AMES AREA METROPOLITAN PLANNING ORGANIZATION REGIONAL INTELLIGENT TRANSPORTATION SYSTEMS ARCHITECTURE

APPENDICES

Version 1.0

Prepared for:

Prepared by:

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Contents

Appendix A: Stakeholder Survey Questionnaire..... A-1
Appendix B: Functional Requirements B-1
Appendix C: Architecture Interconnect Diagrams C-1
Appendix D: Architecture Flows..... D-1

Appendix A: Stakeholder Survey Questionnaire

Before completing this survey, please provide the following information:

Name: _____

Title: _____

Agency: _____

Division: _____

Phone: _____

Fax: _____

E-mail: _____

Questionnaire

The questionnaire is organized by the following sections:

A. General Questions
B. Data Management and Archiving
C. Roadway Operations – including freeway and arterial management and operations
D. Roadway Maintenance – including general roadway maintenance, winter maintenance, and work zone activities
E. Transportation Security
F. Incident & Emergency Management
G. Transit Operations
H. Commercial Vehicle Operations

Instructions

You are not required to fill out the entire survey questionnaire. To save your time, a matrix shown below is developed to instruct which sections of the questionnaire you should complete. Please fill out the sections of the questionnaire that are applicable to you. You are certainly welcome to fill out other sections and provide additional information.

Type of Agency	Section							
	A	B	C	D	E	F	G	H
Transportation Agency (Public Works Departments, Engineers Office, Maintenance, etc.)	X	X	X	X	X			
Law Enforcement and Emergency Management Agency (Motor Vehicle Enforcement, Sheriff Department, Police Department, Fire Department, Emergency Management Agency, Emergency Medical Services, etc.)	X	X			X	X		X
Planning, Research and Information Technology	X	X	X	X	X	X	X	X
Public Transportation Agency	X	X					X	
Data Archives/Data Management Agency	X	X						
Others	X	X						

A. General Questions

1. Within the next 10 years, is your agency planning any major projects, including but not limited to traffic management centers, dispatch centers, highway improvements, transit vehicles, communications infrastructure, etc.

   ☐ YES ☐ NO

   If YES, please describe the project(s) and/or provide project name(s) and available documentation source(s).

   _____

   _____

   _____

   _____

   _____

   _____

2. Does your agency exchange voice or data information (including by telephone or fax) with any of the following types of organizations/agencies? Please select all that apply and list the appropriate organizations/agencies by name.

☐ Incident/Emergency_____

_____

_____

☐ Freeway_____

_____

_____

☐ Arterial or Non-Freeway _____

_____

_____

☐ Maintenance and Construction_____

_____

_____

☐ Public Transportation_____

_____

_____

☐ Commercial Vehicle Operations/Inspection_____

_____

_____

3. What specific types of information do you share with these organizations/agencies?

Incident/Emergency_____

_____

_____

_____

Freeway_____

_____

_____

_____

Arterial or Non-Freeway _____

_____

_____

_____

Maintenance and Construction_____

_____

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_____

Public Transportation_____

_____

_____

_____

Commercial Vehicle Operations/Inspection_____

_____

_____

_____

4. Does your agency disseminate (or plan to disseminate) traffic or weather condition information in any of the following ways?

- Dynamic Message Signs (DMS) (permanent or portable) ☐ EXISTING ☐ PLANNED
- Highway Advisory Radio (HAR) ☐ EXISTING ☐ PLANNED
- In-Vehicle Navigation Systems ☐ EXISTING ☐ PLANNED
- TV/Radio ☐ EXISTING ☐ PLANNED
- Internet ☐ EXISTING ☐ PLANNED
- Kiosks ☐ EXISTING ☐ PLANNED
- E-mail ☐ EXISTING ☐ PLANNED
- 511 or Other Telephone Services ☐ EXISTING ☐ PLANNED
- Pager or Personal Data Assistants (PDAs) ☐ EXISTING ☐ PLANNED
- DMS controlling parking access ☐ EXISTING ☐ PLANNED
- Other_____

5. Does your agency have (or plan to have) the capability to provide any of the following information?

a. Broadcast of Static or Real-Time Traffic, Transit, or Maintenance and Construction Information? ☐ EXISTING ☐ PLANNED ☐ NO

b. Personalized provision of Traffic, Transit, or Maintenance and Construction Information to users? ☐ EXISTING ☐ PLANNED ☐ NO

c. Route Guidance (either pre-trip or enroute)? ☐ EXISTING ☐ PLANNED ☐ NO

d. Yellow Pages Information or Reservation? ☐ EXISTING ☐ PLANNED ☐ NO

6. Please list any current agreements or memoranda of understanding that your agency has in place with any other organizations/agencies (e.g., maintenance of traffic signals, media agreements).

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Additional Information / Comments

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B. Data Management and Archiving

1. Does your agency collect and store (or plan to collect and store) data (data archiving)?

   ☐ YES ☐ NO

   If YES, please select all that apply and list the appropriate data sources (organizations/agencies, systems, equipment, etc.),

   - Traffic Data ☐ EXISTING ☐ PLANNED

     _____

     _____

   - Emergency/Accident Data ☐ EXISTING ☐ PLANNED

     _____

     _____

   - Maintenance and Construction Data ☐ EXISTING ☐ PLANNED

     _____

     _____

   - Public Transportation Data ☐ EXISTING ☐ PLANNED

     _____

     _____

   - Commercial Vehicle Data ☐ EXISTING ☐ PLANNED

- Emission Data ☐ EXISTING ☐ PLANNED

- Parking Data ☐ EXISTING ☐ PLANNED

- Other_____

2. Does your archived data management system provide general query and report functionality?

   ☐ EXISTING ☐ PLANNED ☐ NO

3. Does your archived data management system provide advanced features such as data analysis, summarization, and data mining to facilitate discovery of information, patterns, and correlations in large data sets?

   ☐ EXISTING ☐ PLANNED ☐ NO

Additional Information / Comments

C. Roadway Operations

1. Does your agency use (or plan to use) any of the following real-time traffic data collection technologies?

   - Loop Detectors that provide volume and speed data at midblock locations (this **excludes** actuators on intersection approaches)
     ☐ EXISTING ☐ PLANNED
   - CCTV Cameras ☐ EXISTING ☐ PLANNED
   - Vehicle Probe Readers to estimate travel times on arterials
     ☐ EXISTING ☐ PLANNED
   - Road Weather Information System ☐ EXISTING ☐ PLANNED
   - Overheight Vehicle Detection ☐ EXISTING ☐ PLANNED
   - Other_____

   _____

   _____

   _____

2. Does your agency detect and verify (or plan to detect and verify) traffic incidents?

   ☐ EXISTING ☐ PLANNED ☐ NO

3. Does your agency operate (or plan to add) lane control devices (e.g., changeable overhead directional arrows)?

   ☐ EXISTING ☐ PLANNED ☐ NO

4. Does your agency manage (or plan to manage) automatic or remotely controlled gates or barriers that control access to roadway segments including ramps and traffic lanes?

   ☐ EXISTING ☐ PLANNED ☐ NO

5. Does your agency operate (or plan to add) ramp meters on freeway entrances?

   ☐ YES ☐ NO

   If YES, please indicate what is (or will be) used:

   - Pre-emption for emergency vehicles ☐ EXISTING ☐ PLANNED
   - Priority for transit vehicles ☐ EXISTING ☐ PLANNED

6. Does your agency control (or plan to control) any signalized intersections?

☐ YES ☐ NO

If NO, skip to Section E.
If YES, do any of your signalized intersections have (or plan to have):

- Closed Loop or Centralized Control ☐ EXISTING ☐ PLANNED
- Real-Time traffic adaptive control such as SCOOT/SCATS or similar ☐ EXISTING ☐ PLANNED
- Signal Preemption for emergency vehicles ☐ EXISTING ☐ PLANNED
- Signal Priority for Transit Vehicles ☐ EXISTING ☐ PLANNED
- Wireless Communications ☐ EXISTING ☐ PLANNED
- Other_____

_____

7. Does your agency have (or plan to have) any signalized intersections that are interconnected with active railroad crossing devices?

☐ EXISTING ☐ PLANNED ☐ NO

8. Does your agency monitor highway-rail intersections with any of the following technologies?

- Vehicle Detectors ☐ EXISTING ☐ PLANNED
- Video Surveillance/Detection ☐ EXISTING ☐ PLANNED
- Train Arrival Prediction (Predict Train Arrival Electronically) ☐ EXISTING ☐ PLANNED
- Electronic Traffic Violator Devices ☐ EXISTING ☐ PLANNED
- Other_____

_____

Additional Information / Comments

_____

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D. Roadway Maintenance

1. Does your agency provide or support (or plan to provide or support) on-going operations and maintenance activities?

   ☐ EXISTING ☐ PLANNED ☐ NO

2. Does your agency have (or plan to have) a vehicle fleet?

   ☐ EXISTING ☐ PLANNED ☐ NO

   If NO, skip to question #7.

   If EXISTING or PLANNED:
   What is the primary function? _____
   Secondary function? _____

3. Does your agency operate or maintain (or plan to operate or maintain) a dispatch facility?

   ☐ EXISTING ☐ PLANNED ☐ NO

4. Does your agency use (or plan to use) an Automated Vehicle Location (AVL) system?

   ☐ EXISTING ☐ PLANNED ☐ NO

5. Does your agency provide (or plan to provide) maintenance of the vehicles in your fleet?

   ☐ EXISTING ☐ PLANNED ☐ NO

6. Does your agency have (or plan to have) the capability to automate vehicle maintenance scheduling and manage both routine and corrective maintenance activities on vehicles?

   ☐ EXISTING ☐ PLANNED ☐ NO

7. Does your agency collect (or plan to collect) road and weather conditions data from <u>environmental sensors located on or near the roadway</u>?

   ☐ EXISTING ☐ PLANNED ☐ NO

8. Does your agency receive (or plan to receive) information from the National Weather Service?

   ☐ EXISTING ☐ PLANNED ☐ NO

9. Does your agency receive (or plan to receive) surface transportation specific weather information from a value-added sector specific meteorological service provider?

☐ EXISTING ☐ PLANNED ☐ NO

10. Does your agency use (or plan to use) environmental data or information to detect environmental hazards such as icy road conditions, high winds, or dense fog?

☐ EXISTING ☐ PLANNED ☐ NO

11. Does your agency have (or plan to have) any roadway deicing systems?

☐ EXISTING ☐ PLANNED ☐ NO

12. Does your agency provide (or plan to provide) maintenance services such as landscape maintenance, hazard removal (roadway debris, dead animals), routine maintenance activities (roadway cleaning, grass cutting), or repair and maintenance of equipment (both ITS and non-ITS) on the roadway?

☐ EXISTING ☐ PLANNED ☐ NO

13. Does your agency perform (or plan to perform) winter maintenance activities?

☐ EXISTING ☐ PLANNED ☐ NO

14. Does your agency manage roadway work zone activities?

☐ YES ☐ NO

If YES, please identify below the devices or systems currently deployed or planned for work zone monitoring.

- Dynamic Message Signs (DMS) ☐ EXISTING ☐ PLANNED
- Closed Circuit Television (CCTV) ☐ EXISTING ☐ PLANNED
- Vehicle Speed Monitoring using Remote Devices (i.e. Sensors/Detectors) ☐ EXISTING ☐ PLANNED
- Work Zone Intrusions (Detection system on/near the roadway or on-board of maintenance vehicles) ☐ EXISTING ☐ PLANNED
- Other _____

Additional Information / Comments

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E. Transportation Security

1. Does your agency monitor (or plan to monitor) the transportation infrastructure (e.g., bridges, tunnels, and management centers) for potential threats using sensors and surveillance equipment?

   ☐ EXISTING ☐ PLANNED ☐ NO

2. Does your agency remotely control (or plan to remotely control) barrier and safeguard systems to preclude an incident, control access during and after an incident or mitigate the impact of an incident?

   ☐ EXISTING ☐ PLANNED ☐ NO

3. Does your agency monitor (or plan to monitor) public travel-related areas such as transit stations, transit stops, rest stops, and kiosk locations for potential threats using sensors and surveillance equipment?

   ☐ EXISTING ☐ PLANNED ☐ NO

4. Does your agency use (or plan to use) ITS devices and traveler information systems (such as dynamic message signs, highway advisory radio, 511 or other telephone services, TV/radios, Internet, e-mail, and kiosks) to alert the public in emergency situations such as child abductions, severe weather events, civil emergencies, and other situations that pose a threat to life and property?

   ☐ EXISTING ☐ PLANNED ☐ NO

5. Does your agency use (or plan to use) sensors and surveillance equipment to monitor and detect potential, looming, and actual disasters including natural disasters and

technological and man-made disasters (hazardous materials incidents, nuclear, chemical, biological, and radiological attacks) and notify all responding agencies of detected emergencies?

☐ EXISTING ☐ PLANNED ☐ NO

6. Does your agency support (or plan to support) disaster response and recovery, including coordination of emergency response plans and resources, damage assessment, service restoration, and transition back to normal operation?

☐ EXISTING ☐ PLANNED ☐ NO

7. Does your agency support (or plan to support) evacuation of the general public from a disaster area and manage subsequent reentry to the disaster area using transportation resources?

☐ EXISTING ☐ PLANNED ☐ NO

8. Does your agency provide (or plan to provide) disaster-related traveler information to the general public, regarding evacuation and reentry information and other information concerning the operation and availability of the transportation system during a disaster?

☐ EXISTING ☐ PLANNED ☐ NO

Additional Information / Comments

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F. Incident/Emergency Management

1. Does your agency currently perform (or plan to perform) Computer Aided Dispatch (CAD) of emergency vehicles?

   ☐ EXISTING ☐ PLANNED ☐ NO

2. Does your agency use (or plan to use) an Automated Vehicle Location (AVL) system?

   ☐ EXISTING ☐ PLANNED ☐ NO

3. Does your agency receive (or plan to receive) incident data from an arterial, freeway, transit, or other emergency management agencies?

Arterial Management:	☐ EXISTING	☐ PLANNED	☐ NO
Freeway Management:	☐ EXISTING	☐ PLANNED	☐ NO
Maintenance and Construction:	☐ EXISTING	☐ PLANNED	☐ NO
Transit Agency(ies):	☐ EXISTING	☐ PLANNED	☐ NO
Other Emergency Management:	☐ EXISTING	☐ PLANNED	☐ NO

   Other _____

4. Does your agency send (or plan to send) incident data to an arterial, freeway, transit, or other emergency management agencies?

Arterial Management:	☐ EXISTING	☐ PLANNED	☐ NO
Freeway Management:	☐ EXISTING	☐ PLANNED	☐ NO
Maintenance and Construction:	☐ EXISTING	☐ PLANNED	☐ NO
Transit Agency(ies):	☐ EXISTING	☐ PLANNED	☐ NO
Other Emergency Management:	☐ EXISTING	☐ PLANNED	☐ NO

   Other _____

5. Does your agency have (or plan to have) preemption lights for signalized intersections or ramp meters?

   ☐ EXISTING ☐ PLANNED ☐ NO

6. Does your agency receive (or plan to receive) real-time traffic information and conditions from transportation agencies to support and enhance emergency vehicle routing?

☐ EXISTING ☐ PLANNED ☐ NO

If EXISTING or PLANNED, from which agency(ies):

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Additional Information / Comments

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G. Transit Operations

1. What types of transit services does your agency operate (or plan to operate)?

- Fixed Route ☐ EXISTING ☐ PLANNED
- Demand Responsive (Paratransit) ☐ EXISTING ☐ PLANNED
- Rail ☐ EXISTING ☐ PLANNED
- Ferries ☐ EXISTING ☐ PLANNED
- Other _____

2. Does your agency provide (or plan to provide) maintenance of the transit vehicles?

☐ EXISTING ☐ PLANNED ☐ NO

3. Does your agency have (or plan to have) the capability to automate vehicle maintenance scheduling and manage both routine and corrective maintenance activities on vehicles?

☐ EXISTING ☐ PLANNED ☐ NO

4. Does your agency use (or plan to use) an Automated Vehicle Location (AVL) system?

   ☐ EXISTING ☐ PLANNED ☐ NO

5. Does your agency have (or plan to have) security monitoring systems on-board transit vehicles?

   ☐ EXISTING ☐ PLANNED ☐ NO

6. Does your agency monitor (or plan to monitor) public areas (e.g. stops, park & ride lots, stations) using sensors and surveillance equipment?

   ☐ EXISTING ☐ PLANNED ☐ NO

7. Does your agency use sensors and surveillance equipment to perform security monitoring (or plan to monitor) non-public areas (e.g. transit yards or other infrastructure)?

   ☐ EXISTING ☐ PLANNED ☐ NO

8. Does your agency directly or indirectly (i.e., thru another agency/) provide (or plan to provide) transit information to the public?

   ☐ YES ☐ NO

   If YES, please identify below the method(s) currently used or planned for provide transit information:

   - Internet Web Page ☐ EXISTING ☐ PLANNED
   - Pagers or Personal Data Assistants ☐ EXISTING ☐ PLANNED
   - Kiosks ☐ EXISTING ☐ PLANNED
   - Display/Audio in Transit Vehicles ☐ EXISTING ☐ PLANNED
   - E-mail or other direct PC communications ☐ EXISTING ☐ PLANNED
   - Electronic Displays/Audio Announcements at Transit Stops and Stations (includes video monitors) ☐ EXISTING ☐ PLANNED
   - TV (interactive or dedicated Cable) ☐ EXISTING ☐ PLANNED
   - Other _____

9. Does your agency provide (or plan to provide) real-time transit information (i.e., latest available information on transit routes, schedules, transfer options, bicycle accessibility, fares, real-time schedule adherence, etc.) at stops or parking facilities?

☐ EXISTING ☐ PLANNED ☐ NO

10. Does your agency provide transit trip planning?

☐ YES ☐ NO

If YES, please identify below the method(s) currently used or planned for provide the trip planning information:

- Internet ☐ EXISTING ☐ PLANNED
- E-mail or other direct PC communications ☐ EXISTING ☐ PLANNED
- Kiosks ☐ EXISTING ☐ PLANNED
- Other _____

11. Does your agency have (or plan to have) an Electronic Fare Payment System (smart card, swipe card, credit card, etc.)?

☐ EXISTING ☐ PLANNED ☐ NO

12. Does your transit vehicles have (or plan to have) the capability to receive priority lights at signalized intersections?

☐ EXISTING ☐ PLANNED ☐ NO

Additional Information / Comments

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H. Commercial Vehicle Operations

1. Does your agency perform (or plan to perform) electronic credential administrative services for commercial vehicles?

   ☐ EXISTING ☐ PLANNED ☐ NO

2. Does your agency participate (or plan to participate) in roadside commercial vehicle inspection?

   ☐ EXISTING ☐ PLANNED ☐ NO

   If NO, no further responses are required in this section.

3. Does your agency perform (or plan to perform) electronic screening?

   ☐ EXISTING ☐ PLANNED ☐ NO

4. Does your agency exchange (or plan to exchange) safety and/or security information?

   ☐ EXISTING ☐ PLANNED ☐ NO

5. Does your agency perform (or plan to perform) a high speed weigh-in-motion service?

   ☐ EXISTING ☐ PLANNED ☐ NO

6. Does your agency participate (or plan to participate) in HAZMAT detection?

   ☐ EXISTING ☐ PLANNED ☐ NO

   If EXISTING or PLANNED, please list any handheld or roadside equipment for detection and classification of security sensitive HAZMAT on commercial vehicles, and for accessing credentials information on driver verification.

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Additional Information / Comments

Appendix B: Functional Requirements

Architecture			Status
AAMPO Regional ITS Architecture (Region)			(Region)
Element: **City of Ames CyRide**			
Entity: **Emergency Management**			
Functional Area: **Center Secure Area Surveillance**			
Requirement:	3	The center shall remotely monitor video images and audio surveillance data collected on-board transit vehicles. The data may be raw or pre-processed in the field.	Existing
Requirement:	5	The center shall identify potential security threats based on collected security surveillance data.	Existing
Requirement:	9	The center shall remotely control security surveillance devices on-board transit vehicles.	Existing
Requirement:	12	The center shall respond to control data from center personnel regarding security surveillance data collection, processing, threat	Existing
Entity: **Transit Management**			
Functional Area: **Transit Center Vehicle Tracking**			
Requirement:	1	The center shall monitor the locations of all transit vehicles within its network.	Planned
Requirement:	2	The center shall determine adherence of transit vehicles to their assigned schedule.	Planned
Requirement:	3	The center shall support an interface with a map update provider, or other appropriate data sources, through which updates of digitized map data can be obtained and used as a background for transit tracking and dispatch.	Planned
Requirement:	4	The center shall provide transit operational data to traveler information service providers.	Planned
Functional Area: **Transit Center Fixed-Route Operations**			
Requirement:	1	The center shall generate transit routes and schedules based on such factors as parameters input by the system operator, road network conditions, operational data on current routes and schedules, and digitized map data.	Planned
Requirement:	2	The center shall provide the interface to the system operator to control the generation of new routes and schedules (transit services) including the ability to review and update the parameters used by the routes and schedules generation processes	Planned
Requirement:	3	The center shall be able to generate special routes and schedules to support an incident, disaster, evacuation, or other emergency.	Planned
Requirement:	4	The center shall dispatch fixed route or flexible route transit vehicles	Planned
Requirement:	5	The center shall collect transit operational data for use in the generation of routes and schedules.	Planned
Requirement:	6	The center shall provide instructions or corrective actions to the transit vehicle operators based upon operational needs.	Planned

Architecture			Status
AAMPO Regional ITS Architecture (Region)			(Region)
Element: **City of Ames CyRide**			
Entity: **Transit Management**			Functional Requirements
Functional Area: **Transit Center Fixed-Route Operations**			
Requirement:	8	The center shall generate the necessary corrective actions which may involve more than the vehicles concerned and more far reaching action, such as, the introduction of extra vehicles, wide area signal priority by traffic management, the premature termination of some services, etc.	Planned
Requirement:	9	The center shall exchange information with Maintenance and Construction Operations concerning work zones, roadway conditions, asset restrictions, work plans, etc.	Existing
Requirement:	10	The center shall disseminate up-to-date schedules and route information to other centers for fixed and flexible route services.	Planned
Functional Area: **Transit Center Security**			
Requirement:	1	The center shall monitor transit vehicle operational data to determine if the transit vehicle is off-route and assess whether a security incident is occurring.	Planned
Requirement:	2	The center shall receive reports of emergencies on-board transit vehicles entered directly be the transit vehicle operator or from a traveler through interfaces such as panic buttons or alarm switches.	Existing
Requirement:	3	The center shall support the back-office portion of functionality to authenticate transit vehicle operators.	Planned
Requirement:	5	The center shall receive information pertaining to a wide-area alert such as weather alerts, disaster situations, or child abductions. This information may come from Emergency Management or from other Alerting and Advisory Systems.	Planned
Requirement:	6	The center shall send wide-area alert information to travelers (on-board transit vehicles or at stations/stops) and transit vehicle operators.	Planned
Requirement:	7	The center shall coordinate the response to security incidents involving transit with other agencies including Emergency Management, other transit agencies, media, traffic management, and traveler information service providers.	Existing
Functional Area: **Transit Vehicle Operator Scheduling**			
Requirement:	1	The center shall maintain records of a transit vehicle operator's performance. This may be done utilizing standardized performance evaluation criteria set forth by governmental regulations and transit operating company policies, assessing the transit vehicle operator's driving history, and assessing comments from the transit vehicle operator's supervisor(s) as well as noting any moving violations or accidents, supervisor comments,	Existing
Requirement:	2	The center shall assess the transit vehicle operator's availability based on previous work assignments, accumulated hours, plus health and vacation commitments.	Existing
Requirement:	3	The center shall assign transit vehicle operators to transit schedules based on their eligibility, route preferences, seniority, and transit vehicle availability.	Existing

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **City of Ames CyRide**		
Entity: **Transit Management**		Functional Requirements
Functional Area: **Transit Vehicle Operator Scheduling**		
Requirement:	4 The center shall provide an interface through which the transit vehicle operator information can be maintained - either from the transit vehicle operator, a transit system operator (i.e. center personnel), or other functions.	Existing
Functional Area: **Transit Garage Maintenance**		
Requirement:	1 The center shall collect operational and maintenance data from transit vehicles.	Planned
Requirement:	2 The center shall monitor the condition of a transit vehicle to analyze brake, drive train, sensors, fuel, steering, tire, processor, communications equipment, and transit vehicle mileage to identify mileage based maintenance, out-of-specification or imminent failure conditions.	Planned
Requirement:	3 The center shall generate transit vehicle maintenance schedules, includes what and when the maintenance or repair is to be performed.	Planned
Requirement:	4 The center shall generate transit vehicle availability listings, current and forecast, to support transit vehicle assignment planning based, in part, on the transit vehicle maintenance schedule.	Planned
Requirement:	5 The center shall assign technicians to a transit vehicle maintenance schedule, based upon such factors as personnel eligibility, work assignments, preferences and seniority.	Planned
Requirement:	6 The center shall verify that the transit vehicle maintenance activities were performed correctly, using the transit vehicle's status, the maintenance personnel's work assignment, and the transit maintenance schedules.	Planned
Requirement:	7 The center shall generate a time-stamped maintenance log of all maintenance activities performed on a transit vehicle.	Planned
Requirement:	8 The center shall provide the transit system operator with the capability to update transit vehicle maintenance information and receive reports on all transit vehicle operations data.	Planned
Functional Area: **Transit Center Information Services**		
Requirement:	1 The center shall provide travelers using public transportation with traffic and advisory information upon request. Such information may include transit routes, schedules, transfer options, fares, real-time schedule adherence, current incidents, weather conditions, and special events.	Planned
Requirement:	2 The center shall provide transit information to the media including details of deviations from schedule of regular transit services.	Planned
Requirement:	3 The center shall exchange transit schedules, real-time arrival information, fare schedules, and general transit service information with other transit organizations to support transit traveler information systems.	Planned
Requirement:	4 The center shall provide transit service information to traveler information service providers including routes, schedules, schedule adherence, and fare information as well as transit service information during evacuation.	Planned

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **City of Ames CyRide**		
Entity: **Transit Management**		Functional Requirements
Functional Area: **Transit Center Information Services**		
Requirement:	6 The center shall broadcast transit advisory data, including alerts and advisories pertaining to major emergencies, or man made disasters.	Planned
Functional Area: **Transit Center Multi-Modal Coordination**		
Requirement:	1 The center shall analyze transit vehicle schedule performance to determine the need for priority along certain routes or at certain intersections.	Planned
Requirement:	2 The center shall send requests for priority along routes or at intersections to traffic management.	Planned
Requirement:	3 The center shall coordinate schedules and services between transit agencies, traffic management, maintenance and construction operations, parking management, and other surface or air transportation modes.	Planned
Requirement:	5 The center shall accept requests from traffic management to change routes and schedules as part of the implementation of demand management strategies.	Planned
Functional Area: **Transit Evacuation Support**		
Requirement:	1 The center shall manage the use of transit resources to support evacuation and subsequent reentry of a population in the vicinity of a disaster or other emergency.	Planned
Requirement:	2 The center shall coordinate regional evacuation plans with Emergency Management - identifying the transit role in an evacuation and the transit resources that would be used.	Planned
Requirement:	3 The center shall coordinate the use of transit and school bus fleets during an evacuation, supporting evacuation of those with special needs and the general population.	Planned
Requirement:	4 The center shall adjust and update transit service and fare schedules and provide that information to other agencies as they coordinate evacuations.	Planned
Functional Area: **Transit Data Collection**		
Requirement:	1 The center shall collect transit management data such as transit fares and passenger use, transit services, paratransit operations, transit vehicle maintenance data, etc.	Planned
Requirement:	2 The center shall assign quality control metrics and meta-data to be stored along with the data. Meta-data may include attributes that describe the source and quality of the data and the conditions surrounding the collection of the data.	Planned
Requirement:	3 The center shall receive and respond to requests from ITS Archives for either a catalog of the transit data or for the data itself.	Planned
Requirement:	4 The center shall be able to produce sample products of the data available.	Planned
Element: **City of Ames CyRide Bus Stop Electronic Displays/Audio Announcement**		
Entity: **Remote Traveler Support**		
Functional Area: **Remote Transit Information Services**		

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **City of Ames CyRide Bus Stop Electronic Displays/Audio Announcement**		
Entity: **Remote Traveler Support**		Functional Requirements
Functional Area: **Remote Transit Information Services**		
Requirement:	1 The public interface for travelers shall collect and provide real-time travel-related information at transit stops, multi-modal transfer points, and other public transportation areas.	Planned
Requirement:	2 The public interface for travelers shall collect and present to the transit traveler information on transit routes, schedules, and real-time schedule adherence.	Planned
Requirement:	3 The public interface for travelers shall provide support for general annunciation and/or display of imminent arrival information and other information of general interest to transit users.	Planned
Requirement:	4 The public interface for travelers shall present information to the traveler in a form suitable for travelers with physical disabilities.	Planned
Element: **City of Ames CyRide Transit Database**		
Entity: **Archived Data Management Subsystem**		
Functional Area: **ITS Data Repository**		
Requirement:	1 The center shall collect data to be archived from one or more data sources.	Planned
Requirement:	2 The center shall collect data catalogs from one or more data sources. A catalog describes the data contained in the collection of archived data and may include descriptions of the schema or structure of the data, a description of the contents of the data; e.g., time range of entries, number of entries; or a sample of the data (e. g. a thumbnail).	Planned
Requirement:	3 The center shall store the archived data in a focused repository that is suited to a particular set of ITS data users.	Planned
Requirement:	4 The center shall include capabilities for performing quality checks on the incoming archived data.	Planned
Requirement:	5 The center shall include capabilities for error notification on the incoming archived data.	Planned
Requirement:	9 The center shall provide the capability to execute methods on the incoming data such as cleansing, summarizations, aggregations, or transformations applied to the data before it is stored in the archive.	Planned
Requirement:	10 The center shall respond to requests from the administrator interface function to maintain the archive data.	Planned
Requirement:	11 When data or a catalog of data is received from the archive, the center shall generate the requested data product for the users systems.	Planned
Functional Area: **Government Reporting Systems Support**		
Requirement:	1 The center shall provide data from an ITS archive to federal, state, or local government reporting systems.	Planned
Requirement:	2 The center shall provide the capability to select data from an ITS archive for use in government reports.	Planned
Requirement:	3 The center shall provide the capability to format data from an ITS archive suitable for input into government reports.	Planned

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **City of Ames CyRide Transit Database**		
Entity: **Archived Data Management Subsystem**		Functional Requirements
Functional Area: **Government Reporting Systems Support**		
Requirement:	4 The center shall support requests for ITS archived data from Government Reporting Systems.	Planned
Requirement:	5 The center shall provide the applicable meta-data for any ITS archived data to satisfy government reporting system requests. Meta-data may include attributes that describe the source and quality of the data and the conditions surrounding the collection of the data.	Planned
Element: **City of Ames CyRide Transit Information Website**		
Entity: **Information Service Provider**		
Functional Area: **ISP Traveler Data Collection**		
Requirement:	3 The center shall collect, process, and store transit routes and schedules, transit transfer options, transit fares, and real-time schedule adherence information.	Existing
Functional Area: **Basic Information Broadcast**		
Requirement:	3 The center shall collect, process, store, and disseminate transit routes and schedules, transit transfer options, transit fares, and real-time schedule adherence information to travelers.	Existing
Requirement:	10 The center shall provide the capability for a system operator to control the type and update frequency of broadcast traveler information.	Existing
Functional Area: **Interactive Infrastructure Information**		
Requirement:	3 The center shall collect, process, store, and disseminate customized transit routes and schedules, transit transfer options, transit fares, and real-time schedule adherence information to travelers upon request.	Planned
Requirement:	10 The center shall provide all traveler information based on the traveler's current location or a specific location identified by the traveler, and filter or customize the provided information accordingly.	Planned
Requirement:	11 The center shall accept traveler profiles for determining the type of personalized data to send to the traveler.	Planned
Requirement:	17 The center shall provide the capability for a system operator to control the type and update frequency of traveler information.	Planned
Functional Area: **Infrastructure Provided Trip Planning**		
Requirement:	1 The center shall provide the capability to provide specific pre-trip and enroute directions to travelers (and drivers), including costs, arrival times, and transfer points.	Planned
Requirement:	7 The center shall generate route plans based on transit services, including fares, schedules, and requirements for travelers with special needs.	Planned
Requirement:	14 The center shall provide the capability for the traveler to confirm the proposed trip plan.	Planned

