);
(h) the process shall automatically cancel strategies selected by traffic operations personnel at a locally determined time and/or period after they were imposed, if they have not been canceled previously, to avoid unintended effects on the traffic control strategies for other days;
(i) when a new strategy has been determined, it shall be sent to other processes in the Manage Traffic function for implementation;
(j) the output in (i) shall only be sent to those processes that serve equipment specified in the new strategy;
(k) changes in the current strategy must always be immediately sent to another part of the Manage Traffic function for loading into the long term data store.

1.2.2.1 Determine Indicator State for Freeway Management

Overview: This process shall implement selected traffic control strategies and transit vehicle overall priority on some or all of the indicators covering the freeway network served by the Manage Traffic function. It shall implement the strategies only using the indicators (e.g. dynamic message signs (DMS)) specified in the implementation request and shall coordinate its actions with those of the process that controls the road network. The process shall also be capable of monitoring the extra inputs that will arise where tunnels are involved, including the detection of fire and the consequent requirement to re-route traffic.

Data Flows: All input data flows are unsolicited and all output data flows are solicited with the exception of the following:
(a)'static_data_for_highways', which is data accessed from a local data store.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the unsolicited input flows listed above;
(b) immediately implement any strategy requests only using the indicators specified in the request;
(c) it shall be possible for the strategy request to require implementation on one, some or all the indicators that are available (and not faulty) in the freeway network served by the Manage Traffic function;
(d) strategy implementation must make use of the freeway sign sequences to ensure that signs are set in a manner that is safe for all freeway users;
(e) requests for high occupancy vehicle (hov) and transit priority shall be executed immediately but not take precedence over emergency vehicle routes;
(f) special consideration must be given to conditions in tunnels and in particular to the need to automatically implement alternative traffic management strategies to route traffic away from fires or similar extreme hazards that may be detected;
(g) the process shall use the strategy data input to monitor the effects of the currently selected strategies and make small adjustments which will further improve the efficiency of the current traffic flow;
(h) transit priority shall be implemented on the indicators covering the requested route(s) and its confirmation of its implementation shall be sent back to the requesting process in the Manage Transit function;
(i) the process shall implement any changes in control in a safe manner that does not in any way endanger vehicles and/or their drivers, pedestrians or operators of non-motorized vehicles;
(j) send each change in strategy to another process in the Manage Traffic function for loading into the store of long term data;
(k) send the required indicator state to another process in the Manage Traffic function for output to the roadside equipment that drives the indicators.

1.2.2.2 Determine Indicator State for Road Management

Overview: This process shall implement selected traffic control strategies and transit priority on some or all of the indicators covering the road (surface street) network served by the Manage Traffic function. It shall implement the strategies only using the indicators (intersection and pedestrian controllers, variable message signs (dms), etc.) that are specified in the implementation request and shall coordinate its actions with those of the processes that control the freeway network and the ramps that give access to the freeway network.

Data Flows: All input data flows are unsolicited and all output data flows are solicited with the exception of the following:
(a)'static_data_for_roads', which is data received from a local data store.

Functional Requirements: This process shall:
(a) continuously monitor for receipt of the unsolicited input flows listed above;
(b) immediately implement any strategy requests only using the indicators specified in the request;
(c) control all indicators that are intersection and pedestrian controllers using a methodology which responds to vehicles and pedestrians in a locally determined manner;
(d) where vehicle and pedestrian responsive control cannot be implemented, or is not specified in the strategy request, the following traffic control methodologies shall be available to the process for implementation within some or all of the controlled network: fixed time control sequences (usually referred to as fixed time plans), the automatic selection of the most appropriate fixed time plan on the basis of current real time traffic data, the selection of special fixed time plans to cover such things as bridges opening when requested by the specific data input and the ability of one or more device(s) to operate under its own (local) control;
(e) the process must be capable of implementing the required control strategy on one, some or all the indicators that are available (and not faulty) in the road network;
(f) traffic control preemption shall be capable of being implemented for emergency or special priority vehicles.
(g) requests for high occupancy vehicle (hov) and transit priority shall be executed immediately but not take precedence over emergency vehicle routes;
(h) the process shall use the strategy data input to monitor the effects of the currently selected strategies and make any small adjustments which will further improve the efficiency of the traffic flow;
(i) transit priority shall be implemented on the indicators covering the requested route(s) and confirmation of its implementation shall be sent back to the requesting process in the Manage Transit function;
(j) the process shall implement any changes in control in a safe manner that does not in any way endanger vehicles and/or their drivers, pedestrians or operators of non-motorized vehicles;
(k) send each change in strategy to another process in the Manage Traffic function for loading into the store of long term data;
(l) send the required indicator state to another process in the Manage Traffic function for output to the roadside equipment that drives the indicators.

1.2.3 Determine Ramp State

Overview: This process shall implement the selected control strategies on some or all of the freeway entry ramps in the freeway network served by the Manage Traffic function. It shall implement the strategies only using the ramps that are specified in the implementation request and shall coordinate its actions with those of the process that controls the road network. The process shall base its ramp metering decisions on the data from sensors and ramp meters monitoring traffic conditions upstream and downstream of the ramps. Data from sensors on the ramp used to detect flow past the meter, extent of queues on the ramp, and the presence of vehicles will also be used as the basis for the ramp metering decisions. The decision making process shall use an algorithm to determine the ramp's state based on the ramp control strategy and the sensor input data received. The process shall coordinate its activities with the process responsible for controlling the road(surface street) network.

Unsolicited Input Processing: This process shall receive the following unsolicited input data flows:
(a)'coordination_data_roads_to_ramps';
(b)'ramp_data';
(c)'selected_ramp_control_strategy';
(d)'transit_ramp_overall_priority';
(e)'transit_ramp_preemptions'.

Solicited Input Processing: This process shall receive the following data flows as a result of requests for data retrieval from local data stores:
(a)'static_data_for_ramps'.

Solicited Output Processing: This process shall provide the following output flows as a result of the above inputs being received:
(a)'coordination_data_ramps_to_roads';
(b)'current_ramp_state';
(c)'ramp_signal_state';
(d)'transit_ramp_priority_given'.

Functional Requirements: This process shall:
(a) continuously monitor for receipt of the unsolicited input flows listed above;
(b) in its control of the ramp metering equipment, the process shall use an algorithm which enables traffic to be admitted to a freeway only if it can be absorbed into the existing flow without causing serious disruption, i.e. the existing flow is not at a level which produces the most efficient traffic flow;
(c) the inputs to the algorithm in (b) shall be obtained by processing traffic flow data received from sensors which monitor freeway conditions both upstream and downstream of the ramp;
(d) the process shall be able to override the requirements in (b) and open the ramp if coordination data received from the process controlling the roads (surface streets) indicates that closing it will have a greater negative impact on the road (surface street) network that is upstream of the ramp;
(e) be able to give priority to high occupancy vehicles (hov) and transit vehicles, particularly when priority requests are received for the latter;
(f)allow transit priority to be implemented on the indicators covering the requested route(s) and confirmation of its implementation shall be sent back to the requesting process in the Manage Transit function;
(g) be capable of implementing the required control strategy on one, some or all the ramps that are available (and not faulty) in the freeway network served by the function;
(h) send each change in strategy to another process in the Manage Traffic function for loading into the store of long term data;
(i) output coordination data to the process controlling the roads (surface streets).

1.2.4.1 Output Control Data for Roads

Overview: This process shall transfer data to processes responsible for controlling equipment located at the roadside within the road (surface street) network served by the Manage Traffic function. This data shall contain outputs for use by roadside indicators, such as intersection and pedestrian controllers, dynamic message signs (DMS), highway advisory radio (HAR), etc. Data for use by in-vehicle signage equipment shall be sent to another process for output to roadside processes. All data shall be sent to this process by processes within the Manage Traffic function. This process shall also be responsible for the monitoring of input data showing the way in which the indicators are responding to the data that they are being sent, and the reporting of any errors in their responses as faults to the Collect and Process Indicator Fault Data facility within the Manage Traffic function. All output and input data shall be sent by the process to another process in the Manage Traffic function to be loaded into the store of long term data.

Data Flows: All input data flows are unsolicited with the exception of static_data_for_control which is solicited along with all output data flows.

Functional Requirements: This process shall:
(a) continuously monitor for receipt of the unsolicited input flows listed above;
(b) when any change occurs to the input data, change the appropriate indicator output data;
(c) as a result of (b), update the vehicle signage data, adding the location and identity of the route segments from which the indicator data can be seen from the static data for dms allocation;
(d) maintain communication with all indicators so that they will continue to obey the data contained in the data that is being sent to them;
(e) immediately report all indicators that fail to respond to the commands in the data that they have been sent to the processes responsible for fault management.

1.2.4.2 Output Control Data for Freeways

Overview: This process shall transfer data to processes responsible for controlling equipment located at the roadside within the freeway network served by the Manage Traffic function. This data shall contain outputs for use by roadside indicators, such as dynamic message signs (DMS), etc. Data for use by in-vehicle signage equipment shall be sent to another process for output to roadside processes. All data shall have been sent to this process by processes within the Manage Traffic function. This process shall also be responsible for the monitoring of input data showing the way in which the indicators are responding to the data that they are being sent, and the reporting of any errors in their responses as faults to the Collect and Process Indicator Fault Data facility within the Manage Traffic function. All output and input data shall be sent by the process to another process in the Manage Traffic function to be loaded into the store of long term data.

Unsolicited Input Processing: This process shall receive the following unsolicited input data flows:
(a) 'indicator_input_data';
(b) 'indicator_highway_requested_state';
(c) 'indicator_road_requested_state';
(d) 'ramp_signal_state';
(e) 'vehicle_pollution_message';
(f) 'dms_parking_guidance';
(g) 'dms_updates'
(h) 'har_status_for_highways'.

Solicited Input Processing: This process shall receive the following data flows as a result of requests for data retrieval from local data stores:
(a) 'static_data_for_control'.

Solicited Output Processing: This process shall provide the following output flows as a result of the above inputs being received:
(a) 'indicator_control_data';
(b) 'indicator_control_monitoring_data';
(c) 'indicator_control_storage_data';
(d) 'indicator_data_fault';
(e) 'indicator_input_state';
(f) 'indicator_input_storage_data';
(g) 'vehicle_sign_data'.

Functional Requirements: This process shall:
(a) continuously monitor for receipt of the unsolicited input flows listed above;
(b) when any change occurs to the input data, change the appropriate indicator output data;
(c) as a result of (b), update the vehicle signage data, adding the location and identity of the route segments from which the indicator data can be seen from the static data for dms allocation;
(d) maintain communication with all indicators so that they will continue to obey the data contained in the data that is being sent to them;
(e) immediately report all indicators that fail to respond to the commands in the data that they have been sent to the processes responsible for fault management.

1.2.6.1 Maintain Traffic and Sensor Static Data

Overview: This process shall maintain the store of static and link data used by other processes within the Manage Traffic function. Link data shall also be sent to the Provide Driver and Traveler Services function to enable it to obtain data about links that are not in the geographic area which it serves.

Data Flows: All input flows are unsolicited with the exception of 'static_data_for_traffic_control_copy' which is solicited. All output flows are solicited.

Functional Requirements: This process shall:
(a) continuously monitor for receipt of the unsolicited input flows listed above;
(b) communicate with other processes in the Manage Traffic function to obtain their current static data and to provide updates to that data;
(c) when new static data is received and it has been successfully loaded into the store, output the static_data_store_updated data flow so that other processes can receive new copies of the data.

1.2.6.2 Provide Static Data Store Output Interface

Overview: This process shall provide updates of static data to other processes in the Provide Traffic Control facility of the Manage Traffic function. An update of the data shall only be provided when this process has been notified by another process that the contents of the store of static data has been changed. This process shall provide updates to the map update provider about changes to the static data of a particular region.

Unsolicited Input Processing: This process shall receive the following input unsolicited data flows:
(a) 'static_data_store_updated'.

Solicited Output Processing: This process shall provide the following output flows as a result of the above inputs being received:
(a) 'static_data_for_highways';
(b) 'static_data_for_highway_control';
(c) 'static_data_for_road_control';
(d) 'static_data_for_parking_lots';
(e) 'static_data_for_ramps';
(f) 'static_data_for_roads';
(g) 'static_data_for_strategy';
(h) 'static_data_for_vehicle_signage';
(i) 'tmup-map_static_data';
(j) 'static_data_for_archive'.

Functional Requirements: This process shall:
(a) continuously monitor for receipt of the unsolicited input flow 'static_data_store_updated';
(b) when the flow in (a) has been received, read the data from the store of static data and send the solicited output flows listed above;

1.2.7.1 Process Indicator Output Data for Roads

Overview: This process shall implement the indicator output data generated by other processes within the Manage Traffic function for use on the roads (surface streets) served by the function. It shall perform the functions needed to provide control at intersections or pedestrian crossings, generate the output for dynamic message signs (dms) and highway advisory radios (HAR), or provide the interface for data to be sent to the units (or systems) that manage multimodal crossings. 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).

Data Flows: All input data flows are unsolicited inputs and all output data flows are solicited outputs.

Functional Requirements: This process shall:
(a) continuously monitor for receipt of the unsolicited input flows listed above;
(b) provide output data in a form, which is easily understood by drivers and/or travelers, appears in a safe sequence, is unambiguous and does not provide conflicting instructions to drivers and travelers that are likely to result in circumstances which are life threatening;
(c) all output must be maintained for a time period which is sufficient to enable them to be read, understood and reacted to, but not so long that they cause any new indication to be ignored;
(d) if no input of control data is received for a continuous period of time to be locally determined, the process shall start to change its outputs based on local sensor data, and shall clear (blank) the outputs containing advisory message texts;
(e) the outputs to the multimodal crossings shall be maintained for as long as the appropriate control signal is received from other processes, and if no such signals are being received shall be set to null, i.e. the multimodal crossing equipment is not expected to take any action.

1.2.7.2 Monitor Roadside Equipment Operation for Faults

Overview: This process shall monitor the operation of the processes that output in-vehicle signage, highway advisory radio, as well as indicator data in the road (surface street) and freeway network. It shall report any instances where the indicator response does not match that expected from the contents of the indicator control data it is receiving, the in-vehicle signage process reports a fault, or the HAR processes report a fault.

Unsolicited Input Processing: This process shall receive the following input unsolicited data flows:
(a) 'indicator_control_monitoring_data_for_highways';
(b) 'indicator_control_monitoring_data_for_roads';
(c) 'indicator_monitoring_suspend';
(d) 'indicator_response_data';
(e) 'vehicle_sign_data_output_fault';
(f) 'vehicle_smart_probe_data_output_fault'
(g) 'har_fault_data_for_roads'
(h) 'har_fault_data_for_highways'.

Solicited Output Processing: This process shall provide the following output flows as a result of the above inputs being received:
(a) 'traffic_control_device_status'
(b) information_device_fault_status'.

Functional Requirements: This process shall:
(a) continuously monitor for receipt of the unsolicited input flows listed above;
(b) output the 'traffic_control_device_status' data flow if the indicator response data does not match the control monitoring data for a locally determined period of time, and a locally determined period of time has elapsed since the control monitoring data last changed;
(c) report all in-vehicle signage and probe data processing faults as soon as they are detected.

1.2.7.3 Manage Indicator Preemptions

Overview: This process shall receive indicator (e.g. signal) preemption and priority requests from other functions within ITS. These requests shall enable the process to give selected vehicles (e.g. those that belong to Transit Authorities or Emergency Services) signal preemption or priority at intersections, pedestrian crossings and multimodal crossings in the surface street and freeway network served by the instance of the Manage Traffic function. Sending of the priority request output shall also generate an output to the monitoring process to suspend its activities while the priority request is being served. This process shall only generate its data flow outputs when input data is received.

Unsolicited Input Processing: This process shall receive the following input unsolicited data flows:
(a) 'emergency_vehicle_preemptions';
(b) 'transit_vehicle_roadway_preemptions'.

Solicited Output Processing: This process shall provide the following output flows as a result of the above inputs being received:
(a) 'indicator_monitoring_suspend';
(b) 'indicator_preemption_override_for_highways';
(c) 'indicator_preemption_override_for_roads'.

Functional Requirements: This process shall:
(a) continuously monitor for receipt of the unsolicited input flows listed above;
(b) maintain both output flows for as long as any of the input flows are present;
(c) remove the output flows when the input flows cease to exist.

1.2.7.5 Process Indicator Output Data for Freeways

Overview: This process shall implement the indicator output data generated by other processes within the Manage Traffic function for use on freeways served by the function. It shall perform the functions needed to output control data to ramp metering controllers and multimodal crossings, generate the output for dynamic message signs (dms), or generate the output for highway advisory radios(HAR). The dms may be either those that display variable text messages, or those that have fixed format display(s), for such things as vehicle restrictions, or lane open/close.

Unsolicited Input Processing: This process shall receive the following unsolicited input data flows:
(a) 'indicator_control_data_for_highways';
(b) 'indicator_preemption_override_for_highways';
(c) 'local_sensor_data_for_highways';
(d) 'har_data_for_highways';
(e) 'fmmc-crossing_status_for_highways'.

Solicited Output Processing: This process shall provide the following output flows as a result of the above inputs being received:
(a) 'indicator_input_data_from_highways';
(b) 'indicator_response_data_for_highways';
(c) 'td-lane_use_indication_for_highways';
(d) 'td-ramp_state_indication';
(e) 'td-dms_indication_for_highways';
(f) 'tmmc-crossing_clear_at_highways';
(g) 'tmmc-stop_alternate_mode_at_highways';
(h) 'tbv-har_broadcast_for_highways'.

Functional Requirements: This process shall:
(a) continuously monitor for receipt of the unsolicited input flows listed above;
(b) provide output data in a form which is easily understood by drivers and/or travelers, appears in a safe sequence, is unambiguous and does not provide conflicting instructions to drivers and travelers that are likely to result in circumstances which are life threatening;
(c) all output must be maintained for a time period which is sufficient to enable them to be read, understood and reacted to, but not so long that they cause any new indication to be ignored;
(d) if no input of fresh control data is received for a locally determined continuous period of time, the process shall start to change its outputs based on local sensor data, and shall clear (blank) the outputs containing advisory message texts.

1.2.8.1 Collect Indicator Fault Data

Overview: This process shall collect data about faults in the operation of indicators (e.g. signals, dms, har) that have been detected by processes in other parts of the Manage Traffic function. It shall be possible for the faults to be detected locally at the indicators, or centrally through communications links with the indicators.

Unsolicited Input Processing: This process shall receive the following input unsolicited data flows:
(a) 'indicator_data_fault_for_highways';
(b) 'indicator_data_fault_for_roads';
(c) 'traffic_control_device_status'.

Solicited Output Processing: This process shall provide the following output flows as a result of the above inputs being received:
(a) 'indicator_new_fault_update'.

Functional Requirements: This process shall:
(a) continuously monitor for receipt of the unsolicited input flows listed above;
(b) when any of the data flows in (a) are received, pass the data on to another process for storage and the activation of fault reporting processes.

1.2.8.2 Maintain Indicator Fault Data Store

Overview: This process shall collect data about indicator faults that have been detected by processes in other parts of the Manage Traffic function. It shall be possible for the faults to have been detected locally at the indicators, or centrally through communications links with the indicators. The process shall pass on new fault data to another process for communication to the Construction and Maintenance terminator and shall receive fault clearances from the same process communicating with that terminator. It shall also maintain a store of the current fault state of all indicators. The process shall provide facilities that enable traffic operations personnel to review and update the current fault status of all indicators. Details of faulty and fixed equipment shall be passed by the process to the traffic control strategy selection process so that it can adjust its strategy to take account of the current fault(s).

Unsolicited Input Processing: This process shall receive the following unsolicited input data flows:
(a) 'indicator_current_fault_update';
(b) 'indicator_new_fault_update';
(c) 'indicator_fault_clearance_update';
(d) 'indicator_new_fault_data'.

Solicited Output Processing: This process shall provide the following output flows as a result of the above inputs being received:
(a) 'indicator_current_fault_data';
(b) 'indicator_current_faults_list';
(c) 'indicator_fault_state';
(d) 'indicator_new_fault'.

Functional Requirements: This process shall:
(a) continuously monitor for receipt of the unsolicited input flows listed above;
(b) the process shall be responsible for the maintenance of the store of the current indicator fault state data, modifying the store as necessary based on the unsolicited input data flows;
(c) If the indicator_current_faults_list data store changes, update and issue the solicited output flows.

1.2.8.3 Provide Indicator Fault Interface for C and M

Overview: This process shall provide an interface for the exchange of data with the Construction and Maintenance terminator. The interface shall be used to both send data containing details of new indicator equipment faults, and to receive clearances when the faults are cleared. The details of new equipment faults and the clearances shall be received from and sent to another process.

Unsolicited Input Processing: This process shall receive the following input unsolicited data flows:
(a) 'indicator_new_fault'.

Solicited Input Processing: This process shall receive the following data flows as a result of output being sent to the construction and maintenance terminator:
(a) 'fcm-fault_clearance'.

Solicited Output Processing: This process shall provide the following output flows as a result of the above inputs being received:
(a) 'indicator_fault_clearance_update';
(b) 'tcm-fault_data'.

Functional Requirements: This process shall:
(a) continuously monitor for receipt of the unsolicited input flows listed above;
(b) on receipt of 'indicator_new_fault', forward the fault in the data flow 'tcm-fault_data' to the appropriate instance of the Construction and Maintenance terminator.
(c) on receipt of the 'fcm-fault_clearance' data flow from the Construction and Maintenance terminator, issue the data flow 'indicator_fault_clearance_update'.

1.2.8.4 Provide Traffic Operations Personnel Indicator Fault Interface

Overview: This process shall provide the interface through which traffic operations personnel access data about faults on indicator equipment controlled by the Manage Traffic function. The process shall enable the personnel to monitor all indicator equipment faults that have been detected, and if necessary, amend that data. It shall also enable the traffic operations personnel to manually input faults in cases where they cannot otherwise be detected.

Unsolicited Input Processing: This process shall receive the following unsolicited input data flows:
(a) 'ftop-indicator_faut_data_input';
(b) 'ftop-indicator_fault_data_request';
(c) 'ftop-indicator_fault_data_update'.

Solicited Input Processing: This process shall receive the following data flows as a result of output being sent to other processes and requests for data retrieval:
(a) 'indicator_current_fault_data'.

Solicited Output Processing: This process shall provide the following output flows as a result of the above inputs being received:
(a) 'indicator_current_fault_update';
(b) 'indicator_new_fault_data';
(c) 'ttop-current_indicator_faults'.

Functional Requirements: This process shall:
(a) continuously monitor for receipt of the unsolicited input flows listed above;
(b) be capable of accepting input from Traffic Operations Personnel;
(c) be capable of carrying out its own verification of input data received from Traffic Operations Personnel and generating the correct solicited output data flow as a result of input data being received;
(d) as part of the output generation process, carrying out checks for data out of range, missing or spurious values and requesting re-input where required;
(e) providing all output to Traffic Operations Personnel in a form that is readily understood by a human operator.

1.3.1.1 Analyze Traffic Data for Incidents

Overview: This process shall analyze traffic sensor data, vehicle probe data, or video images for anomalies that could indicate occurrence of an incident. The data may be collected from roads(surface street) and/or highways served by the Manage Traffic function. The process shall pass on any anomalies that it detects to another process in the Manage Incidents facility as possible detected incidents.

Unsolicited Input Processing: This process shall receive the following input unsolicited data flows:
(a) 'incident_analysis_data';
(b) 'current_road_network_use';
(c) 'traffic_image_data';
(d) 'unusual_data'.

Solicited Input Processing: This process shall receive the following data flows from a local data store:
(a)'static_data_for_incident_management'.

Solicited Output Processing: This process shall provide the following output flows as a result of the above unsolicited inputs being received:
(a)'possible_detected_incidents';
(b)'reversible_lane_status'.

Functional Requirements: This process shall:
(a) run whenever any of the unsolicited data flows listed above is received;
(b) analyze the unsolicited data and identify any anomalies and their location which indicate that traffic is not flowing as expected;
(c) when anomalies in the traffic flow are detected in (b), report them as possible incidents using the solicited output data flow 'possible_detected_incidents' and 'reversible_lane_status'.

1.3.1.2 Maintain Static Data for Incident Management

Overview: This process shall maintain the store of static data (data about the location and features of the road or highway links in the transportation network). This data store is used by another process within the Manage Incidents facility to identify and locate incidents. The static data shall be input to this process from another process within the Planning for Deployment function, and it shall be possible for that process to request a copy of the current static data.

Unsolicited Input Processing: This process shall receive the following unsolicited input data flows:
(a) 'supply_incident_static_data'.

Solicited Output Processing: This process shall provide the following output flows as a result of the above inputs being received:
(a) 'static_data_for_incident_management';
(b) 'current_incident_static_data'.

Functional Requirements: This process shall:
(a) run when either the unsolicited data flow is received;
(b) as updates are made to the incident static data, load the contents into the output data flow current_incident_static_data;
(c) when the 'supply_incident_static_data' unsolicited data flow is received, load the contents into the store of static data, overwriting any data already present;

1.3.1.3 Process Traffic Images

Overview: This process shall process raw traffic image data received from sensors located on the road (surface street) and freeway network served by the Manage Traffic function. The process shall transform the raw data into images that can be sent to another process within the Manage Incidents facility. It shall also act as the control interface through which the images of traffic conditions which are analyzed for incidents can be changed by the traffic operations personnel, who shall also be supplied with images for viewing.

Unsolicited Input Processing: This process shall receive the following input unsolicited data flows:
(a) 'ft-traffic_images'.

Solicited Output Processing: This process shall provide the following output flows as a result of the above inputs being received:
(a) 'traffic_image_data'.

Functional Requirements: This process shall:
(a) continuously monitor for receipt of the unsolicited input flow'ft-traffic_images';
(b) transform the data in (a) into a form in which it can be sent for analysis by another process;
(c) send the data generated in (b) to the data analysis process using the solicited output flow 'traffic_image_data';
(d) at the same time as the data in (c) is output, generate the incident image data flow and send it to the traffic operations personnel interface process;
(e) when the video camera control data flow is received, implement the data it contains to effect the required changes to the system operational parameters.

1.3.2.1 Store Possible Incident Data

Overview: This process shall receive data on possible incidents from other processes within the Manage Incidents facility and other ITS functions. The process shall load all data that it receives into the store of possible incidents. As part of the loading activity, the process shall enter the data into the relevant parts of the standard format for incident data, and shall assign a level of confidence (e.g. related to the source of the data or time of its detection) to that data.

(a) 'logged_special_vehicle_route';
(b) 'fcm-incident_information';
(c) 'fep-event_information';
(d) 'fws-current_weather';
(e) 'fws-predicted_weather';
(f) 'pollution_incident';
(g) 'possible_detected_incidents';
(h) 'media_incident_data_updates'.

Solicited Output Processing: This process shall provide the following output flows as a result of the above inputs being received:
(a) 'possible_incident_data_update';
(b) 'possible_incidents'.

Functional Requirements: This process shall:
(a) run whenever any of the unsolicited data inputs listed above is received;
(b) be capable of receiving the input data in a variety of formats and converting it into a single format suitable for use with the store of possible_incidents data;
(c) when possible_incident data is being stored, a level of confidence must be attached to it so that the accuracy of the data can be rated according to its source;

1.3.2.2 Review and Classify Possible Incidents

Overview: This process shall review input data about possible incidents and provide verification of the incident. The process shall have the capability of using algorithms to automatically identify and verify an incident. The process shall have the capability to classify an incident as current incident or a planned event and shall be load the data into the store of possible incidents as either current incidents or planned events. The process shall report any incidents that it is unable to verify or classify to the traffic operations personnel for manual verification and classification. The process shall allow the traffic operations personnel to request all possible incidents and carry out the verification and classification process manually.

Data Flows: The following input flows are unsolicited: request_possible_incidents_data, incident_details, possible_incidents_data_update. The following input flows are solicited: operations_incident_data_updates, incident_details, and possible_incidents. All outputs are solicited with the exception of incident_details_request which is generated if no input is received in the incident_details for a locally determined period.

Functional Requirements: This process shall:
(a) run when any of the unsolicited data flows described above is received;
(b) be capable of automatically determining which possible incidents can be converted into real incidents (i.e. are not false alarms) and further classifying the real incidents as planned events or current incidents;
(c) the incident classification process shall use the level of confidence data attached to each set of possible incident data;
(d) if the classification cannot be done automatically with a locally determined level of confidence, send the data to the Traffic Operations Personnel via the 'possible_incidents_data_output' output data flow, for manual classification;
(e) where necessary, format the data for a possible incident into the standard form, adding in any missing fields if necessary, and adding in the traffic impact data field;
(f) when a possible incident has been classified: load it into the planned events or current incidents data stores, delete it from the store of possible incidents, send data flows to activate the process responsible for reviewing either planned events or current incidents, and send the appropriate message to other parts of the ITS;
(g) if necessary, update the data retrieved from the store of possible_incidents for a possible incident sent in from the Construction and Maintenance terminator so that it takes place at time(s) that cause the minimum impact to traffic and return the amended data to the Construction and Maintenance terminator via the 'tcm-request_incident_change' output data flow;
(h) new data read from the store of possible_incidents which is found to complement data already in the planned events or current incidents data stores, will be merged, with any additional data items in the new data loaded into the appropriate data store for the incident that is already recorded.

1.3.2.3 Review and Classify Planned Events

Overview: This process shall receive updates of planned events and review the complete list of them to determine when an incident should be reclassified from planned event to current incident. It shall carry out the re-classification process automatically either upon receiving notice that the store of planned events has been updated, or at some periodic rate. The criteria for reclassifying an incident could be that the planned start time of the event has passed. The process shall request details of planned events from the process that manages their data store and shall send details of any new (re-classified) current incidents to the process that manages their data store. It shall also provide updates of planned events and current incidents to other ITS functions, and details of any new planned events to the process responsible for the output of data to vehicle signage functions.

Data Flows: All inputs are unsolicited except for 'planned_events_data' which is solicited as are all outputs.

Functional Requirements: This process shall:
(a) continuously monitor for the unsolicited input data flows listed above;
(b) carrying out the incident re-classification process on receipt of either the 'reclassify_incidents', 'incident_data_update' or 'incident_response_status' data flows, or when planned events are expected to become current, or in the absence of any inputs on a regular (locally determined time interval) basis;
(c) when the 'incident_data_update' unsolicited input data flow indicates that a new planned event has been found, send the incident details to the process that outputs data to roadside signage processes, using the 'planned_event_data_for_vehicle_signage' solicited output data flow;
(d) when the 'incident_data_update' unsolicited input data flow indicates that a new current incident has been found, request the current incidents data and output that for the new incident to the process responsible for providing incident responses;
(e) automatically re-classify incidents from planned events to current incidents based on the time at which the incident is expected to take place;
(f) when an incident is re-classified from planned event to current incident, send out the data for the new current incident to other parts of ITS, and the data flow to activate the process responsible for responding to incidents.

1.3.2.4 Provide Planned Events Store Interface

Overview: This process shall provide the interface to, and manage the use of the store containing details of planned events. The process shall enter details of all new planned events into the store, retrieve details on request, and delete details of an incident when it has been re-classified as a current incident.. The process shall be able to receive details of planned events from within the local Manage Incidents facility, and from similar facilities in other Traffic Management Subsystems (TMS's). When requested, the process shall also be able to provide details of its planned events to the Manage Incidents facilities in other TMS's.

Data Flows: All inputs are unsolicited with the exception of 'planned_events_store' and 'other_planned_events' which are solicited. All outputs are solicited with the exception of 'request_other_planned_events_data', an unsolicited output generated regardless of the inputs received.

Functional Requirements: This process shall:
(a) continuously monitor for receipt of the unsolicited input flows listed above;
(b) the incident data shall be stored and accessed from the 'planned_events_store';
(c) each time data about a new planned event is loaded into the 'planned_events_store', the process shall also pass that data on to other parts of the Manage Traffic function through the output of the planned events data flow;
(d) if the incident may affect traffic outside the local geographic or jurisdictional area served by the instance of the function, then the data about the incident shall be sent to other TMS's using the 'planned_events_data_output' data flow;
(e) when initially run, request data on planned events that may affect local traffic from other TMS's using the 'request_other_planned_events_data' data flow;
(f) when data about planned events in geographic or jurisdictional areas served by other TMS's is received, it shall be loaded into the store of planned events and processed as though the incident(s) had just occurred;
(g) when a request for local planned event data is received, only data on those planned events that may affect traffic outside the geographic or jurisdictional area served by the instance of the function shall be retrieved from the data store and sent to the requesting TMS in the 'planned_events_local_data' data flow.

1.3.2.5 Provide Current Incidents Store Interface

Overview: This process shall provide the interface to, and manage the use of the store of current incident details. The process shall enter the details of all new current incidents into the store, retrieve details on request, and delete details of incidents when they cease to be current. The process shall be able to receive details of current incidents from within the local Manage Incidents facility, and from similar facilities in other Traffic Management Subsystems (TMS's). When requested, the process shall also be able to provide details of its current incidents to the Manage Incidents facilities in other TMS's.

Unsolicited Input Processing: This process shall receive the following unsolicited input data flows:
(a) 'current_incidents_data_update';
(b) 'current_incidents_data_request';
(c) 'current_incidents_new_data';
(d) 'arequest_local_current_incidents_data'.

Solicited Input Processing: This process shall receive the following data flows as a result of output being sent to other processes and requests for data retrieval:
(a) 'current_incidents_store' - which contains data retrieved from a data store;
(b) 'other_current_incidents' - which contains data received from another process.

Unsolicited Output Processing: This process shall provide the following output flow regardless of any input flows that are received:
(a) 'request_other_current_incidents_data';

Solicited Output Processing: This process shall provide the following output flows as a result of the above inputs being received:
(a) 'current_incidents_data';
(b) 'current_incidents_store';
(c) 'request_other_current_incidents_data'.

Functional Requirements: This process shall:
(a) continuously monitor for receipt of the unsolicited input flows listed above;
(b) each time data about a new current incident is received via either the 'current_incidents_data_update' or 'current_incidents_new_data' unsolicited input data flows, it shall be loaded into the store;
(c) when initially run, request data on current incidents that may affect local traffic from other TMS's using the 'request_other_current_incidents_data' data flow;
(d) when data about current incidents in geographic or jurisdictional areas served by other TMS's is received, it shall be loaded into the store of current incidents and processed as though the incident(s) had just occurred;

1.3.3 Respond to Current Incidents

Overview: This process shall provide responses to incidents that become current, i.e. active. Three general strategies for response to incidents can be supported by the process: 1) Operator enters response (there is no set of predetermined responses), 2) the operator selects response from a set of predetermined responses (possibly modifying the response), and 3) the process automatically accesses and implements a response from a set of predetermined responses (while informing the operator of the actions taken). Where predetermined responses are utilized, the operator shall have the capability to view, modify, or override the predetermined response. The predetermined response to each type of incident shall be defined for the process in the store defined_responses_data. If the process cannot find a predetermined response for a particular incident, it shall send the details of the incident to the traffic operations personnel so that they can provide an update to the store of predetermined responses. The process shall output the predetermined responses to an incident when it receives notification from another process in the Manage Incidents facility that a new current incident has occurred. At the same time it shall also output the incident data to the process responsible for providing broadcast data to roadside processes. The other process in the Manage Incidents facility shall also provide details of incidents that have ceased to be current (terminated) so that this process can send out data to clear the actions requested and roadside broadcast information output in response to its occurrence.

Unsolicited Input Processing: This process shall receive the following unsolicited input data flows:
(a) 'current_incidents_data_output'.

Solicited Input Processing: This process shall receive the following data flows as a result of output being sent to other processes and requests for data retrieval:
(a) 'defined_responses_data'.

Solicited Output Processing: This process shall provide the following output flows as a result of the above inputs being received:
(a) 'current_incident_data_for_vehicle_signage';
(b) 'incident_alert';
(c) 'incident_response_clear';
(d) 'incident_response_log';
(e) 'incident_strategy_override';
(f) 'cv_incident_override':
(g) 'undefined_incident_response';
(h) 'dms_updates_for_highways';
(i) 'dms_updates_for_roads'.

Functional Requirements: This process shall:
(a) continuously monitor for receipt of the unsolicited input flow 'current_incidents_data_output';
(b) analyze the current incident data against the data in the store of defined responses to determine the appropriate response;
(c) generate the appropriate solicited output flows listed above as a result of determining the appropriate defined response to an incident;
(d) generate the appropriate clearance data in the solicited output flows listed above when the duration of an incident expires;
(e) if a defined response is not found for any incident, then the process shall send data about the incident to the Provide Operator Interfaces for Incidents facility and take no further action;

1.3.4.1 Retrieve Incident Data

Overview: This process shall retrieve incident data from the stores of planned events and current incidents that are managed by other processes in the Manage Incidents facility of the Manage Traffic function. The process shall retrieve data as the result of a request which may come from the traffic operations personnel or the media operator. The output shall be returned to the source of the request, except where the media operator has specified that the data should be output to the media system.

Unsolicited Input Processing: This process shall receive the following unsolicited input data flows:
(a) 'request_incident_operations_data';
(b) 'request_incident_media_data'.

Solicited Input Processing: This process shall receive the following data flows as a result of output being sent to other processes and requests for data retrieval:
(a) 'current_incidents';
(b) 'planned_events_data';
(c) 'possible_incidents_data';
(d) 'map_data_for_incident_display'.

Solicited Output Processing: This process shall provide the following output flows as a result of the above inputs being received:
(a) 'current_incidents_request';
(b) 'request_possible_incidents_data';
(c) 'retrieved_incident_media_data';
(d) 'retrieved_incident_operations_data'.

Functional Requirements: This process shall:
(a) continuously monitor for receipt of the unsolicited input data flows 'request_incident_operations_data' and 'request_incident_media_data';
(b) when either of the flows in (a) is received, request the required incident data from the appropriate store interface process using solicited output data flows 'current_incidents_request' or 'request_possible_incidents_data';
(c) when the appropriate solicited input data flow is received in response to (b), integrate the stored map_data_for_incident_display with the incident data if necessary;
(d) when (c) is completed, send the data to the process from which the data flow in (a) was received.

SIZING ATTRIBUTES

SIZE=64;

1.3.4.2 Provide Traffic Operations Personnel Incident Data Interface

Overview: This process shall provide the interface between the traffic operations personnel and the Manage Incidents facility of the Manage Traffic function. It shall enable the personnel to request and amend details of predicted and current incidents and predetermined incident responses, obtain and control incident video image data and manually re-classify incidents as possible or current or a planned event. It shall also output to the traffic operations personnel incident details to which no predetermined response currently exists. The process shall support inputs from and outputs to the traffic operations personnel Where appropriate and/or requested by the traffic operations personnel, the process shall provide the output 'display' in a form incorporating a map of the relevant part(s) of the surface street and freeway network served by the function. The process shall obtain the map from a local data store, which it shall request to be updated by another process as and when required.

'retrieved_incident_operations_data', and 'wrong_way_vehicle_detection; which are solicited along with all output flows.

Functional Requirements: This process shall:
(a) continuously monitor the input data flows and provide acknowledgement of receipt of those from Traffic Operations Personnel;
(b) be capable of accepting input from Traffic Operations Personnel;
(c) be capable of carrying out its own verification of input data received from Traffic Operations Personnel and generating the correct solicited output data flow as a result of data being received;
(d) as part of the output generation process, checking for data out of range, missing or spurious values and requesting re-input where required;
(e) provide output to Traffic Operations Personnel in a form that is readily understood by a human operator;
(f) only generate the outputs listed above as a result of receiving inputs from the Traffic Operations Personnel or other processes;
(g) when the request for changes to the parameters affecting the operation of the sensor systems (e.g. closed circuit television) responsible for providing sensed images of incidents (including but not limited to video) are received from traffic operations personnel ('ftop-incident_camera_action_request'), generate the 'incident_video_image_control' data flow to the image processing facility;
(h) when video æÆ images of incidents are received (incident_video_image), output them as 'ttop-incident_video_image_output' to the traffic operations personnel;
(i) the use of the digitized map display shall be automatic and shall be at a resolution best suited to the quantity and scope of data being displayed, i.e. the map shall be to the largest possible scale.

1.3.4.3 Provide Media Incident Data Interface

Overview: This process shall provide the interface between the Media and the Manage Incidents facility. It shall enable the media to request details of incidents and shall allow transmission of incident information to the media. The media shall also provide raw input data on possible incidents. The process shall enable the output to incorporate a map of the area to which the incidents relate.

Data Flows: All inputs are unsolicited with the exception of 'retrieved_incident_media_data' which is solicited as are all outputs.

Functional Requirements: This process shall:
(a) continuously monitor the input data flows and acknowledge receipt of those from the Media;
(b) be capable of accepting input from the Media;
(c) be capable of carrying out its own verification of input data received from the Media and generating the correct solicited output data flow as a result of the input data being received;
(d) as part of the output generation process, carry out checks for data out of range, missing or spurious values and request re-input where necessary;
(e) use the 'media_incident_data_updates' solicited output data flow to send data on a possible incident when this possible incident data is received from the Media in 'fm-incident_information';
(f) provide all output to the Media in a form that is readily understood;
(g) only generate the outputs listed above as a result of receiving inputs from the Media or the other processes;
(h) the use of the digitized map display shall be automatic and shall be at a resolution best suited to the quantity and scope of data being displayed, i.e. the map shall be to the largest possible scale.

1.3.4.4 Update Incident Display Map Data

Overview: This process shall provide updates to the store of digitized map data used with displays of incident data produced by processes in the Manage Incidents facility of the Manage Traffic function. The process shall obtain the new data from a map provider or other appropriate data source, on receiving an update request from the traffic operations personnel interface process within the Manage Incidents facility.

fmup-incident_display_update and all outputs are solicited.

Functional Requirements: This process shall:
(a) continuously monitor for the receipt of the 'request_incident_map_display_update' unsolicited data flow;
(b) when the data flow in (a) is received, generate the 'tmup-request_incident_display_update' solicited output data flow and continuously monitor for receipt of the 'fmup-incident_display_update' solicited input data flow;
(c) when the 'fmup-incident_display_update' flow is received, output the 'map_data_for_incident_display' solicited output data flow shown above.

1.3.4.5 Manage Resources for Incidents

Overview: This process shall provide the capability for the Manage Traffic function to generate and receive requests for resources in responding to incidents. The process shall provide the capability for traffic operations personnel to request resources from the Construction and Maintenance to provide equipment and support for incident response and clean up. The process shall be able to receive resource requests from the Manage Emergency function and respond with the status of the response by Construction and Maintenance or the traffic operations personnel.

Data Flows: All input data flows arde unsolicited and all output flows are solicited.;

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the unsolicited input flows listed above;
(b) when the input of resource response data is received, generate the output data flows identified above, and create an initial entry in the mangage resource incidents data store;
(c) when other inputs are received, update the data for the resource response to which they relate in the manage resource incidents data store.;

1.3.5 Manage Possible Predetermined Responses Store

Overview: This process shall manage the data store containing possible predetermined responses to incidents used within the Manage Incidents facility. These responses shall be those that another process within the facility has found to be worth including in the store of predetermined responses from an analysis of the incident response log. This process shall enable retrieval of the data from the store for presentation to traffic operations personnel and its possible transfer to the process that manages the store of predetermined incident responses that are actually used by other processes in the Manage Incidents facility.

Unsolicited Input Processing: This process shall receive the following unsolicited input data flows:
(a) 'defined_incident_response_update_request';
(b) 'possible_defined_responses_data';
(c) 'possible_defined_responses_output_request'.

Solicited Input Processing: This process shall receive the following data flows as a result of requests for data retrieval:
(a) 'possible_defined_responses

Solicited Output Processing: This process shall provide the following output flows as a result of the above inputs being received:
(a) 'defined_incident_response_changes';
(b) 'possible_defined_responses_output'.

Functional Requirements: This process shall:
(a) continuously monitor for receipt of the unsolicited input flows listed above;
(b) when the request is received for the transfer of a possible response to the process managing the store of defined responses ('defined_incident_response_update_request'), the response data shall be deleted from the store of possible responses once the transfer of the 'defined_incident_response_changes' data flow has been successfully completed;

1.3.6 Manage Predetermined Incident Response Data

Overview: This process shall manage data held in the store of predetermined incident responses that are used by processes within the Manage Incidents facility of the Manage Traffic function. The process shall provide details of the current predetermined responses in response to requests from traffic operations personnel, and shall also update the store with new responses received from the process that manages the store of possible predetermined responses.

(a) 'defined_incident_response_data_request';
(b) 'defined_incident_response_changes';
(c) 'defined_incident_response_updates'.

Solicited Input Processing: This process shall receive the following data flows as a result of output being sent to other processes and requests for data retrieval:
(a) 'defined_responses_data'.

Solicited Output Processing: This process shall provide the following output flows as a result of the above unsolicited inputs being received:
(a) 'defined_responses_data';
(b) 'defined_incident_response_data'.

Functional Requirements: This process shall:
(a) run whenever any of the unsolicited data flows shown above is received;
(b) if the data flow in (a) is a 'defined_incident_response_data_request' request for data, retrieve it from the store of defined responses and return it to the requesting process in the 'defined_incident_response_data' solicited output flow listed above;
(c) if the data flow in (a) contains new data for the store of defined responses, load it into the store;

1.3.7 Analyze Incident Response Log

Overview: This process shall analyze the data in the log of incident responses within the Manage Incidents facility of the Manage Traffic functions. The process shall analyze the log so that possible standard predetermined incident responses can be identified from the data in the incident_response_log data store. Any such possible standard predetermined responses that are identified shall be passed by this process to the process that manages the store of possible predetermined responses.

Solicited Input Processing: This process shall receive the following data flows as a result of requests for data retrieval:
(a) 'incident_response_log'.

Solicited Output Processing: This process shall provide the following output flows as a result of the above inputs being received:
(a) 'possible_defined_responses_data'.

Functional Requirements: This process shall:
(a) analyze the data in the log of incident responses data to determine any response patterns that could be used as standards for the responses to particular types of incidents;
(b) send identified possible standard defined responses to the process that enables them to be stored and reviewed by the traffic operations personnel.

1.4.1 Provide Traffic Operations Personnel Demand Interface

Overview: This process shall provide the interface between the traffic operations personnel and the processes and data stores used within the Manage Demand facility of the Manage Traffic function. It shall enable the traffic operations personnel to access the data used as input by the demand forecasting process and the results of that process, to request that the input data be updated, set the policies used as input to the Calculate Forecast Demand process, to request that the demand forecasting process runs, and to run the process that implements the results. Where appropriate and/or requested by the traffic operations personnel, the process shall provide the output in a form that includes a map of the relevant part(s) of the road and freeway network served by the Manage Travel Demand function. The process shall obtain the map from a local data store, which it shall request to be updated by another process when required.

Unsolicited Input Processing: This process shall receive the following unsolicited input data flows:
(a) 'ftop-demand_policy_information_request';
(b) 'ftop-demand_policy_updates';
(c) 'ftop-demand_data_update_request';
(d) 'ftop-demand_data_request';
(e) 'ftop-demand_forecast_request';
(f) 'ftop-demand_policy_activation;.

Solicited Input Processing: This process shall receive the following data flows as a result of output being sent to other processes and requests for data retrieval:
(a) 'demand_mamagement_result';
(b) 'demand_input_data';
(c) 'demand_policy_data';
(d) 'demand_forecast_data';
(e) 'demand_forecast_result';
(f) 'map_data_for_demand_display'.

Solicited Output Processing: This process shall provide the following output flows as a result of the above inputs being received:
(a) 'ttop-demand_policy_information';
(b) 'ttop-demand_data';
(c) 'ttop-demand_forecast_data';
(d) 'ttop-demand_policy_activation_result';
(e) 'ttop-demand_forecast_result';
(f) 'demand_data_update_request';
(g) 'demand_forecast_request';
(h) 'demand_management_activate';
(i) 'request_demand_display_update'.

Functional Requirements: This process shall:
(a) continuously monitor the input data flows and provide acknowledgement of receipt of those from Traffic Operations Personnel;
(b) be capable of accepting input from traffic operations personnel;
(c) be capable of carrying out its own verification of input data received from traffic operations personnel and generating the correct solicited output data flow as a result of the input data being received;
(d) as part of the output generation process, carrying out checks for data out of range, missing or spurious values and requesting re-input where necessary;
(e) providing all output to traffic operations personnel in a form that is readily understood by a human operator;
(f) only generate the outputs listed above as a result of receiving inputs from the traffic operations personnel or the other processes;
(g) as locally determined generate the 'request_demand_display_update' request for new map data;
(h) the use of the map data shall be automatic and shall be at a resolution best suited to the quantity and scope of data being displayed, i.e. the map shall be to the largest possible scale.

1.4.2 Collect Demand Forecast Data

Overview: This process shall collect data from other ITS functions for use as input to the demand forecasting process within the Manage Demand facility of the Manage Traffic function. The process shall support data retrieval from other functions on request from the traffic operations personnel and through the receipt of unsolicited data from ITS functions. It shall load all the data that it receives in a consistent format into the input store used by the demand forecasting process.

Unsolicited Input Processing: This process shall receive the following unsolicited input data flows:
(a) 'unusual_congestion';
(b) 'prediction_data';
(c) 'current_transit_routes_use';
(d) 'current_road_network_use';
(e) 'fws-current_weather';
(f) 'fws-predicted_weather';
(g) 'demand_data_update_request'.

Solicited Input Processing: This process shall receive the following data flows as a result of output being sent to other processes:
(a) 'parking_lot_charge_details';
(b) 'pollution_state_data';
(c) 'price_data';
(d) 'toll_price_details';
(e) 'transit_fare_details';
(f) 'transit_running_data_for_demand';
(g) 'transit_services_for_demand';
(h) 'traffic_data_for_demand'
(i) 'parking_lot_charge_direct_details'
(j) 'toll_price_direct_data'
(k) 'transit_fare_direct_details'.

Unsolicited Output Processing: This process shall periodically generate the following output flows to other processes and functions within ITS and the local store of input data:
(a) 'pollution_state_data_request';
(b) 'parking_lot_charge_request';
(c) 'toll_price_request';
(d) 'transit_conditions_demand_request';
(e) 'transit_services_demand_request';
(f) 'traffic_data_demand_request';
(g) 'transit_fare_request'
(h) 'transit_fare_direct_request'
(i) 'toll_price_direct_request_'
(j) 'parking_lot_charge_direct_request'.

Solicited Output Processing: This process shall provide the following output flows as a result of the above inputs being received:
(a) 'demand_input_data'.

Functional Requirements: This process shall:
(a) run at locally determined intervals and generate the unsolicited outputs listed above, unless requested to run by the unsolicited input 'demand_data_update_request';
(b) when running, scan all the unsolicited inputs listed above and collect the data that they are currently providing;
(c) when all inputs have been obtained, produce the solicited output shown above to load the collected data into the 'demand_input_data' store;
(d) be capable of receiving the input data in a variety of formats and converting it into a single format suitable for use with the store of demand input data;

1.4.3 Update Demand Display Map Data

Overview: This process shall provide updates to the store of map data used for displays of forecast traffic and travel demand produced by processes in the Manage Travel Demand facility of the Manage Traffic function. The process shall obtain the new data from a specialist map data supplier or some other appropriate source, on receiving an update request from the traffic operations personnel interface process within the Manage Travel Demand facility.

Unsolicited Input Processing: This process shall receive the following unsolicited input data flows:
(a) 'request_demand_display_update'.

Solicited Input Processing: This process shall receive the following data flows as a result of output being sent to external functions:
(a) 'fmup-demand_display_update'.

Solicited Output Processing: This process shall provide the following output flows as a result of the above inputs being received:
(a) 'tmup-request_demand_display_update';
(b) 'map_data_for_demand_display'.

Functional Requirements: This process shall:
(a) continuously monitor for the receipt of the 'request_demand_display_update' unsolicited data flow;
(b) when the data flow in (a) is received, generate the 'tmup-request_demand_display_update' solicited output data flow and continuously monitor for receipt of the 'fmup-demand_display_update' solicited input data flow;
(c) when the flow in (b) is received, load the 'map_data_for_demand_display' data store;
(d) be capable of receiving the input data in a variety of formats and converting it into a single format suitable for use with the store of map data;

1.4.4 Implement Demand Management Policy

Overview: This process shall implement the traffic and travel demand forecast data produced by the demand forecasting process in the Manage Travel Demand facility of the Manage Traffic function. The new demand forecast data shall be implemented in such a way that it can influence the demand from travelers for various types of services provided by ITS functions. The process shall when required, request changes to transit services, and/or the charges for tolls, and/or the use of parking lot spaces (as per the locally determined demand policy). It shall communicate the results of its policy implementation to the process that provides the interface to the traffic operations personnel.

Unsolicited Input Processing: This process shall receive the following unsolicited input data flows:
(a) 'demand_management_activate'.

Solicited Input Processing: This process shall receive the following data flows as a result of output being sent to other processes and requests for data retrieval:
(a) 'demand_forecast_data';
(b) 'parking_lot_charge_change_response';
(c) 'toll_price_changes_response';
(d) 'transit_services_changes_response'.

Solicited Output Processing: This process shall provide the following output flows as a result of the above inputs being received:
(a) 'ahs_control_data';
(b) 'demand_management_result';
(c) 'demand_overrides';
(d) 'parking_lot_charge_change_request';
(e) 'toll_price_changes_request';
(f) 'transit_services_changes_request'.

Functional Requirements: This process shall:
(a) continuously monitor for receipt of the 'demand_management_activate' unsolicited data;
(b) when the flow in (a) is received, send data to other Manage Traffic facilities and ITS functions using the solicited output data flows listed above;
(c) be capable of interpreting the contents of the store of demand forecast data in a way that the outputs that are generated in (d) are readily understood by the receiving processes;
(d) provide continuous feedback of the responses to the flows in (b) using the demand management result solicited output data flow.

1.4.5 Calculate Forecast Demand

Overview: This process shall provide a forecast of traffic and travel demand in the geographic area served by the Manage Traffic function to which this instance of the Manage Travel Demand facility belongs. The process shall base its forecast on the current and predicted traffic levels traveler demand patterns obtained from an analysis of data obtained from elsewhere within the Manage Traffic function and from other ITS functions as well as locally determined demand policy. The process shall produce a demand forecast that changes the way that services are provided by ITS functions according to locally determined demand policy.

Unsolicited Input Processing: This process shall receive the following unsolicited input data flows:
(a) 'demand_forecast_request'.

Solicited Input Processing: This process shall receive the following data flows as a result of requests for data retrieval:
(a) 'demand_input_data';
(b) 'demand_policy_data'.

Solicited Output Processing: This process shall provide the following output flows as a result of the above inputs being received:
(a) 'demand_forecast_data';
(b) 'demand_forecast_result'.

Functional Requirements: This process shall:
(a) continuously monitor for receipt of the 'demand_forecast_request' unsolicited data flow;
(b) when the data flow in (a) is received, use appropriate algorithms to calculate future traffic and travel demand patterns across locally determined modes of transportation using the stores of demand input data and demand policy data;
(c) provide results of the calculation of the new traffic and travel demand forecast in the demand forecast result data flow;

1.6.1.2. Control HRI Warnings and Barriers

Overview: This process is responsible for initiating the activation of HRI barriers at active vehicular and pedestrian grade crossings. When a request is sent to activate the HRI barriers perhaps because of a detection of an oncoming train, this process sends the device control signal to the Manage Device Controls process to activate the barriers. This process also returns state information to the Maintain Device State process concerning the commands that have been initiated by this process.

1.6.1.2. Manage Device Control

Overview: This process is responsible for managing and selecting the appropriate device control messages. This process gathers the control signals from the other Activate HRI Device Control processes and forwards them as needed to the Process Indicator Output Data for Roads process within Provide Device Control. These control signals are used to activate all of the HRI unique roadside devices such as gates or other barriers, lights, adjacent traffic signals, message signs or in-vehicle signage beacons.

1.6.1.7. Control Vehicle Traffic at Passive HRI

Overview: This process is responsible for controlling traffic volume at passive grade crossings. It provides a mechanism for rail operations to close grade crossings that have active traffic devices but no real-time train detection mechanisms. This process also will allow for a train crew member to manually activate closure of the crossing. In such an event a crew_close_hri signal is sent to the Close_HRI_on_Command process.

1.6.1.7. Control Vehicle Traffic at Active HRI

Overview: This process is responsible for controlling vehicular traffic at an active HRI by controlling the operation of traffic control devices in accordance with a predetermined local control plan. The local_control_plan is communicated to the Close_HRI_on_Detection process. This local control plan can be preempted by a strategy_preemption message from the Detect_HRI_Hazards process or by such inputs as an event_notice from the Detect_Roadway_Events process or hri_traffic_surveillance data. The outputs of this process include the command messages to close the HRI, requests for information from the Manage Traffic function, and information about the current hri_traffic_data.

1.6.5.2 Determine HRI Status

Overview: This process is responsible for monitoring critical HRI functions and merging them into a single coherent picture of the state of the hri. It also is responsible for assuring that the HRI always reverts to the safest possible operating condition in the event of any operational malfunctions.

2.1.1 Manage Commercial Fleet Electronic Credentials and Tax Filing

Overview: This process shall be responsible for providing the commercial vehicle manager with the ability to manage the activities of commercial vehicles. The process shall provide the capability for the manager to obtain commercial vehicle routes. When a route has been confirmed, the process shall enable the manager to enroll commercial vehicles for electronic clearance at roadside check station facilities, to process and pay for electronic credential and tax filing, to send tag data to the Provide Commercial Vehicle On-board Data facility, and to provide vehicle route instructions for use by the commercial vehicle driver. Periodically it shall also send reports about taxes that have been paid to the Administer Commercial Vehicles facility. The process shall also enable the manager to obtain commercial vehicle activity reports from the logs provided by roadside checkstation facilities. It shall be possible to obtain these reports either on request or at periodic intervals.

Data Flows: All input data flows are unsolicited and all output data flows are solicited with the exception of the following:
(a) 'cf_route_details', which contains data requested from and written to a data store;
(b) 'cf_driver_route', which contains data written to a data store;
(c) 'cf_enrollment_information', 'cf_enrollment_payment_confirmation', 'cf_route' and 'cf_static_route_data', which are received as the result of output to other processes.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the unsolicited input flows listed above;
(b) when the input is received, generate the appropriate outputs identified below:
(c) if the input in (b) contains data to set up a route for a commercial vehicle, use the input data, plus any details of previously used routes in the local store to construct a route request and send it to either the static route selection process, or to the Provide Driver and Traveler Services function for a dynamic route, i.e. one that takes account of current and future traffic conditions;
(d) when the route requested in (c) has been provided, or the input requests that the electronic credentials be obtained and the tax details filed, send the data to the commercial vehicle administration process;
(e) repeat (d) to enable payment to be made;
(f) when the route has been determined and the electronic credentials and tax filing have been obtained and paid for, load the route details into the data store for access by the commercial vehicle driver;
(g) periodically send details of the taxes that have been paid to the Administer Commercial Vehicles function;
(h) the process shall be responsible for the management of the data in the stores of commercial fleet route details and retained data, and for writing to the store of driver instructions, using the most appropriate mechanism(s) such as RDBMS, for storing the data.

3.3.2 Provide Communications Function

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Overview: This process shall be responsible for sending messages it receives from other processes in this facility to the Manage Emergency Services function. It shall also be responsible for passing on the resulting response to the driver via processes in the Provide Driver and Traveler Services function. this process is also capable of receiving requests for additional data from the Manage Emergency Services function and transmitting follow-up details. this process can also receive commands related to the vehicle's security system from the Manage Emergency Services function and forward the commands to the vehicle's security system.

Data Flows: All input data flows are unsolicited and all output flows are solicited.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the vehicle emergency request flow listed above;
(b) when the input is received, immediately generate the output to the Manage Emergency Services function identified above;
(c) when a response is received to the output in (b) send the data flow to the Provide Driver and Traveler Services function so that a message can be output to the driver;
(d) the processing of the sensor input and generation of the output shall be completed within a time frame consistent with the safe operation of vehicle control systems regardless of the number of inputs and the amount of processing needed to produce a digital output that can be used by other processes.

3.3.3 Build Automatic Collision Notification Message

Overview: This process shall be responsible for preparing and submitting data for transmission to the Manage Emergency Services function. The data shall be sent by this process when an emergency situation is detected by analyzing inputs from the vehicle. This process shall produce its outputs regardless of any action by the driver and shall be designed to be as the result of a crash which may have prevented the driver from initiating the emergency request personally.

Data Flows: All input data flows are unsolicited and all output flows are solicited, with the exception of the data read from the store of vehicle identity.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input flow of data from sensors indicating that the vehicle has been involved in a crash;
(b) when the input in (a) is received, get the cargo state by sending a request to the monitoring process and extracting the data from the reply;
(c) if no data is received in (b) within a specified time out period, assume that there is no cargo and build the message for output to the communications process using the vehicle location and identity data inputs listed above;
(d) when all the data has been assembled, output the data flow to the communications process;
(e) the processing of the sensor input and generation of the output shall be completed within a time frame consistent with the safe operation of vehicle control systems with human interfaces regardless of the amount of processing needed to produce the output data flow to the communications process.

4.1.1 Process Transit Vehicle Sensor Trip Data

Overview: This process shall collect and process data available to sensors on-board transit vehicles. This data shall be sent by this process to other processes on-board the transit vehicle and elsewhere in the Manage Traffic function for use in determining vehicle schedule deviations and for storage as operations data.

Data Flows: The input data flow is unsolicited and all output flows are solicited.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input flow listed above;
(b) when the input is received, generate the outputs identified above.

4.1.2.1 Determine Transit Vehicle Deviation and ETA

Overview: This process shall determine the schedule deviation and estimated times of arrival (ETA) at transit stops of a transit vehicle. The data shall be sent by this process to other processes in the Manage Transit function for use in calculating corrective instructions for output to the transit vehicle drivers, for use in calculation of a much wider return to schedule strategy where more than one vehicle and/or service is involved, and for storage as transit vehicle operational data. This process shall also send the data to the transit driver interface process, so that the driver is aware of the actual schedule deviation. This output shall be set to zero (no deviation) when that condition occurs, even when it has followed a period of deviation from schedule.

Data Flows: All input data flows are unsolicited and all output flows are solicited.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input flows listed above;
(b) when the inputs are received, generate the outputs identified above using the methods described below and with the exceptions noted below;
(c) generate the schedule deviation using the current service details (routes and schedules) and the vehicle's current location using interpolation or some other algorithmic method;
(d) use similar methods to generate the transit vehicle's estimated time of arrival at the next transit stop for output to the stop as the vehicle approaches;
(e) only if the deviation is small and in an urban area the process shall send the data to the process that generates corrective instructions;
(f) if the deviation is large or not in an urban area, the process shall not produce the output identified in (e) above and shall instead just send the data to the process that manages transit vehicle deviations;
(g) the process shall generate outputs even when the deviation is zero.

4.1.2.2 Determine Transit Vehicle Corrective Instructions

Overview: This process shall generate outputs that enable a transit vehicle schedule deviation to be corrected. The process shall derive its outputs from data received from another process in the Manage Traffic function. The outputs produced by the process shall consist of corrective instructions for output to the transit vehicle driver by a process on-board the vehicle, and preemption requests for traffic signal controllers at road and freeway intersections. The process shall only produce this output when another process has determined that deviation is small, or the transit vehicle is operating in an urban area. In all other conditions, the process shall provide an output that shows that there are no corrective instructions.

Data Flows: The input data flows are unsolicited and all output flows are solicited.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input flows listed above;
(b) when the input flow of transit vehicle deviations is received, generate the outputs identified above using any appropriate algorithms for determining the corrective instruction data for the transit vehicle driver.

4.1.2.3 Provide Transit Vehicle Driver Interface

Overview: This process shall provide a schedule correction interface for the transit driver in the transit vehicle. The interface shall provide data to the driver about how far the vehicle is from its schedule and what corrective action the driver must take. The data shall be received by the process from other processes in the Manage Traffic function. The output delivered by the process shall be available in audio or visual form in such way that while alerting the driver to the information it contains, it shall in no way impair the driver's ability to operate the vehicle in a manner that is both safe to its passengers and to other vehicles on the roads and freeways. The process shall maintain the output until new data is received from the other processes.

Unsolicited Input Processing: This process shall receive the following unsolicited input data flows:
(a) 'transit_vehicle_corrective_instructions';
(b) 'transit_vehicle_deviation_data'.

Solicited Output Processing: This process shall provide the following output flows as a result of the above inputs being received:
(a) 'ttd-corrective_instructions';
(b) 'ttd-transit_vehicle_schedule_deviations'.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the unsolicited input flows listed above;
(b) the output shall be presented in such a way that it provides the necessary information without jeopardizing the driver's ability to operate the vehicle safely, both for its passengers and for other vehicles on the roads and freeways;
(c) the output shall be maintained until fresh data is received through the unsolicited input flows listed above.

4.1.3 Provide Transit Vehicle Location Data

Overview: This process shall provide the transit vehicle's current location with a high degree of accuracy. The location shall be computed by this process from data sent by other processes that provides basic vehicle location and on-board vehicle conditions, such as proximity to transit stop, vehicle doors opened or closed, etc. The data shall be output continuously by the process and sent to other processes for their use and for storage.

Data Flows: All input data flows are unsolicited and all output flows are solicited.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input flows listed above;
(b) when any of the inputs are received, generate the outputs identified above by combining the new data with the last output values;
(c) the calculation of the new location shall use the basic location data and refine it by use of data from on-board the vehicle, e.g. proximity of transit stop, vehicle doors open, etc.

4.1.5 Provide Transit Vehicle Status Information

Overview: This process shall provide transit vehicle operational data to processes within the Manage Transit function, and on request to the transit fleet manager and the Manage Travel Demand facility in the Manage Traffic function. This process shall also provide transit probe and AVL information to the Manage Traffic function. Transit probe information can be provided by fixed route, flexibly routed, and paratransit services. The data shall be obtained by this process from another process that manages a store of transit vehicle operating data.