Architecture			Status
AAMPO Regional ITS Architecture (Region)			(Region)
Element: **City of Ames CyRide Transit Information Website**			
Entity: **Information Service Provider**			Functional Requirements
Functional Area: **Infrastructure Provided Trip Planning**			
Requirement:	16	The center shall support an interface with a map update provider, or other appropriate data sources, through which updates of digitized map data can be obtained and used to determine vehicle and non-vehicle routes, trip planning, and on-line vehicle guidance.	Planned
Requirement:	17	The center shall provide the capability for center personnel to control route calculation parameters.	Planned
Element: **City of Ames CyRide Transit Vehicles**			
Entity: **Transit Vehicle Subsystem**			
Functional Area: **On-board Transit Trip Monitoring**			
Requirement:	1	The transit vehicle shall compute the location of the transit vehicle based on inputs from a vehicle location determination function.	Planned
Requirement:	2	The transit vehicle shall support the computation of the location of a transit vehicle using on-board sensors to augment the location determination function. This may include proximity to the transit stops or other known reference points as well as recording trip length.	Planned
Requirement:	3	The transit vehicle shall record transit trip monitoring data including vehicle mileage and fuel usage.	Planned
Requirement:	4	The transit vehicle shall record transit trip monitoring data including operational status information such as doors open/closed, passenger loading, running times, etc.	Planned
Requirement:	5	The transit vehicle shall send the transit vehicle trip monitoring data to center-based trip monitoring functions.	Planned
Functional Area: **On-board Fixed Route Schedule Management**			
Requirement:	1	The transit vehicle shall receive transit route information for its assigned route including transit service instructions, traffic information, road conditions, and other information for the operator.	Planned
Functional Area: **On-board Transit Security**			
Requirement:	1	The transit vehicle shall perform video and audio surveillance inside of transit vehicles and output raw video or audio data for either local monitoring (for processing or direct output to the transit vehicle operator), remote monitoring or for local storage (e.g., in an event recorder).	Existing
Requirement:	2	The transit vehicle shall perform local monitoring of video or audio surveillance data collected inside of transit vehicles, and identify potential incidents or threats based on received processing parameters.	Planned
Requirement:	3	The transit vehicle shall output an indication of potential incidents or threats and the processed video or audio information to the center along with the vehicle's current location.	Planned
Requirement:	8	The transit vehicle shall monitor and output surveillance and sensor equipment status and fault indications.	Existing

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **City of Ames CyRide Transit Vehicles**		
Entity: **Transit Vehicle Subsystem**		Functional Requirements
Functional Area: **On-board Transit Security**		
Requirement:	9 The transit vehicle shall accept emergency inputs from either the transit vehicle operator or a traveler through such interfaces as panic buttons, silent or audible alarms, etc.	Existing
Requirement:	10 The transit vehicle shall output reported emergencies to the center.	Existing
Requirement:	11 The transit vehicle shall receive acknowledgments of the emergency request from the center and output this acknowledgment to the transit vehicle operator or to the travelers	Existing
Requirement:	12 The transit vehicle shall be capable of receiving an emergency message for broadcast to the travelers or to the transit vehicle operator.	Existing
Requirement:	13 The transit vehicle shall be capable of disabling or enabling the transit vehicle based on commands from the center or authentic inputs from the transit vehicle operator.	Existing
Functional Area: **On-board Maintenance**		
Requirement:	1 The transit vehicle shall collect and process vehicle mileage data available to sensors on-board.	Planned
Requirement:	3 The transit vehicle shall transmit vehicle maintenance data to the center to be used for scheduling future vehicle maintenance.	Planned
Functional Area: **On-board Transit Signal Priority**		
Requirement:	2 The transit vehicle shall send priority requests to traffic signal controllers at intersections, pedestrian crossings, and multimodal crossings on the roads (surface streets) and freeway (ramp controls) network that enable a transit vehicle schedule deviation to be corrected.	Planned
Requirement:	3 The transit vehicle shall send the schedule deviation data and status of priority requests to the transit vehicle operator.	Planned
Entity: **Vehicle**		
Functional Area: **Vehicle Location Determination**		
Requirement:	1 The vehicle shall provide the vehicle's current location to other in-vehicle functions.	Planned
Requirement:	2 The vehicle shall calculate the location from one or more sources of position data. These location referencing systems include position systems such as GPS, DGPS, odometer and differential odometers.	Planned
Requirement:	3 The vehicle shall refine its calculations as required by other in-vehicle functions.	Planned
Element: **City of Ames Fleet Services**		
Entity: **Maintenance and Construction Management**		
Functional Area: **MCM Vehicle and Equipment Maintenance Management**		
Requirement:	1 The center shall collect and analyze vehicle diagnostics information from maintenance and construction vehicles. The information includes engine temperature, mileage, tire wear, brake wear, belt wear, and any warnings or alarms concerning the	Existing

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **City of Ames Fleet Services**		
Entity: **Maintenance and Construction Management**		Functional Requirements
Functional Area: **MCM Vehicle and Equipment Maintenance Management**		
Requirement:	2 The center shall exchange information with equipment repair facilities including status and history of repairs concerning maintenance and construction vehicles. This information includes vehicle status and diagnostic information, vehicle utilization, and coordination of when vehicles will be available for preventative and corrective maintenance.	Existing
Requirement:	3 The center shall schedule preventive and corrective vehicle maintenance with the equipment repair facility based on fleet health reports, maintenance records, vehicle utilization and vehicle availability schedules.	Existing
Functional Area: **MCM Data Collection**		
Requirement:	1 The center shall collect maintenance and construction data (such as field equipment status, infrastructure status, maintenance and construction activity data) gathered from roadway, traffic, and other maintenance and construction sources.	Existing
Requirement:	3 The center shall receive and respond to requests from ITS Archives for either a catalog of the maintenance and construction data or for the data itself.	Existing
Requirement:	4 The center shall be able to produce sample products of the data available.	Existing
Requirement:	5 The center shall provide data to Asset Management to be used in updating the status of assets in the inventory.	Existing
Element: **City of Ames Fleet Services Database**		
Entity: **Archived Data Management Subsystem**		
Functional Area: **ITS Data Repository**		
Requirement:	1 The center shall collect data to be archived from one or more data sources.	Existing
Requirement:	2 The center shall collect data catalogs from one or more data sources. A catalog describes the data contained in the collection of archived data and may include descriptions of the schema or structure of the data, a description of the contents of the data; e.g., time range of entries, number of entries; or a sample of the data (e. g. a thumbnail).	Existing
Requirement:	3 The center shall store the archived data in a focused repository that is suited to a particular set of ITS data users.	Existing
Requirement:	4 The center shall include capabilities for performing quality checks on the incoming archived data.	Existing
Requirement:	5 The center shall include capabilities for error notification on the incoming archived data.	Existing
Requirement:	9 The center shall provide the capability to execute methods on the incoming data such as cleansing, summarizations, aggregations, or transformations applied to the data before it is stored in the archive.	Planned
Requirement:	10 The center shall respond to requests from the administrator interface function to maintain the archive data.	Existing

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **City of Ames Fleet Services Database**		
Entity: **Archived Data Management Subsystem**		Functional Requirements
Functional Area: **ITS Data Repository**		
Requirement:	11 When data or a catalog of data is received from the archive, the center shall generate the requested data product for the users systems.	Existing
Functional Area: **Government Reporting Systems Support**		
Requirement:	1 The center shall provide data from an ITS archive to federal, state, or local government reporting systems.	Existing
Requirement:	2 The center shall provide the capability to select data from an ITS archive for use in government reports.	Existing
Requirement:	3 The center shall provide the capability to format data from an ITS archive suitable for input into government reports.	Existing
Requirement:	4 The center shall support requests for ITS archived data from Government Reporting Systems.	Existing
Requirement:	5 The center shall provide the applicable meta-data for any ITS archived data to satisfy government reporting system requests. Meta-data may include attributes that describe the source and quality of the data and the conditions surrounding the collection of the data.	Existing
Element: **City of Ames Maintenance and Construction Vehicles/Equipment**		
Entity: **Maintenance and Construction Vehicle**		
Functional Area: **MCV Vehicle Location Tracking**		
Requirement:	1 The maintenance and construction vehicle shall compute the location of the vehicle based on inputs from a vehicle location determination function.	Planned
Requirement:	2 The maintenance and construction vehicle shall send the timestamped vehicle location to the controlling center.	Planned
Functional Area: **MCV Winter Maintenance**		
Requirement:	1 The maintenance and construction vehicle shall track the location and status of safety systems on-board the vehicle.	Planned
Requirement:	3 The maintenance and construction vehicle shall monitor materials information including remaining quantity and current application	Existing
Requirement:	4 The maintenance and construction vehicle shall respond to dispatch information from the center, presented to the vehicle operator for acknowledgement and returning status.	Existing
Requirement:	5 The maintenance and construction vehicle shall send operational data to the center including the operational state of the maintenance equipment (e.g., blade up/down, spreader pattern), types and quantities of materials used for construction and maintenance activities, and a record of the actual work performed.	Planned
Functional Area: **MCV Roadway Maintenance and Construction**		
Requirement:	1 The maintenance and construction vehicle shall track the location and status of safety systems on-board the vehicle.	Planned

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **City of Ames Maintenance and Construction Vehicles/Equipment**		
Entity: **Maintenance and Construction Vehicle**		Functional Requirements
Functional Area: **MCV Roadway Maintenance and Construction**		
Requirement:	3 The maintenance and construction vehicle shall monitor materials information including remaining quantity and current application	Existing
Requirement:	4 The maintenance and construction vehicle shall respond to dispatch information from the center, presented to the vehicle operator for acknowledgement and returning status.	Existing
Requirement:	5 The maintenance and construction vehicle shall send operational data to the center including the operational state of the maintenance equipment (e.g., blade up/down, spreader pattern), types and quantities of materials used for construction and maintenance activities, and a record of the actual work performed.	Planned
Entity: **Vehicle**		
Functional Area: **Vehicle Location Determination**		
Requirement:	1 The vehicle shall provide the vehicle's current location to other in-vehicle functions.	Planned
Requirement:	2 The vehicle shall calculate the location from one or more sources of position data. These location referencing systems include position systems such as GPS, DGPS, odometer and differential odometers.	Planned
Requirement:	3 The vehicle shall refine its calculations as required by other in-vehicle functions.	Planned
Element: **City of Ames Police Communications Center**		
Entity: **Emergency Management**		
Functional Area: **Emergency Call-Taking**		
Requirement:	1 The center shall support the interface to the Emergency Telecommunications System (e.g. 911 or 7-digit call routing) to receive emergency notification information and provide it to the emergency system operator.	Existing
Requirement:	2 The center shall receive emergency call information from 911 services and present the possible incident information to the emergency system operator.	Existing
Requirement:	3 The center shall receive emergency call information from motorist call-boxes and present the possible incident information to the emergency system operator.	Existing
Requirement:	5 The center shall receive emergency notification information from other public safety agencies and present the possible incident information to the emergency system operator.	Existing
Requirement:	6 The center shall receive emergency notification information from public transit systems and present the possible incident information to the emergency system operator.	Existing
Requirement:	7 The center shall coordinate, correlate, and verify all emergency inputs, including those identified based on external calls and internal analysis of security sensor and surveillance data, and assign each a level of confidence.	Existing

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **City of Ames Police Communications Center**		
Entity: **Emergency Management**		Functional Requirements
Functional Area: **Emergency Call-Taking**		
Requirement:	9 The center shall forward the verified emergency information to the responding agency based on the location and nature of the emergency.	Existing
Requirement:	10 The center shall update the incident information log once the emergency system operator has verified the incident.	Existing
Requirement:	11 The center shall provide the capability for digitized map data to act as the background to the emergency information presented to the emergency system operator.	Existing
Functional Area: **Emergency Dispatch**		
Requirement:	1 The center shall dispatch emergency vehicles to respond to verified emergencies under center personnel control.	Existing
Requirement:	2 The center shall store the current status of all emergency vehicles available for dispatch and those that have been dispatched.	Existing
Requirement:	3 The center shall relay location and incident details to the responding vehicles.	Existing
Requirement:	4 The center shall track the location and status of emergency vehicles responding to an emergency based on information from the emergency vehicle.	Planned
Requirement:	5 The center shall store and maintain the emergency service responses in an action log.	Existing
Requirement:	6 The center shall provide the capability for digitized map data to act as the background to the information presented to the emergency system operator.	Existing
Requirement:	9 The center shall coordinate response to incidents with other Emergency Management centers to ensure appropriate resources are dispatched and utilized.	Existing
Functional Area: **Incident Command**		
Requirement:	1 The center shall provide tactical decision support, resource coordination, and communications integration for Incident Commands that are established by first responders to support local management of an incident.	Existing
Requirement:	2 The center shall provide incident command communications with public safety, emergency management, transportation, and other	Existing
Requirement:	3 The center shall track and maintain resource information and action plans pertaining to the incident command.	Existing
Requirement:	4 The center shall share incident command information with other public safety agencies including resource deployment status, hazardous material information, rail incident information, evacuation advice as well as traffic, road, and weather conditions	Existing
Requirement:	5 The center shall assess the status of responding emergency vehicles as part of an incident command.	Existing
Functional Area: **Emergency Response Management**		

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **City of Ames Police Communications Center**		
Entity: **Emergency Management**		Functional Requirements
Functional Area: **Emergency Response Management**		
Requirement:	1 The center shall provide strategic emergency response capabilities such as that of an Emergency Operations Center for large-scale incidents and disasters.	Existing
Requirement:	2 The center shall manage coordinated inter-agency responses to and recovery from large-scale emergencies. Such agencies include traffic management, transit, maintenance and construction management, rail operations, and other emergency management agencies.	Existing
Requirement:	3 The center shall provide the capability to implement response plans and track progress through the incident by exchanging incident information and distributing response status to allied agencies.	Existing
Requirement:	4 The center shall develop, coordinate with other agencies, and store emergency response plans.	Existing
Requirement:	5 The center shall track the availability of resources (including vehicles, roadway cleanup, etc.), request additional resources from traffic, maintenance, or other emergency centers if needed.	Existing
Requirement:	6 The center shall allocate the appropriate emergency services, resources, and vehicle (s) to respond to incidents, and shall provide the capability to override the current allocation to suit the	Existing
Requirement:	7 The center shall receive event scheduling information from Event	Existing
Requirement:	8 The center shall support remote control of field equipment normally under control of the traffic management center including traffic signals, dynamic message signs, gates, and barriers.	Planned
Requirement:	10 The center shall provide the capability to request transit resource availability from transit centers for use during disaster and evacuation operations.	Existing
Requirement:	12 The center shall provide information to the media concerning the status of an emergency response.	Existing
Requirement:	13 The center shall provide the capability for digitized map data to act as the background to the information presented to the emergency system operator.	Existing
Requirement:	14 The center shall provide the capability for center personnel to provide inputs to the management of incidents, disasters and evacuations.	Existing
Functional Area: **Emergency Evacuation Support**		
Requirement:	1 The center shall manage inter-agency coordination of evacuation operations, from initial planning through the evacuation process and reentry.	Existing
Requirement:	2 The center shall develop and exchange evacuation plans with allied agencies prior to the occurrence of a disaster.	Existing
Requirement:	3 The center shall provide an interface to the emergency system operator to enter evacuation plans and procedures and present the operator with other agencies' plans.	Existing

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **City of Ames Police Communications Center**		
Entity: **Emergency Management**		Functional Requirements
Functional Area: **Emergency Evacuation Support**		
Requirement:	4 The center shall coordinate evacuation destinations and shelter needs with shelter providers (e.g., the American Red Cross) in the region.	Existing
Requirement:	5 The center shall provide evacuation information to traffic, transit, maintenance and construction, rail operations, and other emergency management centers as needed.	Existing
Requirement:	6 The center shall request resources from transit agencies as needed to support the evacuation.	Existing
Requirement:	7 The center shall request traffic management agencies to implement special traffic control strategies and to control evacuation traffic, including traffic on local streets and arterials as well as the major evacuation routes.	Existing
Requirement:	8 The center shall provide traveler information systems with evacuation guidance including basic information to assist potential evacuees in determining whether evacuation is necessary and when it is safe to return.	Existing
Requirement:	9 The center shall monitor the progress or status of the evacuation once it begins and exchange tactical plans, prepared during the incident, with allied agencies.	Existing
Requirement:	10 The center shall monitor the progress of the reentry process.	Existing
Functional Area: **Emergency Data Collection**		
Requirement:	1 The center shall collect emergency service data, emergency vehicle management data, emergency vehicle data, sensor and surveillance data, threat data, and incident data.	Existing
Requirement:	2 The center shall assign quality control metrics and meta-data to be stored along with the data. Meta-data may include attributes that describe the source and quality of the data and the conditions surrounding the collection of the data.	Existing
Requirement:	3 The center shall receive and respond to requests from ITS Archives for either a catalog of the emergency management data or for the data itself.	Existing
Requirement:	4 The center shall be able to produce sample products of the data available.	Existing
Entity: **Traffic Management**		
Functional Area: **TMC Traffic Information Dissemination**		
Requirement:	1 The center shall remotely control dynamic messages signs for dissemination of traffic and other information to drivers.	Planned
Requirement:	3 The center shall collect operational status for the driver information systems equipment (DMS, HAR, etc.).	Planned
Requirement:	5 The center shall retrieve locally stored traffic information, including current and forecasted traffic information, road and weather conditions, traffic incident information, information on diversions and alternate routes, closures, and special traffic restrictions (lane/shoulder use, weight restrictions, width restrictions, HOV requirements), etc.	Planned

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **City of Ames Police Communications Center**		
Entity: **Traffic Management**		Functional Requirements
Functional Area: **TMC Traffic Information Dissemination**		
Requirement:	6 The center shall distribute traffic data to maintenance and construction centers, transit centers, emergency management centers, and traveler information providers.	Planned
Requirement:	8 The center shall provide the capability for center personnel to control the nature of the data that is available to non-traffic operations centers and the media.	Planned
Element: **City of Ames Police Emergency Vehicles**		
Entity: **Emergency Vehicle Subsystem**		
Functional Area: **On-board EV En Route Support**		
Requirement:	1 The emergency vehicle, including roadway service patrols, shall compute the location of the emergency vehicle based on inputs from a vehicle location determination function.	Planned
Requirement:	2 The emergency vehicle, including roadway service patrols, shall send the vehicle's location and operational data to the center for emergency management and dispatch.	Planned
Requirement:	3 The emergency vehicle, including roadway service patrols, shall receive incident details and a suggested route when dispatched to a scene.	Existing
Requirement:	4 The emergency vehicle shall send the current en route status (including estimated time of arrival) and requests for emergency dispatch updates.	Planned
Requirement:	5 The emergency vehicle shall send requests to traffic signal control equipment at the roadside to preempt the signal.	Existing
Requirement:	6 The emergency vehicle shall provide the personnel on-board with dispatch information, including incident type and location, and forward an acknowledgment from personnel to the center that the	Existing
Functional Area: **On-board EV Incident Management Communication**		
Requirement:	1 The emergency vehicle shall receive dispatch instructions sufficient to enable emergency personnel in the field to implement an effective incident response. It includes local traffic road, and weather conditions, hazardous material information, and the current status of resources that have been allocated to an incident.	Existing
Requirement:	2 The emergency vehicle shall provide an interface to the center for emergency personnel to transmit information about the incident site such as the extent of injuries, identification of vehicles and	Existing
Requirement:	3 The emergency vehicle shall provide an interface to the center for emergency personnel to transmit information about the current incident response status such as the identification of the resources	Existing
Element: **City of Ames Public Works**		
Entity: **Maintenance and Construction Management**		
Functional Area: **MCM Vehicle Tracking**		

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **City of Ames Public Works**		
Entity: **Maintenance and Construction Management**		Functional Requirements
Functional Area: **MCM Vehicle Tracking**		
Requirement:	1 The center shall monitor the locations of all maintenance and construction vehicles and other equipment under its jurisdiction.	Planned
Requirement:	2 The center shall present location data to center personnel for the fleet of maintenance and construction vehicles and other equipment.	Planned
Requirement:	3 The center shall support an interface with a map update provider, or other appropriate data sources, through which updates of digitized map data can be obtained and used as a background for maintenance and construction vehicle tracking.	Planned
Functional Area: **MCM Environmental Information Collection**		
Requirement:	1 The center shall remotely control environmental sensors that measure road surface temperature, moisture, icing, salinity, and other measures.	Planned
Requirement:	2 The center shall remotely control environmental sensors that measure weather conditions including temperature, wind, humidity, precipitation, and visibility.	Planned
Requirement:	4 The center shall assimilate current and forecast road conditions and surface weather information using a combination of weather service provider information (such as the National Weather Service and value-added sector specific meteorological services), data from traffic, emergency, and transit management, traveler information providers, and environmental data collected from sensors deployed on and about the roadway as well as the fleet of maintenance and construction vehicles.	Planned
Requirement:	5 The center shall provide weather and road condition information to weather service providers and center personnel.	Planned
Requirement:	6 The center shall respond to control data from center personnel regarding environmental sensor control and weather data collection and processing.	Planned
Requirement:	7 The center shall collect operational status for the roadside and vehicle-based environmental sensor equipment.	Planned
Requirement:	8 The center shall collect fault data for the roadside and vehicle-based environmental sensor equipment for repair.	Planned
Functional Area: **MCM Environmental Information Processing**		
Requirement:	1 The center shall respond to control data from center personnel regarding environmental sensor control and weather data collection and processing.	Planned
Requirement:	2 The center shall assimilate current and forecast road conditions and surface weather information using a combination of weather service provider information (such as the National Weather Service and value-added sector specific meteorological services) and local environmental sensor data.	Planned
Requirement:	3 The center shall use the various data inputs of environmental sensors and road weather data to develop a view of current and predicted road weather and road conditions.	Planned

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **City of Ames Public Works**		
Entity: **Maintenance and Construction Management**		Functional Requirements
Functional Area: **MCM Environmental Information Processing**		
Requirement:	4 The center shall disseminate current and forecasted road weather and road condition information to weather service providers (such as the National Weather Service and value-added sector specific meteorological services) as well as other agencies including traffic, emergency, and transit management, traveler information providers, rail operations centers, media, and other maintenance management centers.	Planned
Requirement:	5 The center shall provide value-added sector specific meteorological services with information on basic road facility and treatment information that supports forecasts for road conditions.	Planned
Functional Area: **MCM Automated Treatment System Control**		
Requirement:	1 The center shall remotely control automated roadway treatment systems. Treatments can be in the form of fog dispersion, anti-icing chemicals, etc.	Planned
Requirement:	2 The center shall remotely control the environmental sensors that upon detecting changes in environmental or atmospheric conditions, automatically activate roadway treatment systems.	Planned
Requirement:	3 The center shall collect automated roadway treatment system and associated environmental sensor operational status.	Planned
Requirement:	4 The center shall collect automated roadway treatment system and associated environmental sensor fault data and request repair.	Planned
Requirement:	5 The center shall accept requests for automated roadway treatment	Planned
Functional Area: **MCM Incident Management**		
Requirement:	1 The center shall receive inputs from the Alerting and Advisory System concerning the possibility or occurrence of severe weather, terrorist activity, or other major emergency, including information provided by the Emergency Alert System.	Existing
Requirement:	2 The center shall exchange alert information and status with emergency management centers. The information includes notification of a major emergency such as a natural or man-made disaster, civil emergency, or child abduction. The information may include the alert originator, the nature of the emergency, the geographic area affected by the emergency, the effective time period, etc.	Existing
Requirement:	3 The center shall exchange incident and threat information with emergency management centers as well as traffic management centers; including notification of existence of incident and expected severity, location, time and nature of incident.	Existing
Requirement:	4 The center shall coordinate planning for incidents with emergency management centers - including pre-planning activities for disaster response, evacuation, and recovery operations.	Existing

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **City of Ames Public Works**		
Entity: **Maintenance and Construction Management**		Functional Requirements
Functional Area: **MCM Incident Management**		
Requirement:	5 The center shall respond to requests from emergency management to provide maintenance and construction resources to implement response plans, assist in clean up, verify an incident, etc. This may also involve coordination with traffic management centers and other maintenance centers.	Existing
Requirement:	6 The center shall exchange road network status assessment information with emergency management and traffic management centers including an assessment of damage sustained by the road network including location and extent of the damage, estimate of remaining capacity, required closures, alternate routes, necessary	Existing
Requirement:	7 The center shall provide work zone activities affecting the road network including the nature of the maintenance or construction activity, location, impact to the roadway, expected time(s) and duration of impact, anticipated delays, alternate routes, and suggested speed limits. This information may be augmented with images that provide a visual indication of current work zone status and traffic impacts.	Existing
Requirement:	8 The center shall receive information indicating the damage sustained by transportation assets, derived from aerial surveillance, field reports, inspections, tests, and analyses to support incident management.	Existing
Functional Area: **MCM Maintenance Decision Support**		
Requirement:	1 The center shall provide the center personnel with tailored external information, including weather or road condition observations, forecasted weather information or road conditions, current usage of treatments and materials, available resources, equipment and vehicle availability, road network information, and source reliability information.	Planned
Requirement:	2 The center shall tailor the decision support information to include filtering (selection from a large amount of external information), error reduction ('smoothing' the information), fusion (combination of disparate information to match the decision	Planned
Requirement:	3 The center shall provide an interface to the center personnel to input control parameters for the decision support process and receive decisions or information presentation.	Planned
Requirement:	4 The center shall provide dispatch information to maintenance and construction vehicles based on the outputs of the decision	Planned
Functional Area: **MCM Winter Maintenance Management**		
Requirement:	1 The center shall respond to requests from emergency management and traffic management centers for hazard removal, field equipment repair, and other winter roadway maintenance.	Existing

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **City of Ames Public Works**		
Entity: **Maintenance and Construction Management**		Functional Requirements
Functional Area: **MCM Winter Maintenance Management**		
Requirement:	2 The center shall exchange information with administrative systems to support the planning and scheduling of winter maintenance activities. This information includes: equipment and consumables resupply purchase request status, personnel qualifications including training and special certifications, environmental regulations and rules that may impact maintenance activities, and requests and project requirements from contract	Existing
Requirement:	3 The center shall provide status information about scheduled winter maintenance activities including anticipated closures and impact to the roadway, alternate routes, anticipated delays, closure times, and durations. The information is provided to other management centers such as traffic, emergency, transit, traveler information providers, other maintenance centers, and the media.	Existing
Requirement:	4 The center shall receive equipment availability and materials storage status information from storage facilities to support the scheduling of winter maintenance activities.	Existing
Requirement:	6 The center shall collect current and forecast traffic and weather information from traffic management centers and weather service providers (such as the National Weather Service and value-added	Existing
Requirement:	7 The center shall dispatch and route winter maintenance vehicle drivers and support them with route- specific environmental, incident, advisory, threat, alert, and traffic congestion information.	Planned
Requirement:	8 The center shall determine the need for roadway treatment based on current and forecasted weather information, current usage of treatments and materials, available resources, requests for action from other agencies, and recommendations from the Maintenance Decision Support system, specifically under winter conditions. This supports winter maintenance such as plowing, treating,	Planned
Requirement:	9 The center shall provide dispatch instructions for vehicle operators based on input parameters from center personnel, specifically for winter conditions. This could include a treatment route, treatment application rates, start and end times, and other treatment instructions.	Planned
Requirement:	11 The center shall assess the current status of all winter maintenance activities, including actual work activities performed, current locations and operational conditions of vehicles, materials and equipment inventories, field equipment status, environmental information, etc.	Existing
Functional Area: **MCM Roadway Maintenance and Construction**		
Requirement:	1 The center shall maintain an interface with asset management systems to track the inventory, restrictions, repair needs and status updates of transportation assets (pavement, bridges, signs, etc.) including location, installation and materials information, vendor/contractor, current maintenance status, standard height, width, and weight restrictions.	Existing

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **City of Ames Public Works**		
Entity: **Maintenance and Construction Management**		Functional Requirements
Functional Area: **MCM Roadway Maintenance and Construction**		
Requirement:	2 The center shall respond to requests from emergency management and traffic management centers for hazard removal, field equipment repair, and other roadway maintenance.	Existing
Requirement:	3 The center shall exchange information with administrative systems to support the planning and scheduling of maintenance activities. This information includes: equipment and consumables resupply purchase request status, personnel qualifications including training and special certifications, environmental regulations and rules that may impact maintenance activities, and requests and project requirements from contract	Existing
Requirement:	4 The center shall provide emergency management and traffic management centers with information about scheduled maintenance and construction work activities including anticipated closures and impact to the roadway, alternate routes, anticipated delays, closure times, and durations.	Existing
Requirement:	5 The center shall collect the status and fault data from roadside equipment, such as traffic, infrastructure, and environmental sensors, highway advisory radio and dynamic message signs, automated roadway treatment systems, barrier and safeguard systems, cameras, traffic signals and override equipment, ramp meters, beacons, security sensors and surveillance equipment, etc., and provide a cohesive view of equipment repair needs.	Existing
Requirement:	6 The center shall collect the status and fault data from traffic management centers, including data for traffic, infrastructure, and environmental sensors, highway advisory radio and dynamic message signs, automated roadway treatment systems, barrier and safeguard systems, cameras, traffic signals and override equipment, ramp meters, beacons, security sensors and	Existing
Requirement:	8 The center shall receive equipment availability and materials storage status information from storage facilities to support the scheduling of roadway maintenance and construction activities.	Existing
Requirement:	10 The center shall collect current and forecast traffic and weather information from traffic management centers and weather service providers (such as the National Weather Service and value-added	Existing
Requirement:	11 The center shall dispatch and route maintenance and construction vehicle drivers and support them with route- specific environmental, incident, advisory, threat, alert, and traffic congestion information.	Planned
Requirement:	13 The center shall track the status of roadway maintenance and construction activities by monitoring collected data from the dispatched vehicles and equipment.	Planned
Functional Area: **MCM Work Zone Management**		
Requirement:	1 The center shall generate new work zone activity schedules for use by maintenance and construction vehicles, maintenance and construction operators, and for information coordination purposes.	Existing

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **City of Ames Public Works**		
Entity: **Maintenance and Construction Management**		Functional Requirements
Functional Area: **MCM Work Zone Management**		
Requirement:	2 The center shall control the collection of work zone status information including video images from cameras located in or near the work zone.	Existing
Requirement:	3 The center shall disseminate work zone information to other agencies and centers including traffic, transit, emergency management centers, other maintenance centers, traveler information providers, and the media.	Existing
Requirement:	4 The center shall control traffic in work zones by providing remote control of dynamic message signs, highway advisory radio systems, gates, and barriers located in or near the work zone.	Existing
Requirement:	5 The center shall exchange information with administrative systems to support the planning and scheduling of work zone activities. This information includes: equipment and consumables resupply purchase request status, personnel qualifications including training and special certifications, environmental regulations and rules that may impact maintenance activities, and requests and project requirements from contract	Existing
Functional Area: **MCM Work Activity Coordination**		
Requirement:	1 The center shall provide work zone activities affecting the road network including the nature of the maintenance or construction activity, location, impact to the roadway, expected time(s) and duration of impact, anticipated delays, alternate routes, and suggested speed limits. This information may be augmented with images that provide a visual indication of current work zone status and traffic impacts.	Existing
Requirement:	2 The center shall provide status information about scheduled maintenance and construction activities including anticipated closures and impact to the roadway, alternate routes, anticipated delays, closure times, and durations. The information is provided to other management centers such as traffic, emergency, transit, traveler information providers, other maintenance centers, multimodal transportation providers, rail operations, and the	Existing
Requirement:	3 The center shall collect and respond to feedback concerning scheduled maintenance and construction activities with other management centers such as traffic, emergency, transit, and rail operations.	Existing
Requirement:	5 The center shall exchange information with administrative systems to support the planning and scheduling of maintenance and construction activities. This information includes: equipment and consumables resupply purchase request status, personnel qualifications including training and special certifications, environmental regulations and rules that may impact maintenance	Existing
Requirement:	6 The center shall exchange rail schedules and work plans with rail operations centers.	Existing

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **City of Ames Public Works**		
Entity: **Maintenance and Construction Management**		Functional Requirements
Functional Area: **MCM Data Collection**		
Requirement:	1 The center shall collect maintenance and construction data (such as field equipment status, infrastructure status, maintenance and construction activity data) gathered from roadway, traffic, and other maintenance and construction sources.	Existing
Requirement:	2 The center shall assign quality control metrics and meta-data to be stored along with the data. Meta-data may include attributes that describe the source and quality of the data and the conditions surrounding the collection of the data.	Existing
Requirement:	3 The center shall receive and respond to requests from ITS Archives for either a catalog of the maintenance and construction data or for the data itself.	Existing
Requirement:	4 The center shall be able to produce sample products of the data available.	Existing
Requirement:	5 The center shall provide data to Asset Management to be used in updating the status of assets in the inventory.	Existing
Entity: **Traffic Management**		
Functional Area: **Collect Traffic Surveillance**		
Requirement:	1 The center shall monitor, analyze, and store traffic sensor data (speed, volume, occupancy) collected from field elements under remote control of the center.	Existing
Requirement:	2 The center shall monitor, analyze, and distribute traffic images from CCTV systems under remote control of the center.	Existing
Requirement:	4 The center shall distribute road network conditions data (raw or processed) based on collected and analyzed traffic sensor and surveillance data to other centers.	Existing
Requirement:	5 The center shall respond to control data from center personnel regarding sensor and surveillance data collection, analysis, storage, and distribution.	Existing
Requirement:	6 The center shall maintain a database of surveillance and sensors and the freeways, surface street and rural roadways, e.g. where they are located, to which part(s) of the network their data applies, the type of data, and the ownership of each link (that is, the agency or entity responsible for collecting and storing surveillance of the link) in the network.	Existing
Functional Area: **TMC Signal Control**		
Requirement:	1 The center shall remotely control traffic signal controllers.	Existing
Requirement:	2 The center shall accept notifications of right-of-way requests from pedestrians.	Existing
Requirement:	3 The center shall collect traffic signal controller operational status and compare against the control information sent by the center.	Existing
Requirement:	4 The center shall collect traffic signal controller fault data from the field.	Existing

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **City of Ames Public Works**		
Entity: **Traffic Management**		Functional Requirements
Functional Area: **TMC Signal Control**		
Requirement:	5 The center shall implement control plans to coordinate signalized intersections, under control of center personnel, based on data from sensors and surveillance monitoring traffic conditions, incidents, emergency vehicle preemptions, the passage of commercial vehicles with unusual loads, equipment faults, pedestrian crossings, etc.	Existing
Functional Area: **TMC Traffic Information Dissemination**		
Requirement:	1 The center shall remotely control dynamic messages signs for dissemination of traffic and other information to drivers.	Existing
Requirement:	3 The center shall collect operational status for the driver information systems equipment (DMS, HAR, etc.).	Existing
Requirement:	4 The center shall collect fault data for the driver information systems equipment (DMS, HAR, etc.) for repair.	Existing
Requirement:	5 The center shall retrieve locally stored traffic information, including current and forecasted traffic information, road and weather conditions, traffic incident information, information on diversions and alternate routes, closures, and special traffic restrictions (lane/shoulder use, weight restrictions, width restrictions, HOV requirements), etc.	Existing
Requirement:	6 The center shall distribute traffic data to maintenance and construction centers, transit centers, emergency management centers, and traveler information providers.	Existing
Requirement:	8 The center shall provide the capability for center personnel to control the nature of the data that is available to non-traffic operations centers and the media.	Existing
Functional Area: **TMC Incident Detection**		
Requirement:	1 The center shall receive inputs from the Alerting and Advisory System concerning the possibility or occurrence of severe weather, terrorist activity, or other major emergency, including information provided by the Emergency Alert System.	Existing
Requirement:	2 The center shall collect and store traffic flow and image data from the field equipment to detect and verify incidents.	Planned
Requirement:	3 The center shall receive inputs concerning upcoming events that would effect the traffic network from event promoters, traveler information service providers, and intermodal freight depots.	Existing
Requirement:	4 The center shall exchange incident and threat information with emergency management centers as well as maintenance and construction centers; including notification of existence of incident and expected severity, location, time and nature of incident.	Existing
Requirement:	5 The center shall support requests from emergency management centers to remotely control sensor and surveillance equipment located in the field.	Planned
Requirement:	6 The center shall provide road network conditions and traffic images to emergency management centers to support the detection, verification, and classification of incidents.	Planned

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **City of Ames Public Works**		
Entity: **Traffic Management**		Functional Requirements
Functional Area: **TMC Incident Detection**		
Requirement:	7 The center shall provide video and traffic sensor control commands to the field equipment to detect and verify incidents.	Planned
Functional Area: **TMC Incident Dispatch Coordination/Communication**		
Requirement:	1 The center shall exchange alert information and status with emergency management centers. The information includes notification of a major emergency such as a natural or man-made disaster, civil emergency, or child abduction for distribution to the public. The information may include the alert originator, the nature of the emergency, the geographic area affected by the emergency, the effective time period, and information and instructions necessary for the public to respond to the alert. This may also identify specific information that should not be released to the public.	Existing
Requirement:	2 The center shall coordinate planning for incidents with emergency management centers - including pre-planning activities for disaster response, evacuation, and recovery operations.	Existing
Requirement:	3 The center shall support requests from emergency management centers to remotely control sensor and surveillance equipment located in the field, provide special routing for emergency vehicles, and to provide responding emergency vehicles with signal preemption.	Planned
Requirement:	4 The center shall exchange incident and threat information with emergency management centers as well as maintenance and construction centers; including notification of existence of incident and expected severity, location, time and nature of incident.	Existing
Requirement:	5 The center shall respond to requests from emergency management to provide traffic management resources to implement special traffic control measures, assist in clean up, verify an incident, etc. This may also involve coordination with maintenance centers.	Existing
Requirement:	6 The center shall receive inputs concerning upcoming events that would effect the traffic network from event promoters, traveler information service providers, media, and rail operations centers.	Existing
Requirement:	7 The center shall provide road network conditions and traffic images to emergency management centers, maintenance and construction centers, and traveler information service providers.	Planned
Requirement:	9 The center shall coordinate information and controls with other traffic management centers.	Planned
Functional Area: **HRI Traffic Management**		
Requirement:	1 The center shall remotely control highway-rail intersection (HRI) equipment located in the field.	Existing
Requirement:	2 The center shall accept collect highway-rail intersection (HRI) advisory or alert data from rail operations centers.	Existing
Requirement:	3 The center shall collect highway-rail intersection (HRI) equipment operational status and compare against the control information sent by the center.	Existing

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **City of Ames Public Works**		
Entity: **Traffic Management**		Functional Requirements
Functional Area: **HRI Traffic Management**		
Requirement:	4 The center shall provide the highway-rail intersection (HRI) equipment operational status to rail operations centers.	Existing
Requirement:	6 The center shall implement control plans to coordinate signalized intersections around highway-rail intersections (HRI), under control of center personnel, based on data from sensors and surveillance monitoring traffic conditions, incidents, equipment faults, pedestrian crossings, etc.	Existing
Functional Area: **Traffic Maintenance**		
Requirement:	1 The center shall collect and store sensor (traffic, pedestrian, multimodal crossing) operational status.	Existing
Requirement:	2 The center shall collect and store CCTV surveillance system (traffic, pedestrian) operational status.	Existing
Requirement:	3 The center shall collect and store sensor (traffic, pedestrian, multimodal crossing) fault data and send to the maintenance center for repair.	Existing
Requirement:	4 The center shall collect and store CCTV surveillance system (traffic, pedestrian) fault data send to the maintenance center for repair.	Existing
Requirement:	5 The center shall collect environmental sensor operational status.	Planned
Requirement:	6 The center shall collect environmental sensor equipment fault data and send to the maintenance center for repair.	Planned
Requirement:	7 The center shall exchange data with maintenance centers concerning the reporting of faulty equipment and the schedule/status of their repair. Information exchanged includes details of new equipment faults, and clearances when the faults are cleared.	Existing
Functional Area: **TMC Multimodal Coordination**		
Requirement:	1 The center shall respond to requests from transit management centers for signal priority at one or more intersections along a particular transit route.	Planned
Requirement:	2 The center shall exchange information with transit management centers including details current transit routes, the level of service on each route, and the progress of individual vehicles along their	Planned
Functional Area: **Traffic Data Collection**		
Requirement:	1 The center shall collect traffic management data such as operational data, event logs, etc.	Existing
Requirement:	2 The center shall assign quality control metrics and meta-data to be stored along with the data. Meta-data may include attributes that describe the source and quality of the data and the conditions surrounding the collection of the data.	Existing
Requirement:	3 The center shall receive and respond to requests from ITS Archives for either a catalog of the traffic data or for the data itself.	Existing

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **City of Ames Public Works**		
Entity: **Traffic Management**		Functional Requirements
Functional Area: **Traffic Data Collection**		
Requirement:	4 The center shall be able to produce sample products of the data available.	Existing
Element: **City of Ames Public Works CCTV Cameras**		
Entity: **Roadway Subsystem**		
Functional Area: **Roadway Basic Surveillance**		
Requirement:	2 The field element shall collect, process, and send traffic images to the center for further analysis and distribution.	Existing
Requirement:	4 The field element shall return sensor and CCTV system operational status to the controlling center.	Existing
Requirement:	5 The field element shall return sensor and CCTV system fault data	Existing
Functional Area: **Roadway Incident Detection**		
Requirement:	1 The field element shall collect, process, and send traffic images to the center for further analysis and distribution.	Planned
Requirement:	3 The field element's video devices shall be remotely controlled by a traffic management center.	Planned
Requirement:	4 The field element shall provide operational status and fault data for the incident detection devices to the traffic management center.	Planned
Functional Area: **Roadway Work Zone Traffic Control**		
Requirement:	1 The field element shall collect, process, and send work zone images to the center for further analysis and distribution, under center control.	Existing
Requirement:	5 The field element shall provide operational status for the surveillance (e.g. CCTV), driver information systems, and gates/barriers in work zones to the maintenance center.	Existing
Requirement:	6 The field element shall provide fault data for the surveillance (e.g. CCTV), driver information systems, and gates/barriers in work zones to the maintenance center for repair.	Existing
Element: **City of Ames Public Works Loop Detector Stations**		
Entity: **Roadway Subsystem**		
Functional Area: **Roadway Basic Surveillance**		
Requirement:	1 The field element shall collect, process, digitize, and send traffic sensor data (speed, volume, and occupancy) to the center for further analysis and storage, under center control.	Existing
Requirement:	4 The field element shall return sensor and CCTV system operational status to the controlling center.	Existing
Requirement:	5 The field element shall return sensor and CCTV system fault data	Existing
Functional Area: **Roadway Data Collection**		
Requirement:	1 The field element shall collect traffic, road, and environmental conditions information.	Existing

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **City of Ames Public Works Loop Detector Stations**		
Entity: **Roadway Subsystem**		Functional Requirements
Functional Area: **Roadway Data Collection**		
Requirement:	2 The field element shall include the sensors and supporting roadside devices that sense, collect, and send traffic, road, and environmental conditions information to a center for archival.	Existing
Requirement:	3 The field element shall collect sensor status and sensor faults from roadside equipment and send it along with the recorded data	Existing
Element: **City of Ames Public Works Portable DMS**		
Entity: **Roadway Subsystem**		
Functional Area: **Roadway Traffic Information Dissemination**		
Requirement:	1 The field element shall include dynamic messages signs for dissemination of traffic and other information to drivers, under center control; the DMS may be either those that display variable text messages, or those that have fixed format display(s) (e.g. vehicle restrictions, or lane open/close).	Existing
Requirement:	4 The field element shall provide operational status for the driver information systems equipment (DMS, HAR, etc.) to the center.	Existing
Requirement:	5 The field element shall provide fault data for the driver information systems equipment (DMS, HAR, etc.) to the center for repair.	Existing
Functional Area: **Roadway Work Zone Traffic Control**		
Requirement:	2 Under traffic and maintenance center control, the field element shall include driver information systems (such as dynamic messages signs and highway advisory radios) that advise drivers of activity around the work zone through which they are currently	Existing
Requirement:	5 The field element shall provide operational status for the surveillance (e.g. CCTV), driver information systems, and gates/barriers in work zones to the maintenance center.	Existing
Requirement:	6 The field element shall provide fault data for the surveillance (e.g. CCTV), driver information systems, and gates/barriers in work zones to the maintenance center for repair.	Existing
Element: **City of Ames Public Works Railroad Crossing Automated Horn Warning System**		
Entity: **Roadway Subsystem**		
Functional Area: **Standard Rail Crossing**		
Requirement:	1 The field element shall collect and process, traffic sensor data in the vicinity of a highway-rail intersection (HRI).	Existing
Requirement:	2 The field element shall monitor the status of the highway-rail intersection (HRI) equipment, including both the current state and mode of operation and the current equipment condition, to be	Existing
Requirement:	3 The field element shall monitor the status of the highway-rail intersection (HRI) equipment, including both the current state and mode of operation and the current equipment condition, to be	Existing

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **City of Ames Public Works Railroad Crossing Automated Horn Warning System**		
Entity: **Roadway Subsystem**		Functional Requirements
Functional Area: **Standard Rail Crossing**		
Requirement:	4 The field element shall receive track status from the rail wayside equipment that can be passed on to the traffic management center. This may include the current status of the tracks and whether a train is approaching.	Existing
Requirement:	7 The field element shall close the highway-rail intersection (HRI) when a train is approaching using gates, lights/signs, barriers, and	Existing
Requirement:	8 The field element shall support the integrated control of adjacent traffic signals to clear an area in advance of an approaching train and to manage traffic around the intersection.	Existing
Requirement:	9 The field element shall forward rail traffic advisories received from the Wayside Equipment to the traffic management center.	Existing
Element: **City of Ames Public Works Roadway Anti-Icing System**		
Entity: **Roadway Subsystem**		
Functional Area: **Roadway Automated Treatment**		
Requirement:	1 The field element shall activate automated roadway treatment systems based on environmental or atmospheric conditions. Treatments can be in the form of fog dispersion, anti-icing chemicals, etc.	Planned
Requirement:	2 The field element shall activate automated roadway treatment systems under center control. Treatments can be in the form of fog dispersion, anti-icing chemicals, etc.	Planned
Requirement:	3 The field element shall return automated roadway treatment system and associated environmental sensor operational status to the maintenance center.	Planned
Requirement:	4 The field element shall return automated roadway treatment system and associated environmental sensor fault data to the maintenance center for repair.	Planned
Element: **City of Ames Public Works RWIS**		
Entity: **Roadway Subsystem**		
Functional Area: **Roadway Environmental Monitoring**		
Requirement:	1 The field element shall include surface and sub-surface environmental sensors that measure road surface temperature, moisture, icing, salinity, and other measures.	Planned
Requirement:	2 The field element shall include environmental sensors that measure weather conditions including temperature, wind, humidity, precipitation, and visibility.	Planned
Requirement:	3 The field element's environmental sensors shall be remotely controlled by a maintenance center.	Planned
Requirement:	4 The field element's environmental sensors shall be remotely controlled by a traffic management center.	Planned
Requirement:	7 The field element shall provide environmental sensor equipment operational status to the controlling center or maintenance vehicle.	Planned
Requirement:	8 The field element shall provide environmental sensor equipment fault indication to the controlling center or maintenance vehicle.	Planned

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **City of Ames Public Works RWIS**		
Entity: **Roadway Subsystem**		Functional Requirements
Functional Area: **Roadway Environmental Monitoring**		
Requirement:	10 The field element shall provide weather and road surface condition data to centers.	Planned
Functional Area: **Roadway Data Collection**		
Requirement:	1 The field element shall collect traffic, road, and environmental conditions information.	Planned
Requirement:	2 The field element shall include the sensors and supporting roadside devices that sense, collect, and send traffic, road, and environmental conditions information to a center for archival.	Planned
Requirement:	3 The field element shall collect sensor status and sensor faults from roadside equipment and send it along with the recorded data	Planned
Element: **City of Ames Public Works Traffic and Maintenance Database**		
Entity: **Archived Data Management Subsystem**		
Functional Area: **ITS Data Repository**		
Requirement:	1 The center shall collect data to be archived from one or more data sources.	Existing
Requirement:	2 The center shall collect data catalogs from one or more data sources. A catalog describes the data contained in the collection of archived data and may include descriptions of the schema or structure of the data, a description of the contents of the data; e.g., time range of entries, number of entries; or a sample of the data (e. g. a thumbnail).	Existing
Requirement:	3 The center shall store the archived data in a focused repository that is suited to a particular set of ITS data users.	Existing
Requirement:	4 The center shall include capabilities for performing quality checks on the incoming archived data.	Existing
Requirement:	5 The center shall include capabilities for error notification on the incoming archived data.	Existing
Requirement:	8 The center shall perform quality checks on received data.	Existing
Requirement:	9 The center shall provide the capability to execute methods on the incoming data such as cleansing, summarizations, aggregations, or transformations applied to the data before it is stored in the archive.	Existing
Requirement:	10 The center shall respond to requests from the administrator interface function to maintain the archive data.	Existing
Requirement:	11 When data or a catalog of data is received from the archive, the center shall generate the requested data product for the users systems.	Existing
Functional Area: **Traffic and Roadside Data Archival**		
Requirement:	1 The center shall manage the collection of archive data directly from collection equipment located at the roadside.	Existing
Requirement:	2 The center shall collect traffic sensor information from roadside devices.	Existing

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **City of Ames Public Works Traffic and Maintenance Database**		
Entity: **Archived Data Management Subsystem**		Functional Requirements
Functional Area: **Traffic and Roadside Data Archival**		
Requirement:	3 The center shall collect environmental sensor information that from roadside devices.	Planned
Requirement:	4 The center shall respond to requests from the Archive Data Administer to input the parameters that control the collection process.	Existing
Requirement:	6 The center shall record the status about the imported traffic and roadside data.	Existing
Requirement:	7 The center shall use the status information to adjust the collection	Existing
Functional Area: **Government Reporting Systems Support**		
Requirement:	1 The center shall provide data from an ITS archive to federal, state, or local government reporting systems.	Existing
Requirement:	2 The center shall provide the capability to select data from an ITS archive for use in government reports.	Existing
Requirement:	3 The center shall provide the capability to format data from an ITS archive suitable for input into government reports.	Existing
Requirement:	4 The center shall support requests for ITS archived data from Government Reporting Systems.	Existing
Requirement:	5 The center shall provide the applicable meta-data for any ITS archived data to satisfy government reporting system requests. Meta-data may include attributes that describe the source and quality of the data and the conditions surrounding the collection of the data.	Existing
Element: **City of Ames Public Works Traffic Signal Systems**		
Entity: **Roadway Subsystem**		
Functional Area: **Roadway Signal Controls**		
Requirement:	1 The field element shall control traffic signals at intersections and on main highways for urban and rural areas, under center control.	Existing
Requirement:	2 The field element shall collect pedestrian images and pedestrian sensor data, and respond to pedestrian crossing requests via display, audio signal, or other manner.	Existing
Requirement:	3 The field element shall provide the capability to notify the traffic management center that a pedestrian has requested right-of-way and when the request was or will be granted (request for right-of-way).	Existing
Requirement:	4 The field element shall monitor operation of traffic signal controllers and report to the center any instances in which the indicator response does not match that expected from the indicator control information.	Existing
Requirement:	5 The field element shall monitor operation of traffic signal controllers and report to the center any instances in which the indicator response does not match that expected from known indicator preemptions.	Existing
Requirement:	6 The field element shall return traffic signal controller operational status to the controlling center.	Existing

Architecture			Status
AAMPO Regional ITS Architecture (Region)			(Region)
Element: **City of Ames Public Works Traffic Signal Systems**			
Entity: **Roadway Subsystem**			Functional Requirements
Functional Area: **Roadway Signal Controls**			
Requirement:	7	The field element shall return traffic signal controller fault data to	Existing
Functional Area: **Roadway Signal Priority**			
Requirement:	1	The field element shall respond to requests for indicator (e.g., signal) preemption requests from emergency vehicles at intersections, pedestrian crossings, and multimodal crossings.	Existing
Requirement:	2	The field element shall respond to requests for indicator (e.g., signal) priority requests from transit vehicles at intersections, pedestrian crossings, and multimodal crossings.	Planned
Requirement:	3	The field element shall notify controlling traffic management center and maintenance center that the signal timing has changed based on a signal preemption/priority request to help those centers determine whether a fault detected at the signal is a true malfunction or due to a signal override.	Existing
Functional Area: **Standard Rail Crossing**			
Requirement:	1	The field element shall collect and process, traffic sensor data in the vicinity of a highway-rail intersection (HRI).	Existing
Requirement:	2	The field element shall monitor the status of the highway-rail intersection (HRI) equipment, including both the current state and mode of operation and the current equipment condition, to be	Existing
Requirement:	3	The field element shall monitor the status of the highway-rail intersection (HRI) equipment, including both the current state and mode of operation and the current equipment condition, to be	Existing
Requirement:	4	The field element shall receive track status from the rail wayside equipment that can be passed on to the traffic management center. This may include the current status of the tracks and whether a train is approaching.	Existing
Requirement:	7	The field element shall close the highway-rail intersection (HRI) when a train is approaching using gates, lights/signs, barriers, and	Existing
Requirement:	8	The field element shall support the integrated control of adjacent traffic signals to clear an area in advance of an approaching train and to manage traffic around the intersection.	Existing
Requirement:	9	The field element shall forward rail traffic advisories received from the Wayside Equipment to the traffic management center.	Existing
Element: **City of Ames Public Works Website**			
Entity: **Information Service Provider**			
Functional Area: **ISP Traveler Data Collection**			
Requirement:	1	The center shall collect, process, and store traffic and highway condition information, including incident information, detours and road closures, event information, recommended routes, and current speeds on specific routes.	Existing

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **City of Ames Public Works Website**		
Entity: **Information Service Provider**		Functional Requirements
Functional Area: **ISP Traveler Data Collection**		
Requirement:	2 The center shall collect, process, and store maintenance and construction information, including scheduled maintenance and construction work activities and work zone activities.	Existing
Requirement:	7 The center shall collect, process, and store event information.	Existing
Functional Area: **Basic Information Broadcast**		
Requirement:	1 The center shall collect, process, store, and disseminate traffic and highway condition information to travelers, including incident information, detours and road closures, event information, recommended routes, and current speeds on specific routes.	Existing
Requirement:	2 The center shall collect, process, store, and disseminate maintenance and construction information to travelers, including scheduled maintenance and construction work activities and work	Existing
Requirement:	7 The center shall collect, process, store, and disseminate event information to travelers.	Existing
Requirement:	10 The center shall provide the capability for a system operator to control the type and update frequency of broadcast traveler information.	Existing
Functional Area: **Interactive Infrastructure Information**		
Requirement:	1 The center shall collect, process, store, and disseminate customized traffic and highway condition information to travelers, including incident information, detours and road closures, recommended routes, and current speeds on specific routes upon request.	Existing
Requirement:	2 The center shall collect, process, store, and disseminate customized maintenance and construction information to travelers, including scheduled maintenance and construction work activities and work zone activities upon request.	Planned
Requirement:	15 The center shall manage updates of digitized map data and provide updates to traveler interface systems upon request.	Planned
Requirement:	17 The center shall provide the capability for a system operator to control the type and update frequency of traveler information.	Planned
Element: **Heartland Senior Services**		
Entity: **Transit Management**		
Functional Area: **Transit Center Paratransit Operations**		
Requirement:	1 The center shall process trip requests for demand responsive transit services, i.e. paratransit. Sources of the requests may include traveler information service providers.	Existing
Requirement:	2 The center shall monitor the operational status of the demand response vehicles including status of passenger pick-up and drop-off.	Existing

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **Heartland Senior Services**		
Entity: **Transit Management**		Functional Requirements
Functional Area: **Transit Center Paratransit Operations**		
Requirement:	3 The center shall generate demand response transit (including paratransit) routes and schedules based on such factors as parameters input by the system operator, what other demand responsive transit schedules have been planned, the availability and location of vehicles, the relevance of any fixed transit routes and schedules, and road network information.	Existing
Requirement:	4 The center shall dispatch demand response (paratransit) transit vehicles.	Existing
Requirement:	6 The center shall disseminate up-to-date schedules and route information to other centers for demand responsive transit services (paratransit).	Planned
Functional Area: **Transit Vehicle Operator Scheduling**		
Requirement:	1 The center shall maintain records of a transit vehicle operator's performance. This may be done utilizing standardized performance evaluation criteria set forth by governmental regulations and transit operating company policies, assessing the transit vehicle operator's driving history, and assessing comments from the transit vehicle operator's supervisor(s) as well as noting any moving violations or accidents, supervisor comments,	Existing
Requirement:	2 The center shall assess the transit vehicle operator's availability based on previous work assignments, accumulated hours, plus health and vacation commitments.	Existing
Requirement:	3 The center shall assign transit vehicle operators to transit schedules based on their eligibility, route preferences, seniority, and transit vehicle availability.	Existing
Requirement:	4 The center shall provide an interface through which the transit vehicle operator information can be maintained - either from the transit vehicle operator, a transit system operator (i.e. center personnel), or other functions.	Existing
Element: **Heartland Senior Services Transit Vehicles**		
Entity: **Transit Vehicle Subsystem**		
Functional Area: **On-board Paratransit Operations**		
Requirement:	1 The transit vehicle shall manage data input to sensor(s) on-board a transit vehicle to determine the vehicle's availability for use in demand responsive and flexible-route transit services based on identity, type, and passenger capacity.	Planned
Requirement:	2 The transit vehicle shall receive the status of demand responsive or flexible-route transit schedules and passenger loading from the transit vehicle operator.	Existing
Requirement:	3 The transit vehicle shall provide the transit vehicle operator instructions about the demand responsive or flexible-route transit schedule that has been confirmed from the center.	Existing
Element: **Iowa DOT**		
Entity: **Traffic Management**		
Functional Area: **TMC Traffic Information Dissemination**		

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **Iowa DOT**		
Entity: **Traffic Management**		Functional Requirements
Functional Area: **TMC Traffic Information Dissemination**		
Requirement:	1 The center shall remotely control dynamic messages signs for dissemination of traffic and other information to drivers.	Existing
Requirement:	3 The center shall collect operational status for the driver information systems equipment (DMS, HAR, etc.).	Existing
Requirement:	4 The center shall collect fault data for the driver information systems equipment (DMS, HAR, etc.) for repair.	Existing
Requirement:	5 The center shall retrieve locally stored traffic information, including current and forecasted traffic information, road and weather conditions, traffic incident information, information on diversions and alternate routes, closures, and special traffic restrictions (lane/shoulder use, weight restrictions, width restrictions, HOV requirements), etc.	Existing
Requirement:	6 The center shall distribute traffic data to maintenance and construction centers, transit centers, emergency management centers, and traveler information providers.	Existing
Requirement:	8 The center shall provide the capability for center personnel to control the nature of the data that is available to non-traffic operations centers and the media.	Existing
Element: **Iowa DOT 511 Travel Information Website**		
Entity: **Information Service Provider**		
Functional Area: **ISP Traveler Data Collection**		
Requirement:	1 The center shall collect, process, and store traffic and highway condition information, including incident information, detours and road closures, event information, recommended routes, and current speeds on specific routes.	Existing
Requirement:	2 The center shall collect, process, and store maintenance and construction information, including scheduled maintenance and construction work activities and work zone activities.	Existing
Requirement:	6 The center shall collect, process, and store weather information.	Existing
Requirement:	7 The center shall collect, process, and store event information.	Existing
Functional Area: **Basic Information Broadcast**		
Requirement:	1 The center shall collect, process, store, and disseminate traffic and highway condition information to travelers, including incident information, detours and road closures, event information, recommended routes, and current speeds on specific routes.	Existing
Requirement:	2 The center shall collect, process, store, and disseminate maintenance and construction information to travelers, including scheduled maintenance and construction work activities and work	Existing
Requirement:	6 The center shall collect, process, store, and disseminate weather information to travelers.	Existing
Requirement:	7 The center shall collect, process, store, and disseminate event information to travelers.	Existing

Architecture			Status
AAMPO Regional ITS Architecture (Region)			(Region)
Element: **Iowa DOT 511 Travel Information Website**			
Entity: **Information Service Provider**			Functional Requirements
Functional Area: **Basic Information Broadcast**			
Requirement:	10	The center shall provide the capability for a system operator to control the type and update frequency of broadcast traveler information.	Existing
Functional Area: **ISP Emergency Traveler Information**			
Requirement:	1	The center shall collect and provide to the traveler interface systems emergency evacuation information, including evacuation zones, shelter information, available transportation modes, road closures and detours, changes to transit services, and traffic and road conditions at the origin, destination, and along the evacuation routes.	Existing
Requirement:	2	The center shall provide evacuation information to shelter providers.	Existing
Requirement:	3	The center shall collect and provide wide-area alert information to the traveler interface system with region-specific data, including major emergencies such as a natural or man-made disaster, civil emergency, child abductions, severe weather watches and warnings, military activities, and law enforcement warnings.	Existing
Requirement:	4	The center shall provide the capability for a system operator to control the type and update frequency of emergency and wide-area alert information distributed to travelers.	Existing
Element: **Iowa DOT 511 Traveler Information System**			
Entity: **Information Service Provider**			
Functional Area: **ISP Traveler Data Collection**			
Requirement:	1	The center shall collect, process, and store traffic and highway condition information, including incident information, detours and road closures, event information, recommended routes, and current speeds on specific routes.	Existing
Requirement:	2	The center shall collect, process, and store maintenance and construction information, including scheduled maintenance and construction work activities and work zone activities.	Existing
Requirement:	3	The center shall collect, process, and store transit routes and schedules, transit transfer options, transit fares, and real-time schedule adherence information.	Existing
Requirement:	6	The center shall collect, process, and store weather information.	Existing
Requirement:	7	The center shall collect, process, and store event information.	Existing
Functional Area: **Traveler Telephone Information**			
Requirement:	1	The center shall provide the capability to process voice-formatted requests for traveler information from a traveler telephone information system, and return the information in the requested	Existing
Requirement:	2	The center shall provide the capability to process dual-tone multifrequency (DTMF)-based requests (touch-tone) for traveler information from a traveler telephone information system.	Existing

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **Iowa DOT 511 Traveler Information System**		
Entity: **Information Service Provider**		Functional Requirements
Functional Area: **Traveler Telephone Information**		
Requirement:	3 The center shall provide the capability to process traveler information requests from a traveler telephone information system.	Existing
Requirement:	4 The center shall collect and provide information on traffic conditions in the requested voice format and for the requested location.	Existing
Requirement:	5 The center shall collect and provide work zone and roadway maintenance information in the requested voice format and for the requested location.	Existing
Requirement:	7 The center shall collect and provide weather and event information in the requested voice format and for the requested location.	Existing
Requirement:	8 The center shall collect and provide transit service information in the requested voice format and for the requested location.	Existing
Requirement:	11 The center shall provide the capability to support both specific caller requests as well as bulk upload of regional traveler information.	Existing
Functional Area: **ISP Emergency Traveler Information**		
Requirement:	1 The center shall collect and provide to the traveler interface systems emergency evacuation information, including evacuation zones, shelter information, available transportation modes, road closures and detours, changes to transit services, and traffic and road conditions at the origin, destination, and along the evacuation routes.	Existing
Requirement:	2 The center shall provide evacuation information to shelter providers.	Existing
Requirement:	3 The center shall collect and provide wide-area alert information to the traveler interface system with region-specific data, including major emergencies such as a natural or man-made disaster, civil emergency, child abductions, severe weather watches and warnings, military activities, and law enforcement warnings.	Existing
Requirement:	4 The center shall provide the capability for a system operator to control the type and update frequency of emergency and wide-area alert information distributed to travelers.	Existing
Element: **Iowa DOT Ames Maintenance Garage**		
Entity: **Maintenance and Construction Management**		
Functional Area: **MCM Environmental Information Collection**		
Requirement:	1 The center shall remotely control environmental sensors that measure road surface temperature, moisture, icing, salinity, and other measures.	Existing
Requirement:	2 The center shall remotely control environmental sensors that measure weather conditions including temperature, wind, humidity, precipitation, and visibility.	Existing