Data Flows: All input data flows are unsolicited and all output flows are solicited.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input flows listed above;
(b) at regular periodic intervals, send the request for transit information;
(c) when the data in (b) is received, send out the data flows listed above that do not have any corresponding data request flow;
(d) when any other input listed above is received, output the flow requesting transit vehicle information and send the response back to the originating process.

4.1.6 Manage Transit Vehicle Operations Data

Overview: This process shall manage the store of transit vehicle operating data. When any new data is received from another process, this process shall load it into the data store. This process shall also retrieve selected data on request from other processes in the Manage Transit function.

Data Flows: All input data flows are unsolicited and all output flows are solicited with the exception of the following which contains data requested from and written to a data store:
(a) 'transit_vehicle_operating_data'.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input flows listed above;
(b) when the inputs that are not data requests are received, load the data that they contain into the data store using the flow identified above and generate the update and transit vehicle information output flows identified above;
(c) periodically generate requests for data collected by sensors on-board the vehicle and store the solicited data when received
(d) when inputs that are data requests are received, retrieve the data and only send it to the source of the request;
(e) the transit user data flow that is sent to each transit stop shall be sent as each transit vehicle approaches a stop to provide information for output to transit users at the stop;
(f) be responsible for the management of the data in the store of transit vehicle operational data.

4.1.8 Provide Transit Operations Data Distribution Interface

Overview: This process shall provide customized sets of transit vehicle schedule deviations to travelers, the traveler information data archive, and to the media. The process shall only provide data to the media and data archive when prompted by the arrival of new deviation data in the transit_vehicle_operational_data store, which is maintained by another process in the Manage Transit function. The outputs shall be made available following a direct request from the other ITS function, or as part of a subscription process relating to a traveler's transit profile. The process shall obtain the required data from the process that manages the store of transit vehicle operating data. The process shall send kiosk and personal transit deviation requests to the archival process.

Unsolicited Input Processing: This process shall receive the following unsolicited input data flows:
(a) 'transit_conditions_advisories_request';
(b) 'transit_conditions_guidance_request';
(c) 'transit_deviation_data_received';
(d) 'transit_deviation_kiosk_request';
(e) 'transit_deviations_personal_request';
(f) 'fws-predicted_weather';
(g) 'fws-current_weather'.

Solicited Input Processing: This process shall receive the following data flows as a result of output being sent to other processes:
(a) 'transit_vehicle_deviations_details'.

Solicited Output Processing: This process shall provide the following output flows as a result of the above inputs being received:
(a) 'tm-transit_schedule_variations';
(b) 'transit_running_data_for_advisory_output';
(c) 'transit_running_data_for_guidance';
(d) 'transit_vehicle_deviations_details_request';
(e) 'transit_deviations_for_kiosks';
(f) 'transit_deviations_for_personal_devices';
(g) 'transit_deviation_kiosk_request_for_archive';
(h) 'transit_deviations_personal_request_for_archive';
(i) 'transit_deviations_for_broadcast_to_kiosks';
(j) 'transit_deviations_for_broadcast_to_personal_devices'.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the unsolicited input flows listed above;
(b) generate the transit deviations details message and output a copy of the deviations requests to the archive when any of the inputs are received and return the data received in the solicited input flow to the source(s) of the input(s);
(c) only provide output to the media when the unsolicited input, transit (vehicle) deviation data received, is received and the data provided by the solicited input flow has also been received.

4.1.9 Process Transit Vehicle Sensor Maintenance Data

Overview: This process shall collect and process vehicle maintenance data available to sensors on-board transit vehicles. When processed, the data shall be sent by this process on request to another process in the Manage Transit function for storage as transit vehicle operating data so that it can subsequently be used for work on future vehicle maintenance.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input data flows listed above;
(b) when the vehicle maintenance data flow is received, process it and if required translate it into a digital form;
(c) when the request for transit vehicle collected maintenance data is received, generate the output data flow identified above.

4.2.1.1 Process Demand Responsive Transit Trip Request

Overview: This process shall provide the interface through which processes in the Provide Driver and Traveler Service function can gain access to the Provide Demand Responsive Transit Service facility. The process shall enable the interface to support the receipt of trip requests, their transfer to another process for the actual demand responsive schedule generation, the output of the proposed schedule and their (possible) subsequent confirmation. The process shall store the input and schedule data relating to each request until such time as the request is confirmed or the data in the request is no longer valid, e.g. the time(s) used in the proposed schedule has(ve) passed. The confirmation of a particular schedule shall be sent by the process to another process that will enable the schedule to be implemented.

Data Flows: All input data flows are unsolicited and all output flows are solicited with the exception of the following which contains data requested from and written to the store of request data:
(a) 'paratransit_service_data'.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input flows listed above;
(b) when the flow in (a) is a new schedule request, generate the corresponding output identified above and send it to the schedule generation process;
(c) as a result of (b) continuously monitor for the receipt of the flow listed above containing details of the proposed schedule;
(d) when the flow in (c) is received, load the data into the store of paratransit service data, including an identity number with it;
(e) when (d) is successfully complete, generate the output listed above that contains the details of the proposed service for use by the requesting process;
(f) when the flow in (a) is a schedule confirmation, read the schedule data corresponding to the identity number and generate the output to the schedule confirmation process identified above;
(g) manage the data in the store of trip request data.

4.2.1.2 Compute Demand Responsive Transit Vehicle Availability

Overview: This process shall provide the facility for the calculation of the location and availability of transit vehicles for use in demand responsive transit operations. The process shall base its calculation on the vehicle's current location and on the output from a process that determines vehicle availability from data input to sensors. The output shall be loaded by the process into a store for use by another process.

Data Flows: All input data flows are unsolicited and the output flow shall be sent to the store of available transit vehicles using the flow 'paratransit_available_vehicles'.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input flows listed above;
(b) when the inputs are received, generate the output identified above;
(c) manage the data in the store of transit vehicle availability.

4.2.1.3 Generate Demand Responsive Transit Schedule and Routes

Overview: This process shall provide dynamic routing and scheduling of transit vehicles so that a demand responsive transit service can be provided. The generation of the specific route and schedule by the process shall be initiated by a request from the management process. The choice of route and schedule produced by the process shall depend on what other demand responsive transit schedules have been planned, the availability and location of vehicles, and the relevance of any regular transit routes and schedules. The process shall send its output to another process for output to the requesting process, and shall also load it into a data store for use if the schedule is later confirmed.

Data Flows: All input data flows are unsolicited and all output flows are solicited with the exception of the following:
(a) 'paratransit_services', which contains data requested from and written to a data store;
(b) 'paratransit_available_vehicles', which also contains data requested from a data store;
(c) 'transit_services_for_demand_response', which is received as a result of output being sent to another process.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input flows listed above;
(b) when the inputs are received, generate the outputs identified above using an appropriate routes and schedule generation algorithm;
(c) manage of the data in the paratransit services data store, including generated routes and schedules;
(d) use appropriate database mechanism(s) to retrieve data from the store of available transit vehicles identified above.

4.2.1.4 Confirm Demand Responsive Transit Schedule and Route

Overview: This process shall provide output when a demand responsive transit schedule is confirmed. The outputs shall contain details of the schedule and shall be sent to the transit fleet manager and to processes that provide interfaces to the transit driver, a store of data used by the regular transit routes and schedule generation processes, and the transit driver schedule generation processes. The process shall obtain the data for the outputs from the store of data provided by the schedule generation process.

Data Flows: The input data flow is unsolicited and all output flows are solicited with the exception of the following which contains data requested from a data store:
(a) 'paratransit_services'.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input flow listed above;
(b) when the input is received, generate the outputs identified above;
(c) manage the data in the store of paratransit services.

4.2.1.5 Process Demand Responsive Transit Vehicle Availability Data

Overview: This process shall manage data input to sensor(s) on board a transit vehicle. Data including the vehicle's availability for use in demand responsive transit services shall be provided by this process to other processes within the Manage Transit function.

Unsolicited Input Processing: This process shall receive the following unsolicited input data flow:
(a) 'ftv-availability'.

Solicited Output Processing: This process shall provide the following output flow as a result of the above inputs being received:
(a) 'paratransit_transit_vehicle_availability'.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the unsolicited input flow shown above;
(b) analyze the input flow and if required, transform it into digital data for use by other processes;
(c) send the data in the solicited output flow shown above to the process that will combine it with vehicle location.

4.2.1.6 Provide Demand Responsive Transit Driver Interface

Overview: This process shall provide the interface through which a transit driver will be sent instructions about the demand responsive transit schedule that has been confirmed. The process shall send the data in a format that will enable the driver to implement the schedule. The output provided by the process shall be available in audio or visual form in such a way that while alerting the driver to the information it contains, it shall in no way impair the driver's ability to operate the vehicle in a manner that is both safe to its passengers, and to other vehicles on the roads and freeways. The input and output forms shall also include those that are suitable for travelers with physical disabilities.

(a) 'paratransit_transit_driver_instructions'.

Solicited Output Processing: This process shall provide the following output flows as a result of the above inputs being received:
(a) 'ttd-paratransit_information'.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the unsolicited input flows listed above;
(b) produce the output to the transit driver in such a way that it does not jeopardize the driver's safe operation of the transit vehicle, but conveys the required information in an easily understandable form;
(c) maintain the output for as long as the schedule is current, i.e. until the time of the last activity or the last arrival time has past.

4.2.2 Provide Transit Plans Store Interface

Overview: This process shall provide the interface to the store of current regular transit plans, i.e., routes and schedules and demand responsive transit schedules. The process shall enable the store to be used by the Demand Responsive Transit facility as a source of data about regular transit services when it is generating its schedules. The demand responsive transit schedule data shall be accessible as input to the regular transit route and schedule generation processes.

Data Flows: All input data flows are unsolicited and all output flows are solicited with the exception of the following which contains data requested from and written to the store of transit plans:
(a) 'transit_plans'.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input flows listed above;
(b) when the inputs are received, generate the outputs identified above;
(c) manage the data in the store of transit plans data.

4.2.3.1 Generate Transit Routes

Overview: This process shall generate new transit routes. The process shall use parameters set up by the transit fleet manager, operational data for the current routes and schedules, plus the current routes and digitized map data, as sources of input from which the new routes are generated. The process shall also use the requested input data containing the demand responsive transit routes and schedules. The generation of new routes by the process shall be initiated as a result of data received from the transit fleet manager interface process, with the output being sent to other processes for storage. The output data produced by the process shall include sufficient data for a specialist map data provider to generate maps showing transit routes and stops, either as separate data or as part of the general digitized map data provided to other ITS functions.

Data Flows: The input data flow for updating routes and services is unsolicited and all other input and output flows are then solicited as a result of its receipt. The following data flows are received as a result of requests for data from stores:
(a) 'map_data_for_transit';
(b) 'transit_operational_data';
(c) 'transit_service_planning_parameters'.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input flow requesting update of the routes and services from the transit fleet manager and shown in the list above;
(b) when this input is received, initiate the generation process, reading in all the required data from stores, or requesting it from the store interface process;
(c) use the data in (b) to produce the output of new transit routes data using an appropriate route generation algorithm;
(d) use appropriate database mechanism(s) to retrieve data from the stores identified by the flows shown above.

4.2.3.2 Generate Schedules

Overview: This process shall generate new transit schedules for use by the regular transit operation. The process shall use parameters set up by the transit fleet manager, operational data for the current routes and schedules, plus the current routes and schedules themselves, as sources of input from which the new schedules are generated. The process shall also use the data containing the demand responsive transit routes and schedules to generate the new schedules. The generation of new schedules by the process shall be initiated as a result of data received from the transit fleet manager interface process or a request for services to a parking lot. The process shall send its output to another process for storage.

Data Flows: The input data flow for updating routes and services is unsolicited and all other input and output flows are then solicited as a result of its receipt. The following data flows are as a result of requests for data from stores:
(a) 'transit_operational_data';
(b) 'transit_service_planning_parameters'.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input flow requesting update of the schedules shown in the list above;
(b) when this input is received, initiate the generation process, reading in all the required data and produce the output of the new transit schedules data using an appropriate schedule generation algorithm;
(c) use appropriate database mechanism(s) to retrieve data from the stores identified by the flows shown above.

4.2.3.3 Produce Transit Service Data for External Use

Overview: This process shall obtain transit routes and services data and distribute it to ITS functions that are outside the transit center. The process shall run when a request for data is received from an external source, or when fresh data is received. In the latter case, the data shall only be sent by the process to the multimodal transportation service provider. For data requests that include an origin and a destination, the process shall only provide details of the transit service(s) that link the two points. The details shall only cover those portion(s) of the service(s) that are needed to complete the requested trip and not full details of the services.

Unsolicited Input Processing: This process shall receive the following unsolicited input data flows:
(a) 'transit_services_advisories_request';
(b) 'transit_services_demand_request';
(c) 'transit_services_guidance_request';
(d) 'transit_services_kiosk_request';
(e) 'transit_services_travelers_request';
(f) 'transit_services_personal_request'.

Solicited Input Processing: This process shall receive the following data flows as a result of output being sent to another process:
(a) 'transit_service_external_data'.

Solicited Output Processing: This process shall provide the following output flows as a result of the above inputs being received:
(a) 'request_transit_service_external_data';
(b) 'tmtsp-transit_service_data';
(c) 'transit_services_for_advisory_data';
(d) 'transit_services_for_demand';
(e) 'transit_services_for_deployment';
(f) 'transit_services_for_guidance';
(g) 'transit_services_for_kiosks';
(h) 'transit_services_for_travelers';
(i) 'transit_services_for_personal_devices'.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the unsolicited input flows listed above;
(b) when any of the unsolicited inputs shown above except the last are received, the process shall immediately generate the first solicited output shown above;
(c) when the solicited input flow is received as a result of (b) begin generation of the requested data, only including the details necessary to meet the request, i.e. all of the transit routes and schedules provided in response to every request;
(d) data shall only be sent to the source from which the data request originated;
(e) before output, the process shall put the data into a format that is easily read and interpreted by external processes and can also be read by travelers and transit users with the minimum of further processing;
(f) if the second unsolicited input is received, i.e. fresh service data is received without being requested, the data shall only be sent to the multimodal transportation service provider using the second solicited output flow.

4.2.3.4 Provide Transit Fleet Manager Interface for Services Generation

Overview: This process shall provide the interface through which the transit fleet manager controls the generation of new routes and schedules (transit services). The transit fleet manager shall be able to review and update the parameters used by the routes and schedules generation processes and to initiate these processes. This process shall also act as the interface through which the Manage Demand facility in the Manage Traffic function can request changes to the current routes and schedules in its efforts to adjust the modal split of travelers' trips in order to make the most efficient use of the road and highway network served by the local ITS functions. The input and output forms shall include those that are suitable for travelers with physical disabilities.

Data Flows: All input data flows are unsolicited and all output flows are solicited with the exception of the following which contains data written to a data store:
(a) 'transit_service_planning_parameters'.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input flows from the transit fleet manager listed above;
(b) when the inputs in (a) are received, generate the appropriate outputs identified above;
(c) continuously monitor for receipt of any input data flows that may be produced by the output flows generated in (b);
(d) use appropriate database mechanism(s) to write data to the store of transit service planning parameters, the flow identified above when input of new/updated parameters is received from the transit fleet manager;
(e) the process shall allow the schedule generation process to be initiated on its own, but shall always initiate that process if initiation of the routes generation process is requested. I.e. it shall not be possible to have old schedules applied to newly generated routes.

4.2.3.5 Manage Transit Operational Data Store

Overview: This process shall collect transit operational data and load it into a data store for use by the routes and schedules generation processes. The data shall be provided to this process by other processes in the Manage Transit function and shall enable an accurate picture of how routes and schedules are currently operating in terms of the numbers of vehicles that are available, the numbers of passengers that they are carrying, and the numbers of passengers passing through each roadside facility (transit stop).

Unsolicited Input Processing: This process shall receive the following unsolicited input data flows:
(a) 'transit_roadside_passenger_data';
(b) 'transit_vehicle_passenger_data';
(c) 'transit_vehicle_availability';
(d) 'transit_vehicle_data'.

Solicited Input Processing: This process shall receive the following input flow as a result of data being sent to the transit fleet manager terminator:
(a) 'ftfm-passenger_loading_updates'.

The remaining data flows are solicited output flows.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the unsolicited input flows listed above;
(b) when any of the inputs is received, write the data into the store of operational data using the output flow shown above;
(c) when writing the data to the store, rationalize the two counts of the numbers of passengers for each transit route segment, (one being reported by the fare collection process and the other by the transit vehicle monitoring process), reporting any differences to the transit fleet manager;
(d) periodically, read the data from the transit operational data store and send it to the archive function using the solicited flow shown above;
(e) manage the data in the store of transit operational data.

4.2.3.6 Produce Transit Service Data for Manage Transit Use

Overview: This process shall obtain transit routes and services data and distribute it internally to other processes in the Manage Transit function. The process shall only provide its outputs when fresh data is received from another process. If this does not happen for a long period of time (days), then the process shall initiate its own request for fresh data.

Unsolicited Input Processing: This process shall receive the following unsolicited input data flows:
(a) 'transit_service_internal_data';
(b) 'transit_services_for_eta_request'.

Solicited Input Processing: This process shall receive the following data flows as a result of output being sent to another process:
(a) 'transit_service_internal_data'.

Unsolicited Output Processing: This process shall provide the following output flows regardless of any inputs that are received:
(a) 'request_transit_service_internal_data'.

Solicited Output Processing: This process shall provide the following output flows as a result of the above inputs being received:
(a) 'transit_services_for_corrections';
(b) 'transit_services_for_eta';
(c) 'transit_services_for_advanced_fares';
(d) 'transit_services_for_vehicle_fares';
(e) 'transit_services_for_roadside_fares';
(f) 'transit_services_for_scenarios';
(g) 'transit_services_for_transit_drivers'.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the unsolicited input flows listed above;
(b) when the unsolicited input shown above is received, the process shall immediately generate all of the solicited outputs shown above;
(c) if the first unsolicited input is not received periodically, then the process shall generate the unsolicited output shown above.

4.2.3.9 Update Transit Map Data

Overview: This process shall provide updates to the store of digitized map data used by the transit route generation process and as the background for displays of transit services requested by the transit fleet manager. The process shall obtain the new data from a specialist data supplier or some other appropriate data source, after receiving an update request from the transit fleet manager interface process within the function. The processes requiring data for use in transit route generation and as the background to displays will read the data from the store loaded by this process.

Unsolicited Input Processing: This process shall receive the following unsolicited input data flows:
(a) 'request_transit_map_update'.

Solicited Input Processing: This process shall receive the following data flows as a result of output being sent to external functions:
(a) 'fmup-transit_map_update'.

Solicited Output Processing: This process shall provide the following output flows as a result of the above inputs being received:
(a) 'tmup-transit_map_update_request';
(b) 'map_data_for_transit'.

Functional Requirements: This process shall meet the following requirements:
(a) continuously monitor for the receipt of the unsolicited data flow shown above;
(b) when the data flow in (a) is received, generate the first solicited output data flow shown above and continuously monitor for receipt of the solicited input data flow shown above;
(c) when the flow in (b) is received, output the second solicited output data flow shown above;
(d) be capable of receiving the input data in a variety of formats and converting it into a single format suitable for use with the store of digitized map data;
(e) manage the data in the store of digitized map data.

4.3.1 Monitor Transit Vehicle Condition

Overview: This process shall monitor the condition of a transit vehicle. It shall use the transit vehicle maintenance specification 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. The data resulting from this analysis shall be loaded by the process into the store of transit vehicle operations data, through the output flow transit vehicle maintenance. This data is then sent to the process that generates transit vehicle maintenance schedules.

Data Flows: The input data flows are unsolicited and the output flows are solicited.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input flow transit vehicle status;
(b) when the input in (a) is received, generate the outputs identified above using data obtained from the data store through the input flow transit vehicle maintenance specs.

4.3.2 Generate Transit Vehicle Maintenance Schedules

Overview: This process shall generate transit vehicle maintenance schedules and includes what and when maintenance or repair is to be performed. Transit vehicle availability listings (current and forecast) shall also be generated by the process to support transit vehicle assignment planning. The maintenance and/or repair that is to be performed on the transit vehicle shall be scheduled by the process for a specific month, week, day(s), and hour(s). The availability of the transit vehicle that is also output by the process shall be based upon the transit vehicle maintenance schedule. The process shall load each transit vehicle maintenance schedule that it produces into the store of transit vehicle operations data, through the process that maintains this data store.

of the following:
(a) 'transit_vehicle_maintenance_schedule', which contains data subsequently written to the transit vehicle operations data store.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input flow listed above;
(b) when the input is received, produce the maintenance schedule including details of the work that is to be done and when it shall be done;
(c) when (b) is completed, generate the outputs identified above.

4.3.3 Generate Technician Work Assignments

Overview: This process shall assign transit maintenance personnel to a transit vehicle maintenance schedule. The maintenance schedule shall be received from another process and shall define what and when maintenance repair is to be performed to a specific transit vehicle. The process shall base the personnel assignment upon details about the personnel obtained from the transit fleet manager and held in a local data store. These details shall comprise personnel eligibility, work assignments, preferences and seniority. The process shall also provide these details to the transit fleet manager on request. When a work assignment has been generated, the process shall send it to the transit maintenance personnel and also to the process that monitors and verifies maintenance work activity. The input and output forms shall include those that are suitable for travelers with physical disabilities.

Data Flows: All input data flows are unsolicited and all output flows are solicited.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input flows listed above;
(b) when the transit vehicle maintenance input is received, generate the maintenance schedule, using data in the store of transit maintenance technician data;
(c) on completion of (b), output the work assignment to the maintenance personnel and the process that monitors and verifies maintenance work activity using the data flows identified above;
(d) when a request for personnel data is received from the transit fleet manager, retrieve the requested data from the store and output it to the manager using the data flow identified above;
(e) manage the data in the store of transit technician data.

4.3.4 Monitor And Verify Maintenance Activity

Overview: This process shall verify that the transit vehicle maintenance activities were performed correctly and that a time stamped maintenance log for record keeping was generated. The correctness of the maintenance activities shall be judged by the process against the transit vehicle's status, the maintenance personnel's work assignment, and the transit maintenance schedules produced by other processes. The process shall save a time stamped record of all the maintenance activities performed on the vehicle into the transit vehicle maintenance log.

Data Flows: All input data flows are unsolicited and all output flows are solicited.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input flows listed above;
(b) when the input of vehicle status is received, compare it with the maintenance schedule read from the store of transit vehicle operations data, input through the transit vehicle maintenance specs data flow, and the maintenance personnel work assignments generated by another process;
(c) if the result is satisfactory, generate the outputs identified above.

4.3.5 Report Transit Vehicle Information

Overview: This process shall provide the transit fleet managers with the capability of requesting and receiving transit vehicle maintenance information. The process shall obtain the data for each request from the store of transit vehicle operations data, through the process that manages the data store, and shall produce the output to the transit fleet manager in an easily understood form. The input and output forms shall include those that are suitable for travelers with physical disabilities.

Unsolicited Input Processing: This process shall receive the following unsolicited input data flows:
(a) 'ftfm-transit_vehicle_maintenance_specs';
(b) 'ftfm-transit_vehicle_maintenance_information_request'.

Solicited Input Processing: This process shall receive the following solicited input data flows:
(a) 'transit_vehicle_maintenance_data'.

Solicited Output Processing: This process shall provide the following output flows as a result of the above inputs being received:
(a) 'ttfm-transit_vehicle_maintenance_information';
(b) 'transit_vehicle_maintenance_data_request', which requests data from the transit vehicle operations data store, through the process that manages the data store;
(c) 'transit_vehicle_maintenance_specs_update'.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the unsolicited input flows listed above;
(b) when the inputs are received, read the requested data from the store of transit vehicle operations data, through the process that manages the data store;
(c) when (b) is complete, generate the output to the transit fleet manager identified above;
(d) when the new transit vehicle maintenance specification data is received from the fleet manager, generate the output to the transit vehicle operations data store management process; this process subsequently sends the transit vehicle maintenance specs to another process.

4.3.6 Update Transit Vehicle Information

Overview: This process shall provide the transit maintenance personnel with the capability to update transit vehicle maintenance information. The process shall send the data received from the transit maintenance personnel to the transit vehicle operations data store management process for use by other processes.

Data Flows: The input data flow is unsolicited. The output flow is solicited and contains data that is written to the store of transit vehicle operations data, by the process that manages the data store.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input flow listed above;
(b) when the input is received from the transit maintenance personnel, load the received data into the store of transit vehicle operations data using the output flow identified above.

4.3.7 Manage Transit Vehicle Operations Data Store

Overview: This process shall manage the store of transit vehicle operations data. It shall be able to load data it receives about vehicle maintenance into the store and provide that data on request to other processes.

Data Flows: The input data flow is unsolicited and all output flows are solicited with the exception of the following:
(a) 'transit_vehicle_operations data', which contains data written to and read from the transit vehicle operations data store.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input flows listed above;
(b) when the inputs containing new data are received, load the data into the store;
(c) if the data in (b) contains new maintenance specifications, send them to the vehicle condition and verify matinenance activities processes;
(d) when the input containing requests for data is received, retrieve the required data from the store and send it to the requesting process;
(e) manage the data in the store of transit vehicle operations data.

4.4.1.1 Manage Transit Security

Overview: This process shall manage the security in the transit system by monitoring for potential incidents. Data shall be obtained by the process from a variety of sources and assessed for any security problems. Problems shall be passed by the process to the transit system operator for review and the required action. Information about incidents shall also be sent by this process to another process for output to the media, using interface parameters set up by the transit system operator.

Data Flows: All input data flows are unsolicited and all output flows are solicited with the exception of the following solicited input which is received as a result of output to another process:
(a) 'transit_operator_security_action'.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input flows listed above;
(b) generate the corresponding output data flows;
(c) continuously monitor the traveler emergency details from the Remote Traveler Subsystem to determine if any incidents are taking place, and if so generate the appropriate outputs.

4.4.1.2 Manage Transit Emergencies

Overview: This process shall support the management of emergencies that occur in the transit system by processing information received from transit vehicles. The process shall accept inputs from either the transit vehicle driver or a transit user, the latter through such interfaces as panic buttons, alarm switches, etc. The reported emergencies shall be sent to another process for action by the transit system operator and subsequently for output to the media. The process shall also send acknowledgment data to the process providing the interface to the transit driver.

Data Flows: All input data flows are unsolicited and all output flows are solicited with the exception of the following solicited input which is received as a result of output to another process:
(a) 'transit_operator_request_acknowledge'.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input flows listed above;
(b) when the inputs are received, generate the outputs identified above;
(c) after sending notification to the transit system operator process, if no response is received, then the output message to that process shall be repeated periodically until a response is received;
(d) the data about the emergency sent to the transit system operator shall include the transit vehicle location which is derived from separate input for the emergency data.

4.4.1.3 Provide Transit System Operator Security Interface

Overview: This process shall provide an interface for the transit system operator to identify and act upon potential information security problems and emergencies. This information shall be provided by other processes through input data flows. This process shall also provide the capability for the transit system operator to update parameters that control the output of data about the potential security problems to the media. The input and output forms shall include those that are suitable for travelers with physical disabilities.

Data Flows: All input data flows are unsolicited and all output flows are solicited with the exception of the following solicited inputs:
(a) 'ftso-emergency_request_acknowledge', which is a result of output to the transit system operator;
(b) 'ftso-security_action', which is a result of output to the transit system operator;
(c) 'transit_media_interface_parameters', which is data written to or requested from the store of transit media interface parameters.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input flows listed above;
(b) when the inputs providing information about emergencies are received, generate the output to the transit system operator identified above;
(c) as a result of (b), monitor for input of a response from the transit system operator using the input defined above;
(d) on receipt of the data in (c), generate the output to the process that provided the information about the emergency;
(e) when the data flow requesting the media interface parameters is received, read the data from the store and output it to the transit system operator;
(f) when the data flow with updates to the media interface parameters is received, load the data into the store of these parameters;
(g) manage the data in the store of transit media interface parameters.

4.4.1.4 Provide Transit External Interface for Emergencies

Overview: This process shall provide the interface through which information about security problems and emergencies detected within the transit system are distributed directly to the media and other information systems. This process shall construct its output from the data supplied by other processes. This data shall contain parameters that define the way (format, content, etc.) in which the information is output by the process. The input and output forms shall include those that are suitable for travelers with physical disabilities.

Data Flows: All inputs are unsolicited and all outputs are solicited.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the unsolicited input flows listed above;
(b) upon receipt of either of the inputs the process shall immediately generate the appropriate output, using the supplied parameters to determine the information and format in which it shall be supplied.

4.4.1.5 Provide Transit Driver Interface for Emergencies

Overview: This process shall provide an interface to the transit vehicle through which the driver can both report an emergency situation and receive an acknowledgment. The process shall provide this interface in such a way that its operation for both inputs and outputs shall be transparent to transit users on board the vehicle and to anyone outside the vehicle, and shall not compromise the safe operation of the vehicle by the driver.

Unsolicited Input Processing: This process shall receive the following unsolicited input data flows:
(a) 'ftd-emergency_request'.

Solicited Input Processing: This process shall receive the following solicited input data flows:
(a) 'transit_driver_emergency_acknowledge'.

Solicited Output Processing: This process shall provide the following output flows as a result of the above inputs being received:
(a) 'transit_driver_emergency_request';
(b) 'ttd-emergency_information'.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the unsolicited input flow listed above;
(b) upon receipt of the unsolicited input, immediately generate both outputs shown above;
(c) the solicited input should then be received;
(d) the output to the transit driver and the method of providing the input must be transparent to transit users and anyone in the vicinity of the transit vehicle.

4.4.1.6 Collect Transit Vehicle Emergency Information

Overview: This process shall collect data about emergencies that occur on-board transit vehicles for output to the media and the Manage Emergency Services function. These emergencies may be reported by either the transit driver or a transit user, the latter through such interfaces as panic buttons, alarm switches, etc. For output to the media interface process, the data shall be combined with the data in the media interface parameters data store.

Data Flows: All input data flows are unsolicited and all output flows are solicited, with the exception of the following which contains data read from a data store:
(a) 'transit_media_emergency_interface_parameters'.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input flow listed above;
(b) when the input is received, generate the two outputs identified above, adding the data from the media interface parameters store to that being sent to the media interface process.

4.4.1.7 Monitor Secure Area

Overview: This process shall monitor the secure area environment. Data shall be obtained by the process from a variety of sources and assessed for any security problems. Problems shall be passed by the process to other processes for review and the required action. Information about incidents shall also be sent by this process to another process for output to the media, using interface parameters set up by the transit system operator. The process shall also provide facilities for the control of video cameras and audio output in the secure area environment.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input flows listed above that come from the secure area environment, or that are reporting traveler emergencies;
(b) when traveler/transit emergency details are received, generate the data flow that sends the incident information to the processes that pass it on to the transit system operator interface process;
(c) if no response is received from the output of the flow in (b), the output of the data flow in (b) shall be repeated periodically until a response is received;
(d) when a response is received to the data flow in (b), generate the other output data flows;
(e) continuously monitor the video (surveillance information) input flow from the secure area environment to determine if any incidents are taking place, and if so carry out similar actions to those in (b) through (d) above;
(f) if the response data flow in (d) is received without there being any input from the secure area environment, output the monitoring control (camera, audio) data flow.

4.4.1.8 Report Traveler Emergencies

Overview: This process shall provide an interface in the Provide Driver and Traveler Services function through which travelers can declare emergencies. The traveler may be at a kiosk or other device, transit stop, transit depot, etc. The input and output forms shall include those that are suitable for travelers with physical disabilities.

Data Flows: All input data flows are unsolicited and all output flows are solicited.

Functional Requirements: This process shall:
(a) continuously monitor for receipt of the input flows from the traveler or Emergency Management listed above;
(b) when any of the inputs in (a) are received, check for content;
(c) generate the output identified above and send the data to the next process;
(d) when the emergency request input is received from the traveler, generation of the output to the Manage Emergency Services function must take priority over all other processing;
(e) following the output of the message in (d), all other processing shall be suspended until the acknowledgment data flow is received from the Manage Emergency Services function, and the output has been displayed.

4.4.2 Coordinate Multiple Agency Responses to Incidents

Overview: This process shall provide transit fleet managers with an interface through which they can control the coordination data sent to the Manage Emergency Services function following the detection of a security problem or emergency within the transit operations network by other processes. The process shall use data from the store of predefined responses to security problems and emergencies in the outputs that it sends to the Manage Emergency Services function. If no match can be found then the process shall send all the available data to the transit fleet manager for action. The input and output forms shall include those that are suitable for travelers with physical disabilities.

Unsolicited Input Processing: This process shall receive the following unsolicited input data flows:
(a) 'transit_emergency_information';
(b) 'transit_incident_information'.

Solicited Input Processing: This process shall receive the following solicited input data flows:
(a) 'transit_preplanned_responses_for_incidents', which contains data requested from a data store;
(b) 'ftfm-coordination_data', which is received as a result of a previous output to the transit fleet manager;
(c) 'transit_incident_coordination_data', which is received as a result of output being sent to processes in the Manage Emergency Services function.

Solicited Output Processing: This process shall provide the following output flows as a result of the above inputs being received:
(a) 'transit_coordination_data';
(b) 'ttfm_coordination_request'.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input flows listed above;
(b) when either of the information inputs is received, search the store of predefined responses for a match;
(c) if (b) is successful, generate the output to the Manage Emergency Services function identified above;
(d) if (b) is unsuccessful, output all the data received as input to the transit fleet manager and monitor for receipt of the solicited input flow from the manager;
(e) when the solicited input flow in (d) is received, generate the output to the Manage Emergency Services function identified above;
(f) use the appropriate database mechanism(s) to retrieve data from the store of predefined responses identified above.

4.4.3 Generate Responses for Incidents

Overview: This process shall provide the interface through which the transit fleet manager can enter and review predefined responses to security problems and emergencies that have been detected by other processes within the Manage Transit function. This data shall be stored in a form which can be used by another process to provide coordination data to the Manage Emergency Services function. The input and output forms shall include those that are suitable for travelers with physical disabilities.

inout flow contains data requested from or written to a data store:
(a) 'transit_preplanned_responses_for_incidents'.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input flows listed above;
(b) when the input requesting output of the store contents is received, read the data from the store of transit predefined responses;
(c) when (b) has been successfully completed, generate the output to the transit fleet manager identified above;
(d) when the input in (a) contains new transit predefined responses data, update the store, overwriting any old data as necessary;
(e) manage the data in the store of preplanned responses.

4.5.1 Assess Transit Driver Performance

Overview: This process shall assess the transit driver's performance at previous work assignments. The process shall carry out this activity by 1) utilizing standardized performance evaluation criteria set forth by governmental regulations and transit operating company policies, 2) assessing the transit driver's driving history, and 3) assessing comments from the transit driver's supervisor(s). It shall also use the details of any moving violations or accidents, supervisor comments, government regulations, and company policies. The data shall be sent to this process by the process that provides the interface to a local data store, each time that the store is updated with driver performance data.

Solicited Input Processing: This process shall receive the following solicited input data flow:
(a) 'transit_driver_performance_considerations', contains data requested from a data store.

Solicited Output Processing: This process shall provide the following output flows as a result of the above input being received:
(a) 'transit_driver_performance', contains data written to a data store;
(b) 'transit_driver_performance_data', contains data sent to another process.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input data flow listed above;
(b) when the input is received, analyze the data it contains and generate the two output flows identified above.

4.5.2 Assess Transit Driver Availability

Overview: This process shall assess the transit driver's availability based on previous work assignments plus health and vacation commitments. The process shall carry out this activity by 1) utilizing standardized transit driver work criteria set forth by governmental regulations and company policies, 2) monitoring the transit driver's health status and vacation status, and 3) monitoring the transit driver's accumulated work hours. The data shall be sent to this process by the process that provides the interface to a local data store, each time that the store is updated with driver availability data.

(a) 'transit_driver_availability_considerations', contains data requested from a data store.

Solicited Output Processing: This process shall provide the following output flows as a result of the above input being received:
(b) 'transit_driver_availability', contains data written to a data store;
(c) 'transit_driver_availability_data', contains data sent to another process.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input data flow listed above;
(b) when the input is received, analyze the data it contains and generate the two output flows identified above.

4.5.3 Access Transit Driver Cost Effectiveness

Overview: This process shall assess the transit driver's cost effectiveness when carrying out previous work assignments. The process shall perform this activity by 1) utilizing standard transit driver cost criteria set forth by governmental regulations and company policies, and 2) monitoring the transit driver's hourly wage and accumulated work hours. The data shall be sent to this process by the process that provides the interface to a local data store, each time that the store is updated with driver cost effectiveness data.

Solicited Input Processing: This process shall receive the following solicited input data flow:
(a) 'transit_driver_cost_effectiveness_considerations', contains data requested from a data store.

Solicited Output Processing: This process shall provide the following output flows as a result of the above input being received:
(a) 'transit_driver_cost_effectiveness', contains data written to a data store;
(b) 'transit_driver_cost_effectiveness_data', contains data sent to another process.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input data flow listed above;
(b) when the input is received, analyze the data it contains and generate the two output flows identified above.

4.5.4 Assess Transit Driver Eligibility

Overview: This process shall assess the transit driver's eligibility for future work assignments. The process shall carry out this activity by 1) monitoring the transit driver's performance, availability and cost effectiveness, 2) utilizing standardized transit driver eligibility criteria set forth by governmental regulations and company policies, and 3) ensuring that the transit driver has the required experience, education and certifications. The data shall be sent to this process in one of two ways: 1) by the process that provides the interface to a local data store, each time that the store is updated with driver eligibility data, or 2) the data is produced as the result of analysis work carried out by other processes within the Manage Traffic function.

Data Flows: All input data flows are unsolicited and all output flows are solicited with the exception of the following solicited flows that interface to the data store:
(a) 'transit_driver_eligibility_considerations', which contains data requested from a data store;
(b) 'transit_driver_eligibility', which contains data written to a data store.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input data flows listed above;
(b) when any of the input flows are received, generate the outputs identified above.

4.5.5 Generate Transit Driver Route Assignments

Overview: This process shall assign transit drivers to transit schedules. The transit driver's eligibility, route preferences, seniority, and transit vehicle availability shall be used by the process to determine the transit driver's route assignment. The output produced by the process shall be sent to the transit driver in the form of the next work assignment. The input and output forms shall include those that are suitable for travelers with physical disabilities.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input flows listed above;
(b) when either of the inputs containing eligibility or route assignment consideration data is received, generate the output to the transit driver identified above;
(c) when any of the other inputs is received, load the data into a local data store for use in future route assignment calculations;
(d) manage the data in the store of transit driver route data.

4.5.6 Update Transit Driver Information

Overview: This process shall provide the interface through which the transit driver can input data to the store of transit driver information. The interface provided by this process shall enable the transit driver to update personal availability and route assignment information. The input and output forms shall include those that are suitable for travelers with physical disabilities.

Data Flows: The input data flow is unsolicited and the output flow is solicited.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input flow from the transit driver listed above;
(b) when the input is received, generate the output data flow identified above.

4.5.7 Report Transit Driver Information

Overview: This process shall provide the interface between the transit fleet manager and the store of driver information. The interface provided by the process shall enable the fleet manager to review and update transit driver information. The input and output forms shall include those that are suitable for travelers with physical disabilities.

Data Flows: The input data flows are unsolicited and the output flows are solicited with the exception of the following solicited input:
(a) 'transit_driver_information_output',which is the result of a data request sent to transit driver information interface process.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input flows from the transit fleet manager listed above;
(b) when any of the inputs in (a) is received, output the appropriate data flow to the interface process for the store of transit driver information identified above;
(c) if the input flow requested driver information, continuously monitor for receipt of the data flow sent from the data store interface process containing the requested data;
(d) when the input data flow in (c) is received, generate the appropriate output flow to the transit fleet manager, containing the requested data.

4.5.8 Provide Transit Driver Information Store Interface

Overview: This process shall provide the read and write interface to the store of transit driver information. The interface enables the contents of the store to be updated with inputs received from the transit driver and transit fleet manager via other processes, as well as, inputs resulting from analysis of driver availability, cost effectiveness, eligibility, and performance carried out by other processes. The process shall also supply data to these processes when the store is updated with information from the transit driver and fleet manager. It shall also supply data to the process that generates driver route assignments when any of the analysis inputs is received.

Data Flows: The input data flows are unsolicited and the output flows are solicited with the exception of the following solicited inputs:
(a) 'transit_driver_information', which contains data written to a data store;
(b) 'transit_driver_availability', which contains data received as a result of output being sent to the availability analysis process;
(c) 'transit_driver_cost_effectiveness', which contains data received as a result of output being sent to the cost effectiveness analysis process;
(d) 'transit_driver_eligibility', which contains data received as a result of output being sent to the eligibility analysis process;
(e) 'transit_driver_performance', which contains data received as a result of output being sent to the performance analysis process.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input flows listed above;
(b) when either the input or update data flow is received, load the data into the store of transit driver information and send the data to the appropriate analysis process;
(c) when the input containing the results of the availability, cost effectiveness, eligibility and performance analysis is received, again load it into the store of transit driver information and send the data to the driver route assignment process;
(d) when the input containing the request for output of the current store data is received from the transit fleet manager interface process, read the data from the store and send it to the requesting process;
(e) manage the data in the store of transit driver information.

4.6.1 Detect Transit User on Vehicle

Overview: This process shall detect embarking transit users on-board a transit vehicle and read data from the payment instrument that they are carrying. The process shall provide an image of all transit users which shall be used for violation processing of those who do not have a payment instrument or whose transit fare transaction fails. It shall obtain an image of the required accuracy under all lighting conditions and over the range of speeds with which transit users will pass through the fare collection point on a transit vehicle.

Data flows: All input data flows are unsolicited and all output flows are solicited.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input flows listed above;
(b) when the transit user tag data input flow is received, generate the transit user tag identity output flow identified above;
(c) when the flow requesting an image of the transit user is received, if necessary convert the video data in the flow from the transit user into a digital form, and output the digitized image in the transit user vehicle image data flow;
(d) if the input flow in (c) is not received, discard the video image data in the flow from the transit user;
(e) all input and output flows must be encrypted in such a way that it is not possible to determine the credit identity being transmitted using any form of digital or analog encryption techniques.

4.6.2 Determine Transit User Needs on Vehicle

Overview: This process shall determine the transit user's travel routing based on the transit vehicle's current location and the user's destination. The process shall support the transit user's routing, enabling it to include travel on the vehicle for all or part of its route and (possibly) transfer to another vehicle on another route. In order to achieve this capability, the process shall have access to the complete range of transit services (routes and schedules) that are available to the transit user. The transit vehicle's location shall be provided by other processes within the Manage Transit function. Details of all transactions with the transit user's payment details removed, shall be sent by this process to the interface process for loading into a data store.

Data flows: All input data flows are unsolicited and all output flows are solicited.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input flows listed above;
(b) when the transit user tag identity input flow is received, continuously monitor for receipt of the flow with the other transit user information;
(c) when both the flows in (b) have been received, use the vehicle location and transit services inputs to generate the output flows identified above;
(d) all input and output flows must be encrypted in such a way that it is not possible to determine the transit user's payment information being transmitted, using any form of digital or analog encryption techniques.

4.6.3 Determine Transit Fare on Vehicle

Overview: This process shall calculate the transit user's fare based on the origin and destination provided by the user. The process shall calculate the fare using the transit routing, transit fare category, and transit user history components of the ride data, in addition to information provided by the interface process for the transit fares data store. The accumulated data shall be sent by this process to another process for the actual implementation of the fare payment transaction.

Data Flows: All input data flows are unsolicited and all output flows are solicited with the exception of the following which contains data requested from a data store:
(a) 'transit_fares_for_vehicle'.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input flows listed above;
(b) when the transit user ride data input flow is received, generate the output data flow identified above, using the data in the store of transit fares for vehicles;
(c) manage the data in the store of transit vehicle fares data;
(d) all input and output flows must be encrypted in such a way that it is not possible to determine the transit user's payment information being transmitted, using any form of digital or analog encryption techniques.

4.6.4 Manage Transit Fare Billing on Vehicle

Overview: This process shall manage the transit user fare payments on-board a transit vehicle. The process shall receive information about the fare that is to be paid and the method of payment adopted by the transit user. It shall always support two modes of operation to complete the back end financial processing: infrastructure interactive, or semi-autonomous batch processing. The interactive method shall be used for individual transactions, such as those in paratransit type operations where value/volume ratios are high. It shall send transit user fare payment data to processes in the Provide Electronic Payment Services function for financial authorization and transaction processing, plus the return of the result for display to the transit user. A failed transaction shall result in the transmission of an image of the transit user to another process. Batch processing shall be used by the process for routes where value/volume ratios are low. It shall be performed using all the same data flows and processes as in the interactive method, except that transaction records are queued in a transaction buffer store which shall be maintained by this process. The accumulated data for the fare transactions shall be sent to the Provide Electronic Payment Services function on command from the transit vehicle driver, or when the transit vehicle has reached a convenient point on its route. The transit vehicle driver shall be notified when batch processing has completed successfully. In either mode of operation, a record of the status of all transit fare processing shall be sent to an interface process for the fare collection storage database.

Data Flows: All input data flows are unsolicited and all output flows are solicited.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input flows listed above;
(b) if the fare processing mode is not set, then request it as input from the transit vehicle driver;
(c) when confirmation of the mode is received, and at the end of each service, request an update to the store of bad tag data, completely overwriting the existing data with the new data;
(d) when the transit user fare input data is received, check the payment information against the store of bad tag data;
(e) if a match is found in (d), output a transaction failed message to the transit user;
(f) if no match is found in (d), generate the necessary outputs identified above that are consistent with the mode of processing being employed;
(g) when confirmation of an interactive mode transaction is received, pass on the result to the transit user;
(h) transmit the fare transaction data collected in batch mode when an instruction is received from the transit vehicle driver, the vehicle reaches the end of its current service, or the store of fare data becomes full;
(i) when confirmation of successful completion of batch mode fare processing is received, clear the fare data from the store and inform the transit vehicle driver;
(j) if the batch mode fare transaction fails, then inform the transit vehicle driver;
(k) all input and output flows must be encrypted in such a way that it is not possible to determine the transit user's payment information being transmitted, using any form of digital or analog encryption techniques;
(l) manage the data in the stores of bad tag data and the transit user transaction buffer.

4.6.5 Provide Transit User Fare Payment Interface on Vehicle

Overview: This process shall provide the fare payment interface for the transit user on-board a transit vehicle. The process shall prompt the transit user for information necessary that has not been provided for the transaction. The result of the transit service ride fare payment plus other services request and payment, shall be reported back to the transit user by the process. The input and output forms shall include those that are suitable for travelers with physical disabilities.

Data Flows: All input data flows are unsolicited and all output flows are solicited.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input flows listed above;
(b) when the inputs from the transit user are received, generate the appropriate outputs identified above, prompting the user for any information that has not been supplied;
(c) when any response flow is received, generate the appropriate output to the transit user to indicate the success or failure of the requested transaction;
(d) all input and output flows must be encrypted in such a way that it is not possible to determine the transit user's payment information being transmitted, using any form of digital or analog encryption techniques.

4.6.6 Update Transit Vehicle Fare Data

Overview: This process shall provide a database on-board the transit vehicle for use in fare processing. The database shall contain transit fare information from which the fares for all possible trips within the transit operational network can be determined.

Data Flows: The input data flow is unsolicited and the output flow contains data written to a data store:
(a) 'transit_fares_for_vehicle'.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input flow listed above;
(b) when the input flow is received, generate the output flow identified above to update the contents of the store of transit fares;
(c) manage the data in the store of transit fares.

4.6.7 Provide Transit Vehicle Passenger Data

Overview: This process shall provide passenger loading and fare statistics data to other ITS functions. The process shall send the data automatically at regular periodic intervals using data collected in the store of fare transaction data. This store receives data from the process that interfaces to the user on-board a transit vehicle.

Data Flows: All input data flows are unsolicited and all output flows are solicited with the exception of the following which contains data requested from and written to a data store:
(a) 'transit_vehicle_fare_collection_data'.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input flows listed above;
(b) when the inputs are received, write the data into the store of collected transit fare data;
(c) at periodic intervals, read all the data from the store and send it to the other processes in the Manage Transit function using the passenger data flow identified above;
(d) manage the data in the store of collected transit fare data;
(e) the data contained in the store shown above shall not contain any reference to a transit user's identity or credit payment information.

4.7.2.1 Detect Transit User at Roadside

Overview: This process shall detect transit users embarking at a roadside transit stop and read data from the payment instrument that they are carrying. The process shall provide an image of all transit users which shall be used for violation processing of those who do not have a payment instrument or whose transit fare transaction fails. It shall obtain an image of the required accuracy under all lighting conditions and over the range of speeds with which transit users will pass through the fare collection point at the roadside, i.e., a transit stop.

Data flows: All input data flows are unsolicited and all output flows are solicited.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input flows listed above;
(b) when the transit user tag data input flow is received, generate the transit user tag identity output flow identified above;
(c) when the flow requesting an image of the transit use is received, if necessary convert the video data in the flow from the transit user into a digital form, and output the digitized image in the transit user vehicle image data flow;
(d) if the input flow in (c) is not received, discard the video image data in the flow from the transit user;
(e) all input and output flows must be encrypted in such a way that it is not possible to determine the credit identity being transmitted using any form of digital or analog techniques.

4.7.2.2 Determine Transit User Needs at Roadside

Overview: This process shall determine the transit user's travel routing based on the user's destination and the location of the roadside transit stop from which the route request is being made. The process shall support the transit user's routing enabling it to include travel on all or part of the route(s) operating from the stop and (possibly) transfer to another route. In order for this to be achieved, the process requires access to the complete range of transit services (routes and schedules) that are available to the transit user. Details of all transactions with the transit user's payment details removed, shall be sent by this process to the interface process for loading into the transit roadside fare collection data store.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input flows listed above;
(b) when the transit user tag identity input flow is received, continuously monitor for receipt of the flow with the other transit user information;
(c) when both the flows in (b) have been received, use the vehicle location and transit services inputs to generate the output flows identified above;
(d) all input and output flows must be encrypted in such a way that it is not possible to determine the transit user's payment information being transmitted, using any form of digital or analog encryption techniques.

4.7.2.3 Determine Transit Fare at Roadside

Overview: This process shall calculate the transit user's fare based on the origin and destination provided by the user. The process shall calculate the fare using the transit routing, transit fare category, and transit user history components of the ride data together with data provided by the interface process to the database of transit fares. The accumulated data shall be sent by the process to another process for the actual implementation of the fare payment transaction.

Data Flows: All input data flows are unsolicited and all output flows are solicited with the exception of the following which contains data requested from a data store:
(a) 'transit_fares_for_roadside'.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input flows listed above;
(b) when the transit user ride data input flow is received, generate the output data flow identified above, using the data in the store of transit fares for roadside;
(c) manage the data in the store of transit fares for roadside;
(d) all input and output flows must be encrypted in such a way that it is not possible to determine the transit user's payment information being transmitted, using any form of digital or analog encryption techniques.

4.7.2.4 Manage Transit Fare Billing at Roadside

Overview: This process shall generate the data necessary to enable the financial transaction between the transit user and the transit provider to be completed at the roadside, i.e., at a transit stop. The process shall accept and process current transit passenger fare collection information. The process shall perform the front end transaction between the transit user and the transit system, and use the infrastructure interactive mode of operation to complete the back end processing. This means that the process shall send data about each transaction to processes in the Provide Electronic Payment Services function for the back end financial authorization and transaction processing. The process shall then await the return of the result for display to the transit user before accepting the next transaction. A failed transaction shall result in the transmission of an image of the transit user to another process. A record of the status of all transit fare processing shall be sent to another process for storage in a fare collection database.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input flows listed above;
(b) when the transit user fare input is received, generate the necessary outputs identified above that are consistent with the type of processing being employed;
(c) all input and output flows must be encrypted in such a way that it is not possible to determine the transit user's payment information being transmitted, using any form of digital or analog encryption techniques.

4.7.2.5 Provide Transit User Roadside Fare Interface

Overview: This process shall provide the interface for the transit user at the roadside, i.e., at a transit stop. The interface shall enable the transit user to specify the required destination of a transit service ride and request other (yellow pages) services. The process shall prompt the transit user for information necessary for the transaction that has not been provided. The result of the transit service ride fare payment plus other services request and payment, shall be reported back to the transit user by the process. The input and output forms shall include those that are suitable for travelers with physical disabilities.

Data Flows: All input data flows are unsolicited and all output flows are solicited.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input flows listed above;
(b) when the inputs from the transit user are received, generate the appropriate outputs identified above, prompting the user for any information that has not been supplied;
(c) when either of the response flows is received, generate the appropriate output to the transit user to indicate the success or failure of the requested transaction;
(d) all input and output flows must be encrypted in such a way that it is not possible to determine the transit user's payment information being transmitted, using any form of digital or analog encryption techniques.

4.7.2.6 Update Roadside Transit Fare Data

Overview: This process shall provide a database at the roadside, i.e., a transit stop, for use in fare processing. The database shall contain transit fare information from which the fares for all possible trips within the transit operational network can be determined.

Data Flows: The input data flow is unsolicited and the output flow contains data written to a data store:
(a) 'transit_fares_for_roadside'.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input flow listed above;
(b) when the input flow is received, generate the output flow identified above to update the contents of the data store of transit fares;
(c) manage the data in the store of transit fares for roadside.

4.7.2.7 Provide Transit Roadside Passenger Data

Overview: This process shall create passenger loading and fare statistics data based upon data collected at the roadside and send this data to the store of transit operations data. The process may send the data at regular periodic intervals, on-demand, or through some other trigger mechanism. The process shall create its outputs using information collected in the store of fare transaction data. This data is received from other processes at the roadside, i.e., at a transit stop.

Data Flows: All input data flows are unsolicited and all output flows are solicited with the exception of the following which contains data requested from and written to a data store:
(a) 'transit_fare_collection_data'.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input flows listed above;
(b) when the inputs are received, write the data into the store of collected transit fare data;
(c) at periodic intervals, read all the data from the data store and send it to the other processes in the Manage Transit function using the passenger data flow identified above;
(d) manage the data in the store of collected transit fare data;
(e) the data contained in the store shown above shall not contain any reference to a transit user's identity or credit payment information.

5.1.1 Identify Emergencies from Inputs

Overview: This process shall enable existing emergency centers to receive the calls, determine response requirements (enough to determine what responding agencies to notify), and route distress calls to those predesignated responding agencies. This process shall provide the identified emergency information in a standard format as required. This process receives emergency requests from the general public, public safety agencies, and other service providers (e.g., a Mayday service provider). Every set of emergency data received shall be assigned a level of confidence by the process depending on its source, so that the subsequent processes can assess the level of response to be provided. This process shall include verification, in that it shall determine if a number of inputs might all be referring to the same incident, then designate that incident in its notifications to the most appropriate responding agencies. By reconciling numerous reports and other collaborative information from the field (e.g.,CCTV images, reports from field staff), the verification function confirms the existence, location, and nature of a reported emergency.

Data Flows: All inputs are unsolicited and all outputs are solicited.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the unsolicited input flows listed above;
(b) when any of the inputs are received, the process shall perform an analysis of the data to produce the output in a standard format;
(c) the data format produced in (b) shall include a classification of the level of confidence or probability that the data is accurate, i.e., that it relates to a 'real' emergency and the information is correct.

5.1.2 Determine Coordinated Response Plan

Overview: This process shall determine the appropriate response for a verified emergency. This process shall classify, prioritize, and respond to verified emergencies accordingly. This process shall also determine the appropriate response plan and activate any remote controlled functions requested by a basic_vehicle terminator through the vehicle_security_ status data flow. A detailed description of the emergency, and any request for remote controlled emergency system activity, and any suggested response plan shall be sent to other processes for implementation. The same information shall also be forwarded to other emergency centers (other EM) for information and possible action.

Data Flows: All inputs are unsolicited with the exception of emergency_service_allocation_data which is a solicited flow from the data store. All outputs are solicited.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the unsolicited input flow listed above;
(b) when the input is received, the response will be determined from the data requested from the interface process that manages the store of emergency service allocation criteria and any functions requested by a vehicle shall be activated;
(c) when (b) is complete, the data shall be sent to both the emergency management and communications processes.

5.1.3 Communicate Emergency Status

Overview: This process shall receive the emergency service response plans and the status of their implementation for dissemination to other ITS functions. That dissemination shall be subject to sanitization according to pre-arranged rules, implemented in this process. The process shall also read data about emergency responses from the emergency services action log. All data shall be communicated by the process in standard formats to travelers, drivers, and other ITS functions. In the case of in-vehicle, personal traveler, and transit emergencies, after each emergency becomes a verified incident, the data shall be sent as soon as new status or plan data is received. Dissemination shall be controlled according to rules determined in this process to limit the information transmitted to that information useful to the receiver. Emergency information that is received from the emergency telephone system or E911 operators, shall be disseminated only when the response plan data is first received. That has the effect of only disseminating data on incidents that have been verified, since only verified incidents will have response plans. The process shall also extract data from the emergency service action log on request from processes in other ITS functions, and from the emergency services operator. Communication to in-vehicle processes may include requests for additional information or a set of commands to the vehicle security system.

Data Flows: All input data flows are unsolicited and all output flows are solicited with the exception of the following solicited input which contains data requested from a data store:
(a) 'emergency_service_action_log'.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the unsolicited input flows listed above;
(b) when either the input of emergency response plan data or detailed emergency status is received, read any associated data from the emergency service action log data store and generate the outputs to the vehicle, traveler, and Manage Transit function identified above;
(c) if the input in (b) is the first notification for an emergency, and it was received from the emergency telephone or E911 operator, send the acknowledge message identified above;
(d) when any of the input flows requesting information is received, read the data from the emergency service action log, and send it in the data flow of incident information identified above to the requesting process;
(e) manage the data in the store of the emergency service action log.

5.1.4 Manage Emergency Response

Overview: This process shall enable existing emergency centers to receive emergency calls, determine response requirements to the extent necessary to route the information, and route distress calls and emergency information to predesignated responding agencies and vehicles. All identified emergency information shall be provided by the process in a standard format as required. The process shall also communicate with commercial fleet managers to obtain details of cargo and other vehicle data where this will affect the response of the emergency services, e.g., in the case of a vehicle carrying a HAZMAT load. The current status of all emergency service responses shall be stored by the process in an action log, for access by the communications process.

Data Flows: All input data flows are unsolicited and all output flows are solicited with the exception of the following:

1. Output to a data store:
(a) 'emergency_service_action_log'.

2. Solicited Input Processing:
(a) 'cf_hazmat_vehicle_information', which is received as a result of output to a process in the Manage Commercial Vehicles function;
(b) 'emergency_vehicle_dispatch_status', which is received as a result of output to another process in the Emergency Management Subsystem;
(c) 'resource_deployment_status', which is received as a result of output to another process in the Emergency Management Subsystem.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the unsolicited input flows listed above;
(b) when the input of emergency response plan data is received, generate the output data flows identified above, and create an initial entry in the emergency response action log data store;
(c) when other inputs are received, update the data for the emergency to which they relate in the emergency service action log data store;
(d) if the emergency vehicle dispatch status indicates a failure, send the data to the action log and to the emergency services operator interface process;
(e) manage the data in the store of the emergency service action log.

5.1.5 Manage Emergency Service Allocation Store

Overview: This process shall manage the store of data that defines the way in which the emergency service resources shall be deployed in response to emergencies. Deployment shall vary by certain criteria, such as, type of emergency, source of information, time of day, location, etc. Parameters to define this allocation shall be loaded into the data store following receipt from the process that provides the emergency services operator interface.

Unsolicited Input Processing: This process shall receive the following unsolicited input data flows:
(a) 'emergency_service_allocation_data_output_request';
(b) 'emergency_service_allocation_data_request';
(c) 'emergency_service_allocation_data_updates'.

Solicited Input Processing: This process shall receive the following data flow as a result of requests for data retrieval:
(a) 'emergency_service_allocation_criteria', which is data retrieved from a data store.

Solicited Output Processing: This process shall provide the following output flows as a result of the above inputs being received:
(a) 'emergency_service_allocation_criteria', which is data written to a data store;
(b) 'emergency_service_allocation_data';
(c) 'emergency_service_allocation_data_output'.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the unsolicited input flows listed above;
(b) when the inputs are received, generate the appropriate outputs identified above to read to or write data from the data store of emergency service allocation criteria;
(c) manage the data in the store of emergency service allocation criteria.

5.1.6 Process Mayday Messages

Overview: This process shall receive mayday messages from vehicles and drivers, determine whether the mayday message indicates an emergency that requires the attention of public safety agencies, and forward mayday emergency data to the appropriate agency when assistance is required. The content of the data flow 'mayday emergency data' shall include all the key data from the incoming data flow 'emergency request details' and an agency ID indicating the mayday provider that received and processed the mayday message. While not depicted in the logical architecture, the process will also be heavily dependent on voice communications to better ascertain the nature and severity of the emergency and to report this information to the appropriate local agency. This process shall also receive and keep a historical log of signals sent in the tracking_vehicle data flow.

Data Flows: All inputs are unsolicited with the exception of mayday_vehicle_tracking which is solicited along with all outputs.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the unsolicited input flows listed above;
(b) when any of the inputs are received, the process shall perform an analysis of the data to produce the output in a standard format;
(c) the data format produced in (b) shall include a classification of the level of confidence or probability that the data is accurate, i.e., that it relates to a 'real' emergency and the information is correct.

5.2 Provide Operator Interface for Emergency Data

Overview: This process shall provide the emergency services operator with an interface to the other processes in the Manage Emergency Services function. The process shall enable the operator to review and update the data used to allocate emergency services to incidents, applying temporary overrides to current emergency service allocations to suit the special needs of a current incident, and requesting output of the log of emergency service actions. It shall also enable the output of a message showing the failure of an emergency vehicle dispatched in response to an incident. This output shall override all other outputs. The process shall support inputs from the emergency services operator in both manual and audio form, and shall provide its outputs in audible and visual forms. The visual output may appear in either hardcopy or as a display, or both, and an audible output shall accompany the emergency vehicle dispatch failure message.

Data Flows: All input data flows are unsolicited and all output flows are solicited.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input flows from the emergency services operator and the emergency vehicle dispatch failure flow listed above;
(b) when the inputs from the emergency services operator are received, send the appropriate output data flows to other processes;
(c) when the responses to the flows generated in (b) are received, send the appropriate outputs to the emergency services operator;
(d) when the emergency vehicle dispatch failure flow is received, generate the appropriate output flow listed above, overriding all other output flows.

5.3.1 Select Response Mode

Overview: This process shall select the appropriate emergency services and their vehicle(s) to respond to incidents. The process shall determine the type and number of vehicles to be dispatched, and provide the vehicle(s) with information on the type and location of the incident. It shall request data about the vehicles that are available from the interface process to the data store of emergency vehicle status. Once the vehicle determination has been made, the status data shall be changed by the process, and incident data sent to the process responsible for the actual dispatch of the vehicle(s).

Unsolicited Input Processing: This process shall receive the following unsolicited input data flows:
(a) 'emergency_vehicle_response_request';
(b) 'emergency_vehicle_incident_details'.

Solicited Input Processing: This process shall receive the following solicited input data flow as a result of requesting information from another process:
(a) 'emergency_vehicle_status_data_for_responses'.

Solicited Output Processing: This process shall provide the following output flows as a result of the above inputs being received:
(a) 'emergency_vehicle_status_data_change', an update command for a store (managed by another process);
(b) 'emergency_vehicle_dispatch_status';
(c) 'emergency_vehicle_status_data_request';
(d) 'emergency_vehicle_dispatch_data'.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the two vehicular inputs identified above;
(b) when the emergency vehicle response request input data flow is received, request data from the process providing the interface for the store of emergency vehicle status;
(c) use the data obtained in (b) to determine the vehicle(s) necessary to provide the appropriate response to the incident;
(d) when the vehicle(s) have been determined in (c), generate the output identified above to dispatch each vehicle;
(e) send changed emergency vehicle status data back to the data store interface process to reflect the new vehicle status resulting from output of the dispatch data;
(f) when all the required vehicle type(s) and numbers have been dispatched, send the emergency vehicle dispatch status data flow to the process responsible for managing emergency responses, showing that the dispatch was successful;
(g) if no vehicles of the required type(s) are available, send the emergency vehicle dispatch status data flow to the process responsible for managing emergency responses, showing that the dispatch has failed for the particular vehicle type(s).

5.3.2 Dispatch Vehicle

Overview: This process shall direct selected emergency vehicles and drivers to respond to an incident, receive acknowledgment that they will in fact respond, and provide them with the location and details of the incident that was pre-calculated and sent to this process.
If called for, the process shall send details to the Manage Traffic function to request a traffic control preemption be provided for the vehicle(s) if that mode of priority is available and chosen. The data for the emergency vehicle driver shall be sent to the driver interface process.

Data Flows: All inputs are unsolicited with the exception of emergency_traffic_control_response and emergency_vehicle_route which are solicited as are all outputs.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the dispatch and status data input flows listed above;
(b) when the flows in (a) are received, generate the outputs identified above to request the emergency vehicle route and provide the driver with information about the incident, monitoring for the receipt of any reply data;
(c) when the emergency vehicle route data is received, generate the emergency traffic control request data and send it to the Manage Traffic function.

5.3.3 Track Vehicle

Overview: This process shall manage information about the location of all emergency vehicles available for dispatch and that have been dispatched, and the ETA for vehicles en route. The process shall send this data to the store of emergency vehicle status data. If the vehicle is on its way to an emergency, as indicated by the received vehicle status, the process shall also send data to processes in the Manage Traffic function that will enable the vehicle to have whatever level and mode of priority is available and granted at traffic signals.

Data Flows: All input data flows are unsolicited and the output flows are solicited.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input data flows listed above;
(b) when the location flow is received and if it is different from the previous value, generate the data flow to the emergency vehicle status store interface process, adding the current date and time to the received location data;
(c) when the status flow is received, if it shows that the vehicle is on its way to an emergency incident, then simultaneously with (b) output the data flow requesting local vehicle priority to the indicator control processes in the Manage Traffic function.

5.3.4 Assess Response Status

Overview: This process shall assess the status of emergency vehicles that are responding to an incident. In making its assessment, the process shall use data from the process managing a store of vehicle status, plus data from the emergency vehicle driver interface process. The process shall send the results of the assessment to the process responsible for managing emergency and emergency response information and update the store of vehicle status.

Data Flows: All input data flows are unsolicited and the output flows are solicited with the exception of the following solicited input flow, which contains data requested from the process managing the data store of emergency vehicle status data:
(a) 'emergency_vehicle_status_data_for_assessment';

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input flows listed above;
(b) when the input from the driver is received, use the data it contains to request the relevant emergency vehicle status data from the store interface process;
(c) update the status using the input received from the driver and generate the flow to the process that manages emergency responses;
(d) send the revised emergency vehicle status data to the store interface process.

5.3.5 Provide Emergency Personnel Interface

Overview: This process shall provide an interface for emergency personnel, through which data can be exchanged with other processes in the Manage Emergency Services function. It shall support the exchange of incident data to which responses are being made by emergency personnel. The process shall support inputs from emergency personnel in both audible and manual forms, with outputs being available in both audio or visual forms. The visual form may include display and hardcopy formats. Both inputs and outputs shall be provided in such a way that while alerting the driver to the information they contain, they shall in no way impair the driver's ability to operate the vehicle in a safe manner.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input flows listed above;
(b) when the inputs are received from emergency personnel, generate the appropriate output flows identified above and send them to the dispatch and response status monitoring processes;
(c) when input is received from the dispatch process, generate the corresponding output to emergency personnel.

5.3.6 Maintain Vehicle Status

Overview: This process shall maintain a data store of the current status of all emergency vehicles available for dispatch and that have been dispatched. It shall provide data from the store on request from other processes and shall update the contents of the store with new data received from other processes. The process shall output the status of a vehicle to the process responsible for vehicle tracking for as long as it is on its way to an incident, to update ETA estimates and enable local vehicle priority to be given at intersections, if that mode of priority is chosen and granted.

Data Flows: The input data flows are unsolicited and all output flows are solicited.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for the receipt of the input flows listed above;
(b) when either the data request or data needed flows is received, read the requested data from the store and send it to the requesting process;
(c) when either of the data flows containing updated or changed vehicle status data is received, load the new data into the data store, overwriting the existing data for the vehicle;
(d) when the new status data shows that a vehicle is on its way to an incident, output the vehicle status data to the processes responsible for vehicle tracking and vehicle dispatch;
(e) when the new status data shows that a vehicle is no longer on its way to an incident, output the status data to the process responsible for vehicle tracking, but do not send any further status updates until the condition in (d) is again satisfied;
(f) manage the data in the store of emergency vehicle status data, retrieving or writing individual records for one or more emergency vehicles, as required.

5.3.7 Provide Emergency Vehicle Route

Overview: This process shall calculate and assign emergency vehicle routes for incident assistance upon request.

Data Flows: The inputs are unsolicited and the outputs are solicited.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the dispatch and status data input flows listed above;
(b) when the flows in (a) are received, generate the outputs identified above to request the emergency vehicle route and provide the driver with information about the incident, monitoring for the receipt of any reply data;
(c) when the emergency vehicle route data is received, generate the emergency traffic control request data and send it to the Manage Traffic function.

5.4.2 Process Violations for Tolls

Overview: This process shall manage the details of toll payment violations reported by the Provide Electronic Payments Services function. The process shall use the parameters in the store of toll payment violation (enforcement) data to obtain the vehicle registration data from the appropriate State Department of Motor Vehicles (DMV) office (or alternate source) for vehicles that are not equipped with a tag, before sending all of the received information to the correct law enforcement agency.
This process shall also maintain the toll payment enforcement datastore, entering all information received from other processes.

Unsolicited Input Processing: This process shall receive the following unsolicited input data flow:
(a) 'toll_violation_information'.

Solicited Input Processing: This process shall receive the following data flow as a result of requests for data retrieval from the local data store:
(a) 'enforcement_data_for_tolls'.

Solicited Input Processing: This process shall receive the following data flows as a result of output being sent to the DMV terminator:
(a) 'fdmv-toll_violation_state_identity';
(b) 'fdmv-toll_violation_vehicle_registration'.

Solicited Output Processing: This process shall provide the following output flows as a result of the above inputs being received:
(a) 'tdmv-toll_violation_identity_code';
(b) 'tdmv-toll_violation_vehicle_license';
(c) 'tea-toll_violation_data';
(d) 'enforcement_data_for_tolls'.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the unsolicited input flow listed above;
(b) when the unsolicited input is received, use this data to generate the output requests to the DMV terminator;
(c) when the solicited input flows from the DMV terminator have been received, use the other data received in (b) and the contents of the toll payment violation (enforcement) data store to generate the toll violation output to the law enforcement agency, and enter the new data in the local data store;
(d) manage the data in the store of toll payment violation data.

5.4.4 Process Fare Payment Violations

Overview: This process shall manage the details of fare payment violations reported by the Provide Electronic Payments function. The process shall use the parameters in the store of fare payment violation (enforcement) data to process and send the data to the correct law enforcement agency. This process shall also maintain the fare payment enforcement data store, entering all information received from other processes.

Unsolicited Input Processing: This process shall receive the following unsolicited input data flow:
(a) 'fare_violation_information'.

Solicited Input Processing: This process shall receive the following data flows as a result of requests for data retrieval from the local data store:
(a) 'enforcement_data_for_fare_payment'.

Solicited Output Processing: This process shall provide the following output flows as a result of the above input being received:
(a) 'tea-fare_payment_violation_data';
(b) 'enforcement_data_for_fare_payment'.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the unsolicited input flow listed above;
(b) when the unsolicited input is received, use this data and the contents of the data store to generate the fare payment violation data to be sent to the law enforcement agency, and enter the new data in the local data store;
(c) manage the data in the store of enforcement data for fare payment violations.

5.4.5 Process Vehicle Fare Collection Violations

Overview: This process shall manage the details of fare collection violations reported by the Manage Transit function that have taken place on-board a transit vehicle. The process shall use the parameters in the store of vehicle fare collection violation (enforcement) data to process and send the information to the correct law enforcement agency. This process shall also maintain the vehicle fare collection enforcement data store, entering all information received from other processes.

Unsolicited Input Processing: This process shall receive the following unsolicited input data flow:
(a) 'fare_collection_vehicle_violation_information'.

Solicited Input Processing: This process shall receive the following data flow as a result of requests for data retrieval from the local data store:
(a) 'enforcement_data_for_vehicle_fare_collection'.

Solicited Output Processing: This process shall provide the following output flows as a result of the above inputs being received:
(a) 'tea-fare_collection_vehicle_violation_data';
(b) 'enforcement_data_for_vehicle_fare_collection'.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the unsolicited input flow listed above;
(b) when the unsolicited input is received, use this data and the contents of the data store to generate the vehicle fare collection violation data to be sent to the law enforcement agency, and enter the new data in the local data store;
(c) manage the data in the store of enforcement data for vehicle fare collection.

5.4.7 Process Roadside Fare Collection Violations

Overview: This process shall manage the details of fare collection violations reported by the Manage Transit function that have taken place at the roadside, i.e., at a transit stop. The process shall use the parameters in the store of roadside fare collection violation (enforcement) data to process and send the information to the correct law enforcement agency. This process shall also maintain the roadside fare collection enforcement data store, entering all information received from other processes.

Unsolicited Input Processing: This process shall receive the following unsolicited input data flow:
(a) 'fare_collection_roadside_violation_information'.

Solicited Input Processing: This process shall receive the following data flow as a result of requests for data retrieval from the local data store:
(a) 'enforcement_data_for_roadside_fare_collection'.

Solicited Output Processing: This process shall provide the following output flow as a result of the above input being received:
(a) 'tea-fare_collection_roadside_violation_data';
(b) 'enforcement_data_for_roadside_fare_collection'.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the unsolicited input flow listed above;
(b) when the unsolicited input is received, use this data and the contents of the data store to generate the roadside fare collection violation data to be sent to the law enforcement agency, and enter the new data in the local data store;
(c) manage the data in the store of roadside fare collection violation (enforcement) data.

5.5 Update Emergency Display Map Data

Overview: This process shall provide updates to the store of digitized map data used as the background for displays of incidents and emergencies produced by processes in the Manage Emergency Services function. The process shall obtain the new data from a specialist data supplier or some other appropriate data source, on receiving an update request from the emergency system operator interface process within the Manage Emergency Services function.

Unsolicited Input Processing: This process shall receive the following unsolicited input data flow:
(a) 'request_emergency_display_update'.

Solicited Input Processing: This process shall receive the following data flow as a result of output being sent to external functions:
(a) 'fmup-emergency_display_update'.

Solicited Output Processing: This process shall provide the following output flows as a result of the above inputs being received:
(a) 'tmup-request_emergency_display_update';
(b) 'map_data_for_emergency_display'.

Functional Requirements: This process shall meet the following requirements:
(a) continuously monitor for the receipt of the unsolicited data flow shown above;
(b) when the data flow in (a) is received, generate the request for emergency display update from the map update provider (mup) and continuously monitor for receipt of the solicited input data flow;
(c) when the flow in (b) is received, output this data to the map data for emergency display data store;
(d) be capable of receiving the input data in a variety of formats and converting it into a single format suitable for use with the store of digitized map data;
(e) manage the data in the store of digitized map data.

5.6 Manage Emergency Services Data

Overview: This process shall collect emergency service data, emergency vehicle management data, emergency vehicle data, and incident data. It shall distribute this data to the Manage Archive Data Request where it can be archived and accessed upon request or upon receipt of fresh data.

All inputs to this process are unsolicited, and all outputs are solicited, except that the 'em_archive_status' is a solicited input.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the unsolicited input flows listed above;
(b) when any of the unsolicited data inputs shown above is received, the process shall store them in the data store along with meta data (data attributes about the data), and update the catalog;
(c) when the unsolicited input from the emergency system operator is received, the process shall update the data store accordingly;
(d) when the request for emergency archive data is received, the process shall immediately generate the solicited output shown above from the data store;
(e) the process should then receive the emergency archive status solicited input and send this status to the emergency system operator;
(f) data shall only be sent to the source from which the data request originated;
(g) before output, the process shall put the data into a format that is easily read and interpreted by external processes and can also be read by travelers and users with the minimum of further processing.

6.1.1 Provide Trip Planning Information to Traveler

Overview: This process shall obtain all the information needed to fulfill the traveler's request for a trip. The process shall support the request for trips that require the use of one or more modes of transport, and shall use the preferences and constraints specified by the traveler in the trip request, plus data from the store of trip planning parameters, to select the most appropriate modes. It shall send details of the trip requirements to the specialized processes that provide route information for the different modes of transport. When route data is received back from these processes, this process shall ensure that the whole trip is covered by one coherent route for which all the data such as costs, arrival times, and modal change points are known. The information provided to the traveler by the process shall be sufficient to enable the traveler to understand the routing, modes and cost of the trip. The trip information shall be stored for possible use in subsequent trip confirmation. The process also includes parking lot data. This data is used in transactions requiring electronic payment of parking lot services, as well as for a traveler making a parking lot reservation. This process shall exchange all input and output data from and to the traveler with the appropriate traveler interface process. The traveler shall send parking lot data, traveler trip requests, and traveler current condition requests to the archival process.

Data Flows: The traveler trip request input data flow is unsolicited. All output flows are solicited and will themselves generate input flows. The following input flows contain data requested from or written to data stores:
(a) 'trip_information', write only;
(b) 'trip_planning_parameters', read only.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the traveler trip request input flow listed above;
(b) when the input flow in (a) is are received, output data flows to the data archival process and other processes requesting various types of routes, rideshare information, demand responsive trip requests, according to the preferences and constraints in the traveler's trip request and the parameters governing trip selection contained in the read only data store identified above;
(c) when the data has been returned, construct the trip and ensure that there are no breaks, i.e. where mode changes are involved, each segment begins and ends at a valid modal interchange point;
(d) if any of the segments do not join up, change the preferences and constraints and repeat (b) until a correct match is produced;
(e) in parallel with (c) and (d) compute the total cost of the trip, including all tolls, parking lot charges, transit fares, and other costs;
(f) when all calculations are complete, store the trip information in the local store for use if the traveler decides to confirm and then send the trip data to the process that provides the traveler interface using the traveler trip information output flow defined above;
(g) when a traveler requests current conditions or parking lot data in the data store is updated, output this information to the data archival process.

6.1.5 Collect Service Requests and Confirmation for Archive

Overview: This process shall receive all traveler requests, such as requests for traffic and transit information, requests for current conditions such as weather, trip requests, guidance route requests, advisory requests, yellow page information requests, and service confirmations. These requests shall be stored in the service_req_and_confirm_data data store and output to the traveler information data archive. The process shall run when a new request or confirmation is received from an external source.

Data Flows: All input data flows are unsolicited. All output flows are solicited and will themselves generate input flows.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of any of the input flows listed above;
(b) when one of the input flows in (a) is received, write the data to the service_req_and_confirm_data store;
(c) output the data flow to the traveler information data archival process.

6.1.6 Manage Traveler Info Archive Data

Overview: This process shall accept traveler information service requests and confirmations, parking management information, payment transaction data, rideshare requests, commercial and non-commercial probe data, route guidance data, and origin/destination data, and store it in its local traveler info data archive data store, together with a catalog to describe the data. When requested by the Manage Archive Data function, this information will be sent to that function. The process shall also provide a control interface to the ISP Operator, responding with the status received from the requester of the archive. The process shall run when a request for data or a catalog is received from an external source, when a command is received from the ISP Operator, or when fresh data is received.

Data Flows: All input data flows are unsolicited. All output flows are solicited and will themselves generate input flows.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of any of the input flows listed above;
(b) when data to be archived is received, write the data to the traveler_info_data_archive and append its attributes;
(c) when a request for the archive catalog is received, read the traveler_info_data_archive for the catalog and output it to the Manage Archive function;
(d) when a request for the archive data is received, read the traveler_info_data_archive and output the data requested to the Manage Archive function;
(e) when archive status is received, output the status to the ISP Operator;
(f) when a command is received from the ISP Operator, process the data in the traveler_info_data_archive as directed.

6.2.1.1 Collect Traffic Data for Advisory Messages

Overview: This process shall collect and fuse traffic data that will be used to create broadcast or advisory messages to travelers. The input data for this process shall consist of historical, current, and predicted traffic and planned event data. The process shall extract from the data those elements appropriate for advisory or broadcast messages and load it into the store of traveler_traffic_information_data store. The data can be provided to the process either via direct request from the process or as a result of periodic (unrequested) updates.

Data Flows: All input data flows are solicited with the exception of those listed above that contain prediction and planned events data. All output flows are solicited. Read and write access to the local store into which the input data is loaded after fusion is provided through the 'traveler_traffic_information_data' data flow.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input flows listed above containing prediction data and planned events data;
(b) at locally determined times, generate the data output flows to processes in this and other functions, as listed above;
(c) collect the data returned as a result of (b) and load it with that received in (a) into the data store of traveler traffic information, fusing it with the data already present, deleting old data, e.g. that relating to incidents that are completed, etc.

6.2.1.3 Collect Transit Data for Advisory Messages

Overview: This process shall collect and fuse transit advisory data that will be used to create broadcast or advisory messages to travelers. The process shall extract from the data those elements appropriate for advisory or broadcast messages and load it into the traveler_transit_information_data store. The data can be provided to the process either via direct request from the process or as a result of periodic (unrequested) updates. The process shall fuse all the received data into a coherent set, which is loaded into a traveler_transit_information_data store for access by other processes.

Data Flows: All input data flows are solicited as are all output flows. Read and write access to the local store into which the input data is loaded after fusion is provided through the 'traveler_transit_information_data' data flow.

Functional Requirements: This process shall:
(a) at locally determined intervals , generate the data output flows to processes in this and other functions, as listed above;
(b) collect the data returned as a result of (a) and load it into the local data store, fusing it with the data already present, deleting old data, for example that relate to incidents that are completed;

6.2.1.4 Provide Traffic and Transit Broadcast Messages

Overview: This process shall extract advisory data from stores of traveler traffic and transit information at locally determined intervals and send it out to drivers or transit users in vehicles as wide area broadcast messages. The content and rate of these messages shall be based upon parameters from the broadcast_parameters_data store, which is managed by the ISP operator.

Data Flows: The input data flow requesting advisory information is unsolicited. All output flows and the other input flows are solicited with the exception of the following:
(a) 'traveler_traffic_information_data' data flow - which contains data requested from a store;
(b) 'traveler_transit_information_data' data flow - which contains data requested from a store.

Functional Requirements: This process shall:
(a) at locally determined intervals read the data from the stores identified above and generate the broadcast data output flow identified above;
(b) the data flow in (a) shall be generated using the filter parameters set up by the ISP operator and retained in a local data store.

6.2.1.5 Provide ISP Operator Broadcast Parameters Interface

Overview: This process shall provide the interface through which the ISP operator can manipulate data in the broadcast_parameters_data store. The data, in this store, shall be used by another process to define the scope and rate of wide area broadcast messages to vehicles. The process shall provide the ISP operator with the ability to request parameter data output and/or update the data store with new parameter values.

Unsolicited Input Processing: This process shall receive the following unsolicited input data flows:
(a) 'fispo-broadcast_data_parameters_request';
(b) 'fispo-broadcast_data_parameters_update'.

Solicited Input Processing: This process shall receive the following data flows as a result of requests for data retrieval from local data stores:
(a) 'broadcast_parameters_data_output'.

Solicited Output Processing: This process shall provide the following output flows as a result of the above inputs being received:
(a) 'broadcast_parameters_data_update';
(b) 'tispo-broadcast_data_parameters_output'.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the unsolicited input flows listed above;
(b) when the first input is received, read the data from the store of parameters using the solicited input flow identified above and generate the second solicited output flow identified above;
(c) when the second input is received, update the data in the store of parameters using the first solicited output flow shown above.

6.2.1.6 Provide Transit Advisory Data On Vehicle

Overview: This process shall gather transit advisory data and provide it via another process to the transit user on-board a transit vehicle. The interface shall receive requests from the transit user specifying the required destination of a transit service ride and other (yellow pages) type services. The transit user may also request and receive information about the state of traffic on the roadway, as well as transit route and stop data (i.e., traffic and transit advisory data). This process extracts data from the store of traveler transit information upon request for advisory data from the driver or transit user in a vehicle. The process shall filter the data read from the store so that output only contains that which is relevant to the current location of the vehicle from which the request was made. The vehicle's location shall be provided to the process in the request data. The input and output forms shall include those that are suitable for travelers with physical disabilities.

Data Flows: All input data flows are unsolicited and all output flows are solicited except for the following:

Unsolicited output:
(a) other_services_vehicle_request.

Solicited input:
(a) other_services_vehicle_response.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input flows listed above;
(b) when the inputs from the transit user are received, generate the appropriate outputs identified above, prompting the user for any information that has not been supplied;
(c) when any response flow is received, generate the appropriate output to the transit user to indicate the success or failure of the requested transaction;
(d) all input and output flows must be encrypted in such a way that it is not possible to determine the transit user's payment information being transmitted, using any form of digital or analog encryption techniques.

6.2.2 Prepare and Output In-vehicle Displays

Overview: This process shall provide in-vehicle advisory and broadcast data for output to drivers and transit users. The process shall format requests from users for advisory data and output the requests to other processes. The request for advisory data shall allow the user to request only information relevant to the location of the vehicle. The request may be repeated, periodically, or when the vehicle changes location by a distance determined by the implementation. Data broadcast to the driver shall include traffic related data(incidents, link data and in-vehicle signage), as well as data from the vehicle itself. This vehicle data includes vehicle conditions, smart probe data, safety and position warnings, and enhanced vision images. Safety and warning messages shall be prioritized by the process to supersede advisory and broadcast messages. The process shall also support the transfer of reservation requests from the users in vehicles for other services such as yellow pages.

Data Flows: All input data flows are unsolicited with the exception of that requesting input of advisory data. All output flows are solicited.

Functional Requirements: This process shall:
(a) continuously monitor for receipt of the input flows listed above;
(b) when the inputs other than those from the driver, transit user, or location data are received, generate the output of advisory or broadcast data to the driver identified above;
(c) when the input from either the driver or the transit user is received, add the current vehicle location and send it as the advisory data request to another process;
(d) the data returned as a result of (c) shall be output to the driver or transit user depending on the source of the request for advisory information;
(e) when the broadcast data input is received, it shall be filtered to remove that which is not relevant to the wide area surrounding the vehicle before being output to the driver;
(f) repeat (c) and (d) for as long as the input is present, every time the vehicle location changes by an implementation distance.

6.2.3 Provide Transit User Advisory Interface

Overview: This process shall provide a data input and output interface for a transit user on-board a transit vehicle. The process shall enable traffic and travel advisory information, plus yellow pages information to be requested and output to the transit user. When constructing the outputs the process shall use the data in the store of vehicle display definitions data. In addition to the traveler's request/ response for information, broadcast advisories about the imminent arrival of the transit vehicle at the next stop are also displayed for the transit user. The process shall handle all inputs and outputs in such a way that they do not impair the vehicle driver's ability to control the transit vehicle in a manner that is safe to both its occupants, to other road and freeway users, and to pedestrians. The input and output forms shall also include those that are suitable for travelers with physical disabilities.

Data Flows: The input data flow from the transit user is unsolicited. All output data flows are solicited as is the input data flow of traveler advisory information. The data flow 'vehicle_display_definitions_data' provides output template data from a local data store.

Functional Requirements: This process shall:
(a) continuously monitor for receipt of the input flow listed above that is a request from the transit user for advisory information;
(b) when the input in (a) is received, generate the output information request output data flow identified above;
(c) when the input data flow of advisory information is received in response to (b), generate the output to the transit user using the template data available from the local data store;
(d) continue with (b) and (c) for as long as the input from the transit user is present.

6.3.2 Inform Traveler

Overview: This process provides the traveler (located at a kiosk) with data about all requested trip, traffic, transit, yellow pages services information, confirmation of any requested reservations, and payments made as part of confirmed trip plans. The data is sent by the process to an interface process that is responsible for its actual output to the traveler. This data may include digitized map data to act as the background to the output when the data is to be shown in a suitable format. This process shall receive data from other ITS functions by requesting it or be sent data as a result of requests from another process.

Data Flows: All output flows are solicited and all input data flows are unsolicited with the exception of the following:
(a) 'traffic_data_for_kiosks' - which is received as a result of output being sent to another process;
(b) 'transit_deviations_for_kiosks' - which is received as a result of output being sent to another process;
(c) 'transit_services_kiosk_request' - which is received as a result of output being sent to another process;
(d) 'map_data_for_traveler_displays' - which contains data requested from a data store.

Functional Requirements: This process shall:
(a) continuously monitor for receipt of the input flows listed above that are not details of transit services, traffic data and the display map data;
(b) when any of the flows in (a) are received, retrieve the relevant digitized display map data from the local store and send the combined data to the traveler interface process;
(c) when the flow received in (a) contains a request for transit or traffic data, send the request to the relevant process in the Manage Transit or Manage Traffic function;
(d) the input data received as a result of (c) shall be combined with the relevant digitized display map data from the local store and sent to the traveler interface process;
(e) all input and output flows must be encrypted in such a way that it is not possible to determine the payment information being transmitted, using any form of digital or analog techniques.

6.3.3 Provide Traveler Kiosk Interface

Overview: This process shall provide an interface at a kiosk through which travelers can input data and can receive data. The functions that the traveler can perform include plan and confirm trips, obtain current traffic and transit information, and declare emergencies. The process shall support the inclusion of yellow pages services such as lodging, restaurants, theaters, and other tourist activities as a part of trip planning and confirmation. The process shall be able to store frequently used data, such as the kiosk location, to reduce the amount of input needed by the traveler for each request. The process shall also carry out input data verification and require input confirmation before passing any of the traveler data to other processes (except when an emergency is being declared). The traveler's payment information shall be obtained by this process from another process specially designed for that purpose. The process shall support traveler inputs in manual or audio form, and shall provide its outputs in audible or visual forms consistent with a kiosk. These forms shall include those that are suitable for travelers with hearing or vision physical disabilities. The process shall enable viewing of data that has been previously output. Where it is appropriate, the process shall use the kiosk's location to filter data being displayed to only show information relevant to the kiosk'Æs location, or to a specific location requested by the user.

Data Flows: All input data flows are unsolicited and all output flows are solicited, with the exception of the 'traveler_regular_data' data flow which contains data requested from or written to a data store.

Functional Requirements: This process shall:
(a) continuously monitor for receipt of the input flows from the traveler listed above;
(b) when any of the inputs in (a) are received, check for content and if necessary utilize data from the local store identified above;
(c) generate the output identified above and load the requested data into the local data store;
(d) continually monitor the data in the local store and compare it with that being input by travelers, deleting any data from the store which is not frequently used;
(e) all input and output flows must be encrypted in such a way that it is not possible to determine the payment information being transmitted using any form of digital or analog techniques.

6.5.1 Collect and Update Traveler Information

Overview: This process shall collect and update data about incidents, road construction, weather, events and yellow pages data. This data shall be obtained by the process from other ITS functions and from outside sources such as the weather service, yellow pages service providers and the media. The process shall load the data into a local store for use by the process that provides yellow pages information and reservations.

Unsolicited Input Processing: This process shall receive the following unsolicited input data flows:
(a) 'fws-current_weather';
(b) 'fws-predicted_weather';
(c) 'yellow_pages_new_data_request';
(d) 'yellow_pages_update_request'.

Solicited Input Processing: This process shall receive the following data flows as a result of output being sent to other processes and requests for data retrieval from local data stores:
(a) 'incident_information';
(b) 'yellow_pages_service_provider_data', which contains data requested from a data store;
(c) 'fm-traveler_information';
(d) 'fypsp-yellow_pages_data';
(e) 'tourist_information', which contains data requested from a data store.

Unsolicited Output Processing: This process shall provide the following output flows regardless of any inputs that are received:
(a) 'incident_information_request';
(b) 'tm-traveler_information_request';
(c) 'typsp-yellow_pages_info_request'.

Solicited Output Processing: This process shall provide the following output flows as a result of the above inputs being received:
(a) 'tourist_information', which contains data written to a data store;
(b) 'typsp-yellow_pages_info_request';
(c) 'yellow_pages_update_response'.

Functional Requirements: This process shall:
(a) continuously monitor for receipt of the unsolicited input flows listed above;
(b) when either of the weather service inputs are received, load the data into the store of tourist information using the solicited output flow shown above;
(c) when either of the yellow pages data flows are received in (a) send the yellow pages data request shown above in the list of unsolicited output flows;
(d) when the response to (c) is received in the solicited yellow pages input flow, load the data into the store of tourist information using the solicited output flow shown above;
(e) before loading data into the store of tourist information, read the current data from the store and amalgamate it with the new data;
(f) be responsible for the management of the data in the store of tourist information, using the most appropriate mechanism(s) such as a relational database, for storing the data;
(g) use the most appropriate mechanism(s) such as relational database , to read data from the store of information and service provider data identified above.

6.7.1.1 Build Driver Personal Security Message

Overview: This process shall respond to the input of a request from a driver for action by the emergency services. Input of the request shall be received by the process from the driver via a panic button or some other functionally similar form of input device provided as part of the in-vehicle equipment. When the input is received, the process shall send a message to the communications process, containing the vehicle's current location, its identity and basic vehicle data relevant to its current condition, as well as any other data, such as personal medical history, vehicle orientation, etc., that may be developed in-vehicle by other systems.

Unsolicited Input Processing: This process shall receive the following unsolicited input data flows:
(a) 'fd-emergency_request';
(b) 'driver_location_for_emergencies';
(c) 'vehicle_status_details_for_driver_security'.

Solicited Input Processing: This process shall receive the following data flows as a result of output being sent to other processes and requests for data retrieval:
(a) 'vehicle_identity_store'.

Solicited Output Processing: This process shall provide the following output flows as a result of the above inputs being received:
(a) 'driver_personal_emergency_request'.

Functional Requirements: This process shall:
(a) continuously monitor arrival of input data flow from the driver;
(b) when input from the driver is received obtain the current vehicle location and status and send this in a message with the vehicle identity and status to the communications process;
(c) if some or all of the data in (b) is missing, e.g. there is no current location, the message must be sent anyway, and repeated when a location becomes available.

6.7.1.2 Provide Driver In-vehicle Communications Function

Overview: This process shall prepare and send an emergency message from a driver to the Manage Emergency Services function. The message shall only be sent by the process in response to data received from another process that monitors driver inputs. Once an emergency message has been sent, the process shall send a message to that effect to another process in the Provide Vehicle Monitoring and Control function for output to the driver. The process shall then await a response from the Manage Emergency Services function, and then send a detailed message to the other process for output to the driver. Output of the emergency message to the Manage Emergency Services function shall be repeated by the process at regular intervals until a response is received.

Unsolicited Input Processing: This process shall receive the following unsolicited input data flows:
(a) 'driver_personal_emergency_request'.

Solicited Input Processing: This process shall receive the following data flows as a result of output being sent to other processes and requests for data retrieval:
(a) 'emergency_request_driver_acknowledge'.

Solicited Output Processing: This process shall provide the following output flows as a result of the above inputs being received:
(a) 'emergency_request_driver_details';
(b) 'emergency_message_driver_output'.

Functional Requirements: This process shall:
(a) transmission of the output message must be as near to instantaneous as possible following the receipt of data from the driver security message preparation process;
(b) the current data and time must be added to the data received from the driver security message preparation process;
(c) when the acknowledgment message is received it should be sent immediately to the interface process for driver advisory data;
(d) transmission of the output message must be repeated until an acknowledgment message is received updating the date and time as they change;
(e) initially, the message sent for output to the driver must show that data has been sent, and only be changed when an acknowledgment is received.

6.7.2.2 Process Vehicle Location Data

Overview: This process shall provide the vehicle's current location. It shall calculate the location from one or more sources of position data such as GPS, DGPS, odometer and differential odometers, and shall refine its calculations using techniques such as map matching, etc. Location data (intended for use by in-vehicle navigation, guidance systems, and any emergency notification systems) should be provided by the process in a manner that is as precise as is practical within cost and technology constraints. Location data intended for transit vehicles and driver advisories may be less precise.

Data Flows: The input data flows are unsolicited and all output flows are solicited.

Functional Requirements: This process shall:
(a) continuously monitor for receipt of the input flows listed above;
(b) continuously compute the vehicle's most probable current location using the data in the input flows, refinement and/or filtering algorithms (e.g. dead reckoning, map-following, etc).
(c) Provide the vehicle location to other processes in the Provide Driver and Traveler Services, Manage Commercial Vehicle, Manage Transit, and Manage Emergency Services functions using output flows as identified above;
(d) it shall be possible for the process to compute the location from as many sources of data as are simultaneously available to it, and to apply filtering and/or map matching algorithms as may be appropriate to consolidate or to choose among locations calculated from the various sources of data;
(e) vehicle location determination for transit and driver advisories may be of lesser precision than locations intended for navigation and route guidance processes.

6.8.1.5 Provide Traveler Emergency Message Interface

Overview: This process shall provide an emergency notification interface for a traveler using a personal portable device. The emergency notification interface shall enable the output of messages generated by a traveler's emergency request to another process.

Data Flows: All input data flows with the exception of that for traveler personal information and traveler location are unsolicited, but all output flows are solicited.

Functional Requirements: This process shall:
(a) continuously monitor for receipt of the unsolicited input flows listed above;
(b) when the input in (a) is received, generate the traveler emergency message output flow identified above.

6.8.2.1 Build Traveler Personal Security Message

Overview: This process shall respond to the input of a request from a traveler for action by the emergency services. Input of the request shall be received by the process from the traveler via a panic button or some other functionally similar form of input device provided as part of the traveler's personal portable device. When the input is received, the process shall send a message to the communications process, containing the traveler's current location and identity.

(a) 'ft-emergency_request';
(b) 'traveler_location_for_emergencies'.

Solicited Input Processing: This process shall receive the following data flows as a result of output being sent to other processes and requests for data retrieval:
(a) 'traveler_identity_store'.

Solicited Output Processing: This process shall provide the following output flows as a result of the above inputs being received:
(a) 'traveler_personal_emergency_request'.

Functional Requirements: This process shall:
(a) continuously monitor arrival of input from the traveler;
(b) when input from the traveler is received obtain the current location and traveler identity and send this in a message to the communications process;
(c) if some or all of the data in (b) is missing, e.g. there is no current location, the message must be sent anyway, and repeated when a location becomes available.

6.8.2.2 Provide Traveler Emergency Communications Function

Overview: This process shall prepare and send an emergency message from a traveler's personal portable device to the Manage Emergency Services function. The message shall only be sent by the process in response to data received from another process that monitors traveler inputs. Once an emergency message has been sent, the process shall send a message to that effect to another process for output to the traveler. The process shall then await a response from the Manage Emergency Services function, and when received again send a message to the other process for output to the traveler. Output of the emergency message to the Manage Emergency Services function shall be repeated by the process at regular intervals until a response is received.

Unsolicited Input Processing: This process shall receive the following unsolicited input data flows:
(a) 'traveler_personal_emergency_request'.

Solicited Input Processing: This process shall receive the following data flows as a result of output being sent to other processes and requests for data retrieval:
(a) 'emergency_request_personal_traveler_acknowledge'.

Solicited Output Processing: This process shall provide the following output flows as a result of the above inputs being received:
(a) 'emergency_request_personal_traveler_details';
(b) 'emergency_message_traveler_output'.

Functional Requirements: This process shall:
(a) transmission of the output message must be as near to instantaneous as possible following the receipt of data from the security message process;
(b) the current data and time must be added to the data received from the security message process;
(c) when the acknowledgment message is received it should be sent immediately to the interface process for the personal traveler guidance facility;
(d) transmission of the output message must be repeated until an acknowledgment message is received updating the date and time as they change;
(e) initially, the message sent to the traveler must show that data has been sent, and only changed when an acknowledgment is received.

6.8.3.2 Provide Traveler with Personal Travel Information

Overview: This process shall provide the traveler (using a personal device) with data about all requested trip, traffic, transit, other (yellow pages) services information, confirmation of any requested reservations, and payments made as part of confirmed trip plans. The data shall be sent by the process to an interface process which is responsible for its actual output to the traveler. This data shall include digitized map data to act as the background to the output when the data is shown in a suitable format. This process shall request data from other ITS functions or be sent it as a result of requests from another process.

exception of the following:
(a) 'traffic_data_for_portables' - which is received as a result of output being sent to another process;
(b) 'transit_deviations_for_portables' - which is received as a result of output being sent to another process;
(c) 'transit_services_portables_request' - which is received as a result of output being sent to another process;
(d) 'map_data_for_traveler_personal_displays' - which contains data requested from a data store.

Functional Requirements: This process shall:
(a) continuously monitor for receipt of the input flows listed above that are not details of transit services, traffic data and the display map data;
(b) when any of the flows in (a) are received, retrieve the relevant digitized display map data from the local store and send the combined data to the traveler interface process;
(c) when the flow received in (a) contains a request for transit or traffic data, send the request to the relevant process in the Manage Transit or Manage Traffic function;
(d) the input data received as a result of (c) shall be combined with the relevant digitized display map data from the local store and sent to the traveler interface process;
(e) use the most appropriate mechanism(s) such as a relational database, to retrieve data from the store identified above;
(f) all input and output flows must be encrypted in such a way that it is not possible to determine the payment information being transmitted, using any form of digital or analog techniques.

6.8.3.3 Provide Traveler Personal Interface

Overview: This process shall provide an interface in a personal device through which travelers can plan and confirm trips, as well as obtain current traffic and transit information. The process shall support trip planning and confirmation of other (yellow pages) services such as lodging, restaurants, theaters, and other tourist activities. The process shall be able to load in the traveler_personal_regular_data store frequently used information such as traveler identity (the owner of the personal device), home and work locations, etc. This will reduce the amount of input needed by the traveler for each trip request. The process shall also carry out input data verification and require input confirmation, with the traveler, before passing the data to other processes. The traveler's payment information and location (when traveler is using a portable device) shall be obtained by this process from other processes. The process shall support inputs from the traveler in both manual and audio form, and shall provide its outputs in audible and visual forms that are consistent with a personal device. This process shall include forms suitable for travelers with hearing and vision physical disabilities. The process shall display data for as long as required by the traveler and must enable viewing of previously output data. When used with a portable device, the process shall provide the traveler the option to filter the data (to be displayed) relevant to the travelers current location.

Data Flows: All input data flows are unsolicited and all output flows are solicited, with the exception of the 'traveler_personal_regular_data' data flow which contains data requested from or written to a data store.

Functional Requirements: This process shall:
(a) continuously monitor for receipt of the input flows from the traveler listed above;
(b) when any of the inputs in (a) are received, check for content, accuracy, consistency and out of range values, utilizing data from the local store identified above if necessary;
(c) generate the output identified above and load the requested data into the local data store;
(d) continually monitor the data in the local store and compare it with that being input by travelers, deleting any data from the store which is not frequently used;
(e) be responsible for the management of the data in the store of regularly used data, using the appropriate mechanism(s) such as a relational database, for storing the data;
(f) all input and output flows must be encrypted in such a way that it is not possible to determine the payment information being transmitted, using any form of digital or analog techniques.

7.1.1.1 Read Tag Data for Tolls

Overview: This process shall be responsible for requesting the data from the toll tag being carried on-board the vehicle and used as a payment instrument. If there is no tag or the data it contains cannot be properly read, this process shall provide a message for the vehicle operator to contact the toll authority (or toll system operator). The process shall send a request to other processes to obtain an image of the vehicle. If the vehicle is exiting a closed toll system the data shall be checked by this process to see if it contains an entry point toll segment number. If not present, the process would be referred to another process for off-line resolution. If the toll segment identity is present, it shall be combined with the vehicle characteristics, e.g., size, type, etc., to form the data upon which the toll payment transaction can be based, and the data sent to another process. If the vehicle is entering a closed toll system, the entry point toll segment shall be written onto the tag so that it can be used as the mechanism for charging for the use of the toll road.

Data flows: All input and output data flows are solicited with the exception of the following item which is used to trigger the process:
(a) 'vehicle_toll_characteristic_data' - which is received from another process that detects a vehicle's presence.

Functional Requirements: This process shall:
(a) continuously monitor for receipt of the input flows listed above;
(b) when the unsolicited input identified above is received, generate the outputs identified above;
(c) all input and output flows must be encrypted in such a way that it is not possible to determine the payment information being transmitted, using any form of digital or analog techniques.

7.1.1.10 Determine Advanced Toll Bill

Overview: This process shall be responsible for receiving a request to pay an advanced toll. It shall obtain the price of the toll segment(s) for which advanced payment is being requested from a local data store and shall then forward it to the billing processes. The store of toll prices shall be maintained by another process.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input flows listed above;
(b) when the inputs are received, generate the outputs identified above;
(c) all input and output flows must be encrypted in such a way that it is not possible to determine the payment information being transmitted, using any form of digital or analog techniques;
(d) use the most appropriate mechanism(s) such as RDBMS, to retrieve data from the store identified above.

7.1.1.2 Calculate Vehicle Toll

Overview: This process shall be responsible for calculating the toll for the detected vehicle based on the vehicle's characteristics and data obtained from the tag being carried by the vehicle. This process shall calculate the cost of the toll using segment(s) traveled by the vehicle. Segment information is obtained by reading data that contains standard prices for toll segments plus any variations to pricing received from the toll operator.

Data Flows: All input data flows are unsolicited and all output flows are solicited.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input flows listed above;
(b) when the inputs are received, generate the outputs identified above;
(c) use the most appropriate mechanism(s) such as a relational database, to retrieve data from the store identified above;
(d) all input and output flows must be encrypted in such a way that it is not possible to determine the payment information being transmitted, using any form of digital or analog techniques.

7.1.1.3 Manage Bad Toll Payment Data

Overview: This process shall be responsible for maintaining a data store containing a list of invalid driver credit identities. This process shall use this data to verify credit identities and commercial vehicle carrier numbers provided for checking by the billing process. Verification shall ensure that the current toll payment transaction is using a credit identity or carrier identity that has not previously had an invalid transaction. Details of potential invalid credit identities or carrier numbers shall be sent by this process to the financial institution for verification. This process shall also receive from the financial institution details of invalid payment instrument data that has been found by other means.

Data Flows: All input data flows are unsolicited and all output flows are solicited with the exception of the following which contains data written to or requested from a data store:
(a) 'bad_toll_payment_list'.

Functional Requirements: This process shall:
(a) continuously monitor for receipt of the input flows listed above;
(b) when the inputs are received, generate the outputs identified above;
(c) be responsible for the management of the data in the store of bad driver bad_toll_payment_list data, using the appropriate mechanism(s) such as a relational database, for storing the data.
(d) all input and output flows must be encrypted in such a way that it is not possible to determine the payment information being transmitted, using any form of digital or analog techniques.

7.1.1.4 Check for Advanced Tolls Payment

Overview: This process shall be responsible for checking to see if the required toll payment has already been made. The process shall determine the existence of an advanced payment for the toll segment(s) by comparing the received payment information with that in the store containing the list of advanced payments. If the payment has already been made then the process shall remove the requirement for local billing and remove the record of the advanced payment from the store. Details of each payment transaction shall be sent by the process to another process with the payment information received from the driver removed.

Data Flows: All input data flows are unsolicited and all output flows are solicited with the exception of the following which contains data requested from a data store:
(a) 'advanced_toll_payment_list'.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input flows listed above;
(b) when the inputs are received, generate the outputs identified above;
(c) be responsible for the management of the data in the store of advanced tolls payment data, using the most appropriate mechanism(s) such as RDBMS, for storing the data;
(d) all input and output flows must be encrypted in such a way that it is not possible to determine the payment information being transmitted, using any form of digital or analog techniques;
(e) remove the payment information received from the driver from all data that is sent to another process for loading into the store of toll payment transactions.

7.1.1.5 Bill Driver for Tolls

Overview: This process shall be responsible for either obtaining payment for the current or advanced toll. The process shall achieve this either by requesting that the toll cost be deducted from the credit being stored by the toll tag that is acting as the payment instrument, or by informing the driver that payment for the toll will be debited to the credit identity provided by the tag. Before sending data to the tag, the process shall check that either the credit identity is not already in the list of bad payers, or the stored credit is not less that the toll cost. If either of these conditions is true, the process shall obtain an image of the driver and vehicle which can be forwarded to the appropriate enforcement agency via another process. When the appropriate payment transaction has been completed, the toll entry segment identity shall be cleared from the tag so that it can be used the next time that the vehicle is on a toll road. The tag may be in the form of some type of credit or debit card, or an electronic purse. Details of the transaction shall always be sent by this process to the process that manages toll transactions. Where an advanced toll payment is identified, the process shall take no action if the credit identity is on the bad payers list, or the stored credit is less than the toll cost, other than the payment is not confirmed.

exception of the following:
(a) 'toll_bad_payment_check_response', which contains data from another process;
(b) 'advanced_toll_payment_list', which contains data written to a data store.

Functional Requirements: This process shall:
(a) continuously monitor for receipt of the input flows listed above;
(b) when the inputs are received, generate the outputs identified above;
(c) when the unsolicited flow requesting billing for tolls is received, check to see if it contains a credit identity, carrier identity or a stored credit value;
(d) if a credit identity or carrier identity is found in (c) send it to the process managing the store of bad payees for a check that it is not on the list of bad toll payments;
(e) if a match is found in (d), get an image of the violator and output the data flow that requests the vehicle to pull in;
(f) if a stored credit value is found in (c) and it is less that the toll cost, get an image of the violator and output the data flow that requests the vehicle to pull in;
(g) if the stored credit value found in (c) is greater than or equal to the toll cost, send the output flow to the payment instrument requesting that the toll cost be deducted from the credit being stored by the instrument;
(h) if a negative response is received to (g), get an image of the violator and output the data flow that requests the vehicle to pull in;
(i) when the toll transaction is complete always output details of the transaction in the flow of current toll transactions and send out the data flow that clears the toll tag data store;
(j) if the payment is identified as being for an advanced toll, and a match if found in (d) or the stored credit value is less than the toll cost then set the output flow of advanced toll payment to false and take no further action;
(k) if the tests if (j) are clear then set the output flow of advanced toll payment to true and enter the credit and vehicle identities into the store containing the advanced payment list;
(l) use the appropriate mechanism(s) such as a relational database, to retrieve and write data to the store identified above;
(m) all input and output flows must be encrypted in such a way that it is not possible to determine the payment information being transmitted, using any form of digital or analog techniques.

7.1.1.7 Update Toll Price Data

Overview: This process shall be responsible for maintaining a store of data containing the toll price, which may vary according to the type of vehicle. The process shall also act as the interface for the output and input of responses to toll price change requests from the Manage Traffic function, the provision of toll price information to the Centralized Payments facility, and to the toll administrator to enable changes to be made to the stored data. The input and output forms shall include those that are suitable for travelers with physical disabilities.

Data Flows: All input data flows are unsolicited and all output flows are solicited with the exception of the following which contains data requested from a data store:
(a) 'toll_prices'.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input flows listed above;
(b) when any of the inputs from the toll administrator are received, generate the appropriate output identified above;
(c) when the input for a toll prices change request is received from the Manage Transit function, generate the change request output to the toll service provider;
(d) when a request for toll price data is received, generate the data flow containing the copy of the store of price data;
(e) be responsible for the management of the data in the store of toll cost data, using the most appropriate mechanism(s) such as a relational database, for storing the data.

7.1.1.8 Register for Advanced Toll Payment

Overview: This process shall be responsible for responding to requests for tolls to be paid in advance. It shall provide the toll administrator with the opportunity to review the requests for advanced toll payments. If approved, the advanced toll data shall be forwarded by the process to other processes for the actual toll cost to be obtained and payment transactions initiated.

Data Flows: All input data flows are unsolicited and all output flows are solicited.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input flows listed above;
(b) when the inputs requesting advanced tolls are received, generate the outputs to the toll administrator identified above;
(c) if no response is received to the flows output in (b), assume that the advanced tolls have been accepted and send the data to the advanced toll bill determination process;
(d) if a negative response is received to the flows in (b), then output the advanced toll response data flows with the confirmation data set to fail;
(e) when the confirm data flow is received from the bill driver for tolls process, then output the advanced toll response data flows with the confirmation data set to true;
(f) all input and output flows must be encrypted in such a way that it is not possible to determine the payment information being transmitted, using any form of digital or analog techniques.

7.1.1.9 Manage Toll Financial Processing

Overview: This process shall be responsible for maintaining a log of all toll transactions that are carried out by other processes in the toll payments system. At periodic intervals the process shall output the accumulated records to the toll administrator and the archive function. It shall also output the data on request to the process that calculates probe data from the average travel time between toll plazas. The identity of the payee shall be removed from the data before it is used in any of these outputs. The process shall also be responsible for sending details of transactions to the financial institution to enable the users to be billed through their credit identities. For commercial vehicles, this will be done using the data provided by the vehicle's on-board tag and shall enable billing to the financial institution to be made by carrier.

Data Flows: All input data flows are unsolicited and all output flows are solicited with the exception of the following:
(a) 'toll_operational_data' - which is an unsolicited data flow periodically sent to the Manage Toll Archive Data function.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input flows listed above;
(b) when the inputs of transaction records are received, load the data in the data store served by the 'inout' flow shown in the above list;
(c) when requested by the appropriate input, generate the outputs identified above;
(d) be responsible for the management of the data in the store of toll transaction records, using the most appropriate mechanism(s) such as RDBMS, for storing the data;
(e) remove all driver identities from the data before it is used in any output data flows;
(f) ensure that all output flows are encrypted in such a way that it is not possible to determine the financial data being transmitted, using any form of digital or analog techniques;
(g) periodically (not less than once per day) send the toll operational data flow to the archive function calculating the number of users for each toll segment from the collected toll costs.

7.1.2 Produce Roadside Displays

Overview: This process shall be responsible for driving the displays that tell vehicles whether or not their driver's toll payment has been confirmed or rejected. The process shall receive the data for output via the displays from other processes. The data input and output forms shall use an appropriate form of display that shall be easily readable under all lighting conditions and over the range of speeds that vehicles are expected to use when passing through the toll plaza. The input and output forms shall include those that are suitable for travelers with physical disabilities.

Data Flows: All input data flows are unsolicited and all output flows are solicited.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input data flows listed above;
(b) when either of the inputs is received, generate the appropriate output identified above.

7.1.3 Obtain Toll Violator Image

Overview: This process shall be responsible for obtaining an image of a violator for use by other processes. The form of the image data obtained by this process shall be very accurate so that there can be no mistake of the determination of the identity of the vehicle and/or driver, and shall be easily passed on by the other processes to the appropriate law enforcement agency(ies) so that punitive action may be taken. The process shall be capable of obtaining an image of the required accuracy under all lighting conditions and over the range of speeds with which vehicles will pass through the toll plaza.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input data flows listed above;
(b) when the input data flows requesting a violator image be obtained are received, read the vehicle characteristics data being received;
(c) use the data in (b) to generate a highly accurate image of the vehicle and/or its driver;
(d) output the image in the violation information flow identified above.

7.1.4 Provide Driver Toll Payment Interface

Overview: This process shall be responsible for providing an interface through which drivers can request and pay for other services when paying their tolls at toll plazas. The services supported by this process include advanced payment for parking lot charges and transit fares. The process shall query the driver for sufficient information to enable the advanced parking lot charge and/or transit fare to be determined and the cost either billed to a credit identity provided by the driver's payment instrument, or deducted from credit stored on the instrument. The input and output forms shall include those that are suitable for travelers with physical disabilities.

Data Flows: All input data flows are unsolicited and all output flows are solicited.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input flows listed above;
(b) when the driver, the basic vehicle and the driver's payment credit identity input flows are received, check the content of the input data to ensure that there is sufficient data to enable the advanced parking lot charge and/or transit fare to be determined;
(c) if the check in (b) is not confirmed, output an insufficient data to complete transaction message to the driver using the appropriate output flow and highlighting the missing data;
(d) the data required in (b) about the advanced booking shall include such things as the identity of the parking lot plus the date and time for which a space is required, and/or the origin and destination of the transit route;
(e) the data in (b) must in addition to that for the advanced booking request, also include the vehicle identity and either the driver's credit identity or the credit, stored on the payment instrument being used by the driver;
(f) if the check in (f) is not confirmed, output an insufficient financial data (credit identity or stored credit) to complete transaction message to the driver using the appropriate output flow;
(g) if advanced parking lot booking is required output the appropriate flow to generate any required charges only, using the new value of the stored credit if advanced tolls were required;
(h) if advanced parking lot booking was required in (g), when a response is received again reduce the value of the stored credit;
(i) if an advanced transit fare is to be paid, output the appropriate flow to generate any advanced transit fares, using the new value of the stored credit generated by any advanced costs already produced from the above;
(j) when output and response to all the advanced booking requests are complete, total up all the costs and check that they are less than the original value of the stored credit and if not output an insufficient credit message to the driver using the appropriate output flow;
(k) all input and output flows must be encrypted in such a way that it is not possible to determine the payment information being transmitted using any form of digital or analog techniques.

7.1.5 Detect Vehicle for Tolls

Overview: This process shall be responsible for producing a vehicle's characteristics from data received by sensors located at the roadside, at or near the toll collection point. The data shall be sent by the process to another process in a form suitable for use in calculating the toll cost for the vehicle. The process shall ensure that the data includes such things as vehicle size, weight, axle count, type, identifiable features, etc.

Data Flows: Input data flow is unsolicited and output flow is solicited.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input data flow listed above;
(b) when the input is received, generate the output data flow identified above.

7.1.7 Provide Payment Instrument Interface for Tolls

Overview: This process shall be responsible for providing the interface through which the payment information can be read from a vehicle tag. The process shall enable the use of the data from the tag for the purposes of paying for current tolls, plus if required, the cost of advanced parking lot charges, and/or transit fares, as well as providing the data for use in traffic flow analysis. The tag data which can be collected by the process shall include credit identity, stored credit value, and the toll segment identity at the vehicle's entry point so that closed toll system can be used. When stored credit is used, the process shall enable the deduction of the cost of the toll and (possibly) advanced payments from the credit value on the tag. The process shall support collection of data from tags on-board a range of vehicle types including private cars or vans, commercial vehicles, transit vehicles, including those used for demand responsive transit services.

Data Flows: All input and output data flows are solicited with the exception of the following which are unsolicited input flows which activate the process, or are used to read and write data from a local data store:
(a) 'toll_tag_data_request' - which is a data flow received from the toll tag data collection process;
(b) 'toll_tag_data_needed' - which is a data flow received from the Manage Traffic function that contains a request for toll tag data;
(c) 'fpi-toll_tag_data' - which is s data flow received from the payment instrument terminator;
(d) 'toll_tag_data_store' - which reads/writes data from a local data store.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the unsolicited input flows listed above;
(b) when the first unsolicited input data flow in (a) is received, generate the output data flow containing the toll tag data;
(c) as a result of (b) await receipt of the data flows that either request toll payment from the credit stored on the payment instrument, or confirm that payment will be deducted from the credit identity supplied by the payment instrument, or contain an updated version of the toll tag data with the identity of the toll segment at which the vehicle entered the toll road;
(d) when either of the two flows in (c) is received, send the appropriate toll payment request or payment debited flow to the payment instrument;
(e) when the third flow in (c) is received, update the local store of toll tag data;
(f) when the second unsolicited data flow in (a) is received, send the data flow containing tag data to the Manage Traffic function;
(g) when the third unsolicited input flow in (a) is received, write the data to the local data store replacing any data that already exists in the store;
(h) all input and output flows must be encrypted in such a way that it is not possible to determine the payment information being transmitted, using any form of digital or analog techniques;
(i) use the most appropriate mechanism(s) such as RDBMS, to manage the data in the store identified above.

7.3.1.1 Register for Advanced Transit Fare Payment

Overview: This process shall be responsible for responding to requests for transit fares to be paid in advance. The advanced transit fare data shall be forwarded by the process to other processes for the actual cost to be obtained and the payment transactions initiated.

Data Flows: All input data flows are unsolicited and all output flows are solicited.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input flows listed above;
(b) when the inputs are received, generate the outputs identified above;
(c) all input and output flows must be encrypted in such a way that it is not possible to determine the payment information being transmitted, using any form of digital or analog techniques.

7.3.1.2 Determine Advanced Transit Fares

Overview: This process shall be responsible for receiving a request to pay an advanced transit fare. It shall obtain the required transit fare data from a local store of transit fares and shall then forward the data to the billing processes. The store of fare data shall be maintained by another process.

Data Flows: All input data flows are unsolicited and all output flows are solicited with the exception of the following which contains data requested from a data store:
(a) 'transit_fares_for_advanced_payments'.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input flows listed above;
(b) when the inputs are received, generate the outputs identified above;
(c) all input and output flows must be encrypted in such a way that it is not possible to determine the payment information being transmitted, using any form of digital or analog techniques;
(d) use the most appropriate mechanism(s) such as RDBMS, to retrieve data from the store identified above.

7.3.1.3 Manage Transit Fare Financial Processing

Overview: This process shall be responsible for maintaining a log of all the transactions carried out by other processes in the Process Electronic Transit Fare Payment facility. The identity of the payee shall have been removed from the data before it is stored. At periodic intervals the process shall output the accumulated records to the transit fleet manager, the transit system operator and to another process in the Provide Electronic Payment Services function. The process shall also be responsible for sending details of transactions to the financial institution to enable the users to be billed through their credit identities. The input and output forms shall include those that are suitable for travelers with physical disabilities.

exception of the following which contains data written to and requested from a data store:
(a) 'transit_fare_transaction_records'.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input flows listed above;
(b) when the inputs are received, load the data in the store of transaction records;
(c) at periodic intervals, e.g. daily, generate the outputs identified above;
(d) be responsible for the management of the data in the store of transit fare transaction records, using the appropriate mechanism(s) such as RDBMS, for storing the data;
(e) remove all transit user identities from the data before it is loaded into the data store;
(f) ensure that all output flows are encrypted in such a way that it is not possible to determine the financial data being transmitted, using any form of digital or analog techniques.

7.3.1.4 Check for Advanced Transit Fare Payment

Overview: This process shall be responsible for checking to see if the required transit fare payment has already been made. The process shall determine the existence of an advance payment for the transit fare by comparing the received payment information with that in the store containing the list of advanced payments. If the payment has already been made then the process shall remove the requirement for local billing and remove the record of the advanced payment from the store. Details of each payment transaction shall be sent by the process to another process with the payment information received from the transit user removed.

Data Flows: All input data flows are unsolicited and all output flows are solicited with the exception of the following which contains data requested from a data store:
(a) 'advanced_fare_payment_list'.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input flows listed above;
(b) when the inputs are received, generate the outputs identified above;
(c) use the most appropriate mechanism(s) such as RDBMS, to retrieve data from the store identified above;
(d) all input and output flows must be encrypted in such a way that it is not possible to determine the payment information being transmitted, using any form of digital or analog techniques;
(e) remove the credit identity of the transit user from all data that is sent to another process for loading into the store of transit fare payment transactions.

7.3.1.7 Update Transit Fare Data

Overview: This process shall be responsible for managing the store of data that provides the actual value of transit fares for each segment of each regular transit route. The process shall also act as the interface through which the transit system operator can output and make changes to the stored data, and copies of this data can be provided to the Centralized Payments facility on request. The process shall support inputs from the transit system operator in both manual and audio form, and shall provide its outputs in audible and visual forms. It shall enable the visual output to be either in hardcopy, or as a display. The process shall automatically output the new fares for use by process on-board a transit vehicle and at the roadside, as well as by other ITS functions.

Data Flows: All input data flows are unsolicited and all output flows are solicited with the exception of the following which contains data written to a data store:
(a) 'transit_fares_for_advanced_payments'.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input data flows from the transit system operator listed above;
(b) when the input requesting output of the current data is received, generate the output of fares to the operator using the data flow identified above;
(c) when the input containing new fare data is received, load the new data into the data store, and generate the other output data flows identified above.
(d) when a request for transit fare price data is received, generate the data flow containing the copy of the store of price data;
(e) use the most appropriate mechanism(s) such as a relational database, to write data to the store of transit fares identified above.

7.3.5 Provide Transit Vehicle Payment Instrument Interface

Overview: This process shall be responsible for providing the interface through which the payment information can be read from a transit user tag. The process shall support the reading of this data from transit users embarking on-board transit vehicles, for use in paying the current transit fare, and if required, advanced payments. The process shall support advanced payments for tolls, and/or parking lot charges, and/or transit fares. It shall be possible for the process to collect either the credit identity or the stored credit value data from the tag, and to update the stored credit value as a result of the fare and (possibly) advanced charges having been paid.

Data Flows: All input and output data flows are solicited with the exception of the following which is an unsolicited input flow and which activates the process:
(a) 'fpi-transit_vehicle_tag_data' - which is a flow received from the payment instrument terminator.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the unsolicited input flow listed above;
(b) when the input is received, generate the output data flow containing transit vehicle tag data;
(c) as a result of (b) await receipt of the data flows that either request transit fare payment from the credit stored on the payment instrument or confirm that payment will be deducted from the credit identity supplied by the payment instrument;
(d) when either of the flows in (c) is received, send the appropriate transit fare payment request or payment debited flow to the payment instrument;
(e) all input and output flows must be encrypted in such a way that it is not possible to determine the credit identity or stored credit value being transmitted using any form of digital or analogue technique.

7.4.2 Collect Price Data for ITS Use

Overview: This process shall be responsible for collecting data about the prices being charged for tolls, parking lots and transit fares. This process shall accept data sent to it by the other processes when they have updated their data and automatically sent it, or this process shall request a transfer of data from the other processes. The process shall load the data into the price_data_for_services data store from which some or all of it can be read on request from processes in other ITS functions.

Data Flows: All input data flows are unsolicited and all output flows are solicited with the exception of the following which contains data written to and requested from a data store:
(a) 'financial_and_ridership_data'.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the input data flows listed above;
(b) when inputs of data are received, load their contents into the data store identified above;
(c) when the inputs requesting data are received, read the required data from the store and generate the output data flows identified above;
(d) periodically generate the data flows listed above requesting the current toll and parking lot prices plus transit fare data;
(e) be responsible for the management of the data in the store of the prices for services, using the most appropriate mechanism(s) such as RDBMS, for storing the data;
(f) all input and output flows must be encrypted in such a way that it is not possible to determine the payment information being transmitted, using any form of digital or analog techniques.

7.5.1 Provide Vehicle Payment Instrument Interface

Overview: This process shall be responsible for providing the interface through which driver credit identities and stored credit may be entered into the ITS from on-board vehicle tags. The types of vehicles from which data is collected shall include private cars or vans, commercial vehicles, and transit vehicles, including those used for demand responsive transit services. This process shall also provide an interface through which the stored credit held by the tag can be debited for the payment of current or advanced tolls, plus advanced parking lot charges, and/or transit fares.

Data Flows: All input data flows are unsolicited and all output flows are solicited.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the unsolicited input flow listed above;
(b) when the input is received, generate the appropriate one of the outputs identified above;
(c) when either of the input flows requesting a reduction in stored credit is received, generate the appropriate flow to reduce the credit currently stored on-board the payment instrument;
(d) all input and output flows must be encrypted in such a way that it is not possible to determine the payment information being transmitted, using any form of digital or analog techniques.

8.1 Get Archive Data

Overview: This process shall collect data from each major function within ITS and external sources for archive purposes that may not exist within current ITS data sources. This process shall respond to requests from the Manage Archive Data Administrator Interface process to import data or data catalogs. This process shall send requests for data or a catalog of available data to the other functions and terminators, either a subscription for data or a one-time request. This process shall receive meta data along with the data to describe the conditions under which the data was collected or any other information about the operational data. When data is received this process shall perform quality checks such as range validation or reformat the data as necessary to meet the archive schema. This process shall execute methods on the incoming data such as cleansing, summarizations, aggregations, or transformations applied to the data before it is stored in the archive. Any changes made to the data shall be recorded in the meta-data stored in the archive to assist in the reconstruction of the original data if possible. This process shall receive inputs from the Manage Archive Data Administrator Interface that contain the parameters for managing the processing on the data. This process forwards the collected onto the Manage Archive function along with updated meta-data and a record of any methods applied to the incoming data. This process shall also support the notification of the operational source functions of any errors that may be present in the data that could be caused by equipment failures or a transmission error.

Data Flows: The input data flow import_administration_request is unsolicited. The other input data flows of the form xxx_archive_data are solicited by the process during a one-time request operation; subsequent data sent as part of a subscription operation shall be received as unsolicited input. All outputs from this process are solicited.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the unsolicited input flows listed above;
(b) when the unsolicited data input import_administration_request is received, the process shall generate the solicited output flow of the form xxx_archive_request where xxx is the source for the data requested;
(c) when the data xxx_archive_data is received, either unsolicited as part of a subscription arrangement or solicited in response to the request issued in (b), the process shall received the data and format it per the information contained in the import_administration_request flow received in (b);
(d) when the input data has been formatted the process shall send the data to the Manage Archive function;
(e) the process shall update the meta data of the received data to describe any formatting steps performed in (c);
(f) the process shall generate the solicited output import_administration_status to inform the Manage Archive Administrator Interface function of the status of the import process and to include the catalog of data requested and available from the source function;
(g) when data is received from an input source, the process shall generate solicited output xxx_archive_status to notify the source of any errors in the received data.

8.2 Manage Archive

Overview: This process shall store the collected and formatted data in a permanent archive data store. This process shall receive the formatted data from the Get Archive Data function accompanied by any updates to the meta data that would describe the formatting operations performed on the data as it was imported.
This process shall respond to requests from the administrator interface function to maintain the schema of the archive data, set update frequencies, backup schedules, user authentication schemes, cleansing algorithms.
This process shall provide the administrator interface function with status of the data quality in the archive, frequency reports on use of the archive, updates to the measure of the volume of the data and other data archive metrics. This process shall receive inputs from the Coordinate Archives function to provide data and information about the archive schema to other archives. In turn the process shall receive data and schema of other archives to use to build a global schema. The process shall use the global schema to support requests from user systems for data that may be spread across multiple archives. The process shall maintain the access privileges information for the data held in the archive to maintain the security of the archive. The process shall employ such techniques as necessary to maintain the integrity of the data and ensure no data is lost from the archive. The process shall respond to requests for data to support user data products, user analysis, and inputs to government reporting systems. The process shall respond to such request by authenticating the originator of the request and providing the data that is available. The process shall also be capable of providing a sample or catalog of data contained within the archive to support the user requests.

Data Flows: All inputs to this process are unsolicited and all outputs from this process are solicited.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the unsolicited input flows listed above;
(b) when the unsolicited data input retrieved_archive_data is received, the process shall update the data store;
(c) when the unsolicited data input for administration_request is received, the process shall respond with the solicited data output administration_status;
(d) when the input flows requesting data from the archive are received, the process shall authenticate the user can access to the data, determine the location of the data, whether local or in another archive, and generate the requested data output.

8.3 Manage Archive Data Administrator Interface

Overview: This process shall interface with the Archive Data Administrator terminator and receive inputs from the administrator concerning the management and administration of the archive. The process shall establish user authentication controls for the archive and send the information to the Manage Archive function. The process shall maintain the schema of the archive, including the data and meta data contained within the archive data. Updates to the schema shall be distributed to the Manage Archive function as well as the Get Archive Data function. The process shall send the parameters and requests to the Get Archive Data function to control what data is imported into the archive and how the data is to be formatted when it is received. The parameters sent shall include such things as the schema, data format, methods to apply to the data, cleansing parameters, quality metrics, and checking specifications. The process shall send requests to the Get Archive Data function for new data or a catalog of data that may be available. The process shall respond to requests from the Manage On Demand Archive Requests function by making requests of the Get Archive Data function to establish the source and identity of the data that may exist in ITS or non-ITS sources. Then the process shall respond to the user request with the confirmation that the request can be satisfied and specifications about the data once it is imported. In cases where the Manage Archive function will be managing a roadside data collection function, this process shall initiate and control the function by sending commands and requests to the Manage Roadside Data Collection function. This process receives the status from the other functions within Manage Archived Data and presents them to the administrator.