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **Iowa DOT Ames Maintenance Garage**		
Entity: **Maintenance and Construction Management**		Functional Requirements
Functional Area: **MCM Environmental Information Collection**		
Requirement:	4 The center shall assimilate current and forecast road conditions and surface weather information using a combination of weather service provider information (such as the National Weather Service and value-added sector specific meteorological services), data from traffic, emergency, and transit management, traveler information providers, and environmental data collected from sensors deployed on and about the roadway as well as the fleet of maintenance and construction vehicles.	Existing
Requirement:	5 The center shall provide weather and road condition information to weather service providers and center personnel.	Existing
Requirement:	6 The center shall respond to control data from center personnel regarding environmental sensor control and weather data collection and processing.	Existing
Requirement:	7 The center shall collect operational status for the roadside and vehicle-based environmental sensor equipment.	Existing
Requirement:	8 The center shall collect fault data for the roadside and vehicle-based environmental sensor equipment for repair.	Existing
Functional Area: **MCM Environmental Information Processing**		
Requirement:	1 The center shall respond to control data from center personnel regarding environmental sensor control and weather data collection and processing.	Existing
Requirement:	2 The center shall assimilate current and forecast road conditions and surface weather information using a combination of weather service provider information (such as the National Weather Service and value-added sector specific meteorological services) and local environmental sensor data.	Existing
Requirement:	3 The center shall use the various data inputs of environmental sensors and road weather data to develop a view of current and predicted road weather and road conditions.	Existing
Requirement:	4 The center shall disseminate current and forecasted road weather and road condition information to weather service providers (such as the National Weather Service and value-added sector specific meteorological services) as well as other agencies including traffic, emergency, and transit management, traveler information providers, rail operations centers, media, and other maintenance management centers.	Existing
Functional Area: **MCM Incident Management**		
Requirement:	1 The center shall receive inputs from the Alerting and Advisory System concerning the possibility or occurrence of severe weather, terrorist activity, or other major emergency, including information provided by the Emergency Alert System.	Existing
Requirement:	2 The center shall exchange alert information and status with emergency management centers. The information includes notification of a major emergency such as a natural or man-made disaster, civil emergency, or child abduction. The information may include the alert originator, the nature of the emergency, the geographic area affected by the emergency, the effective time period, etc.	Existing

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **Iowa DOT Ames Maintenance Garage**		
Entity: **Maintenance and Construction Management**		Functional Requirements
Functional Area: **MCM Incident Management**		
Requirement:	3 The center shall exchange incident and threat information with emergency management centers as well as traffic management centers; including notification of existence of incident and expected severity, location, time and nature of incident.	Existing
Requirement:	4 The center shall coordinate planning for incidents with emergency management centers - including pre-planning activities for disaster response, evacuation, and recovery operations.	Existing
Requirement:	5 The center shall respond to requests from emergency management to provide maintenance and construction resources to implement response plans, assist in clean up, verify an incident, etc. This may also involve coordination with traffic management centers and other maintenance centers.	Existing
Requirement:	6 The center shall exchange road network status assessment information with emergency management and traffic management centers including an assessment of damage sustained by the road network including location and extent of the damage, estimate of remaining capacity, required closures, alternate routes, necessary	Existing
Requirement:	7 The center shall provide work zone activities affecting the road network including the nature of the maintenance or construction activity, location, impact to the roadway, expected time(s) and duration of impact, anticipated delays, alternate routes, and suggested speed limits. This information may be augmented with images that provide a visual indication of current work zone status and traffic impacts.	Existing
Requirement:	8 The center shall receive information indicating the damage sustained by transportation assets, derived from aerial surveillance, field reports, inspections, tests, and analyses to support incident management.	Existing
Functional Area: **MCM Maintenance Decision Support**		
Requirement:	1 The center shall provide the center personnel with tailored external information, including weather or road condition observations, forecasted weather information or road conditions, current usage of treatments and materials, available resources, equipment and vehicle availability, road network information, and source reliability information.	Existing
Requirement:	2 The center shall tailor the decision support information to include filtering (selection from a large amount of external information), error reduction ('smoothing' the information), fusion (combination of disparate information to match the decision	Existing
Requirement:	3 The center shall provide an interface to the center personnel to input control parameters for the decision support process and receive decisions or information presentation.	Existing
Requirement:	4 The center shall provide dispatch information to maintenance and construction vehicles based on the outputs of the decision	Planned
Functional Area: **MCM Winter Maintenance Management**		

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **Iowa DOT Ames Maintenance Garage**		
Entity: **Maintenance and Construction Management**		Functional Requirements
Functional Area: **MCM Winter Maintenance Management**		
Requirement:	1 The center shall respond to requests from emergency management and traffic management centers for hazard removal, field equipment repair, and other winter roadway maintenance.	Existing
Requirement:	2 The center shall exchange information with administrative systems to support the planning and scheduling of winter maintenance activities. This information includes: equipment and consumables resupply purchase request status, personnel qualifications including training and special certifications, environmental regulations and rules that may impact maintenance activities, and requests and project requirements from contract	Existing
Requirement:	3 The center shall provide status information about scheduled winter maintenance activities including anticipated closures and impact to the roadway, alternate routes, anticipated delays, closure times, and durations. The information is provided to other management centers such as traffic, emergency, transit, traveler information providers, other maintenance centers, and the media.	Existing
Requirement:	4 The center shall receive equipment availability and materials storage status information from storage facilities to support the scheduling of winter maintenance activities.	Existing
Requirement:	6 The center shall collect current and forecast traffic and weather information from traffic management centers and weather service providers (such as the National Weather Service and value-added	Existing
Requirement:	7 The center shall dispatch and route winter maintenance vehicle drivers and support them with route- specific environmental, incident, advisory, threat, alert, and traffic congestion information.	Planned
Requirement:	8 The center shall determine the need for roadway treatment based on current and forecasted weather information, current usage of treatments and materials, available resources, requests for action from other agencies, and recommendations from the Maintenance Decision Support system, specifically under winter conditions. This supports winter maintenance such as plowing, treating,	Existing
Requirement:	9 The center shall provide dispatch instructions for vehicle operators based on input parameters from center personnel, specifically for winter conditions. This could include a treatment route, treatment application rates, start and end times, and other treatment instructions.	Existing
Requirement:	11 The center shall assess the current status of all winter maintenance activities, including actual work activities performed, current locations and operational conditions of vehicles, materials and equipment inventories, field equipment status, environmental information, etc.	Existing
Functional Area: **MCM Roadway Maintenance and Construction**		

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **Iowa DOT Ames Maintenance Garage**		
Entity: **Maintenance and Construction Management**		Functional Requirements
Functional Area: **MCM Roadway Maintenance and Construction**		
Requirement:	1 The center shall maintain an interface with asset management systems to track the inventory, restrictions, repair needs and status updates of transportation assets (pavement, bridges, signs, etc.) including location, installation and materials information, vendor/contractor, current maintenance status, standard height, width, and weight restrictions.	Existing
Requirement:	2 The center shall respond to requests from emergency management and traffic management centers for hazard removal, field equipment repair, and other roadway maintenance.	Existing
Requirement:	3 The center shall exchange information with administrative systems to support the planning and scheduling of maintenance activities. This information includes: equipment and consumables resupply purchase request status, personnel qualifications including training and special certifications, environmental regulations and rules that may impact maintenance activities, and requests and project requirements from contract	Existing
Requirement:	4 The center shall provide emergency management and traffic management centers with information about scheduled maintenance and construction work activities including anticipated closures and impact to the roadway, alternate routes, anticipated delays, closure times, and durations.	Existing
Requirement:	5 The center shall collect the status and fault data from roadside equipment, such as traffic, infrastructure, and environmental sensors, highway advisory radio and dynamic message signs, automated roadway treatment systems, barrier and safeguard systems, cameras, traffic signals and override equipment, ramp meters, beacons, security sensors and surveillance equipment, etc., and provide a cohesive view of equipment repair needs.	Existing
Requirement:	6 The center shall collect the status and fault data from traffic management centers, including data for traffic, infrastructure, and environmental sensors, highway advisory radio and dynamic message signs, automated roadway treatment systems, barrier and safeguard systems, cameras, traffic signals and override equipment, ramp meters, beacons, security sensors and	Existing
Requirement:	8 The center shall receive equipment availability and materials storage status information from storage facilities to support the scheduling of roadway maintenance and construction activities.	Existing
Requirement:	10 The center shall collect current and forecast traffic and weather information from traffic management centers and weather service providers (such as the National Weather Service and value-added	Existing
Requirement:	11 The center shall dispatch and route maintenance and construction vehicle drivers and support them with route- specific environmental, incident, advisory, threat, alert, and traffic congestion information.	Planned
Requirement:	13 The center shall track the status of roadway maintenance and construction activities by monitoring collected data from the dispatched vehicles and equipment.	Planned

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **Iowa DOT Ames Maintenance Garage**		
Entity: **Maintenance and Construction Management**		Functional Requirements
Functional Area: **MCM Work Zone Management**		
Requirement:	1 The center shall generate new work zone activity schedules for use by maintenance and construction vehicles, maintenance and construction operators, and for information coordination purposes.	Existing
Requirement:	2 The center shall control the collection of work zone status information including video images from cameras located in or near the work zone.	Existing
Requirement:	3 The center shall disseminate work zone information to other agencies and centers including traffic, transit, emergency management centers, other maintenance centers, traveler information providers, and the media.	Existing
Requirement:	4 The center shall control traffic in work zones by providing remote control of dynamic message signs, highway advisory radio systems, gates, and barriers located in or near the work zone.	Existing
Requirement:	5 The center shall exchange information with administrative systems to support the planning and scheduling of work zone activities. This information includes: equipment and consumables resupply purchase request status, personnel qualifications including training and special certifications, environmental regulations and rules that may impact maintenance activities, and requests and project requirements from contract	Existing
Functional Area: **MCM Work Activity Coordination**		
Requirement:	1 The center shall provide work zone activities affecting the road network including the nature of the maintenance or construction activity, location, impact to the roadway, expected time(s) and duration of impact, anticipated delays, alternate routes, and suggested speed limits. This information may be augmented with images that provide a visual indication of current work zone status and traffic impacts.	Existing
Requirement:	2 The center shall provide status information about scheduled maintenance and construction activities including anticipated closures and impact to the roadway, alternate routes, anticipated delays, closure times, and durations. The information is provided to other management centers such as traffic, emergency, transit, traveler information providers, other maintenance centers, multimodal transportation providers, rail operations, and the	Existing
Requirement:	3 The center shall collect and respond to feedback concerning scheduled maintenance and construction activities with other management centers such as traffic, emergency, transit, and rail operations.	Existing
Requirement:	4 The center shall collect and disseminate asset restriction information levied on transportation asset usage based on infrastructure design, surveys, tests, or analyses. This includes standard facility design height, width, and weight restrictions, special restrictions such as spring weight restrictions, and temporary facility restrictions that are imposed during maintenance and construction.	Existing

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **Iowa DOT Ames Maintenance Garage**		
Entity: **Maintenance and Construction Management**		Functional Requirements
Functional Area: **MCM Work Activity Coordination**		
Requirement:	5 The center shall exchange information with administrative systems to support the planning and scheduling of maintenance and construction activities. This information includes: equipment and consumables resupply purchase request status, personnel qualifications including training and special certifications, environmental regulations and rules that may impact maintenance	Existing
Functional Area: **MCM Data Collection**		
Requirement:	1 The center shall collect maintenance and construction data (such as field equipment status, infrastructure status, maintenance and construction activity data) gathered from roadway, traffic, and other maintenance and construction sources.	Existing
Requirement:	2 The center shall assign quality control metrics and meta-data to be stored along with the data. Meta-data may include attributes that describe the source and quality of the data and the conditions surrounding the collection of the data.	Existing
Requirement:	3 The center shall receive and respond to requests from ITS Archives for either a catalog of the maintenance and construction data or for the data itself.	Existing
Requirement:	4 The center shall be able to produce sample products of the data available.	Existing
Requirement:	5 The center shall provide data to Asset Management to be used in updating the status of assets in the inventory.	Existing
Entity: **Traffic Management**		
Functional Area: **Collect Traffic Surveillance**		
Requirement:	1 The center shall monitor, analyze, and store traffic sensor data (speed, volume, occupancy) collected from field elements under remote control of the center.	Planned
Requirement:	2 The center shall monitor, analyze, and distribute traffic images from CCTV systems under remote control of the center.	Planned
Requirement:	4 The center shall distribute road network conditions data (raw or processed) based on collected and analyzed traffic sensor and surveillance data to other centers.	Planned
Requirement:	5 The center shall respond to control data from center personnel regarding sensor and surveillance data collection, analysis, storage, and distribution.	Planned
Requirement:	6 The center shall maintain a database of surveillance and sensors and the freeways, surface street and rural roadways, e.g. where they are located, to which part(s) of the network their data applies, the type of data, and the ownership of each link (that is, the agency or entity responsible for collecting and storing surveillance of the link) in the network.	Planned
Functional Area: **TMC Traffic Information Dissemination**		
Requirement:	1 The center shall remotely control dynamic messages signs for dissemination of traffic and other information to drivers.	Existing

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **Iowa DOT Ames Maintenance Garage**		
Entity: **Traffic Management**		Functional Requirements
Functional Area: **TMC Traffic Information Dissemination**		
Requirement:	3 The center shall collect operational status for the driver information systems equipment (DMS, HAR, etc.).	Existing
Requirement:	4 The center shall collect fault data for the driver information systems equipment (DMS, HAR, etc.) for repair.	Existing
Requirement:	5 The center shall retrieve locally stored traffic information, including current and forecasted traffic information, road and weather conditions, traffic incident information, information on diversions and alternate routes, closures, and special traffic restrictions (lane/shoulder use, weight restrictions, width restrictions, HOV requirements), etc.	Existing
Requirement:	6 The center shall distribute traffic data to maintenance and construction centers, transit centers, emergency management centers, and traveler information providers.	Existing
Requirement:	7 The center shall distribute traffic data to the media upon request; the capability to provide the information in both data stream and graphical display shall be supported.	Existing
Requirement:	8 The center shall provide the capability for center personnel to control the nature of the data that is available to non-traffic operations centers and the media.	Existing
Element: **Iowa DOT Ames Maintenance Garage Maintenance and Construction Vehicle/Equipment**		
Entity: **Maintenance and Construction Vehicle**		
Functional Area: **MCV Winter Maintenance**		
Requirement:	1 The maintenance and construction vehicle shall track the location and status of safety systems on-board the vehicle.	Planned
Requirement:	3 The maintenance and construction vehicle shall monitor materials information including remaining quantity and current application	Existing
Requirement:	4 The maintenance and construction vehicle shall respond to dispatch information from the center, presented to the vehicle operator for acknowledgement and returning status.	Planned
Functional Area: **MCV Roadway Maintenance and Construction**		
Requirement:	1 The maintenance and construction vehicle shall track the location and status of safety systems on-board the vehicle.	Planned
Requirement:	3 The maintenance and construction vehicle shall monitor materials information including remaining quantity and current application	Existing
Requirement:	4 The maintenance and construction vehicle shall respond to dispatch information from the center, presented to the vehicle operator for acknowledgement and returning status.	Planned
Element: **Iowa DOT CARS**		
Entity: **Archived Data Management Subsystem**		
Functional Area: **ITS Data Repository**		
Requirement:	1 The center shall collect data to be archived from one or more data sources.	Existing

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **Iowa DOT CARS**		
Entity: **Archived Data Management Subsystem**		Functional Requirements
Functional Area: **ITS Data Repository**		
Requirement:	2 The center shall collect data catalogs from one or more data sources. A catalog describes the data contained in the collection of archived data and may include descriptions of the schema or structure of the data, a description of the contents of the data; e.g., time range of entries, number of entries; or a sample of the data (e. g. a thumbnail).	Existing
Requirement:	3 The center shall store the archived data in a focused repository that is suited to a particular set of ITS data users.	Existing
Requirement:	4 The center shall include capabilities for performing quality checks on the incoming archived data.	Existing
Requirement:	5 The center shall include capabilities for error notification on the incoming archived data.	Existing
Requirement:	9 The center shall provide the capability to execute methods on the incoming data such as cleansing, summarizations, aggregations, or transformations applied to the data before it is stored in the archive.	Existing
Requirement:	10 The center shall respond to requests from the administrator interface function to maintain the archive data.	Existing
Requirement:	11 When data or a catalog of data is received from the archive, the center shall generate the requested data product for the users systems.	Existing
Functional Area: **Government Reporting Systems Support**		
Requirement:	1 The center shall provide data from an ITS archive to federal, state, or local government reporting systems.	Existing
Requirement:	2 The center shall provide the capability to select data from an ITS archive for use in government reports.	Existing
Requirement:	3 The center shall provide the capability to format data from an ITS archive suitable for input into government reports.	Existing
Requirement:	4 The center shall support requests for ITS archived data from Government Reporting Systems.	Existing
Requirement:	5 The center shall provide the applicable meta-data for any ITS archived data to satisfy government reporting system requests. Meta-data may include attributes that describe the source and quality of the data and the conditions surrounding the collection of the data.	Existing
Entity: **Information Service Provider**		
Functional Area: **ISP Traveler Data Collection**		
Requirement:	1 The center shall collect, process, and store traffic and highway condition information, including incident information, detours and road closures, event information, recommended routes, and current speeds on specific routes.	Existing
Requirement:	2 The center shall collect, process, and store maintenance and construction information, including scheduled maintenance and construction work activities and work zone activities.	Existing

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **Iowa DOT CARS**		
Entity: **Information Service Provider**		Functional Requirements
Functional Area: **ISP Traveler Data Collection**		
Requirement:	3 The center shall collect, process, and store transit routes and schedules, transit transfer options, transit fares, and real-time schedule adherence information.	Existing
Requirement:	6 The center shall collect, process, and store weather information.	Existing
Requirement:	7 The center shall collect, process, and store event information.	Existing
Entity: **Traffic Management**		
Functional Area: **TMC Traffic Information Dissemination**		
Requirement:	1 The center shall remotely control dynamic messages signs for dissemination of traffic and other information to drivers.	Planned
Requirement:	3 The center shall collect operational status for the driver information systems equipment (DMS, HAR, etc.).	Planned
Requirement:	4 The center shall collect fault data for the driver information systems equipment (DMS, HAR, etc.) for repair.	Planned
Requirement:	5 The center shall retrieve locally stored traffic information, including current and forecasted traffic information, road and weather conditions, traffic incident information, information on diversions and alternate routes, closures, and special traffic restrictions (lane/shoulder use, weight restrictions, width restrictions, HOV requirements), etc.	Planned
Requirement:	6 The center shall distribute traffic data to maintenance and construction centers, transit centers, emergency management centers, and traveler information providers.	Planned
Requirement:	8 The center shall provide the capability for center personnel to control the nature of the data that is available to non-traffic operations centers and the media.	Planned
Element: **Iowa DOT CCTV Camera on RWIS Tower**		
Entity: **Roadway Subsystem**		
Functional Area: **Roadway Basic Surveillance**		
Requirement:	2 The field element shall collect, process, and send traffic images to the center for further analysis and distribution.	Planned
Requirement:	4 The field element shall return sensor and CCTV system operational status to the controlling center.	Planned
Requirement:	5 The field element shall return sensor and CCTV system fault data	Planned
Element: **Iowa DOT District 1 Database**		
Entity: **Archived Data Management Subsystem**		
Functional Area: **ITS Data Repository**		
Requirement:	1 The center shall collect data to be archived from one or more data sources.	Existing
Requirement:	2 The center shall collect data catalogs from one or more data sources. A catalog describes the data contained in the collection of archived data and may include descriptions of the schema or structure of the data, a description of the contents of the data; e.g., time range of entries, number of entries; or a sample of the data (e. g. a thumbnail).	Existing

Architecture			Status
AAMPO Regional ITS Architecture (Region)			(Region)
Element: **Iowa DOT District 1 Database**			
Entity: **Archived Data Management Subsystem**			Functional Requirements
Functional Area: **ITS Data Repository**			
Requirement:	3	The center shall store the archived data in a focused repository that is suited to a particular set of ITS data users.	Existing
Requirement:	4	The center shall include capabilities for performing quality checks on the incoming archived data.	Existing
Requirement:	5	The center shall include capabilities for error notification on the incoming archived data.	Existing
Requirement:	9	The center shall provide the capability to execute methods on the incoming data such as cleansing, summarizations, aggregations, or transformations applied to the data before it is stored in the archive.	Existing
Requirement:	10	The center shall respond to requests from the administrator interface function to maintain the archive data.	Existing
Requirement:	11	When data or a catalog of data is received from the archive, the center shall generate the requested data product for the users systems.	Existing
Functional Area: **Government Reporting Systems Support**			
Requirement:	1	The center shall provide data from an ITS archive to federal, state, or local government reporting systems.	Existing
Requirement:	2	The center shall provide the capability to select data from an ITS archive for use in government reports.	Existing
Requirement:	3	The center shall provide the capability to format data from an ITS archive suitable for input into government reports.	Existing
Requirement:	4	The center shall support requests for ITS archived data from Government Reporting Systems.	Existing
Requirement:	5	The center shall provide the applicable meta-data for any ITS archived data to satisfy government reporting system requests. Meta-data may include attributes that describe the source and quality of the data and the conditions surrounding the collection of the data.	Existing
Element: **Iowa DOT District 1 Operations Office**			
Entity: **Traffic Management**			
Functional Area: **Collect Traffic Surveillance**			
Requirement:	1	The center shall monitor, analyze, and store traffic sensor data (speed, volume, occupancy) collected from field elements under remote control of the center.	Planned
Requirement:	2	The center shall monitor, analyze, and distribute traffic images from CCTV systems under remote control of the center.	Planned
Requirement:	4	The center shall distribute road network conditions data (raw or processed) based on collected and analyzed traffic sensor and surveillance data to other centers.	Planned
Requirement:	5	The center shall respond to control data from center personnel regarding sensor and surveillance data collection, analysis, storage, and distribution.	Planned

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **Iowa DOT District 1 Operations Office**		
Entity: **Traffic Management**		Functional Requirements
Functional Area: **Collect Traffic Surveillance**		
Requirement:	6 The center shall maintain a database of surveillance and sensors and the freeways, surface street and rural roadways, e.g. where they are located, to which part(s) of the network their data applies, the type of data, and the ownership of each link (that is, the agency or entity responsible for collecting and storing surveillance of the link) in the network.	Planned
Functional Area: **TMC Traffic Information Dissemination**		
Requirement:	1 The center shall remotely control dynamic messages signs for dissemination of traffic and other information to drivers.	Existing
Requirement:	3 The center shall collect operational status for the driver information systems equipment (DMS, HAR, etc.).	Existing
Requirement:	4 The center shall collect fault data for the driver information systems equipment (DMS, HAR, etc.) for repair.	Existing
Requirement:	5 The center shall retrieve locally stored traffic information, including current and forecasted traffic information, road and weather conditions, traffic incident information, information on diversions and alternate routes, closures, and special traffic restrictions (lane/shoulder use, weight restrictions, width restrictions, HOV requirements), etc.	Existing
Requirement:	6 The center shall distribute traffic data to maintenance and construction centers, transit centers, emergency management centers, and traveler information providers.	Existing
Requirement:	8 The center shall provide the capability for center personnel to control the nature of the data that is available to non-traffic operations centers and the media.	Existing
Functional Area: **TMC Incident Detection**		
Requirement:	1 The center shall receive inputs from the Alerting and Advisory System concerning the possibility or occurrence of severe weather, terrorist activity, or other major emergency, including information provided by the Emergency Alert System.	Existing
Requirement:	2 The center shall collect and store traffic flow and image data from the field equipment to detect and verify incidents.	Planned
Requirement:	3 The center shall receive inputs concerning upcoming events that would effect the traffic network from event promoters, traveler information service providers, and intermodal freight depots.	Existing
Requirement:	4 The center shall exchange incident and threat information with emergency management centers as well as maintenance and construction centers; including notification of existence of incident and expected severity, location, time and nature of incident.	Existing
Requirement:	5 The center shall support requests from emergency management centers to remotely control sensor and surveillance equipment located in the field.	Planned
Requirement:	6 The center shall provide road network conditions and traffic images to emergency management centers to support the detection, verification, and classification of incidents.	Planned

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **Iowa DOT District 1 Operations Office**		
Entity: **Traffic Management**		Functional Requirements
Functional Area: **TMC Incident Detection**		
Requirement:	7 The center shall provide video and traffic sensor control commands to the field equipment to detect and verify incidents.	Planned
Functional Area: **TMC Incident Dispatch Coordination/Communication**		
Requirement:	1 The center shall exchange alert information and status with emergency management centers. The information includes notification of a major emergency such as a natural or man-made disaster, civil emergency, or child abduction for distribution to the public. The information may include the alert originator, the nature of the emergency, the geographic area affected by the emergency, the effective time period, and information and instructions necessary for the public to respond to the alert. This may also identify specific information that should not be released to the public.	Existing
Requirement:	2 The center shall coordinate planning for incidents with emergency management centers - including pre-planning activities for disaster response, evacuation, and recovery operations.	Existing
Requirement:	3 The center shall support requests from emergency management centers to remotely control sensor and surveillance equipment located in the field, provide special routing for emergency vehicles, and to provide responding emergency vehicles with signal preemption.	Planned
Requirement:	4 The center shall exchange incident and threat information with emergency management centers as well as maintenance and construction centers; including notification of existence of incident and expected severity, location, time and nature of incident.	Existing
Requirement:	5 The center shall respond to requests from emergency management to provide traffic management resources to implement special traffic control measures, assist in clean up, verify an incident, etc. This may also involve coordination with maintenance centers.	Existing
Requirement:	6 The center shall receive inputs concerning upcoming events that would effect the traffic network from event promoters, traveler information service providers, media, and rail operations centers.	Existing
Requirement:	7 The center shall provide road network conditions and traffic images to emergency management centers, maintenance and construction centers, and traveler information service providers.	Planned
Requirement:	9 The center shall coordinate information and controls with other traffic management centers.	Planned
Functional Area: **TMC Evacuation Support**		
Requirement:	1 The center shall coordinate planning for evacuation with emergency management centers - including pre-planning activities such as establishing routes, areas to be evacuated, timing, etc.	Existing

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **Iowa DOT District 1 Operations Office**		
Entity: **Traffic Management**		Functional Requirements
Functional Area: **TMC Evacuation Support**		
Requirement:	2 The center shall support requests from emergency management centers to preempt the current traffic control strategy, activate traffic control and closure systems such as gates and barriers, activate safeguard systems, or use driver information systems to support evacuation traffic control plans.	Existing
Requirement:	3 The center shall coordinate information and controls with other traffic management centers.	Planned
Requirement:	4 The center shall coordinate execution of evacuation strategies with emergency management centers - including activities such as setting closures and detours, establishing routes, updating areas to be evacuated, timing the process, etc.	Existing
Functional Area: **Traffic Maintenance**		
Requirement:	1 The center shall collect and store sensor (traffic, pedestrian, multimodal crossing) operational status.	Planned
Requirement:	2 The center shall collect and store CCTV surveillance system (traffic, pedestrian) operational status.	Planned
Requirement:	3 The center shall collect and store sensor (traffic, pedestrian, multimodal crossing) fault data and send to the maintenance center for repair.	Planned
Requirement:	4 The center shall collect and store CCTV surveillance system (traffic, pedestrian) fault data send to the maintenance center for repair.	Planned
Requirement:	7 The center shall exchange data with maintenance centers concerning the reporting of faulty equipment and the schedule/status of their repair. Information exchanged includes details of new equipment faults, and clearances when the faults are cleared.	Planned
Functional Area: **Traffic Data Collection**		
Requirement:	1 The center shall collect traffic management data such as operational data, event logs, etc.	Existing
Requirement:	2 The center shall assign quality control metrics and meta-data to be stored along with the data. Meta-data may include attributes that describe the source and quality of the data and the conditions surrounding the collection of the data.	Existing
Requirement:	3 The center shall receive and respond to requests from ITS Archives for either a catalog of the traffic data or for the data itself.	Existing
Requirement:	4 The center shall be able to produce sample products of the data available.	Existing
Element: **Iowa DOT Motor Vehicle Division**		
Entity: **Commercial Vehicle Administration**		
Functional Area: **Credentials and Taxes Administration**		
Requirement:	1 The center shall manage electronic credentials filing and processing for commercial vehicles.	Existing
Requirement:	2 The center shall manage the filing of appropriate taxes for the operation of commercial vehicles.	Existing

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **Iowa DOT Motor Vehicle Division**		
Entity: **Commercial Vehicle Administration**		Functional Requirements
Functional Area: **Credentials and Taxes Administration**		
Requirement:	3 The center shall process requests for payments of electronic credentials and tax filing and maintain an interface to a Financial Institution.	Existing
Requirement:	4 The center shall exchange credentials and tax information with other commercial vehicle administration centers - either in other states or the federal government.	Existing
Requirement:	5 The center shall provide route restrictions information, including hazmat restrictions, to other centers and agencies for distribution to commercial vehicle operators. These centers and agencies may include commercial fleet and freight management operators, traveler information centers, digital map update providers, and other commercial vehicle administration centers.	Existing
Requirement:	6 The center shall use information on asset restrictions received from maintenance centers to develop the commercial vehicle route restrictions and process credentials applications.	Existing
Requirement:	7 The center shall provide an interface with commercial vehicle fleet and freight management centers to exchange audit and compliance review reports.	Existing
Requirement:	8 The center shall provide credentials information about commercial vehicle operators and carriers to authorized requestors such as insurance agencies.	Existing
Requirement:	9 The center shall receive and store information on commercial vehicle violations from enforcement agencies as part of the processing of credentials applications.	Existing
Functional Area: **CV Information Exchange**		
Requirement:	1 The center shall exchange information with roadside check facilities, including credentials and credentials status information safety status information, daily site activity data, and citations.	Existing
Requirement:	2 The center shall exchange safety and credentials data among other commercial vehicle administration centers; includes border clearance status, credentials information, credentials status information, and safety status information.	Existing
Requirement:	3 The center shall package data concerning commercial vehicle safety and credentials into snapshots (top-level summary and critical status information).	Existing
Requirement:	4 The center shall package data concerning commercial vehicle safety and credentials into profiles (detailed and historical data).	Existing
Requirement:	5 The center shall provide commercial vehicle accident reports and citations to enforcement agencies.	Existing
Requirement:	6 The center shall provide commercial vehicle credentials and safety status information to authorized requestors such as insurance agencies.	Existing
Requirement:	7 The center shall provide reports to the commercial vehicle fleet manager regarding fleet activity through roadside facilities including accident reports, citations, credentials status information, and safety status information.	Existing
Element: **Iowa DOT Motor Vehicle Division Radiation Detection Equipment**		

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **Iowa DOT Motor Vehicle Division Radiation Detection Equipment**		
Entity: **Commercial Vehicle Check**		Functional Requirements
Functional Area: **Roadside HAZMAT Detection**		
Requirement:	2 The roadside check facility equipment shall detect the presence of security sensitive substance, e.g. detection of radiation or ammonia compounds, carried on-boar commercial vehicles and freight equipment approaching a facility. This data is acquired by roadside sensors from the freight equipment electronically, optically, or manually.	Existing
Element: **Iowa DOT Permanent DMS**		
Entity: **Roadway Subsystem**		
Functional Area: **Roadway Traffic Information Dissemination**		
Requirement:	1 The field element shall include dynamic messages signs for dissemination of traffic and other information to drivers, under center control; the DMS may be either those that display variable text messages, or those that have fixed format display(s) (e.g. vehicle restrictions, or lane open/close).	Planned
Requirement:	4 The field element shall provide operational status for the driver information systems equipment (DMS, HAR, etc.) to the center.	Planned
Requirement:	5 The field element shall provide fault data for the driver information systems equipment (DMS, HAR, etc.) to the center for repair.	Planned
Element: **Iowa DOT Portable DMS**		
Entity: **Roadway Subsystem**		
Functional Area: **Roadway Traffic Information Dissemination**		
Requirement:	1 The field element shall include dynamic messages signs for dissemination of traffic and other information to drivers, under center control; the DMS may be either those that display variable text messages, or those that have fixed format display(s) (e.g. vehicle restrictions, or lane open/close).	Existing
Requirement:	4 The field element shall provide operational status for the driver information systems equipment (DMS, HAR, etc.) to the center.	Existing
Requirement:	5 The field element shall provide fault data for the driver information systems equipment (DMS, HAR, etc.) to the center for repair.	Existing
Functional Area: **Roadway Work Zone Traffic Control**		
Requirement:	2 Under traffic and maintenance center control, the field element shall include driver information systems (such as dynamic messages signs and highway advisory radios) that advise drivers of activity around the work zone through which they are currently	Existing
Requirement:	5 The field element shall provide operational status for the surveillance (e.g. CCTV), driver information systems, and gates/barriers in work zones to the maintenance center.	Existing
Requirement:	6 The field element shall provide fault data for the surveillance (e.g. CCTV), driver information systems, and gates/barriers in work zones to the maintenance center for repair.	Existing
Element: **Iowa DOT RWIS Central System**		
Entity: **Archived Data Management Subsystem**		

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **Iowa DOT RWIS Central System**		
Entity: **Archived Data Management Subsystem**		Functional Requirements
Functional Area: **Traffic and Roadside Data Archival**		
Requirement:	1 The center shall manage the collection of archive data directly from collection equipment located at the roadside.	Existing
Requirement:	3 The center shall collect environmental sensor information that from roadside devices.	Existing
Requirement:	4 The center shall respond to requests from the Archive Data Administer to input the parameters that control the collection process.	Existing
Requirement:	5 The center shall send the request for data and control parameters to the field equipment where the information is collected and returned.	Existing
Requirement:	6 The center shall record the status about the imported traffic and roadside data.	Existing
Requirement:	7 The center shall use the status information to adjust the collection	Existing
Functional Area: **Government Reporting Systems Support**		
Requirement:	1 The center shall provide data from an ITS archive to federal, state, or local government reporting systems.	Existing
Requirement:	2 The center shall provide the capability to select data from an ITS archive for use in government reports.	Existing
Requirement:	3 The center shall provide the capability to format data from an ITS archive suitable for input into government reports.	Existing
Requirement:	4 The center shall support requests for ITS archived data from Government Reporting Systems.	Existing
Requirement:	5 The center shall provide the applicable meta-data for any ITS archived data to satisfy government reporting system requests. Meta-data may include attributes that describe the source and quality of the data and the conditions surrounding the collection of the data.	Existing
Entity: **Maintenance and Construction Management**		
Functional Area: **MCM Environmental Information Collection**		
Requirement:	1 The center shall remotely control environmental sensors that measure road surface temperature, moisture, icing, salinity, and other measures.	Existing
Requirement:	2 The center shall remotely control environmental sensors that measure weather conditions including temperature, wind, humidity, precipitation, and visibility.	Existing
Requirement:	5 The center shall provide weather and road condition information to weather service providers and center personnel.	Existing
Requirement:	6 The center shall respond to control data from center personnel regarding environmental sensor control and weather data collection and processing.	Existing
Requirement:	7 The center shall collect operational status for the roadside and vehicle-based environmental sensor equipment.	Existing
Requirement:	8 The center shall collect fault data for the roadside and vehicle-based environmental sensor equipment for repair.	Existing

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **Iowa DOT RWIS Central System**		
Entity: **Maintenance and Construction Management**		Functional Requirements
Functional Area: **MCM Environmental Information Processing**		
Requirement:	1 The center shall respond to control data from center personnel regarding environmental sensor control and weather data collection and processing.	Existing
Requirement:	2 The center shall assimilate current and forecast road conditions and surface weather information using a combination of weather service provider information (such as the National Weather Service and value-added sector specific meteorological services) and local environmental sensor data.	Existing
Requirement:	3 The center shall use the various data inputs of environmental sensors and road weather data to develop a view of current and predicted road weather and road conditions.	Existing
Requirement:	4 The center shall disseminate current and forecasted road weather and road condition information to weather service providers (such as the National Weather Service and value-added sector specific meteorological services) as well as other agencies including traffic, emergency, and transit management, traveler information providers, rail operations centers, media, and other maintenance management centers.	Existing
Requirement:	5 The center shall provide value-added sector specific meteorological services with information on basic road facility and treatment information that supports forecasts for road conditions.	Existing
Element: **Iowa DOT RWIS Stations**		
Entity: **Roadway Subsystem**		
Functional Area: **Roadway Environmental Monitoring**		
Requirement:	1 The field element shall include surface and sub-surface environmental sensors that measure road surface temperature, moisture, icing, salinity, and other measures.	Existing
Requirement:	2 The field element shall include environmental sensors that measure weather conditions including temperature, wind, humidity, precipitation, and visibility.	Existing
Requirement:	3 The field element's environmental sensors shall be remotely controlled by a maintenance center.	Existing
Requirement:	7 The field element shall provide environmental sensor equipment operational status to the controlling center or maintenance vehicle.	Existing
Requirement:	8 The field element shall provide environmental sensor equipment fault indication to the controlling center or maintenance vehicle.	Existing
Requirement:	10 The field element shall provide weather and road surface condition data to centers.	Existing
Functional Area: **Roadway Data Collection**		
Requirement:	1 The field element shall collect traffic, road, and environmental conditions information.	Existing
Requirement:	2 The field element shall include the sensors and supporting roadside devices that sense, collect, and send traffic, road, and environmental conditions information to a center for archival.	Existing

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **Iowa DOT RWIS Stations**		
Entity: **Roadway Subsystem**		Functional Requirements
Functional Area: **Roadway Data Collection**		
Requirement:	3 The field element shall collect sensor status and sensor faults from roadside equipment and send it along with the recorded data	Existing
Element: **Iowa DOT Speed Detectors at RWIS Site**		
Entity: **Roadway Subsystem**		
Functional Area: **Roadway Basic Surveillance**		
Requirement:	1 The field element shall collect, process, digitize, and send traffic sensor data (speed, volume, and occupancy) to the center for further analysis and storage, under center control.	Planned
Requirement:	4 The field element shall return sensor and CCTV system operational status to the controlling center.	Planned
Requirement:	5 The field element shall return sensor and CCTV system fault data	Planned
Element: **Iowa DOT TraCS System**		
Entity: **Archived Data Management Subsystem**		
Functional Area: **ITS Data Repository**		
Requirement:	1 The center shall collect data to be archived from one or more data sources.	Existing
Requirement:	2 The center shall collect data catalogs from one or more data sources. A catalog describes the data contained in the collection of archived data and may include descriptions of the schema or structure of the data, a description of the contents of the data; e.g., time range of entries, number of entries; or a sample of the data (e. g. a thumbnail).	Existing
Requirement:	3 The center shall store the archived data in a focused repository that is suited to a particular set of ITS data users.	Existing
Requirement:	4 The center shall include capabilities for performing quality checks on the incoming archived data.	Existing
Requirement:	5 The center shall include capabilities for error notification on the incoming archived data.	Existing
Requirement:	6 The center shall include capabilities for archive to archive coordination.	Existing
Requirement:	7 The center shall support a broad range of archived data management implementations, ranging from simple data marts that collect a focused set of data and serve a particular user community to large-scale data warehouses that collect, integrate, and summarize transportation data from multiple sources and serve a broad array of users within a region.	Existing
Requirement:	8 The center shall perform quality checks on received data.	Existing
Requirement:	9 The center shall provide the capability to execute methods on the incoming data such as cleansing, summarizations, aggregations, or transformations applied to the data before it is stored in the archive.	Existing
Requirement:	10 The center shall respond to requests from the administrator interface function to maintain the archive data.	Existing

Architecture			Status
AAMPO Regional ITS Architecture (Region)			(Region)
Element: **Iowa DOT TraCS System**			
Entity: **Archived Data Management Subsystem**			Functional Requirements
Functional Area: **ITS Data Repository**			
Requirement:	11	When data or a catalog of data is received from the archive, the center shall generate the requested data product for the users systems.	Existing
Functional Area: **Government Reporting Systems Support**			
Requirement:	1	The center shall provide data from an ITS archive to federal, state, or local government reporting systems.	Existing
Requirement:	2	The center shall provide the capability to select data from an ITS archive for use in government reports.	Existing
Requirement:	3	The center shall provide the capability to format data from an ITS archive suitable for input into government reports.	Existing
Requirement:	4	The center shall support requests for ITS archived data from Government Reporting Systems.	Existing
Requirement:	5	The center shall provide the applicable meta-data for any ITS archived data to satisfy government reporting system requests. Meta-data may include attributes that describe the source and quality of the data and the conditions surrounding the collection of the data.	Existing
Element: **Iowa DOT WeatherView Website**			
Entity: **Information Service Provider**			
Functional Area: **ISP Traveler Data Collection**			
Requirement:	1	The center shall collect, process, and store traffic and highway condition information, including incident information, detours and road closures, event information, recommended routes, and current speeds on specific routes.	Planned
Requirement:	6	The center shall collect, process, and store weather information.	Existing
Functional Area: **Basic Information Broadcast**			
Requirement:	1	The center shall collect, process, store, and disseminate traffic and highway condition information to travelers, including incident information, detours and road closures, event information, recommended routes, and current speeds on specific routes.	Planned
Requirement:	6	The center shall collect, process, store, and disseminate weather information to travelers.	Existing
Requirement:	10	The center shall provide the capability for a system operator to control the type and update frequency of broadcast traveler information.	Existing
Element: **Iowa DOT Weigh Stations**			
Entity: **Commercial Vehicle Check**			
Functional Area: **Roadside WIM**			
Requirement:	1	The roadside check facility equipment shall detect the presence of commercial vehicles and freight equipment approaching a facility. Sensors can differentiate between different types of vehicles and determine the number of axles, gross vehicle weight weight per axle, and the identification of the vehicle and its cargo.	Existing

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **Iowa DOT Weigh Stations**		
Entity: **Commercial Vehicle Check**		Functional Requirements
Functional Area: **Roadside WIM**		
Requirement:	3 The roadside check facility equipment shall send a pass/pull-in notification to the commercial vehicle and its driver based on the information received from the vehicle and the measurements taken. The message may be sent to the on-board equipment in the commercial vehicle or transmitted to the driver using equipment such as dynamic message signs, red-green lights, flashing signs, etc.	Existing
Element: **Iowa State Patrol**		
Entity: **Emergency Management**		
Functional Area: **Emergency Early Warning System**		
Requirement:	1 The center shall monitor information from Alerting and Advisory Systems such as the Information Sharing and Analysis Centers (ISACs), the National Infrastructure Protection Center (NIPC), the Homeland Security Advisory System (HSAS), etc. The information may include assessments (general incident and vulnerability awareness information), advisories (identification of threats or recommendations to increase preparedness levels), or	Existing
Requirement:	2 The center shall provide the capability to correlate alerts and advisories, incident information, and security sensor and surveillance data.	Existing
Requirement:	3 The center shall broadcast wide-area alerts and advisories to traffic management centers for emergency situations such as severe weather events, civil emergencies, child abduction (AMBER alert system), military activities, and other situations that pose a threat to life and property.	Existing
Requirement:	8 The center shall broadcast wide-area alerts and advisories to other emergency management centers for emergency situations such as severe weather events, civil emergencies, child abduction (AMBER alert system), military activities, and other situations that pose a threat to life and property.	Existing
Requirement:	9 The center shall process status information from each of the centers that have been sent the wide-area alert.	Existing
Requirement:	10 The center shall coordinate the broadcast of wide-area alerts and advisories with other emergency management centers.	Existing
Requirement:	11 The center shall receive incident information from other transportation management centers to support the early warning system.	Existing
Requirement:	12 The center shall present the alert and advisory information and the status of the actions taken in response to the alert by the other centers to the emergency system operator as received from other system inputs.	Existing
Requirement:	13 The center shall support the entry of alert and advisory information directly from the emergency system operator.	Existing
Element: **Iowa State Patrol Des Moines Communications Center**		
Entity: **Emergency Management**		
Functional Area: **Emergency Call-Taking**		

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **Iowa State Patrol Des Moines Communications Center**		
Entity: **Emergency Management**		Functional Requirements
Functional Area: **Emergency Call-Taking**		
Requirement:	1 The center shall support the interface to the Emergency Telecommunications System (e.g. 911 or 7-digit call routing) to receive emergency notification information and provide it to the emergency system operator.	Existing
Requirement:	2 The center shall receive emergency call information from 911 services and present the possible incident information to the emergency system operator.	Existing
Requirement:	5 The center shall receive emergency notification information from other public safety agencies and present the possible incident information to the emergency system operator.	Existing
Requirement:	7 The center shall coordinate, correlate, and verify all emergency inputs, including those identified based on external calls and internal analysis of security sensor and surveillance data, and assign each a level of confidence.	Existing
Requirement:	8 The center shall send a request for remote control of CCTV systems from a traffic management center in order to verify the reported incident.	Planned
Requirement:	9 The center shall forward the verified emergency information to the responding agency based on the location and nature of the emergency.	Existing
Requirement:	10 The center shall update the incident information log once the emergency system operator has verified the incident.	Existing
Requirement:	11 The center shall provide the capability for digitized map data to act as the background to the emergency information presented to the emergency system operator.	Existing
Functional Area: **Emergency Dispatch**		
Requirement:	1 The center shall dispatch emergency vehicles to respond to verified emergencies under center personnel control.	Existing
Requirement:	2 The center shall store the current status of all emergency vehicles available for dispatch and those that have been dispatched.	Existing
Requirement:	3 The center shall relay location and incident details to the responding vehicles.	Existing
Requirement:	4 The center shall track the location and status of emergency vehicles responding to an emergency based on information from the emergency vehicle.	Planned
Requirement:	5 The center shall store and maintain the emergency service responses in an action log.	Existing
Requirement:	6 The center shall provide the capability for digitized map data to act as the background to the information presented to the emergency system operator.	Existing
Requirement:	7 The center shall receive traffic images to support dispatch of emergency vehicles.	Planned
Requirement:	8 The center shall provide the capability to request remote control of traffic surveillance devices	Planned

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **Iowa State Patrol Des Moines Communications Center**		
Entity: **Emergency Management**		Functional Requirements
Functional Area: **Emergency Dispatch**		
Requirement:	9 The center shall coordinate response to incidents with other Emergency Management centers to ensure appropriate resources are dispatched and utilized.	Existing
Functional Area: **Emergency Routing**		
Requirement:	1 The center shall collect current traffic and road condition information from traffic management centers for emergency vehicle route calculation.	Existing
Requirement:	2 The center shall receive inputs from traffic management and maintenance centers on the location and status of traffic control equipment and work zones along potential emergency routes.	Existing
Requirement:	4 The center shall receive asset restriction information from maintenance centers to support the dispatching of appropriate emergency resources.	Existing
Requirement:	5 The center shall calculate emergency vehicle routes, under center personnel control, based on information from traffic management and maintenance centers.	Existing
Requirement:	6 The center shall request and receive ingress and egress routes or other specialized emergency access routes from the traffic management center.	Existing
Requirement:	7 The center shall provide the capability to request special traffic control measures, such as signal preemption, from the traffic management center to facilitate emergency vehicle progress along the suggested route.	Existing
Requirement:	8 Once the route is calculated the route shall be provided to the dispatch function.	Existing
Requirement:	9 The center shall provide the capability for digitized map data to act as the background to the information presented to the emergency system operator.	Existing
Functional Area: **Incident Command**		
Requirement:	1 The center shall provide tactical decision support, resource coordination, and communications integration for Incident Commands that are established by first responders to support local management of an incident.	Existing
Requirement:	2 The center shall provide incident command communications with public safety, emergency management, transportation, and other	Existing
Requirement:	3 The center shall track and maintain resource information and action plans pertaining to the incident command.	Existing
Requirement:	4 The center shall share incident command information with other public safety agencies including resource deployment status, hazardous material information, rail incident information, evacuation advice as well as traffic, road, and weather conditions	Existing
Requirement:	5 The center shall assess the status of responding emergency vehicles as part of an incident command.	Existing
Functional Area: **Emergency Early Warning System**		

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **Iowa State Patrol Des Moines Communications Center**		
Entity: **Emergency Management**		Functional Requirements
Functional Area: **Emergency Early Warning System**		
Requirement:	1 The center shall monitor information from Alerting and Advisory Systems such as the Information Sharing and Analysis Centers (ISACs), the National Infrastructure Protection Center (NIPC), the Homeland Security Advisory System (HSAS), etc. The information may include assessments (general incident and vulnerability awareness information), advisories (identification of threats or recommendations to increase preparedness levels), or	Existing
Requirement:	2 The center shall provide the capability to correlate alerts and advisories, incident information, and security sensor and surveillance data.	Existing
Requirement:	3 The center shall broadcast wide-area alerts and advisories to traffic management centers for emergency situations such as severe weather events, civil emergencies, child abduction (AMBER alert system), military activities, and other situations that pose a threat to life and property.	Existing
Requirement:	7 The center shall broadcast wide-area alerts and advisories to maintenance centers for emergency situations such as severe weather events, civil emergencies, child abduction (AMBER alert system), military activities, and other situations that pose a threat	Existing
Requirement:	8 The center shall broadcast wide-area alerts and advisories to other emergency management centers for emergency situations such as severe weather events, civil emergencies, child abduction (AMBER alert system), military activities, and other situations that pose a threat to life and property.	Existing
Requirement:	9 The center shall process status information from each of the centers that have been sent the wide-area alert.	Existing
Requirement:	10 The center shall coordinate the broadcast of wide-area alerts and advisories with other emergency management centers.	Existing
Requirement:	11 The center shall receive incident information from other transportation management centers to support the early warning system.	Existing
Requirement:	12 The center shall present the alert and advisory information and the status of the actions taken in response to the alert by the other centers to the emergency system operator as received from other system inputs.	Existing
Requirement:	13 The center shall support the entry of alert and advisory information directly from the emergency system operator.	Existing
Functional Area: **Emergency Response Management**		
Requirement:	1 The center shall provide strategic emergency response capabilities such as that of an Emergency Operations Center for large-scale incidents and disasters.	Existing
Requirement:	2 The center shall manage coordinated inter-agency responses to and recovery from large-scale emergencies. Such agencies include traffic management, transit, maintenance and construction management, rail operations, and other emergency management agencies.	Existing

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **Iowa State Patrol Des Moines Communications Center**		
Entity: **Emergency Management**		Functional Requirements
Functional Area: **Emergency Response Management**		
Requirement:	3 The center shall provide the capability to implement response plans and track progress through the incident by exchanging incident information and distributing response status to allied agencies.	Existing
Requirement:	4 The center shall develop, coordinate with other agencies, and store emergency response plans.	Existing
Requirement:	5 The center shall track the availability of resources (including vehicles, roadway cleanup, etc.), request additional resources from traffic, maintenance, or other emergency centers if needed.	Existing
Requirement:	6 The center shall allocate the appropriate emergency services, resources, and vehicle (s) to respond to incidents, and shall provide the capability to override the current allocation to suit the	Existing
Requirement:	7 The center shall receive event scheduling information from Event	Existing
Requirement:	8 The center shall support remote control of field equipment normally under control of the traffic management center including traffic signals, dynamic message signs, gates, and barriers.	Planned
Requirement:	9 The center shall provide the capability to remotely control and monitor CCTV systems normally operated by a traffic management center.	Planned
Requirement:	12 The center shall provide information to the media concerning the status of an emergency response.	Existing
Requirement:	13 The center shall provide the capability for digitized map data to act as the background to the information presented to the emergency system operator.	Existing
Requirement:	14 The center shall provide the capability for center personnel to provide inputs to the management of incidents, disasters and evacuations.	Existing
Functional Area: **Emergency Environmental Monitoring**		
Requirement:	1 The center shall collect current and forecast road and weather information from weather service providers (such as the National Weather Service and value-added sector specific meteorological services).	Existing
Requirement:	3 The center shall collect current road and weather information from roadway maintenance operations.	Existing
Requirement:	4 The center shall assimilate current and forecast road conditions and surface weather information to support incident management	Existing
Requirement:	5 The center shall present the current and forecast road and weather information to the emergency system operator.	Existing
Functional Area: **Center Secure Area Surveillance**		

Architecture			Status
AAMPO Regional ITS Architecture (Region)			(Region)
Element: **Iowa State Patrol Des Moines Communications Center**			
Entity: **Emergency Management**			Functional Requirements
Functional Area: **Center Secure Area Surveillance**			
Requirement:	2	The center shall remotely monitor video images and audio surveillance data collected in traveler secure areas, which include transit stations, transit stops, rest areas, park and ride lots, and other fixed sites along travel routes (e.g., emergency pull-off areas and travel information centers). The data may be raw or pre-processed in the field.	Existing
Requirement:	5	The center shall identify potential security threats based on collected security surveillance data.	Existing
Requirement:	8	The center shall remotely control security surveillance devices in traveler secure areas, which include transit stations, transit stops, rest areas, park and ride lots, and other fixed sites along travel routes (e.g., emergency pull-off areas and travel information centers).	Existing
Requirement:	12	The center shall respond to control data from center personnel regarding security surveillance data collection, processing, threat	Existing
Functional Area: **Emergency Data Collection**			
Requirement:	1	The center shall collect emergency service data, emergency vehicle management data, emergency vehicle data, sensor and surveillance data, threat data, and incident data.	Existing
Requirement:	2	The center shall assign quality control metrics and meta-data to be stored along with the data. Meta-data may include attributes that describe the source and quality of the data and the conditions surrounding the collection of the data.	Existing
Requirement:	3	The center shall receive and respond to requests from ITS Archives for either a catalog of the emergency management data or for the data itself.	Existing
Requirement:	4	The center shall be able to produce sample products of the data available.	Existing
Entity: **Traffic Management**			
Functional Area: **TMC Traffic Information Dissemination**			
Requirement:	1	The center shall remotely control dynamic messages signs for dissemination of traffic and other information to drivers.	Planned
Requirement:	3	The center shall collect operational status for the driver information systems equipment (DMS, HAR, etc.).	Planned
Requirement:	4	The center shall collect fault data for the driver information systems equipment (DMS, HAR, etc.) for repair.	Planned
Requirement:	5	The center shall retrieve locally stored traffic information, including current and forecasted traffic information, road and weather conditions, traffic incident information, information on diversions and alternate routes, closures, and special traffic restrictions (lane/shoulder use, weight restrictions, width restrictions, HOV requirements), etc.	Planned
Requirement:	6	The center shall distribute traffic data to maintenance and construction centers, transit centers, emergency management centers, and traveler information providers.	Planned

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **Iowa State Patrol Des Moines Communications Center**		
Entity: **Traffic Management**		Functional Requirements
Functional Area: **TMC Traffic Information Dissemination**		
Requirement:	8 The center shall provide the capability for center personnel to control the nature of the data that is available to non-traffic operations centers and the media.	Planned
Element: **Iowa State Patrol District 1**		
Entity: **Emergency Management**		
Functional Area: **Emergency Response Management**		
Requirement:	1 The center shall provide strategic emergency response capabilities such as that of an Emergency Operations Center for large-scale incidents and disasters.	Existing
Requirement:	2 The center shall manage coordinated inter-agency responses to and recovery from large-scale emergencies. Such agencies include traffic management, transit, maintenance and construction management, rail operations, and other emergency management agencies.	Existing
Requirement:	3 The center shall provide the capability to implement response plans and track progress through the incident by exchanging incident information and distributing response status to allied agencies.	Existing
Requirement:	4 The center shall develop, coordinate with other agencies, and store emergency response plans.	Existing
Requirement:	5 The center shall track the availability of resources (including vehicles, roadway cleanup, etc.), request additional resources from traffic, maintenance, or other emergency centers if needed.	Existing
Requirement:	6 The center shall allocate the appropriate emergency services, resources, and vehicle (s) to respond to incidents, and shall provide the capability to override the current allocation to suit the	Existing
Requirement:	7 The center shall receive event scheduling information from Event	Existing
Requirement:	10 The center shall provide the capability to request transit resource availability from transit centers for use during disaster and evacuation operations.	Existing
Requirement:	12 The center shall provide information to the media concerning the status of an emergency response.	Existing
Element: **Iowa State Patrol District 1 Emergency Vehicles**		
Entity: **Emergency Vehicle Subsystem**		
Functional Area: **On-board EV En Route Support**		
Requirement:	1 The emergency vehicle, including roadway service patrols, shall compute the location of the emergency vehicle based on inputs from a vehicle location determination function.	Planned
Requirement:	2 The emergency vehicle, including roadway service patrols, shall send the vehicle's location and operational data to the center for emergency management and dispatch.	Planned
Requirement:	3 The emergency vehicle, including roadway service patrols, shall receive incident details and a suggested route when dispatched to a scene.	Existing

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **Iowa State Patrol District 1 Emergency Vehicles**		
Entity: **Emergency Vehicle Subsystem**		Functional Requirements
Functional Area: **On-board EV En Route Support**		
Requirement:	4 The emergency vehicle shall send the current en route status (including estimated time of arrival) and requests for emergency dispatch updates.	Planned
Requirement:	6 The emergency vehicle shall provide the personnel on-board with dispatch information, including incident type and location, and forward an acknowledgment from personnel to the center that the	Existing
Functional Area: **On-board EV Incident Management Communication**		
Requirement:	1 The emergency vehicle shall receive dispatch instructions sufficient to enable emergency personnel in the field to implement an effective incident response. It includes local traffic road, and weather conditions, hazardous material information, and the current status of resources that have been allocated to an incident.	Existing
Requirement:	2 The emergency vehicle shall provide an interface to the center for emergency personnel to transmit information about the incident site such as the extent of injuries, identification of vehicles and	Existing
Requirement:	3 The emergency vehicle shall provide an interface to the center for emergency personnel to transmit information about the current incident response status such as the identification of the resources	Existing
Element: **Iowa State Patrol Security Monitoring Field Equipment**		
Entity: **Remote Traveler Support**		
Functional Area: **Traveler Secure Area Surveillance**		
Requirement:	1 The field element shall include video and/or audio surveillance of traveler secure areas including transit stations, transit stops, rest areas, park and ride lots, and other fixed sites along travel routes	Existing
Requirement:	2 The field element shall be remotely controlled by a center.	Existing
Requirement:	3 The field element shall provide equipment status and fault indication of surveillance equipment to a center.	Existing
Requirement:	4 The field element shall provide raw video or audio data.	Existing
Element: **Iowa State University Police Communications Center**		
Entity: **Emergency Management**		
Functional Area: **Emergency Call-Taking**		
Requirement:	1 The center shall support the interface to the Emergency Telecommunications System (e.g. 911 or 7-digit call routing) to receive emergency notification information and provide it to the emergency system operator.	Existing
Requirement:	2 The center shall receive emergency call information from 911 services and present the possible incident information to the emergency system operator.	Existing

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **Iowa State University Police Communications Center**		
Entity: **Emergency Management**		Functional Requirements
Functional Area: **Emergency Call-Taking**		
Requirement:	3 The center shall receive emergency call information from motorist call-boxes and present the possible incident information to the emergency system operator.	Existing
Requirement:	5 The center shall receive emergency notification information from other public safety agencies and present the possible incident information to the emergency system operator.	Existing
Requirement:	6 The center shall receive emergency notification information from public transit systems and present the possible incident information to the emergency system operator.	Existing
Requirement:	7 The center shall coordinate, correlate, and verify all emergency inputs, including those identified based on external calls and internal analysis of security sensor and surveillance data, and assign each a level of confidence.	Existing
Requirement:	9 The center shall forward the verified emergency information to the responding agency based on the location and nature of the emergency.	Existing
Requirement:	10 The center shall update the incident information log once the emergency system operator has verified the incident.	Existing
Requirement:	11 The center shall provide the capability for digitized map data to act as the background to the emergency information presented to the emergency system operator.	Existing
Functional Area: **Emergency Dispatch**		
Requirement:	1 The center shall dispatch emergency vehicles to respond to verified emergencies under center personnel control.	Existing
Requirement:	2 The center shall store the current status of all emergency vehicles available for dispatch and those that have been dispatched.	Existing
Requirement:	3 The center shall relay location and incident details to the responding vehicles.	Existing
Requirement:	5 The center shall store and maintain the emergency service responses in an action log.	Existing
Requirement:	6 The center shall provide the capability for digitized map data to act as the background to the information presented to the emergency system operator.	Existing
Requirement:	9 The center shall coordinate response to incidents with other Emergency Management centers to ensure appropriate resources are dispatched and utilized.	Existing
Functional Area: **Incident Command**		
Requirement:	1 The center shall provide tactical decision support, resource coordination, and communications integration for Incident Commands that are established by first responders to support local management of an incident.	Existing
Requirement:	2 The center shall provide incident command communications with public safety, emergency management, transportation, and other	Existing
Requirement:	3 The center shall track and maintain resource information and action plans pertaining to the incident command.	Existing

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **Iowa State University Police Communications Center**		
Entity: **Emergency Management**		Functional Requirements
Functional Area: **Incident Command**		
Requirement:	4 The center shall share incident command information with other public safety agencies including resource deployment status, hazardous material information, rail incident information, evacuation advice as well as traffic, road, and weather conditions	Existing
Requirement:	5 The center shall assess the status of responding emergency vehicles as part of an incident command.	Existing
Functional Area: **Emergency Response Management**		
Requirement:	1 The center shall provide strategic emergency response capabilities such as that of an Emergency Operations Center for large-scale incidents and disasters.	Existing
Requirement:	2 The center shall manage coordinated inter-agency responses to and recovery from large-scale emergencies. Such agencies include traffic management, transit, maintenance and construction management, rail operations, and other emergency management agencies.	Existing
Requirement:	3 The center shall provide the capability to implement response plans and track progress through the incident by exchanging incident information and distributing response status to allied agencies.	Existing
Requirement:	4 The center shall develop, coordinate with other agencies, and store emergency response plans.	Existing
Requirement:	5 The center shall track the availability of resources (including vehicles, roadway cleanup, etc.), request additional resources from traffic, maintenance, or other emergency centers if needed.	Existing
Requirement:	6 The center shall allocate the appropriate emergency services, resources, and vehicle (s) to respond to incidents, and shall provide the capability to override the current allocation to suit the	Existing
Requirement:	7 The center shall receive event scheduling information from Event	Existing
Requirement:	10 The center shall provide the capability to request transit resource availability from transit centers for use during disaster and evacuation operations.	Existing
Requirement:	12 The center shall provide information to the media concerning the status of an emergency response.	Existing
Requirement:	13 The center shall provide the capability for digitized map data to act as the background to the information presented to the emergency system operator.	Existing
Requirement:	14 The center shall provide the capability for center personnel to provide inputs to the management of incidents, disasters and evacuations.	Existing
Functional Area: **Emergency Evacuation Support**		
Requirement:	1 The center shall manage inter-agency coordination of evacuation operations, from initial planning through the evacuation process and reentry.	Existing