Data Flows: All input flows are solicited with the exception of 'fada-archive_administration_requests' and 'on_demand_archive_requests' which are unsolicited. All outputs are solicited.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the unsolicited input flow listed above;
(b) when the input is received from the administrator, generate the appropriate output data flow;
(c) when the input is received from the on demand request function, generate the output to the Get Archive Data function;
(d) when status flows are received, generate the output for the administrator;
(e) all input and output flows regarding the security of the archive must be encrypted in such a way that it is not possible to determine the user identity or password authentication methods for any user.

8.4 Coordinate Archives

Overview: This process shall coordinate the information exchange between different Manage Archived Data functions represented through the Other Archives terminator. This process shall allow other archives to share data collected by other archive functions to share the data in response to local requests from users systems. This process shall use data collected from different archives to build a set of global schema which the data archive definitions for the local archive plus any archives known to the local archive. This process shall provide the global schema to the local Manage Archive function. This process shall receive the schema of the local archive to share with other archive functions. This process shall provide data to those other archives when requested. This process shall support analysis, data fusion, and data mining of archived information across geographically dispersed archives.

Data Flows: All input and output flows are solicited with the exception of other_archive_data_request and foa-archive_coordination_data which can be unsolicited.

Functional Requirements: This process shall meet the following functional requirements:
(a) continuously monitor for receipt of the unsolicited input flows listed above;
(b) when the input in (a) is received, send the data flow to the other archive to request data be provided in response to a local user systems request or to the Manage Archive function in response to the other archives request;
(c) when are response to the request in (b) is received, forward the data from other archives to the Manage Archive function and forward the local data to the other archives;
(d) when local schema arrives from the Manage Archive function update the other archives with the definition of the local archive schema;
(e) when schema about other archives is received update the Manage Archive function with the global_schema flow.

8.5 Process Archived Data User System Requests

Overview: This process shall monitor the archive data user systems interface for requests for data from the archive. This process shall support requests from users involved in planning, research, safety, as well as operations of transportation functions. This process shall receive requests for data and catalogs of data that may be contained in the archive. This process shall translate the requests into a format that can be understood by the Manage Archive function to retrieve data from the archive. When data or a catalog of data is received from the archive, this process shall generate the requested data product for the users systems. For archive data requiring financial payment this archive process the financial requests and manages an interface to a Finanicial Institution.

Data Flows: All input and output flows are solicited with the exception of fadu-archive_data_product_request which is unsolicited.

Functional Requirements: This process shall satisfy the following functional requirements:
(a) continuously monitor for receipt of the unsolicited input flows listed above;
(b) when a request is received from a user system, generate the request outpu to forward the request to the Manage Archive function;
(c) when the data is received from the archive, either the catalog of data, the data itself, or meta data; immediately generate the output to the user system;
(d) before output, the process shall put the data into a format that is easily read and interpreted by external processes.

8.6 Analyze Archive

Overview: This process shall support the interface with Archive Data User Systems for requests for analysis of the archive data. This process shall support analysis products that can provide users with the ability to perform activities such as data mining, data fusion, summarizations, aggregations, and recreation from archive data. This process shall receive the users systems requests and develop the request that the Manage Archive function can process to retrieve the data from the archive. This process shall be able to respond to users systems requests for a catalog of the analysis products available. When data and meta data are returned from the archive and the analysis is performed this process shall produce the output for the Archive Data User Systems terminator. For archive data requiring financial payment this archive process the financial requests and manages an interface to a Finanicial Institution.

Data Flows: All input and output flows are solicited with the exception of fadu-archive_analysis_request which is unsolicited.

Functional Requirements: This process shall satisfy the following functional requirements:
(a) continuously monitor for receipt of the unsolicited input flows listed above;
(b) when a request is received from a user system, generate the request output to forward the request to the Manage Archive function;
(c) when the data is received from the archive, either the catalog of data, the data itself, or meta data; immediately perform the analysis requested and generate the output to the user system;
(d) before output, the process shall put the data into a format that is easily read and interpreted by external processes.

8.7 Process On Demand Archive Requests

Overview: This process shall receive requests for data to be imported into the archive that is not already in the archive. The process shall forward the request to the Manage Archive Data Administrator Interface function for the administrator to handle the user request. The process shall receive the response from the administrator and forward the information to the Archive Data User System.

Data Flows: All input and output flows are solicited with the exception of fadu-on_demand_archive_request which is unsolicited.

Functional Requirements: This process shall satisfy the following functional requirements:
(a) continuously monitor for receipt of the unsolicited input flows listed above;
(b) when a request is received from a user system, generate the request output to forward the request to the Manage Archive Data Administrator Interface function;
(c) when the response is received from the administrator, generate the output to the user system;
(d) before output, the process shall put the data into a format that is easily read and interpreted by external processes.

8.8 Prepare Government Reporting Inputs

Overview: This process shall support the preparation of inputs to reporting systems of the federal or state governments that require data from the ITS archive. This process shall respond to requests from the Government Reporting Systems terminator for data from the archive and generate the request in a form understood by the Manage Archive function. The data and any meta data necessary shall be returned from the Manage Archive function. This process shall receive the data and format it as requested and send it to the Government Reporting Systems terminator where it may be combined with other data before final submission.

Data Flows: All input and output flows are solicited with the exception of fgrs-government_data_report_request which is unsolicited.

Functional Requirements: This process shall satisfy the following functional requirements:
(a) continuously monitor for receipt of the unsolicited input listed above;
(b) upon receipt of the input listed in (a), generate the data request to the Manage Archive function to provide the data required from the archive;
(c) upon receipt of the returned data requested in (b), generate the output to the Government Reporting Systems terminator.

8.9 Manage Roadside Data Collection

Overview: This process shall manage the collection of archive data directly from collection equipment located at the roadside. This process shall collect traffic information as well as environmental or other information that may be collected by roadside devices. This process shall respond to requests from the Manage Archive Data Administer Interface process to input the parameters that control the collection process. The request for data and control parameters shall be sent to the Manage Traffic function where the information is collected and returned. This process shall forward the data onto the Get Archive Data function for import into the archive. The Get Archive Data function shall be able to return status about the imported data. This process shall use the status information to adjust the collection function and report back to the administrator function.

Data Flows: All input flows are unsolicited with the exception of collected_roadside_data_status and roadside_archive_data which are unsolicited. All outputs are solicited.

(a) continuously monitor for receipt of the unsolicited input flow listed above;
(b) when the input is received from the administrator, generate the appropriate output data flow;
(c) when data is received from the roadside_archive_data, check the data for errors and forward the data to the Get Archive Function on output collected_roadside_data;
(d) update the collection_administration_status upon receipt of the archive data and the status from the Get Archive Data function.

APPENDIX B
RELEVANT ARCHITECTURE FLOW DEFINITIONS

archive analysis requests

A user request that initiates data mining, analytical processing, aggregation or summarization, report formulation, or other advanced processing and analysis of archived data. The request also includes information that is used to identify and authenticate the user and support electronic payment requirements, if any.

archive analysis results

Processed information products, supporting meta data, and any associated transaction information resulting from data mining, analytical processing, aggregation or summarization, report formulation, or other on-line processing and analysis of archived data.

archive coordination

Catalog data, meta data, published data, and other information exchanged between archives to support data synchronization and satisfy user data requests.

archive management data

Information used to support the management of an ITS archive including database reports on the condition and quality of the archived data, status of the import and collection process, reports that monitor archive usage, and any special requests that require direct action by the administrator (e.g., requests for access to new data sources).

archive management requests

Commands, requests, and queries that support the administration and management of an ITS data archive.

archive request confirmation

Confirmation that an archive request has been received and processed with information on the disposition of the request

archive requests

A request to a data source for information on available data (i.e. "catalog") or a request that defines the data to be archived. The request can be a general subscription intended to initiate a continuous or regular data stream or a specific request intended to initiate a one-time response from the recipient.

archive status

Notification that data provided to an archive contains erroneous, missing, or suspicious data or verification that the data provided appears valid. If an error has been detected, the offending data and the nature of the potential problem are identified.

archived data product requests

A user-specified request for archived data products (i.e. data, meta data, or data catalogs). The request also includes information that is used to identify and authenticate the user and support electronic payment requirements, if any.

archived data products

Raw or processed data, meta data, data catalogs and other data products provided to a user system upon request. The response may also include any associated transaction information.

bad tag list

List of invalid transit user tags which may have previously failed a fare payment transaction.

broadcast advisories

General broadcast advisories that are provided over wide-area wireless communications direct to the vehicle radio. These analog advisory messages may provide similar content to ITS broadcast information flows, but include no digital data component. Existing Highway-Advisory Radio (HAR) advisory messages are a prime example of this flow.

broadcast information

General broadcast information that contains link travel times, incidents, advisories, transit services and a myriad of other traveler information.

closure coordination

Coordination between subsystems regarding construction and maintenance closure times and durations.

construction and maintenance archive data

Information describing road construction and maintenance activities identifying the type of activity, the location of the activity, and the activity status. Content may include a catalog of available information, the actual information to be archived, and associated meta data that describes the archived information.

current network conditions

Current traffic information, road conditions, and camera images that can be used to locate and verify reported incidents, and plan and implement an appropriate response.

demand responsive transit plan

Plan regarding overall demand responsive transit schedules and deployment.

demand responsive transit request

Request for paratransit support.

dispatch information

Dispatch information and command to emergency personnel.

driver information

General advisory and traffic control information provided to the driver while en-route.

driver instructions

Transit service instructions for both transit and paratransit drivers.

driver updates

Information displayed or otherwise conveyed by the vehicle to the driver.

emergency acknowledge

Acknowledge request for emergency assistance and provide additional details regarding actions and verification requirements.

emergency archive data

Logged incident information that characterizes the identified incidents and provides a record of the corresponding incident response. Content may include a catalog of available information, the actual information to be archived, and associated meta data that describes the archived information.

emergency dispatch requests

Emergency vehicle dispatch instructions including incident location and available information concerning the incident.

emergency dispatch response

Request for additional emergency dispatch information (e.g., a suggested route) and provision of en-route status.

emergency notification

An emergency request for assistance originated by a traveler using an in-vehicle, public access, or personal device. Sufficient information is provided so that the recipient can determine the location of the emergency as a minimum. Additional information identifying the requestor and requesting device and the nature and severity of the emergency may also be provided (and required) by some systems.

emergency operations request

Emergency operator inputs supporting call taking, dispatch, and other operations and communications center operator functions.

emergency operations status

Emergency operations data supporting a range of emergency operating positions including call taker, dispatch, and various other operations and communications center operator positions.

emergency personnel inputs

Current incident status information and requests from emergency personnel in the field for information and/or resources.

emergency request

An emergency assistance request originated by a transit traveler using an in-vehicle, public access, or personal device.

emergency traffic control request

Special request to preempt the current traffic control strategy in effect at one or more signalized intersections or highway segments. For example, this flow can request all signals to red-flash, request a progression of traffic control preemptions along an emergency vehicle route, or request another special traffic control plan.

emergency traffic control response

Status of the special traffic signal control strategy implemented in response to the emergency traffic control request.

emergency vehicle tracking data

The current location and operating status of the emergency vehicle.

environmental conditions

Current environment conditions (e.g., air temperature, wind speed, surface temperature) as measured by environmental sensors and communicated by supporting field equipment.

equipment maintenance status

Current status of field equipment maintenance actions.

event confirmation

Confirmation that special event details have been received and processed.

event plans

Plans for major events possibly impacting traffic.

external reports

Traffic and incident information that is collected by the media through a variety of mechanisms (e.g., radio station call-in programs, air surveillance).

fare and payment status

Current fare collection information including the operational status of the fare collection equipment and financial payment transaction data.

fare management information

Transit fare information and transaction data used to manage transit fare processing on the transit vehicle.

fault reports

Reports from field equipment (sensors, signals, signs, controllers, etc.) which indicate current operational status.

freeway control data

Control commands and operating parameters for ramp meters, dynamic message signs, mainline metering/lane controls and other systems associated with freeway operations.

freeway control status

Current operational status and operating parameters for ramp meters, dynamic message signs, mainline metering/lane controls and other control equipment associated with freeway operations.

government reporting data receipt

The acknowledgement of satisfactory receipt of information used as input to government data systems or a report identifying problems or issues with the data submittal.

government reporting system data

Information provided by an ITS archive, formatted as appropriate, that can be used as input to government data reporting systems.

HAZMAT information

Information about a particular hazmat load including nature of the load and unloading instructions. May also include HAZMAT vehicle route and route update information

HAZMAT information request

Request for information about a particular hazmat load.

highway control status

Current traffic control equipment status that indicates operational status and right-of-way availability to the non-highway transportation mode at a multimodal crossing.

hri operational status

Status of the highway-rail grade crossing equipment including both the current state or mode of operation and the current equipment condition.

incident command information

Information that supports local management of an incident. It includes resource deployment status, hazardous material information, traffic, road, and weather conditions, evacuation advice, and other information that enables emergency personnel in the field to implement an effective, safe incident response.

incident command information presentation

Presentation of information to emergency personnel in the field that supports local tactical decision-making within an incident command system structure.

incident command request

Request for resources, commands for relay to other allied response agencies, and other requests that reflect local command of an evolving incident response.

incident data

Data and imagery from the roadside supporting incident detection and verification.

incident information

Notification of existence of incident and expected severity, location, time and nature of incident.

incident information request

Request for incident information, clearing time, severity. The request can be a subscription that initiates as-needed information updates as well as a one-time request for information.

incident notification

The notification of an incident including its nature, severity, and location.

incident notification response

Interactive acknowledgement and verification of the incident information received, requests for additional information, and general information on incident response status.

incident report

Report of an identified incident including incident location, type, severity and other information necessary to initiate an appropriate incident response.

incident response coordination

Incident response procedures, resource coordination, and current incident response status that are shared between allied response agencies to support a coordinated response to incidents. This flow also coordinates a positive hand off of responsibility for all or part of an incident response between agencies.

incident response status

Status of the current incident response including traffic management strategies implemented at the site (e.g., closures, diversions, traffic signal control overrides).

incident status

Information gathered at the incident site that more completely characterizes the incident and provides current incident response status.

in-vehicle transaction status

The status of an electronic payment transaction presented to the driver by in-vehicle equipment.

ISP operating parameter updates

Tuning and performance enhancement parameters to ISP algorithms

ISP operating parameters

Parameters provided to the ISP Operator by the ISP including broadcast information settings, route selection controls, and travel optimization algorithms.

license request

Request supporting registration data based on license plate read during violation.

local signal preemption request

Direct control signal or message to a signalized intersection that results in preemption of the current control plan and grants right-of-way to the requesting vehicle.

logged special vehicle route

Anticipated route information for special vehicles (e.g., oversize vehicles) or groups of vehicles (e.g., governer's motorcade) that may require changes in traffic control strategy.

maintenance resource request

Request for road maintenance resources that can be used in the diversion of traffic (cones, portable signs), clearance of an incident, and repair of ancillary damage.

maintenance resource response

Current status of maintenance resources included availability and deployment status.

maintenance status

Current maintenance status of vehicle.

map update request

Request for a map update which could include a new underlying map or map layer updates.

map updates

Map update which could include a new underlying static or real-time map or map layer(s) update.

media information request

Request from the media for current transportation information.

multimodal crossing status

Indication of operational status and pending requests for right-of-way from equipment supporting the non-highway mode at multimodal crossings.

payment

Payment of some kind (e.g., toll, parking, fare) by traveler which in most cases can be related to a credit account.

payment request

Request for payment from financial institution.

personal transit information

General and personalized transit information for a particular fixed route, flexible route, or paratransit system.

position fix

Information which provides a traveler or vehicles geographical position.

registration

Registered owner of vehicle and associated vehicle information.

remote surveillance control

The control commands used to remotely operate another center's sensors or surveillance equipment so that roadside surveillance assets can be shared by more than one agency.

request for bad tag list

Request for list of bad vehicle tag IDs.

request for payment

Request to deduct cost of service from user's payment account.

request for traffic information

Request for traffic information that specifies the region/route of interest, the desired effective time period, and other parameters that allow preparation of a tailored response. The request can be a subscription that initiates as-needed information updates as well as a one-time request for information.

request for vehicle measures

Request for vehicle performance and maintenance data collected by onboard sensors.

request tag data

Request for tag information including credit identity, stored value card cash, etc.

request transit information

Request for transit service information and current transit status.

resource deployment status

Status of traffic management center resource deployment identifying the resources available and their current deployment status.

resource request

A request for traffic management resources to implement special traffic control measures, assist in clean up, verify an incident, etc.

road network use

Aggregated route usage and associated travel data from clients for planning and analysis.

roadside archive data

A broad set of data derived from roadside sensors that includes current traffic conditions, environmental conditions, and any other data that can be directly collected by roadside sensors. This data also indicates the status of the sensors and reports of any identified sensor faults.

roadside transaction status

The status of an electronic payment transaction provided directly to the driver via sign or other roadside infrastructure.

roadway information system data

Information used to initialize, configure, and control roadside systems that provide driver information (e.g., dynamic message signs, highway advisory radio, beacon systems). This flow can provide message content and delivery attributes, local message store maintenance requests, control mode commands, status queries, and all other commands and associated parameters that support remote management of these systems.

roadway information system status

Current operating status of dynamic message signs, highway advisory radios, beacon systems, or other configurable field equipment that provides dynamic information to the driver.

route assignment

Route assignment information for transit driver.

secure area characteristics

Characteristics (visual, audible, other) that are monitored by surveillance security systems via sensors.

secure area monitoring support

Commands that control surveillance equipment and security sensors that monitor secure public transportation areas. Also includes information for general advisories and alerts intended for general dissemination in these same public areas.

secure area surveillance data

Data collected from surveillance systems used to monitor secure areas. Includes video, audio, and other security sensor outputs.

selected routes

Routes selected based on route request criteria.

sensor and surveillance control

Information used to configure and control sensor and surveillance systems at the roadside.

signal control data

Information used to configure and control traffic signal systems.

signal control status

Status of surface street signal controls.

suggested route

Suggested route for a dispatched emergency vehicle that may reflect current network conditions and the additional routing options available to en-route emergency vehicles that are not available to the general public.

tag data

Unique tag ID and related vehicle information for the purposes of payment for services.

toll administration requests

Instructions indicating toll fees which should be charged.

toll data

Current toll schedules for different types of vehicles as well as advanced toll payment information.

toll data request

Request made to obtain toll schedule information or pay a toll in advance. The request can be a subscription that initiates as-needed information updates as well as a one-time request for information.

toll demand management request

Request to change the demand for toll road facility use through pricing or other mechanisms.

toll demand management response

Response to toll demand management change requests indicating level of compliance with request.

toll instructions

Demand management toll pricing information based on current congestion.

toll operator requests

Request for information from toll operator at toll collection site.

toll revenues and summary reports

Summary of toll revenues and toll-related reports to toll service provider.

toll transaction reports

Summary report sent to toll collection point operator containing previous toll transactions.

toll transactions

Detailed list of transactions from a toll station.

track status

Current status of the wayside equipment and notification of an arriving train.

traffic archive data

Information describing the use and vehicle composition on transportation facilities and the traffic control strategies employed. Content may include a catalog of available information, the actual information to be archived, and associated meta data that describes the archived information.

traffic characteristics

Physical traffic characteristics which are monitored and translated into macroscopic measures like occupancy, volume, density, and average speed. Point measures support presence detection and individual vehicle measures like speed.

traffic control coordination

Information transfers that enable remote monitoring and control of traffic management devices. This flow is intended to allow cooperative access to, and control of, field equipment during incidents and special events and during day-to-day operations. This flow also allows 24-hour centers to monitor and control assets of other centers during off-hours, allows system redundancies and fail-over capabilities to be established, and otherwise enables integrated traffic control strategies in a region.

traffic equipment status

Identification of field equipment requiring repair and known information about the associated faults.

traffic flow

Raw and/or processed traffic detector information which allows derivation of traffic flow variables (e.g., speed, volume and density measures).

traffic images

High fidelity, real-time traffic images suitable for surveillance monitoring by the operator or for use in machine vision applications.

traffic information

Current and forecasted traffic information, road and weather conditions, incident information, and pricing data. Either raw data, processed data, or some combination of both may be provided by this architecture flow.

traffic information coordination

Traffic information exchanged between TMC's. Normally would include incidents, congestion data, traffic data, signal timing plans, and real-time signal control information.

traffic information for media

Report of current traffic conditions, incidents, maintenance activities and other traffic-related information prepared for public dissemination through the media.

traffic information for transit

Current and forecasted traffic information and incident information.

traffic operator data

Presentation of traffic operations data to the operator including traffic conditions, current operating status of traffic control equipment, maintenance activity status, incident status, and other information. This data keeps the operator appraised of current road network status, provides feedback to the operator as traffic control actions are implemented, and supports review of historical data and preparation for future traffic operations activities.

traffic operator inputs

Traffic operations requests for information, configuration changes, commands to adjust current traffic control strategies (e.g, adjust signal timing plans, change DMS messages), and other traffic operations data entry.

transaction status

Response to transaction request. Normally dealing with a request for payment.

transit and fare schedules

Specific transit and fare schedule information including schedule adherence.

transit demand management request

Request to change the demand for transit facility use through pricing or other mechanisms.

transit demand management response

Response to transit demand management change requests indicating level of compliance with request.

transit driver availability

Transit driver availability data that can be used to develop driver assignments and detailed operations schedules.

transit driver display

Display (either video or audio) to transit driver containing status of various ITS services.

transit driver inputs

Transit driver emergency request as well as fare transaction data.

transit emergency coordination data

Data exchanged between centers dealing with a transit-related incident.

transit emergency data

Initial notification of transit emergency at a transit stop or on transit vehicles and further coordination as additional details become available and the response is coordinated.

transit fare payment requests

Information provided from the transit user location that supports fare payments and associated recordkeeping.

transit fare payment responses

Information provided by transit management that supports a fare payment transaction

transit fleet manager inputs

Instructions governing service availability, schedules, emergency response plans, transit personnel assignments, transit maintenance requirements, and other inputs that establish general system operating requirements and procedures.

transit information for media

Report of transit schedule deviations for public dissemination through the media.

transit information request

Request for transit operations information including schedule and fare information. The request can be a subscription that initiates as-needed information updates as well as a one-time request for information.

transit information user request

Request for special transit routing, real-time schedule information, and availability information.

transit operations planning data

Accumulated schedule and fare information, emergency response plans, transit personnel information, maintenance records, and other information intended to support overall planning and management of a transit property.

transit operator display

Display for transit operations personnel regarding performance of the transit fleet, current ridership and on-time performance.

transit operator management data

Information and control provided by transit system operators involving many aspects of managing transit operations.

transit schedule information

Current and projected transit schedule adherence.

transit traveler information

Transit information prepared to support transit users and other travelers. It contains transit schedules, real-time arrival information, fare schedules, and general transit service information.

transit traveler request

Request by a Transit traveler to summon assistance, request transit information, or request any other transit services.

transit user fare status

Status of fare transaction for transit user.

transit user inputs

Requests from transit user through either an on-board or fixed location traveler information station.

transit user outputs

Information for traveler from either an on-board or fixed location traveler information station.

transit vehicle conditions

Operating conditions of transit vehicle (e.g., mileage).

transit vehicle location data

Current transit vehicle location and related operational conditions data provided by a transit vehicle.

transit vehicle measures

Transit vehicle status measured by on-board ITS equipment.

transit vehicle passenger and use data

Data collected on board the transit vehicle pertaining to availability and/or passenger count.

transit vehicle schedule performance

Estimated times of arrival and anticipated schedule deviations reported by a transit vehicle.

transit work schedule

Orders for maintenance of transit vehicle or other transit system equipment.

traveler information for media

General traveler information regarding incidents, unusual traffic conditions, transit issues, or other advisory information that has been desensitized and provided to the media.

traveler inputs

Request by a traveler to summon assistance, request travel information, make a reservation, or request any other traveler service.

traveler interface updates

Visual or audio information (e.g., routes, messages, guidance) to the traveler.

vehicle location

Location of vehicle and other vehicle characteristics which are exchanged between vehicle subsystems.

violation notification

Notification to enforcement agency of violation or regulations.

weather conditions

Collected weather condition data from sensors.

weather information

Accumulated forecasted and current weather data (e.g., temperature, pressure, wind speed, wind direction, humidity, precipitation, visibility, light conditions, etc.).

work zone status

Status of maintenance work zone.

APPENDIX C
ASSOCIATED STANDARDS FOR ARCHITECTURE FLOWS

Architecture Flow

archive analysis requests

Archived Data User Systems To Archived Data Management Subsystem

Inventory

Emergency Management Scenario Training	TO	TxDOT Austin Historical Traffic Data Repository
Academic / Research Organizations	TO	TxDOT Austin Historical Incident Data Repository
Emergency Management Scenario Training	TO	TxDOT Austin Historical Incident Data Repository
TxDOT Researchers	TO	TxDOT Austin Historical Incident Data Repository
TxDOT Researchers	TO	TxDOT Austin Historical Traffic Data Repository
Academic / Research Organizations	TO	TxDOT Austin Historical Traffic Data Repository

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)

(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)

(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)

(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)

(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)

(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)

(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)

Architecture Flow

archive analysis results

Archived Data Management Subsystem To Archived Data User Systems

Inventory

TxDOT Austin Historical Traffic Data Repository	TO	Academic / Research Organizations
TxDOT Austin Historical Incident Data Repository	TO	Academic / Research Organizations
TxDOT Austin Historical Traffic Data Repository	TO	TxDOT Researchers
TxDOT Austin Historical Incident Data Repository	TO	Emergency Management Scenario Training
TxDOT Austin Historical Incident Data Repository	TO	TxDOT Researchers
TxDOT Austin Historical Traffic Data Repository	TO	Emergency Management Scenario Training

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)

(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)

(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)

(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)

(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)

(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)

(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)

Architecture Flow

archive coordination

Archived Data Management Subsystem To Other Archives

Inventory

TxDOT Austin Historical Traffic Data Repository	TO	Statewide Historic Traffic Data Network (TxDOT Planning and Programming)
TxDOT Austin Historical Incident Data Repository	TO	Statewide Historic Incident Data Network

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)

Architecture Flow

archive coordination

Other Archives To Archived Data Management Subsystem

Inventory

Statewide Historic Incident Data Network	TO	TxDOT Austin Historical Incident Data Repository
Statewide Historic Traffic Data Network (TxDOT Planning and Programming)	TO	TxDOT Austin Historical Traffic Data Repository

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)

Architecture Flow

archive management data

Archived Data Management Subsystem To Archived Data Administrator

Inventory

TxDOT Austin Historical Traffic Data Repository	TO	TxDOT Austin CECC Archive System Administrator
TxDOT Austin Historical Incident Data Repository	TO	TxDOT Austin CECC Archive System Administrator

Standards

None

Architecture Flow

archive management requests

Archived Data Administrator To Archived Data Management Subsystem

Inventory

TxDOT Austin CECC Archive System Administrator	TO	TxDOT Austin Historical Incident Data Repository
TxDOT Austin CECC Archive System Administrator	TO	TxDOT Austin Historical Traffic Data Repository

Standards

None

Architecture Flow

archive request confirmation

Archived Data Management Subsystem To Archived Data User Systems

Inventory

TxDOT Austin Historical Incident Data Repository	TO	Emergency Management Scenario Training
TxDOT Austin Historical Traffic Data Repository	TO	Academic / Research Organizations
TxDOT Austin Historical Traffic Data Repository	TO	Emergency Management Scenario Training
TxDOT Austin Historical Incident Data Repository	TO	TxDOT Researchers
TxDOT Austin Historical Incident Data Repository	TO	Academic / Research Organizations
TxDOT Austin Historical Traffic Data Repository	TO	TxDOT Researchers

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)

Architecture Flow

archive requests

Archived Data Management Subsystem To Emergency Management

Inventory

Record Management System (Police, Fire, EMS)	TO	Austin CECC/TMC Dispatch System
TxDOT Austin Historical Incident Data Repository	TO	Austin CECC/TMC Dispatch System

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)

Architecture Flow

archive requests

Archived Data Management Subsystem To Traffic Management

Inventory

TxDOT Austin Historical Traffic Data Repository	TO	TxDOT Austin TMC

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)

(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)

(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)

(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)

(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)

(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)

(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)

Architecture Flow

archive requests

Archived Data Management Subsystem To Construction and Maintenance

Inventory

TxDOT Austin Historical Traffic Data Repository	TO	TxDOT Highway Maintenance Management System
TxDOT Austin Historical Traffic Data Repository	TO	Williamson County Highway Maintenance Management System
TxDOT Austin Historical Traffic Data Repository	TO	Travis County Construction and Maintenance Management System
TxDOT Austin Historical Traffic Data Repository	TO	City of Austin Maintenance System
TxDOT Austin Historical Traffic Data Repository	TO	City of Round Rock Maintenance System

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)

(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)

(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)

(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)

(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)

(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)

(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)

Architecture Flow

archive status

Archived Data Management Subsystem To Emergency Management

Inventory

Record Management System (Police, Fire, EMS)	TO	Austin CECC/TMC Dispatch System
TxDOT Austin Historical Incident Data Repository	TO	Austin CECC/TMC Dispatch System

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)

Architecture Flow

archive status

Archived Data Management Subsystem To Traffic Management

Inventory

TxDOT Austin Historical Traffic Data Repository	TO	TxDOT Austin TMC

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)

Architecture Flow

archive status

Archived Data Management Subsystem To Construction and Maintenance

Inventory

TxDOT Austin Historical Traffic Data Repository	TO	Williamson County Highway Maintenance Management System
TxDOT Austin Historical Traffic Data Repository	TO	City of Austin Maintenance System
TxDOT Austin Historical Traffic Data Repository	TO	TxDOT Highway Maintenance Management System
TxDOT Austin Historical Traffic Data Repository	TO	City of Round Rock Maintenance System
TxDOT Austin Historical Traffic Data Repository	TO	Travis County Construction and Maintenance Management System

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)

Architecture Flow

archived data product requests

Archived Data User Systems To Archived Data Management Subsystem

Inventory

Emergency Management Scenario Training	TO	TxDOT Austin Historical Incident Data Repository
TxDOT Researchers	TO	TxDOT Austin Historical Traffic Data Repository
TxDOT Researchers	TO	TxDOT Austin Historical Incident Data Repository
Academic / Research Organizations	TO	TxDOT Austin Historical Incident Data Repository
Emergency Management Scenario Training	TO	TxDOT Austin Historical Traffic Data Repository
Academic / Research Organizations	TO	TxDOT Austin Historical Traffic Data Repository

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)

Architecture Flow

archived data products

Archived Data Management Subsystem To Archived Data User Systems

Inventory

TxDOT Austin Historical Traffic Data Repository	TO	TxDOT Researchers
TxDOT Austin Historical Traffic Data Repository	TO	Emergency Management Scenario Training
TxDOT Austin Historical Traffic Data Repository	TO	Academic / Research Organizations
TxDOT Austin Historical Incident Data Repository	TO	TxDOT Researchers
TxDOT Austin Historical Incident Data Repository	TO	Emergency Management Scenario Training
TxDOT Austin Historical Incident Data Repository	TO	Academic / Research Organizations

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)

(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)

(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)

(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)

(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)

(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)

(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)

Architecture Flow

bad tag list

Transit Management To Transit Vehicle Subsystem

Inventory

CapMetro Dispatch System	TO	Transit Vehicle Monitoring System

Standards

(ITE) TCIP - Fare Collection (FC) Business Area Standard (Data Dictionary, Message Set)

Architecture Flow

broadcast advisories

Roadway Subsystem To Basic Vehicle

Inventory

Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	TO	Individual Vehicle Car Radio / CB-Radio
Austin Sensors, Cameras, and HAR	TO	Individual Vehicle Car Radio / CB-Radio
TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	TO	Individual Vehicle Car Radio / CB-Radio

Standards

None

Architecture Flow

broadcast information

Information Service Provider To Personal Information Access

Inventory

Travel and Traffic Information Provider	TO	Internet Browser
Travel and Traffic Information Provider	TO	Individual Cell- and Land-Line Telephones
Travel and Traffic Information Provider	TO	Individual Fax
Travel and Traffic Information Provider	TO	Individual Pagers

Standards

(EIA/CEA) Data Radio Channel (DARC) System (Communications Protocol)

(EIA/CEA) Subcarrier Traffic Information Channel (STIC) System (Communications Protocol)

(SAE) Advanced Traveler Information System (ATIS) Data Dictionary (Data Dictionary)

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

(SAE) ISP-Vehicle Location Referencing Message Profiles (Data Dictionary)

(SAE) Standard for ATIS Message Sets Delivered Over Bandwidth Restricted Media (Communications Protocol, Data Dictionary, Message Set)

Architecture Flow

broadcast information

Information Service Provider To Remote Traveler Support

Inventory

Travel and Traffic Information Provider	TO	Traveler Kiosk Network

Standards

(EIA/CEA) Data Radio Channel (DARC) System (Communications Protocol)

(EIA/CEA) Subcarrier Traffic Information Channel (STIC) System (Communications Protocol)

(SAE) Advanced Traveler Information System (ATIS) Data Dictionary (Data Dictionary)

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

(SAE) ISP-Vehicle Location Referencing Message Profiles (Data Dictionary)

(SAE) Standard for ATIS Message Sets Delivered Over Bandwidth Restricted Media (Communications Protocol, Data Dictionary, Message Set)

Architecture Flow

closure coordination

Traffic Management To Construction and Maintenance

Inventory

TxDOT Austin TMC	TO	Williamson County Highway Maintenance Management System
TxDOT Austin TMC	TO	TxDOT Highway Maintenance Management System
TxDOT Austin TMC	TO	Travis County Construction and Maintenance Management System
TxDOT Austin TMC	TO	City of Round Rock Maintenance System
TxDOT Austin TMC	TO	City of Austin Maintenance System

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)
(ITE) Message Set for External TMC Communication (MS/ETMCC) (Message Set)
(ITE) Standard for Functional Level Traffic Management Data Dictionary (TMDD) (Data Dictionary)

Architecture Flow

construction and maintenance archive data

Construction and Maintenance To Archived Data Management Subsystem

Inventory

City of Austin Maintenance System	TO	TxDOT Austin Historical Traffic Data Repository
TxDOT Highway Maintenance Management System	TO	TxDOT Austin Historical Traffic Data Repository
Travis County Construction and Maintenance Management System	TO	TxDOT Austin Historical Traffic Data Repository
Williamson County Highway Maintenance Management System	TO	TxDOT Austin Historical Traffic Data Repository
City of Round Rock Maintenance System	TO	TxDOT Austin Historical Traffic Data Repository

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)

Architecture Flow

current network conditions

Traffic Management To Emergency Management

Inventory

TxDOT Austin TMC TO Austin CECC/TMC Dispatch System

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)
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(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)
(ITE) Message Set for External TMC Communication (MS/ETMCC) (Message Set)
(ITE) Standard for Functional Level Traffic Management Data Dictionary (TMDD) (Data Dictionary)

Architecture Flow

demand responsive transit plan

Transit Management To Information Service Provider

Inventory

CapMetro Dispatch System TO Travel and Traffic Information Provider

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)

Architecture Flow

demand responsive transit request

Information Service Provider To Transit Management

Inventory

Travel and Traffic Information Provider TO CapMetro Dispatch System

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)

Architecture Flow

dispatch information

Emergency Vehicle Subsystem To Emergency Personnel

Inventory

Turnpike Authority Courtesy Vehicle Mobile Data Terminal	TO	Turnpike Courtesy Patrol
TxDOT Austin Courtesy Vehicle Mobile Data Terminal	TO	TxDOT Austin Courtesy Patrol
TxDOT Austin Courtesy Vehicle Radio Communications	TO	TxDOT Austin Courtesy Patrol
Turnpike Authority Courtesy Vehicle Radio Communications	TO	Turnpike Courtesy Patrol
Travis County Emergency Vehicle Radio Communications	TO	Travis County Emergency Personnel
Austin Police, Fire, EMS Vehicle Mobile Data Terminal	TO	Austin Police, Fire, EMS Responders
Austin Police, Fire, EMS Vehicle Radio Communications	TO	Austin Police, Fire, EMS Responders
ABIA (Airport) Vehicle Radio Communications	TO	ABIA (Airport) Police
Travis County Emergency Vehicle Mobile Data Terminal	TO	Travis County Emergency Personnel
ABIA (Airport) Vehicle Mobile Data Terminal	TO	ABIA (Airport) Police

Standards

None

Architecture Flow

driver information

Roadway Subsystem To Driver

Inventory

Grade Crossing Warning System	TO	Driver Operating A Vehicle
TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	TO	Driver Operating A Vehicle
Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	TO	Driver Operating A Vehicle
Austin Sensors, Cameras, and HAR	TO	Driver Operating A Vehicle

Standards

None

Architecture Flow

driver instructions

Transit Management To Transit Vehicle Subsystem

Inventory

CapMetro Dispatch System	TO	Transit Vehicle Monitoring System

Standards

(ITE) TCIP - Control Center (CC) Business Area Standard (Data Dictionary, Message Set)

Architecture Flow

driver updates

Vehicle To Driver

Inventory

System That Provides Accurate Position Information	TO	Driver Operating A Vehicle

Standards

(SAE) Adaptive Cruise Control: Operating Characteristics and User Interface (Human Factors)
(SAE) Forward Collision Warning: Operating Characteristics and User Interface (Human Factors)
(SAE) ITS In-Vehicle Message Priority (Human Factors)
(SAE) Measurement of Driver Visual Behavior Using Video Based Methods (Def. & Meas.) (Human Factors)
(SAE) Standard for Navigation and Route Guidance Function Accessibility While Driving (Human Factors)

Architecture Flow

emergency acknowledge

Emergency Management To Personal Information Access

Inventory

Austin CECC/TMC Dispatch System	TO	Individual Cell- and Land-Line Telephones

Standards

(ITE) TCIP - Incident Management (IM) Business Area Standard (Data Dictionary, Message Set)
(SAE) On-Board Land Vehicle Mayday Reporting Interface (Data Dictionary, Message Set)

Architecture Flow

emergency acknowledge

Emergency Management To Remote Traveler Support

Inventory

Austin CECC/TMC Dispatch System	TO	Transit Secure Area Monitoring System
Austin CECC/TMC Dispatch System	TO	Distress Signal Wireline Communications

Standards

(ITE) TCIP - Incident Management (IM) Business Area Standard (Data Dictionary, Message Set)
(SAE) On-Board Land Vehicle Mayday Reporting Interface (Data Dictionary, Message Set)

Architecture Flow

emergency acknowledge

Transit Management To Transit Vehicle Subsystem

Inventory

CapMetro Dispatch System	TO	Transit Vehicle Monitoring System

Standards

(ITE) TCIP - Incident Management (IM) Business Area Standard (Data Dictionary, Message Set)
(SAE) On-Board Land Vehicle Mayday Reporting Interface (Data Dictionary, Message Set)

Architecture Flow

emergency archive data

Emergency Management To Archived Data Management Subsystem

Inventory

Austin CECC/TMC Dispatch System	TO	Record Management System (Police, Fire, EMS)
Austin CECC/TMC Dispatch System	TO	TxDOT Austin Historical Incident Data Repository

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)

Architecture Flow

emergency dispatch requests

Emergency Management To Emergency Vehicle Subsystem

Inventory

Austin CECC/TMC Dispatch System	TO	ABIA (Airport) Vehicle Mobile Data Terminal
Austin CECC/TMC Dispatch System	TO	TxDOT Austin Courtesy Vehicle Radio Communications
Austin CECC/TMC Dispatch System	TO	TxDOT Austin Courtesy Vehicle Mobile Data Terminal
Austin CECC/TMC Dispatch System	TO	Turnpike Authority Courtesy Vehicle Radio Communications
Austin CECC/TMC Dispatch System	TO	3M Opticom Signal Preemption System
Austin CECC/TMC Dispatch System	TO	Travis County Emergency Vehicle Radio Communications
Austin CECC/TMC Dispatch System	TO	Travis County Emergency Vehicle Mobile Data Terminal
Austin CECC/TMC Dispatch System	TO	Austin Police, Fire, EMS Vehicle Radio Communications
Austin CECC/TMC Dispatch System	TO	ABIA (Airport) Vehicle Radio Communications
Austin CECC/TMC Dispatch System	TO	Turnpike Authority Courtesy Vehicle Mobile Data Terminal
Austin CECC/TMC Dispatch System	TO	Austin Police, Fire, EMS Vehicle Mobile Data Terminal

Standards

None

Architecture Flow

emergency dispatch response

Emergency Vehicle Subsystem To Emergency Management

Inventory

TxDOT Austin Courtesy Vehicle Radio Communications	TO	Austin CECC/TMC Dispatch System
ABIA (Airport) Vehicle Radio Communications	TO	Austin CECC/TMC Dispatch System
Travis County Emergency Vehicle Mobile Data Terminal	TO	Austin CECC/TMC Dispatch System
Austin Police, Fire, EMS Vehicle Mobile Data Terminal	TO	Austin CECC/TMC Dispatch System
Austin Police, Fire, EMS Vehicle Radio Communications	TO	Austin CECC/TMC Dispatch System
ABIA (Airport) Vehicle Mobile Data Terminal	TO	Austin CECC/TMC Dispatch System
Travis County Emergency Vehicle Radio Communications	TO	Austin CECC/TMC Dispatch System
TxDOT Austin Courtesy Vehicle Mobile Data Terminal	TO	Austin CECC/TMC Dispatch System
Turnpike Authority Courtesy Vehicle Mobile Data Terminal	TO	Austin CECC/TMC Dispatch System
Turnpike Authority Courtesy Vehicle Radio Communications	TO	Austin CECC/TMC Dispatch System

Standards

None

Architecture Flow

emergency notification

Personal Information Access To Emergency Management

Inventory

Individual Cell- and Land-Line Telephones	TO	Austin CECC/TMC Dispatch System

Standards

(ITE) TCIP - Incident Management (IM) Business Area Standard (Data Dictionary, Message Set)
(SAE) On-Board Land Vehicle Mayday Reporting Interface (Data Dictionary, Message Set)

Architecture Flow

emergency notification

Remote Traveler Support To Emergency Management

Inventory

Distress Signal Wireline Communications	TO	Austin CECC/TMC Dispatch System

Standards

(ITE) TCIP - Incident Management (IM) Business Area Standard (Data Dictionary, Message Set)
(SAE) On-Board Land Vehicle Mayday Reporting Interface (Data Dictionary, Message Set)

Architecture Flow

emergency notification

Remote Traveler Support To Transit Management

Inventory

Transit Secure Area Monitoring System	TO	CapMetro Dispatch System

Standards

(ITE) TCIP - Incident Management (IM) Business Area Standard (Data Dictionary, Message Set)
(SAE) On-Board Land Vehicle Mayday Reporting Interface (Data Dictionary, Message Set)

Architecture Flow

emergency notification

Transit Vehicle Subsystem To Transit Management

Inventory

Transit Vehicle Monitoring System	TO	CapMetro Dispatch System

Standards

(ITE) TCIP - Incident Management (IM) Business Area Standard (Data Dictionary, Message Set)
(SAE) On-Board Land Vehicle Mayday Reporting Interface (Data Dictionary, Message Set)

Architecture Flow

emergency operations request

Emergency System Operator To Emergency Management

Inventory

Austin CECC/TMC Dispatchers	TO	Austin CECC/TMC Dispatch System
Emergency Call 911 Operator	TO	Austin CECC/TMC Dispatch System

Standards

None

Architecture Flow

emergency operations status

Emergency Management To Emergency System Operator

Inventory

Austin CECC/TMC Dispatch System	TO	Emergency Call 911 Operator
Austin CECC/TMC Dispatch System	TO	Austin CECC/TMC Dispatchers

Standards

None

Architecture Flow

emergency personnel inputs

Emergency Personnel To Emergency Vehicle Subsystem

Inventory

ABIA (Airport) Police	TO	ABIA (Airport) Vehicle Mobile Data Terminal
TxDOT Austin Courtesy Patrol	TO	TxDOT Austin Courtesy Vehicle Mobile Data Terminal
ABIA (Airport) Police	TO	ABIA (Airport) Vehicle Radio Communications
Austin Police, Fire, EMS Responders	TO	Austin Police, Fire, EMS Vehicle Mobile Data Terminal
Austin Police, Fire, EMS Responders	TO	Austin Police, Fire, EMS Vehicle Radio Communications
Travis County Emergency Personnel	TO	Travis County Emergency Vehicle Mobile Data Terminal
Turnpike Courtesy Patrol	TO	Turnpike Authority Courtesy Vehicle Radio Communications
Travis County Emergency Personnel	TO	Travis County Emergency Vehicle Radio Communications
Turnpike Courtesy Patrol	TO	Turnpike Authority Courtesy Vehicle Mobile Data Terminal
TxDOT Austin Courtesy Patrol	TO	TxDOT Austin Courtesy Vehicle Radio Communications

Standards

None

Architecture Flow

emergency request

Transit User To Transit Vehicle Subsystem

Inventory

Individual Using Transportation Services	TO	Transit Vehicle Monitoring System

Standards

None

Architecture Flow

emergency traffic control request

Emergency Management To Traffic Management

Inventory

Austin CECC/TMC Dispatch System TO TxDOT Austin TMC

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)
(ITE) Message Set for External TMC Communication (MS/ETMCC) (Message Set)
(ITE) Standard for Functional Level Traffic Management Data Dictionary (TMDD) (Data Dictionary)

Architecture Flow

emergency traffic control response

Traffic Management To Emergency Management

Inventory

TxDOT Austin TMC TO Austin CECC/TMC Dispatch System

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)
(ITE) Message Set for External TMC Communication (MS/ETMCC) (Message Set)
(ITE) Standard for Functional Level Traffic Management Data Dictionary (TMDD) (Data Dictionary)

Architecture Flow

emergency vehicle tracking data

Emergency Vehicle Subsystem To Emergency Management

Inventory

Emergency Vehicles Equipped with AVL TO Austin CECC/TMC Dispatch System

Standards

None

Architecture Flow

environmental conditions

Roadway Subsystem To Traffic Management

Inventory

RWIS Network	TO	TxDOT Austin TMC
Austin Flood Early Warning System	TO	TxDOT Austin TMC

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Simple Transportation Management Framework (STMF) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Class B Profile (Communications Protocol)
(AASHTO) NTCIP - Global Object Definitions (Data Dictionary, Message Set)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Object Definitions for Environmental Sensor Stations & Roadside Weather Information System (Data Dictionary, Message Set)
(AASHTO) NTCIP - Point to Multi-Point Protocol Using RS-232 Subnetwork Profile (Communications Protocol)
(AASHTO) NTCIP - Simple Transportation Management Framework (STMF) (Data Dictionary, Message Set)
(AASHTO) NTCIP - Simple Transportation Management Protocol (STMP) (Data Dictionary, Message Set)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)
(AASHTO) NTCIP - Subnetwork Profile for Point-to-Point Protocol using RS 232 (Data Dictionary, Message Set)

Architecture Flow

equipment maintenance status

Construction and Maintenance To Traffic Management

Inventory

City of Austin Maintenance System	TO	TxDOT Austin TMC
City of Round Rock Maintenance System	TO	TxDOT Austin TMC
TxDOT Highway Maintenance Management System	TO	TxDOT Austin TMC

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)
(ITE) Message Set for External TMC Communication (MS/ETMCC) (Message Set)
(ITE) Standard for Functional Level Traffic Management Data Dictionary (TMDD) (Data Dictionary)

Architecture Flow

event confirmation

Traffic Management To Event Promoters

Inventory

TxDOT Austin TMC TO Special Event Sponsors and Promoters

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)

(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)

(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)

(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)

(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)

(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)

(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)

(IEEE) Standard for Common Incident Management Message Sets (IMMS) for use by EMCs (Data Dictionary, Message Set)

(ITE) Message Set for External TMC Communication (MS/ETMCC) (Message Set)

(ITE) Standard for Functional Level Traffic Management Data Dictionary (TMDD) (Data Dictionary)

Architecture Flow

event plans

Event Promoters To Traffic Management

Inventory

Special Event Sponsors and Promoters TO TxDOT Austin TMC

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)

(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)

(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)

(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)

(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)

(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)

(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)

(IEEE) Standard for Common Incident Management Message Sets (IMMS) for use by EMCs (Data Dictionary, Message Set)

(ITE) Message Set for External TMC Communication (MS/ETMCC) (Message Set)

(ITE) Standard for Functional Level Traffic Management Data Dictionary (TMDD) (Data Dictionary)

Architecture Flow

external reports

Media To Traffic Management

Inventory

Traffic and Travel Information System TO TxDOT Austin TMC

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)

Architecture Flow

fare and payment status

Transit Vehicle Subsystem To Transit Management

Inventory

Transit Vehicle Monitoring System TO CapMetro Dispatch System

Standards

(ITE) TCIP - Fare Collection (FC) Business Area Standard (Data Dictionary, Message Set)

Architecture Flow

fare management information

Transit Management To Transit Vehicle Subsystem

Inventory

CapMetro Dispatch System TO Transit Vehicle Monitoring System

Standards

(ITE) TCIP - Fare Collection (FC) Business Area Standard (Data Dictionary, Message Set)

Architecture Flow

fault reports

Roadway Subsystem To Traffic Management

Inventory

TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	TO	TxDOT Austin TMC
Austin Flood Early Warning System	TO	TxDOT Austin TMC
Austin Sensors, Cameras, and HAR	TO	TxDOT Austin TMC
Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	TO	TxDOT Austin TMC
TxDOT Austin Signals	TO	TxDOT Austin TMC
RWIS Network	TO	TxDOT Austin TMC

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)

(AASHTO) NTCIP - Application Profile for Simple Transportation Management Framework (STMF) (Communications Protocol)

(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)

(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)

(AASHTO) NTCIP - Class B Profile (Communications Protocol)

(AASHTO) NTCIP - Data Collection & Monitoring Devices (Data Dictionary, Message Set)

(AASHTO) NTCIP - Data Dictionary for Closed Circuit Television (CCTV) (Data Dictionary, Message Set)

(AASHTO) NTCIP - Global Object Definitions (Data Dictionary, Message Set)

(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)

(AASHTO) NTCIP - Object Definitions for Actuated Traffic Signal Controller Units (Data Dictionary, Message Set)

(AASHTO) NTCIP - Object Definitions for Dynamic Message Signs (Data Dictionary, Message Set)

(AASHTO) NTCIP - Object Definitions for Environmental Sensor Stations & Roadside Weather Information System (Data Dictionary, Message Set)

(AASHTO) NTCIP - Object Definitions for Video Switches (Data Dictionary, Message Set)

(AASHTO) NTCIP - Point to Multi-Point Protocol Using RS-232 Subnetwork Profile (Communications Protocol)

(AASHTO) NTCIP - Ramp Meter Controller Objects (Data Dictionary, Message Set)

(AASHTO) NTCIP - Simple Transportation Management Framework (STMF) (Data Dictionary, Message Set)

(AASHTO) NTCIP - Simple Transportation Management Protocol (STMP) (Data Dictionary, Message Set)

(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)

(AASHTO) NTCIP - Subnetwork Profile for Point-to-Point Protocol using RS 232 (Data Dictionary, Message Set)

(AASHTO) NTCIP - Transportation System Sensor Objects (Data Dictionary, Message Set)

Architecture Flow

freeway control data

Traffic Management To Roadway Subsystem

Inventory

TxDOT Austin TMC	TO	TxDOT Austin Signals
TxDOT Austin TMC	TO	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers
TxDOT Austin TMC	TO	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers
TxDOT Austin TMC	TO	Austin Sensors, Cameras, and HAR

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)

(AASHTO) NTCIP - Application Profile for Simple Transportation Management Framework (STMF) (Communications Protocol)

(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)

(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)

(AASHTO) NTCIP - Class B Profile (Communications Protocol)

(AASHTO) NTCIP - Data Collection & Monitoring Devices (Data Dictionary, Message Set)

(AASHTO) NTCIP - Global Object Definitions (Data Dictionary, Message Set)

(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)

(AASHTO) NTCIP - Object Definitions for Dynamic Message Signs (Data Dictionary, Message Set)

(AASHTO) NTCIP - Point to Multi-Point Protocol Using RS-232 Subnetwork Profile (Communications Protocol)

(AASHTO) NTCIP - Ramp Meter Controller Objects (Data Dictionary, Message Set)

(AASHTO) NTCIP - Simple Transportation Management Framework (STMF) (Data Dictionary, Message Set)

(AASHTO) NTCIP - Simple Transportation Management Protocol (STMP) (Data Dictionary, Message Set)

(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)

(AASHTO) NTCIP - Subnetwork Profile for Point-to-Point Protocol using RS 232 (Data Dictionary, Message Set)

Architecture Flow

freeway control status

Roadway Subsystem To Traffic Management

Inventory

TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	TO	TxDOT Austin TMC
Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	TO	TxDOT Austin TMC
TxDOT Austin Signals	TO	TxDOT Austin TMC
Austin Sensors, Cameras, and HAR	TO	TxDOT Austin TMC

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Simple Transportation Management Framework (STMF) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Class B Profile (Communications Protocol)
(AASHTO) NTCIP - Data Collection & Monitoring Devices (Data Dictionary, Message Set)
(AASHTO) NTCIP - Global Object Definitions (Data Dictionary, Message Set)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Object Definitions for Dynamic Message Signs (Data Dictionary, Message Set)
(AASHTO) NTCIP - Point to Multi-Point Protocol Using RS-232 Subnetwork Profile (Communications Protocol)
(AASHTO) NTCIP - Ramp Meter Controller Objects (Data Dictionary, Message Set)
(AASHTO) NTCIP - Simple Transportation Management Framework (STMF) (Data Dictionary, Message Set)
(AASHTO) NTCIP - Simple Transportation Management Protocol (STMP) (Data Dictionary, Message Set)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)
(AASHTO) NTCIP - Subnetwork Profile for Point-to-Point Protocol using RS 232 (Data Dictionary, Message Set)

Architecture Flow

government reporting data receipt

Government Reporting Systems To Archived Data Management Subsystem

Inventory

Highway Performance Monitoring System	TO	TxDOT Austin Historical Traffic Data Repository
Fatal Analysis Reporting System	TO	Record Management System (Police, Fire, EMS)

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)

Architecture Flow

government reporting system data

Archived Data Management Subsystem To Government Reporting Systems

Inventory

Record Management System (Police, Fire, EMS)	TO	Fatal Analysis Reporting System
TxDOT Austin Historical Traffic Data Repository	TO	Highway Performance Monitoring System

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)

Architecture Flow

HAZMAT information

Fleet and Freight Management To Emergency Management

Inventory

Motor Carrier CVO System	TO	Austin CECC/TMC Dispatch System

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)

Architecture Flow

HAZMAT information request

Emergency Management To Fleet and Freight Management

Inventory

Austin CECC/TMC Dispatch System TO Motor Carrier CVO System

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)

Architecture Flow

highway control status

Roadway Subsystem To Multimodal Crossings

Inventory

Grade Crossing Warning System TO Rail Crossing Control Equipment

Standards

None

Architecture Flow

hri operational status

Roadway Subsystem To Wayside Equipment

Inventory

Grade Crossing Warning System TO Train Interface Equipment

Standards

None

Architecture Flow

incident command information

Emergency Management To Emergency Vehicle Subsystem

Inventory

Austin CECC/TMC Dispatch System	TO	Austin Police, Fire, EMS Vehicle Mobile Data Terminal
Austin CECC/TMC Dispatch System	TO	TxDOT Austin Courtesy Vehicle Mobile Data Terminal
Austin CECC/TMC Dispatch System	TO	Turnpike Authority Courtesy Vehicle Radio Communications
Austin CECC/TMC Dispatch System	TO	Turnpike Authority Courtesy Vehicle Mobile Data Terminal
Austin CECC/TMC Dispatch System	TO	Travis County Emergency Vehicle Radio Communications
Austin CECC/TMC Dispatch System	TO	Travis County Emergency Vehicle Mobile Data Terminal
Austin CECC/TMC Dispatch System	TO	Austin Police, Fire, EMS Vehicle Radio Communications
Austin CECC/TMC Dispatch System	TO	ABIA (Airport) Vehicle Radio Communications
Austin CECC/TMC Dispatch System	TO	ABIA (Airport) Vehicle Mobile Data Terminal
Austin CECC/TMC Dispatch System	TO	TxDOT Austin Courtesy Vehicle Radio Communications

Standards

None

Architecture Flow

incident command information presentation

Emergency Vehicle Subsystem To Emergency Personnel

Inventory

Turnpike Authority Courtesy Vehicle Mobile Data Terminal	TO	Turnpike Courtesy Patrol
TxDOT Austin Courtesy Vehicle Mobile Data Terminal	TO	TxDOT Austin Courtesy Patrol
Turnpike Authority Courtesy Vehicle Radio Communications	TO	Turnpike Courtesy Patrol
TxDOT Austin Courtesy Vehicle Radio Communications	TO	TxDOT Austin Courtesy Patrol
Austin Police, Fire, EMS Vehicle Radio Communications	TO	Austin Police, Fire, EMS Responders
Travis County Emergency Vehicle Radio Communications	TO	Travis County Emergency Personnel
ABIA (Airport) Vehicle Mobile Data Terminal	TO	ABIA (Airport) Police
Travis County Emergency Vehicle Mobile Data Terminal	TO	Travis County Emergency Personnel
ABIA (Airport) Vehicle Radio Communications	TO	ABIA (Airport) Police
Austin Police, Fire, EMS Vehicle Mobile Data Terminal	TO	Austin Police, Fire, EMS Responders

Standards

None

Architecture Flow

incident command request

Emergency Vehicle Subsystem To Emergency Management

Inventory

ABIA (Airport) Vehicle Mobile Data Terminal	TO	Austin CECC/TMC Dispatch System
ABIA (Airport) Vehicle Radio Communications	TO	Austin CECC/TMC Dispatch System
Turnpike Authority Courtesy Vehicle Mobile Data Terminal	TO	Austin CECC/TMC Dispatch System
Austin Police, Fire, EMS Vehicle Radio Communications	TO	Austin CECC/TMC Dispatch System
Travis County Emergency Vehicle Radio Communications	TO	Austin CECC/TMC Dispatch System
TxDOT Austin Courtesy Vehicle Radio Communications	TO	Austin CECC/TMC Dispatch System
TxDOT Austin Courtesy Vehicle Mobile Data Terminal	TO	Austin CECC/TMC Dispatch System
Turnpike Authority Courtesy Vehicle Radio Communications	TO	Austin CECC/TMC Dispatch System
Travis County Emergency Vehicle Mobile Data Terminal	TO	Austin CECC/TMC Dispatch System
Austin Police, Fire, EMS Vehicle Mobile Data Terminal	TO	Austin CECC/TMC Dispatch System

Standards

None

Architecture Flow

incident data

Roadway Subsystem To Traffic Management

Inventory

Austin Sensors, Cameras, and HAR	TO	TxDOT Austin TMC
TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	TO	TxDOT Austin TMC
Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	TO	TxDOT Austin TMC

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)

(AASHTO) NTCIP - Application Profile for Simple Transportation Management Framework (STMF) (Communications Protocol)

(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)

(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)

(AASHTO) NTCIP - Class B Profile (Communications Protocol)

(AASHTO) NTCIP - Data Dictionary for Closed Circuit Television (CCTV) (Data Dictionary, Message Set)

(AASHTO) NTCIP - Global Object Definitions (Data Dictionary, Message Set)

(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)

(AASHTO) NTCIP - Object Definitions for Video Switches (Data Dictionary, Message Set)

(AASHTO) NTCIP - Point to Multi-Point Protocol Using RS-232 Subnetwork Profile (Communications Protocol)

(AASHTO) NTCIP - Simple Transportation Management Framework (STMF) (Data Dictionary, Message Set)

(AASHTO) NTCIP - Simple Transportation Management Protocol (STMP) (Data Dictionary, Message Set)

(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)

(AASHTO) NTCIP - Subnetwork Profile for Point-to-Point Protocol using RS 232 (Data Dictionary, Message Set)

(AASHTO) NTCIP - Transportation System Sensor Objects (Data Dictionary, Message Set)

Architecture Flow

incident information

Emergency Management To Traffic Management

Inventory

Austin CECC/TMC Dispatch System	TO	TxDOT Austin TMC

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)

(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)

(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)

(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)

(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)

(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)

(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)

(IEEE) Standard for Common Incident Management Message Sets (IMMS) for use by EMCs (Data Dictionary, Message Set)

(ITE) Message Set for External TMC Communication (MS/ETMCC) (Message Set)

(ITE) Standard for Functional Level Traffic Management Data Dictionary (TMDD) (Data Dictionary)

Architecture Flow

incident information request

Traffic Management To Emergency Management

Inventory

TxDOT Austin TMC TO Austin CECC/TMC Dispatch System

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)
(IEEE) Standard for Common Incident Management Message Sets (IMMS) for use by EMCs (Data Dictionary, Message Set)
(ITE) Message Set for External TMC Communication (MS/ETMCC) (Message Set)
(ITE) Standard for Functional Level Traffic Management Data Dictionary (TMDD) (Data Dictionary)

Architecture Flow

incident information

Traffic Management To Emergency Management

Inventory

TxDOT Austin TMC TO Austin CECC/TMC Dispatch System

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)
(IEEE) Standard for Common Incident Management Message Sets (IMMS) for use by EMCs (Data Dictionary, Message Set)
(ITE) Message Set for External TMC Communication (MS/ETMCC) (Message Set)
(ITE) Standard for Functional Level Traffic Management Data Dictionary (TMDD) (Data Dictionary)

Architecture Flow

incident notification response

Emergency Management To Emergency Telecommunications System

Inventory

Austin CECC/TMC Dispatch System TO Emergency Call 911 PSAP

Standards

None

Architecture Flow

incident notification

Emergency Telecommunications System To Emergency Management

Inventory

Emergency Call 911 PSAP	TO	Austin CECC/TMC Dispatch System

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)

(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)

(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)

(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)

(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)

(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)

(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)

(IEEE) Standard for Common Incident Management Message Sets (IMMS) for use by EMCs (Data Dictionary, Message Set)

Architecture Flow

incident report

Emergency Management To Other EM

Inventory

Austin CECC/TMC Dispatch System	TO	Williamson County Dispatch Center
Austin CECC/TMC Dispatch System	TO	Texas Highway Patrol Dispatch Center
Austin CECC/TMC Dispatch System	TO	Round Rock Dispatch System

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)

(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)

(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)

(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)

(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)

(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)

(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)

(IEEE) Standard for Common Incident Management Message Sets (IMMS) for use by EMCs (Data Dictionary, Message Set)

Architecture Flow

incident report

Other EM To Emergency Management

Inventory

Round Rock Dispatch System	TO	Austin CECC/TMC Dispatch System
Texas Highway Patrol Dispatch Center	TO	Austin CECC/TMC Dispatch System
Williamson County Dispatch Center	TO	Austin CECC/TMC Dispatch System

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)

(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)

(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)

(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)

(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)

(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)

(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)

(IEEE) Standard for Common Incident Management Message Sets (IMMS) for use by EMCs (Data Dictionary, Message Set)

Architecture Flow

incident response coordination

Emergency Management To Other EM

Inventory

Austin CECC/TMC Dispatch System	TO	Round Rock Dispatch System
Austin CECC/TMC Dispatch System	TO	Texas Highway Patrol Dispatch Center
Austin CECC/TMC Dispatch System	TO	Williamson County Dispatch Center

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)

(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)

(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)

(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)

(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)

(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)

(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)

(IEEE) Standard for Common Incident Management Message Sets (IMMS) for use by EMCs (Data Dictionary, Message Set)

(ITE) TCIP - Incident Management (IM) Business Area Standard (Data Dictionary, Message Set)

Architecture Flow

incident response coordination

Other EM To Emergency Management

Inventory

Texas Highway Patrol Dispatch Center	TO	Austin CECC/TMC Dispatch System
Williamson County Dispatch Center	TO	Austin CECC/TMC Dispatch System
Round Rock Dispatch System	TO	Austin CECC/TMC Dispatch System

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)

(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)

(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)

(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)

(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)

(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)

(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)

(IEEE) Standard for Common Incident Management Message Sets (IMMS) for use by EMCs (Data Dictionary, Message Set)

(ITE) TCIP - Incident Management (IM) Business Area Standard (Data Dictionary, Message Set)

Architecture Flow

incident response status

Emergency Management To Traffic Management

Inventory

Austin CECC/TMC Dispatch System	TO	TxDOT Austin TMC

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)

(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)

(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)

(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)

(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)

(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)

(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)

(IEEE) Standard for Common Incident Management Message Sets (IMMS) for use by EMCs (Data Dictionary, Message Set)

(ITE) Message Set for External TMC Communication (MS/ETMCC) (Message Set)

(ITE) Standard for Functional Level Traffic Management Data Dictionary (TMDD) (Data Dictionary)

Architecture Flow

incident status

Emergency Vehicle Subsystem To Emergency Management

Inventory

ABIA (Airport) Vehicle Radio Communications	TO	Austin CECC/TMC Dispatch System
Travis County Emergency Vehicle Radio Communications	TO	Austin CECC/TMC Dispatch System
TxDOT Austin Courtesy Vehicle Radio Communications	TO	Austin CECC/TMC Dispatch System
TxDOT Austin Courtesy Vehicle Mobile Data Terminal	TO	Austin CECC/TMC Dispatch System
ABIA (Airport) Vehicle Mobile Data Terminal	TO	Austin CECC/TMC Dispatch System
Austin Police, Fire, EMS Vehicle Radio Communications	TO	Austin CECC/TMC Dispatch System
Austin Police, Fire, EMS Vehicle Mobile Data Terminal	TO	Austin CECC/TMC Dispatch System
Turnpike Authority Courtesy Vehicle Radio Communications	TO	Austin CECC/TMC Dispatch System
Turnpike Authority Courtesy Vehicle Mobile Data Terminal	TO	Austin CECC/TMC Dispatch System
Travis County Emergency Vehicle Mobile Data Terminal	TO	Austin CECC/TMC Dispatch System