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **Iowa State University Police Communications Center**		
Entity: **Emergency Management**		Functional Requirements
Functional Area: **Emergency Evacuation Support**		
Requirement:	2 The center shall develop and exchange evacuation plans with allied agencies prior to the occurrence of a disaster.	Existing
Requirement:	3 The center shall provide an interface to the emergency system operator to enter evacuation plans and procedures and present the operator with other agencies' plans.	Existing
Requirement:	4 The center shall coordinate evacuation destinations and shelter needs with shelter providers (e.g., the American Red Cross) in the region.	Existing
Requirement:	5 The center shall provide evacuation information to traffic, transit, maintenance and construction, rail operations, and other emergency management centers as needed.	Existing
Requirement:	6 The center shall request resources from transit agencies as needed to support the evacuation.	Existing
Requirement:	7 The center shall request traffic management agencies to implement special traffic control strategies and to control evacuation traffic, including traffic on local streets and arterials as well as the major evacuation routes.	Existing
Requirement:	8 The center shall provide traveler information systems with evacuation guidance including basic information to assist potential evacuees in determining whether evacuation is necessary and when it is safe to return.	Existing
Requirement:	9 The center shall monitor the progress or status of the evacuation once it begins and exchange tactical plans, prepared during the incident, with allied agencies.	Existing
Requirement:	10 The center shall monitor the progress of the reentry process.	Existing
Functional Area: **Emergency Data Collection**		
Requirement:	1 The center shall collect emergency service data, emergency vehicle management data, emergency vehicle data, sensor and surveillance data, threat data, and incident data.	Existing
Requirement:	2 The center shall assign quality control metrics and meta-data to be stored along with the data. Meta-data may include attributes that describe the source and quality of the data and the conditions surrounding the collection of the data.	Existing
Requirement:	3 The center shall receive and respond to requests from ITS Archives for either a catalog of the emergency management data or for the data itself.	Existing
Requirement:	4 The center shall be able to produce sample products of the data available.	Existing
Element: **Iowa State University Police Emergency Vehicles**		
Entity: **Emergency Vehicle Subsystem**		
Functional Area: **On-board EV En Route Support**		
Requirement:	3 The emergency vehicle, including roadway service patrols, shall receive incident details and a suggested route when dispatched to a scene.	Existing

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **Iowa State University Police Emergency Vehicles**		
Entity: **Emergency Vehicle Subsystem**		Functional Requirements
Functional Area: **On-board EV En Route Support**		
Requirement:	6 The emergency vehicle shall provide the personnel on-board with dispatch information, including incident type and location, and forward an acknowledgment from personnel to the center that the	Existing
Functional Area: **On-board EV Incident Management Communication**		
Requirement:	1 The emergency vehicle shall receive dispatch instructions sufficient to enable emergency personnel in the field to implement an effective incident response. It includes local traffic road, and weather conditions, hazardous material information, and the current status of resources that have been allocated to an incident.	Existing
Requirement:	2 The emergency vehicle shall provide an interface to the center for emergency personnel to transmit information about the incident site such as the extent of injuries, identification of vehicles and	Existing
Requirement:	3 The emergency vehicle shall provide an interface to the center for emergency personnel to transmit information about the current incident response status such as the identification of the resources	Existing
Element: **Mary Greeley Medical Center Ambulances**		
Entity: **Emergency Vehicle Subsystem**		
Functional Area: **On-board EV En Route Support**		
Requirement:	3 The emergency vehicle, including roadway service patrols, shall receive incident details and a suggested route when dispatched to a scene.	Planned
Requirement:	5 The emergency vehicle shall send requests to traffic signal control equipment at the roadside to preempt the signal.	Existing
Requirement:	6 The emergency vehicle shall provide the personnel on-board with dispatch information, including incident type and location, and forward an acknowledgment from personnel to the center that the	Planned
Requirement:	7 The emergency vehicle shall send patient status information to the care facility along with a request for further information.	Planned
Requirement:	8 The emergency vehicle shall forward care facility status information to emergency vehicle personnel, including the location, specialized services, quality of care, waiting time, number of rooms available, and emergency room status of hospitals or emergency care providers.	Planned
Functional Area: **On-board EV Incident Management Communication**		
Requirement:	1 The emergency vehicle shall receive dispatch instructions sufficient to enable emergency personnel in the field to implement an effective incident response. It includes local traffic road, and weather conditions, hazardous material information, and the current status of resources that have been allocated to an incident.	Planned

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **Mary Greeley Medical Center Ambulances**		
Entity: **Emergency Vehicle Subsystem**		Functional Requirements
Functional Area: **On-board EV Incident Management Communication**		
Requirement:	2 The emergency vehicle shall provide an interface to the center for emergency personnel to transmit information about the incident site such as the extent of injuries, identification of vehicles and	Planned
Requirement:	3 The emergency vehicle shall provide an interface to the center for emergency personnel to transmit information about the current incident response status such as the identification of the resources	Planned
Element: **Mary Greeley Medical Center Dispatch**		
Entity: **Emergency Management**		
Functional Area: **Emergency Call-Taking**		
Requirement:	1 The center shall support the interface to the Emergency Telecommunications System (e.g. 911 or 7-digit call routing) to receive emergency notification information and provide it to the emergency system operator.	Existing
Requirement:	2 The center shall receive emergency call information from 911 services and present the possible incident information to the emergency system operator.	Existing
Requirement:	5 The center shall receive emergency notification information from other public safety agencies and present the possible incident information to the emergency system operator.	Existing
Requirement:	7 The center shall coordinate, correlate, and verify all emergency inputs, including those identified based on external calls and internal analysis of security sensor and surveillance data, and assign each a level of confidence.	Existing
Requirement:	9 The center shall forward the verified emergency information to the responding agency based on the location and nature of the emergency.	Existing
Requirement:	10 The center shall update the incident information log once the emergency system operator has verified the incident.	Existing
Requirement:	11 The center shall provide the capability for digitized map data to act as the background to the emergency information presented to the emergency system operator.	Planned
Functional Area: **Emergency Dispatch**		
Requirement:	1 The center shall dispatch emergency vehicles to respond to verified emergencies under center personnel control.	Planned
Requirement:	2 The center shall store the current status of all emergency vehicles available for dispatch and those that have been dispatched.	Planned
Requirement:	3 The center shall relay location and incident details to the responding vehicles.	Planned
Requirement:	5 The center shall store and maintain the emergency service responses in an action log.	Planned
Requirement:	6 The center shall provide the capability for digitized map data to act as the background to the information presented to the emergency system operator.	Planned

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **Mary Greeley Medical Center Dispatch**		
Entity: **Emergency Management**		Functional Requirements
Functional Area: **Emergency Dispatch**		
Requirement:	9 The center shall coordinate response to incidents with other Emergency Management centers to ensure appropriate resources are dispatched and utilized.	Planned
Functional Area: **Incident Command**		
Requirement:	1 The center shall provide tactical decision support, resource coordination, and communications integration for Incident Commands that are established by first responders to support local management of an incident.	Planned
Requirement:	2 The center shall provide incident command communications with public safety, emergency management, transportation, and other	Planned
Requirement:	3 The center shall track and maintain resource information and action plans pertaining to the incident command.	Planned
Requirement:	4 The center shall share incident command information with other public safety agencies including resource deployment status, hazardous material information, rail incident information, evacuation advice as well as traffic, road, and weather conditions	Planned
Requirement:	5 The center shall assess the status of responding emergency vehicles as part of an incident command.	Planned
Functional Area: **Emergency Response Management**		
Requirement:	1 The center shall provide strategic emergency response capabilities such as that of an Emergency Operations Center for large-scale incidents and disasters.	Planned
Requirement:	2 The center shall manage coordinated inter-agency responses to and recovery from large-scale emergencies. Such agencies include traffic management, transit, maintenance and construction management, rail operations, and other emergency management agencies.	Planned
Requirement:	3 The center shall provide the capability to implement response plans and track progress through the incident by exchanging incident information and distributing response status to allied agencies.	Planned
Requirement:	4 The center shall develop, coordinate with other agencies, and store emergency response plans.	Planned
Requirement:	5 The center shall track the availability of resources (including vehicles, roadway cleanup, etc.), request additional resources from traffic, maintenance, or other emergency centers if needed.	Planned
Requirement:	6 The center shall allocate the appropriate emergency services, resources, and vehicle (s) to respond to incidents, and shall provide the capability to override the current allocation to suit the	Planned
Requirement:	7 The center shall receive event scheduling information from Event	Planned
Requirement:	13 The center shall provide the capability for digitized map data to act as the background to the information presented to the emergency system operator.	Planned

Architecture			Status
AAMPO Regional ITS Architecture (Region)			(Region)
Element: **Mary Greeley Medical Center Dispatch**			
Entity: **Emergency Management**			Functional Requirements
Functional Area: **Emergency Response Management**			
Requirement:	14	The center shall provide the capability for center personnel to provide inputs to the management of incidents, disasters and evacuations.	Planned
Element: **Nevada Fire Department Emergency Vehicles**			
Entity: **Emergency Vehicle Subsystem**			
Functional Area: **On-board EV En Route Support**			
Requirement:	6	The emergency vehicle shall provide the personnel on-board with dispatch information, including incident type and location, and forward an acknowledgment from personnel to the center that the	Existing
Functional Area: **On-board EV Incident Management Communication**			
Requirement:	1	The emergency vehicle shall receive dispatch instructions sufficient to enable emergency personnel in the field to implement an effective incident response. It includes local traffic road, and weather conditions, hazardous material information, and the current status of resources that have been allocated to an incident.	Existing
Requirement:	2	The emergency vehicle shall provide an interface to the center for emergency personnel to transmit information about the incident site such as the extent of injuries, identification of vehicles and	Existing
Requirement:	3	The emergency vehicle shall provide an interface to the center for emergency personnel to transmit information about the current incident response status such as the identification of the resources	Existing
Element: **Private Commercial Vehicles**			
Entity: **Commercial Vehicle Subsystem**			
Functional Area: **On-board CV Electronic Data**			
Requirement:	1	The commercial vehicle shall receive pass/pull-in messages from the roadside check facilities and present them to the driver in either audible or visual forms.	Existing
Requirement:	2	The commercial vehicle shall respond to requests to provide data accumulated on-board the vehicle to roadside check facilities for inspection including driver logs, electronic identifiers, credentials, border clearance data, and other screening data such as cargo status, hazmat identifiers, out of service status, vehicle axle weight, vehicle weight, and time.	Existing
Requirement:	3	The commercial vehicle shall respond to requests to provide the identity, status and other information from the electronic cargo lock tag, if so equipped, to roadside check facilities, including border crossings.	Existing
Requirement:	4	The commercial vehicle shall support an interface to a commercial vehicle driver that is also acting in the role of a commercial vehicle fleet manager to set up routes, pay necessary taxes, obtain proper credentials, and write the identifiers to the electronic tag for the driver, vehicle, and carrier.	Existing

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **Story County Engineers**		
Entity: **Maintenance and Construction Management**		Functional Requirements
Functional Area: **MCM Vehicle and Equipment Maintenance Management**		
Requirement:	1 The center shall collect and analyze vehicle diagnostics information from maintenance and construction vehicles. The information includes engine temperature, mileage, tire wear, brake wear, belt wear, and any warnings or alarms concerning the	Planned
Requirement:	2 The center shall exchange information with equipment repair facilities including status and history of repairs concerning maintenance and construction vehicles. This information includes vehicle status and diagnostic information, vehicle utilization, and coordination of when vehicles will be available for preventative and corrective maintenance.	Planned
Requirement:	3 The center shall schedule preventive and corrective vehicle maintenance with the equipment repair facility based on fleet health reports, maintenance records, vehicle utilization and vehicle availability schedules.	Planned
Functional Area: **MCM Incident Management**		
Requirement:	1 The center shall receive inputs from the Alerting and Advisory System concerning the possibility or occurrence of severe weather, terrorist activity, or other major emergency, including information provided by the Emergency Alert System.	Existing
Requirement:	2 The center shall exchange alert information and status with emergency management centers. The information includes notification of a major emergency such as a natural or man-made disaster, civil emergency, or child abduction. The information may include the alert originator, the nature of the emergency, the geographic area affected by the emergency, the effective time period, etc.	Existing
Requirement:	3 The center shall exchange incident and threat information with emergency management centers as well as traffic management centers; including notification of existence of incident and expected severity, location, time and nature of incident.	Existing
Requirement:	4 The center shall coordinate planning for incidents with emergency management centers - including pre-planning activities for disaster response, evacuation, and recovery operations.	Existing
Requirement:	5 The center shall respond to requests from emergency management to provide maintenance and construction resources to implement response plans, assist in clean up, verify an incident, etc. This may also involve coordination with traffic management centers and other maintenance centers.	Existing
Requirement:	6 The center shall exchange road network status assessment information with emergency management and traffic management centers including an assessment of damage sustained by the road network including location and extent of the damage, estimate of remaining capacity, required closures, alternate routes, necessary	Existing

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **Story County Engineers**		
Entity: **Maintenance and Construction Management**		Functional Requirements
Functional Area: **MCM Incident Management**		
Requirement:	7 The center shall provide work zone activities affecting the road network including the nature of the maintenance or construction activity, location, impact to the roadway, expected time(s) and duration of impact, anticipated delays, alternate routes, and suggested speed limits. This information may be augmented with images that provide a visual indication of current work zone status and traffic impacts.	Existing
Requirement:	8 The center shall receive information indicating the damage sustained by transportation assets, derived from aerial surveillance, field reports, inspections, tests, and analyses to support incident management.	Existing
Functional Area: **MCM Winter Maintenance Management**		
Requirement:	1 The center shall respond to requests from emergency management and traffic management centers for hazard removal, field equipment repair, and other winter roadway maintenance.	Existing
Requirement:	2 The center shall exchange information with administrative systems to support the planning and scheduling of winter maintenance activities. This information includes: equipment and consumables resupply purchase request status, personnel qualifications including training and special certifications, environmental regulations and rules that may impact maintenance activities, and requests and project requirements from contract	Existing
Requirement:	3 The center shall provide status information about scheduled winter maintenance activities including anticipated closures and impact to the roadway, alternate routes, anticipated delays, closure times, and durations. The information is provided to other management centers such as traffic, emergency, transit, traveler information providers, other maintenance centers, and the media.	Existing
Requirement:	4 The center shall receive equipment availability and materials storage status information from storage facilities to support the scheduling of winter maintenance activities.	Existing
Requirement:	7 The center shall dispatch and route winter maintenance vehicle drivers and support them with route- specific environmental, incident, advisory, threat, alert, and traffic congestion information.	Planned
Requirement:	8 The center shall determine the need for roadway treatment based on current and forecasted weather information, current usage of treatments and materials, available resources, requests for action from other agencies, and recommendations from the Maintenance Decision Support system, specifically under winter conditions. This supports winter maintenance such as plowing, treating,	Planned
Requirement:	9 The center shall provide dispatch instructions for vehicle operators based on input parameters from center personnel, specifically for winter conditions. This could include a treatment route, treatment application rates, start and end times, and other treatment instructions.	Planned

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **Story County Engineers**		
Entity: **Maintenance and Construction Management**		Functional Requirements
Functional Area: **MCM Winter Maintenance Management**		
Requirement:	11 The center shall assess the current status of all winter maintenance activities, including actual work activities performed, current locations and operational conditions of vehicles, materials and equipment inventories, field equipment status, environmental information, etc.	Existing
Functional Area: **MCM Roadway Maintenance and Construction**		
Requirement:	1 The center shall maintain an interface with asset management systems to track the inventory, restrictions, repair needs and status updates of transportation assets (pavement, bridges, signs, etc.) including location, installation and materials information, vendor/contractor, current maintenance status, standard height, width, and weight restrictions.	Existing
Requirement:	2 The center shall respond to requests from emergency management and traffic management centers for hazard removal, field equipment repair, and other roadway maintenance.	Existing
Requirement:	3 The center shall exchange information with administrative systems to support the planning and scheduling of maintenance activities. This information includes: equipment and consumables resupply purchase request status, personnel qualifications including training and special certifications, environmental regulations and rules that may impact maintenance activities, and requests and project requirements from contract	Existing
Requirement:	4 The center shall provide emergency management and traffic management centers with information about scheduled maintenance and construction work activities including anticipated closures and impact to the roadway, alternate routes, anticipated delays, closure times, and durations.	Existing
Requirement:	8 The center shall receive equipment availability and materials storage status information from storage facilities to support the scheduling of roadway maintenance and construction activities.	Existing
Requirement:	11 The center shall dispatch and route maintenance and construction vehicle drivers and support them with route- specific environmental, incident, advisory, threat, alert, and traffic congestion information.	Planned
Functional Area: **MCM Work Activity Coordination**		
Requirement:	1 The center shall provide work zone activities affecting the road network including the nature of the maintenance or construction activity, location, impact to the roadway, expected time(s) and duration of impact, anticipated delays, alternate routes, and suggested speed limits. This information may be augmented with images that provide a visual indication of current work zone status and traffic impacts.	Existing

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **Story County Engineers**		
Entity: **Maintenance and Construction Management**		Functional Requirements
Functional Area: **MCM Work Activity Coordination**		
Requirement:	2 The center shall provide status information about scheduled maintenance and construction activities including anticipated closures and impact to the roadway, alternate routes, anticipated delays, closure times, and durations. The information is provided to other management centers such as traffic, emergency, transit, traveler information providers, other maintenance centers, multimodal transportation providers, rail operations, and the	Existing
Requirement:	3 The center shall collect and respond to feedback concerning scheduled maintenance and construction activities with other management centers such as traffic, emergency, transit, and rail operations.	Existing
Requirement:	5 The center shall exchange information with administrative systems to support the planning and scheduling of maintenance and construction activities. This information includes: equipment and consumables resupply purchase request status, personnel qualifications including training and special certifications, environmental regulations and rules that may impact maintenance	Existing
Element: **Story County Engineers Maintenance and Construction Vehicles/Equipment**		
Entity: **Maintenance and Construction Vehicle**		
Functional Area: **MCV Winter Maintenance**		
Requirement:	3 The maintenance and construction vehicle shall monitor materials information including remaining quantity and current application	Existing
Requirement:	4 The maintenance and construction vehicle shall respond to dispatch information from the center, presented to the vehicle operator for acknowledgement and returning status.	Planned
Functional Area: **MCV Roadway Maintenance and Construction**		
Requirement:	3 The maintenance and construction vehicle shall monitor materials information including remaining quantity and current application	Existing
Requirement:	4 The maintenance and construction vehicle shall respond to dispatch information from the center, presented to the vehicle operator for acknowledgement and returning status.	Planned
Element: **Story County Sheriff Communications Center**		
Entity: **Emergency Management**		
Functional Area: **Emergency Call-Taking**		
Requirement:	1 The center shall support the interface to the Emergency Telecommunications System (e.g. 911 or 7-digit call routing) to receive emergency notification information and provide it to the emergency system operator.	Existing
Requirement:	2 The center shall receive emergency call information from 911 services and present the possible incident information to the emergency system operator.	Existing

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **Story County Sheriff Communications Center**		
Entity: **Emergency Management**		Functional Requirements
Functional Area: **Emergency Call-Taking**		
Requirement:	3 The center shall receive emergency call information from motorist call-boxes and present the possible incident information to the emergency system operator.	Existing
Requirement:	5 The center shall receive emergency notification information from other public safety agencies and present the possible incident information to the emergency system operator.	Existing
Requirement:	7 The center shall coordinate, correlate, and verify all emergency inputs, including those identified based on external calls and internal analysis of security sensor and surveillance data, and assign each a level of confidence.	Existing
Requirement:	9 The center shall forward the verified emergency information to the responding agency based on the location and nature of the emergency.	Existing
Requirement:	10 The center shall update the incident information log once the emergency system operator has verified the incident.	Existing
Requirement:	11 The center shall provide the capability for digitized map data to act as the background to the emergency information presented to the emergency system operator.	Existing
Functional Area: **Emergency Dispatch**		
Requirement:	1 The center shall dispatch emergency vehicles to respond to verified emergencies under center personnel control.	Existing
Requirement:	2 The center shall store the current status of all emergency vehicles available for dispatch and those that have been dispatched.	Existing
Requirement:	3 The center shall relay location and incident details to the responding vehicles.	Existing
Requirement:	4 The center shall track the location and status of emergency vehicles responding to an emergency based on information from the emergency vehicle.	Planned
Requirement:	5 The center shall store and maintain the emergency service responses in an action log.	Existing
Requirement:	6 The center shall provide the capability for digitized map data to act as the background to the information presented to the emergency system operator.	Existing
Requirement:	9 The center shall coordinate response to incidents with other Emergency Management centers to ensure appropriate resources are dispatched and utilized.	Existing
Functional Area: **Incident Command**		
Requirement:	1 The center shall provide tactical decision support, resource coordination, and communications integration for Incident Commands that are established by first responders to support local management of an incident.	Existing
Requirement:	2 The center shall provide incident command communications with public safety, emergency management, transportation, and other	Existing
Requirement:	3 The center shall track and maintain resource information and action plans pertaining to the incident command.	Existing

Architecture			Status
AAMPO Regional ITS Architecture (Region)			(Region)
Element: **Story County Sheriff Communications Center**			
Entity: **Emergency Management**			Functional Requirements
Functional Area: **Incident Command**			
Requirement:	4	The center shall share incident command information with other public safety agencies including resource deployment status, hazardous material information, rail incident information, evacuation advice as well as traffic, road, and weather conditions	Existing
Requirement:	5	The center shall assess the status of responding emergency vehicles as part of an incident command.	Existing
Functional Area: **Emergency Response Management**			
Requirement:	1	The center shall provide strategic emergency response capabilities such as that of an Emergency Operations Center for large-scale incidents and disasters.	Existing
Requirement:	2	The center shall manage coordinated inter-agency responses to and recovery from large-scale emergencies. Such agencies include traffic management, transit, maintenance and construction management, rail operations, and other emergency management agencies.	Existing
Requirement:	3	The center shall provide the capability to implement response plans and track progress through the incident by exchanging incident information and distributing response status to allied agencies.	Existing
Requirement:	4	The center shall develop, coordinate with other agencies, and store emergency response plans.	Existing
Requirement:	5	The center shall track the availability of resources (including vehicles, roadway cleanup, etc.), request additional resources from traffic, maintenance, or other emergency centers if needed.	Existing
Requirement:	6	The center shall allocate the appropriate emergency services, resources, and vehicle (s) to respond to incidents, and shall provide the capability to override the current allocation to suit the	Existing
Requirement:	7	The center shall receive event scheduling information from Event	Existing
Requirement:	8	The center shall support remote control of field equipment normally under control of the traffic management center including traffic signals, dynamic message signs, gates, and barriers.	Planned
Requirement:	9	The center shall provide the capability to remotely control and monitor CCTV systems normally operated by a traffic management center.	Planned
Requirement:	12	The center shall provide information to the media concerning the status of an emergency response.	Existing
Requirement:	13	The center shall provide the capability for digitized map data to act as the background to the information presented to the emergency system operator.	Existing
Requirement:	14	The center shall provide the capability for center personnel to provide inputs to the management of incidents, disasters and evacuations.	Existing
Functional Area: **Emergency Evacuation Support**			

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **Story County Sheriff Communications Center**		
Entity: **Emergency Management**		Functional Requirements
Functional Area: **Emergency Evacuation Support**		
Requirement:	1 The center shall manage inter-agency coordination of evacuation operations, from initial planning through the evacuation process and reentry.	Existing
Requirement:	2 The center shall develop and exchange evacuation plans with allied agencies prior to the occurrence of a disaster.	Existing
Requirement:	3 The center shall provide an interface to the emergency system operator to enter evacuation plans and procedures and present the operator with other agencies' plans.	Existing
Requirement:	4 The center shall coordinate evacuation destinations and shelter needs with shelter providers (e.g., the American Red Cross) in the region.	Existing
Requirement:	5 The center shall provide evacuation information to traffic, transit, maintenance and construction, rail operations, and other emergency management centers as needed.	Existing
Requirement:	6 The center shall request resources from transit agencies as needed to support the evacuation.	Existing
Requirement:	7 The center shall request traffic management agencies to implement special traffic control strategies and to control evacuation traffic, including traffic on local streets and arterials as well as the major evacuation routes.	Existing
Requirement:	8 The center shall provide traveler information systems with evacuation guidance including basic information to assist potential evacuees in determining whether evacuation is necessary and when it is safe to return.	Existing
Requirement:	9 The center shall monitor the progress or status of the evacuation once it begins and exchange tactical plans, prepared during the incident, with allied agencies.	Existing
Requirement:	10 The center shall monitor the progress of the reentry process.	Existing
Functional Area: **Emergency Data Collection**		
Requirement:	1 The center shall collect emergency service data, emergency vehicle management data, emergency vehicle data, sensor and surveillance data, threat data, and incident data.	Existing
Requirement:	2 The center shall assign quality control metrics and meta-data to be stored along with the data. Meta-data may include attributes that describe the source and quality of the data and the conditions surrounding the collection of the data.	Existing
Requirement:	3 The center shall receive and respond to requests from ITS Archives for either a catalog of the emergency management data or for the data itself.	Existing
Requirement:	4 The center shall be able to produce sample products of the data available.	Existing
Entity: **Traffic Management**		
Functional Area: **TMC Traffic Information Dissemination**		
Requirement:	1 The center shall remotely control dynamic messages signs for dissemination of traffic and other information to drivers.	Planned

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **Story County Sheriff Communications Center**		
Entity: **Traffic Management**		Functional Requirements
Functional Area: **TMC Traffic Information Dissemination**		
Requirement:	3 The center shall collect operational status for the driver information systems equipment (DMS, HAR, etc.).	Planned
Requirement:	4 The center shall collect fault data for the driver information systems equipment (DMS, HAR, etc.) for repair.	Planned
Requirement:	5 The center shall retrieve locally stored traffic information, including current and forecasted traffic information, road and weather conditions, traffic incident information, information on diversions and alternate routes, closures, and special traffic restrictions (lane/shoulder use, weight restrictions, width restrictions, HOV requirements), etc.	Planned
Requirement:	6 The center shall distribute traffic data to maintenance and construction centers, transit centers, emergency management centers, and traveler information providers.	Planned
Requirement:	8 The center shall provide the capability for center personnel to control the nature of the data that is available to non-traffic operations centers and the media.	Planned
Element: **Story County Sheriff Emergency Vehicles**		
Entity: **Emergency Vehicle Subsystem**		
Functional Area: **On-board EV En Route Support**		
Requirement:	1 The emergency vehicle, including roadway service patrols, shall compute the location of the emergency vehicle based on inputs from a vehicle location determination function.	Planned
Requirement:	2 The emergency vehicle, including roadway service patrols, shall send the vehicle's location and operational data to the center for emergency management and dispatch.	Planned
Requirement:	3 The emergency vehicle, including roadway service patrols, shall receive incident details and a suggested route when dispatched to a scene.	Existing
Requirement:	4 The emergency vehicle shall send the current en route status (including estimated time of arrival) and requests for emergency dispatch updates.	Planned
Requirement:	6 The emergency vehicle shall provide the personnel on-board with dispatch information, including incident type and location, and forward an acknowledgment from personnel to the center that the	Existing
Functional Area: **On-board EV Incident Management Communication**		
Requirement:	1 The emergency vehicle shall receive dispatch instructions sufficient to enable emergency personnel in the field to implement an effective incident response. It includes local traffic road, and weather conditions, hazardous material information, and the current status of resources that have been allocated to an incident.	Existing
Requirement:	2 The emergency vehicle shall provide an interface to the center for emergency personnel to transmit information about the incident site such as the extent of injuries, identification of vehicles and	Existing

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **Story County Sheriff Emergency Vehicles**		
Entity: **Emergency Vehicle Subsystem**		Functional Requirements
Functional Area: **On-board EV Incident Management Communication**		
Requirement:	3 The emergency vehicle shall provide an interface to the center for emergency personnel to transmit information about the current incident response status such as the identification of the resources	Existing
Element: **User Personal Computing Devices**		
Entity: **Personal Information Access**		
Functional Area: **Personal Basic Information Reception**		
Requirement:	1 The personal traveler interface shall receive traffic information from a center and present it to the traveler.	Existing
Requirement:	2 The personal traveler interface shall receive transit information from a center and present it to the traveler.	Existing
Requirement:	3 The personal traveler interface shall receive event information from a center and present it to the traveler.	Existing
Requirement:	5 The personal traveler interface shall receive wide-area alerts and present it to the traveler.	Existing
Requirement:	6 The personal traveler interface shall provide the capability for digitized map data to act as the background to the information presented to the traveler.	Existing
Requirement:	7 The personal traveler interface shall support traveler input in audio or manual form.	Existing
Requirement:	8 The personal traveler interface shall present information to the traveler in audible or visual forms, consistent with a personal device.	Existing
Functional Area: **Personal Interactive Information Reception**		
Requirement:	1 The personal traveler interface shall receive traffic information from a center and present it to the traveler upon request.	Existing
Requirement:	2 The personal traveler interface shall receive transit information from a center and present it to the traveler upon request.	Planned
Requirement:	10 The personal traveler interface shall base requests from the traveler on the traveler's current location or a specific location identified by the traveler, and filter the provided information accordingly.	Existing
Requirement:	11 The personal traveler interface shall provide digitized map data to act as the background to the information presented to the traveler.	Existing
Requirement:	12 The personal traveler interface shall support traveler input in audio or manual form.	Existing
Requirement:	13 The personal traveler interface shall present information to the traveler in audible or visual forms consistent with a personal device, and suitable for travelers with hearing and vision physical	Existing
Requirement:	14 The personal traveler interface shall be able to store frequently requested or used data, including the traveler's identity, home and	Existing

Architecture		Status
AAMPO Regional ITS Architecture (Region)		(Region)
Element: **Westory Fire Agency Emergency Vehicles**		
Entity: **Emergency Vehicle Subsystem**		Functional Requirements
Functional Area: **On-board EV En Route Support**		
Requirement:	6 The emergency vehicle shall provide the personnel on-board with dispatch information, including incident type and location, and forward an acknowledgment from personnel to the center that the	Existing
Functional Area: **On-board EV Incident Management Communication**		
Requirement:	1 The emergency vehicle shall receive dispatch instructions sufficient to enable emergency personnel in the field to implement an effective incident response. It includes local traffic road, and weather conditions, hazardous material information, and the current status of resources that have been allocated to an incident.	Existing
Requirement:	2 The emergency vehicle shall provide an interface to the center for emergency personnel to transmit information about the incident site such as the extent of injuries, identification of vehicles and	Existing
Requirement:	3 The emergency vehicle shall provide an interface to the center for emergency personnel to transmit information about the current incident response status such as the identification of the resources	Existing
City of Ames CyRide Automated Vehicle Maintenance Scheduling System		Planned
Element: **City of Ames CyRide**		
Entity: **Transit Management**		
Functional Area: **Transit Garage Maintenance**		
Requirement:	1 The center shall collect operational and maintenance data from transit vehicles.	Planned
Requirement:	2 The center shall monitor the condition of a transit vehicle to analyze brake, drive train, sensors, fuel, steering, tire, processor, communications equipment, and transit vehicle mileage to identify mileage based maintenance, out-of-specification or imminent failure conditions.	Planned
Requirement:	3 The center shall generate transit vehicle maintenance schedules, includes what and when the maintenance or repair is to be performed.	Planned
Requirement:	4 The center shall generate transit vehicle availability listings, current and forecast, to support transit vehicle assignment planning based, in part, on the transit vehicle maintenance schedule.	Planned
Requirement:	5 The center shall assign technicians to a transit vehicle maintenance schedule, based upon such factors as personnel eligibility, work assignments, preferences and seniority.	Planned
Requirement:	6 The center shall verify that the transit vehicle maintenance activities were performed correctly, using the transit vehicle's status, the maintenance personnel's work assignment, and the transit maintenance schedules.	Planned
Requirement:	7 The center shall generate a time-stamped maintenance log of all maintenance activities performed on a transit vehicle.	Planned

Architecture		Status
City of Ames CyRide Automated Vehicle Maintenance Scheduling System		Planned
Element: **City of Ames CyRide**		
Entity: **Transit Management**		Functional Requirements
Functional Area: **Transit Garage Maintenance**		
Requirement:	8 The center shall provide the transit system operator with the capability to update transit vehicle maintenance information and receive reports on all transit vehicle operations data.	Planned
City of Ames CyRide AVL System		Planned
Element: **City of Ames CyRide**		
Entity: **Transit Management**		
Functional Area: **Transit Center Vehicle Tracking**		
Requirement:	1 The center shall monitor the locations of all transit vehicles within its network.	Planned
Requirement:	2 The center shall determine adherence of transit vehicles to their assigned schedule.	Planned
Requirement:	3 The center shall support an interface with a map update provider, or other appropriate data sources, through which updates of digitized map data can be obtained and used as a background for transit tracking and dispatch.	Planned
Requirement:	4 The center shall provide transit operational data to traveler information service providers.	Planned
Element: **City of Ames CyRide Transit Vehicles**		
Entity: **Transit Vehicle Subsystem**		
Functional Area: **On-board Transit Trip Monitoring**		
Requirement:	1 The transit vehicle shall compute the location of the transit vehicle based on inputs from a vehicle location determination function.	Planned
Requirement:	2 The transit vehicle shall support the computation of the location of a transit vehicle using on-board sensors to augment the location determination function. This may include proximity to the transit stops or other known reference points as well as recording trip length.	Planned
Requirement:	3 The transit vehicle shall record transit trip monitoring data including vehicle mileage and fuel usage.	Planned
Requirement:	4 The transit vehicle shall record transit trip monitoring data including operational status information such as doors open/closed, passenger loading, running times, etc.	Planned
Requirement:	5 The transit vehicle shall send the transit vehicle trip monitoring data to center-based trip monitoring functions.	Planned
Entity: **Vehicle**		
Functional Area: **Vehicle Location Determination**		
Requirement:	1 The vehicle shall provide the vehicle's current location to other in-vehicle functions.	Planned
Requirement:	2 The vehicle shall calculate the location from one or more sources of position data. These location referencing systems include position systems such as GPS, DGPS, odometer and differential odometers.	Planned
Requirement:	3 The vehicle shall refine its calculations as required by other in-vehicle functions.	Planned

Architecture		Status
City of Ames CyRide AVL System		Planned
Element: **City of Ames CyRide Transit Vehicles**		
Entity: **Vehicle**		Functional Requirements
City of Ames CyRide RouteMatch Software		Planned
Element: **City of Ames CyRide**		
Entity: **Transit Management**		
Functional Area: **Transit Center Fixed-Route Operations**		
Requirement:	1 The center shall generate transit routes and schedules based on such factors as parameters input by the system operator, road network conditions, operational data on current routes and schedules, and digitized map data.	Planned
Requirement:	2 The center shall provide the interface to the system operator to control the generation of new routes and schedules (transit services) including the ability to review and update the parameters used by the routes and schedules generation processes	Planned
Requirement:	3 The center shall be able to generate special routes and schedules to support an incident, disaster, evacuation, or other emergency.	Planned
Requirement:	4 The center shall dispatch fixed route or flexible route transit vehicles	Planned
Requirement:	5 The center shall collect transit operational data for use in the generation of routes and schedules.	Planned
Requirement:	6 The center shall provide instructions or corrective actions to the transit vehicle operators based upon operational needs.	Planned
Requirement:	8 The center shall generate the necessary corrective actions which may involve more than the vehicles concerned and more far reaching action, such as, the introduction of extra vehicles, wide area signal priority by traffic management, the premature termination of some services, etc.	Planned
Requirement:	9 The center shall exchange information with Maintenance and Construction Operations concerning work zones, roadway conditions, asset restrictions, work plans, etc.	Existing
Requirement:	10 The center shall disseminate up-to-date schedules and route information to other centers for fixed and flexible route services.	Planned
Functional Area: **Transit Vehicle Operator Scheduling**		
Requirement:	1 The center shall maintain records of a transit vehicle operator's performance. This may be done utilizing standardized performance evaluation criteria set forth by governmental regulations and transit operating company policies, assessing the transit vehicle operator's driving history, and assessing comments from the transit vehicle operator's supervisor(s) as well as noting any moving violations or accidents, supervisor comments,	Existing
Requirement:	2 The center shall assess the transit vehicle operator's availability based on previous work assignments, accumulated hours, plus health and vacation commitments.	Existing
Requirement:	3 The center shall assign transit vehicle operators to transit schedules based on their eligibility, route preferences, seniority, and transit vehicle availability.	Existing

Architecture		Status
City of Ames CyRide RouteMatch Software		Planned
Element: **City of Ames CyRide**		
Entity: **Transit Management**		Functional Requirements
Functional Area: **Transit Vehicle Operator Scheduling**		
Requirement:	4 The center shall provide an interface through which the transit vehicle operator information can be maintained - either from the transit vehicle operator, a transit system operator (i.e. center personnel), or other functions.	Existing
Element: **City of Ames CyRide Transit Vehicles**		
Entity: **Transit Vehicle Subsystem**		
Functional Area: **On-board Fixed Route Schedule Management**		
Requirement:	1 The transit vehicle shall receive transit route information for its assigned route including transit service instructions, traffic information, road conditions, and other information for the operator.	Planned
City of Ames CyRide Transit Information Website		Planned
Element: **City of Ames CyRide Transit Information Website**		
Entity: **Information Service Provider**		
Functional Area: **ISP Traveler Data Collection**		
Requirement:	3 The center shall collect, process, and store transit routes and schedules, transit transfer options, transit fares, and real-time schedule adherence information.	Existing
Functional Area: **Interactive Infrastructure Information**		
Requirement:	3 The center shall collect, process, store, and disseminate customized transit routes and schedules, transit transfer options, transit fares, and real-time schedule adherence information to travelers upon request.	Planned
Requirement:	10 The center shall provide all traveler information based on the traveler's current location or a specific location identified by the traveler, and filter or customize the provided information accordingly.	Planned
Requirement:	11 The center shall accept traveler profiles for determining the type of personalized data to send to the traveler.	Planned
Requirement:	17 The center shall provide the capability for a system operator to control the type and update frequency of traveler information.	Planned
Functional Area: **Infrastructure Provided Trip Planning**		
Requirement:	1 The center shall provide the capability to provide specific pre-trip and enroute directions to travelers (and drivers), including costs, arrival times, and transfer points.	Planned
Requirement:	7 The center shall generate route plans based on transit services, including fares, schedules, and requirements for travelers with special needs.	Planned
Requirement:	14 The center shall provide the capability for the traveler to confirm the proposed trip plan.	Planned
Requirement:	16 The center shall support an interface with a map update provider, or other appropriate data sources, through which updates of digitized map data can be obtained and used to determine vehicle and non-vehicle routes, trip planning, and on-line vehicle guidance.	Planned

Architecture		Status
City of Ames CyRide Transit Information Website		Planned
Element: **City of Ames CyRide Transit Information Website**		
Entity: **Information Service Provider**		Functional Requirements
Functional Area: **Infrastructure Provided Trip Planning**		
Requirement:	17 The center shall provide the capability for center personnel to control route calculation parameters.	Planned
Element: **User Personal Computing Devices**		
Entity: **Personal Information Access**		
Functional Area: **Personal Interactive Information Reception**		
Requirement:	2 The personal traveler interface shall receive transit information from a center and present it to the traveler upon request.	Planned
Requirement:	10 The personal traveler interface shall base requests from the traveler on the traveler's current location or a specific location identified by the traveler, and filter the provided information accordingly.	Existing
Requirement:	11 The personal traveler interface shall provide digitized map data to act as the background to the information presented to the traveler.	Existing
Requirement:	12 The personal traveler interface shall support traveler input in audio or manual form.	Existing
Requirement:	13 The personal traveler interface shall present information to the traveler in audible or visual forms consistent with a personal device, and suitable for travelers with hearing and vision physical	Existing
Requirement:	14 The personal traveler interface shall be able to store frequently requested or used data, including the traveler's identity, home and	Existing
City of Ames CyRide Transit Signal Priority		Planned
Element: **City of Ames CyRide Transit Vehicles**		
Entity: **Transit Vehicle Subsystem**		
Functional Area: **On-board Transit Signal Priority**		
Requirement:	1 The transit vehicle shall determine the schedule deviation and estimated times of arrival (ETA) at transit stops.	Planned
Requirement:	2 The transit vehicle shall send priority requests to traffic signal controllers at intersections, pedestrian crossings, and multimodal crossings on the roads (surface streets) and freeway (ramp controls) network that enable a transit vehicle schedule deviation to be corrected.	Planned
Requirement:	3 The transit vehicle shall send the schedule deviation data and status of priority requests to the transit vehicle operator.	Planned
Element: **City of Ames Public Works Traffic Signal Systems**		
Entity: **Roadway Subsystem**		
Functional Area: **Roadway Signal Priority**		
Requirement:	2 The field element shall respond to requests for indicator (e.g., signal) priority requests from transit vehicles at intersections, pedestrian crossings, and multimodal crossings.	Planned

Architecture		Status
City of Ames CyRide Transit Signal Priority		Planned
Element: **City of Ames Public Works Traffic Signal Systems**		
Entity: **Roadway Subsystem**		Functional Requirements
Functional Area: **Roadway Signal Priority**		
Requirement:	3 The field element shall notify controlling traffic management center and maintenance center that the signal timing has changed based on a signal preemption/priority request to help those centers determine whether a fault detected at the signal is a true malfunction or due to a signal override.	Existing
City of Ames CyRide Transit Stop Electronic Displays/Audio Announcements		Planned
Element: **City of Ames CyRide**		
Entity: **Transit Management**		
Functional Area: **Transit Center Information Services**		
Requirement:	1 The center shall provide travelers using public transportation with traffic and advisory information upon request. Such information may include transit routes, schedules, transfer options, fares, real-time schedule adherence, current incidents, weather conditions, and special events.	Planned
Requirement:	3 The center shall exchange transit schedules, real-time arrival information, fare schedules, and general transit service information with other transit organizations to support transit traveler information systems.	Planned
Requirement:	4 The center shall provide transit service information to traveler information service providers including routes, schedules, schedule adherence, and fare information as well as transit service information during evacuation.	Planned
Requirement:	6 The center shall broadcast transit advisory data, including alerts and advisories pertaining to major emergencies, or man made disasters.	Planned
Element: **City of Ames CyRide Bus Stop Electronic Displays/Audio Announcement**		
Entity: **Remote Traveler Support**		
Functional Area: **Remote Transit Information Services**		
Requirement:	1 The public interface for travelers shall collect and provide real-time travel-related information at transit stops, multi-modal transfer points, and other public transportation areas.	Planned
Requirement:	2 The public interface for travelers shall collect and present to the transit traveler information on transit routes, schedules, and real-time schedule adherence.	Planned
Requirement:	3 The public interface for travelers shall provide support for general annunciation and/or display of imminent arrival information and other information of general interest to transit users.	Planned
Requirement:	4 The public interface for travelers shall present information to the traveler in a form suitable for travelers with physical disabilities.	Planned
City of Ames CyRide Transit Vehicle On-board Security Cameras		Planned
Element: **City of Ames CyRide**		
Entity: **Emergency Management**		
Functional Area: **Center Secure Area Surveillance**		

Architecture		Status
City of Ames CyRide Transit Vehicle On-board Security Cameras		Planned
Element: **City of Ames CyRide**		
Entity: **Emergency Management**		Functional Requirements
Functional Area: **Center Secure Area Surveillance**		
Requirement:	3 The center shall remotely monitor video images and audio surveillance data collected on-board transit vehicles. The data may be raw or pre-processed in the field.	Existing
Requirement:	5 The center shall identify potential security threats based on collected security surveillance data.	Existing
Requirement:	9 The center shall remotely control security surveillance devices on-board transit vehicles.	Existing
Requirement:	12 The center shall respond to control data from center personnel regarding security surveillance data collection, processing, threat	Existing
Element: **City of Ames CyRide Transit Vehicles**		
Entity: **Transit Vehicle Subsystem**		
Functional Area: **On-board Transit Security**		
Requirement:	1 The transit vehicle shall perform video and audio surveillance inside of transit vehicles and output raw video or audio data for either local monitoring (for processing or direct output to the transit vehicle operator), remote monitoring or for local storage (e.g., in an event recorder).	Existing
Requirement:	2 The transit vehicle shall perform local monitoring of video or audio surveillance data collected inside of transit vehicles, and identify potential incidents or threats based on received processing parameters.	Planned
Requirement:	3 The transit vehicle shall output an indication of potential incidents or threats and the processed video or audio information to the center along with the vehicle's current location.	Planned
Requirement:	8 The transit vehicle shall monitor and output surveillance and sensor equipment status and fault indications.	Existing
City of Ames Police Computer Aided Dispatch Hardware Consolidation		Planned
Element: **City of Ames Police Communications Center**		
Entity: **Emergency Management**		
Functional Area: **Emergency Call-Taking**		
Requirement:	1 The center shall support the interface to the Emergency Telecommunications System (e.g. 911 or 7-digit call routing) to receive emergency notification information and provide it to the emergency system operator.	Existing
Requirement:	2 The center shall receive emergency call information from 911 services and present the possible incident information to the emergency system operator.	Existing
Requirement:	3 The center shall receive emergency call information from motorist call-boxes and present the possible incident information to the emergency system operator.	Existing
Requirement:	5 The center shall receive emergency notification information from other public safety agencies and present the possible incident information to the emergency system operator.	Existing

Architecture			Status
City of Ames Police Computer Aided Dispatch Hardware Consolidation			Planned
Element: **City of Ames Police Communications Center**			
Entity: **Emergency Management**			Functional Requirements
Functional Area: **Emergency Call-Taking**			
Requirement:	6	The center shall receive emergency notification information from public transit systems and present the possible incident information to the emergency system operator.	Existing
Requirement:	7	The center shall coordinate, correlate, and verify all emergency inputs, including those identified based on external calls and internal analysis of security sensor and surveillance data, and assign each a level of confidence.	Existing
Requirement:	9	The center shall forward the verified emergency information to the responding agency based on the location and nature of the emergency.	Existing
Requirement:	10	The center shall update the incident information log once the emergency system operator has verified the incident.	Existing
Requirement:	11	The center shall provide the capability for digitized map data to act as the background to the emergency information presented to the emergency system operator.	Existing
Functional Area: **Emergency Dispatch**			
Requirement:	1	The center shall dispatch emergency vehicles to respond to verified emergencies under center personnel control.	Existing
Requirement:	2	The center shall store the current status of all emergency vehicles available for dispatch and those that have been dispatched.	Existing
Requirement:	3	The center shall relay location and incident details to the responding vehicles.	Existing
Requirement:	4	The center shall track the location and status of emergency vehicles responding to an emergency based on information from the emergency vehicle.	Planned
Requirement:	5	The center shall store and maintain the emergency service responses in an action log.	Existing
Requirement:	6	The center shall provide the capability for digitized map data to act as the background to the information presented to the emergency system operator.	Existing
Requirement:	9	The center shall coordinate response to incidents with other Emergency Management centers to ensure appropriate resources are dispatched and utilized.	Existing
Functional Area: **Emergency Routing**			
Requirement:	4	The center shall receive asset restriction information from maintenance centers to support the dispatching of appropriate emergency resources.	Existing
Requirement:	5	The center shall calculate emergency vehicle routes, under center personnel control, based on information from traffic management and maintenance centers.	Existing
Requirement:	7	The center shall provide the capability to request special traffic control measures, such as signal preemption, from the traffic management center to facilitate emergency vehicle progress along the suggested route.	Existing

Architecture		Status
City of Ames Police Computer Aided Dispatch Hardware Consolidation		Planned
Element: **City of Ames Police Communications Center**		
Entity: **Emergency Management**		Functional Requirements
Functional Area: **Emergency Routing**		
Requirement:	9 The center shall provide the capability for digitized map data to act as the background to the information presented to the emergency system operator.	Existing
Element: **City of Ames Police Emergency Vehicles**		
Entity: **Emergency Vehicle Subsystem**		
Functional Area: **On-board EV En Route Support**		
Requirement:	1 The emergency vehicle, including roadway service patrols, shall compute the location of the emergency vehicle based on inputs from a vehicle location determination function.	Planned
Requirement:	2 The emergency vehicle, including roadway service patrols, shall send the vehicle's location and operational data to the center for emergency management and dispatch.	Planned
Requirement:	3 The emergency vehicle, including roadway service patrols, shall receive incident details and a suggested route when dispatched to a scene.	Existing
Requirement:	4 The emergency vehicle shall send the current en route status (including estimated time of arrival) and requests for emergency dispatch updates.	Planned
Requirement:	5 The emergency vehicle shall send requests to traffic signal control equipment at the roadside to preempt the signal.	Existing
Requirement:	6 The emergency vehicle shall provide the personnel on-board with dispatch information, including incident type and location, and forward an acknowledgment from personnel to the center that the	Existing
City of Ames Roadway Anti-Icing System		Planned
Element: **City of Ames Public Works**		
Entity: **Maintenance and Construction Management**		
Functional Area: **MCM Automated Treatment System Control**		
Requirement:	1 The center shall remotely control automated roadway treatment systems. Treatments can be in the form of fog dispersion, anti-icing chemicals, etc.	Planned
Requirement:	2 The center shall remotely control the environmental sensors that upon detecting changes in environmental or atmospheric conditions, automatically activate roadway treatment systems.	Planned
Requirement:	3 The center shall collect automated roadway treatment system and associated environmental sensor operational status.	Planned
Requirement:	4 The center shall collect automated roadway treatment system and associated environmental sensor fault data and request repair.	Planned
Requirement:	5 The center shall accept requests for automated roadway treatment	Planned
Element: **City of Ames Public Works Roadway Anti-Icing System**		
Entity: **Roadway Subsystem**		
Functional Area: **Roadway Automated Treatment**		

Architecture		Status
City of Ames Roadway Anti-Icing System		Planned
Element: **City of Ames Public Works Roadway Anti-Icing System**		
Entity: **Roadway Subsystem**		Functional Requirements
Functional Area: **Roadway Automated Treatment**		
Requirement:	1 The field element shall activate automated roadway treatment systems based on environmental or atmospheric conditions. Treatments can be in the form of fog dispersion, anti-icing chemicals, etc.	Planned
Requirement:	2 The field element shall activate automated roadway treatment systems under center control. Treatments can be in the form of fog dispersion, anti-icing chemicals, etc.	Planned
Requirement:	3 The field element shall return automated roadway treatment system and associated environmental sensor operational status to the maintenance center.	Planned
Requirement:	4 The field element shall return automated roadway treatment system and associated environmental sensor fault data to the maintenance center for repair.	Planned
City of Ames RWIS		Planned
Element: **City of Ames Public Works**		
Entity: **Maintenance and Construction Management**		
Functional Area: **MCM Environmental Information Collection**		
Requirement:	1 The center shall remotely control environmental sensors that measure road surface temperature, moisture, icing, salinity, and other measures.	Planned
Requirement:	2 The center shall remotely control environmental sensors that measure weather conditions including temperature, wind, humidity, precipitation, and visibility.	Planned
Requirement:	4 The center shall assimilate current and forecast road conditions and surface weather information using a combination of weather service provider information (such as the National Weather Service and value-added sector specific meteorological services), data from traffic, emergency, and transit management, traveler information providers, and environmental data collected from sensors deployed on and about the roadway as well as the fleet of maintenance and construction vehicles.	Planned
Requirement:	5 The center shall provide weather and road condition information to weather service providers and center personnel.	Planned
Requirement:	6 The center shall respond to control data from center personnel regarding environmental sensor control and weather data collection and processing.	Planned
Requirement:	7 The center shall collect operational status for the roadside and vehicle-based environmental sensor equipment.	Planned
Requirement:	8 The center shall collect fault data for the roadside and vehicle-based environmental sensor equipment for repair.	Planned
Element: **City of Ames Public Works RWIS**		
Entity: **Roadway Subsystem**		
Functional Area: **Roadway Environmental Monitoring**		
Requirement:	1 The field element shall include surface and sub-surface environmental sensors that measure road surface temperature, moisture, icing, salinity, and other measures.	Planned

Architecture		Status
City of Ames RWIS		Planned
Element: **City of Ames Public Works RWIS**		
Entity: **Roadway Subsystem**		Functional Requirements
Functional Area: **Roadway Environmental Monitoring**		
Requirement:	2 The field element shall include environmental sensors that measure weather conditions including temperature, wind, humidity, precipitation, and visibility.	Planned
Requirement:	3 The field element's environmental sensors shall be remotely controlled by a maintenance center.	Planned
Requirement:	4 The field element's environmental sensors shall be remotely controlled by a traffic management center.	Planned
Requirement:	7 The field element shall provide environmental sensor equipment operational status to the controlling center or maintenance vehicle.	Planned
Requirement:	8 The field element shall provide environmental sensor equipment fault indication to the controlling center or maintenance vehicle.	Planned
Requirement:	10 The field element shall provide weather and road surface condition data to centers.	Planned
Functional Area: **Roadway Data Collection**		
Requirement:	1 The field element shall collect traffic, road, and environmental conditions information.	Planned
Requirement:	2 The field element shall include the sensors and supporting roadside devices that sense, collect, and send traffic, road, and environmental conditions information to a center for archival.	Planned
Requirement:	3 The field element shall collect sensor status and sensor faults from roadside equipment and send it along with the recorded data	Planned
Element: **City of Ames Public Works Traffic and Maintenance Database**		
Entity: **Archived Data Management Subsystem**		
Functional Area: **ITS Data Repository**		
Requirement:	1 The center shall collect data to be archived from one or more data sources.	Existing
Requirement:	2 The center shall collect data catalogs from one or more data sources. A catalog describes the data contained in the collection of archived data and may include descriptions of the schema or structure of the data, a description of the contents of the data; e.g., time range of entries, number of entries; or a sample of the data (e. g. a thumbnail).	Existing
Requirement:	3 The center shall store the archived data in a focused repository that is suited to a particular set of ITS data users.	Existing
Requirement:	4 The center shall include capabilities for performing quality checks on the incoming archived data.	Existing
Requirement:	5 The center shall include capabilities for error notification on the incoming archived data.	Existing
Requirement:	8 The center shall perform quality checks on received data.	Existing
Requirement:	9 The center shall provide the capability to execute methods on the incoming data such as cleansing, summarizations, aggregations, or transformations applied to the data before it is stored in the archive.	Existing

Architecture		Status
City of Ames RWIS		Planned
Element: **City of Ames Public Works Traffic and Maintenance Database**		
Entity: **Archived Data Management Subsystem**		Functional Requirements
Functional Area: **ITS Data Repository**		
Requirement:	10 The center shall respond to requests from the administrator interface function to maintain the archive data.	Existing
Requirement:	11 When data or a catalog of data is received from the archive, the center shall generate the requested data product for the users systems.	Existing
Functional Area: **Traffic and Roadside Data Archival**		
Requirement:	1 The center shall manage the collection of archive data directly from collection equipment located at the roadside.	Existing
Requirement:	3 The center shall collect environmental sensor information that from roadside devices.	Planned
Requirement:	4 The center shall respond to requests from the Archive Data Administer to input the parameters that control the collection process.	Existing
Requirement:	6 The center shall record the status about the imported traffic and roadside data.	Existing
Requirement:	7 The center shall use the status information to adjust the collection	Existing
Functional Area: **Government Reporting Systems Support**		
Requirement:	1 The center shall provide data from an ITS archive to federal, state, or local government reporting systems.	Existing
Requirement:	2 The center shall provide the capability to select data from an ITS archive for use in government reports.	Existing
Requirement:	3 The center shall provide the capability to format data from an ITS archive suitable for input into government reports.	Existing
Requirement:	4 The center shall support requests for ITS archived data from Government Reporting Systems.	Existing
Requirement:	5 The center shall provide the applicable meta-data for any ITS archived data to satisfy government reporting system requests. Meta-data may include attributes that describe the source and quality of the data and the conditions surrounding the collection of the data.	Existing
City of Ames Traffic Information Website		Planned
Element: **City of Ames Public Works Website**		
Entity: **Information Service Provider**		
Functional Area: **ISP Traveler Data Collection**		
Requirement:	1 The center shall collect, process, and store traffic and highway condition information, including incident information, detours and road closures, event information, recommended routes, and current speeds on specific routes.	Existing
Requirement:	2 The center shall collect, process, and store maintenance and construction information, including scheduled maintenance and construction work activities and work zone activities.	Existing
Functional Area: **Interactive Infrastructure Information**		

Architecture		Status
City of Ames Traffic Information Website		Planned
Element: **City of Ames Public Works Website**		
Entity: **Information Service Provider**		Functional Requirements
Functional Area: **Interactive Infrastructure Information**		
Requirement:	1 The center shall collect, process, store, and disseminate customized traffic and highway condition information to travelers, including incident information, detours and road closures, recommended routes, and current speeds on specific routes upon request.	Existing
Requirement:	2 The center shall collect, process, store, and disseminate customized maintenance and construction information to travelers, including scheduled maintenance and construction work activities and work zone activities upon request.	Planned
Requirement:	15 The center shall manage updates of digitized map data and provide updates to traveler interface systems upon request.	Planned
Requirement:	17 The center shall provide the capability for a system operator to control the type and update frequency of traveler information.	Planned
Element: **User Personal Computing Devices**		
Entity: **Personal Information Access**		
Functional Area: **Personal Interactive Information Reception**		
Requirement:	1 The personal traveler interface shall receive traffic information from a center and present it to the traveler upon request.	Existing
Requirement:	10 The personal traveler interface shall base requests from the traveler on the traveler's current location or a specific location identified by the traveler, and filter the provided information accordingly.	Existing
Requirement:	11 The personal traveler interface shall provide digitized map data to act as the background to the information presented to the traveler.	Existing
Requirement:	12 The personal traveler interface shall support traveler input in audio or manual form.	Existing
Requirement:	13 The personal traveler interface shall present information to the traveler in audible or visual forms consistent with a personal device, and suitable for travelers with hearing and vision physical	Existing
Consolidated 911 Computer Aided Dispatch		Planned
Element: **City of Ames Police Communications Center**		
Entity: **Emergency Management**		
Functional Area: **Emergency Call-Taking**		
Requirement:	1 The center shall support the interface to the Emergency Telecommunications System (e.g. 911 or 7-digit call routing) to receive emergency notification information and provide it to the emergency system operator.	Existing
Requirement:	2 The center shall receive emergency call information from 911 services and present the possible incident information to the emergency system operator.	Existing
Requirement:	3 The center shall receive emergency call information from motorist call-boxes and present the possible incident information to the emergency system operator.	Existing

Architecture		Status
Consolidated 911 Computer Aided Dispatch		Planned
Element: **City of Ames Police Communications Center**		
Entity: **Emergency Management**		Functional Requirements
Functional Area: **Emergency Call-Taking**		
Requirement:	5 The center shall receive emergency notification information from other public safety agencies and present the possible incident information to the emergency system operator.	Existing
Requirement:	6 The center shall receive emergency notification information from public transit systems and present the possible incident information to the emergency system operator.	Existing
Requirement:	7 The center shall coordinate, correlate, and verify all emergency inputs, including those identified based on external calls and internal analysis of security sensor and surveillance data, and assign each a level of confidence.	Existing
Requirement:	9 The center shall forward the verified emergency information to the responding agency based on the location and nature of the emergency.	Existing
Requirement:	10 The center shall update the incident information log once the emergency system operator has verified the incident.	Existing
Requirement:	11 The center shall provide the capability for digitized map data to act as the background to the emergency information presented to the emergency system operator.	Existing
Functional Area: **Emergency Dispatch**		
Requirement:	1 The center shall dispatch emergency vehicles to respond to verified emergencies under center personnel control.	Existing
Requirement:	2 The center shall store the current status of all emergency vehicles available for dispatch and those that have been dispatched.	Existing
Requirement:	3 The center shall relay location and incident details to the responding vehicles.	Existing
Requirement:	4 The center shall track the location and status of emergency vehicles responding to an emergency based on information from the emergency vehicle.	Planned
Requirement:	5 The center shall store and maintain the emergency service responses in an action log.	Existing
Requirement:	6 The center shall provide the capability for digitized map data to act as the background to the information presented to the emergency system operator.	Existing
Requirement:	9 The center shall coordinate response to incidents with other Emergency Management centers to ensure appropriate resources are dispatched and utilized.	Existing
Functional Area: **Emergency Routing**		
Requirement:	4 The center shall receive asset restriction information from maintenance centers to support the dispatching of appropriate emergency resources.	Existing
Requirement:	5 The center shall calculate emergency vehicle routes, under center personnel control, based on information from traffic management and maintenance centers.	Existing

Architecture			Status
Consolidated 911 Computer Aided Dispatch			Planned
Element: **City of Ames Police Communications Center**			
Entity: **Emergency Management**			Functional Requirements
Functional Area: **Emergency Routing**			
Requirement:	7	The center shall provide the capability to request special traffic control measures, such as signal preemption, from the traffic management center to facilitate emergency vehicle progress along the suggested route.	Existing
Requirement:	9	The center shall provide the capability for digitized map data to act as the background to the information presented to the emergency system operator.	Existing
Functional Area: **Incident Command**			
Requirement:	1	The center shall provide tactical decision support, resource coordination, and communications integration for Incident Commands that are established by first responders to support local management of an incident.	Existing
Requirement:	2	The center shall provide incident command communications with public safety, emergency management, transportation, and other	Existing
Requirement:	3	The center shall track and maintain resource information and action plans pertaining to the incident command.	Existing
Requirement:	4	The center shall share incident command information with other public safety agencies including resource deployment status, hazardous material information, rail incident information, evacuation advice as well as traffic, road, and weather conditions	Existing
Requirement:	5	The center shall assess the status of responding emergency vehicles as part of an incident command.	Existing
Element: **City of Ames Police Emergency Vehicles**			
Entity: **Emergency Vehicle Subsystem**			
Functional Area: **On-board EV En Route Support**			
Requirement:	1	The emergency vehicle, including roadway service patrols, shall compute the location of the emergency vehicle based on inputs from a vehicle location determination function.	Planned
Requirement:	2	The emergency vehicle, including roadway service patrols, shall send the vehicle's location and operational data to the center for emergency management and dispatch.	Planned
Requirement:	3	The emergency vehicle, including roadway service patrols, shall receive incident details and a suggested route when dispatched to a scene.	Existing
Requirement:	4	The emergency vehicle shall send the current en route status (including estimated time of arrival) and requests for emergency dispatch updates.	Planned
Requirement:	5	The emergency vehicle shall send requests to traffic signal control equipment at the roadside to preempt the signal.	Existing
Requirement:	6	The emergency vehicle shall provide the personnel on-board with dispatch information, including incident type and location, and forward an acknowledgment from personnel to the center that the	Existing
Functional Area: **On-board EV Incident Management Communication**			

Architecture		Status
Consolidated 911 Computer Aided Dispatch		Planned
Element: **City of Ames Police Emergency Vehicles**		
Entity: **Emergency Vehicle Subsystem**		Functional Requirements
Functional Area: **On-board EV Incident Management Communication**		
Requirement:	1 The emergency vehicle shall receive dispatch instructions sufficient to enable emergency personnel in the field to implement an effective incident response. It includes local traffic road, and weather conditions, hazardous material information, and the current status of resources that have been allocated to an incident.	Existing
Requirement:	2 The emergency vehicle shall provide an interface to the center for emergency personnel to transmit information about the incident site such as the extent of injuries, identification of vehicles and	Existing
Requirement:	3 The emergency vehicle shall provide an interface to the center for emergency personnel to transmit information about the current incident response status such as the identification of the resources	Existing
Element: **Iowa State University Police Communications Center**		
Entity: **Emergency Management**		
Functional Area: **Emergency Call-Taking**		
Requirement:	1 The center shall support the interface to the Emergency Telecommunications System (e.g. 911 or 7-digit call routing) to receive emergency notification information and provide it to the emergency system operator.	Existing
Requirement:	2 The center shall receive emergency call information from 911 services and present the possible incident information to the emergency system operator.	Existing
Requirement:	3 The center shall receive emergency call information from motorist call-boxes and present the possible incident information to the emergency system operator.	Existing
Requirement:	5 The center shall receive emergency notification information from other public safety agencies and present the possible incident information to the emergency system operator.	Existing
Requirement:	6 The center shall receive emergency notification information from public transit systems and present the possible incident information to the emergency system operator.	Existing
Requirement:	7 The center shall coordinate, correlate, and verify all emergency inputs, including those identified based on external calls and internal analysis of security sensor and surveillance data, and assign each a level of confidence.	Existing
Requirement:	9 The center shall forward the verified emergency information to the responding agency based on the location and nature of the emergency.	Existing
Requirement:	10 The center shall update the incident information log once the emergency system operator has verified the incident.	Existing
Requirement:	11 The center shall provide the capability for digitized map data to act as the background to the emergency information presented to the emergency system operator.	Existing
Functional Area: **Emergency Dispatch**		