Standards

None

Architecture Flow

in-vehicle transaction status

Vehicle To Driver

Inventory

Toll Tag Interface	TO	Driver Operating A Vehicle

Standards

(SAE) Adaptive Cruise Control: Operating Characteristics and User Interface (Human Factors)
(SAE) Forward Collision Warning: Operating Characteristics and User Interface (Human Factors)
(SAE) ITS In-Vehicle Message Priority (Human Factors)
(SAE) Measurement of Driver Visual Behavior Using Video Based Methods (Def. & Meas.) (Human Factors)
(SAE) Standard for Navigation and Route Guidance Function Accessibility While Driving (Human Factors)

Architecture Flow

ISP operating parameter updates

ISP Operator To Information Service Provider

Inventory

Travel and Traffic Information Operator TO Travel and Traffic Information Provider

Standards

None

Architecture Flow

ISP operating parameters

Information Service Provider To ISP Operator

Inventory

Travel and Traffic Information Provider TO Travel and Traffic Information Operator

Standards

None

Architecture Flow

license request

Toll Administration To DMV

Inventory

TxDOT Texas Turnpike Authority Division TO Vehicle Title and Registration Division

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)

Architecture Flow

local signal preemption request

Emergency Vehicle Subsystem To Roadway Subsystem

Inventory

3M Opticom Signal Preemption System	TO	Austin Signals
3M Opticom Signal Preemption System	TO	TxDOT Austin Signals

Standards

(ASTM) Standard Specification for DSRC - Data Link Layer (Communications Protocol)
(ASTM) Standard Specification for DSRC - Physical Layer 902-928 MHz (Communications Protocol)

Architecture Flow

logged special vehicle route

Information Service Provider To Traffic Management

Inventory

Travel and Traffic Information Provider	TO	TxDOT Austin TMC

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)
(ITE) Message Set for External TMC Communication (MS/ETMCC) (Message Set)
(ITE) Standard for Functional Level Traffic Management Data Dictionary (TMDD) (Data Dictionary)
(SAE) Advanced Traveler Information System (ATIS) Data Dictionary (Data Dictionary)
(SAE) Advanced Traveler Information System (ATIS) Message Set (Message Set)

Architecture Flow

maintenance resource request

Traffic Management To Construction and Maintenance

Inventory

TxDOT Austin TMC	TO	TxDOT Highway Maintenance Management System
TxDOT Austin TMC	TO	City of Austin Maintenance System
TxDOT Austin TMC	TO	City of Round Rock Maintenance System

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)

Architecture Flow

maintenance resource response

Construction and Maintenance To Traffic Management

Inventory

City of Austin Maintenance System	TO	TxDOT Austin TMC
City of Round Rock Maintenance System	TO	TxDOT Austin TMC
TxDOT Highway Maintenance Management System	TO	TxDOT Austin TMC

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)
(ITE) Message Set for External TMC Communication (MS/ETMCC) (Message Set)
(ITE) Standard for Functional Level Traffic Management Data Dictionary (TMDD) (Data Dictionary)

Architecture Flow

maintenance status

Transit Maintenance Personnel To Transit Management

Inventory

CapMetro Vehicle Maintenance TO CapMetro Dispatch System

Standards

None

Architecture Flow

map update request

Emergency Management To Map Update Provider

Inventory

Austin CECC/TMC Dispatch System TO City of Austin GIS Agency

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)

(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)

(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)

(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)

(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)

(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)

(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)

Architecture Flow

map update request

Information Service Provider To Map Update Provider

Inventory

Travel and Traffic Information Provider TO City of Austin GIS Agency

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)

(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)

(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)

(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)

(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)

(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)

(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)

Architecture Flow

map update request

Traffic Management To Map Update Provider

Inventory

TxDOT Austin TMC TO City of Austin GIS Agency

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)

Architecture Flow

map update request

Transit Management To Map Update Provider

Inventory

CapMetro Dispatch System TO City of Austin GIS Agency

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)

Architecture Flow

map updates

Map Update Provider To Emergency Management

Inventory

City of Austin GIS Agency TO Austin CECC/TMC Dispatch System

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)

Architecture Flow

map updates

Map Update Provider To Information Service Provider

Inventory

City of Austin GIS Agency TO Travel and Traffic Information Provider

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)

Architecture Flow

map updates

Map Update Provider To Traffic Management

Inventory

City of Austin GIS Agency TO TxDOT Austin TMC

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)

Architecture Flow

map updates

Map Update Provider To Transit Management

Inventory

City of Austin GIS Agency TO CapMetro Dispatch System

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)

Architecture Flow

media information request

Media To Traffic Management

Inventory

Traffic and Travel Information System TO TxDOT Austin TMC

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)

(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)

(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)

(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)

(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)

(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)

(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)

(IEEE) Standard for Common Incident Management Message Sets (IMMS) for use by EMCs (Data Dictionary, Message Set)

Architecture Flow

media information request

Media To Transit Management

Inventory

Traffic and Travel Information System TO CapMetro Dispatch System

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)

(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)

(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)

(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)

(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)

(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)

(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)

(IEEE) Standard for Common Incident Management Message Sets (IMMS) for use by EMCs (Data Dictionary, Message Set)

Architecture Flow

multimodal crossing status

Multimodal Crossings To Roadway Subsystem

Inventory

Rail Crossing Control Equipment TO Grade Crossing Warning System

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Simple Transportation Management Framework (STMF) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Class B Profile (Communications Protocol)
(AASHTO) NTCIP - Global Object Definitions (Data Dictionary, Message Set)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Simple Transportation Management Framework (STMF) (Data Dictionary, Message Set)
(AASHTO) NTCIP - Simple Transportation Management Protocol (STMP) (Data Dictionary, Message Set)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)
(AASHTO) NTCIP - Subnetwork Profile for Point-to-Point Protocol using RS 232 (Data Dictionary, Message Set)

Architecture Flow

payment request

Toll Administration To Financial Institution

Inventory

TxDOT Texas Turnpike Authority Division TO Commercial Bank

Standards

None

Architecture Flow

payment

Payment Instrument To Vehicle

Inventory

Transponder Card TO Toll Tag Interface

Standards

(ITE) TCIP - Fare Collection (FC) Business Area Standard (Data Dictionary, Message Set)

Architecture Flow

personal transit information

Transit Management To Personal Information Access

Inventory

CapMetro Dispatch System	TO	Internet Browser
CapMetro Dispatch System	TO	Individual Fax
CapMetro Dispatch System	TO	Individual Cell- and Land-Line Telephones

Standards

(ITE) TCIP - Passenger Information (PI) Business Area Standard (Data Dictionary, Message Set)

Architecture Flow

position fix

Location Data Source To Vehicle

Inventory

Device That Provides Accurate Position Information	TO	System That Provides Accurate Position Information

Standards

None

Architecture Flow

registration

DMV To Toll Administration

Inventory

Vehicle Title and Registration Division	TO	TxDOT Texas Turnpike Authority Division

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)

(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)

(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)

(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)

(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)

(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)

(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)

Architecture Flow

remote surveillance control

Emergency Management To Traffic Management

Inventory

Austin CECC/TMC Dispatch System TO TxDOT Austin TMC

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)
(ITE) Message Set for External TMC Communication (MS/ETMCC) (Message Set)
(ITE) Standard for Functional Level Traffic Management Data Dictionary (TMDD) (Data Dictionary)

Architecture Flow

request for bad tag list

Transit Vehicle Subsystem To Transit Management

Inventory

Transit Vehicle Monitoring System TO CapMetro Dispatch System

Standards

(ITE) TCIP - Fare Collection (FC) Business Area Standard (Data Dictionary, Message Set)

Architecture Flow

request for payment

Vehicle To Payment Instrument

Inventory

Toll Tag Interface TO Transponder Card

Standards

(ITE) TCIP - Fare Collection (FC) Business Area Standard (Data Dictionary, Message Set)

Architecture Flow

request for traffic information

Information Service Provider To Traffic Management

Inventory

Travel and Traffic Information Provider TO TxDOT Austin TMC

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)
(ITE) Message Set for External TMC Communication (MS/ETMCC) (Message Set)
(ITE) Standard for Functional Level Traffic Management Data Dictionary (TMDD) (Data Dictionary)
(SAE) Advanced Traveler Information System (ATIS) Data Dictionary (Data Dictionary)
(SAE) Advanced Traveler Information System (ATIS) Message Set (Message Set)

Architecture Flow

request for vehicle measures

Transit Management To Transit Vehicle Subsystem

Inventory

CapMetro Dispatch System TO Transit Vehicle Monitoring System

Standards

(ITE) TCIP - Control Center (CC) Business Area Standard (Data Dictionary, Message Set)
(ITE) TCIP - Onboard (OB) Business Area Standard (Data Dictionary, Message Set)

Architecture Flow

request tag data

Toll Collection To Vehicle

Inventory

TxDot TTA Division Customer Service Center TO Toll Tag Interface

Standards

(ASTM) Standard Specification for DSRC - Data Link Layer (Communications Protocol)
(ASTM) Standard Specification for DSRC - Physical Layer 902-928 MHz (Communications Protocol)
(IEEE) Message Sets for DSRC ETTM & CVO (Data Dictionary, Message Set)

Architecture Flow

request transit information

Traffic Management To Transit Management

Inventory

TxDOT Austin TMC TO CapMetro Dispatch System

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)
(ITE) TCIP - Control Center (CC) Business Area Standard (Data Dictionary, Message Set)

Architecture Flow

resource deployment status

Traffic Management To Emergency Management

Inventory

TxDOT Austin TMC TO Austin CECC/TMC Dispatch System

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)
(ITE) Message Set for External TMC Communication (MS/ETMCC) (Message Set)
(ITE) Standard for Functional Level Traffic Management Data Dictionary (TMDD) (Data Dictionary)

Architecture Flow

resource request

Emergency Management To Traffic Management

Inventory

Austin CECC/TMC Dispatch System TO TxDOT Austin TMC

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)
(ITE) Message Set for External TMC Communication (MS/ETMCC) (Message Set)
(ITE) Standard for Functional Level Traffic Management Data Dictionary (TMDD) (Data Dictionary)

Architecture Flow

road network use

Information Service Provider To Traffic Management

Inventory

Travel and Traffic Information Provider TO TxDOT Austin TMC

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)
(ITE) Message Set for External TMC Communication (MS/ETMCC) (Message Set)
(ITE) Standard for Functional Level Traffic Management Data Dictionary (TMDD) (Data Dictionary)

Architecture Flow

roadside archive data

Roadway Subsystem To Archived Data Management Subsystem

Inventory

TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	TO	TxDOT Austin Historical Traffic Data Repository
Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	TO	TxDOT Austin Historical Traffic Data Repository
RWIS Network	TO	TxDOT Austin Historical Traffic Data Repository
Austin Sensors, Cameras, and HAR	TO	TxDOT Austin Historical Traffic Data Repository
Austin Flood Early Warning System	TO	TxDOT Austin Historical Traffic Data Repository

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Simple Transportation Management Framework (STMF) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Class B Profile (Communications Protocol)
(AASHTO) NTCIP - Data Collection & Monitoring Devices (Data Dictionary, Message Set)
(AASHTO) NTCIP - Global Object Definitions (Data Dictionary, Message Set)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Point to Multi-Point Protocol Using RS-232 Subnetwork Profile (Communications Protocol)
(AASHTO) NTCIP - Simple Transportation Management Framework (STMF) (Data Dictionary, Message Set)
(AASHTO) NTCIP - Simple Transportation Management Protocol (STMP) (Data Dictionary, Message Set)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)
(AASHTO) NTCIP - Subnetwork Profile for Point-to-Point Protocol using RS 232 (Data Dictionary, Message Set)
(AASHTO) NTCIP - Transportation System Sensor Objects (Data Dictionary, Message Set)

Architecture Flow

roadside transaction status

Toll Collection To Driver

Inventory

TxDot TTA Division Customer Service Center	TO	Driver Operating A Vehicle

Standards

None

Architecture Flow

roadway information system data

Traffic Management To Roadway Subsystem

Inventory

TxDOT Austin TMC	TO	TxDOT Austin Signals
TxDOT Austin TMC	TO	Austin Sensors, Cameras, and HAR
TxDOT Austin TMC	TO	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers
TxDOT Austin TMC	TO	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)

(AASHTO) NTCIP - Application Profile for Simple Transportation Management Framework (STMF) (Communications Protocol)

(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)

(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)

(AASHTO) NTCIP - Class B Profile (Communications Protocol)

(AASHTO) NTCIP - Data Dictionary for Closed Circuit Television (CCTV) (Data Dictionary, Message Set)

(AASHTO) NTCIP - Global Object Definitions (Data Dictionary, Message Set)

(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)

(AASHTO) NTCIP - Object Definitions for Dynamic Message Signs (Data Dictionary, Message Set)

(AASHTO) NTCIP - Object Definitions for Video Switches (Data Dictionary, Message Set)

(AASHTO) NTCIP - Point to Multi-Point Protocol Using RS-232 Subnetwork Profile (Communications Protocol)

(AASHTO) NTCIP - Simple Transportation Management Framework (STMF) (Data Dictionary, Message Set)

(AASHTO) NTCIP - Simple Transportation Management Protocol (STMP) (Data Dictionary, Message Set)

(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)

(AASHTO) NTCIP - Subnetwork Profile for Point-to-Point Protocol using RS 232 (Data Dictionary, Message Set)

Architecture Flow

roadway information system status

Roadway Subsystem To Traffic Management

Inventory

TxDOT Austin Signals	TO	TxDOT Austin TMC
TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	TO	TxDOT Austin TMC
Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	TO	TxDOT Austin TMC
Austin Sensors, Cameras, and HAR	TO	TxDOT Austin TMC

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Simple Transportation Management Framework (STMF) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Class B Profile (Communications Protocol)
(AASHTO) NTCIP - Global Object Definitions (Data Dictionary, Message Set)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Object Definitions for Dynamic Message Signs (Data Dictionary, Message Set)
(AASHTO) NTCIP - Point to Multi-Point Protocol Using RS-232 Subnetwork Profile (Communications Protocol)
(AASHTO) NTCIP - Simple Transportation Management Framework (STMF) (Data Dictionary, Message Set)
(AASHTO) NTCIP - Simple Transportation Management Protocol (STMP) (Data Dictionary, Message Set)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)
(AASHTO) NTCIP - Subnetwork Profile for Point-to-Point Protocol using RS 232 (Data Dictionary, Message Set)

Architecture Flow

route assignment

Transit Management To Transit Driver

Inventory

CapMetro Dispatch System	TO	Transit Vehicle Drivers

Standards

None

Architecture Flow

secure area characteristics

Secure Area Environment To Remote Traveler Support

Inventory

Transit Stops and Stations	TO	Transit Secure Area Monitoring System
Transit Stops and Stations	TO	Distress Signal Wireline Communications

Standards

None

Architecture Flow

secure area monitoring support

Transit Management To Remote Traveler Support

Inventory

CapMetro Dispatch System	TO	Transit Secure Area Monitoring System
CapMetro Dispatch System	TO	Distress Signal Wireline Communications

Standards

(AASHTO) NTCIP - Data Dictionary for Closed Circuit Television (CCTV) (Data Dictionary, Message Set)
(AASHTO) NTCIP - Global Object Definitions (Data Dictionary, Message Set)
(AASHTO) NTCIP - Object Definitions for Video Switches (Data Dictionary, Message Set)
(ITE) TCIP - Onboard (OB) Business Area Standard (Data Dictionary, Message Set)

Architecture Flow

secure area surveillance data

Remote Traveler Support To Transit Management

Inventory

Transit Secure Area Monitoring System	TO	CapMetro Dispatch System

Standards

(ITE) TCIP - Onboard (OB) Business Area Standard (Data Dictionary, Message Set)

Architecture Flow

selected routes

Information Service Provider To Transit Management

Inventory

Travel and Traffic Information Provider	TO	CapMetro Dispatch System

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)
(ITE) TCIP - Passenger Information (PI) Business Area Standard (Data Dictionary, Message Set)
(SAE) Advanced Traveler Information System (ATIS) Data Dictionary (Data Dictionary)
(SAE) Advanced Traveler Information System (ATIS) Message Set (Message Set)

Architecture Flow

sensor and surveillance control

Traffic Management To Roadway Subsystem

Inventory

TxDOT Austin TMC	TO	RWIS Network
TxDOT Austin TMC	TO	Austin Flood Early Warning System
TxDOT Austin TMC	TO	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers
TxDOT Austin TMC	TO	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers
TxDOT Austin TMC	TO	TxDOT Austin Signals
TxDOT Austin TMC	TO	Austin Sensors, Cameras, and HAR

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Simple Transportation Management Framework (STMF) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Class B Profile (Communications Protocol)
(AASHTO) NTCIP - Data Collection & Monitoring Devices (Data Dictionary, Message Set)
(AASHTO) NTCIP - Global Object Definitions (Data Dictionary, Message Set)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Point to Multi-Point Protocol Using RS-232 Subnetwork Profile (Communications Protocol)
(AASHTO) NTCIP - Simple Transportation Management Framework (STMF) (Data Dictionary, Message Set)
(AASHTO) NTCIP - Simple Transportation Management Protocol (STMP) (Data Dictionary, Message Set)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)
(AASHTO) NTCIP - Subnetwork Profile for Point-to-Point Protocol using RS 232 (Data Dictionary, Message Set)
(AASHTO) NTCIP - Transportation System Sensor Objects (Data Dictionary, Message Set)

Architecture Flow

signal control data

Traffic Management To Roadway Subsystem

Inventory

TxDOT Austin TMC	TO	TxDOT Austin Signals

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Simple Transportation Management Framework (STMF) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Class B Profile (Communications Protocol)
(AASHTO) NTCIP - Global Object Definitions (Data Dictionary, Message Set)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Object Definitions for Actuated Traffic Signal Controller Units (Data Dictionary, Message Set)
(AASHTO) NTCIP - Point to Multi-Point Protocol Using RS-232 Subnetwork Profile (Communications Protocol)
(AASHTO) NTCIP - Simple Transportation Management Framework (STMF) (Data Dictionary, Message Set)
(AASHTO) NTCIP - Simple Transportation Management Protocol (STMP) (Data Dictionary, Message Set)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)
(AASHTO) NTCIP - Subnetwork Profile for Point-to-Point Protocol using RS 232 (Data Dictionary, Message Set)

Architecture Flow

signal control status

Roadway Subsystem To Traffic Management

Inventory

TxDOT Austin Signals	TO	TxDOT Austin TMC

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Simple Transportation Management Framework (STMF) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Class B Profile (Communications Protocol)
(AASHTO) NTCIP - Global Object Definitions (Data Dictionary, Message Set)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Object Definitions for Actuated Traffic Signal Controller Units (Data Dictionary, Message Set)
(AASHTO) NTCIP - Point to Multi-Point Protocol Using RS-232 Subnetwork Profile (Communications Protocol)
(AASHTO) NTCIP - Simple Transportation Management Framework (STMF) (Data Dictionary, Message Set)
(AASHTO) NTCIP - Simple Transportation Management Protocol (STMP) (Data Dictionary, Message Set)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)
(AASHTO) NTCIP - Subnetwork Profile for Point-to-Point Protocol using RS 232 (Data Dictionary, Message Set)

Architecture Flow

suggested route

Emergency Management To Emergency Vehicle Subsystem

Inventory

Austin CECC/TMC Dispatch System	TO	Turnpike Authority Courtesy Vehicle Radio Communications
Austin CECC/TMC Dispatch System	TO	Turnpike Authority Courtesy Vehicle Mobile Data Terminal
Austin CECC/TMC Dispatch System	TO	TxDOT Austin Courtesy Vehicle Radio Communications
Austin CECC/TMC Dispatch System	TO	ABIA (Airport) Vehicle Radio Communications
Austin CECC/TMC Dispatch System	TO	TxDOT Austin Courtesy Vehicle Mobile Data Terminal
Austin CECC/TMC Dispatch System	TO	Austin Police, Fire, EMS Vehicle Radio Communications
Austin CECC/TMC Dispatch System	TO	Travis County Emergency Vehicle Radio Communications
Austin CECC/TMC Dispatch System	TO	Austin Police, Fire, EMS Vehicle Mobile Data Terminal
Austin CECC/TMC Dispatch System	TO	ABIA (Airport) Vehicle Mobile Data Terminal
Austin CECC/TMC Dispatch System	TO	Travis County Emergency Vehicle Mobile Data Terminal

Standards

None

Architecture Flow

tag data

Vehicle To Toll Collection

Inventory

Toll Tag Interface TO TxDot TTA Division Customer Service Center

Standards

(ASTM) Standard Specification for DSRC - Data Link Layer (Communications Protocol)
(ASTM) Standard Specification for DSRC - Physical Layer 902-928 MHz (Communications Protocol)
(IEEE) Message Sets for DSRC ETTM & CVO (Data Dictionary, Message Set)

Architecture Flow

toll administration requests

Toll Administrator To Toll Administration

Inventory

TTA Controller TO TxDOT Texas Turnpike Authority Division

Standards

None

Architecture Flow

toll data request

Information Service Provider To Toll Administration

Inventory

Travel and Traffic Information Provider TO TxDOT Texas Turnpike Authority Division

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)

Architecture Flow

toll data

Toll Administration To Information Service Provider

Inventory

TxDOT Texas Turnpike Authority Division TO Travel and Traffic Information Provider

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)

Architecture Flow

toll demand management request

Traffic Management To Toll Administration

Inventory

TxDOT Austin TMC TO TxDOT Texas Turnpike Authority Division

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)
(ITE) Message Set for External TMC Communication (MS/ETMCC) (Message Set)
(ITE) Standard for Functional Level Traffic Management Data Dictionary (TMDD) (Data Dictionary)

Architecture Flow

toll demand management response

Toll Administration To Traffic Management

Inventory

TxDOT Texas Turnpike Authority Division TO TxDOT Austin TMC

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)
(ITE) Message Set for External TMC Communication (MS/ETMCC) (Message Set)
(ITE) Standard for Functional Level Traffic Management Data Dictionary (TMDD) (Data Dictionary)

Architecture Flow

toll instructions

Toll Administration To Toll Collection

Inventory

TxDOT Texas Turnpike Authority Division TO TxDot TTA Division Customer Service Center

Standards

(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)

Architecture Flow

toll operator requests

Toll Operator To Toll Collection

Inventory

Toll Operator / Supervisor TO TxDot TTA Division Customer Service Center

Standards

None

Architecture Flow

toll revenues and summary reports

Toll Administration To Toll Administrator

Inventory

TxDOT Texas Turnpike Authority Division TO TTA Controller

Standards

None

Architecture Flow

toll transaction reports

Toll Collection To Toll Operator

Inventory

TxDot TTA Division Customer Service Center TO Toll Operator / Supervisor

Standards

None

Architecture Flow

toll transactions

Toll Collection To Toll Administration

Inventory

TxDot TTA Division Customer Service Center TO TxDOT Texas Turnpike Authority Division

Standards

(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)

(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)

(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)

(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)

(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)

Architecture Flow

track status

Wayside Equipment To Roadway Subsystem

Inventory

Train Interface Equipment TO Grade Crossing Warning System

Standards

None

Architecture Flow

traffic archive data

Traffic Management To Archived Data Management Subsystem

Inventory

TxDOT Austin TMC	TO	TxDOT Austin Historical Traffic Data Repository

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)

Architecture Flow

traffic characteristics

Traffic To Roadway Subsystem

Inventory

Vehicles on the Road	TO	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers
Vehicles on the Road	TO	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers
Vehicles on the Road	TO	Austin Sensors, Cameras, and HAR

Standards

None

Architecture Flow

traffic control coordination

Traffic Management To Other TM

Inventory

TxDOT Austin TMC	TO	Austin Signal Control Center
TxDOT Austin TMC	TO	Round Rock TMC

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)
(ITE) Message Set for External TMC Communication (MS/ETMCC) (Message Set)
(ITE) Standard for Functional Level Traffic Management Data Dictionary (TMDD) (Data Dictionary)

Architecture Flow

traffic control coordination

Other TM To Traffic Management

Inventory

Round Rock TMC	TO	TxDOT Austin TMC
Austin Signal Control Center	TO	TxDOT Austin TMC

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)
(ITE) Message Set for External TMC Communication (MS/ETMCC) (Message Set)
(ITE) Standard for Functional Level Traffic Management Data Dictionary (TMDD) (Data Dictionary)

Architecture Flow

traffic equipment status

Traffic Management To Construction and Maintenance

Inventory

TxDOT Austin TMC	TO	TxDOT Highway Maintenance Management System
TxDOT Austin TMC	TO	City of Round Rock Maintenance System
TxDOT Austin TMC	TO	City of Austin Maintenance System

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)
(ITE) Message Set for External TMC Communication (MS/ETMCC) (Message Set)
(ITE) Standard for Functional Level Traffic Management Data Dictionary (TMDD) (Data Dictionary)

Architecture Flow

traffic flow

Roadway Subsystem To Traffic Management

Inventory

TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	TO	TxDOT Austin TMC
Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	TO	TxDOT Austin TMC
Austin Sensors, Cameras, and HAR	TO	TxDOT Austin TMC

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Simple Transportation Management Framework (STMF) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Class B Profile (Communications Protocol)
(AASHTO) NTCIP - Data Collection & Monitoring Devices (Data Dictionary, Message Set)
(AASHTO) NTCIP - Global Object Definitions (Data Dictionary, Message Set)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Point to Multi-Point Protocol Using RS-232 Subnetwork Profile (Communications Protocol)
(AASHTO) NTCIP - Simple Transportation Management Framework (STMF) (Data Dictionary, Message Set)
(AASHTO) NTCIP - Simple Transportation Management Protocol (STMP) (Data Dictionary, Message Set)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)
(AASHTO) NTCIP - Subnetwork Profile for Point-to-Point Protocol using RS 232 (Data Dictionary, Message Set)
(AASHTO) NTCIP - Transportation System Sensor Objects (Data Dictionary, Message Set)

Architecture Flow

traffic images

Roadway Subsystem To Traffic Management

Inventory

Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	TO	TxDOT Austin TMC
Austin Sensors, Cameras, and HAR	TO	TxDOT Austin TMC
TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	TO	TxDOT Austin TMC

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Simple Transportation Management Framework (STMF) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Data Dictionary for Closed Circuit Television (CCTV) (Data Dictionary, Message Set)
(AASHTO) NTCIP - Global Object Definitions (Data Dictionary, Message Set)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Object Definitions for Video Switches (Data Dictionary, Message Set)
(AASHTO) NTCIP - Simple Transportation Management Framework (STMF) (Data Dictionary, Message Set)
(AASHTO) NTCIP - Simple Transportation Management Protocol (STMP) (Data Dictionary, Message Set)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)

Architecture Flow

traffic information coordination

Traffic Management To Other TM

Inventory

TxDOT Austin TMC	TO	Round Rock TMC
TxDOT Austin TMC	TO	Austin Signal Control Center

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)
(ITE) Message Set for External TMC Communication (MS/ETMCC) (Message Set)
(ITE) Standard for Functional Level Traffic Management Data Dictionary (TMDD) (Data Dictionary)

Architecture Flow

traffic information coordination

Other TM To Traffic Management

Inventory

Round Rock TMC	TO	TxDOT Austin TMC
Austin Signal Control Center	TO	TxDOT Austin TMC

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)
(ITE) Message Set for External TMC Communication (MS/ETMCC) (Message Set)
(ITE) Standard for Functional Level Traffic Management Data Dictionary (TMDD) (Data Dictionary)

Architecture Flow

traffic information for media

Traffic Management To Media

Inventory

TxDOT Austin TMC TO Traffic and Travel Information System

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)
(ITE) Message Set for External TMC Communication (MS/ETMCC) (Message Set)
(ITE) Standard for Functional Level Traffic Management Data Dictionary (TMDD) (Data Dictionary)

Architecture Flow

traffic information for transit

Traffic Management To Transit Management

Inventory

TxDOT Austin TMC TO CapMetro Dispatch System

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)
(ITE) Message Set for External TMC Communication (MS/ETMCC) (Message Set)
(ITE) Standard for Functional Level Traffic Management Data Dictionary (TMDD) (Data Dictionary)
(ITE) TCIP - Traffic Management (TM) Business Area Standard (Data Dictionary, Message Set)

Architecture Flow

traffic information

Traffic Management To Information Service Provider

Inventory

TxDOT Austin TMC TO Travel and Traffic Information Provider

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)
(ITE) Message Set for External TMC Communication (MS/ETMCC) (Message Set)
(ITE) Standard for Functional Level Traffic Management Data Dictionary (TMDD) (Data Dictionary)

Architecture Flow

traffic operator data

Traffic Management To Traffic Operations Personnel

Inventory

TxDOT Austin TMC TO TMC Operators / Dispatchers

Standards

None

Architecture Flow

traffic operator inputs

Traffic Operations Personnel To Traffic Management

Inventory

TMC Operators / Dispatchers TO TxDOT Austin TMC

Standards

None

Architecture Flow

transaction status

Financial Institution To Toll Administration

Inventory

Commercial Bank TO TxDOT Texas Turnpike Authority Division

Standards

None

Architecture Flow

transit and fare schedules

Transit Management To Information Service Provider

Inventory

CapMetro Dispatch System TO Travel and Traffic Information Provider

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)
(ITE) TCIP - Scheduling/Runcutting (SCH) Business Area Standard (Data Dictionary, Message Set)

Architecture Flow

transit demand management request

Traffic Management To Transit Management

Inventory

TxDOT Austin TMC TO CapMetro Dispatch System

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)

Architecture Flow

transit demand management response

Transit Management To Traffic Management

Inventory

CapMetro Dispatch System TO TxDOT Austin TMC

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)

Architecture Flow

transit driver availability

Transit Driver To Transit Management

Inventory

Transit Vehicle Drivers TO CapMetro Dispatch System

Standards

None

Architecture Flow

transit driver display

Transit Vehicle Subsystem To Transit Driver

Inventory

Transit Vehicle Monitoring System TO Transit Vehicle Drivers

Standards

None

Architecture Flow

transit driver inputs

Transit Driver To Transit Vehicle Subsystem

Inventory

Transit Vehicle Drivers TO Transit Vehicle Monitoring System

Standards

None

Architecture Flow

transit emergency coordination data

Emergency Management To Transit Management

Inventory

Austin CECC/TMC Dispatch System TO CapMetro Dispatch System

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)

(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)

(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)

(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)

(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)

(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)

(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)

(IEEE) Standard for Common Incident Management Message Sets (IMMS) for use by EMCs (Data Dictionary, Message Set)

(ITE) TCIP - Incident Management (IM) Business Area Standard (Data Dictionary, Message Set)

Architecture Flow

transit emergency data

Transit Management To Emergency Management

Inventory

CapMetro Dispatch System TO Austin CECC/TMC Dispatch System

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)

(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)

(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)

(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)

(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)

(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)

(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)

(IEEE) Standard for Common Incident Management Message Sets (IMMS) for use by EMCs (Data Dictionary, Message Set)

(ITE) TCIP - Incident Management (IM) Business Area Standard (Data Dictionary, Message Set)

Architecture Flow

transit fare payment requests

Remote Traveler Support To Transit Management

Inventory

Traveler Kiosk Network TO CapMetro Dispatch System

Standards

(ITE) TCIP - Fare Collection (FC) Business Area Standard (Data Dictionary, Message Set)
(SAE) Advanced Traveler Information System (ATIS) Data Dictionary (Data Dictionary)
(SAE) Advanced Traveler Information System (ATIS) Message Set (Message Set)

Architecture Flow

transit fare payment responses

Transit Management To Remote Traveler Support

Inventory

CapMetro Dispatch System TO Traveler Kiosk Network

Standards

(ITE) TCIP - Fare Collection (FC) Business Area Standard (Data Dictionary, Message Set)
(SAE) Advanced Traveler Information System (ATIS) Data Dictionary (Data Dictionary)
(SAE) Advanced Traveler Information System (ATIS) Message Set (Message Set)

Architecture Flow

transit fleet manager inputs

Transit Fleet Manager To Transit Management

Inventory

CapMetro Fleet Operations Manager TO CapMetro Dispatch System

Standards

None

Architecture Flow

transit information for media

Transit Management To Media

Inventory

CapMetro Dispatch System	TO	Traffic and Travel Information System

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)

Architecture Flow

transit information request

Information Service Provider To Transit Management

Inventory

Travel and Traffic Information Provider	TO	CapMetro Dispatch System

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)
(ITE) TCIP - Passenger Information (PI) Business Area Standard (Data Dictionary, Message Set)
(SAE) Advanced Traveler Information System (ATIS) Data Dictionary (Data Dictionary)
(SAE) Advanced Traveler Information System (ATIS) Message Set (Message Set)

Architecture Flow

transit information user request

Personal Information Access To Transit Management

Inventory

Individual Cell- and Land-Line Telephones	TO	CapMetro Dispatch System
Internet Browser	TO	CapMetro Dispatch System

Standards

(ITE) TCIP - Passenger Information (PI) Business Area Standard (Data Dictionary, Message Set)
(SAE) Advanced Traveler Information System (ATIS) Data Dictionary (Data Dictionary)
(SAE) Advanced Traveler Information System (ATIS) Message Set (Message Set)

Architecture Flow

transit information user request

Remote Traveler Support To Transit Management

Inventory

Traveler Kiosk Network	TO	CapMetro Dispatch System

Standards

(ITE) TCIP - Passenger Information (PI) Business Area Standard (Data Dictionary, Message Set)
(SAE) Advanced Traveler Information System (ATIS) Data Dictionary (Data Dictionary)
(SAE) Advanced Traveler Information System (ATIS) Message Set (Message Set)

Architecture Flow

transit operations planning data

Transit Management To Transit Fleet Manager

Inventory

CapMetro Dispatch System	TO	CapMetro Fleet Operations Manager

Standards

None

Architecture Flow

transit operator display

Transit Management To Transit System Operators

Inventory

CapMetro Dispatch System	TO	Transit Operators (Day-to-Day Activity Managers)

Standards

None

Architecture Flow

transit operator management data

Transit System Operators To Transit Management

Inventory

Transit Operators (Day-to-Day Activity Managers)	TO	CapMetro Dispatch System

Standards

None

Architecture Flow

transit schedule information

Transit Management To Transit Vehicle Subsystem

Inventory

CapMetro Dispatch System TO Transit Vehicle Monitoring System

Standards

(ITE) TCIP - Control Center (CC) Business Area Standard (Data Dictionary, Message Set)
(ITE) TCIP - Scheduling/Runcutting (SCH) Business Area Standard (Data Dictionary, Message Set)

Architecture Flow

transit traveler information

Transit Management To Remote Traveler Support

Inventory

CapMetro Dispatch System TO Traveler Kiosk Network

Standards

(ITE) TCIP - Passenger Information (PI) Business Area Standard (Data Dictionary, Message Set)
(SAE) Advanced Traveler Information System (ATIS) Data Dictionary (Data Dictionary)
(SAE) Advanced Traveler Information System (ATIS) Message Set (Message Set)

Architecture Flow

transit traveler information

Transit Management To Transit Vehicle Subsystem

Inventory

CapMetro Dispatch System TO Transit Vehicle Monitoring System

Standards

(ITE) TCIP - Passenger Information (PI) Business Area Standard (Data Dictionary, Message Set)
(SAE) Advanced Traveler Information System (ATIS) Data Dictionary (Data Dictionary)
(SAE) Advanced Traveler Information System (ATIS) Message Set (Message Set)

Architecture Flow

transit traveler request

Transit Vehicle Subsystem To Transit Management

Inventory

Transit Vehicle Monitoring System TO CapMetro Dispatch System

Standards

(ITE) TCIP - Passenger Information (PI) Business Area Standard (Data Dictionary, Message Set)

Architecture Flow

transit user fare status

Remote Traveler Support To Transit User

Inventory

Traveler Kiosk Network TO Individual Using Transportation Services

Standards

None

Architecture Flow

transit user fare status

Transit Vehicle Subsystem To Transit User

Inventory

Transit Vehicle Monitoring System TO Individual Using Transportation Services

Standards

None

Architecture Flow

transit user inputs

Transit User To Remote Traveler Support

Inventory

Individual Using Transportation Services TO Traveler Kiosk Network

Standards

None

Architecture Flow

transit user inputs

Transit User To Transit Vehicle Subsystem

Inventory

Individual Using Transportation Services TO Transit Vehicle Monitoring System

Standards

None

Architecture Flow

transit user outputs

Remote Traveler Support To Transit User

Inventory

Traveler Kiosk Network TO Individual Using Transportation Services

Standards

None

Architecture Flow

transit user outputs

Transit Vehicle Subsystem To Transit User

Inventory

Transit Vehicle Monitoring System TO Individual Using Transportation Services

Standards

None

Architecture Flow

transit vehicle conditions

Transit Vehicle Subsystem To Transit Management

Inventory

Transit Vehicle Monitoring System TO CapMetro Dispatch System

Standards

(ITE) TCIP - Onboard (OB) Business Area Standard (Data Dictionary, Message Set)

Architecture Flow

transit vehicle location data

Transit Vehicle Subsystem To Transit Management

Inventory

Transit Vehicle Monitoring System TO CapMetro Dispatch System

Standards

(ITE) TCIP - Onboard (OB) Business Area Standard (Data Dictionary, Message Set)

Architecture Flow

transit vehicle measures

Transit Vehicle To Transit Vehicle Subsystem

Inventory

Vehicle Used for Transit TO Transit Vehicle Monitoring System

Standards

(ITE) TCIP - Onboard (OB) Business Area Standard (Data Dictionary, Message Set)

Architecture Flow

transit vehicle passenger and use data

Transit Vehicle Subsystem To Transit Management

Inventory

Transit Vehicle Monitoring System TO CapMetro Dispatch System

Standards

(ITE) TCIP - Onboard (OB) Business Area Standard (Data Dictionary, Message Set)

Architecture Flow

transit vehicle schedule performance

Transit Vehicle Subsystem To Transit Management

Inventory

Transit Vehicle Monitoring System TO CapMetro Dispatch System

Standards

(ITE) TCIP - Control Center (CC) Business Area Standard (Data Dictionary, Message Set)
(ITE) TCIP - Onboard (OB) Business Area Standard (Data Dictionary, Message Set)

Architecture Flow

transit work schedule

Transit Management To Transit Maintenance Personnel

Inventory

CapMetro Dispatch System TO CapMetro Vehicle Maintenance

Standards

None

Architecture Flow

traveler information for media

Information Service Provider To Media

Inventory

Travel and Traffic Information Provider	TO	Traffic and Travel Information System

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)
(SAE) Advanced Traveler Information System (ATIS) Data Dictionary (Data Dictionary)
(SAE) Advanced Traveler Information System (ATIS) Message Set (Message Set)

Architecture Flow

traveler inputs

Traveler To Personal Information Access

Inventory

Pre-Trip Individual Using Transportation Services	TO	Individual Cell- and Land-Line Telephones
Pre-Trip Individual Using Transportation Services	TO	Individual Fax
Pre-Trip Individual Using Transportation Services	TO	Internet Browser

Standards

None

Architecture Flow

traveler interface updates

Personal Information Access To Traveler

Inventory

Individual Cell- and Land-Line Telephones	TO	Pre-Trip Individual Using Transportation Services
Internet Browser	TO	Pre-Trip Individual Using Transportation Services
Individual Fax	TO	Pre-Trip Individual Using Transportation Services

Standards

None

Architecture Flow

traveler interface updates

Remote Traveler Support To Traveler

Inventory

Traveler Kiosk Network	TO	Pre-Trip Individual Using Transportation Services

Standards

None

Architecture Flow

vehicle location

Vehicle To Emergency Vehicle Subsystem

Inventory

System That Provides Accurate Position Information	TO	Emergency Vehicles Equipped with AVL

Standards

(ITE) TCIP - Onboard (OB) Business Area Standard (Data Dictionary, Message Set)

Architecture Flow

vehicle location

Vehicle To Transit Vehicle Subsystem

Inventory

System That Provides Accurate Position Information	TO	Transit Vehicle Monitoring System

Standards

(ITE) TCIP - Onboard (OB) Business Area Standard (Data Dictionary, Message Set)

Architecture Flow

violation notification

Toll Administration To Enforcement Agency

Inventory

TxDOT Texas Turnpike Authority Division	TO	Texas Traffic Law Enforcement

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Data Exchange ASN.1 (DATEX) (Communications Protocol)
(AASHTO) NTCIP - Base Standard: Octet Encoding Rules (OER) (Communications Protocol)
(AASHTO) NTCIP - Internet (TCP/IP and UDP/IP) Transport Profile (Communications Protocol)
(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)
(ITE) TCIP - Fare Collection (FC) Business Area Standard (Data Dictionary, Message Set)

Architecture Flow

violation notification

Transit Management To Enforcement Agency

Inventory

CapMetro Dispatch System	TO	Austin Police Department

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)
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(ITE) TCIP - Fare Collection (FC) Business Area Standard (Data Dictionary, Message Set)

Architecture Flow

weather conditions

Roadway Environment To Roadway Subsystem

Inventory

Conditions that will Impact Driving	TO	Austin Flood Early Warning System
Conditions that may Affect ITS Equipment Operations	TO	RWIS Network
Conditions that may Affect ITS Equipment Operations	TO	Austin Flood Early Warning System
Conditions that will Impact Driving	TO	RWIS Network

Standards

None

Architecture Flow

weather information

Weather Service To Traffic Management

Inventory

Weather Network Subscription TO TxDOT Austin TMC

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
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(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)
(ITE) Message Set for External TMC Communication (MS/ETMCC) (Message Set)
(ITE) Standard for Functional Level Traffic Management Data Dictionary (TMDD) (Data Dictionary)

Architecture Flow

weather information

Weather Service To Transit Management

Inventory

Weather Network Subscription TO CapMetro Dispatch System

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)
(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)
(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)
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(ITE) Message Set for External TMC Communication (MS/ETMCC) (Message Set)
(ITE) Standard for Functional Level Traffic Management Data Dictionary (TMDD) (Data Dictionary)

Architecture Flow

work zone status

Construction and Maintenance To Traffic Management

Inventory

City of Austin Maintenance System	TO	TxDOT Austin TMC
City of Round Rock Maintenance System	TO	TxDOT Austin TMC
Travis County Construction and Maintenance Management System	TO	TxDOT Austin TMC
Williamson County Highway Maintenance Management System	TO	TxDOT Austin TMC
TxDOT Highway Maintenance Management System	TO	TxDOT Austin TMC

Standards

(AASHTO) NTCIP - Application Profile for File Transfer Protocol (FTP) (Communications Protocol)

(AASHTO) NTCIP - Application Profile for Trivial File Transfer Protocol (Communications Protocol)

(AASHTO) NTCIP - Applications Profile for Common Object Request Broker Architecture (CORBA) (Communications Protocol)

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(AASHTO) NTCIP - Subnetwork Profile for Ethernet (Data Dictionary, Message Set)

(ITE) Message Set for External TMC Communication (MS/ETMCC) (Message Set)

(ITE) Standard for Functional Level Traffic Management Data Dictionary (TMDD) (Data Dictionary)

APPENDIX D
SELECTION WORKSHEET FOR PROCESS SPECIFICATIONS

PSpec Selection Criteria

Austin

Selected	PSpec	Name	Market Package	Inventory
☑	1.1.1.1	Process Traffic Sensor Data	☑	☑
☑	1.1.1.2	Collect and Process Sensor Fault Data	☑	☑
☑	1.1.1.3	Process Environmental Sensor Data	☑	☑
☑	1.1.1.4	Manage Data Collection and Monitoring	☑	☑
☑	1.1.2.1	Process Traffic Data for Storage	☑	☑
☑	1.1.2.2	Process Traffic Data	☑	☑
☑	1.1.2.3	Update Data Source Static Data	☑	☑
☐	1.1.2.4	Monitor HOV lane use	☐	☑
☐	1.1.2.5	Process Tag/AVL Data for Link Time Data	☐	☑
☐	1.1.2.6	Process Collected Vehicle Smart Probe Data	☐	☑
☐	1.1.2.7	Monitor Reversible Lanes	☐	☑
☑	1.1.3	Generate Predictive Traffic Model	☑	☑
☑	1.1.4.1	Retrieve Traffic Data	☑	☑
☑	1.1.4.2	Provide Traffic Operations Personnel Traffic Data Interface	☑	☑
☑	1.1.4.3	Provide Direct Media Traffic Data Interface	☑	☑
☑	1.1.4.4	Update Traffic Display Map Data	☑	☑
☑	1.1.4.5	Provide Media System Traffic Data Interface	☑	☑
☑	1.1.4.6	Provide Traffic Data Retrieval Interface	☑	☑
☑	1.1.4.7	Manage Traffic Archive Data	☑	☑
☑	1.1.5	Exchange data with Other Traffic Centers	☑	☑
☐	1.1.6	Collect Vehicle Tag Data for Link Time Calculations	☐	☑
☐	1.1.7	Collect Vehicle Smart Probe Data	☐	☑
☑	1.2.1	Select Strategy	☑	☑
☑	1.2.2.1	Determine Indicator State for Freeway Management	☑	☑
☑	1.2.2.2	Determine Indicator State for Road Management	☑	☑
☑	1.2.3	Determine Ramp State	☑	☑
☑	1.2.4.1	Output Control Data for Roads	☑	☑
☑	1.2.4.2	Output Control Data for Freeways	☑	☑
☐	1.2.4.3	Output In-vehicle Signage Data	☐	☑
☐	1.2.5.1	Determine Parking Lot State	☐	☐
☐	1.2.5.2	Coordinate Other Parking Data	☐	☐
☐	1.2.5.3	Provide Parking Lot Operator Interface	☐	☐
☐	1.2.5.4	Determine P+R needs for Transit Management	☐	☐
☐	1.2.5.5	Manage Parking Archive Data	☑	☐
☐	1.2.5.6	Calculate Parking Lot Occupancy	☐	☐
☑	1.2.6.1	Maintain Traffic and Sensor Static Data	☑	☑
☑	1.2.6.2	Provide Static Data Store Output Interface	☑	☑
☑	1.2.7.1	Process Indicator Output Data for Roads	☑	☑
☑	1.2.7.2	Monitor Roadside Equipment Operation for Faults	☑	☑
☑	1.2.7.3	Manage Indicator Preemptions	☑	☑
☐	1.2.7.4	Process In-vehicle Signage Data	☐	☑

PSpec Selection Criteria

Austin

Selected	PSpec	Name	Market Package	Inventory
☑	1.2.7.5	Process Indicator Output Data for Freeways	☑	☑
☐	1.2.7.6	Provide Intersection Collision Avoidance Data	☐	☑
☐	1.2.7.7	Process Vehicle Smart Probe Data for Output	☐	☑
☑	1.2.8.1	Collect Indicator Fault Data	☑	☑
☑	1.2.8.2	Maintain Indicator Fault Data Store	☑	☑
☑	1.2.8.3	Provide Indicator Fault Interface for C and M	☑	☑
☑	1.2.8.4	Provide Traffic Operations Personnel Indicator Fault Interface	☑	☑
☑	1.3.1.1	Analyze Traffic Data for Incidents	☑	☑
☑	1.3.1.2	Maintain Static Data for Incident Management	☑	☑
☑	1.3.1.3	Process Traffic Images	☑	☑
☑	1.3.2.1	Store Possible Incident Data	☑	☑
☑	1.3.2.2	Review and Classify Possible Incidents	☑	☑
☑	1.3.2.3	Review and Classify Planned Events	☑	☑
☑	1.3.2.4	Provide Planned Events Store Interface	☑	☑
☑	1.3.2.5	Provide Current Incidents Store Interface	☑	☑
☑	1.3.3	Respond to Current Incidents	☑	☑
☑	1.3.4.1	Retrieve Incident Data	☑	☑
☑	1.3.4.2	Provide Traffic Operations Personnel Incident Data Interface	☑	☑
☑	1.3.4.3	Provide Media Incident Data Interface	☑	☑
☑	1.3.4.4	Update Incident Display Map Data	☑	☑
☑	1.3.4.5	Manage Resources for Incidents	☑	☑
☑	1.3.5	Manage Possible Predetermined Responses Store	☑	☑
☑	1.3.6	Manage Predetermined Incident Response Data	☑	☑
☑	1.3.7	Analyze Incident Response Log	☑	☑
☑	1.4.1	Provide Traffic Operations Personnel Demand Interface	☑	☑
☑	1.4.2	Collect Demand Forecast Data	☑	☑
☑	1.4.3	Update Demand Display Map Data	☑	☑
☑	1.4.4	Implement Demand Management Policy	☑	☑
☑	1.4.5	Calculate Forecast Demand	☑	☑
☐	1.5.1	Provide Traffic Operations Personnel Pollution Data Interface	☐	☐
☐	1.5.2	Process Pollution Data	☐	☐
☐	1.5.3	Update Pollution Display Map Data	☐	☐
☐	1.5.4	Manage Pollution State Data Store	☐	☐
☐	1.5.5	Process Vehicle Pollution Data	☐	☑
☐	1.5.6	Detect Roadside Pollution Levels	☐	☑
☐	1.5.7	Manage Pollution Data Log	☐	☐
☐	1.5.8	Manage Pollution Reference Data Store	☐	☐
☐	1.5.9	Manage Pollution Archive Data	☑	☐
☐	1.6.1.1	Detect Roadway Events	☐	☑
☐	1.6.1.2.1	Control HRI Traffic Signals	☑	☑
☑	1.6.1.2.2	Control HRI Warnings and Barriers	☑	☑

PSpec Selection Criteria

Austin

Selected	PSpec	Name	Market Package	Inventory
☐	1.6.1.2.3	Provide SSR Device Controls	☑	☑
☐	1.6.1.2.4	Provide HSR Device Controls	☐	☑
☑	1.6.1.2.5	Manage Device Control	☑	☑
☐	1.6.1.2.6	Maintain Device State	☑	☑
☐	1.6.1.3	Perform Equipment Self-Test	☑	☑
☐	1.6.1.4.1	Generate Alerts and Advisories	☐	☑
☐	1.6.1.4.2	Provide Closure Parameters	☑	☑
☐	1.6.1.4.3	Report Alerts and Advisories	☐	☑
☐	1.6.1.4.4	Report HRI Status on Approach	☑	☑
☐	1.6.1.5	Detect HRI Hazards	☐	☑
☐	1.6.1.6.1	Close HRI on Detection	☐	☑
☐	1.6.1.6.2	Detect Imminent Vehicle/Train Collision	☐	☑
☑	1.6.1.7.1	Control Vehicle Traffic at Passive HRI	☑	☑
☑	1.6.1.7.2	Control Vehicle Traffic at Active HRI	☑	☑
☐	1.6.1.7.3	Close HRI on Command	☑	☑
☐	1.6.2.1	Exchange Data with Rail Operations	☑	☑
☐	1.6.2.2	Manage Alerts and Advisories	☑	☑
☐	1.6.2.3	Manage Rail Traffic Control Data	☐	☑
☐	1.6.3.1	Interact with Wayside Systems	☑	☑
☐	1.6.3.2	Advise and Protect Train Crews	☐	☑
☐	1.6.3.3	Provide ATS Alerts	☐	☑
☐	1.6.4.1	Manage HRI Closures	☑	☑
☐	1.6.4.2	Exchange Data with Traffic Management	☑	☑
☐	1.6.5.1	Provide Interactive Interface	☐	☑
☑	1.6.5.2	Determine HRI Status	☑	☑
☐	1.6.5.3	Maintain HRI Closure Data	☑	☑
☑	2.1.1	Manage Commercial Fleet Electronic Credentials and Tax Filing	☑	☑
☐	2.1.2	Provide Commercial Fleet Static Route	☐	☑
☐	2.1.3	Provide Flt Mgr Electronic Credentials and Tax Filing Interface	☐	☑
☐	2.1.4	Provide Fleet Manager Commercial Vehicle Communications	☐	☑
☐	2.1.5	Provide Commercial Vehicle Driver Routing Interface	☐	☐
☐	2.1.6	Manage Driver Instruction Store	☐	☑
☐	2.2.1	Manage CV Electronic Credential and Tax Filing Interface	☐	☑
☐	2.2.2	Provide Vehicle Static Route	☐	☐
☐	2.2.3	Provide CV Driver Electronic Credential and Tax Filing Interface	☐	☐
☐	2.2.4	Provide Commercial Vehicle Driver Communications	☐	☐
☐	2.3.1	Produce Commercial Vehicle Driver Message at Roadside	☐	☐
☐	2.3.2.1	Administer Commercial Vehicle Roadside Credentials Database	☐	☐
☐	2.3.2.2	Process Screening Transactions	☐	☐
☐	2.3.3.1	Provide Commercial Vehicle Checkstation Communications	☐	☐

PSpec Selection Criteria

Austin

Selected	PSpec	Name	Market Package	Inventory
☐	2.3.3.2	Provide Commercial Vehicle Inspector Handheld Terminal Interface	☐	☐
☐	2.3.3.3	Administer Commercial Vehicle Roadside Safety Datadase	☐	☐
☐	2.3.3.4	Carry-out Commercial Vehicle Roadside Safety Screening	☐	☐
☐	2.3.3.5	Carry-out Commercial Vehicle Roadside Inspection	☐	☐
☐	2.3.4	Detect Commercial Vehicle	☐	☐
☐	2.3.5	Provide Commercial Vehicle RoadsideOperator Interface	☐	☐
☐	2.3.6	Provide Commercial Vehicle Reports	☐	☐
☐	2.3.7	Produce Commercial Vehicle Driver Message on Vehicle	☐	☐
☐	2.3.8	Provide Commercial Vehicle Border Screening	☐	☐
☐	2.4.1	Communicate Commercial Vehicle On-board Data to Roadside	☐	☐
☐	2.4.2	Collect On-board Commercial Vehicle Sensor Data	☐	☐
☐	2.4.3	Analyze Commercial Vehicle On-board Data	☐	☐
☐	2.4.4	Provide Commercial Vehicle Driver Interface	☐	☐
☐	2.4.5	Communicate Commercial Vehicle On-board Data to Vehicle Manager	☐	☐
☐	2.4.6	Provide Commercial Vehicle On-board Data Store Interface	☐	☐
☐	2.5.1	Manage Commercial Vehicle Trips and Clearances	☐	☐
☐	2.5.2	Obtain Electronic Credential and Tax Filing Payment	☐	☐
☐	2.5.3	Update Permits and Duties Store	☐	☐
☐	2.5.4	Communicate with Other Commercial Vehicle Administration System	☐	☐
☐	2.5.5	Manage Commercial Vehicle Credentials and Enrollment	☐	☐
☐	2.5.6	Output Commercial Vehicle Enrollment Data to Roadside Facilities	☐	☐
☐	2.5.7	Process Commercial Vehicle Violations	☐	☐
☐	2.5.8	Process Data Received from Roadside Facilities	☐	☐
☐	2.5.9	Manage Commercial Vehicle Archive Data	☑	☐
☐	2.6.1	Provide Commercial Vehicle Manager Tag Data Interface	☐	☑
☐	2.6.2	Transmit Commercial Vehicle Tag Data	☐	☐
☐	2.6.3	Provide Commercial Driver Tag Data Interface	☐	☐
☐	2.6.4	Provide Lock Tag Data Interface	☐	☐
☐	2.6.5	Manage Commercial Vehicle Tag Data Store	☐	☐
☐	2.7	Manage Cargo	☐	☑
☐	3.1.1	Produce Collision and Crash Avoidance Data	☐	☑
☐	3.1.2	Carry-out Safety Analysis	☐	☑
☐	3.1.3	Process Vehicle On-board Data	☐	☑
☐	3.2.1	Provide Driver Interface	☐	☑
☐	3.2.2	Provide AHS Control	☐	☑
☐	3.2.3.1	Provide Command Interface	☐	☑
☐	3.2.3.2	Manage Platoon Following	☐	☑
☐	3.2.3.3	Process data for Vehicle Actuators	☐	☑

PSpec Selection Criteria

Austin

Selected	PSpec	Name	Market Package	Inventory
☐	3.2.3.4.1	Provide Speed Servo Control	☐	☑
☐	3.2.3.4.2	Provide Headway Servo Control	☐	☑
☐	3.2.3.4.3	Provide Lane Servo Control	☐	☑
☐	3.2.3.4.4	Provide Change Lane Servo Control	☐	☑
☐	3.2.3.4.5	Provide Vehicle Control Data Interface	☐	☑
☐	3.2.3.5	Process Vehicle Sensor Data	☐	☑
☐	3.2.3.6	Communicate with other Platoon Vehicles	☐	☑
☐	3.2.4	Process Sensor Data for AHS input	☐	☑
☐	3.2.5	Check Vehicle for AHS eligibility	☐	☑
☐	3.2.6	Manage AHS Check-in and Check-out	☐	☑
☐	3.2.7	Manage AHS Operations	☐	☑
☐	3.3.1	Provide Cargo Data for Incident Notification	☑	☐
☑	3.3.2	Provide Communications Function	☑	☑
☑	3.3.3	Build Automatic Collision Notification Message	☑	☑
☐	3.4	Enhance Driver's Vision	☐	☑
☑	4.1.1	Process Transit Vehicle Sensor Trip Data	☑	☑
☑	4.1.2.1	Determine Transit Vehicle Deviation and ETA	☑	☑
☑	4.1.2.2	Determine Transit Vehicle Corrective Instructions	☑	☑
☑	4.1.2.3	Provide Transit Vehicle Driver Interface	☑	☑
☐	4.1.2.4	Provide Transit Vehicle Correction Data Output Interface	☐	☑
☐	4.1.2.5	Request Transit Vehicle Preemptions	☐	☑
☑	4.1.3	Provide Transit Vehicle Location Data	☑	☑
☐	4.1.4	Manage Transit Vehicle Deviations	☐	☑
☑	4.1.5	Provide Transit Vehicle Status Information	☑	☑
☑	4.1.6	Manage Transit Vehicle Operations Data	☑	☑
☐	4.1.7	Provide Transit Vehicle Deviation Data Output Interface	☐	☑
☑	4.1.8	Provide Transit Operations Data Distribution Interface	☑	☑
☑	4.1.9	Process Transit Vehicle Sensor Maintenance Data	☑	☑
☑	4.2.1.1	Process Demand Responsive Transit Trip Request	☑	☑
☑	4.2.1.2	Compute Demand Responsive Transit Vehicle Availability	☑	☑
☑	4.2.1.3	Generate Demand Responsive Transit Schedule and Routes	☑	☑
☑	4.2.1.4	Confirm Demand Responsive Transit Schedule and Route	☑	☑
☑	4.2.1.5	Process Demand Responsive Transit Vehicle Availability Data	☑	☑
☑	4.2.1.6	Provide Demand Responsive Transit Driver Interface	☑	☑
☑	4.2.2	Provide Transit Plans Store Interface	☑	☑
☑	4.2.3.1	Generate Transit Routes	☑	☑
☑	4.2.3.2	Generate Schedules	☑	☑
☑	4.2.3.3	Produce Transit Service Data for External Use	☑	☑
☑	4.2.3.4	Provide Transit Fleet Manager Interface for Services Generation	☑	☑
☑	4.2.3.5	Manage Transit Operational Data Store	☑	☑
☑	4.2.3.6	Produce Transit Service Data for Manage Transit Use	☑	☑

PSpec Selection Criteria

Austin

Selected	PSpec	Name	Market Package	Inventory
☐	4.2.3.7	Provide Interface for Other TRM Data	☐	☑
☐	4.2.3.8	Provide Interface for Transit Service Raw Data	☐	☑
☑	4.2.3.9	Update Transit Map Data	☑	☑
☐	4.2.4	Manage Transit Archive Data	☑	☑
☑	4.3.1	Monitor Transit Vehicle Condition	☑	☑
☑	4.3.2	Generate Transit Vehicle Maintenance Schedules	☑	☑
☑	4.3.3	Generate Technician Work Assignments	☑	☑
☑	4.3.4	Monitor And Verify Maintenance Activity	☑	☑
☑	4.3.5	Report Transit Vehicle Information	☑	☑
☑	4.3.6	Update Transit Vehicle Information	☑	☑
☑	4.3.7	Manage Transit Vehicle Operations Data Store	☑	☑
☑	4.4.1.1	Manage Transit Security	☑	☑
☑	4.4.1.2	Manage Transit Emergencies	☑	☑
☑	4.4.1.3	Provide Transit System Operator Security Interface	☑	☑
☑	4.4.1.4	Provide Transit External Interface for Emergencies	☑	☑
☑	4.4.1.5	Provide Transit Driver Interface for Emergencies	☑	☑
☑	4.4.1.6	Collect Transit Vehicle Emergency Information	☑	☑
☑	4.4.1.7	Monitor Secure Area	☑	☑
☑	4.4.1.8	Report Traveler Emergencies	☑	☑
☑	4.4.2	Coordinate Multiple Agency Responses to Incidents	☑	☑
☑	4.4.3	Generate Responses for Incidents	☑	☑
☑	4.5.1	Assess Transit Driver Performance	☑	☑
☑	4.5.2	Assess Transit Driver Availability	☑	☑
☑	4.5.3	Access Transit Driver Cost Effectiveness	☑	☑
☑	4.5.4	Assess Transit Driver Eligibility	☑	☑
☑	4.5.5	Generate Transit Driver Route Assignments	☑	☑
☑	4.5.6	Update Transit Driver Information	☑	☑
☑	4.5.7	Report Transit Driver Information	☑	☑
☑	4.5.8	Provide Transit Driver Information Store Interface	☑	☑
☑	4.6.1	Detect Transit User on Vehicle	☑	☑
☑	4.6.2	Determine Transit User Needs on Vehicle	☑	☑
☑	4.6.3	Determine Transit Fare on Vehicle	☑	☑
☑	4.6.4	Manage Transit Fare Billing on Vehicle	☑	☑
☑	4.6.5	Provide Transit User Fare Payment Interface on Vehicle	☑	☑
☑	4.6.6	Update Transit Vehicle Fare Data	☑	☑
☑	4.6.7	Provide Transit Vehicle Passenger Data	☑	☑
☐	4.6.8	Manage Transit Vehicle Advanced Payments	☑	☑
☐	4.7.1.1	Provide Transit User Roadside Data Interface	☑	☑
☐	4.7.1.2	Provide Transit User Roadside Vehicle Data Interface	☑	☑
☑	4.7.2.1	Detect Transit User at Roadside	☑	☑
☑	4.7.2.2	Determine Transit User Needs at Roadside	☑	☑

PSpec Selection Criteria

Austin

Selected	PSpec	Name	Market Package	Inventory
☑	4.7.2.3	Determine Transit Fare at Roadside	☑	☑
☑	4.7.2.4	Manage Transit Fare Billing at Roadside	☑	☑
☑	4.7.2.5	Provide Transit User Roadside Fare Interface	☑	☑
☑	4.7.2.6	Update Roadside Transit Fare Data	☑	☑
☑	4.7.2.7	Provide Transit Roadside Passenger Data	☑	☑
☑	5.1.1	Identify Emergencies from Inputs	☑	☑
☑	5.1.2	Determine Coordinated Response Plan	☑	☑
☑	5.1.3	Communicate Emergency Status	☑	☑
☑	5.1.4	Manage Emergency Response	☑	☑
☑	5.1.5	Manage Emergency Service Allocation Store	☑	☑
☑	5.1.6	Process Mayday Messages	☑	☑
☑	5.2	Provide Operator Interface for Emergency Data	☑	☑
☑	5.3.1	Select Response Mode	☑	☑
☑	5.3.2	Dispatch Vehicle	☑	☑
☑	5.3.3	Track Vehicle	☑	☑
☑	5.3.4	Assess Response Status	☑	☑
☑	5.3.5	Provide Emergency Personnel Interface	☑	☑
☑	5.3.6	Maintain Vehicle Status	☑	☑
☑	5.3.7	Provide Emergency Vehicle Route	☑	☑
☐	5.4.1	Process TM Detected Violations	☐	☑
☑	5.4.2	Process Violations for Tolls	☑	☑
☐	5.4.3	Process Parking Lot Violations	☐	☐
☑	5.4.4	Process Fare Payment Violations	☑	☑
☑	5.4.5	Process Vehicle Fare Collection Violations	☑	☑
☐	5.4.6	Process CV Violations	☐	☐
☑	5.4.7	Process Roadside Fare Collection Violations	☑	☑
☑	5.5	Update Emergency Display Map Data	☑	☑
☑	5.6	Manage Emergency Services Data	☑	☑
☑	6.1.1	Provide Trip Planning Information to Traveler	☑	☑
☐	6.1.2	Confirm Traveler's Trip Plan	☐	☑
☐	6.1.3	Manage Multimodal Service Provider Interface	☐	☑
☐	6.1.4	Provide ISP Operator Interface for Trip Planning Parameters	☐	☑
☑	6.1.5	Collect Service Requests and Confirmation for Archive	☑	☑
☑	6.1.6	Manage Traveler Info Archive Data	☑	☑
☑	6.2.1.1	Collect Traffic Data for Advisory Messages	☑	☑
☐	6.2.1.2	Provide Traffic and Transit Advisory Messages	☐	☑
☑	6.2.1.3	Collect Transit Data for Advisory Messages	☑	☑
☑	6.2.1.4	Provide Traffic and Transit Broadcast Messages	☑	☑
☑	6.2.1.5	Provide ISP Operator Broadcast Parameters Interface	☑	☑
☑	6.2.1.6	Provide Transit Advisory Data On Vehicle	☑	☑
☑	6.2.2	Prepare and Output In-vehicle Displays	☑	☑

PSpec Selection Criteria

Austin

Selected	PSpec	Name	Market Package	Inventory
☑	6.2.3	Provide Transit User Advisory Interface	☑	☑
☐	6.2.4	Collect Yellow Pages Data	☑	☑
☐	6.2.5	Provide Driver Interface	☑	☑
☐	6.2.6	Provide Yellow Pages Data and Reservations	☐	☑
☐	6.3.1	Get Traveler Request	☐	☑
☑	6.3.2	Inform Traveler	☑	☑
☑	6.3.3	Provide Traveler Kiosk Interface	☑	☑
☐	6.3.4	Update Traveler Display Map Data at Kiosk	☐	☑
☐	6.4.1	Screen Rider Requests	☐	☑
☐	6.4.2	Match Rider and Provider	☐	☑
☐	6.4.3	Report Ride Match Results to Requestor	☐	☑
☐	6.4.4	Confirm Traveler Rideshare Request	☐	☑
☑	6.5.1	Collect and Update Traveler Information	☑	☑
☐	6.5.2	Provide Traveler Yellow Pages Information and Reservations	☐	☑
☐	6.5.3	Register Yellow Pages Service Providers	☐	☑
☐	6.6.1	Provide Multimodal Route Selection	☐	☑
☐	6.6.2.1	Calculate Vehicle Route	☐	☑
☐	6.6.2.2	Provide Vehicle Route Calculation Data	☐	☑
☐	6.6.2.3	Provide Route Segment Data for Other Areas	☐	☑
☐	6.6.2.4	Update Vehicle Route Selection Map Data	☐	☑
☐	6.6.2.5	Provide ISP Operator Route Parameters Interface	☐	☑
☐	6.6.2.6	Calculate Vehicle Probe Data for Guidance	☐	☑
☐	6.6.3	Update Other Routes Selection Map Data	☐	☑
☐	6.6.4	Select Transit Route	☐	☑
☐	6.6.5	Select Other Routes	☐	☑
☑	6.7.1.1	Build Driver Personal Security Message	☑	☑
☑	6.7.1.2	Provide Driver In-vehicle Communications Function	☑	☑
☐	6.7.2.1.1	Determine In-vehicle Guidance Method	☐	☑
☐	6.7.2.1.2	Provide Dynamic In-vehicle Guidance	☐	☑
☐	6.7.2.1.3	Provide Autonomous In-vehicle Guidance	☐	☑
☑	6.7.2.2	Process Vehicle Location Data	☑	☑
☐	6.7.2.3	Provide Driver Guidance Interface	☐	☑
☐	6.7.2.4	Update Vehicle Navigable Map Database	☐	☑
☐	6.8.1.1.1	Determine Personal Portable Device Guidance Method	☐	☑
☐	6.8.1.1.2	Provide Personal Portable Device Dynamic Guidance	☐	☑
☐	6.8.1.1.3	Provide Personal Portable Device Autonomous Guidance	☐	☑
☐	6.8.1.2	Provide Personal Portable Device Guidance Interface	☐	☑
☐	6.8.1.3	Process Personal Portable Device Location Data	☑	☑
☐	6.8.1.4	Update Traveler Navigable Map Database	☐	☑
☑	6.8.1.5	Provide Traveler Emergency Message Interface	☑	☑
☑	6.8.2.1	Build Traveler Personal Security Message	☑	☑

PSpec Selection Criteria

Austin

Selected	PSpec	Name	Market Package	Inventory
☑	6.8.2.2	Provide Traveler Emergency Communications Function	☑	☑
☐	6.8.3.1	Get Traveler Personal Request	☐	☑
☑	6.8.3.2	Provide Traveler with Personal Travel Information	☑	☑
☑	6.8.3.3	Provide Traveler Personal Interface	☑	☑
☐	6.8.3.4	Update Traveler Personal Display Map Data	☐	☑
☑	7.1.1.1	Read Tag Data for Tolls	☑	☑
☑	7.1.1.10	Determine Advanced Toll Bill	☑	☑
☐	7.1.1.11	Manage Toll Archive Data	☑	☑
☑	7.1.1.2	Calculate Vehicle Toll	☑	☑
☑	7.1.1.3	Manage Bad Toll Payment Data	☑	☑
☑	7.1.1.4	Check for Advanced Tolls Payment	☑	☑
☑	7.1.1.5	Bill Driver for Tolls	☑	☑
☐	7.1.1.6	Collect Probe Data From Toll Transactions	☑	☑
☑	7.1.1.7	Update Toll Price Data	☑	☑
☑	7.1.1.8	Register for Advanced Toll Payment	☑	☑
☑	7.1.1.9	Manage Toll Financial Processing	☑	☑
☑	7.1.2	Produce Roadside Displays	☑	☑
☑	7.1.3	Obtain Toll Violator Image	☑	☑
☑	7.1.4	Provide Driver Toll Payment Interface	☑	☑
☑	7.1.5	Detect Vehicle for Tolls	☑	☑
☐	7.1.6	Distribute Advanced Charges and Fares	☐	☑
☑	7.1.7	Provide Payment Instrument Interface for Tolls	☑	☑
☐	7.2.1.1	Read Parking Lot Tag Data	☐	☐
☐	7.2.1.10	Determine Advanced Charges	☐	☐
☐	7.2.1.2	Calculate Vehicle Parking Lot Charges	☐	☐
☐	7.2.1.3	Collect Bad Charge Payment Data	☐	☐
☐	7.2.1.4	Check for Advanced Parking Lot Payment	☐	☐
☐	7.2.1.5	Bill Driver for Parking Lot Charges	☐	☐
☐	7.2.1.6	Manage Parking Lot Financial Processing	☐	☐
☐	7.2.1.7	Update Parking Lot Data	☐	☐
☐	7.2.1.8	Register for Advanced Parking Lot Payment	☐	☐
☐	7.2.1.9	Manage Parking Lot Reservations	☐	☐
☐	7.2.2	Produce Parking Lot Displays	☐	☐
☐	7.2.3	Obtain Parking Lot Violator Image	☐	☐
☐	7.2.4	Provide Driver Parking Lot Payment Interface	☑	☑
☐	7.2.5	Detect Vehicle for Parking Lot Payment	☐	☐
☐	7.2.6	Distribute Advanced Tolls and Fares	☐	☑
☐	7.2.7	Provide Payment Instrument Interface for Parking	☑	☑
☑	7.3.1.1	Register for Advanced Transit Fare Payment	☑	☑
☑	7.3.1.2	Determine Advanced Transit Fares	☑	☑
☑	7.3.1.3	Manage Transit Fare Financial Processing	☑	☑

PSpec Selection Criteria

Austin

Selected	PSpec	Name	Market Package	Inventory
☑	7.3.1.4	Check for Advanced Transit Fare Payment	☑	☑
☐	7.3.1.5	Bill Transit User for Transit Fare	☑	☑
☐	7.3.1.6	Collect Bad Transit Fare Payment Data	☑	☑
☑	7.3.1.7	Update Transit Fare Data	☑	☑
☐	7.3.2	Distribute Advanced Tolls and Parking Lot Charges	☐	☑
☐	7.3.3	Get Transit User Image for Violation	☑	☑
☐	7.3.4	Provide Remote Terminal Payment Instrument Interface	☑	☑
☑	7.3.5	Provide Transit Vehicle Payment Instrument Interface	☑	☑
☐	7.4.1.1	Process Commercial Vehicle Payments	☐	☐
☐	7.4.1.2	Process Yellow Pages Services Provider Payments	☐	☑
☐	7.4.1.3	Process Driver Map Update Payments	☐	☑
☐	7.4.1.4	Process Traveler Map Update Payments	☐	☑
☐	7.4.1.5	Process Transit User Other Services Payments	☑	☑
☐	7.4.1.6	Process Traveler Trip and Other Services Payments	☐	☑
☐	7.4.1.7	Collect Payment Transaction Records	☑	☑
☐	7.4.1.8	Process Traveler Rideshare Payments	☐	☑
☑	7.4.2	Collect Price Data for ITS Use	☑	☑
☐	7.4.3	Route Traveler Advanced Payments	☐	☑
☑	7.5.1	Provide Vehicle Payment Instrument Interface	☑	☑
☐	7.5.2	Provide Transit User Roadside Payment Instrument Interface	☑	☑
☐	7.5.3	Provide Personal Payment Instrument Interface	☐	☑
☐	7.5.4	Provide Commercial Fleet Payment Instrument Interface	☐	☑
☐	7.5.5	Provide Traveler Kiosk Payment Instrument Interface	☐	☑
☑	8.1	Get Archive Data	☑	☑
☑	8.2	Manage Archive	☑	☑
☑	8.3	Manage Archive Data Administrator Interface	☑	☑
☑	8.4	Coordinate Archives	☐	☑
☑	8.5	Process Archived Data User System Requests	☑	☑
☑	8.6	Analyze Archive	☑	☑
☑	8.7	Process On Demand Archive Requests	☑	☑
☑	8.8	Prepare Government Reporting Inputs	☑	☑
☑	8.9	Manage Roadside Data Collection	☑	☑
☐	9	Satisfy Implementation Requirements	☐	☐

APPENDIX E
SELECTION WORKSHEET FOR ARCHITECTURE FLOWS

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☐	Archived Data Administrator	TxDOT Austin CECC Archive System Administrator	archive management requests	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	☑	☑
☑	Archived Data Administrator	TxDOT Austin CECC Archive System Administrator	archive management requests	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	☑	☑
☑	Archived Data Administrator	TxDOT Austin CECC Archive System Administrator	archive management requests	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	☑	☑
☐	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	archive analysis results	Archived Data User Systems	Academic / Research Organizations	☑	☑
☐	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	archive analysis results	Archived Data User Systems	TxDOT Researchers	☑	☑
☐	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	archive analysis results	Archived Data User Systems	Emergency Management Scenario Training	☑	☑
☑	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	archive analysis results	Archived Data User Systems	Academic / Research Organizations	☑	☑
☑	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	archive analysis results	Archived Data User Systems	TxDOT Researchers	☑	☑
☑	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	archive analysis results	Archived Data User Systems	Emergency Management Scenario Training	☑	☑
☑	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	archive analysis results	Archived Data User Systems	TxDOT Researchers	☑	☑
☑	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	archive analysis results	Archived Data User Systems	Emergency Management Scenario Training	☑	☑
☑	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	archive analysis results	Archived Data User Systems	Academic / Research Organizations	☑	☑
☐	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	archive coordination	Other Archives	Statewide Historic Incident Data Network	☐	☑
☐	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	archive coordination	Other Archives	Statewide Historic Traffic Data Network (TxDOT Planning and Programming)	☐	☑
☑	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	archive coordination	Other Archives	Statewide Historic Incident Data Network	☐	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☐	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	archive coordination	Other Archives	Statewide Historic Traffic Data Network (TxDOT Planning and Programming)	☐	☑
☐	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	archive coordination	Other Archives	Statewide Historic Incident Data Network	☐	☑
☑	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	archive coordination	Other Archives	Statewide Historic Traffic Data Network (TxDOT Planning and Programming)	☐	☑
☐	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	archive management data	Archived Data Administrator	TxDOT Austin CECC Archive System Administrator	☑	☑
☑	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	archive management data	Archived Data Administrator	TxDOT Austin CECC Archive System Administrator	☑	☑
☑	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	archive management data	Archived Data Administrator	TxDOT Austin CECC Archive System Administrator	☑	☑
☐	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	archive request confirmation	Archived Data User Systems	Academic / Research Organizations	☑	☑
☐	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	archive request confirmation	Archived Data User Systems	Emergency Management Scenario Training	☑	☑
☐	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	archive request confirmation	Archived Data User Systems	TxDOT Researchers	☑	☑
☑	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	archive request confirmation	Archived Data User Systems	Academic / Research Organizations	☑	☑
☑	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	archive request confirmation	Archived Data User Systems	TxDOT Researchers	☑	☑
☑	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	archive request confirmation	Archived Data User Systems	Emergency Management Scenario Training	☑	☑
☑	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	archive request confirmation	Archived Data User Systems	Academic / Research Organizations	☑	☑
☑	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	archive request confirmation	Archived Data User Systems	TxDOT Researchers	☑	☑
☑	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	archive request confirmation	Archived Data User Systems	Emergency Management Scenario Training	☑	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☐	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	archive requests	Construction and Maintenance	TxDOT Highway Maintenance Management System	☑	☑
☐	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	archive requests	Construction and Maintenance	Williamson County Highway Maintenance Management System	☑	☑
☐	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	archive requests	Construction and Maintenance	Travis County Construction and Maintenance Management System	☑	☑
☐	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	archive requests	Construction and Maintenance	City of Round Rock Maintenance System	☑	☑
☐	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	archive requests	Construction and Maintenance	City of Austin Maintenance System	☑	☑
☑	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	archive requests	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☐	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	archive requests	Information Service Provider	Travel and Traffic Information Provider	☑	☑
☐	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	archive requests	Toll Administration	TxDOT Texas Turnpike Authority Division	☑	☑
☐	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	archive requests	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	archive requests	Transit Management	CapMetro Dispatch System	☑	☑
☐	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	archive requests	Weather Service	Weather Network Subscription	☑	☑
☐	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	archive requests	Construction and Maintenance	TxDOT Highway Maintenance Management System	☑	☑
☐	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	archive requests	Construction and Maintenance	Williamson County Highway Maintenance Management System	☑	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☐	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	archive requests	Construction and Maintenance	City of Austin Maintenance System	☑	☑
☐	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	archive requests	Construction and Maintenance	City of Round Rock Maintenance System	☑	☑
☐	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	archive requests	Construction and Maintenance	Travis County Construction and Maintenance Management System	☑	☑
☑	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	archive requests	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☐	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	archive requests	Information Service Provider	Travel and Traffic Information Provider	☑	☑
☐	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	archive requests	Toll Administration	TxDOT Texas Turnpike Authority Division	☑	☑
☐	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	archive requests	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	archive requests	Transit Management	CapMetro Dispatch System	☑	☑
☐	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	archive requests	Weather Service	Weather Network Subscription	☑	☑
☑	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	archive requests	Construction and Maintenance	Travis County Construction and Maintenance Management System	☑	☑
☑	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	archive requests	Construction and Maintenance	Williamson County Highway Maintenance Management System	☑	☑
☑	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	archive requests	Construction and Maintenance	City of Austin Maintenance System	☑	☑
☑	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	archive requests	Construction and Maintenance	TxDOT Highway Maintenance Management System	☑	☑
☑	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	archive requests	Construction and Maintenance	City of Round Rock Maintenance System	☑	☑
☐	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	archive requests	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☐	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	archive requests	Information Service Provider	Travel and Traffic Information Provider	☑	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☐	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	archive requests	Toll Administration	TxDOT Texas Turnpike Authority Division	☑	☑
☑	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	archive requests	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	archive requests	Transit Management	CapMetro Dispatch System	☑	☑
☐	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	archive requests	Weather Service	Weather Network Subscription	☑	☑
☐	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	archive status	Construction and Maintenance	Travis County Construction and Maintenance Management System	☑	☑
☐	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	archive status	Construction and Maintenance	Williamson County Highway Maintenance Management System	☑	☑
☐	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	archive status	Construction and Maintenance	TxDOT Highway Maintenance Management System	☑	☑
☐	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	archive status	Construction and Maintenance	City of Austin Maintenance System	☑	☑
☐	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	archive status	Construction and Maintenance	City of Round Rock Maintenance System	☑	☑
☑	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	archive status	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☐	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	archive status	Information Service Provider	Travel and Traffic Information Provider	☑	☑
☐	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	archive status	Toll Administration	TxDOT Texas Turnpike Authority Division	☑	☑
☐	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	archive status	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	archive status	Transit Management	CapMetro Dispatch System	☑	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☐	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	archive status	Weather Service	Weather Network Subscription	☑	☑
☐	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	archive status	Construction and Maintenance	City of Austin Maintenance System	☑	☑
☐	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	archive status	Construction and Maintenance	Williamson County Highway Maintenance Management System	☑	☑
☐	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	archive status	Construction and Maintenance	TxDOT Highway Maintenance Management System	☑	☑
☐	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	archive status	Construction and Maintenance	Travis County Construction and Maintenance Management System	☑	☑
☐	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	archive status	Construction and Maintenance	City of Round Rock Maintenance System	☑	☑
☑	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	archive status	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☐	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	archive status	Information Service Provider	Travel and Traffic Information Provider	☑	☑
☐	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	archive status	Toll Administration	TxDOT Texas Turnpike Authority Division	☑	☑
☐	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	archive status	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	archive status	Transit Management	CapMetro Dispatch System	☑	☑
☐	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	archive status	Weather Service	Weather Network Subscription	☑	☑
☑	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	archive status	Construction and Maintenance	TxDOT Highway Maintenance Management System	☑	☑
☑	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	archive status	Construction and Maintenance	Williamson County Highway Maintenance Management System	☑	☑
☑	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	archive status	Construction and Maintenance	City of Austin Maintenance System	☑	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☑	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	archive status	Construction and Maintenance	City of Round Rock Maintenance System	☑	☑
☑	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	archive status	Construction and Maintenance	Travis County Construction and Maintenance Management System	☑	☑
☐	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	archive status	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☐	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	archive status	Information Service Provider	Travel and Traffic Information Provider	☑	☑
☐	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	archive status	Toll Administration	TxDOT Texas Turnpike Authority Division	☑	☑
☑	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	archive status	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	archive status	Transit Management	CapMetro Dispatch System	☑	☑
☐	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	archive status	Weather Service	Weather Network Subscription	☑	☑
☐	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	archived data products	Archived Data User Systems	Emergency Management Scenario Training	☑	☑
☐	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	archived data products	Archived Data User Systems	TxDOT Researchers	☑	☑
☐	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	archived data products	Archived Data User Systems	Academic / Research Organizations	☑	☑
☑	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	archived data products	Archived Data User Systems	Academic / Research Organizations	☑	☑
☑	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	archived data products	Archived Data User Systems	TxDOT Researchers	☑	☑
☑	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	archived data products	Archived Data User Systems	Emergency Management Scenario Training	☑	☑
☑	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	archived data products	Archived Data User Systems	Academic / Research Organizations	☑	☑
☑	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	archived data products	Archived Data User Systems	TxDOT Researchers	☑	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☑	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	archived data products	Archived Data User Systems	Emergency Management Scenario Training	☑	☑
☐	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	government reporting system data	Government Reporting Systems	Highway Performance Monitoring System	☑	☑
☑	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	government reporting system data	Government Reporting Systems	Fatal Analysis Reporting System	☑	☑
☐	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	government reporting system data	Government Reporting Systems	Highway Performance Monitoring System	☑	☑
☐	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	government reporting system data	Government Reporting Systems	Fatal Analysis Reporting System	☑	☑
☐	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	government reporting system data	Government Reporting Systems	Fatal Analysis Reporting System	☑	☑
☑	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	government reporting system data	Government Reporting Systems	Highway Performance Monitoring System	☑	☑
☐	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	map update request	Map Update Provider	City of Austin GIS Agency	☑	☑
☐	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	map update request	Map Update Provider	City of Austin GIS Agency	☑	☑
☐	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	map update request	Map Update Provider	City of Austin GIS Agency	☑	☑
☐	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	payment request	Financial Institution	Commercial Bank	☑	☑
☐	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	payment request	Financial Institution	Commercial Bank	☑	☑
☐	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	payment request	Financial Institution	Commercial Bank	☑	☑
☐	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	sensor and surveillance control	Roadway Subsystem	Grade Crossing Warning System	☑	☑
☐	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	sensor and surveillance control	Roadway Subsystem	RWIS Network	☑	☑
☐	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	sensor and surveillance control	Roadway Subsystem	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	☑	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☐	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	sensor and surveillance control	Roadway Subsystem	Austin Sensors, Cameras, and HAR	☑	☑
☐	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	sensor and surveillance control	Roadway Subsystem	Austin Signals	☑	☑
☐	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	sensor and surveillance control	Roadway Subsystem	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	☑	☑
☐	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	sensor and surveillance control	Roadway Subsystem	TxDOT Austin Signals	☑	☑
☐	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	sensor and surveillance control	Roadway Subsystem	Austin Flood Early Warning System	☑	☑
☐	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	sensor and surveillance control	Roadway Subsystem	Austin Sensors, Cameras, and HAR	☑	☑
☐	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	sensor and surveillance control	Roadway Subsystem	RWIS Network	☑	☑
☐	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	sensor and surveillance control	Roadway Subsystem	TxDOT Austin Signals	☑	☑
☐	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	sensor and surveillance control	Roadway Subsystem	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	☑	☑
☐	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	sensor and surveillance control	Roadway Subsystem	Austin Flood Early Warning System	☑	☑
☐	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	sensor and surveillance control	Roadway Subsystem	Austin Signals	☑	☑
☐	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	sensor and surveillance control	Roadway Subsystem	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	☑	☑
☐	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	sensor and surveillance control	Roadway Subsystem	Grade Crossing Warning System	☑	☑
☐	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	sensor and surveillance control	Roadway Subsystem	TxDOT Austin Signals	☑	☑
☐	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	sensor and surveillance control	Roadway Subsystem	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	☑	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☐	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	sensor and surveillance control	Roadway Subsystem	RWIS Network	☑	☑
☐	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	sensor and surveillance control	Roadway Subsystem	Grade Crossing Warning System	☑	☑
☐	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	sensor and surveillance control	Roadway Subsystem	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	☑	☑
☐	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	sensor and surveillance control	Roadway Subsystem	Austin Flood Early Warning System	☑	☑
☐	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	sensor and surveillance control	Roadway Subsystem	Austin Sensors, Cameras, and HAR	☑	☑
☐	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	sensor and surveillance control	Roadway Subsystem	Austin Signals	☑	☑
☑	Archived Data User Systems	Academic / Research Organizations	archive analysis requests	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	☑	☑
☑	Archived Data User Systems	Academic / Research Organizations	archive analysis requests	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	☑	☑
☐	Archived Data User Systems	Academic / Research Organizations	archive analysis requests	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	☑	☑
☐	Archived Data User Systems	Emergency Management Scenario Training	archive analysis requests	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	☑	☑
☑	Archived Data User Systems	Emergency Management Scenario Training	archive analysis requests	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	☑	☑
☑	Archived Data User Systems	Emergency Management Scenario Training	archive analysis requests	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	☑	☑
☑	Archived Data User Systems	TxDOT Researchers	archive analysis requests	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	☑	☑
☑	Archived Data User Systems	TxDOT Researchers	archive analysis requests	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	☑	☑
☐	Archived Data User Systems	TxDOT Researchers	archive analysis requests	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	☑	☑
☐	Archived Data User Systems	Academic / Research Organizations	archived data product requests	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	☑	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☑	Archived Data User Systems	Academic / Research Organizations	archived data product requests	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	☑	☑
☑	Archived Data User Systems	Academic / Research Organizations	archived data product requests	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	☑	☑
☐	Archived Data User Systems	Emergency Management Scenario Training	archived data product requests	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	☑	☑
☑	Archived Data User Systems	Emergency Management Scenario Training	archived data product requests	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	☑	☑
☑	Archived Data User Systems	Emergency Management Scenario Training	archived data product requests	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	☑	☑
☐	Archived Data User Systems	TxDOT Researchers	archived data product requests	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	☑	☑
☑	Archived Data User Systems	TxDOT Researchers	archived data product requests	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	☑	☑
☑	Archived Data User Systems	TxDOT Researchers	archived data product requests	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	☑	☑
☐	Basic Vehicle	Individual Vehicle Car Radio / CB-Radio	basic vehicle measures	Vehicle	System That Provides Accurate Position Information	☑	☑
☐	Basic Vehicle	Individual Vehicle Car Radio / CB-Radio	basic vehicle measures	Vehicle	Toll Tag Interface	☑	☑
☐	Construction and Maintenance	City of Austin Maintenance System	construction and maintenance archive data	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	☑	☑
☐	Construction and Maintenance	City of Austin Maintenance System	construction and maintenance archive data	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	☑	☑
☑	Construction and Maintenance	City of Austin Maintenance System	construction and maintenance archive data	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	☑	☑
☐	Construction and Maintenance	City of Round Rock Maintenance System	construction and maintenance archive data	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	☑	☑
☐	Construction and Maintenance	City of Round Rock Maintenance System	construction and maintenance archive data	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	☑	☑
☑	Construction and Maintenance	City of Round Rock Maintenance System	construction and maintenance archive data	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	☑	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☐	Construction and Maintenance	Travis County Construction and Maintenance Management System	construction and maintenance archive data	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	☑	☑
☑	Construction and Maintenance	Travis County Construction and Maintenance Management System	construction and maintenance archive data	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	☑	☑
☐	Construction and Maintenance	Travis County Construction and Maintenance Management System	construction and maintenance archive data	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	☑	☑
☐	Construction and Maintenance	TxDOT Highway Maintenance Management System	construction and maintenance archive data	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	☑	☑
☑	Construction and Maintenance	TxDOT Highway Maintenance Management System	construction and maintenance archive data	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	☑	☑
☐	Construction and Maintenance	TxDOT Highway Maintenance Management System	construction and maintenance archive data	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	☑	☑
☐	Construction and Maintenance	Williamson County Highway Maintenance Management System	construction and maintenance archive data	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	☑	☑
☑	Construction and Maintenance	Williamson County Highway Maintenance Management System	construction and maintenance archive data	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	☑	☑
☐	Construction and Maintenance	Williamson County Highway Maintenance Management System	construction and maintenance archive data	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	☑	☑
☑	Construction and Maintenance	City of Austin Maintenance System	equipment maintenance status	Traffic Management	TxDOT Austin TMC	☑	☑
☑	Construction and Maintenance	City of Round Rock Maintenance System	equipment maintenance status	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Construction and Maintenance	Travis County Construction and Maintenance Management System	equipment maintenance status	Traffic Management	TxDOT Austin TMC	☑	☑
☑	Construction and Maintenance	TxDOT Highway Maintenance Management System	equipment maintenance status	Traffic Management	TxDOT Austin TMC	☑	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☐	Construction and Maintenance	Williamson County Highway Maintenance Management System	equipment maintenance status	Traffic Management	TxDOT Austin TMC	☑	☑
☑	Construction and Maintenance	City of Austin Maintenance System	maintenance resource response	Traffic Management	TxDOT Austin TMC	☑	☑
☑	Construction and Maintenance	City of Round Rock Maintenance System	maintenance resource response	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Construction and Maintenance	Travis County Construction and Maintenance Management System	maintenance resource response	Traffic Management	TxDOT Austin TMC	☑	☑
☑	Construction and Maintenance	TxDOT Highway Maintenance Management System	maintenance resource response	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Construction and Maintenance	Williamson County Highway Maintenance Management System	maintenance resource response	Traffic Management	TxDOT Austin TMC	☑	☑
☑	Construction and Maintenance	City of Austin Maintenance System	work zone status	Traffic Management	TxDOT Austin TMC	☑	☑
☑	Construction and Maintenance	City of Round Rock Maintenance System	work zone status	Traffic Management	TxDOT Austin TMC	☑	☑
☑	Construction and Maintenance	Travis County Construction and Maintenance Management System	work zone status	Traffic Management	TxDOT Austin TMC	☑	☑
☑	Construction and Maintenance	TxDOT Highway Maintenance Management System	work zone status	Traffic Management	TxDOT Austin TMC	☑	☑
☑	Construction and Maintenance	Williamson County Highway Maintenance Management System	work zone status	Traffic Management	TxDOT Austin TMC	☑	☑
☑	DMV	Vehicle Title and Registration Division	registration	Toll Administration	TxDOT Texas Turnpike Authority Division	☑	☑
☐	DMV	Vehicle Title and Registration Division	registration	Traffic Management	TxDOT Austin TMC	☐	☑
☐	Driver	Driver Operating A Vehicle	driver inputs	Vehicle	Toll Tag Interface	☐	☑
☐	Driver	Driver Operating A Vehicle	driver inputs	Vehicle	System That Provides Accurate Position Information	☐	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☐	Driver	Driver Operating A Vehicle	request for service	Vehicle	Toll Tag Interface	☑	☑
☐	Driver	Driver Operating A Vehicle	request for service	Vehicle	System That Provides Accurate Position Information	☑	☑
☑	Emergency Management	Austin CECC/TMC Dispatch System	emergency acknowledge	Personal Information Access	Individual Cell- and Land-Line Telephones	☑	☑
☐	Emergency Management	Austin CECC/TMC Dispatch System	emergency acknowledge	Personal Information Access	Individual Fax	☑	☑
☐	Emergency Management	Austin CECC/TMC Dispatch System	emergency acknowledge	Personal Information Access	Internet Browser	☑	☑
☐	Emergency Management	Austin CECC/TMC Dispatch System	emergency acknowledge	Personal Information Access	Individual Pagers	☑	☑
☑	Emergency Management	Austin CECC/TMC Dispatch System	emergency acknowledge	Remote Traveler Support	Transit Secure Area Monitoring System	☑	☑
☑	Emergency Management	Austin CECC/TMC Dispatch System	emergency acknowledge	Remote Traveler Support	Distress Signal Wireline Communications	☑	☑
☐	Emergency Management	Austin CECC/TMC Dispatch System	emergency acknowledge	Remote Traveler Support	Traveler Kiosk Network	☑	☑
☐	Emergency Management	Austin CECC/TMC Dispatch System	emergency acknowledge	Vehicle	System That Provides Accurate Position Information	☑	☑
☐	Emergency Management	Austin CECC/TMC Dispatch System	emergency acknowledge	Vehicle	Toll Tag Interface	☑	☑
☑	Emergency Management	Austin CECC/TMC Dispatch System	emergency archive data	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	☑	☑
☑	Emergency Management	Austin CECC/TMC Dispatch System	emergency archive data	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	☑	☑
☐	Emergency Management	Austin CECC/TMC Dispatch System	emergency archive data	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	☑	☑
☐	Emergency Management	Austin CECC/TMC Dispatch System	emergency data request	Vehicle	System That Provides Accurate Position Information	☑	☑
☐	Emergency Management	Austin CECC/TMC Dispatch System	emergency data request	Vehicle	Toll Tag Interface	☑	☑
☑	Emergency Management	Austin CECC/TMC Dispatch System	emergency dispatch requests	Emergency Vehicle Subsystem	ABIA (Airport) Vehicle Mobile Data Terminal	☑	☑
☑	Emergency Management	Austin CECC/TMC Dispatch System	emergency dispatch requests	Emergency Vehicle Subsystem	ABIA (Airport) Vehicle Radio Communications	☑	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☑	Emergency Management	Austin CECC/TMC Dispatch System	emergency dispatch requests	Emergency Vehicle Subsystem	3M Opticom Signal Preemption System	☑	☑
☑	Emergency Management	Austin CECC/TMC Dispatch System	emergency dispatch requests	Emergency Vehicle Subsystem	Austin Police, Fire, EMS Vehicle Mobile Data Terminal	☑	☑
☑	Emergency Management	Austin CECC/TMC Dispatch System	emergency dispatch requests	Emergency Vehicle Subsystem	Turnpike Authority Courtesy Vehicle Radio Communications	☑	☑
☑	Emergency Management	Austin CECC/TMC Dispatch System	emergency dispatch requests	Emergency Vehicle Subsystem	Turnpike Authority Courtesy Vehicle Mobile Data Terminal	☑	☑
☑	Emergency Management	Austin CECC/TMC Dispatch System	emergency dispatch requests	Emergency Vehicle Subsystem	TxDOT Austin Courtesy Vehicle Radio Communications	☑	☑
☑	Emergency Management	Austin CECC/TMC Dispatch System	emergency dispatch requests	Emergency Vehicle Subsystem	Austin Police, Fire, EMS Vehicle Radio Communications	☑	☑
☐	Emergency Management	Austin CECC/TMC Dispatch System	emergency dispatch requests	Emergency Vehicle Subsystem	Emergency Vehicles Equipped with AVL	☑	☑
☑	Emergency Management	Austin CECC/TMC Dispatch System	emergency dispatch requests	Emergency Vehicle Subsystem	Travis County Emergency Vehicle Mobile Data Terminal	☑	☑
☑	Emergency Management	Austin CECC/TMC Dispatch System	emergency dispatch requests	Emergency Vehicle Subsystem	Travis County Emergency Vehicle Radio Communications	☑	☑
☑	Emergency Management	Austin CECC/TMC Dispatch System	emergency dispatch requests	Emergency Vehicle Subsystem	TxDOT Austin Courtesy Vehicle Mobile Data Terminal	☑	☑
☑	Emergency Management	Austin CECC/TMC Dispatch System	emergency operations status	Emergency System Operator	Austin CECC/TMC Dispatchers	☑	☑
☑	Emergency Management	Austin CECC/TMC Dispatch System	emergency operations status	Emergency System Operator	Emergency Call 911 Operator	☑	☑
☑	Emergency Management	Austin CECC/TMC Dispatch System	emergency traffic control request	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Emergency Management	Austin CECC/TMC Dispatch System	event confirmation	Event Promoters	Special Event Sponsors and Promoters	☑	☑
☑	Emergency Management	Austin CECC/TMC Dispatch System	HAZMAT information request	Fleet and Freight Management	Motor Carrier CVO System	☑	☑
☑	Emergency Management	Austin CECC/TMC Dispatch System	incident command information	Emergency Vehicle Subsystem	Austin Police, Fire, EMS Vehicle Mobile Data Terminal	☑	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☑	Emergency Management	Austin CECC/TMC Dispatch System	incident command information	Emergency Vehicle Subsystem	ABIA (Airport) Vehicle Mobile Data Terminal	☑	☑
☑	Emergency Management	Austin CECC/TMC Dispatch System	incident command information	Emergency Vehicle Subsystem	ABIA (Airport) Vehicle Radio Communications	☑	☑
☑	Emergency Management	Austin CECC/TMC Dispatch System	incident command information	Emergency Vehicle Subsystem	TxDOT Austin Courtesy Vehicle Mobile Data Terminal	☑	☑
☑	Emergency Management	Austin CECC/TMC Dispatch System	incident command information	Emergency Vehicle Subsystem	Turnpike Authority Courtesy Vehicle Radio Communications	☑	☑
☑	Emergency Management	Austin CECC/TMC Dispatch System	incident command information	Emergency Vehicle Subsystem	Travis County Emergency Vehicle Radio Communications	☑	☑
☑	Emergency Management	Austin CECC/TMC Dispatch System	incident command information	Emergency Vehicle Subsystem	Travis County Emergency Vehicle Mobile Data Terminal	☑	☑
☐	Emergency Management	Austin CECC/TMC Dispatch System	incident command information	Emergency Vehicle Subsystem	Emergency Vehicles Equipped with AVL	☑	☑
☑	Emergency Management	Austin CECC/TMC Dispatch System	incident command information	Emergency Vehicle Subsystem	Austin Police, Fire, EMS Vehicle Radio Communications	☑	☑
☐	Emergency Management	Austin CECC/TMC Dispatch System	incident command information	Emergency Vehicle Subsystem	3M Opticom Signal Preemption System	☑	☑
☑	Emergency Management	Austin CECC/TMC Dispatch System	incident command information	Emergency Vehicle Subsystem	TxDOT Austin Courtesy Vehicle Radio Communications	☑	☑
☑	Emergency Management	Austin CECC/TMC Dispatch System	incident command information	Emergency Vehicle Subsystem	Turnpike Authority Courtesy Vehicle Mobile Data Terminal	☑	☑
☐	Emergency Management	Austin CECC/TMC Dispatch System	incident information	Information Service Provider	Travel and Traffic Information Provider	☑	☑
☑	Emergency Management	Austin CECC/TMC Dispatch System	incident information	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Emergency Management	Austin CECC/TMC Dispatch System	incident information for media	Media	Traffic and Travel Information System	☑	☑
☑	Emergency Management	Austin CECC/TMC Dispatch System	incident notification response	Emergency Telecommunications System	Emergency Call 911 PSAP	☑	☑
☑	Emergency Management	Austin CECC/TMC Dispatch System	incident report	Other EM	Round Rock Dispatch System	☑	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☑	Emergency Management	Austin CECC/TMC Dispatch System	incident report	Other EM	Texas Highway Patrol Dispatch Center	☑	☑
☑	Emergency Management	Austin CECC/TMC Dispatch System	incident report	Other EM	Williamson County Dispatch Center	☑	☑
☑	Emergency Management	Austin CECC/TMC Dispatch System	incident response coordination	Other EM	Williamson County Dispatch Center	☑	☑
☑	Emergency Management	Austin CECC/TMC Dispatch System	incident response coordination	Other EM	Texas Highway Patrol Dispatch Center	☑	☑
☑	Emergency Management	Austin CECC/TMC Dispatch System	incident response coordination	Other EM	Round Rock Dispatch System	☑	☑
☑	Emergency Management	Austin CECC/TMC Dispatch System	incident response status	Traffic Management	TxDOT Austin TMC	☑	☑
☑	Emergency Management	Austin CECC/TMC Dispatch System	map update request	Map Update Provider	City of Austin GIS Agency	☑	☑
☑	Emergency Management	Austin CECC/TMC Dispatch System	remote surveillance control	Traffic Management	TxDOT Austin TMC	☑	☑
☑	Emergency Management	Austin CECC/TMC Dispatch System	resource request	Traffic Management	TxDOT Austin TMC	☑	☑
☑	Emergency Management	Austin CECC/TMC Dispatch System	suggested route	Emergency Vehicle Subsystem	TxDOT Austin Courtesy Vehicle Radio Communications	☑	☑
☐	Emergency Management	Austin CECC/TMC Dispatch System	suggested route	Emergency Vehicle Subsystem	Emergency Vehicles Equipped with AVL	☑	☑
☑	Emergency Management	Austin CECC/TMC Dispatch System	suggested route	Emergency Vehicle Subsystem	ABIA (Airport) Vehicle Mobile Data Terminal	☑	☑
☑	Emergency Management	Austin CECC/TMC Dispatch System	suggested route	Emergency Vehicle Subsystem	TxDOT Austin Courtesy Vehicle Mobile Data Terminal	☑	☑
☑	Emergency Management	Austin CECC/TMC Dispatch System	suggested route	Emergency Vehicle Subsystem	Travis County Emergency Vehicle Mobile Data Terminal	☑	☑
☑	Emergency Management	Austin CECC/TMC Dispatch System	suggested route	Emergency Vehicle Subsystem	Austin Police, Fire, EMS Vehicle Mobile Data Terminal	☑	☑
☑	Emergency Management	Austin CECC/TMC Dispatch System	suggested route	Emergency Vehicle Subsystem	Austin Police, Fire, EMS Vehicle Radio Communications	☑	☑
☐	Emergency Management	Austin CECC/TMC Dispatch System	suggested route	Emergency Vehicle Subsystem	3M Opticom Signal Preemption System	☑	☑
☑	Emergency Management	Austin CECC/TMC Dispatch System	suggested route	Emergency Vehicle Subsystem	Turnpike Authority Courtesy Vehicle Mobile Data Terminal	☑	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☑	Emergency Management	Austin CECC/TMC Dispatch System	suggested route	Emergency Vehicle Subsystem	Turnpike Authority Courtesy Vehicle Radio Communications	☑	☑
☑	Emergency Management	Austin CECC/TMC Dispatch System	suggested route	Emergency Vehicle Subsystem	ABIA (Airport) Vehicle Radio Communications	☑	☑
☑	Emergency Management	Austin CECC/TMC Dispatch System	suggested route	Emergency Vehicle Subsystem	Travis County Emergency Vehicle Radio Communications	☑	☑
☑	Emergency Management	Austin CECC/TMC Dispatch System	transit emergency coordination data	Transit Management	CapMetro Dispatch System	☑	☑
☐	Emergency Personnel	ABIA (Airport) Police	emergency personnel inputs	Emergency Vehicle Subsystem	Emergency Vehicles Equipped with AVL	☑	☑
☑	Emergency Personnel	ABIA (Airport) Police	emergency personnel inputs	Emergency Vehicle Subsystem	ABIA (Airport) Vehicle Mobile Data Terminal	☑	☑
☑	Emergency Personnel	ABIA (Airport) Police	emergency personnel inputs	Emergency Vehicle Subsystem	ABIA (Airport) Vehicle Radio Communications	☑	☑
☐	Emergency Personnel	ABIA (Airport) Police	emergency personnel inputs	Emergency Vehicle Subsystem	3M Opticom Signal Preemption System	☑	☑
☐	Emergency Personnel	ABIA (Airport) Police	emergency personnel inputs	Emergency Vehicle Subsystem	Austin Police, Fire, EMS Vehicle Radio Communications	☑	☑
☐	Emergency Personnel	ABIA (Airport) Police	emergency personnel inputs	Emergency Vehicle Subsystem	Travis County Emergency Vehicle Mobile Data Terminal	☑	☑
☐	Emergency Personnel	ABIA (Airport) Police	emergency personnel inputs	Emergency Vehicle Subsystem	Travis County Emergency Vehicle Radio Communications	☑	☑
☐	Emergency Personnel	ABIA (Airport) Police	emergency personnel inputs	Emergency Vehicle Subsystem	Turnpike Authority Courtesy Vehicle Mobile Data Terminal	☑	☑
☐	Emergency Personnel	ABIA (Airport) Police	emergency personnel inputs	Emergency Vehicle Subsystem	Turnpike Authority Courtesy Vehicle Radio Communications	☑	☑
☐	Emergency Personnel	ABIA (Airport) Police	emergency personnel inputs	Emergency Vehicle Subsystem	TxDOT Austin Courtesy Vehicle Mobile Data Terminal	☑	☑
☐	Emergency Personnel	ABIA (Airport) Police	emergency personnel inputs	Emergency Vehicle Subsystem	Austin Police, Fire, EMS Vehicle Mobile Data Terminal	☑	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☐	Emergency Personnel	ABIA (Airport) Police	emergency personnel inputs	Emergency Vehicle Subsystem	TxDOT Austin Courtesy Vehicle Radio Communications	☑	☑
☐	Emergency Personnel	Austin Police, Fire, EMS Responders	emergency personnel inputs	Emergency Vehicle Subsystem	Emergency Vehicles Equipped with AVL	☑	☑
☐	Emergency Personnel	Austin Police, Fire, EMS Responders	emergency personnel inputs	Emergency Vehicle Subsystem	TxDOT Austin Courtesy Vehicle Radio Communications	☑	☑
☑	Emergency Personnel	Austin Police, Fire, EMS Responders	emergency personnel inputs	Emergency Vehicle Subsystem	Austin Police, Fire, EMS Vehicle Radio Communications	☑	☑
☑	Emergency Personnel	Austin Police, Fire, EMS Responders	emergency personnel inputs	Emergency Vehicle Subsystem	Austin Police, Fire, EMS Vehicle Mobile Data Terminal	☑	☑
☐	Emergency Personnel	Austin Police, Fire, EMS Responders	emergency personnel inputs	Emergency Vehicle Subsystem	3M Opticom Signal Preemption System	☑	☑
☐	Emergency Personnel	Austin Police, Fire, EMS Responders	emergency personnel inputs	Emergency Vehicle Subsystem	ABIA (Airport) Vehicle Radio Communications	☑	☑
☐	Emergency Personnel	Austin Police, Fire, EMS Responders	emergency personnel inputs	Emergency Vehicle Subsystem	ABIA (Airport) Vehicle Mobile Data Terminal	☑	☑
☐	Emergency Personnel	Austin Police, Fire, EMS Responders	emergency personnel inputs	Emergency Vehicle Subsystem	Travis County Emergency Vehicle Radio Communications	☑	☑
☐	Emergency Personnel	Austin Police, Fire, EMS Responders	emergency personnel inputs	Emergency Vehicle Subsystem	Turnpike Authority Courtesy Vehicle Mobile Data Terminal	☑	☑
☐	Emergency Personnel	Austin Police, Fire, EMS Responders	emergency personnel inputs	Emergency Vehicle Subsystem	TxDOT Austin Courtesy Vehicle Mobile Data Terminal	☑	☑
☐	Emergency Personnel	Austin Police, Fire, EMS Responders	emergency personnel inputs	Emergency Vehicle Subsystem	Turnpike Authority Courtesy Vehicle Radio Communications	☑	☑
☐	Emergency Personnel	Austin Police, Fire, EMS Responders	emergency personnel inputs	Emergency Vehicle Subsystem	Travis County Emergency Vehicle Mobile Data Terminal	☑	☑
☐	Emergency Personnel	Travis County Emergency Personnel	emergency personnel inputs	Emergency Vehicle Subsystem	ABIA (Airport) Vehicle Radio Communications	☑	☑
☐	Emergency Personnel	Travis County Emergency Personnel	emergency personnel inputs	Emergency Vehicle Subsystem	Emergency Vehicles Equipped with AVL	☑	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☐	Emergency Personnel	Travis County Emergency Personnel	emergency personnel inputs	Emergency Vehicle Subsystem	ABIA (Airport) Vehicle Mobile Data Terminal	☑	☑
☐	Emergency Personnel	Travis County Emergency Personnel	emergency personnel inputs	Emergency Vehicle Subsystem	Austin Police, Fire, EMS Vehicle Mobile Data Terminal	☑	☑
☐	Emergency Personnel	Travis County Emergency Personnel	emergency personnel inputs	Emergency Vehicle Subsystem	Austin Police, Fire, EMS Vehicle Radio Communications	☑	☑
☑	Emergency Personnel	Travis County Emergency Personnel	emergency personnel inputs	Emergency Vehicle Subsystem	Travis County Emergency Vehicle Mobile Data Terminal	☑	☑
☑	Emergency Personnel	Travis County Emergency Personnel	emergency personnel inputs	Emergency Vehicle Subsystem	Travis County Emergency Vehicle Radio Communications	☑	☑
☐	Emergency Personnel	Travis County Emergency Personnel	emergency personnel inputs	Emergency Vehicle Subsystem	Turnpike Authority Courtesy Vehicle Mobile Data Terminal	☑	☑
☐	Emergency Personnel	Travis County Emergency Personnel	emergency personnel inputs	Emergency Vehicle Subsystem	Turnpike Authority Courtesy Vehicle Radio Communications	☑	☑
☐	Emergency Personnel	Travis County Emergency Personnel	emergency personnel inputs	Emergency Vehicle Subsystem	TxDOT Austin Courtesy Vehicle Mobile Data Terminal	☑	☑
☐	Emergency Personnel	Travis County Emergency Personnel	emergency personnel inputs	Emergency Vehicle Subsystem	TxDOT Austin Courtesy Vehicle Radio Communications	☑	☑
☐	Emergency Personnel	Travis County Emergency Personnel	emergency personnel inputs	Emergency Vehicle Subsystem	3M Opticom Signal Preemption System	☑	☑
☐	Emergency Personnel	Turnpike Courtesy Patrol	emergency personnel inputs	Emergency Vehicle Subsystem	TxDOT Austin Courtesy Vehicle Radio Communications	☑	☑
☐	Emergency Personnel	Turnpike Courtesy Patrol	emergency personnel inputs	Emergency Vehicle Subsystem	ABIA (Airport) Vehicle Mobile Data Terminal	☑	☑
☐	Emergency Personnel	Turnpike Courtesy Patrol	emergency personnel inputs	Emergency Vehicle Subsystem	ABIA (Airport) Vehicle Radio Communications	☑	☑
☐	Emergency Personnel	Turnpike Courtesy Patrol	emergency personnel inputs	Emergency Vehicle Subsystem	3M Opticom Signal Preemption System	☑	☑
☐	Emergency Personnel	Turnpike Courtesy Patrol	emergency personnel inputs	Emergency Vehicle Subsystem	Austin Police, Fire, EMS Vehicle Mobile Data Terminal	☑	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☐	Emergency Personnel	Turnpike Courtesy Patrol	emergency personnel inputs	Emergency Vehicle Subsystem	Austin Police, Fire, EMS Vehicle Radio Communications	☑	☑
☐	Emergency Personnel	Turnpike Courtesy Patrol	emergency personnel inputs	Emergency Vehicle Subsystem	Emergency Vehicles Equipped with AVL	☑	☑
☐	Emergency Personnel	Turnpike Courtesy Patrol	emergency personnel inputs	Emergency Vehicle Subsystem	Travis County Emergency Vehicle Mobile Data Terminal	☑	☑
☐	Emergency Personnel	Turnpike Courtesy Patrol	emergency personnel inputs	Emergency Vehicle Subsystem	Travis County Emergency Vehicle Radio Communications	☑	☑
☑	Emergency Personnel	Turnpike Courtesy Patrol	emergency personnel inputs	Emergency Vehicle Subsystem	Turnpike Authority Courtesy Vehicle Mobile Data Terminal	☑	☑
☑	Emergency Personnel	Turnpike Courtesy Patrol	emergency personnel inputs	Emergency Vehicle Subsystem	Turnpike Authority Courtesy Vehicle Radio Communications	☑	☑
☐	Emergency Personnel	Turnpike Courtesy Patrol	emergency personnel inputs	Emergency Vehicle Subsystem	TxDOT Austin Courtesy Vehicle Mobile Data Terminal	☑	☑
☑	Emergency Personnel	TxDOT Austin Courtesy Patrol	emergency personnel inputs	Emergency Vehicle Subsystem	TxDOT Austin Courtesy Vehicle Mobile Data Terminal	☑	☑
☐	Emergency Personnel	TxDOT Austin Courtesy Patrol	emergency personnel inputs	Emergency Vehicle Subsystem	Travis County Emergency Vehicle Mobile Data Terminal	☑	☑
☐	Emergency Personnel	TxDOT Austin Courtesy Patrol	emergency personnel inputs	Emergency Vehicle Subsystem	3M Opticom Signal Preemption System	☑	☑
☐	Emergency Personnel	TxDOT Austin Courtesy Patrol	emergency personnel inputs	Emergency Vehicle Subsystem	Austin Police, Fire, EMS Vehicle Mobile Data Terminal	☑	☑
☐	Emergency Personnel	TxDOT Austin Courtesy Patrol	emergency personnel inputs	Emergency Vehicle Subsystem	ABIA (Airport) Vehicle Mobile Data Terminal	☑	☑
☐	Emergency Personnel	TxDOT Austin Courtesy Patrol	emergency personnel inputs	Emergency Vehicle Subsystem	Emergency Vehicles Equipped with AVL	☑	☑
☐	Emergency Personnel	TxDOT Austin Courtesy Patrol	emergency personnel inputs	Emergency Vehicle Subsystem	Travis County Emergency Vehicle Radio Communications	☑	☑
☐	Emergency Personnel	TxDOT Austin Courtesy Patrol	emergency personnel inputs	Emergency Vehicle Subsystem	Turnpike Authority Courtesy Vehicle Mobile Data Terminal	☑	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☐	Emergency Personnel	TxDOT Austin Courtesy Patrol	emergency personnel inputs	Emergency Vehicle Subsystem	Turnpike Authority Courtesy Vehicle Radio Communications	☑	☑
☑	Emergency Personnel	TxDOT Austin Courtesy Patrol	emergency personnel inputs	Emergency Vehicle Subsystem	TxDOT Austin Courtesy Vehicle Radio Communications	☑	☑
☐	Emergency Personnel	TxDOT Austin Courtesy Patrol	emergency personnel inputs	Emergency Vehicle Subsystem	ABIA (Airport) Vehicle Radio Communications	☑	☑
☐	Emergency Personnel	TxDOT Austin Courtesy Patrol	emergency personnel inputs	Emergency Vehicle Subsystem	Austin Police, Fire, EMS Vehicle Radio Communications	☑	☑
☑	Emergency System Operator	Austin CECC/TMC Dispatchers	emergency operations request	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☑	Emergency System Operator	Emergency Call 911 Operator	emergency operations request	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☑	Emergency Telecommunications System	Emergency Call 911 PSAP	incident notification	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☐	Emergency Vehicle Subsystem	3M Opticom Signal Preemption System	dispatch information	Emergency Personnel	TxDOT Austin Courtesy Patrol	☑	☑
☐	Emergency Vehicle Subsystem	3M Opticom Signal Preemption System	dispatch information	Emergency Personnel	Travis County Emergency Personnel	☑	☑
☐	Emergency Vehicle Subsystem	3M Opticom Signal Preemption System	dispatch information	Emergency Personnel	Turnpike Courtesy Patrol	☑	☑
☐	Emergency Vehicle Subsystem	3M Opticom Signal Preemption System	dispatch information	Emergency Personnel	Austin Police, Fire, EMS Responders	☑	☑
☐	Emergency Vehicle Subsystem	3M Opticom Signal Preemption System	dispatch information	Emergency Personnel	ABIA (Airport) Police	☑	☑
☐	Emergency Vehicle Subsystem	ABIA (Airport) Vehicle Mobile Data Terminal	dispatch information	Emergency Personnel	Austin Police, Fire, EMS Responders	☑	☑
☐	Emergency Vehicle Subsystem	ABIA (Airport) Vehicle Mobile Data Terminal	dispatch information	Emergency Personnel	Turnpike Courtesy Patrol	☑	☑
☐	Emergency Vehicle Subsystem	ABIA (Airport) Vehicle Mobile Data Terminal	dispatch information	Emergency Personnel	Travis County Emergency Personnel	☑	☑
☐	Emergency Vehicle Subsystem	ABIA (Airport) Vehicle Mobile Data Terminal	dispatch information	Emergency Personnel	TxDOT Austin Courtesy Patrol	☑	☑
☑	Emergency Vehicle Subsystem	ABIA (Airport) Vehicle Mobile Data Terminal	dispatch information	Emergency Personnel	ABIA (Airport) Police	☑	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☐	Emergency Vehicle Subsystem	ABIA (Airport) Vehicle Radio Communications	dispatch information	Emergency Personnel	TxDOT Austin Courtesy Patrol	☑	☑
☑	Emergency Vehicle Subsystem	ABIA (Airport) Vehicle Radio Communications	dispatch information	Emergency Personnel	ABIA (Airport) Police	☑	☑
☐	Emergency Vehicle Subsystem	ABIA (Airport) Vehicle Radio Communications	dispatch information	Emergency Personnel	Austin Police, Fire, EMS Responders	☑	☑
☐	Emergency Vehicle Subsystem	ABIA (Airport) Vehicle Radio Communications	dispatch information	Emergency Personnel	Turnpike Courtesy Patrol	☑	☑
☐	Emergency Vehicle Subsystem	ABIA (Airport) Vehicle Radio Communications	dispatch information	Emergency Personnel	Travis County Emergency Personnel	☑	☑
☐	Emergency Vehicle Subsystem	Austin Police, Fire, EMS Vehicle Mobile Data Terminal	dispatch information	Emergency Personnel	TxDOT Austin Courtesy Patrol	☑	☑
☐	Emergency Vehicle Subsystem	Austin Police, Fire, EMS Vehicle Mobile Data Terminal	dispatch information	Emergency Personnel	Travis County Emergency Personnel	☑	☑
☐	Emergency Vehicle Subsystem	Austin Police, Fire, EMS Vehicle Mobile Data Terminal	dispatch information	Emergency Personnel	Turnpike Courtesy Patrol	☑	☑
☑	Emergency Vehicle Subsystem	Austin Police, Fire, EMS Vehicle Mobile Data Terminal	dispatch information	Emergency Personnel	Austin Police, Fire, EMS Responders	☑	☑
☐	Emergency Vehicle Subsystem	Austin Police, Fire, EMS Vehicle Mobile Data Terminal	dispatch information	Emergency Personnel	ABIA (Airport) Police	☑	☑
☐	Emergency Vehicle Subsystem	Austin Police, Fire, EMS Vehicle Radio Communications	dispatch information	Emergency Personnel	Turnpike Courtesy Patrol	☑	☑
☐	Emergency Vehicle Subsystem	Austin Police, Fire, EMS Vehicle Radio Communications	dispatch information	Emergency Personnel	Travis County Emergency Personnel	☑	☑
☑	Emergency Vehicle Subsystem	Austin Police, Fire, EMS Vehicle Radio Communications	dispatch information	Emergency Personnel	Austin Police, Fire, EMS Responders	☑	☑
☐	Emergency Vehicle Subsystem	Austin Police, Fire, EMS Vehicle Radio Communications	dispatch information	Emergency Personnel	ABIA (Airport) Police	☑	☑
☐	Emergency Vehicle Subsystem	Austin Police, Fire, EMS Vehicle Radio Communications	dispatch information	Emergency Personnel	TxDOT Austin Courtesy Patrol	☑	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☐	Emergency Vehicle Subsystem	Emergency Vehicles Equipped with AVL	dispatch information	Emergency Personnel	Austin Police, Fire, EMS Responders	☑	☑
☐	Emergency Vehicle Subsystem	Emergency Vehicles Equipped with AVL	dispatch information	Emergency Personnel	ABIA (Airport) Police	☑	☑
☐	Emergency Vehicle Subsystem	Emergency Vehicles Equipped with AVL	dispatch information	Emergency Personnel	Travis County Emergency Personnel	☑	☑
☐	Emergency Vehicle Subsystem	Emergency Vehicles Equipped with AVL	dispatch information	Emergency Personnel	TxDOT Austin Courtesy Patrol	☑	☑
☐	Emergency Vehicle Subsystem	Emergency Vehicles Equipped with AVL	dispatch information	Emergency Personnel	Turnpike Courtesy Patrol	☑	☑
☐	Emergency Vehicle Subsystem	Travis County Emergency Vehicle Mobile Data Terminal	dispatch information	Emergency Personnel	Austin Police, Fire, EMS Responders	☑	☑
☐	Emergency Vehicle Subsystem	Travis County Emergency Vehicle Mobile Data Terminal	dispatch information	Emergency Personnel	ABIA (Airport) Police	☑	☑
☑	Emergency Vehicle Subsystem	Travis County Emergency Vehicle Mobile Data Terminal	dispatch information	Emergency Personnel	Travis County Emergency Personnel	☑	☑
☐	Emergency Vehicle Subsystem	Travis County Emergency Vehicle Mobile Data Terminal	dispatch information	Emergency Personnel	TxDOT Austin Courtesy Patrol	☑	☑
☐	Emergency Vehicle Subsystem	Travis County Emergency Vehicle Mobile Data Terminal	dispatch information	Emergency Personnel	Turnpike Courtesy Patrol	☑	☑
☐	Emergency Vehicle Subsystem	Travis County Emergency Vehicle Radio Communications	dispatch information	Emergency Personnel	Turnpike Courtesy Patrol	☑	☑
☐	Emergency Vehicle Subsystem	Travis County Emergency Vehicle Radio Communications	dispatch information	Emergency Personnel	TxDOT Austin Courtesy Patrol	☑	☑
☑	Emergency Vehicle Subsystem	Travis County Emergency Vehicle Radio Communications	dispatch information	Emergency Personnel	Travis County Emergency Personnel	☑	☑
☐	Emergency Vehicle Subsystem	Travis County Emergency Vehicle Radio Communications	dispatch information	Emergency Personnel	Austin Police, Fire, EMS Responders	☑	☑
☐	Emergency Vehicle Subsystem	Travis County Emergency Vehicle Radio Communications	dispatch information	Emergency Personnel	ABIA (Airport) Police	☑	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☐	Emergency Vehicle Subsystem	Turnpike Authority Courtesy Vehicle Mobile Data Terminal	dispatch information	Emergency Personnel	Travis County Emergency Personnel	☑	☑
☐	Emergency Vehicle Subsystem	Turnpike Authority Courtesy Vehicle Mobile Data Terminal	dispatch information	Emergency Personnel	ABIA (Airport) Police	☑	☑
☐	Emergency Vehicle Subsystem	Turnpike Authority Courtesy Vehicle Mobile Data Terminal	dispatch information	Emergency Personnel	TxDOT Austin Courtesy Patrol	☑	☑
☑	Emergency Vehicle Subsystem	Turnpike Authority Courtesy Vehicle Mobile Data Terminal	dispatch information	Emergency Personnel	Turnpike Courtesy Patrol	☑	☑
☐	Emergency Vehicle Subsystem	Turnpike Authority Courtesy Vehicle Mobile Data Terminal	dispatch information	Emergency Personnel	Austin Police, Fire, EMS Responders	☑	☑
☑	Emergency Vehicle Subsystem	Turnpike Authority Courtesy Vehicle Radio Communications	dispatch information	Emergency Personnel	Turnpike Courtesy Patrol	☑	☑
☐	Emergency Vehicle Subsystem	Turnpike Authority Courtesy Vehicle Radio Communications	dispatch information	Emergency Personnel	ABIA (Airport) Police	☑	☑
☐	Emergency Vehicle Subsystem	Turnpike Authority Courtesy Vehicle Radio Communications	dispatch information	Emergency Personnel	TxDOT Austin Courtesy Patrol	☑	☑
☐	Emergency Vehicle Subsystem	Turnpike Authority Courtesy Vehicle Radio Communications	dispatch information	Emergency Personnel	Travis County Emergency Personnel	☑	☑
☐	Emergency Vehicle Subsystem	Turnpike Authority Courtesy Vehicle Radio Communications	dispatch information	Emergency Personnel	Austin Police, Fire, EMS Responders	☑	☑
☐	Emergency Vehicle Subsystem	TxDOT Austin Courtesy Vehicle Mobile Data Terminal	dispatch information	Emergency Personnel	ABIA (Airport) Police	☑	☑
☐	Emergency Vehicle Subsystem	TxDOT Austin Courtesy Vehicle Mobile Data Terminal	dispatch information	Emergency Personnel	Austin Police, Fire, EMS Responders	☑	☑
☐	Emergency Vehicle Subsystem	TxDOT Austin Courtesy Vehicle Mobile Data Terminal	dispatch information	Emergency Personnel	Turnpike Courtesy Patrol	☑	☑
☑	Emergency Vehicle Subsystem	TxDOT Austin Courtesy Vehicle Mobile Data Terminal	dispatch information	Emergency Personnel	TxDOT Austin Courtesy Patrol	☑	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☐	Emergency Vehicle Subsystem	TxDOT Austin Courtesy Vehicle Mobile Data Terminal	dispatch information	Emergency Personnel	Travis County Emergency Personnel	☑	☑
☐	Emergency Vehicle Subsystem	TxDOT Austin Courtesy Vehicle Radio Communications	dispatch information	Emergency Personnel	Turnpike Courtesy Patrol	☑	☑
☐	Emergency Vehicle Subsystem	TxDOT Austin Courtesy Vehicle Radio Communications	dispatch information	Emergency Personnel	ABIA (Airport) Police	☑	☑
☐	Emergency Vehicle Subsystem	TxDOT Austin Courtesy Vehicle Radio Communications	dispatch information	Emergency Personnel	Austin Police, Fire, EMS Responders	☑	☑
☑	Emergency Vehicle Subsystem	TxDOT Austin Courtesy Vehicle Radio Communications	dispatch information	Emergency Personnel	TxDOT Austin Courtesy Patrol	☑	☑
☐	Emergency Vehicle Subsystem	TxDOT Austin Courtesy Vehicle Radio Communications	dispatch information	Emergency Personnel	Travis County Emergency Personnel	☑	☑
☐	Emergency Vehicle Subsystem	3M Opticom Signal Preemption System	emergency dispatch response	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☑	Emergency Vehicle Subsystem	ABIA (Airport) Vehicle Mobile Data Terminal	emergency dispatch response	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☑	Emergency Vehicle Subsystem	ABIA (Airport) Vehicle Radio Communications	emergency dispatch response	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☑	Emergency Vehicle Subsystem	Austin Police, Fire, EMS Vehicle Mobile Data Terminal	emergency dispatch response	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☑	Emergency Vehicle Subsystem	Austin Police, Fire, EMS Vehicle Radio Communications	emergency dispatch response	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☐	Emergency Vehicle Subsystem	Emergency Vehicles Equipped with AVL	emergency dispatch response	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☑	Emergency Vehicle Subsystem	Travis County Emergency Vehicle Mobile Data Terminal	emergency dispatch response	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☑	Emergency Vehicle Subsystem	Travis County Emergency Vehicle Radio Communications	emergency dispatch response	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☑	Emergency Vehicle Subsystem	Turnpike Authority Courtesy Vehicle Mobile Data Terminal	emergency dispatch response	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☑	Emergency Vehicle Subsystem	Turnpike Authority Courtesy Vehicle Radio Communications	emergency dispatch response	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☑	Emergency Vehicle Subsystem	TxDOT Austin Courtesy Vehicle Mobile Data Terminal	emergency dispatch response	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☑	Emergency Vehicle Subsystem	TxDOT Austin Courtesy Vehicle Radio Communications	emergency dispatch response	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☐	Emergency Vehicle Subsystem	3M Opticom Signal Preemption System	emergency vehicle tracking data	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☐	Emergency Vehicle Subsystem	ABIA (Airport) Vehicle Mobile Data Terminal	emergency vehicle tracking data	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☐	Emergency Vehicle Subsystem	ABIA (Airport) Vehicle Radio Communications	emergency vehicle tracking data	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☐	Emergency Vehicle Subsystem	Austin Police, Fire, EMS Vehicle Mobile Data Terminal	emergency vehicle tracking data	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☐	Emergency Vehicle Subsystem	Austin Police, Fire, EMS Vehicle Radio Communications	emergency vehicle tracking data	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☑	Emergency Vehicle Subsystem	Emergency Vehicles Equipped with AVL	emergency vehicle tracking data	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☐	Emergency Vehicle Subsystem	Travis County Emergency Vehicle Mobile Data Terminal	emergency vehicle tracking data	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☐	Emergency Vehicle Subsystem	Travis County Emergency Vehicle Radio Communications	emergency vehicle tracking data	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☐	Emergency Vehicle Subsystem	Turnpike Authority Courtesy Vehicle Mobile Data Terminal	emergency vehicle tracking data	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☐	Emergency Vehicle Subsystem	Turnpike Authority Courtesy Vehicle Radio Communications	emergency vehicle tracking data	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☐	Emergency Vehicle Subsystem	TxDOT Austin Courtesy Vehicle Mobile Data Terminal	emergency vehicle tracking data	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☐	Emergency Vehicle Subsystem	TxDOT Austin Courtesy Vehicle Radio Communications	emergency vehicle tracking data	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☐	Emergency Vehicle Subsystem	3M Opticom Signal Preemption System	incident command information presentation	Emergency Personnel	Austin Police, Fire, EMS Responders	☑	☑
☐	Emergency Vehicle Subsystem	3M Opticom Signal Preemption System	incident command information presentation	Emergency Personnel	ABIA (Airport) Police	☑	☑
☐	Emergency Vehicle Subsystem	3M Opticom Signal Preemption System	incident command information presentation	Emergency Personnel	TxDOT Austin Courtesy Patrol	☑	☑
☐	Emergency Vehicle Subsystem	3M Opticom Signal Preemption System	incident command information presentation	Emergency Personnel	Travis County Emergency Personnel	☑	☑
☐	Emergency Vehicle Subsystem	3M Opticom Signal Preemption System	incident command information presentation	Emergency Personnel	Turnpike Courtesy Patrol	☑	☑
☐	Emergency Vehicle Subsystem	ABIA (Airport) Vehicle Mobile Data Terminal	incident command information presentation	Emergency Personnel	Travis County Emergency Personnel	☑	☑
☑	Emergency Vehicle Subsystem	ABIA (Airport) Vehicle Mobile Data Terminal	incident command information presentation	Emergency Personnel	ABIA (Airport) Police	☑	☑
☐	Emergency Vehicle Subsystem	ABIA (Airport) Vehicle Mobile Data Terminal	incident command information presentation	Emergency Personnel	TxDOT Austin Courtesy Patrol	☑	☑
☐	Emergency Vehicle Subsystem	ABIA (Airport) Vehicle Mobile Data Terminal	incident command information presentation	Emergency Personnel	Austin Police, Fire, EMS Responders	☑	☑
☐	Emergency Vehicle Subsystem	ABIA (Airport) Vehicle Mobile Data Terminal	incident command information presentation	Emergency Personnel	Turnpike Courtesy Patrol	☑	☑
☐	Emergency Vehicle Subsystem	ABIA (Airport) Vehicle Radio Communications	incident command information presentation	Emergency Personnel	Austin Police, Fire, EMS Responders	☑	☑
☑	Emergency Vehicle Subsystem	ABIA (Airport) Vehicle Radio Communications	incident command information presentation	Emergency Personnel	ABIA (Airport) Police	☑	☑
☐	Emergency Vehicle Subsystem	ABIA (Airport) Vehicle Radio Communications	incident command information presentation	Emergency Personnel	Travis County Emergency Personnel	☑	☑
☐	Emergency Vehicle Subsystem	ABIA (Airport) Vehicle Radio Communications	incident command information presentation	Emergency Personnel	TxDOT Austin Courtesy Patrol	☑	☑
☐	Emergency Vehicle Subsystem	ABIA (Airport) Vehicle Radio Communications	incident command information presentation	Emergency Personnel	Turnpike Courtesy Patrol	☑	☑
☐	Emergency Vehicle Subsystem	Austin Police, Fire, EMS Vehicle Mobile Data Terminal	incident command information presentation	Emergency Personnel	Travis County Emergency Personnel	☑	☑
☐	Emergency Vehicle Subsystem	Austin Police, Fire, EMS Vehicle Mobile Data Terminal	incident command information presentation	Emergency Personnel	ABIA (Airport) Police	☑	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☑	Emergency Vehicle Subsystem	Austin Police, Fire, EMS Vehicle Mobile Data Terminal	incident command information presentation	Emergency Personnel	Austin Police, Fire, EMS Responders	☑	☑
☐	Emergency Vehicle Subsystem	Austin Police, Fire, EMS Vehicle Mobile Data Terminal	incident command information presentation	Emergency Personnel	Turnpike Courtesy Patrol	☑	☑
☐	Emergency Vehicle Subsystem	Austin Police, Fire, EMS Vehicle Mobile Data Terminal	incident command information presentation	Emergency Personnel	TxDOT Austin Courtesy Patrol	☑	☑
☐	Emergency Vehicle Subsystem	Austin Police, Fire, EMS Vehicle Radio Communications	incident command information presentation	Emergency Personnel	TxDOT Austin Courtesy Patrol	☑	☑
☐	Emergency Vehicle Subsystem	Austin Police, Fire, EMS Vehicle Radio Communications	incident command information presentation	Emergency Personnel	Turnpike Courtesy Patrol	☑	☑
☑	Emergency Vehicle Subsystem	Austin Police, Fire, EMS Vehicle Radio Communications	incident command information presentation	Emergency Personnel	Austin Police, Fire, EMS Responders	☑	☑
☐	Emergency Vehicle Subsystem	Austin Police, Fire, EMS Vehicle Radio Communications	incident command information presentation	Emergency Personnel	ABIA (Airport) Police	☑	☑
☐	Emergency Vehicle Subsystem	Austin Police, Fire, EMS Vehicle Radio Communications	incident command information presentation	Emergency Personnel	Travis County Emergency Personnel	☑	☑
☐	Emergency Vehicle Subsystem	Emergency Vehicles Equipped with AVL	incident command information presentation	Emergency Personnel	Austin Police, Fire, EMS Responders	☑	☑
☐	Emergency Vehicle Subsystem	Emergency Vehicles Equipped with AVL	incident command information presentation	Emergency Personnel	TxDOT Austin Courtesy Patrol	☑	☑
☐	Emergency Vehicle Subsystem	Emergency Vehicles Equipped with AVL	incident command information presentation	Emergency Personnel	Turnpike Courtesy Patrol	☑	☑
☐	Emergency Vehicle Subsystem	Emergency Vehicles Equipped with AVL	incident command information presentation	Emergency Personnel	ABIA (Airport) Police	☑	☑
☐	Emergency Vehicle Subsystem	Emergency Vehicles Equipped with AVL	incident command information presentation	Emergency Personnel	Travis County Emergency Personnel	☑	☑
☑	Emergency Vehicle Subsystem	Travis County Emergency Vehicle Mobile Data Terminal	incident command information presentation	Emergency Personnel	Travis County Emergency Personnel	☑	☑
☐	Emergency Vehicle Subsystem	Travis County Emergency Vehicle Mobile Data Terminal	incident command information presentation	Emergency Personnel	TxDOT Austin Courtesy Patrol	☑	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☐	Emergency Vehicle Subsystem	Travis County Emergency Vehicle Mobile Data Terminal	incident command information presentation	Emergency Personnel	Austin Police, Fire, EMS Responders	☑	☑
☐	Emergency Vehicle Subsystem	Travis County Emergency Vehicle Mobile Data Terminal	incident command information presentation	Emergency Personnel	Turnpike Courtesy Patrol	☑	☑
☐	Emergency Vehicle Subsystem	Travis County Emergency Vehicle Mobile Data Terminal	incident command information presentation	Emergency Personnel	ABIA (Airport) Police	☑	☑
☐	Emergency Vehicle Subsystem	Travis County Emergency Vehicle Radio Communications	incident command information presentation	Emergency Personnel	Turnpike Courtesy Patrol	☑	☑
☐	Emergency Vehicle Subsystem	Travis County Emergency Vehicle Radio Communications	incident command information presentation	Emergency Personnel	Austin Police, Fire, EMS Responders	☑	☑
☐	Emergency Vehicle Subsystem	Travis County Emergency Vehicle Radio Communications	incident command information presentation	Emergency Personnel	ABIA (Airport) Police	☑	☑
☑	Emergency Vehicle Subsystem	Travis County Emergency Vehicle Radio Communications	incident command information presentation	Emergency Personnel	Travis County Emergency Personnel	☑	☑
☐	Emergency Vehicle Subsystem	Travis County Emergency Vehicle Radio Communications	incident command information presentation	Emergency Personnel	TxDOT Austin Courtesy Patrol	☑	☑
☐	Emergency Vehicle Subsystem	Turnpike Authority Courtesy Vehicle Mobile Data Terminal	incident command information presentation	Emergency Personnel	Austin Police, Fire, EMS Responders	☑	☑
☑	Emergency Vehicle Subsystem	Turnpike Authority Courtesy Vehicle Mobile Data Terminal	incident command information presentation	Emergency Personnel	Turnpike Courtesy Patrol	☑	☑
☐	Emergency Vehicle Subsystem	Turnpike Authority Courtesy Vehicle Mobile Data Terminal	incident command information presentation	Emergency Personnel	Travis County Emergency Personnel	☑	☑
☐	Emergency Vehicle Subsystem	Turnpike Authority Courtesy Vehicle Mobile Data Terminal	incident command information presentation	Emergency Personnel	TxDOT Austin Courtesy Patrol	☑	☑
☐	Emergency Vehicle Subsystem	Turnpike Authority Courtesy Vehicle Mobile Data Terminal	incident command information presentation	Emergency Personnel	ABIA (Airport) Police	☑	☑
☑	Emergency Vehicle Subsystem	Turnpike Authority Courtesy Vehicle Radio Communications	incident command information presentation	Emergency Personnel	Turnpike Courtesy Patrol	☑	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☐	Emergency Vehicle Subsystem	Turnpike Authority Courtesy Vehicle Radio Communications	incident command information presentation	Emergency Personnel	TxDOT Austin Courtesy Patrol	☑	☑
☐	Emergency Vehicle Subsystem	Turnpike Authority Courtesy Vehicle Radio Communications	incident command information presentation	Emergency Personnel	Travis County Emergency Personnel	☑	☑
☐	Emergency Vehicle Subsystem	Turnpike Authority Courtesy Vehicle Radio Communications	incident command information presentation	Emergency Personnel	ABIA (Airport) Police	☑	☑
☐	Emergency Vehicle Subsystem	Turnpike Authority Courtesy Vehicle Radio Communications	incident command information presentation	Emergency Personnel	Austin Police, Fire, EMS Responders	☑	☑
☐	Emergency Vehicle Subsystem	TxDOT Austin Courtesy Vehicle Mobile Data Terminal	incident command information presentation	Emergency Personnel	Travis County Emergency Personnel	☑	☑
☑	Emergency Vehicle Subsystem	TxDOT Austin Courtesy Vehicle Mobile Data Terminal	incident command information presentation	Emergency Personnel	TxDOT Austin Courtesy Patrol	☑	☑
☐	Emergency Vehicle Subsystem	TxDOT Austin Courtesy Vehicle Mobile Data Terminal	incident command information presentation	Emergency Personnel	Austin Police, Fire, EMS Responders	☑	☑
☐	Emergency Vehicle Subsystem	TxDOT Austin Courtesy Vehicle Mobile Data Terminal	incident command information presentation	Emergency Personnel	ABIA (Airport) Police	☑	☑
☐	Emergency Vehicle Subsystem	TxDOT Austin Courtesy Vehicle Mobile Data Terminal	incident command information presentation	Emergency Personnel	Turnpike Courtesy Patrol	☑	☑
☐	Emergency Vehicle Subsystem	TxDOT Austin Courtesy Vehicle Radio Communications	incident command information presentation	Emergency Personnel	Turnpike Courtesy Patrol	☑	☑
☐	Emergency Vehicle Subsystem	TxDOT Austin Courtesy Vehicle Radio Communications	incident command information presentation	Emergency Personnel	Travis County Emergency Personnel	☑	☑
☑	Emergency Vehicle Subsystem	TxDOT Austin Courtesy Vehicle Radio Communications	incident command information presentation	Emergency Personnel	TxDOT Austin Courtesy Patrol	☑	☑
☐	Emergency Vehicle Subsystem	TxDOT Austin Courtesy Vehicle Radio Communications	incident command information presentation	Emergency Personnel	ABIA (Airport) Police	☑	☑
☐	Emergency Vehicle Subsystem	TxDOT Austin Courtesy Vehicle Radio Communications	incident command information presentation	Emergency Personnel	Austin Police, Fire, EMS Responders	☑	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☐	Emergency Vehicle Subsystem	3M Opticom Signal Preemption System	incident command request	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☑	Emergency Vehicle Subsystem	ABIA (Airport) Vehicle Mobile Data Terminal	incident command request	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☑	Emergency Vehicle Subsystem	ABIA (Airport) Vehicle Radio Communications	incident command request	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☑	Emergency Vehicle Subsystem	Austin Police, Fire, EMS Vehicle Mobile Data Terminal	incident command request	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☑	Emergency Vehicle Subsystem	Austin Police, Fire, EMS Vehicle Radio Communications	incident command request	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☐	Emergency Vehicle Subsystem	Emergency Vehicles Equipped with AVL	incident command request	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☑	Emergency Vehicle Subsystem	Travis County Emergency Vehicle Mobile Data Terminal	incident command request	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☑	Emergency Vehicle Subsystem	Travis County Emergency Vehicle Radio Communications	incident command request	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☑	Emergency Vehicle Subsystem	Turnpike Authority Courtesy Vehicle Mobile Data Terminal	incident command request	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☑	Emergency Vehicle Subsystem	Turnpike Authority Courtesy Vehicle Radio Communications	incident command request	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☑	Emergency Vehicle Subsystem	TxDOT Austin Courtesy Vehicle Mobile Data Terminal	incident command request	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☑	Emergency Vehicle Subsystem	TxDOT Austin Courtesy Vehicle Radio Communications	incident command request	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☐	Emergency Vehicle Subsystem	3M Opticom Signal Preemption System	incident status	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☑	Emergency Vehicle Subsystem	ABIA (Airport) Vehicle Mobile Data Terminal	incident status	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☑	Emergency Vehicle Subsystem	ABIA (Airport) Vehicle Radio Communications	incident status	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☑	Emergency Vehicle Subsystem	Austin Police, Fire, EMS Vehicle Mobile Data Terminal	incident status	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☑	Emergency Vehicle Subsystem	Austin Police, Fire, EMS Vehicle Radio Communications	incident status	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☐	Emergency Vehicle Subsystem	Emergency Vehicles Equipped with AVL	incident status	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☑	Emergency Vehicle Subsystem	Travis County Emergency Vehicle Mobile Data Terminal	incident status	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☑	Emergency Vehicle Subsystem	Travis County Emergency Vehicle Radio Communications	incident status	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☑	Emergency Vehicle Subsystem	Turnpike Authority Courtesy Vehicle Mobile Data Terminal	incident status	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☑	Emergency Vehicle Subsystem	Turnpike Authority Courtesy Vehicle Radio Communications	incident status	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☑	Emergency Vehicle Subsystem	TxDOT Austin Courtesy Vehicle Mobile Data Terminal	incident status	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☑	Emergency Vehicle Subsystem	TxDOT Austin Courtesy Vehicle Radio Communications	incident status	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☑	Emergency Vehicle Subsystem	3M Opticom Signal Preemption System	local signal preemption request	Roadway Subsystem	Austin Signals	☑	☑
☐	Emergency Vehicle Subsystem	3M Opticom Signal Preemption System	local signal preemption request	Roadway Subsystem	Austin Flood Early Warning System	☑	☑
☐	Emergency Vehicle Subsystem	3M Opticom Signal Preemption System	local signal preemption request	Roadway Subsystem	Grade Crossing Warning System	☑	☑
☐	Emergency Vehicle Subsystem	3M Opticom Signal Preemption System	local signal preemption request	Roadway Subsystem	Austin Sensors, Cameras, and HAR	☑	☑
☐	Emergency Vehicle Subsystem	3M Opticom Signal Preemption System	local signal preemption request	Roadway Subsystem	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	☑	☑
☐	Emergency Vehicle Subsystem	3M Opticom Signal Preemption System	local signal preemption request	Roadway Subsystem	RWIS Network	☑	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☐	Emergency Vehicle Subsystem	3M Opticom Signal Preemption System	local signal preemption request	Roadway Subsystem	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	☑	☑
☑	Emergency Vehicle Subsystem	3M Opticom Signal Preemption System	local signal preemption request	Roadway Subsystem	TxDOT Austin Signals	☑	☑
☐	Emergency Vehicle Subsystem	ABIA (Airport) Vehicle Mobile Data Terminal	local signal preemption request	Roadway Subsystem	Austin Flood Early Warning System	☑	☑
☐	Emergency Vehicle Subsystem	ABIA (Airport) Vehicle Mobile Data Terminal	local signal preemption request	Roadway Subsystem	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	☑	☑
☐	Emergency Vehicle Subsystem	ABIA (Airport) Vehicle Mobile Data Terminal	local signal preemption request	Roadway Subsystem	TxDOT Austin Signals	☑	☑
☐	Emergency Vehicle Subsystem	ABIA (Airport) Vehicle Mobile Data Terminal	local signal preemption request	Roadway Subsystem	Grade Crossing Warning System	☑	☑
☐	Emergency Vehicle Subsystem	ABIA (Airport) Vehicle Mobile Data Terminal	local signal preemption request	Roadway Subsystem	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	☑	☑
☐	Emergency Vehicle Subsystem	ABIA (Airport) Vehicle Mobile Data Terminal	local signal preemption request	Roadway Subsystem	Austin Signals	☑	☑
☐	Emergency Vehicle Subsystem	ABIA (Airport) Vehicle Mobile Data Terminal	local signal preemption request	Roadway Subsystem	Austin Sensors, Cameras, and HAR	☑	☑
☐	Emergency Vehicle Subsystem	ABIA (Airport) Vehicle Mobile Data Terminal	local signal preemption request	Roadway Subsystem	RWIS Network	☑	☑
☐	Emergency Vehicle Subsystem	ABIA (Airport) Vehicle Radio Communications	local signal preemption request	Roadway Subsystem	TxDOT Austin Signals	☑	☑
☐	Emergency Vehicle Subsystem	ABIA (Airport) Vehicle Radio Communications	local signal preemption request	Roadway Subsystem	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	☑	☑
☐	Emergency Vehicle Subsystem	ABIA (Airport) Vehicle Radio Communications	local signal preemption request	Roadway Subsystem	RWIS Network	☑	☑
☐	Emergency Vehicle Subsystem	ABIA (Airport) Vehicle Radio Communications	local signal preemption request	Roadway Subsystem	Grade Crossing Warning System	☑	☑
☐	Emergency Vehicle Subsystem	ABIA (Airport) Vehicle Radio Communications	local signal preemption request	Roadway Subsystem	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	☑	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☐	Emergency Vehicle Subsystem	ABIA (Airport) Vehicle Radio Communications	local signal preemption request	Roadway Subsystem	Austin Signals	☑	☑
☐	Emergency Vehicle Subsystem	ABIA (Airport) Vehicle Radio Communications	local signal preemption request	Roadway Subsystem	Austin Flood Early Warning System	☑	☑
☐	Emergency Vehicle Subsystem	ABIA (Airport) Vehicle Radio Communications	local signal preemption request	Roadway Subsystem	Austin Sensors, Cameras, and HAR	☑	☑
☐	Emergency Vehicle Subsystem	Austin Police, Fire, EMS Vehicle Mobile Data Terminal	local signal preemption request	Roadway Subsystem	RWIS Network	☑	☑
☐	Emergency Vehicle Subsystem	Austin Police, Fire, EMS Vehicle Mobile Data Terminal	local signal preemption request	Roadway Subsystem	Austin Signals	☑	☑
☐	Emergency Vehicle Subsystem	Austin Police, Fire, EMS Vehicle Mobile Data Terminal	local signal preemption request	Roadway Subsystem	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	☑	☑
☐	Emergency Vehicle Subsystem	Austin Police, Fire, EMS Vehicle Mobile Data Terminal	local signal preemption request	Roadway Subsystem	Austin Flood Early Warning System	☑	☑
☐	Emergency Vehicle Subsystem	Austin Police, Fire, EMS Vehicle Mobile Data Terminal	local signal preemption request	Roadway Subsystem	Grade Crossing Warning System	☑	☑
☐	Emergency Vehicle Subsystem	Austin Police, Fire, EMS Vehicle Mobile Data Terminal	local signal preemption request	Roadway Subsystem	TxDOT Austin Signals	☑	☑
☐	Emergency Vehicle Subsystem	Austin Police, Fire, EMS Vehicle Mobile Data Terminal	local signal preemption request	Roadway Subsystem	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	☑	☑
☐	Emergency Vehicle Subsystem	Austin Police, Fire, EMS Vehicle Mobile Data Terminal	local signal preemption request	Roadway Subsystem	Austin Sensors, Cameras, and HAR	☑	☑
☐	Emergency Vehicle Subsystem	Austin Police, Fire, EMS Vehicle Radio Communications	local signal preemption request	Roadway Subsystem	Grade Crossing Warning System	☑	☑
☐	Emergency Vehicle Subsystem	Austin Police, Fire, EMS Vehicle Radio Communications	local signal preemption request	Roadway Subsystem	Austin Flood Early Warning System	☑	☑
☐	Emergency Vehicle Subsystem	Austin Police, Fire, EMS Vehicle Radio Communications	local signal preemption request	Roadway Subsystem	Austin Sensors, Cameras, and HAR	☑	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☐	Emergency Vehicle Subsystem	Austin Police, Fire, EMS Vehicle Radio Communications	local signal preemption request	Roadway Subsystem	Austin Signals	☑	☑
☐	Emergency Vehicle Subsystem	Austin Police, Fire, EMS Vehicle Radio Communications	local signal preemption request	Roadway Subsystem	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	☑	☑
☐	Emergency Vehicle Subsystem	Austin Police, Fire, EMS Vehicle Radio Communications	local signal preemption request	Roadway Subsystem	RWIS Network	☑	☑
☐	Emergency Vehicle Subsystem	Austin Police, Fire, EMS Vehicle Radio Communications	local signal preemption request	Roadway Subsystem	TxDOT Austin Signals	☑	☑
☐	Emergency Vehicle Subsystem	Austin Police, Fire, EMS Vehicle Radio Communications	local signal preemption request	Roadway Subsystem	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	☑	☑
☐	Emergency Vehicle Subsystem	Emergency Vehicles Equipped with AVL	local signal preemption request	Roadway Subsystem	Grade Crossing Warning System	☑	☑
☐	Emergency Vehicle Subsystem	Emergency Vehicles Equipped with AVL	local signal preemption request	Roadway Subsystem	RWIS Network	☑	☑
☐	Emergency Vehicle Subsystem	Emergency Vehicles Equipped with AVL	local signal preemption request	Roadway Subsystem	Austin Flood Early Warning System	☑	☑
☐	Emergency Vehicle Subsystem	Emergency Vehicles Equipped with AVL	local signal preemption request	Roadway Subsystem	Austin Sensors, Cameras, and HAR	☑	☑
☐	Emergency Vehicle Subsystem	Emergency Vehicles Equipped with AVL	local signal preemption request	Roadway Subsystem	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	☑	☑
☐	Emergency Vehicle Subsystem	Emergency Vehicles Equipped with AVL	local signal preemption request	Roadway Subsystem	TxDOT Austin Signals	☑	☑
☐	Emergency Vehicle Subsystem	Emergency Vehicles Equipped with AVL	local signal preemption request	Roadway Subsystem	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	☑	☑
☐	Emergency Vehicle Subsystem	Emergency Vehicles Equipped with AVL	local signal preemption request	Roadway Subsystem	Austin Signals	☑	☑
☐	Emergency Vehicle Subsystem	Travis County Emergency Vehicle Mobile Data Terminal	local signal preemption request	Roadway Subsystem	RWIS Network	☑	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☐	Emergency Vehicle Subsystem	Travis County Emergency Vehicle Mobile Data Terminal	local signal preemption request	Roadway Subsystem	Grade Crossing Warning System	☑	☑
☐	Emergency Vehicle Subsystem	Travis County Emergency Vehicle Mobile Data Terminal	local signal preemption request	Roadway Subsystem	Austin Flood Early Warning System	☑	☑
☐	Emergency Vehicle Subsystem	Travis County Emergency Vehicle Mobile Data Terminal	local signal preemption request	Roadway Subsystem	Austin Sensors, Cameras, and HAR	☑	☑
☐	Emergency Vehicle Subsystem	Travis County Emergency Vehicle Mobile Data Terminal	local signal preemption request	Roadway Subsystem	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	☑	☑
☐	Emergency Vehicle Subsystem	Travis County Emergency Vehicle Mobile Data Terminal	local signal preemption request	Roadway Subsystem	TxDOT Austin Signals	☑	☑
☐	Emergency Vehicle Subsystem	Travis County Emergency Vehicle Mobile Data Terminal	local signal preemption request	Roadway Subsystem	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	☑	☑
☐	Emergency Vehicle Subsystem	Travis County Emergency Vehicle Mobile Data Terminal	local signal preemption request	Roadway Subsystem	Austin Signals	☑	☑
☐	Emergency Vehicle Subsystem	Travis County Emergency Vehicle Radio Communications	local signal preemption request	Roadway Subsystem	Austin Flood Early Warning System	☑	☑
☐	Emergency Vehicle Subsystem	Travis County Emergency Vehicle Radio Communications	local signal preemption request	Roadway Subsystem	Austin Sensors, Cameras, and HAR	☑	☑
☐	Emergency Vehicle Subsystem	Travis County Emergency Vehicle Radio Communications	local signal preemption request	Roadway Subsystem	Austin Signals	☑	☑
☐	Emergency Vehicle Subsystem	Travis County Emergency Vehicle Radio Communications	local signal preemption request	Roadway Subsystem	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	☑	☑
☐	Emergency Vehicle Subsystem	Travis County Emergency Vehicle Radio Communications	local signal preemption request	Roadway Subsystem	TxDOT Austin Signals	☑	☑
☐	Emergency Vehicle Subsystem	Travis County Emergency Vehicle Radio Communications	local signal preemption request	Roadway Subsystem	Grade Crossing Warning System	☑	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☐	Emergency Vehicle Subsystem	Travis County Emergency Vehicle Radio Communications	local signal preemption request	Roadway Subsystem	RWIS Network	☑	☑
☐	Emergency Vehicle Subsystem	Travis County Emergency Vehicle Radio Communications	local signal preemption request	Roadway Subsystem	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	☑	☑
☐	Emergency Vehicle Subsystem	Turnpike Authority Courtesy Vehicle Mobile Data Terminal	local signal preemption request	Roadway Subsystem	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	☑	☑
☐	Emergency Vehicle Subsystem	Turnpike Authority Courtesy Vehicle Mobile Data Terminal	local signal preemption request	Roadway Subsystem	TxDOT Austin Signals	☑	☑
☐	Emergency Vehicle Subsystem	Turnpike Authority Courtesy Vehicle Mobile Data Terminal	local signal preemption request	Roadway Subsystem	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	☑	☑
☐	Emergency Vehicle Subsystem	Turnpike Authority Courtesy Vehicle Mobile Data Terminal	local signal preemption request	Roadway Subsystem	Grade Crossing Warning System	☑	☑
☐	Emergency Vehicle Subsystem	Turnpike Authority Courtesy Vehicle Mobile Data Terminal	local signal preemption request	Roadway Subsystem	Austin Signals	☑	☑
☐	Emergency Vehicle Subsystem	Turnpike Authority Courtesy Vehicle Mobile Data Terminal	local signal preemption request	Roadway Subsystem	Austin Sensors, Cameras, and HAR	☑	☑
☐	Emergency Vehicle Subsystem	Turnpike Authority Courtesy Vehicle Mobile Data Terminal	local signal preemption request	Roadway Subsystem	Austin Flood Early Warning System	☑	☑
☐	Emergency Vehicle Subsystem	Turnpike Authority Courtesy Vehicle Mobile Data Terminal	local signal preemption request	Roadway Subsystem	RWIS Network	☑	☑
☐	Emergency Vehicle Subsystem	Turnpike Authority Courtesy Vehicle Radio Communications	local signal preemption request	Roadway Subsystem	Austin Flood Early Warning System	☑	☑
☐	Emergency Vehicle Subsystem	Turnpike Authority Courtesy Vehicle Radio Communications	local signal preemption request	Roadway Subsystem	Austin Sensors, Cameras, and HAR	☑	☑
☐	Emergency Vehicle Subsystem	Turnpike Authority Courtesy Vehicle Radio Communications	local signal preemption request	Roadway Subsystem	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	☑	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☐	Emergency Vehicle Subsystem	Turnpike Authority Courtesy Vehicle Radio Communications	local signal preemption request	Roadway Subsystem	TxDOT Austin Signals	☑	☑
☐	Emergency Vehicle Subsystem	Turnpike Authority Courtesy Vehicle Radio Communications	local signal preemption request	Roadway Subsystem	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	☑	☑
☐	Emergency Vehicle Subsystem	Turnpike Authority Courtesy Vehicle Radio Communications	local signal preemption request	Roadway Subsystem	RWIS Network	☑	☑
☐	Emergency Vehicle Subsystem	Turnpike Authority Courtesy Vehicle Radio Communications	local signal preemption request	Roadway Subsystem	Austin Signals	☑	☑
☐	Emergency Vehicle Subsystem	Turnpike Authority Courtesy Vehicle Radio Communications	local signal preemption request	Roadway Subsystem	Grade Crossing Warning System	☑	☑
☐	Emergency Vehicle Subsystem	TxDOT Austin Courtesy Vehicle Mobile Data Terminal	local signal preemption request	Roadway Subsystem	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	☑	☑
☐	Emergency Vehicle Subsystem	TxDOT Austin Courtesy Vehicle Mobile Data Terminal	local signal preemption request	Roadway Subsystem	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	☑	☑
☐	Emergency Vehicle Subsystem	TxDOT Austin Courtesy Vehicle Mobile Data Terminal	local signal preemption request	Roadway Subsystem	RWIS Network	☑	☑
☐	Emergency Vehicle Subsystem	TxDOT Austin Courtesy Vehicle Mobile Data Terminal	local signal preemption request	Roadway Subsystem	Austin Signals	☑	☑
☐	Emergency Vehicle Subsystem	TxDOT Austin Courtesy Vehicle Mobile Data Terminal	local signal preemption request	Roadway Subsystem	Austin Sensors, Cameras, and HAR	☑	☑
☐	Emergency Vehicle Subsystem	TxDOT Austin Courtesy Vehicle Mobile Data Terminal	local signal preemption request	Roadway Subsystem	Austin Flood Early Warning System	☑	☑
☐	Emergency Vehicle Subsystem	TxDOT Austin Courtesy Vehicle Mobile Data Terminal	local signal preemption request	Roadway Subsystem	TxDOT Austin Signals	☑	☑
☐	Emergency Vehicle Subsystem	TxDOT Austin Courtesy Vehicle Mobile Data Terminal	local signal preemption request	Roadway Subsystem	Grade Crossing Warning System	☑	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☐	Emergency Vehicle Subsystem	TxDOT Austin Courtesy Vehicle Radio Communications	local signal preemption request	Roadway Subsystem	Austin Signals	☑	☑
☐	Emergency Vehicle Subsystem	TxDOT Austin Courtesy Vehicle Radio Communications	local signal preemption request	Roadway Subsystem	TxDOT Austin Signals	☑	☑
☐	Emergency Vehicle Subsystem	TxDOT Austin Courtesy Vehicle Radio Communications	local signal preemption request	Roadway Subsystem	Austin Sensors, Cameras, and HAR	☑	☑
☐	Emergency Vehicle Subsystem	TxDOT Austin Courtesy Vehicle Radio Communications	local signal preemption request	Roadway Subsystem	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	☑	☑
☐	Emergency Vehicle Subsystem	TxDOT Austin Courtesy Vehicle Radio Communications	local signal preemption request	Roadway Subsystem	Grade Crossing Warning System	☑	☑
☐	Emergency Vehicle Subsystem	TxDOT Austin Courtesy Vehicle Radio Communications	local signal preemption request	Roadway Subsystem	RWIS Network	☑	☑
☐	Emergency Vehicle Subsystem	TxDOT Austin Courtesy Vehicle Radio Communications	local signal preemption request	Roadway Subsystem	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	☑	☑
☐	Emergency Vehicle Subsystem	TxDOT Austin Courtesy Vehicle Radio Communications	local signal preemption request	Roadway Subsystem	Austin Flood Early Warning System	☑	☑
☐	Event Promoters	Special Event Sponsors and Promoters	event plans	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☑	Event Promoters	Special Event Sponsors and Promoters	event plans	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Financial Institution	Commercial Bank	transaction status	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	☑	☑
☐	Financial Institution	Commercial Bank	transaction status	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	☑	☑
☐	Financial Institution	Commercial Bank	transaction status	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	☑	☑
☐	Financial Institution	Commercial Bank	transaction status	Information Service Provider	Travel and Traffic Information Provider	☐	☑
☑	Financial Institution	Commercial Bank	transaction status	Toll Administration	TxDOT Texas Turnpike Authority Division	☑	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☐	Financial Institution	Commercial Bank	transaction status	Transit Management	CapMetro Dispatch System	☑	☑
☑	Fleet and Freight Management	Motor Carrier CVO System	HAZMAT information	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☐	Fleet and Freight Management	Motor Carrier CVO System	request for payment	Payment Instrument	Transponder Card	☐	☑
☐	Fleet and Freight Management	Motor Carrier CVO System	route request	Information Service Provider	Travel and Traffic Information Provider	☐	☑
☐	Government Reporting Systems	Fatal Analysis Reporting System	government reporting data receipt	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	☑	☑
☐	Government Reporting Systems	Fatal Analysis Reporting System	government reporting data receipt	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	☑	☑
☑	Government Reporting Systems	Fatal Analysis Reporting System	government reporting data receipt	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	☑	☑
☐	Government Reporting Systems	Highway Performance Monitoring System	government reporting data receipt	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	☑	☑
☐	Government Reporting Systems	Highway Performance Monitoring System	government reporting data receipt	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	☑	☑
☑	Government Reporting Systems	Highway Performance Monitoring System	government reporting data receipt	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	☑	☑
☑	Information Service Provider	Travel and Traffic Information Provider	broadcast information	Personal Information Access	Individual Pagers	☑	☑
☑	Information Service Provider	Travel and Traffic Information Provider	broadcast information	Personal Information Access	Internet Browser	☑	☑
☑	Information Service Provider	Travel and Traffic Information Provider	broadcast information	Personal Information Access	Individual Cell- and Land-Line Telephones	☑	☑
☑	Information Service Provider	Travel and Traffic Information Provider	broadcast information	Personal Information Access	Individual Fax	☑	☑
☑	Information Service Provider	Travel and Traffic Information Provider	broadcast information	Remote Traveler Support	Traveler Kiosk Network	☑	☑
☐	Information Service Provider	Travel and Traffic Information Provider	broadcast information	Remote Traveler Support	Distress Signal Wireline Communications	☑	☑
☐	Information Service Provider	Travel and Traffic Information Provider	broadcast information	Remote Traveler Support	Transit Secure Area Monitoring System	☑	☑
☐	Information Service Provider	Travel and Traffic Information Provider	broadcast information	Vehicle	Toll Tag Interface	☑	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☐	Information Service Provider	Travel and Traffic Information Provider	broadcast information	Vehicle	System That Provides Accurate Position Information	☑	☑
☑	Information Service Provider	Travel and Traffic Information Provider	demand responsive transit request	Transit Management	CapMetro Dispatch System	☑	☑
☐	Information Service Provider	Travel and Traffic Information Provider	fare and price information	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Information Service Provider	Travel and Traffic Information Provider	incident information request	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☑	Information Service Provider	Travel and Traffic Information Provider	ISP operating parameters	ISP Operator	Travel and Traffic Information Operator	☑	☑
☑	Information Service Provider	Travel and Traffic Information Provider	logged special vehicle route	Traffic Management	TxDOT Austin TMC	☑	☑
☑	Information Service Provider	Travel and Traffic Information Provider	map update request	Map Update Provider	City of Austin GIS Agency	☐	☑
☐	Information Service Provider	Travel and Traffic Information Provider	payment request	Financial Institution	Commercial Bank	☐	☑
☑	Information Service Provider	Travel and Traffic Information Provider	request for traffic information	Traffic Management	TxDOT Austin TMC	☑	☑
☑	Information Service Provider	Travel and Traffic Information Provider	road network use	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Information Service Provider	Travel and Traffic Information Provider	route plan	Fleet and Freight Management	Motor Carrier CVO System	☐	☑
☑	Information Service Provider	Travel and Traffic Information Provider	selected routes	Transit Management	CapMetro Dispatch System	☑	☑
☑	Information Service Provider	Travel and Traffic Information Provider	toll data request	Toll Administration	TxDOT Texas Turnpike Authority Division	☑	☑
☑	Information Service Provider	Travel and Traffic Information Provider	transit information request	Transit Management	CapMetro Dispatch System	☑	☑
☐	Information Service Provider	Travel and Traffic Information Provider	traveler archive data	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	☑	☑
☐	Information Service Provider	Travel and Traffic Information Provider	traveler archive data	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	☑	☑
☐	Information Service Provider	Travel and Traffic Information Provider	traveler archive data	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	☑	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☐	Information Service Provider	Travel and Traffic Information Provider	traveler information	Personal Information Access	Internet Browser	☐	☑
☐	Information Service Provider	Travel and Traffic Information Provider	traveler information	Personal Information Access	Individual Pagers	☐	☑
☐	Information Service Provider	Travel and Traffic Information Provider	traveler information	Personal Information Access	Individual Fax	☐	☑
☐	Information Service Provider	Travel and Traffic Information Provider	traveler information	Personal Information Access	Individual Cell- and Land-Line Telephones	☐	☑
☐	Information Service Provider	Travel and Traffic Information Provider	traveler information	Remote Traveler Support	Transit Secure Area Monitoring System	☐	☑
☐	Information Service Provider	Travel and Traffic Information Provider	traveler information	Remote Traveler Support	Traveler Kiosk Network	☐	☑
☐	Information Service Provider	Travel and Traffic Information Provider	traveler information	Remote Traveler Support	Distress Signal Wireline Communications	☐	☑
☐	Information Service Provider	Travel and Traffic Information Provider	traveler information	Vehicle	System That Provides Accurate Position Information	☐	☑
☐	Information Service Provider	Travel and Traffic Information Provider	traveler information	Vehicle	Toll Tag Interface	☐	☑
☑	Information Service Provider	Travel and Traffic Information Provider	traveler information for media	Media	Traffic and Travel Information System	☑	☑
☐	Information Service Provider	Travel and Traffic Information Provider	trip plan	Personal Information Access	Individual Pagers	☐	☑
☐	Information Service Provider	Travel and Traffic Information Provider	trip plan	Personal Information Access	Internet Browser	☐	☑
☐	Information Service Provider	Travel and Traffic Information Provider	trip plan	Personal Information Access	Individual Fax	☐	☑
☐	Information Service Provider	Travel and Traffic Information Provider	trip plan	Personal Information Access	Individual Cell- and Land-Line Telephones	☐	☑
☐	Information Service Provider	Travel and Traffic Information Provider	trip plan	Remote Traveler Support	Transit Secure Area Monitoring System	☐	☑
☐	Information Service Provider	Travel and Traffic Information Provider	trip plan	Remote Traveler Support	Distress Signal Wireline Communications	☐	☑
☐	Information Service Provider	Travel and Traffic Information Provider	trip plan	Remote Traveler Support	Traveler Kiosk Network	☐	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☐	Information Service Provider	Travel and Traffic Information Provider	trip plan	Vehicle	System That Provides Accurate Position Information	☐	☑
☐	Information Service Provider	Travel and Traffic Information Provider	trip plan	Vehicle	Toll Tag Interface	☐	☑
☐	Information Service Provider	Travel and Traffic Information Provider	yellow pages information	Personal Information Access	Individual Cell- and Land-Line Telephones	☐	☑
☐	Information Service Provider	Travel and Traffic Information Provider	yellow pages information	Personal Information Access	Individual Fax	☐	☑
☐	Information Service Provider	Travel and Traffic Information Provider	yellow pages information	Personal Information Access	Individual Pagers	☐	☑
☐	Information Service Provider	Travel and Traffic Information Provider	yellow pages information	Personal Information Access	Internet Browser	☐	☑
☐	Information Service Provider	Travel and Traffic Information Provider	yellow pages information	Remote Traveler Support	Traveler Kiosk Network	☐	☑
☐	Information Service Provider	Travel and Traffic Information Provider	yellow pages information	Remote Traveler Support	Distress Signal Wireline Communications	☐	☑
☐	Information Service Provider	Travel and Traffic Information Provider	yellow pages information	Remote Traveler Support	Transit Secure Area Monitoring System	☐	☑
☐	Information Service Provider	Travel and Traffic Information Provider	yellow pages information	Vehicle	System That Provides Accurate Position Information	☐	☑
☐	Information Service Provider	Travel and Traffic Information Provider	yellow pages information	Vehicle	Toll Tag Interface	☐	☑
☑	ISP Operator	Travel and Traffic Information Operator	ISP operating parameter updates	Information Service Provider	Travel and Traffic Information Provider	☑	☑
☐	Location Data Source	Device That Provides Accurate Position Information	position fix	Personal Information Access	Individual Fax	☐	☑
☐	Location Data Source	Device That Provides Accurate Position Information	position fix	Personal Information Access	Individual Cell- and Land-Line Telephones	☐	☑
☐	Location Data Source	Device That Provides Accurate Position Information	position fix	Personal Information Access	Individual Pagers	☐	☑
☐	Location Data Source	Device That Provides Accurate Position Information	position fix	Personal Information Access	Internet Browser	☐	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☑	Location Data Source	Device That Provides Accurate Position Information	position fix	Vehicle	System That Provides Accurate Position Information	☑	☑
☐	Location Data Source	Device That Provides Accurate Position Information	position fix	Vehicle	Toll Tag Interface	☑	☑
☐	Map Update Provider	City of Austin GIS Agency	map updates	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	☑	☑
☐	Map Update Provider	City of Austin GIS Agency	map updates	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	☑	☑
☐	Map Update Provider	City of Austin GIS Agency	map updates	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	☑	☑
☑	Map Update Provider	City of Austin GIS Agency	map updates	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☑	Map Update Provider	City of Austin GIS Agency	map updates	Information Service Provider	Travel and Traffic Information Provider	☐	☑
☐	Map Update Provider	City of Austin GIS Agency	map updates	Personal Information Access	Individual Cell- and Land-Line Telephones	☐	☑
☐	Map Update Provider	City of Austin GIS Agency	map updates	Personal Information Access	Individual Fax	☐	☑
☐	Map Update Provider	City of Austin GIS Agency	map updates	Personal Information Access	Individual Pagers	☐	☑
☐	Map Update Provider	City of Austin GIS Agency	map updates	Personal Information Access	Internet Browser	☐	☑
☐	Map Update Provider	City of Austin GIS Agency	map updates	Remote Traveler Support	Transit Secure Area Monitoring System	☐	☑
☐	Map Update Provider	City of Austin GIS Agency	map updates	Remote Traveler Support	Distress Signal Wireline Communications	☐	☑
☐	Map Update Provider	City of Austin GIS Agency	map updates	Remote Traveler Support	Traveler Kiosk Network	☐	☑
☑	Map Update Provider	City of Austin GIS Agency	map updates	Traffic Management	TxDOT Austin TMC	☑	☑
☑	Map Update Provider	City of Austin GIS Agency	map updates	Transit Management	CapMetro Dispatch System	☑	☑
☐	Map Update Provider	City of Austin GIS Agency	map updates	Vehicle	Toll Tag Interface	☐	☑
☐	Map Update Provider	City of Austin GIS Agency	map updates	Vehicle	System That Provides Accurate Position Information	☐	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☐	Media	Traffic and Travel Information System	external reports	Information Service Provider	Travel and Traffic Information Provider	☑	☑
☑	Media	Traffic and Travel Information System	external reports	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Media	Traffic and Travel Information System	media information request	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☐	Media	Traffic and Travel Information System	media information request	Information Service Provider	Travel and Traffic Information Provider	☐	☑
☑	Media	Traffic and Travel Information System	media information request	Traffic Management	TxDOT Austin TMC	☑	☑
☑	Media	Traffic and Travel Information System	media information request	Transit Management	CapMetro Dispatch System	☑	☑
☐	Multimodal Crossings	Rail Crossing Control Equipment	multimodal crossing status	Roadway Subsystem	Austin Flood Early Warning System	☑	☑
☐	Multimodal Crossings	Rail Crossing Control Equipment	multimodal crossing status	Roadway Subsystem	Austin Sensors, Cameras, and HAR	☑	☑
☐	Multimodal Crossings	Rail Crossing Control Equipment	multimodal crossing status	Roadway Subsystem	TxDOT Austin Signals	☑	☑
☐	Multimodal Crossings	Rail Crossing Control Equipment	multimodal crossing status	Roadway Subsystem	Austin Signals	☑	☑
☐	Multimodal Crossings	Rail Crossing Control Equipment	multimodal crossing status	Roadway Subsystem	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	☑	☑
☑	Multimodal Crossings	Rail Crossing Control Equipment	multimodal crossing status	Roadway Subsystem	Grade Crossing Warning System	☑	☑
☐	Multimodal Crossings	Rail Crossing Control Equipment	multimodal crossing status	Roadway Subsystem	RWIS Network	☑	☑
☐	Multimodal Crossings	Rail Crossing Control Equipment	multimodal crossing status	Roadway Subsystem	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	☑	☑
☑	Other Archives	Statewide Historic Incident Data Network	archive coordination	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	☐	☑
☐	Other Archives	Statewide Historic Incident Data Network	archive coordination	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	☐	☑
☐	Other Archives	Statewide Historic Incident Data Network	archive coordination	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	☐	☑
☐	Other Archives	Statewide Historic Traffic Data Network (TxDOT Planning and Programming)	archive coordination	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	☐	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☐	Other Archives	Statewide Historic Traffic Data Network (TxDOT Planning and Programming)	archive coordination	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	☐	☑
☑	Other Archives	Statewide Historic Traffic Data Network (TxDOT Planning and Programming)	archive coordination	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	☐	☑
☑	Other EM	Round Rock Dispatch System	incident report	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☑	Other EM	Texas Highway Patrol Dispatch Center	incident report	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☑	Other EM	Williamson County Dispatch Center	incident report	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☑	Other EM	Round Rock Dispatch System	incident response coordination	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☑	Other EM	Texas Highway Patrol Dispatch Center	incident response coordination	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☑	Other EM	Williamson County Dispatch Center	incident response coordination	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☑	Other TM	Austin Signal Control Center	traffic control coordination	Traffic Management	TxDOT Austin TMC	☑	☑
☑	Other TM	Round Rock TMC	traffic control coordination	Traffic Management	TxDOT Austin TMC	☑	☑
☑	Other TM	Austin Signal Control Center	traffic information coordination	Traffic Management	TxDOT Austin TMC	☑	☑
☑	Other TM	Round Rock TMC	traffic information coordination	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Payment Instrument	Transponder Card	payment	Fleet and Freight Management	Motor Carrier CVO System	☐	☑
☐	Payment Instrument	Transponder Card	payment	Personal Information Access	Individual Cell- and Land-Line Telephones	☐	☑
☐	Payment Instrument	Transponder Card	payment	Personal Information Access	Internet Browser	☐	☑
☐	Payment Instrument	Transponder Card	payment	Personal Information Access	Individual Pagers	☐	☑
☐	Payment Instrument	Transponder Card	payment	Personal Information Access	Individual Fax	☐	☑
☐	Payment Instrument	Transponder Card	payment	Remote Traveler Support	Distress Signal Wireline Communications	☑	☑
☐	Payment Instrument	Transponder Card	payment	Remote Traveler Support	Transit Secure Area Monitoring System	☑	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☐	Payment Instrument	Transponder Card	payment	Remote Traveler Support	Traveler Kiosk Network	☑	☑
☐	Payment Instrument	Transponder Card	payment	Transit Vehicle Subsystem	Transit Vehicle Monitoring System	☑	☑
☐	Payment Instrument	Transponder Card	payment	Vehicle	System That Provides Accurate Position Information	☑	☑
☑	Payment Instrument	Transponder Card	payment	Vehicle	Toll Tag Interface	☑	☑
☑	Personal Information Access	Individual Cell- and Land-Line Telephones	emergency notification	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☐	Personal Information Access	Individual Fax	emergency notification	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☐	Personal Information Access	Individual Pagers	emergency notification	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☐	Personal Information Access	Internet Browser	emergency notification	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☐	Personal Information Access	Individual Cell- and Land-Line Telephones	map update request	Map Update Provider	City of Austin GIS Agency	☐	☑
☐	Personal Information Access	Individual Fax	map update request	Map Update Provider	City of Austin GIS Agency	☐	☑
☐	Personal Information Access	Individual Pagers	map update request	Map Update Provider	City of Austin GIS Agency	☐	☑
☐	Personal Information Access	Internet Browser	map update request	Map Update Provider	City of Austin GIS Agency	☐	☑
☐	Personal Information Access	Individual Cell- and Land-Line Telephones	request for payment	Payment Instrument	Transponder Card	☐	☑
☐	Personal Information Access	Individual Fax	request for payment	Payment Instrument	Transponder Card	☐	☑
☐	Personal Information Access	Individual Pagers	request for payment	Payment Instrument	Transponder Card	☐	☑
☐	Personal Information Access	Internet Browser	request for payment	Payment Instrument	Transponder Card	☐	☑
☑	Personal Information Access	Individual Cell- and Land-Line Telephones	transit information user request	Transit Management	CapMetro Dispatch System	☑	☑
☐	Personal Information Access	Individual Fax	transit information user request	Transit Management	CapMetro Dispatch System	☑	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☐	Personal Information Access	Individual Pagers	transit information user request	Transit Management	CapMetro Dispatch System	☑	☑
☑	Personal Information Access	Internet Browser	transit information user request	Transit Management	CapMetro Dispatch System	☑	☑
☑	Personal Information Access	Individual Cell- and Land-Line Telephones	traveler interface updates	Traveler	Pre-Trip Individual Using Transportation Services	☑	☑
☑	Personal Information Access	Individual Fax	traveler interface updates	Traveler	Pre-Trip Individual Using Transportation Services	☑	☑
☐	Personal Information Access	Individual Pagers	traveler interface updates	Traveler	Pre-Trip Individual Using Transportation Services	☑	☑
☑	Personal Information Access	Internet Browser	traveler interface updates	Traveler	Pre-Trip Individual Using Transportation Services	☑	☑
☐	Personal Information Access	Individual Cell- and Land-Line Telephones	traveler profile	Information Service Provider	Travel and Traffic Information Provider	☐	☑
☐	Personal Information Access	Individual Fax	traveler profile	Information Service Provider	Travel and Traffic Information Provider	☐	☑
☐	Personal Information Access	Individual Pagers	traveler profile	Information Service Provider	Travel and Traffic Information Provider	☐	☑
☐	Personal Information Access	Internet Browser	traveler profile	Information Service Provider	Travel and Traffic Information Provider	☐	☑
☐	Personal Information Access	Individual Cell- and Land-Line Telephones	traveler request	Information Service Provider	Travel and Traffic Information Provider	☐	☑
☐	Personal Information Access	Individual Fax	traveler request	Information Service Provider	Travel and Traffic Information Provider	☐	☑
☐	Personal Information Access	Individual Pagers	traveler request	Information Service Provider	Travel and Traffic Information Provider	☐	☑
☐	Personal Information Access	Internet Browser	traveler request	Information Service Provider	Travel and Traffic Information Provider	☐	☑
☐	Personal Information Access	Individual Cell- and Land-Line Telephones	trip confirmation	Information Service Provider	Travel and Traffic Information Provider	☐	☑
☐	Personal Information Access	Individual Fax	trip confirmation	Information Service Provider	Travel and Traffic Information Provider	☐	☑
☐	Personal Information Access	Individual Pagers	trip confirmation	Information Service Provider	Travel and Traffic Information Provider	☐	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☐	Personal Information Access	Internet Browser	trip confirmation	Information Service Provider	Travel and Traffic Information Provider	☐	☑
☐	Personal Information Access	Individual Cell- and Land-Line Telephones	trip request	Information Service Provider	Travel and Traffic Information Provider	☐	☑
☐	Personal Information Access	Individual Fax	trip request	Information Service Provider	Travel and Traffic Information Provider	☐	☑
☐	Personal Information Access	Individual Pagers	trip request	Information Service Provider	Travel and Traffic Information Provider	☐	☑
☐	Personal Information Access	Internet Browser	trip request	Information Service Provider	Travel and Traffic Information Provider	☐	☑
☐	Personal Information Access	Individual Cell- and Land-Line Telephones	yellow pages request	Information Service Provider	Travel and Traffic Information Provider	☐	☑
☐	Personal Information Access	Individual Fax	yellow pages request	Information Service Provider	Travel and Traffic Information Provider	☐	☑
☐	Personal Information Access	Individual Pagers	yellow pages request	Information Service Provider	Travel and Traffic Information Provider	☐	☑
☐	Personal Information Access	Internet Browser	yellow pages request	Information Service Provider	Travel and Traffic Information Provider	☐	☑
☑	Remote Traveler Support	Distress Signal Wireline Communications	emergency notification	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☐	Remote Traveler Support	Distress Signal Wireline Communications	emergency notification	Transit Management	CapMetro Dispatch System	☑	☑
☐	Remote Traveler Support	Transit Secure Area Monitoring System	emergency notification	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☑	Remote Traveler Support	Transit Secure Area Monitoring System	emergency notification	Transit Management	CapMetro Dispatch System	☑	☑
☐	Remote Traveler Support	Traveler Kiosk Network	emergency notification	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☐	Remote Traveler Support	Traveler Kiosk Network	emergency notification	Transit Management	CapMetro Dispatch System	☑	☑
☐	Remote Traveler Support	Distress Signal Wireline Communications	map update request	Map Update Provider	City of Austin GIS Agency	☐	☑
☐	Remote Traveler Support	Transit Secure Area Monitoring System	map update request	Map Update Provider	City of Austin GIS Agency	☐	☑
☐	Remote Traveler Support	Traveler Kiosk Network	map update request	Map Update Provider	City of Austin GIS Agency	☐	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☐	Remote Traveler Support	Distress Signal Wireline Communications	request for payment	Payment Instrument	Transponder Card	☑	☑
☐	Remote Traveler Support	Transit Secure Area Monitoring System	request for payment	Payment Instrument	Transponder Card	☑	☑
☐	Remote Traveler Support	Traveler Kiosk Network	request for payment	Payment Instrument	Transponder Card	☑	☑
☐	Remote Traveler Support	Distress Signal Wireline Communications	secure area surveillance data	Transit Management	CapMetro Dispatch System	☑	☑
☑	Remote Traveler Support	Transit Secure Area Monitoring System	secure area surveillance data	Transit Management	CapMetro Dispatch System	☑	☑
☐	Remote Traveler Support	Traveler Kiosk Network	secure area surveillance data	Transit Management	CapMetro Dispatch System	☑	☑
☐	Remote Traveler Support	Distress Signal Wireline Communications	transit fare payment requests	Transit Management	CapMetro Dispatch System	☑	☑
☐	Remote Traveler Support	Transit Secure Area Monitoring System	transit fare payment requests	Transit Management	CapMetro Dispatch System	☑	☑
☑	Remote Traveler Support	Traveler Kiosk Network	transit fare payment requests	Transit Management	CapMetro Dispatch System	☑	☑
☐	Remote Traveler Support	Distress Signal Wireline Communications	transit information user request	Transit Management	CapMetro Dispatch System	☑	☑
☐	Remote Traveler Support	Transit Secure Area Monitoring System	transit information user request	Transit Management	CapMetro Dispatch System	☑	☑
☑	Remote Traveler Support	Traveler Kiosk Network	transit information user request	Transit Management	CapMetro Dispatch System	☑	☑
☐	Remote Traveler Support	Distress Signal Wireline Communications	transit user fare status	Transit User	Individual Using Transportation Services	☑	☑
☐	Remote Traveler Support	Transit Secure Area Monitoring System	transit user fare status	Transit User	Individual Using Transportation Services	☑	☑
☑	Remote Traveler Support	Traveler Kiosk Network	transit user fare status	Transit User	Individual Using Transportation Services	☑	☑
☐	Remote Traveler Support	Distress Signal Wireline Communications	transit user outputs	Transit User	Individual Using Transportation Services	☑	☑
☐	Remote Traveler Support	Transit Secure Area Monitoring System	transit user outputs	Transit User	Individual Using Transportation Services	☑	☑
☑	Remote Traveler Support	Traveler Kiosk Network	transit user outputs	Transit User	Individual Using Transportation Services	☑	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☐	Remote Traveler Support	Distress Signal Wireline Communications	traveler interface updates	Traveler	Pre-Trip Individual Using Transportation Services	☑	☑
☐	Remote Traveler Support	Transit Secure Area Monitoring System	traveler interface updates	Traveler	Pre-Trip Individual Using Transportation Services	☑	☑
☑	Remote Traveler Support	Traveler Kiosk Network	traveler interface updates	Traveler	Pre-Trip Individual Using Transportation Services	☑	☑
☐	Remote Traveler Support	Distress Signal Wireline Communications	traveler request	Information Service Provider	Travel and Traffic Information Provider	☐	☑
☐	Remote Traveler Support	Transit Secure Area Monitoring System	traveler request	Information Service Provider	Travel and Traffic Information Provider	☐	☑
☐	Remote Traveler Support	Traveler Kiosk Network	traveler request	Information Service Provider	Travel and Traffic Information Provider	☐	☑
☐	Remote Traveler Support	Distress Signal Wireline Communications	trip confirmation	Information Service Provider	Travel and Traffic Information Provider	☐	☑
☐	Remote Traveler Support	Transit Secure Area Monitoring System	trip confirmation	Information Service Provider	Travel and Traffic Information Provider	☐	☑
☐	Remote Traveler Support	Traveler Kiosk Network	trip confirmation	Information Service Provider	Travel and Traffic Information Provider	☐	☑
☐	Remote Traveler Support	Distress Signal Wireline Communications	trip request	Information Service Provider	Travel and Traffic Information Provider	☐	☑
☐	Remote Traveler Support	Transit Secure Area Monitoring System	trip request	Information Service Provider	Travel and Traffic Information Provider	☐	☑
☐	Remote Traveler Support	Traveler Kiosk Network	trip request	Information Service Provider	Travel and Traffic Information Provider	☐	☑
☐	Remote Traveler Support	Distress Signal Wireline Communications	yellow pages request	Information Service Provider	Travel and Traffic Information Provider	☐	☑
☐	Remote Traveler Support	Transit Secure Area Monitoring System	yellow pages request	Information Service Provider	Travel and Traffic Information Provider	☐	☑
☐	Remote Traveler Support	Traveler Kiosk Network	yellow pages request	Information Service Provider	Travel and Traffic Information Provider	☐	☑
☐	Roadway Environment	Conditions that may Affect ITS Equipment Operations	weather conditions	Roadway Subsystem	TxDOT Austin Signals	☑	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☑	Roadway Environment	Conditions that may Affect ITS Equipment Operations	weather conditions	Roadway Subsystem	Austin Flood Early Warning System	☑	☑
☐	Roadway Environment	Conditions that may Affect ITS Equipment Operations	weather conditions	Roadway Subsystem	Austin Sensors, Cameras, and HAR	☑	☑
☐	Roadway Environment	Conditions that may Affect ITS Equipment Operations	weather conditions	Roadway Subsystem	Austin Signals	☑	☑
☐	Roadway Environment	Conditions that may Affect ITS Equipment Operations	weather conditions	Roadway Subsystem	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	☑	☑
☐	Roadway Environment	Conditions that may Affect ITS Equipment Operations	weather conditions	Roadway Subsystem	Grade Crossing Warning System	☑	☑
☑	Roadway Environment	Conditions that may Affect ITS Equipment Operations	weather conditions	Roadway Subsystem	RWIS Network	☑	☑
☐	Roadway Environment	Conditions that may Affect ITS Equipment Operations	weather conditions	Roadway Subsystem	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	☑	☑
☐	Roadway Environment	Conditions that may Affect ITS Equipment Operations	weather conditions	Vehicle	Toll Tag Interface	☐	☑
☐	Roadway Environment	Conditions that may Affect ITS Equipment Operations	weather conditions	Vehicle	System That Provides Accurate Position Information	☐	☑
☐	Roadway Environment	Conditions that will Impact Driving	weather conditions	Roadway Subsystem	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	☑	☑
☐	Roadway Environment	Conditions that will Impact Driving	weather conditions	Roadway Subsystem	Austin Sensors, Cameras, and HAR	☑	☑
☐	Roadway Environment	Conditions that will Impact Driving	weather conditions	Roadway Subsystem	TxDOT Austin Signals	☑	☑
☐	Roadway Environment	Conditions that will Impact Driving	weather conditions	Roadway Subsystem	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	☑	☑
☑	Roadway Environment	Conditions that will Impact Driving	weather conditions	Roadway Subsystem	RWIS Network	☑	☑
☐	Roadway Environment	Conditions that will Impact Driving	weather conditions	Roadway Subsystem	Grade Crossing Warning System	☑	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☐	Roadway Environment	Conditions that will Impact Driving	weather conditions	Roadway Subsystem	Austin Signals	☑	☑
☑	Roadway Environment	Conditions that will Impact Driving	weather conditions	Roadway Subsystem	Austin Flood Early Warning System	☑	☑
☐	Roadway Environment	Conditions that will Impact Driving	weather conditions	Vehicle	System That Provides Accurate Position Information	☐	☑
☐	Roadway Environment	Conditions that will Impact Driving	weather conditions	Vehicle	Toll Tag Interface	☐	☑
☐	Roadway Subsystem	Austin Flood Early Warning System	AHS control data	Vehicle	Toll Tag Interface	☐	☑
☐	Roadway Subsystem	Austin Flood Early Warning System	AHS control data	Vehicle	System That Provides Accurate Position Information	☐	☑
☐	Roadway Subsystem	Austin Sensors, Cameras, and HAR	AHS control data	Vehicle	System That Provides Accurate Position Information	☐	☑
☐	Roadway Subsystem	Austin Sensors, Cameras, and HAR	AHS control data	Vehicle	Toll Tag Interface	☐	☑
☐	Roadway Subsystem	Austin Signals	AHS control data	Vehicle	System That Provides Accurate Position Information	☐	☑
☐	Roadway Subsystem	Austin Signals	AHS control data	Vehicle	Toll Tag Interface	☐	☑
☐	Roadway Subsystem	Grade Crossing Warning System	AHS control data	Vehicle	Toll Tag Interface	☐	☑
☐	Roadway Subsystem	Grade Crossing Warning System	AHS control data	Vehicle	System That Provides Accurate Position Information	☐	☑
☐	Roadway Subsystem	RWIS Network	AHS control data	Vehicle	Toll Tag Interface	☐	☑
☐	Roadway Subsystem	RWIS Network	AHS control data	Vehicle	System That Provides Accurate Position Information	☐	☑
☐	Roadway Subsystem	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	AHS control data	Vehicle	System That Provides Accurate Position Information	☐	☑
☐	Roadway Subsystem	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	AHS control data	Vehicle	Toll Tag Interface	☐	☑
☐	Roadway Subsystem	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	AHS control data	Vehicle	Toll Tag Interface	☐	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☐	Roadway Subsystem	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	AHS control data	Vehicle	System That Provides Accurate Position Information	☐	☑
☐	Roadway Subsystem	TxDOT Austin Signals	AHS control data	Vehicle	Toll Tag Interface	☐	☑
☐	Roadway Subsystem	TxDOT Austin Signals	AHS control data	Vehicle	System That Provides Accurate Position Information	☐	☑
☐	Roadway Subsystem	Austin Flood Early Warning System	AHS status	Traffic Management	TxDOT Austin TMC	☐	☑
☐	Roadway Subsystem	Austin Sensors, Cameras, and HAR	AHS status	Traffic Management	TxDOT Austin TMC	☐	☑
☐	Roadway Subsystem	Austin Signals	AHS status	Traffic Management	TxDOT Austin TMC	☐	☑
☐	Roadway Subsystem	Grade Crossing Warning System	AHS status	Traffic Management	TxDOT Austin TMC	☐	☑
☐	Roadway Subsystem	RWIS Network	AHS status	Traffic Management	TxDOT Austin TMC	☐	☑
☐	Roadway Subsystem	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	AHS status	Traffic Management	TxDOT Austin TMC	☐	☑
☐	Roadway Subsystem	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	AHS status	Traffic Management	TxDOT Austin TMC	☐	☑
☐	Roadway Subsystem	TxDOT Austin Signals	AHS status	Traffic Management	TxDOT Austin TMC	☐	☑
☐	Roadway Subsystem	Austin Flood Early Warning System	broadcast advisories	Basic Vehicle	Individual Vehicle Car Radio / CB-Radio	☑	☑
☑	Roadway Subsystem	Austin Sensors, Cameras, and HAR	broadcast advisories	Basic Vehicle	Individual Vehicle Car Radio / CB-Radio	☑	☑
☐	Roadway Subsystem	Austin Signals	broadcast advisories	Basic Vehicle	Individual Vehicle Car Radio / CB-Radio	☑	☑
☐	Roadway Subsystem	Grade Crossing Warning System	broadcast advisories	Basic Vehicle	Individual Vehicle Car Radio / CB-Radio	☑	☑
☐	Roadway Subsystem	RWIS Network	broadcast advisories	Basic Vehicle	Individual Vehicle Car Radio / CB-Radio	☑	☑
☑	Roadway Subsystem	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	broadcast advisories	Basic Vehicle	Individual Vehicle Car Radio / CB-Radio	☑	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☑	Roadway Subsystem	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	broadcast advisories	Basic Vehicle	Individual Vehicle Car Radio / CB-Radio	☑	☑
☐	Roadway Subsystem	TxDOT Austin Signals	broadcast advisories	Basic Vehicle	Individual Vehicle Car Radio / CB-Radio	☑	☑
☐	Roadway Subsystem	Austin Flood Early Warning System	driver information	Driver	Driver Operating A Vehicle	☑	☑
☑	Roadway Subsystem	Austin Sensors, Cameras, and HAR	driver information	Driver	Driver Operating A Vehicle	☑	☑
☐	Roadway Subsystem	Austin Signals	driver information	Driver	Driver Operating A Vehicle	☑	☑
☑	Roadway Subsystem	Grade Crossing Warning System	driver information	Driver	Driver Operating A Vehicle	☑	☑
☐	Roadway Subsystem	RWIS Network	driver information	Driver	Driver Operating A Vehicle	☑	☑
☑	Roadway Subsystem	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	driver information	Driver	Driver Operating A Vehicle	☑	☑
☑	Roadway Subsystem	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	driver information	Driver	Driver Operating A Vehicle	☑	☑
☐	Roadway Subsystem	TxDOT Austin Signals	driver information	Driver	Driver Operating A Vehicle	☑	☑
☐	Roadway Subsystem	Austin Flood Early Warning System	emissions data	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Roadway Subsystem	Austin Sensors, Cameras, and HAR	emissions data	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Roadway Subsystem	Austin Signals	emissions data	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Roadway Subsystem	Grade Crossing Warning System	emissions data	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Roadway Subsystem	RWIS Network	emissions data	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Roadway Subsystem	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	emissions data	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Roadway Subsystem	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	emissions data	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Roadway Subsystem	TxDOT Austin Signals	emissions data	Traffic Management	TxDOT Austin TMC	☑	☑
☑	Roadway Subsystem	Austin Flood Early Warning System	environmental conditions	Traffic Management	TxDOT Austin TMC	☑	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☐	Roadway Subsystem	Austin Sensors, Cameras, and HAR	environmental conditions	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Roadway Subsystem	Austin Signals	environmental conditions	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Roadway Subsystem	Grade Crossing Warning System	environmental conditions	Traffic Management	TxDOT Austin TMC	☑	☑
☑	Roadway Subsystem	RWIS Network	environmental conditions	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Roadway Subsystem	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	environmental conditions	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Roadway Subsystem	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	environmental conditions	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Roadway Subsystem	TxDOT Austin Signals	environmental conditions	Traffic Management	TxDOT Austin TMC	☑	☑
☑	Roadway Subsystem	Austin Flood Early Warning System	fault reports	Traffic Management	TxDOT Austin TMC	☑	☑
☑	Roadway Subsystem	Austin Sensors, Cameras, and HAR	fault reports	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Roadway Subsystem	Austin Signals	fault reports	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Roadway Subsystem	Grade Crossing Warning System	fault reports	Traffic Management	TxDOT Austin TMC	☑	☑
☑	Roadway Subsystem	RWIS Network	fault reports	Traffic Management	TxDOT Austin TMC	☑	☑
☑	Roadway Subsystem	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	fault reports	Traffic Management	TxDOT Austin TMC	☑	☑
☑	Roadway Subsystem	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	fault reports	Traffic Management	TxDOT Austin TMC	☑	☑
☑	Roadway Subsystem	TxDOT Austin Signals	fault reports	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Roadway Subsystem	Austin Flood Early Warning System	freeway control status	Traffic Management	TxDOT Austin TMC	☑	☑
☑	Roadway Subsystem	Austin Sensors, Cameras, and HAR	freeway control status	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Roadway Subsystem	Austin Signals	freeway control status	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Roadway Subsystem	Grade Crossing Warning System	freeway control status	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Roadway Subsystem	RWIS Network	freeway control status	Traffic Management	TxDOT Austin TMC	☑	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☑	Roadway Subsystem	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	freeway control status	Traffic Management	TxDOT Austin TMC	☑	☑
☑	Roadway Subsystem	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	freeway control status	Traffic Management	TxDOT Austin TMC	☑	☑
☑	Roadway Subsystem	TxDOT Austin Signals	freeway control status	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Roadway Subsystem	Austin Flood Early Warning System	highway control status	Multimodal Crossings	Rail Crossing Control Equipment	☑	☑
☐	Roadway Subsystem	Austin Sensors, Cameras, and HAR	highway control status	Multimodal Crossings	Rail Crossing Control Equipment	☑	☑
☐	Roadway Subsystem	Austin Signals	highway control status	Multimodal Crossings	Rail Crossing Control Equipment	☑	☑
☑	Roadway Subsystem	Grade Crossing Warning System	highway control status	Multimodal Crossings	Rail Crossing Control Equipment	☑	☑
☐	Roadway Subsystem	RWIS Network	highway control status	Multimodal Crossings	Rail Crossing Control Equipment	☑	☑
☐	Roadway Subsystem	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	highway control status	Multimodal Crossings	Rail Crossing Control Equipment	☑	☑
☐	Roadway Subsystem	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	highway control status	Multimodal Crossings	Rail Crossing Control Equipment	☑	☑
☐	Roadway Subsystem	TxDOT Austin Signals	highway control status	Multimodal Crossings	Rail Crossing Control Equipment	☑	☑
☐	Roadway Subsystem	Austin Flood Early Warning System	hov data	Traffic Management	TxDOT Austin TMC	☐	☑
☐	Roadway Subsystem	Austin Sensors, Cameras, and HAR	hov data	Traffic Management	TxDOT Austin TMC	☐	☑
☐	Roadway Subsystem	Austin Signals	hov data	Traffic Management	TxDOT Austin TMC	☐	☑
☐	Roadway Subsystem	Grade Crossing Warning System	hov data	Traffic Management	TxDOT Austin TMC	☐	☑
☐	Roadway Subsystem	RWIS Network	hov data	Traffic Management	TxDOT Austin TMC	☐	☑
☐	Roadway Subsystem	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	hov data	Traffic Management	TxDOT Austin TMC	☐	☑
☐	Roadway Subsystem	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	hov data	Traffic Management	TxDOT Austin TMC	☐	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☐	Roadway Subsystem	TxDOT Austin Signals	hov data	Traffic Management	TxDOT Austin TMC	☐	☑
☐	Roadway Subsystem	Austin Flood Early Warning System	hri operational status	Wayside Equipment	Train Interface Equipment	☑	☑
☐	Roadway Subsystem	Austin Sensors, Cameras, and HAR	hri operational status	Wayside Equipment	Train Interface Equipment	☑	☑
☐	Roadway Subsystem	Austin Signals	hri operational status	Wayside Equipment	Train Interface Equipment	☑	☑
☑	Roadway Subsystem	Grade Crossing Warning System	hri operational status	Wayside Equipment	Train Interface Equipment	☑	☑
☐	Roadway Subsystem	RWIS Network	hri operational status	Wayside Equipment	Train Interface Equipment	☑	☑
☐	Roadway Subsystem	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	hri operational status	Wayside Equipment	Train Interface Equipment	☑	☑
☐	Roadway Subsystem	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	hri operational status	Wayside Equipment	Train Interface Equipment	☑	☑
☐	Roadway Subsystem	TxDOT Austin Signals	hri operational status	Wayside Equipment	Train Interface Equipment	☑	☑
☐	Roadway Subsystem	Austin Flood Early Warning System	hri status	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Roadway Subsystem	Austin Sensors, Cameras, and HAR	hri status	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Roadway Subsystem	Austin Signals	hri status	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Roadway Subsystem	Grade Crossing Warning System	hri status	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Roadway Subsystem	RWIS Network	hri status	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Roadway Subsystem	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	hri status	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Roadway Subsystem	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	hri status	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Roadway Subsystem	TxDOT Austin Signals	hri status	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Roadway Subsystem	Austin Flood Early Warning System	incident data	Traffic Management	TxDOT Austin TMC	☑	☑
☑	Roadway Subsystem	Austin Sensors, Cameras, and HAR	incident data	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Roadway Subsystem	Austin Signals	incident data	Traffic Management	TxDOT Austin TMC	☑	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☐	Roadway Subsystem	Grade Crossing Warning System	incident data	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Roadway Subsystem	RWIS Network	incident data	Traffic Management	TxDOT Austin TMC	☑	☑
☑	Roadway Subsystem	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	incident data	Traffic Management	TxDOT Austin TMC	☑	☑
☑	Roadway Subsystem	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	incident data	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Roadway Subsystem	TxDOT Austin Signals	incident data	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Roadway Subsystem	Austin Flood Early Warning System	intersection blockage notification	Traffic Management	TxDOT Austin TMC	☐	☑
☐	Roadway Subsystem	Austin Flood Early Warning System	intersection blockage notification	Wayside Equipment	Train Interface Equipment	☐	☑
☐	Roadway Subsystem	Austin Sensors, Cameras, and HAR	intersection blockage notification	Traffic Management	TxDOT Austin TMC	☐	☑
☐	Roadway Subsystem	Austin Sensors, Cameras, and HAR	intersection blockage notification	Wayside Equipment	Train Interface Equipment	☐	☑
☐	Roadway Subsystem	Austin Signals	intersection blockage notification	Traffic Management	TxDOT Austin TMC	☐	☑
☐	Roadway Subsystem	Austin Signals	intersection blockage notification	Wayside Equipment	Train Interface Equipment	☐	☑
☐	Roadway Subsystem	Grade Crossing Warning System	intersection blockage notification	Traffic Management	TxDOT Austin TMC	☐	☑
☐	Roadway Subsystem	Grade Crossing Warning System	intersection blockage notification	Wayside Equipment	Train Interface Equipment	☐	☑
☐	Roadway Subsystem	RWIS Network	intersection blockage notification	Traffic Management	TxDOT Austin TMC	☐	☑
☐	Roadway Subsystem	RWIS Network	intersection blockage notification	Wayside Equipment	Train Interface Equipment	☐	☑
☐	Roadway Subsystem	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	intersection blockage notification	Traffic Management	TxDOT Austin TMC	☐	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☐	Roadway Subsystem	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	intersection blockage notification	Wayside Equipment	Train Interface Equipment	☐	☑
☐	Roadway Subsystem	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	intersection blockage notification	Traffic Management	TxDOT Austin TMC	☐	☑
☐	Roadway Subsystem	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	intersection blockage notification	Wayside Equipment	Train Interface Equipment	☐	☑
☐	Roadway Subsystem	TxDOT Austin Signals	intersection blockage notification	Traffic Management	TxDOT Austin TMC	☐	☑
☐	Roadway Subsystem	TxDOT Austin Signals	intersection blockage notification	Wayside Equipment	Train Interface Equipment	☐	☑
☐	Roadway Subsystem	Austin Flood Early Warning System	intersection status	Vehicle	System That Provides Accurate Position Information	☐	☑
☐	Roadway Subsystem	Austin Flood Early Warning System	intersection status	Vehicle	Toll Tag Interface	☐	☑
☐	Roadway Subsystem	Austin Sensors, Cameras, and HAR	intersection status	Vehicle	Toll Tag Interface	☐	☑
☐	Roadway Subsystem	Austin Sensors, Cameras, and HAR	intersection status	Vehicle	System That Provides Accurate Position Information	☐	☑
☐	Roadway Subsystem	Austin Signals	intersection status	Vehicle	Toll Tag Interface	☐	☑
☐	Roadway Subsystem	Austin Signals	intersection status	Vehicle	System That Provides Accurate Position Information	☐	☑
☐	Roadway Subsystem	Grade Crossing Warning System	intersection status	Vehicle	System That Provides Accurate Position Information	☐	☑
☐	Roadway Subsystem	Grade Crossing Warning System	intersection status	Vehicle	Toll Tag Interface	☐	☑
☐	Roadway Subsystem	RWIS Network	intersection status	Vehicle	System That Provides Accurate Position Information	☐	☑
☐	Roadway Subsystem	RWIS Network	intersection status	Vehicle	Toll Tag Interface	☐	☑
☐	Roadway Subsystem	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	intersection status	Vehicle	System That Provides Accurate Position Information	☐	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☐	Roadway Subsystem	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	intersection status	Vehicle	Toll Tag Interface	☐	☑
☐	Roadway Subsystem	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	intersection status	Vehicle	System That Provides Accurate Position Information	☐	☑
☐	Roadway Subsystem	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	intersection status	Vehicle	Toll Tag Interface	☐	☑
☐	Roadway Subsystem	TxDOT Austin Signals	intersection status	Vehicle	System That Provides Accurate Position Information	☐	☑
☐	Roadway Subsystem	TxDOT Austin Signals	intersection status	Vehicle	Toll Tag Interface	☐	☑
☐	Roadway Subsystem	Austin Flood Early Warning System	request for right-of-way	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Roadway Subsystem	Austin Sensors, Cameras, and HAR	request for right-of-way	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Roadway Subsystem	Austin Signals	request for right-of-way	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Roadway Subsystem	Grade Crossing Warning System	request for right-of-way	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Roadway Subsystem	RWIS Network	request for right-of-way	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Roadway Subsystem	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	request for right-of-way	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Roadway Subsystem	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	request for right-of-way	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Roadway Subsystem	TxDOT Austin Signals	request for right-of-way	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Roadway Subsystem	Austin Flood Early Warning System	request tag data	Vehicle	Toll Tag Interface	☐	☑
☐	Roadway Subsystem	Austin Flood Early Warning System	request tag data	Vehicle	System That Provides Accurate Position Information	☐	☑
☐	Roadway Subsystem	Austin Sensors, Cameras, and HAR	request tag data	Vehicle	System That Provides Accurate Position Information	☐	☑
☐	Roadway Subsystem	Austin Sensors, Cameras, and HAR	request tag data	Vehicle	Toll Tag Interface	☐	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☐	Roadway Subsystem	Austin Signals	request tag data	Vehicle	System That Provides Accurate Position Information	☐	☑
☐	Roadway Subsystem	Austin Signals	request tag data	Vehicle	Toll Tag Interface	☐	☑
☐	Roadway Subsystem	Grade Crossing Warning System	request tag data	Vehicle	Toll Tag Interface	☐	☑
☐	Roadway Subsystem	Grade Crossing Warning System	request tag data	Vehicle	System That Provides Accurate Position Information	☐	☑
☐	Roadway Subsystem	RWIS Network	request tag data	Vehicle	Toll Tag Interface	☐	☑
☐	Roadway Subsystem	RWIS Network	request tag data	Vehicle	System That Provides Accurate Position Information	☐	☑
☐	Roadway Subsystem	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	request tag data	Vehicle	Toll Tag Interface	☐	☑
☐	Roadway Subsystem	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	request tag data	Vehicle	System That Provides Accurate Position Information	☐	☑
☐	Roadway Subsystem	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	request tag data	Vehicle	Toll Tag Interface	☐	☑
☐	Roadway Subsystem	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	request tag data	Vehicle	System That Provides Accurate Position Information	☐	☑
☐	Roadway Subsystem	TxDOT Austin Signals	request tag data	Vehicle	System That Provides Accurate Position Information	☐	☑
☐	Roadway Subsystem	TxDOT Austin Signals	request tag data	Vehicle	Toll Tag Interface	☐	☑
☐	Roadway Subsystem	Austin Flood Early Warning System	reversible lane status	Traffic Management	TxDOT Austin TMC	☐	☑
☐	Roadway Subsystem	Austin Sensors, Cameras, and HAR	reversible lane status	Traffic Management	TxDOT Austin TMC	☐	☑
☐	Roadway Subsystem	Austin Signals	reversible lane status	Traffic Management	TxDOT Austin TMC	☐	☑
☐	Roadway Subsystem	Grade Crossing Warning System	reversible lane status	Traffic Management	TxDOT Austin TMC	☐	☑
☐	Roadway Subsystem	RWIS Network	reversible lane status	Traffic Management	TxDOT Austin TMC	☐	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☐	Roadway Subsystem	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	reversible lane status	Traffic Management	TxDOT Austin TMC	☐	☑
☐	Roadway Subsystem	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	reversible lane status	Traffic Management	TxDOT Austin TMC	☐	☑
☐	Roadway Subsystem	TxDOT Austin Signals	reversible lane status	Traffic Management	TxDOT Austin TMC	☐	☑
☐	Roadway Subsystem	Austin Flood Early Warning System	roadside archive data	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	☑	☑
☑	Roadway Subsystem	Austin Flood Early Warning System	roadside archive data	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	☑	☑
☐	Roadway Subsystem	Austin Flood Early Warning System	roadside archive data	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	☑	☑
☐	Roadway Subsystem	Austin Sensors, Cameras, and HAR	roadside archive data	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	☑	☑
☑	Roadway Subsystem	Austin Sensors, Cameras, and HAR	roadside archive data	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	☑	☑
☐	Roadway Subsystem	Austin Sensors, Cameras, and HAR	roadside archive data	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	☑	☑
☐	Roadway Subsystem	Austin Signals	roadside archive data	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	☑	☑
☐	Roadway Subsystem	Austin Signals	roadside archive data	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	☑	☑
☐	Roadway Subsystem	Austin Signals	roadside archive data	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	☑	☑
☐	Roadway Subsystem	Grade Crossing Warning System	roadside archive data	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	☑	☑
☐	Roadway Subsystem	Grade Crossing Warning System	roadside archive data	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	☑	☑
☐	Roadway Subsystem	Grade Crossing Warning System	roadside archive data	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	☑	☑
☐	Roadway Subsystem	RWIS Network	roadside archive data	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	☑	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☐	Roadway Subsystem	RWIS Network	roadside archive data	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	☑	☑
☑	Roadway Subsystem	RWIS Network	roadside archive data	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	☑	☑
☑	Roadway Subsystem	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	roadside archive data	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	☑	☑
☐	Roadway Subsystem	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	roadside archive data	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	☑	☑
☐	Roadway Subsystem	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	roadside archive data	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	☑	☑
☐	Roadway Subsystem	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	roadside archive data	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	☑	☑
☐	Roadway Subsystem	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	roadside archive data	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	☑	☑
☑	Roadway Subsystem	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	roadside archive data	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	☑	☑
☐	Roadway Subsystem	TxDOT Austin Signals	roadside archive data	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	☑	☑
☐	Roadway Subsystem	TxDOT Austin Signals	roadside archive data	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	☑	☑
☐	Roadway Subsystem	TxDOT Austin Signals	roadside archive data	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	☑	☑
☐	Roadway Subsystem	Austin Flood Early Warning System	roadway information system status	Traffic Management	TxDOT Austin TMC	☑	☑
☑	Roadway Subsystem	Austin Sensors, Cameras, and HAR	roadway information system status	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Roadway Subsystem	Austin Signals	roadway information system status	Traffic Management	TxDOT Austin TMC	☑	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☐	Roadway Subsystem	Grade Crossing Warning System	roadway information system status	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Roadway Subsystem	RWIS Network	roadway information system status	Traffic Management	TxDOT Austin TMC	☑	☑
☑	Roadway Subsystem	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	roadway information system status	Traffic Management	TxDOT Austin TMC	☑	☑
☑	Roadway Subsystem	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	roadway information system status	Traffic Management	TxDOT Austin TMC	☑	☑
☑	Roadway Subsystem	TxDOT Austin Signals	roadway information system status	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Roadway Subsystem	Austin Flood Early Warning System	signal control status	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Roadway Subsystem	Austin Sensors, Cameras, and HAR	signal control status	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Roadway Subsystem	Austin Signals	signal control status	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Roadway Subsystem	Grade Crossing Warning System	signal control status	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Roadway Subsystem	RWIS Network	signal control status	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Roadway Subsystem	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	signal control status	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Roadway Subsystem	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	signal control status	Traffic Management	TxDOT Austin TMC	☑	☑
☑	Roadway Subsystem	TxDOT Austin Signals	signal control status	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Roadway Subsystem	Austin Flood Early Warning System	traffic flow	Traffic Management	TxDOT Austin TMC	☑	☑
☑	Roadway Subsystem	Austin Sensors, Cameras, and HAR	traffic flow	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Roadway Subsystem	Austin Signals	traffic flow	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Roadway Subsystem	Grade Crossing Warning System	traffic flow	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Roadway Subsystem	RWIS Network	traffic flow	Traffic Management	TxDOT Austin TMC	☑	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☑	Roadway Subsystem	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	traffic flow	Traffic Management	TxDOT Austin TMC	☑	☑
☑	Roadway Subsystem	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	traffic flow	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Roadway Subsystem	TxDOT Austin Signals	traffic flow	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Roadway Subsystem	Austin Flood Early Warning System	traffic images	Traffic Management	TxDOT Austin TMC	☑	☑
☑	Roadway Subsystem	Austin Sensors, Cameras, and HAR	traffic images	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Roadway Subsystem	Austin Signals	traffic images	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Roadway Subsystem	Grade Crossing Warning System	traffic images	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Roadway Subsystem	RWIS Network	traffic images	Traffic Management	TxDOT Austin TMC	☑	☑
☑	Roadway Subsystem	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	traffic images	Traffic Management	TxDOT Austin TMC	☑	☑
☑	Roadway Subsystem	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	traffic images	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Roadway Subsystem	TxDOT Austin Signals	traffic images	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Roadway Subsystem	Austin Flood Early Warning System	vehicle probe data	Traffic Management	TxDOT Austin TMC	☐	☑
☐	Roadway Subsystem	Austin Sensors, Cameras, and HAR	vehicle probe data	Traffic Management	TxDOT Austin TMC	☐	☑
☐	Roadway Subsystem	Austin Signals	vehicle probe data	Traffic Management	TxDOT Austin TMC	☐	☑
☐	Roadway Subsystem	Grade Crossing Warning System	vehicle probe data	Traffic Management	TxDOT Austin TMC	☐	☑
☐	Roadway Subsystem	RWIS Network	vehicle probe data	Traffic Management	TxDOT Austin TMC	☐	☑
☐	Roadway Subsystem	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	vehicle probe data	Traffic Management	TxDOT Austin TMC	☐	☑
☐	Roadway Subsystem	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	vehicle probe data	Traffic Management	TxDOT Austin TMC	☐	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☐	Roadway Subsystem	TxDOT Austin Signals	vehicle probe data	Traffic Management	TxDOT Austin TMC	☐	☑
☐	Roadway Subsystem	Austin Flood Early Warning System	vehicle signage data	Vehicle	Toll Tag Interface	☐	☑
☐	Roadway Subsystem	Austin Flood Early Warning System	vehicle signage data	Vehicle	System That Provides Accurate Position Information	☐	☑
☐	Roadway Subsystem	Austin Sensors, Cameras, and HAR	vehicle signage data	Vehicle	Toll Tag Interface	☐	☑
☐	Roadway Subsystem	Austin Sensors, Cameras, and HAR	vehicle signage data	Vehicle	System That Provides Accurate Position Information	☐	☑
☐	Roadway Subsystem	Austin Signals	vehicle signage data	Vehicle	System That Provides Accurate Position Information	☐	☑
☐	Roadway Subsystem	Austin Signals	vehicle signage data	Vehicle	Toll Tag Interface	☐	☑
☐	Roadway Subsystem	Grade Crossing Warning System	vehicle signage data	Vehicle	System That Provides Accurate Position Information	☐	☑
☐	Roadway Subsystem	Grade Crossing Warning System	vehicle signage data	Vehicle	Toll Tag Interface	☐	☑
☐	Roadway Subsystem	RWIS Network	vehicle signage data	Vehicle	Toll Tag Interface	☐	☑
☐	Roadway Subsystem	RWIS Network	vehicle signage data	Vehicle	System That Provides Accurate Position Information	☐	☑
☐	Roadway Subsystem	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	vehicle signage data	Vehicle	Toll Tag Interface	☐	☑
☐	Roadway Subsystem	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	vehicle signage data	Vehicle	System That Provides Accurate Position Information	☐	☑
☐	Roadway Subsystem	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	vehicle signage data	Vehicle	Toll Tag Interface	☐	☑
☐	Roadway Subsystem	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	vehicle signage data	Vehicle	System That Provides Accurate Position Information	☐	☑
☐	Roadway Subsystem	TxDOT Austin Signals	vehicle signage data	Vehicle	Toll Tag Interface	☐	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☐	Roadway Subsystem	TxDOT Austin Signals	vehicle signage data	Vehicle	System That Provides Accurate Position Information	☐	☑
☑	Secure Area Environment	Transit Stops and Stations	secure area characteristics	Remote Traveler Support	Distress Signal Wireline Communications	☑	☑
☐	Secure Area Environment	Transit Stops and Stations	secure area characteristics	Remote Traveler Support	Traveler Kiosk Network	☑	☑
☑	Secure Area Environment	Transit Stops and Stations	secure area characteristics	Remote Traveler Support	Transit Secure Area Monitoring System	☑	☑
☑	Toll Administration	TxDOT Texas Turnpike Authority Division	license request	DMV	Vehicle Title and Registration Division	☑	☑
☑	Toll Administration	TxDOT Texas Turnpike Authority Division	payment request	Financial Institution	Commercial Bank	☑	☑
☐	Toll Administration	TxDOT Texas Turnpike Authority Division	probe data	Information Service Provider	Travel and Traffic Information Provider	☑	☑
☐	Toll Administration	TxDOT Texas Turnpike Authority Division	probe data	Traffic Management	TxDOT Austin TMC	☑	☑
☐	Toll Administration	TxDOT Texas Turnpike Authority Division	toll archive data	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	☑	☑
☐	Toll Administration	TxDOT Texas Turnpike Authority Division	toll archive data	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	☑	☑
☐	Toll Administration	TxDOT Texas Turnpike Authority Division	toll archive data	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	☑	☑
☑	Toll Administration	TxDOT Texas Turnpike Authority Division	toll data	Information Service Provider	Travel and Traffic Information Provider	☑	☑
☑	Toll Administration	TxDOT Texas Turnpike Authority Division	toll demand management response	Traffic Management	TxDOT Austin TMC	☑	☑
☑	Toll Administration	TxDOT Texas Turnpike Authority Division	toll instructions	Toll Collection	TxDot TTA Division Customer Service Center	☑	☑
☑	Toll Administration	TxDOT Texas Turnpike Authority Division	toll revenues and summary reports	Toll Administrator	TTA Controller	☑	☑
☑	Toll Administration	TxDOT Texas Turnpike Authority Division	violation notification	Enforcement Agency	Texas Traffic Law Enforcement	☑	☑
☐	Toll Administration	TxDOT Texas Turnpike Authority Division	violation notification	Enforcement Agency	Austin Police Department	☑	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☑	Toll Administrator	TTA Controller	toll administration requests	Toll Administration	TxDOT Texas Turnpike Authority Division	☑	☑
☐	Toll Collection	TxDot TTA Division Customer Service Center	request tag data	Vehicle	System That Provides Accurate Position Information	☑	☑
☑	Toll Collection	TxDot TTA Division Customer Service Center	request tag data	Vehicle	Toll Tag Interface	☑	☑
☑	Toll Collection	TxDot TTA Division Customer Service Center	roadside transaction status	Driver	Driver Operating A Vehicle	☑	☑
☐	Toll Collection	TxDot TTA Division Customer Service Center	tag update	Vehicle	Toll Tag Interface	☑	☑
☐	Toll Collection	TxDot TTA Division Customer Service Center	tag update	Vehicle	System That Provides Accurate Position Information	☑	☑
☑	Toll Collection	TxDot TTA Division Customer Service Center	toll transaction reports	Toll Operator	Toll Operator / Supervisor	☑	☑
☑	Toll Collection	TxDot TTA Division Customer Service Center	toll transactions	Toll Administration	TxDOT Texas Turnpike Authority Division	☑	☑
☑	Toll Operator	Toll Operator / Supervisor	toll operator requests	Toll Collection	TxDot TTA Division Customer Service Center	☑	☑
☐	Traffic	Vehicles on the Road	traffic characteristics	Roadway Subsystem	RWIS Network	☑	☑
☐	Traffic	Vehicles on the Road	traffic characteristics	Roadway Subsystem	TxDOT Austin Signals	☑	☑
☐	Traffic	Vehicles on the Road	traffic characteristics	Roadway Subsystem	Grade Crossing Warning System	☑	☑
☑	Traffic	Vehicles on the Road	traffic characteristics	Roadway Subsystem	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	☑	☑
☐	Traffic	Vehicles on the Road	traffic characteristics	Roadway Subsystem	Austin Signals	☑	☑
☑	Traffic	Vehicles on the Road	traffic characteristics	Roadway Subsystem	Austin Sensors, Cameras, and HAR	☑	☑
☐	Traffic	Vehicles on the Road	traffic characteristics	Roadway Subsystem	Austin Flood Early Warning System	☑	☑
☑	Traffic	Vehicles on the Road	traffic characteristics	Roadway Subsystem	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	☑	☑
☐	Traffic Management	TxDOT Austin TMC	AHS control information	Roadway Subsystem	Austin Flood Early Warning System	☐	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☐	Traffic Management	TxDOT Austin TMC	AHS control information	Roadway Subsystem	Austin Signals	☐	☑
☐	Traffic Management	TxDOT Austin TMC	AHS control information	Roadway Subsystem	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	☐	☑
☐	Traffic Management	TxDOT Austin TMC	AHS control information	Roadway Subsystem	Grade Crossing Warning System	☐	☑
☐	Traffic Management	TxDOT Austin TMC	AHS control information	Roadway Subsystem	RWIS Network	☐	☑
☐	Traffic Management	TxDOT Austin TMC	AHS control information	Roadway Subsystem	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	☐	☑
☐	Traffic Management	TxDOT Austin TMC	AHS control information	Roadway Subsystem	TxDOT Austin Signals	☐	☑
☐	Traffic Management	TxDOT Austin TMC	AHS control information	Roadway Subsystem	Austin Sensors, Cameras, and HAR	☐	☑
☑	Traffic Management	TxDOT Austin TMC	closure coordination	Construction and Maintenance	Williamson County Highway Maintenance Management System	☑	☑
☑	Traffic Management	TxDOT Austin TMC	closure coordination	Construction and Maintenance	City of Austin Maintenance System	☑	☑
☑	Traffic Management	TxDOT Austin TMC	closure coordination	Construction and Maintenance	City of Round Rock Maintenance System	☑	☑
☑	Traffic Management	TxDOT Austin TMC	closure coordination	Construction and Maintenance	Travis County Construction and Maintenance Management System	☑	☑
☑	Traffic Management	TxDOT Austin TMC	closure coordination	Construction and Maintenance	TxDOT Highway Maintenance Management System	☑	☑
☑	Traffic Management	TxDOT Austin TMC	current network conditions	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☑	Traffic Management	TxDOT Austin TMC	emergency traffic control response	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☑	Traffic Management	TxDOT Austin TMC	event confirmation	Event Promoters	Special Event Sponsors and Promoters	☑	☑
☐	Traffic Management	TxDOT Austin TMC	freeway control data	Roadway Subsystem	RWIS Network	☑	☑
☐	Traffic Management	TxDOT Austin TMC	freeway control data	Roadway Subsystem	Austin Flood Early Warning System	☑	☑
☐	Traffic Management	TxDOT Austin TMC	freeway control data	Roadway Subsystem	Grade Crossing Warning System	☑	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☑	Traffic Management	TxDOT Austin TMC	freeway control data	Roadway Subsystem	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	☑	☑
☑	Traffic Management	TxDOT Austin TMC	freeway control data	Roadway Subsystem	TxDOT Austin Signals	☑	☑
☑	Traffic Management	TxDOT Austin TMC	freeway control data	Roadway Subsystem	Austin Sensors, Cameras, and HAR	☑	☑
☐	Traffic Management	TxDOT Austin TMC	freeway control data	Roadway Subsystem	Austin Signals	☑	☑
☑	Traffic Management	TxDOT Austin TMC	freeway control data	Roadway Subsystem	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	☑	☑
☐	Traffic Management	TxDOT Austin TMC	hri control data	Roadway Subsystem	Austin Sensors, Cameras, and HAR	☑	☑
☐	Traffic Management	TxDOT Austin TMC	hri control data	Roadway Subsystem	TxDOT Austin Signals	☑	☑
☐	Traffic Management	TxDOT Austin TMC	hri control data	Roadway Subsystem	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	☑	☑
☐	Traffic Management	TxDOT Austin TMC	hri control data	Roadway Subsystem	RWIS Network	☑	☑
☐	Traffic Management	TxDOT Austin TMC	hri control data	Roadway Subsystem	Grade Crossing Warning System	☑	☑
☐	Traffic Management	TxDOT Austin TMC	hri control data	Roadway Subsystem	Austin Signals	☑	☑
☐	Traffic Management	TxDOT Austin TMC	hri control data	Roadway Subsystem	Austin Flood Early Warning System	☑	☑
☐	Traffic Management	TxDOT Austin TMC	hri control data	Roadway Subsystem	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	☑	☑
☐	Traffic Management	TxDOT Austin TMC	hri request	Roadway Subsystem	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	☑	☑
☐	Traffic Management	TxDOT Austin TMC	hri request	Roadway Subsystem	RWIS Network	☑	☑
☐	Traffic Management	TxDOT Austin TMC	hri request	Roadway Subsystem	Austin Flood Early Warning System	☑	☑
☐	Traffic Management	TxDOT Austin TMC	hri request	Roadway Subsystem	Grade Crossing Warning System	☑	☑
☐	Traffic Management	TxDOT Austin TMC	hri request	Roadway Subsystem	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	☑	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☐	Traffic Management	TxDOT Austin TMC	hri request	Roadway Subsystem	Austin Signals	☑	☑
☐	Traffic Management	TxDOT Austin TMC	hri request	Roadway Subsystem	TxDOT Austin Signals	☑	☑
☐	Traffic Management	TxDOT Austin TMC	hri request	Roadway Subsystem	Austin Sensors, Cameras, and HAR	☑	☑
☑	Traffic Management	TxDOT Austin TMC	incident information	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☑	Traffic Management	TxDOT Austin TMC	incident information request	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☐	Traffic Management	TxDOT Austin TMC	license request	DMV	Vehicle Title and Registration Division	☐	☑
☑	Traffic Management	TxDOT Austin TMC	maintenance resource request	Construction and Maintenance	City of Austin Maintenance System	☑	☑
☑	Traffic Management	TxDOT Austin TMC	maintenance resource request	Construction and Maintenance	City of Round Rock Maintenance System	☑	☑
☐	Traffic Management	TxDOT Austin TMC	maintenance resource request	Construction and Maintenance	Travis County Construction and Maintenance Management System	☑	☑
☑	Traffic Management	TxDOT Austin TMC	maintenance resource request	Construction and Maintenance	TxDOT Highway Maintenance Management System	☑	☑
☐	Traffic Management	TxDOT Austin TMC	maintenance resource request	Construction and Maintenance	Williamson County Highway Maintenance Management System	☑	☑
☑	Traffic Management	TxDOT Austin TMC	map update request	Map Update Provider	City of Austin GIS Agency	☑	☑
☐	Traffic Management	TxDOT Austin TMC	request fare and price information	Information Service Provider	Travel and Traffic Information Provider	☑	☑
☑	Traffic Management	TxDOT Austin TMC	request transit information	Transit Management	CapMetro Dispatch System	☑	☑
☑	Traffic Management	TxDOT Austin TMC	resource deployment status	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☑	Traffic Management	TxDOT Austin TMC	roadway information system data	Roadway Subsystem	Austin Sensors, Cameras, and HAR	☑	☑
☐	Traffic Management	TxDOT Austin TMC	roadway information system data	Roadway Subsystem	Grade Crossing Warning System	☑	☑
☐	Traffic Management	TxDOT Austin TMC	roadway information system data	Roadway Subsystem	Austin Signals	☑	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☑	Traffic Management	TxDOT Austin TMC	roadway information system data	Roadway Subsystem	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	☑	☑
☐	Traffic Management	TxDOT Austin TMC	roadway information system data	Roadway Subsystem	RWIS Network	☑	☑
☑	Traffic Management	TxDOT Austin TMC	roadway information system data	Roadway Subsystem	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	☑	☑
☑	Traffic Management	TxDOT Austin TMC	roadway information system data	Roadway Subsystem	TxDOT Austin Signals	☑	☑
☐	Traffic Management	TxDOT Austin TMC	roadway information system data	Roadway Subsystem	Austin Flood Early Warning System	☑	☑
☑	Traffic Management	TxDOT Austin TMC	sensor and surveillance control	Roadway Subsystem	TxDOT Austin Signals	☑	☑
☑	Traffic Management	TxDOT Austin TMC	sensor and surveillance control	Roadway Subsystem	Austin Flood Early Warning System	☑	☑
☑	Traffic Management	TxDOT Austin TMC	sensor and surveillance control	Roadway Subsystem	Austin Sensors, Cameras, and HAR	☑	☑
☐	Traffic Management	TxDOT Austin TMC	sensor and surveillance control	Roadway Subsystem	Austin Signals	☑	☑
☑	Traffic Management	TxDOT Austin TMC	sensor and surveillance control	Roadway Subsystem	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	☑	☑
☐	Traffic Management	TxDOT Austin TMC	sensor and surveillance control	Roadway Subsystem	Grade Crossing Warning System	☑	☑
☑	Traffic Management	TxDOT Austin TMC	sensor and surveillance control	Roadway Subsystem	RWIS Network	☑	☑
☑	Traffic Management	TxDOT Austin TMC	sensor and surveillance control	Roadway Subsystem	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	☑	☑
☐	Traffic Management	TxDOT Austin TMC	signal control data	Roadway Subsystem	Grade Crossing Warning System	☑	☑
☐	Traffic Management	TxDOT Austin TMC	signal control data	Roadway Subsystem	Austin Flood Early Warning System	☑	☑
☐	Traffic Management	TxDOT Austin TMC	signal control data	Roadway Subsystem	Austin Sensors, Cameras, and HAR	☑	☑
☐	Traffic Management	TxDOT Austin TMC	signal control data	Roadway Subsystem	Austin Signals	☑	☑
☐	Traffic Management	TxDOT Austin TMC	signal control data	Roadway Subsystem	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	☑	☑

Architecture Flow Selection Criteria

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Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☐	Traffic Management	TxDOT Austin TMC	signal control data	Roadway Subsystem	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	☑	☑
☐	Traffic Management	TxDOT Austin TMC	signal control data	Roadway Subsystem	RWIS Network	☑	☑
☑	Traffic Management	TxDOT Austin TMC	signal control data	Roadway Subsystem	TxDOT Austin Signals	☑	☑
☑	Traffic Management	TxDOT Austin TMC	toll demand management request	Toll Administration	TxDOT Texas Turnpike Authority Division	☑	☑
☐	Traffic Management	TxDOT Austin TMC	traffic archive data	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	☑	☑
☑	Traffic Management	TxDOT Austin TMC	traffic archive data	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	☑	☑
☐	Traffic Management	TxDOT Austin TMC	traffic archive data	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	☑	☑
☑	Traffic Management	TxDOT Austin TMC	traffic control coordination	Other TM	Austin Signal Control Center	☑	☑
☑	Traffic Management	TxDOT Austin TMC	traffic control coordination	Other TM	Round Rock TMC	☑	☑
☐	Traffic Management	TxDOT Austin TMC	traffic control priority status	Transit Management	CapMetro Dispatch System	☐	☑
☐	Traffic Management	TxDOT Austin TMC	traffic equipment status	Construction and Maintenance	Williamson County Highway Maintenance Management System	☑	☑
☑	Traffic Management	TxDOT Austin TMC	traffic equipment status	Construction and Maintenance	City of Round Rock Maintenance System	☑	☑
☐	Traffic Management	TxDOT Austin TMC	traffic equipment status	Construction and Maintenance	Travis County Construction and Maintenance Management System	☑	☑
☑	Traffic Management	TxDOT Austin TMC	traffic equipment status	Construction and Maintenance	TxDOT Highway Maintenance Management System	☑	☑
☑	Traffic Management	TxDOT Austin TMC	traffic equipment status	Construction and Maintenance	City of Austin Maintenance System	☑	☑
☑	Traffic Management	TxDOT Austin TMC	traffic information	Information Service Provider	Travel and Traffic Information Provider	☑	☑
☑	Traffic Management	TxDOT Austin TMC	traffic information coordination	Other TM	Round Rock TMC	☑	☑
☑	Traffic Management	TxDOT Austin TMC	traffic information coordination	Other TM	Austin Signal Control Center	☑	☑

Architecture Flow Selection Criteria

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Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☑	Traffic Management	TxDOT Austin TMC	traffic information for media	Media	Traffic and Travel Information System	☑	☑
☑	Traffic Management	TxDOT Austin TMC	traffic information for transit	Transit Management	CapMetro Dispatch System	☑	☑
☑	Traffic Management	TxDOT Austin TMC	traffic operator data	Traffic Operations Personnel	TMC Operators / Dispatchers	☑	☑
☑	Traffic Management	TxDOT Austin TMC	transit demand management request	Transit Management	CapMetro Dispatch System	☑	☑
☐	Traffic Management	TxDOT Austin TMC	violation notification	Enforcement Agency	Texas Traffic Law Enforcement	☐	☑
☐	Traffic Management	TxDOT Austin TMC	violation notification	Enforcement Agency	Austin Police Department	☐	☑
☑	Traffic Operations Personnel	TMC Operators / Dispatchers	traffic operator inputs	Traffic Management	TxDOT Austin TMC	☑	☑
☑	Transit Driver	Transit Vehicle Drivers	transit driver availability	Transit Management	CapMetro Dispatch System	☑	☑
☑	Transit Driver	Transit Vehicle Drivers	transit driver inputs	Transit Vehicle Subsystem	Transit Vehicle Monitoring System	☑	☑
☑	Transit Fleet Manager	CapMetro Fleet Operations Manager	transit fleet manager inputs	Transit Management	CapMetro Dispatch System	☑	☑
☑	Transit Maintenance Personnel	CapMetro Vehicle Maintenance	maintenance status	Transit Management	CapMetro Dispatch System	☑	☑
☑	Transit Management	CapMetro Dispatch System	bad tag list	Transit Vehicle Subsystem	Transit Vehicle Monitoring System	☑	☑
☑	Transit Management	CapMetro Dispatch System	demand responsive transit plan	Information Service Provider	Travel and Traffic Information Provider	☑	☑
☑	Transit Management	CapMetro Dispatch System	driver instructions	Transit Vehicle Subsystem	Transit Vehicle Monitoring System	☑	☑
☐	Transit Management	CapMetro Dispatch System	emergency acknowledge	Remote Traveler Support	Traveler Kiosk Network	☑	☑
☐	Transit Management	CapMetro Dispatch System	emergency acknowledge	Remote Traveler Support	Transit Secure Area Monitoring System	☑	☑
☐	Transit Management	CapMetro Dispatch System	emergency acknowledge	Remote Traveler Support	Distress Signal Wireline Communications	☑	☑
☑	Transit Management	CapMetro Dispatch System	emergency acknowledge	Transit Vehicle Subsystem	Transit Vehicle Monitoring System	☑	☑
☑	Transit Management	CapMetro Dispatch System	fare management information	Transit Vehicle Subsystem	Transit Vehicle Monitoring System	☑	☑
☑	Transit Management	CapMetro Dispatch System	map update request	Map Update Provider	City of Austin GIS Agency	☑	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☐	Transit Management	CapMetro Dispatch System	payment request	Financial Institution	Commercial Bank	☑	☑
☑	Transit Management	CapMetro Dispatch System	personal transit information	Personal Information Access	Individual Cell- and Land-Line Telephones	☑	☑
☑	Transit Management	CapMetro Dispatch System	personal transit information	Personal Information Access	Internet Browser	☑	☑
☑	Transit Management	CapMetro Dispatch System	personal transit information	Personal Information Access	Individual Fax	☑	☑
☐	Transit Management	CapMetro Dispatch System	personal transit information	Personal Information Access	Individual Pagers	☑	☑
☑	Transit Management	CapMetro Dispatch System	request for vehicle measures	Transit Vehicle Subsystem	Transit Vehicle Monitoring System	☑	☑
☑	Transit Management	CapMetro Dispatch System	route assignment	Transit Driver	Transit Vehicle Drivers	☑	☑
☑	Transit Management	CapMetro Dispatch System	secure area monitoring support	Remote Traveler Support	Transit Secure Area Monitoring System	☑	☑
☐	Transit Management	CapMetro Dispatch System	secure area monitoring support	Remote Traveler Support	Traveler Kiosk Network	☑	☑
☑	Transit Management	CapMetro Dispatch System	secure area monitoring support	Remote Traveler Support	Distress Signal Wireline Communications	☑	☑
☐	Transit Management	CapMetro Dispatch System	traffic control priority request	Traffic Management	TxDOT Austin TMC	☐	☑
☑	Transit Management	CapMetro Dispatch System	transit and fare schedules	Information Service Provider	Travel and Traffic Information Provider	☑	☑
☐	Transit Management	CapMetro Dispatch System	transit archive data	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	☑	☑
☐	Transit Management	CapMetro Dispatch System	transit archive data	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	☑	☑
☐	Transit Management	CapMetro Dispatch System	transit archive data	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	☑	☑
☑	Transit Management	CapMetro Dispatch System	transit demand management response	Traffic Management	TxDOT Austin TMC	☑	☑
☑	Transit Management	CapMetro Dispatch System	transit emergency data	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☐	Transit Management	CapMetro Dispatch System	transit fare payment responses	Remote Traveler Support	Distress Signal Wireline Communications	☑	☑
☑	Transit Management	CapMetro Dispatch System	transit fare payment responses	Remote Traveler Support	Traveler Kiosk Network	☑	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☐	Transit Management	CapMetro Dispatch System	transit fare payment responses	Remote Traveler Support	Transit Secure Area Monitoring System	☑	☑
☐	Transit Management	CapMetro Dispatch System	transit incident information	Information Service Provider	Travel and Traffic Information Provider	☑	☑
☐	Transit Management	CapMetro Dispatch System	transit incidents for media	Media	Traffic and Travel Information System	☑	☑
☑	Transit Management	CapMetro Dispatch System	transit information for media	Media	Traffic and Travel Information System	☑	☑
☑	Transit Management	CapMetro Dispatch System	transit operations planning data	Transit Fleet Manager	CapMetro Fleet Operations Manager	☑	☑
☑	Transit Management	CapMetro Dispatch System	transit operator display	Transit System Operators	Transit Operators (Day-to-Day Activity Managers)	☑	☑
☐	Transit Management	CapMetro Dispatch System	transit request confirmation	Information Service Provider	Travel and Traffic Information Provider	☑	☑
☑	Transit Management	CapMetro Dispatch System	transit schedule information	Transit Vehicle Subsystem	Transit Vehicle Monitoring System	☑	☑
☐	Transit Management	CapMetro Dispatch System	transit system data	Traffic Management	TxDOT Austin TMC	☐	☑
☐	Transit Management	CapMetro Dispatch System	transit traveler information	Remote Traveler Support	Distress Signal Wireline Communications	☑	☑
☑	Transit Management	CapMetro Dispatch System	transit traveler information	Remote Traveler Support	Traveler Kiosk Network	☑	☑
☐	Transit Management	CapMetro Dispatch System	transit traveler information	Remote Traveler Support	Transit Secure Area Monitoring System	☑	☑
☑	Transit Management	CapMetro Dispatch System	transit traveler information	Transit Vehicle Subsystem	Transit Vehicle Monitoring System	☑	☑
☑	Transit Management	CapMetro Dispatch System	transit work schedule	Transit Maintenance Personnel	CapMetro Vehicle Maintenance	☑	☑
☑	Transit Management	CapMetro Dispatch System	violation notification	Enforcement Agency	Austin Police Department	☑	☑
☐	Transit Management	CapMetro Dispatch System	violation notification	Enforcement Agency	Texas Traffic Law Enforcement	☑	☑
☑	Transit System Operators	Transit Operators (Day-to-Day Activity Managers)	transit operator management data	Transit Management	CapMetro Dispatch System	☑	☑
☑	Transit User	Individual Using Transportation Services	emergency request	Transit Vehicle Subsystem	Transit Vehicle Monitoring System	☑	☑
☐	Transit User	Individual Using Transportation Services	transit user inputs	Remote Traveler Support	Transit Secure Area Monitoring System	☑	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☑	Transit User	Individual Using Transportation Services	transit user inputs	Remote Traveler Support	Traveler Kiosk Network	☑	☑
☐	Transit User	Individual Using Transportation Services	transit user inputs	Remote Traveler Support	Distress Signal Wireline Communications	☑	☑
☑	Transit User	Individual Using Transportation Services	transit user inputs	Transit Vehicle Subsystem	Transit Vehicle Monitoring System	☑	☑
☑	Transit Vehicle	Vehicle Used for Transit	transit vehicle measures	Transit Vehicle Subsystem	Transit Vehicle Monitoring System	☑	☑
☑	Transit Vehicle Subsystem	Transit Vehicle Monitoring System	emergency notification	Transit Management	CapMetro Dispatch System	☑	☑
☑	Transit Vehicle Subsystem	Transit Vehicle Monitoring System	fare and payment status	Transit Management	CapMetro Dispatch System	☑	☑
☐	Transit Vehicle Subsystem	Transit Vehicle Monitoring System	local signal priority request	Roadway Subsystem	Austin Flood Early Warning System	☐	☑
☐	Transit Vehicle Subsystem	Transit Vehicle Monitoring System	local signal priority request	Roadway Subsystem	Austin Sensors, Cameras, and HAR	☐	☑
☐	Transit Vehicle Subsystem	Transit Vehicle Monitoring System	local signal priority request	Roadway Subsystem	Austin Signals	☐	☑
☐	Transit Vehicle Subsystem	Transit Vehicle Monitoring System	local signal priority request	Roadway Subsystem	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	☐	☑
☐	Transit Vehicle Subsystem	Transit Vehicle Monitoring System	local signal priority request	Roadway Subsystem	TxDOT Austin Signals	☐	☑
☐	Transit Vehicle Subsystem	Transit Vehicle Monitoring System	local signal priority request	Roadway Subsystem	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	☐	☑
☐	Transit Vehicle Subsystem	Transit Vehicle Monitoring System	local signal priority request	Roadway Subsystem	RWIS Network	☐	☑
☐	Transit Vehicle Subsystem	Transit Vehicle Monitoring System	local signal priority request	Roadway Subsystem	Grade Crossing Warning System	☐	☑
☑	Transit Vehicle Subsystem	Transit Vehicle Monitoring System	request for bad tag list	Transit Management	CapMetro Dispatch System	☑	☑
☐	Transit Vehicle Subsystem	Transit Vehicle Monitoring System	request for payment	Payment Instrument	Transponder Card	☑	☑
☑	Transit Vehicle Subsystem	Transit Vehicle Monitoring System	transit driver display	Transit Driver	Transit Vehicle Drivers	☑	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☑	Transit Vehicle Subsystem	Transit Vehicle Monitoring System	transit traveler request	Transit Management	CapMetro Dispatch System	☑	☑
☑	Transit Vehicle Subsystem	Transit Vehicle Monitoring System	transit user fare status	Transit User	Individual Using Transportation Services	☑	☑
☑	Transit Vehicle Subsystem	Transit Vehicle Monitoring System	transit user outputs	Transit User	Individual Using Transportation Services	☑	☑
☑	Transit Vehicle Subsystem	Transit Vehicle Monitoring System	transit vehicle conditions	Transit Management	CapMetro Dispatch System	☑	☑
☑	Transit Vehicle Subsystem	Transit Vehicle Monitoring System	transit vehicle location data	Transit Management	CapMetro Dispatch System	☑	☑
☑	Transit Vehicle Subsystem	Transit Vehicle Monitoring System	transit vehicle passenger and use data	Transit Management	CapMetro Dispatch System	☑	☑
☑	Transit Vehicle Subsystem	Transit Vehicle Monitoring System	transit vehicle schedule performance	Transit Management	CapMetro Dispatch System	☑	☑
☐	Transit Vehicle Subsystem	Transit Vehicle Monitoring System	traveler advisory request	Vehicle	Toll Tag Interface	☑	☑
☐	Transit Vehicle Subsystem	Transit Vehicle Monitoring System	traveler advisory request	Vehicle	System That Provides Accurate Position Information	☑	☑
☑	Traveler	Pre-Trip Individual Using Transportation Services	traveler inputs	Personal Information Access	Individual Cell- and Land-Line Telephones	☑	☑
☑	Traveler	Pre-Trip Individual Using Transportation Services	traveler inputs	Personal Information Access	Internet Browser	☑	☑
☐	Traveler	Pre-Trip Individual Using Transportation Services	traveler inputs	Personal Information Access	Individual Pagers	☑	☑
☑	Traveler	Pre-Trip Individual Using Transportation Services	traveler inputs	Personal Information Access	Individual Fax	☑	☑
☐	Traveler	Pre-Trip Individual Using Transportation Services	traveler inputs	Remote Traveler Support	Transit Secure Area Monitoring System	☐	☑
☐	Traveler	Pre-Trip Individual Using Transportation Services	traveler inputs	Remote Traveler Support	Distress Signal Wireline Communications	☐	☑
☐	Traveler	Pre-Trip Individual Using Transportation Services	traveler inputs	Remote Traveler Support	Traveler Kiosk Network	☐	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☐	Vehicle	System That Provides Accurate Position Information	AHS vehicle data	Roadway Subsystem	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	☐	☑
☐	Vehicle	System That Provides Accurate Position Information	AHS vehicle data	Roadway Subsystem	Grade Crossing Warning System	☐	☑
☐	Vehicle	System That Provides Accurate Position Information	AHS vehicle data	Roadway Subsystem	RWIS Network	☐	☑
☐	Vehicle	System That Provides Accurate Position Information	AHS vehicle data	Roadway Subsystem	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	☐	☑
☐	Vehicle	System That Provides Accurate Position Information	AHS vehicle data	Roadway Subsystem	Austin Flood Early Warning System	☐	☑
☐	Vehicle	System That Provides Accurate Position Information	AHS vehicle data	Roadway Subsystem	TxDOT Austin Signals	☐	☑
☐	Vehicle	System That Provides Accurate Position Information	AHS vehicle data	Roadway Subsystem	Austin Signals	☐	☑
☐	Vehicle	System That Provides Accurate Position Information	AHS vehicle data	Roadway Subsystem	Austin Sensors, Cameras, and HAR	☐	☑
☐	Vehicle	Toll Tag Interface	AHS vehicle data	Roadway Subsystem	RWIS Network	☐	☑
☐	Vehicle	Toll Tag Interface	AHS vehicle data	Roadway Subsystem	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	☐	☑
☐	Vehicle	Toll Tag Interface	AHS vehicle data	Roadway Subsystem	TxDOT Austin Signals	☐	☑
☐	Vehicle	Toll Tag Interface	AHS vehicle data	Roadway Subsystem	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	☐	☑
☐	Vehicle	Toll Tag Interface	AHS vehicle data	Roadway Subsystem	Grade Crossing Warning System	☐	☑
☐	Vehicle	Toll Tag Interface	AHS vehicle data	Roadway Subsystem	Austin Signals	☐	☑
☐	Vehicle	Toll Tag Interface	AHS vehicle data	Roadway Subsystem	Austin Sensors, Cameras, and HAR	☐	☑
☐	Vehicle	Toll Tag Interface	AHS vehicle data	Roadway Subsystem	Austin Flood Early Warning System	☐	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☑	Vehicle	System That Provides Accurate Position Information	driver updates	Driver	Driver Operating A Vehicle	☑	☑
☐	Vehicle	Toll Tag Interface	driver updates	Driver	Driver Operating A Vehicle	☑	☑
☐	Vehicle	System That Provides Accurate Position Information	emergency notification	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☐	Vehicle	Toll Tag Interface	emergency notification	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☐	Vehicle	System That Provides Accurate Position Information	in-vehicle transaction status	Driver	Driver Operating A Vehicle	☑	☑
☑	Vehicle	Toll Tag Interface	in-vehicle transaction status	Driver	Driver Operating A Vehicle	☑	☑
☐	Vehicle	System That Provides Accurate Position Information	map update request	Map Update Provider	City of Austin GIS Agency	☐	☑
☐	Vehicle	Toll Tag Interface	map update request	Map Update Provider	City of Austin GIS Agency	☐	☑
☐	Vehicle	System That Provides Accurate Position Information	request for payment	Payment Instrument	Transponder Card	☑	☑
☑	Vehicle	Toll Tag Interface	request for payment	Payment Instrument	Transponder Card	☑	☑
☐	Vehicle	System That Provides Accurate Position Information	tag data	Toll Collection	TxDot TTA Division Customer Service Center	☑	☑
☑	Vehicle	Toll Tag Interface	tag data	Toll Collection	TxDot TTA Division Customer Service Center	☑	☑
☐	Vehicle	System That Provides Accurate Position Information	traveler profile	Information Service Provider	Travel and Traffic Information Provider	☐	☑
☐	Vehicle	Toll Tag Interface	traveler profile	Information Service Provider	Travel and Traffic Information Provider	☐	☑
☐	Vehicle	System That Provides Accurate Position Information	traveler request	Information Service Provider	Travel and Traffic Information Provider	☐	☑
☐	Vehicle	Toll Tag Interface	traveler request	Information Service Provider	Travel and Traffic Information Provider	☐	☑
☐	Vehicle	System That Provides Accurate Position Information	trip confirmation	Information Service Provider	Travel and Traffic Information Provider	☐	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☐	Vehicle	Toll Tag Interface	trip confirmation	Information Service Provider	Travel and Traffic Information Provider	☐	☑
☐	Vehicle	System That Provides Accurate Position Information	trip request	Information Service Provider	Travel and Traffic Information Provider	☐	☑
☐	Vehicle	Toll Tag Interface	trip request	Information Service Provider	Travel and Traffic Information Provider	☐	☑
☐	Vehicle	System That Provides Accurate Position Information	vehicle control	Basic Vehicle	Individual Vehicle Car Radio / CB-Radio	☐	☑
☐	Vehicle	Toll Tag Interface	vehicle control	Basic Vehicle	Individual Vehicle Car Radio / CB-Radio	☐	☑
☐	Vehicle	System That Provides Accurate Position Information	vehicle location	Emergency Vehicle Subsystem	Austin Police, Fire, EMS Vehicle Radio Communications	☑	☑
☐	Vehicle	System That Provides Accurate Position Information	vehicle location	Emergency Vehicle Subsystem	TxDOT Austin Courtesy Vehicle Radio Communications	☑	☑
☐	Vehicle	System That Provides Accurate Position Information	vehicle location	Emergency Vehicle Subsystem	TxDOT Austin Courtesy Vehicle Mobile Data Terminal	☑	☑
☐	Vehicle	System That Provides Accurate Position Information	vehicle location	Emergency Vehicle Subsystem	Turnpike Authority Courtesy Vehicle Radio Communications	☑	☑
☐	Vehicle	System That Provides Accurate Position Information	vehicle location	Emergency Vehicle Subsystem	Travis County Emergency Vehicle Radio Communications	☑	☑
☐	Vehicle	System That Provides Accurate Position Information	vehicle location	Emergency Vehicle Subsystem	Travis County Emergency Vehicle Mobile Data Terminal	☑	☑
☑	Vehicle	System That Provides Accurate Position Information	vehicle location	Emergency Vehicle Subsystem	Emergency Vehicles Equipped with AVL	☑	☑
☐	Vehicle	System That Provides Accurate Position Information	vehicle location	Emergency Vehicle Subsystem	Austin Police, Fire, EMS Vehicle Mobile Data Terminal	☑	☑
☐	Vehicle	System That Provides Accurate Position Information	vehicle location	Emergency Vehicle Subsystem	3M Opticom Signal Preemption System	☑	☑
☐	Vehicle	System That Provides Accurate Position Information	vehicle location	Emergency Vehicle Subsystem	ABIA (Airport) Vehicle Radio Communications	☑	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☐	Vehicle	System That Provides Accurate Position Information	vehicle location	Emergency Vehicle Subsystem	ABIA (Airport) Vehicle Mobile Data Terminal	☑	☑
☐	Vehicle	System That Provides Accurate Position Information	vehicle location	Emergency Vehicle Subsystem	Turnpike Authority Courtesy Vehicle Mobile Data Terminal	☑	☑
☑	Vehicle	System That Provides Accurate Position Information	vehicle location	Transit Vehicle Subsystem	Transit Vehicle Monitoring System	☑	☑
☐	Vehicle	Toll Tag Interface	vehicle location	Emergency Vehicle Subsystem	Turnpike Authority Courtesy Vehicle Mobile Data Terminal	☑	☑
☐	Vehicle	Toll Tag Interface	vehicle location	Emergency Vehicle Subsystem	TxDOT Austin Courtesy Vehicle Radio Communications	☑	☑
☐	Vehicle	Toll Tag Interface	vehicle location	Emergency Vehicle Subsystem	TxDOT Austin Courtesy Vehicle Mobile Data Terminal	☑	☑
☐	Vehicle	Toll Tag Interface	vehicle location	Emergency Vehicle Subsystem	Austin Police, Fire, EMS Vehicle Mobile Data Terminal	☑	☑
☐	Vehicle	Toll Tag Interface	vehicle location	Emergency Vehicle Subsystem	Turnpike Authority Courtesy Vehicle Radio Communications	☑	☑
☐	Vehicle	Toll Tag Interface	vehicle location	Emergency Vehicle Subsystem	Travis County Emergency Vehicle Mobile Data Terminal	☑	☑
☐	Vehicle	Toll Tag Interface	vehicle location	Emergency Vehicle Subsystem	Emergency Vehicles Equipped with AVL	☑	☑
☐	Vehicle	Toll Tag Interface	vehicle location	Emergency Vehicle Subsystem	Austin Police, Fire, EMS Vehicle Radio Communications	☑	☑
☐	Vehicle	Toll Tag Interface	vehicle location	Emergency Vehicle Subsystem	Travis County Emergency Vehicle Radio Communications	☑	☑
☐	Vehicle	Toll Tag Interface	vehicle location	Emergency Vehicle Subsystem	ABIA (Airport) Vehicle Mobile Data Terminal	☑	☑
☐	Vehicle	Toll Tag Interface	vehicle location	Emergency Vehicle Subsystem	3M Opticom Signal Preemption System	☑	☑
☐	Vehicle	Toll Tag Interface	vehicle location	Emergency Vehicle Subsystem	ABIA (Airport) Vehicle Radio Communications	☑	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☐	Vehicle	Toll Tag Interface	vehicle location	Transit Vehicle Subsystem	Transit Vehicle Monitoring System	☑	☑
☐	Vehicle	System That Provides Accurate Position Information	vehicle probe data	Information Service Provider	Travel and Traffic Information Provider	☐	☑
☐	Vehicle	System That Provides Accurate Position Information	vehicle probe data	Roadway Subsystem	RWIS Network	☐	☑
☐	Vehicle	System That Provides Accurate Position Information	vehicle probe data	Roadway Subsystem	Austin Signals	☐	☑
☐	Vehicle	System That Provides Accurate Position Information	vehicle probe data	Roadway Subsystem	Austin Sensors, Cameras, and HAR	☐	☑
☐	Vehicle	System That Provides Accurate Position Information	vehicle probe data	Roadway Subsystem	Austin Flood Early Warning System	☐	☑
☐	Vehicle	System That Provides Accurate Position Information	vehicle probe data	Roadway Subsystem	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	☐	☑
☐	Vehicle	System That Provides Accurate Position Information	vehicle probe data	Roadway Subsystem	TxDOT Austin Signals	☐	☑
☐	Vehicle	System That Provides Accurate Position Information	vehicle probe data	Roadway Subsystem	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	☐	☑
☐	Vehicle	System That Provides Accurate Position Information	vehicle probe data	Roadway Subsystem	Grade Crossing Warning System	☐	☑
☐	Vehicle	Toll Tag Interface	vehicle probe data	Information Service Provider	Travel and Traffic Information Provider	☐	☑
☐	Vehicle	Toll Tag Interface	vehicle probe data	Roadway Subsystem	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	☐	☑
☐	Vehicle	Toll Tag Interface	vehicle probe data	Roadway Subsystem	TxDOT Austin Signals	☐	☑
☐	Vehicle	Toll Tag Interface	vehicle probe data	Roadway Subsystem	Grade Crossing Warning System	☐	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☐	Vehicle	Toll Tag Interface	vehicle probe data	Roadway Subsystem	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	☐	☑
☐	Vehicle	Toll Tag Interface	vehicle probe data	Roadway Subsystem	Austin Signals	☐	☑
☐	Vehicle	Toll Tag Interface	vehicle probe data	Roadway Subsystem	Austin Sensors, Cameras, and HAR	☐	☑
☐	Vehicle	Toll Tag Interface	vehicle probe data	Roadway Subsystem	Austin Flood Early Warning System	☐	☑
☐	Vehicle	Toll Tag Interface	vehicle probe data	Roadway Subsystem	RWIS Network	☐	☑
☐	Vehicle	System That Provides Accurate Position Information	yellow pages request	Information Service Provider	Travel and Traffic Information Provider	☐	☑
☐	Vehicle	Toll Tag Interface	yellow pages request	Information Service Provider	Travel and Traffic Information Provider	☐	☑
☐	Wayside Equipment	Train Interface Equipment	arriving train information	Roadway Subsystem	Austin Flood Early Warning System	☐	☑
☐	Wayside Equipment	Train Interface Equipment	arriving train information	Roadway Subsystem	TxDOT Austin Signals	☐	☑
☐	Wayside Equipment	Train Interface Equipment	arriving train information	Roadway Subsystem	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	☐	☑
☐	Wayside Equipment	Train Interface Equipment	arriving train information	Roadway Subsystem	RWIS Network	☐	☑
☐	Wayside Equipment	Train Interface Equipment	arriving train information	Roadway Subsystem	Grade Crossing Warning System	☐	☑
☐	Wayside Equipment	Train Interface Equipment	arriving train information	Roadway Subsystem	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	☐	☑
☐	Wayside Equipment	Train Interface Equipment	arriving train information	Roadway Subsystem	Austin Sensors, Cameras, and HAR	☐	☑
☐	Wayside Equipment	Train Interface Equipment	arriving train information	Roadway Subsystem	Austin Signals	☐	☑
☐	Wayside Equipment	Train Interface Equipment	track status	Roadway Subsystem	Austin Flood Early Warning System	☑	☑
☐	Wayside Equipment	Train Interface Equipment	track status	Roadway Subsystem	TxDOT Austin Signals	☑	☑
☐	Wayside Equipment	Train Interface Equipment	track status	Roadway Subsystem	TxDOT Austin Sensors, Cameras, DMS, and HAR w/Flashers	☑	☑
☐	Wayside Equipment	Train Interface Equipment	track status	Roadway Subsystem	RWIS Network	☑	☑

Architecture Flow Selection Criteria

Austin

Selected	Source Entity	Source System	Architecture Flow	Destination Entity	Destination System	Market Package	Inventory
☑	Wayside Equipment	Train Interface Equipment	track status	Roadway Subsystem	Grade Crossing Warning System	☑	☑
☐	Wayside Equipment	Train Interface Equipment	track status	Roadway Subsystem	Texas Turnpike Authority Sensors, Cameras, DMS, and HAR w/Flashers	☑	☑
☐	Wayside Equipment	Train Interface Equipment	track status	Roadway Subsystem	Austin Sensors, Cameras, and HAR	☑	☑
☐	Wayside Equipment	Train Interface Equipment	track status	Roadway Subsystem	Austin Signals	☑	☑
☐	Weather Service	Weather Network Subscription	weather information	Archived Data Management Subsystem	Record Management System (Police, Fire, EMS)	☑	☑
☐	Weather Service	Weather Network Subscription	weather information	Archived Data Management Subsystem	TxDOT Austin Historical Incident Data Repository	☑	☑
☐	Weather Service	Weather Network Subscription	weather information	Archived Data Management Subsystem	TxDOT Austin Historical Traffic Data Repository	☑	☑
☐	Weather Service	Weather Network Subscription	weather information	Emergency Management	Austin CECC/TMC Dispatch System	☑	☑
☐	Weather Service	Weather Network Subscription	weather information	Information Service Provider	Travel and Traffic Information Provider	☑	☑
☑	Weather Service	Weather Network Subscription	weather information	Traffic Management	TxDOT Austin TMC	☑	☑
☑	Weather Service	Weather Network Subscription	weather information	Transit Management	CapMetro Dispatch System	☑	☑