Architecture		Status
Consolidated 911 Computer Aided Dispatch		Planned
Element: **Iowa State University Police Communications Center**		
Entity: **Emergency Management**		Functional Requirements
Functional Area: **Emergency Dispatch**		
Requirement:	1 The center shall dispatch emergency vehicles to respond to verified emergencies under center personnel control.	Existing
Requirement:	2 The center shall store the current status of all emergency vehicles available for dispatch and those that have been dispatched.	Existing
Requirement:	3 The center shall relay location and incident details to the responding vehicles.	Existing
Requirement:	5 The center shall store and maintain the emergency service responses in an action log.	Existing
Requirement:	6 The center shall provide the capability for digitized map data to act as the background to the information presented to the emergency system operator.	Existing
Requirement:	9 The center shall coordinate response to incidents with other Emergency Management centers to ensure appropriate resources are dispatched and utilized.	Existing
Functional Area: **Incident Command**		
Requirement:	1 The center shall provide tactical decision support, resource coordination, and communications integration for Incident Commands that are established by first responders to support local management of an incident.	Existing
Requirement:	2 The center shall provide incident command communications with public safety, emergency management, transportation, and other	Existing
Requirement:	3 The center shall track and maintain resource information and action plans pertaining to the incident command.	Existing
Requirement:	4 The center shall share incident command information with other public safety agencies including resource deployment status, hazardous material information, rail incident information, evacuation advice as well as traffic, road, and weather conditions	Existing
Requirement:	5 The center shall assess the status of responding emergency vehicles as part of an incident command.	Existing
Element: **Iowa State University Police Emergency Vehicles**		
Entity: **Emergency Vehicle Subsystem**		
Functional Area: **On-board EV En Route Support**		
Requirement:	3 The emergency vehicle, including roadway service patrols, shall receive incident details and a suggested route when dispatched to a scene.	Existing
Requirement:	4 The emergency vehicle shall send the current en route status (including estimated time of arrival) and requests for emergency dispatch updates.	Planned
Requirement:	6 The emergency vehicle shall provide the personnel on-board with dispatch information, including incident type and location, and forward an acknowledgment from personnel to the center that the	Existing
Functional Area: **On-board EV Incident Management Communication**		

Architecture			Status
Consolidated 911 Computer Aided Dispatch			Planned
Element: **Iowa State University Police Emergency Vehicles**			
Entity: **Emergency Vehicle Subsystem**			Functional Requirements
Functional Area: **On-board EV Incident Management Communication**			
Requirement:	1	The emergency vehicle shall receive dispatch instructions sufficient to enable emergency personnel in the field to implement an effective incident response. It includes local traffic road, and weather conditions, hazardous material information, and the current status of resources that have been allocated to an incident.	Existing
Requirement:	2	The emergency vehicle shall provide an interface to the center for emergency personnel to transmit information about the incident site such as the extent of injuries, identification of vehicles and	Existing
Requirement:	3	The emergency vehicle shall provide an interface to the center for emergency personnel to transmit information about the current incident response status such as the identification of the resources	Existing
Element: **Story County Sheriff Communications Center**			
Entity: **Emergency Management**			
Functional Area: **Emergency Call-Taking**			
Requirement:	1	The center shall support the interface to the Emergency Telecommunications System (e.g. 911 or 7-digit call routing) to receive emergency notification information and provide it to the emergency system operator.	Existing
Requirement:	2	The center shall receive emergency call information from 911 services and present the possible incident information to the emergency system operator.	Existing
Requirement:	3	The center shall receive emergency call information from motorist call-boxes and present the possible incident information to the emergency system operator.	Existing
Requirement:	5	The center shall receive emergency notification information from other public safety agencies and present the possible incident information to the emergency system operator.	Existing
Requirement:	7	The center shall coordinate, correlate, and verify all emergency inputs, including those identified based on external calls and internal analysis of security sensor and surveillance data, and assign each a level of confidence.	Existing
Requirement:	9	The center shall forward the verified emergency information to the responding agency based on the location and nature of the emergency.	Existing
Requirement:	10	The center shall update the incident information log once the emergency system operator has verified the incident.	Existing
Requirement:	11	The center shall provide the capability for digitized map data to act as the background to the emergency information presented to the emergency system operator.	Existing
Functional Area: **Emergency Dispatch**			
Requirement:	1	The center shall dispatch emergency vehicles to respond to verified emergencies under center personnel control.	Existing

Architecture		Status
Consolidated 911 Computer Aided Dispatch		Planned
Element: **Story County Sheriff Communications Center**		
Entity: **Emergency Management**		Functional Requirements
Functional Area: **Emergency Dispatch**		
Requirement:	2 The center shall store the current status of all emergency vehicles available for dispatch and those that have been dispatched.	Existing
Requirement:	3 The center shall relay location and incident details to the responding vehicles.	Existing
Requirement:	4 The center shall track the location and status of emergency vehicles responding to an emergency based on information from the emergency vehicle.	Planned
Requirement:	5 The center shall store and maintain the emergency service responses in an action log.	Existing
Requirement:	6 The center shall provide the capability for digitized map data to act as the background to the information presented to the emergency system operator.	Existing
Requirement:	9 The center shall coordinate response to incidents with other Emergency Management centers to ensure appropriate resources are dispatched and utilized.	Existing
Functional Area: **Emergency Routing**		
Requirement:	2 The center shall receive inputs from traffic management and maintenance centers on the location and status of traffic control equipment and work zones along potential emergency routes.	Existing
Requirement:	4 The center shall receive asset restriction information from maintenance centers to support the dispatching of appropriate emergency resources.	Existing
Requirement:	9 The center shall provide the capability for digitized map data to act as the background to the information presented to the emergency system operator.	Planned
Functional Area: **Incident Command**		
Requirement:	1 The center shall provide tactical decision support, resource coordination, and communications integration for Incident Commands that are established by first responders to support local management of an incident.	Existing
Requirement:	2 The center shall provide incident command communications with public safety, emergency management, transportation, and other	Existing
Requirement:	3 The center shall track and maintain resource information and action plans pertaining to the incident command.	Existing
Requirement:	4 The center shall share incident command information with other public safety agencies including resource deployment status, hazardous material information, rail incident information, evacuation advice as well as traffic, road, and weather conditions	Existing
Requirement:	5 The center shall assess the status of responding emergency vehicles as part of an incident command.	Existing
Element: **Story County Sheriff Emergency Vehicles**		
Entity: **Emergency Vehicle Subsystem**		
Functional Area: **On-board EV En Route Support**		

Architecture		Status
Consolidated 911 Computer Aided Dispatch		Planned
Element: **Story County Sheriff Emergency Vehicles**		
Entity: **Emergency Vehicle Subsystem**		Functional Requirements
Functional Area: **On-board EV En Route Support**		
Requirement:	1 The emergency vehicle, including roadway service patrols, shall compute the location of the emergency vehicle based on inputs from a vehicle location determination function.	Planned
Requirement:	3 The emergency vehicle, including roadway service patrols, shall receive incident details and a suggested route when dispatched to a scene.	Existing
Requirement:	4 The emergency vehicle shall send the current en route status (including estimated time of arrival) and requests for emergency dispatch updates.	Planned
Requirement:	6 The emergency vehicle shall provide the personnel on-board with dispatch information, including incident type and location, and forward an acknowledgment from personnel to the center that the	Existing
Functional Area: **On-board EV Incident Management Communication**		
Requirement:	1 The emergency vehicle shall receive dispatch instructions sufficient to enable emergency personnel in the field to implement an effective incident response. It includes local traffic road, and weather conditions, hazardous material information, and the current status of resources that have been allocated to an incident.	Existing
Requirement:	2 The emergency vehicle shall provide an interface to the center for emergency personnel to transmit information about the incident site such as the extent of injuries, identification of vehicles and	Existing
Requirement:	3 The emergency vehicle shall provide an interface to the center for emergency personnel to transmit information about the current incident response status such as the identification of the resources	Existing
Iowa DOT CCTV Camera on RWIS Tower		Planned
Element: **Iowa DOT Ames Maintenance Garage**		
Entity: **Traffic Management**		
Functional Area: **Collect Traffic Surveillance**		
Requirement:	2 The center shall monitor, analyze, and distribute traffic images from CCTV systems under remote control of the center.	Planned
Requirement:	4 The center shall distribute road network conditions data (raw or processed) based on collected and analyzed traffic sensor and surveillance data to other centers.	Planned
Requirement:	5 The center shall respond to control data from center personnel regarding sensor and surveillance data collection, analysis, storage, and distribution.	Planned
Requirement:	6 The center shall maintain a database of surveillance and sensors and the freeways, surface street and rural roadways, e.g. where they are located, to which part(s) of the network their data applies, the type of data, and the ownership of each link (that is, the agency or entity responsible for collecting and storing surveillance of the link) in the network.	Planned

Architecture		Status
Iowa DOT CCTV Camera on RWIS Tower		Planned
Element: **Iowa DOT Ames Maintenance Garage**		
Entity: **Traffic Management**		Functional Requirements
Functional Area: **Traffic Maintenance**		
Requirement:	2 The center shall collect and store CCTV surveillance system (traffic, pedestrian) operational status.	Planned
Requirement:	4 The center shall collect and store CCTV surveillance system (traffic, pedestrian) fault data send to the maintenance center for repair.	Planned
Requirement:	7 The center shall exchange data with maintenance centers concerning the reporting of faulty equipment and the schedule/status of their repair. Information exchanged includes details of new equipment faults, and clearances when the faults are cleared.	Existing
Element: **Iowa DOT CCTV Camera on RWIS Tower**		
Entity: **Roadway Subsystem**		
Functional Area: **Roadway Basic Surveillance**		
Requirement:	2 The field element shall collect, process, and send traffic images to the center for further analysis and distribution.	Planned
Requirement:	4 The field element shall return sensor and CCTV system operational status to the controlling center.	Planned
Requirement:	5 The field element shall return sensor and CCTV system fault data	Planned
Element: **Iowa DOT District 1 Operations Office**		
Entity: **Traffic Management**		
Functional Area: **Collect Traffic Surveillance**		
Requirement:	2 The center shall monitor, analyze, and distribute traffic images from CCTV systems under remote control of the center.	Planned
Requirement:	4 The center shall distribute road network conditions data (raw or processed) based on collected and analyzed traffic sensor and surveillance data to other centers.	Planned
Requirement:	5 The center shall respond to control data from center personnel regarding sensor and surveillance data collection, analysis, storage, and distribution.	Planned
Requirement:	6 The center shall maintain a database of surveillance and sensors and the freeways, surface street and rural roadways, e.g. where they are located, to which part(s) of the network their data applies, the type of data, and the ownership of each link (that is, the agency or entity responsible for collecting and storing surveillance of the link) in the network.	Planned
Functional Area: **Traffic Maintenance**		
Requirement:	2 The center shall collect and store CCTV surveillance system (traffic, pedestrian) operational status.	Planned
Requirement:	4 The center shall collect and store CCTV surveillance system (traffic, pedestrian) fault data send to the maintenance center for repair.	Planned

Architecture		Status
Iowa DOT CCTV Camera on RWIS Tower		Planned
Element: **Iowa DOT District 1 Operations Office**		
Entity: **Traffic Management**		Functional Requirements
Functional Area: **Traffic Maintenance**		
Requirement:	7 The center shall exchange data with maintenance centers concerning the reporting of faulty equipment and the schedule/status of their repair. Information exchanged includes details of new equipment faults, and clearances when the faults are cleared.	Planned
Element: **Iowa DOT WeatherView Website**		
Entity: **Information Service Provider**		
Functional Area: **ISP Traveler Data Collection**		
Requirement:	1 The center shall collect, process, and store traffic and highway condition information, including incident information, detours and road closures, event information, recommended routes, and current speeds on specific routes.	Planned
Requirement:	6 The center shall collect, process, and store weather information.	Existing
Functional Area: **Basic Information Broadcast**		
Requirement:	1 The center shall collect, process, store, and disseminate traffic and highway condition information to travelers, including incident information, detours and road closures, event information, recommended routes, and current speeds on specific routes.	Planned
Requirement:	6 The center shall collect, process, store, and disseminate weather information to travelers.	Existing
Requirement:	10 The center shall provide the capability for a system operator to control the type and update frequency of broadcast traveler information.	Existing
Iowa DOT Permanent DMS		Planned
Element: **City of Ames Police Communications Center**		
Entity: **Traffic Management**		
Functional Area: **TMC Traffic Information Dissemination**		
Requirement:	1 The center shall remotely control dynamic messages signs for dissemination of traffic and other information to drivers.	Planned
Requirement:	3 The center shall collect operational status for the driver information systems equipment (DMS, HAR, etc.).	Planned
Requirement:	4 The center shall collect fault data for the driver information systems equipment (DMS, HAR, etc.) for repair.	Planned
Requirement:	5 The center shall retrieve locally stored traffic information, including current and forecasted traffic information, road and weather conditions, traffic incident information, information on diversions and alternate routes, closures, and special traffic restrictions (lane/shoulder use, weight restrictions, width restrictions, HOV requirements), etc.	Planned
Requirement:	6 The center shall distribute traffic data to maintenance and construction centers, transit centers, emergency management centers, and traveler information providers.	Planned
Requirement:	8 The center shall provide the capability for center personnel to control the nature of the data that is available to non-traffic operations centers and the media.	Planned

Architecture		Status
Iowa DOT Permanent DMS		Planned
Element: **City of Ames Police Communications Center**		
Entity: **Traffic Management**		Functional Requirements
Element: **Iowa DOT**		
Entity: **Traffic Management**		
Functional Area: **TMC Traffic Information Dissemination**		
Requirement:	1 The center shall remotely control dynamic messages signs for dissemination of traffic and other information to drivers.	Existing
Requirement:	3 The center shall collect operational status for the driver information systems equipment (DMS, HAR, etc.).	Existing
Requirement:	4 The center shall collect fault data for the driver information systems equipment (DMS, HAR, etc.) for repair.	Existing
Requirement:	5 The center shall retrieve locally stored traffic information, including current and forecasted traffic information, road and weather conditions, traffic incident information, information on diversions and alternate routes, closures, and special traffic restrictions (lane/shoulder use, weight restrictions, width restrictions, HOV requirements), etc.	Existing
Requirement:	6 The center shall distribute traffic data to maintenance and construction centers, transit centers, emergency management centers, and traveler information providers.	Existing
Requirement:	8 The center shall provide the capability for center personnel to control the nature of the data that is available to non-traffic operations centers and the media.	Existing
Element: **Iowa DOT Ames Maintenance Garage**		
Entity: **Maintenance and Construction Management**		
Functional Area: **MCM Work Zone Management**		
Requirement:	4 The center shall control traffic in work zones by providing remote control of dynamic message signs, highway advisory radio systems, gates, and barriers located in or near the work zone.	Existing
Entity: **Traffic Management**		
Functional Area: **TMC Traffic Information Dissemination**		
Requirement:	1 The center shall remotely control dynamic messages signs for dissemination of traffic and other information to drivers.	Existing
Requirement:	3 The center shall collect operational status for the driver information systems equipment (DMS, HAR, etc.).	Existing
Requirement:	4 The center shall collect fault data for the driver information systems equipment (DMS, HAR, etc.) for repair.	Existing
Requirement:	5 The center shall retrieve locally stored traffic information, including current and forecasted traffic information, road and weather conditions, traffic incident information, information on diversions and alternate routes, closures, and special traffic restrictions (lane/shoulder use, weight restrictions, width restrictions, HOV requirements), etc.	Existing
Requirement:	6 The center shall distribute traffic data to maintenance and construction centers, transit centers, emergency management centers, and traveler information providers.	Existing

Architecture		Status
Iowa DOT Permanent DMS		Planned
Element: **Iowa DOT Ames Maintenance Garage**		
Entity: **Traffic Management**		Functional Requirements
Functional Area: **TMC Traffic Information Dissemination**		
Requirement:	8 The center shall provide the capability for center personnel to control the nature of the data that is available to non-traffic operations centers and the media.	Existing
Element: **Iowa DOT District 1 Operations Office**		
Entity: **Traffic Management**		
Functional Area: **TMC Traffic Information Dissemination**		
Requirement:	1 The center shall remotely control dynamic messages signs for dissemination of traffic and other information to drivers.	Existing
Requirement:	3 The center shall collect operational status for the driver information systems equipment (DMS, HAR, etc.).	Existing
Requirement:	4 The center shall collect fault data for the driver information systems equipment (DMS, HAR, etc.) for repair.	Existing
Requirement:	5 The center shall retrieve locally stored traffic information, including current and forecasted traffic information, road and weather conditions, traffic incident information, information on diversions and alternate routes, closures, and special traffic restrictions (lane/shoulder use, weight restrictions, width restrictions, HOV requirements), etc.	Existing
Requirement:	6 The center shall distribute traffic data to maintenance and construction centers, transit centers, emergency management centers, and traveler information providers.	Existing
Requirement:	8 The center shall provide the capability for center personnel to control the nature of the data that is available to non-traffic operations centers and the media.	Existing
Element: **Iowa DOT Permanent DMS**		
Entity: **Roadway Subsystem**		
Functional Area: **Roadway Traffic Information Dissemination**		
Requirement:	1 The field element shall include dynamic messages signs for dissemination of traffic and other information to drivers, under center control; the DMS may be either those that display variable text messages, or those that have fixed format display(s) (e.g. vehicle restrictions, or lane open/close).	Planned
Requirement:	4 The field element shall provide operational status for the driver information systems equipment (DMS, HAR, etc.) to the center.	Planned
Requirement:	5 The field element shall provide fault data for the driver information systems equipment (DMS, HAR, etc.) to the center for repair.	Planned
Element: **Iowa State Patrol**		
Entity: **Emergency Management**		
Functional Area: **Emergency Early Warning System**		

Architecture		Status
Iowa DOT Permanent DMS		Planned
Element: **Iowa State Patrol**		
Entity: **Emergency Management**		Functional Requirements
Functional Area: **Emergency Early Warning System**		
Requirement:	1 The center shall monitor information from Alerting and Advisory Systems such as the Information Sharing and Analysis Centers (ISACs), the National Infrastructure Protection Center (NIPC), the Homeland Security Advisory System (HSAS), etc. The information may include assessments (general incident and vulnerability awareness information), advisories (identification of threats or recommendations to increase preparedness levels), or	Existing
Requirement:	2 The center shall provide the capability to correlate alerts and advisories, incident information, and security sensor and surveillance data.	Existing
Requirement:	3 The center shall broadcast wide-area alerts and advisories to traffic management centers for emergency situations such as severe weather events, civil emergencies, child abduction (AMBER alert system), military activities, and other situations that pose a threat to life and property.	Existing
Requirement:	8 The center shall broadcast wide-area alerts and advisories to other emergency management centers for emergency situations such as severe weather events, civil emergencies, child abduction (AMBER alert system), military activities, and other situations that pose a threat to life and property.	Existing
Requirement:	9 The center shall process status information from each of the centers that have been sent the wide-area alert.	Existing
Requirement:	10 The center shall coordinate the broadcast of wide-area alerts and advisories with other emergency management centers.	Existing
Requirement:	11 The center shall receive incident information from other transportation management centers to support the early warning system.	Existing
Requirement:	12 The center shall present the alert and advisory information and the status of the actions taken in response to the alert by the other centers to the emergency system operator as received from other system inputs.	Existing
Requirement:	13 The center shall support the entry of alert and advisory information directly from the emergency system operator.	Existing
Element: **Iowa State Patrol Des Moines Communications Center**		
Entity: **Traffic Management**		
Functional Area: **TMC Traffic Information Dissemination**		
Requirement:	1 The center shall remotely control dynamic messages signs for dissemination of traffic and other information to drivers.	Planned
Requirement:	3 The center shall collect operational status for the driver information systems equipment (DMS, HAR, etc.).	Planned
Requirement:	4 The center shall collect fault data for the driver information systems equipment (DMS, HAR, etc.) for repair.	Planned

Architecture		Status
Iowa DOT Permanent DMS		Planned
Element: **Iowa State Patrol Des Moines Communications Center**		
Entity: **Traffic Management**		Functional Requirements
Functional Area: **TMC Traffic Information Dissemination**		
Requirement:	5 The center shall retrieve locally stored traffic information, including current and forecasted traffic information, road and weather conditions, traffic incident information, information on diversions and alternate routes, closures, and special traffic restrictions (lane/shoulder use, weight restrictions, width restrictions, HOV requirements), etc.	Planned
Requirement:	6 The center shall distribute traffic data to maintenance and construction centers, transit centers, emergency management centers, and traveler information providers.	Planned
Requirement:	8 The center shall provide the capability for center personnel to control the nature of the data that is available to non-traffic operations centers and the media.	Planned
Element: **Story County Sheriff Communications Center**		
Entity: **Traffic Management**		
Functional Area: **TMC Traffic Information Dissemination**		
Requirement:	1 The center shall remotely control dynamic messages signs for dissemination of traffic and other information to drivers.	Planned
Requirement:	3 The center shall collect operational status for the driver information systems equipment (DMS, HAR, etc.).	Planned
Requirement:	4 The center shall collect fault data for the driver information systems equipment (DMS, HAR, etc.) for repair.	Planned
Requirement:	5 The center shall retrieve locally stored traffic information, including current and forecasted traffic information, road and weather conditions, traffic incident information, information on diversions and alternate routes, closures, and special traffic restrictions (lane/shoulder use, weight restrictions, width restrictions, HOV requirements), etc.	Planned
Requirement:	6 The center shall distribute traffic data to maintenance and construction centers, transit centers, emergency management centers, and traveler information providers.	Planned
Requirement:	8 The center shall provide the capability for center personnel to control the nature of the data that is available to non-traffic operations centers and the media.	Planned
Iowa DOT Precipitation and Visibility Sensors		Planned
Element: **Iowa DOT Ames Maintenance Garage**		
Entity: **Maintenance and Construction Management**		
Functional Area: **MCM Environmental Information Collection**		
Requirement:	1 The center shall remotely control environmental sensors that measure road surface temperature, moisture, icing, salinity, and other measures.	Existing
Requirement:	2 The center shall remotely control environmental sensors that measure weather conditions including temperature, wind, humidity, precipitation, and visibility.	Existing

Architecture		Status
Iowa DOT Precipitation and Visibility Sensors		Planned
Element: **Iowa DOT Ames Maintenance Garage**		
Entity: **Maintenance and Construction Management**		Functional Requirements
Functional Area: **MCM Environmental Information Collection**		
Requirement:	4 The center shall assimilate current and forecast road conditions and surface weather information using a combination of weather service provider information (such as the National Weather Service and value-added sector specific meteorological services), data from traffic, emergency, and transit management, traveler information providers, and environmental data collected from sensors deployed on and about the roadway as well as the fleet of maintenance and construction vehicles.	Existing
Requirement:	5 The center shall provide weather and road condition information to weather service providers and center personnel.	Existing
Requirement:	6 The center shall respond to control data from center personnel regarding environmental sensor control and weather data collection and processing.	Existing
Requirement:	7 The center shall collect operational status for the roadside and vehicle-based environmental sensor equipment.	Existing
Requirement:	8 The center shall collect fault data for the roadside and vehicle-based environmental sensor equipment for repair.	Existing
Element: **Iowa DOT RWIS Central System**		
Entity: **Archived Data Management Subsystem**		
Functional Area: **Traffic and Roadside Data Archival**		
Requirement:	1 The center shall manage the collection of archive data directly from collection equipment located at the roadside.	Existing
Requirement:	3 The center shall collect environmental sensor information that from roadside devices.	Existing
Requirement:	4 The center shall respond to requests from the Archive Data Administer to input the parameters that control the collection process.	Existing
Requirement:	5 The center shall send the request for data and control parameters to the field equipment where the information is collected and returned.	Existing
Requirement:	6 The center shall record the status about the imported traffic and roadside data.	Existing
Requirement:	7 The center shall use the status information to adjust the collection	Existing
Functional Area: **Government Reporting Systems Support**		
Requirement:	1 The center shall provide data from an ITS archive to federal, state, or local government reporting systems.	Existing
Requirement:	2 The center shall provide the capability to select data from an ITS archive for use in government reports.	Existing
Requirement:	3 The center shall provide the capability to format data from an ITS archive suitable for input into government reports.	Existing
Requirement:	4 The center shall support requests for ITS archived data from Government Reporting Systems.	Existing

Architecture		Status
Iowa DOT Precipitation and Visibility Sensors		Planned
Element: **Iowa DOT RWIS Central System**		
Entity: **Archived Data Management Subsystem**		Functional Requirements
Functional Area: **Government Reporting Systems Support**		
Requirement:	5 The center shall provide the applicable meta-data for any ITS archived data to satisfy government reporting system requests. Meta-data may include attributes that describe the source and quality of the data and the conditions surrounding the collection of the data.	Existing
Element: **Iowa DOT RWIS Stations**		
Entity: **Roadway Subsystem**		
Functional Area: **Roadway Environmental Monitoring**		
Requirement:	1 The field element shall include surface and sub-surface environmental sensors that measure road surface temperature, moisture, icing, salinity, and other measures.	Existing
Requirement:	2 The field element shall include environmental sensors that measure weather conditions including temperature, wind, humidity, precipitation, and visibility.	Existing
Requirement:	3 The field element's environmental sensors shall be remotely controlled by a maintenance center.	Existing
Requirement:	7 The field element shall provide environmental sensor equipment operational status to the controlling center or maintenance vehicle.	Existing
Requirement:	8 The field element shall provide environmental sensor equipment fault indication to the controlling center or maintenance vehicle.	Existing
Requirement:	10 The field element shall provide weather and road surface condition data to centers.	Existing
Functional Area: **Roadway Data Collection**		
Requirement:	1 The field element shall collect traffic, road, and environmental conditions information.	Existing
Requirement:	2 The field element shall include the sensors and supporting roadside devices that sense, collect, and send traffic, road, and environmental conditions information to a center for archival.	Existing
Requirement:	3 The field element shall collect sensor status and sensor faults from roadside equipment and send it along with the recorded data	Existing
Element: **Iowa DOT WeatherView Website**		
Entity: **Information Service Provider**		
Functional Area: **ISP Traveler Data Collection**		
Requirement:	1 The center shall collect, process, and store traffic and highway condition information, including incident information, detours and road closures, event information, recommended routes, and current speeds on specific routes.	Planned
Requirement:	6 The center shall collect, process, and store weather information.	Existing
Functional Area: **Basic Information Broadcast**		

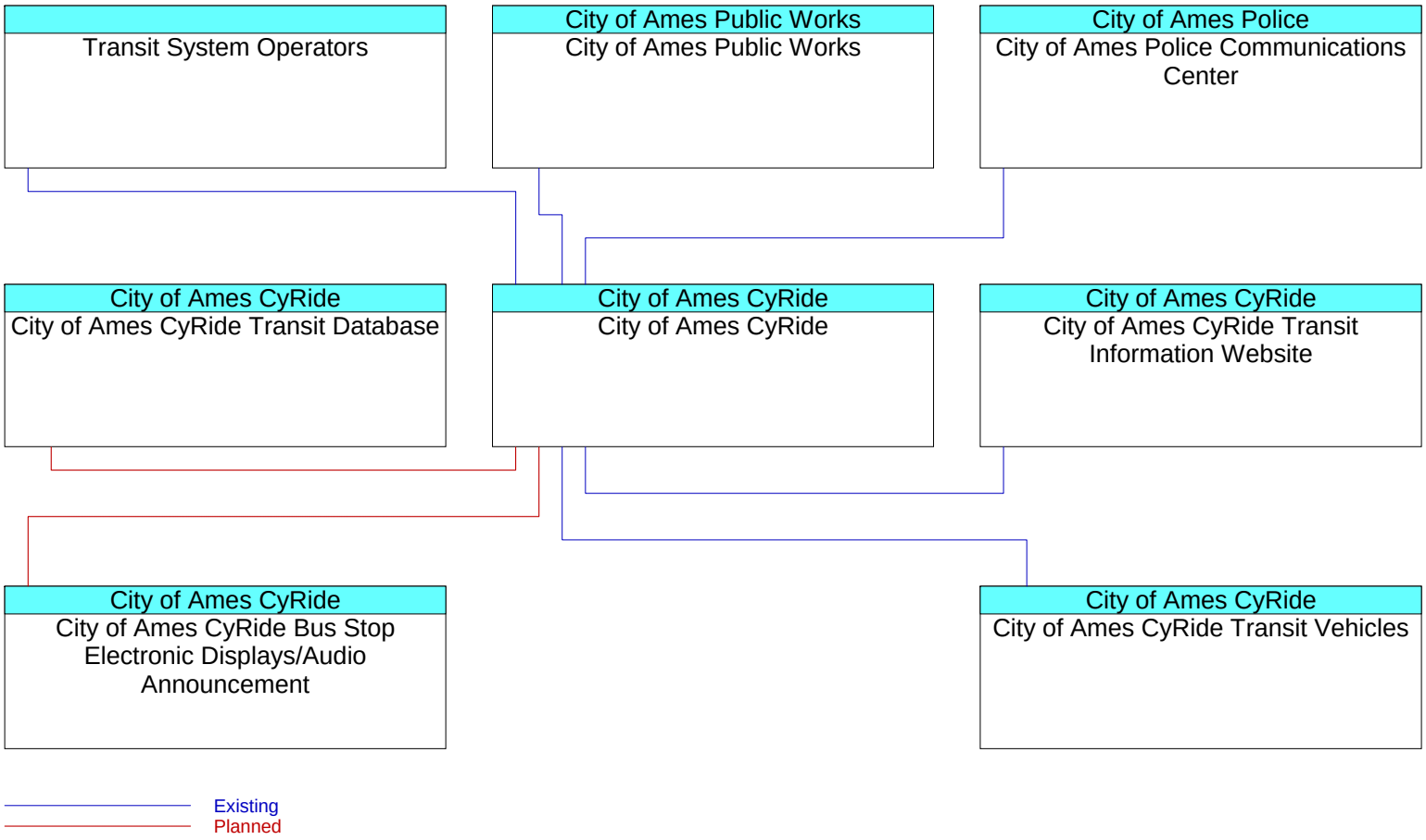
Architecture		Status
Iowa DOT Precipitation and Visibility Sensors		Planned
Element: **Iowa DOT WeatherView Website**		
Entity: **Information Service Provider**		Functional Requirements
Functional Area: **Basic Information Broadcast**		
Requirement:	1 The center shall collect, process, store, and disseminate traffic and highway condition information to travelers, including incident information, detours and road closures, event information, recommended routes, and current speeds on specific routes.	Planned
Requirement:	6 The center shall collect, process, store, and disseminate weather information to travelers.	Existing
Requirement:	10 The center shall provide the capability for a system operator to control the type and update frequency of broadcast traveler information.	Existing
Iowa DOT Speed Detectors at RWIS Site		Planned
Element: **Iowa DOT Ames Maintenance Garage**		
Entity: **Traffic Management**		
Functional Area: **Collect Traffic Surveillance**		
Requirement:	1 The center shall monitor, analyze, and store traffic sensor data (speed, volume, occupancy) collected from field elements under remote control of the center.	Planned
Requirement:	4 The center shall distribute road network conditions data (raw or processed) based on collected and analyzed traffic sensor and surveillance data to other centers.	Planned
Requirement:	5 The center shall respond to control data from center personnel regarding sensor and surveillance data collection, analysis, storage, and distribution.	Planned
Requirement:	6 The center shall maintain a database of surveillance and sensors and the freeways, surface street and rural roadways, e.g. where they are located, to which part(s) of the network their data applies, the type of data, and the ownership of each link (that is, the agency or entity responsible for collecting and storing surveillance of the link) in the network.	Planned
Requirement:	7 The center shall support an interface with a map update provider, or other appropriate data sources, through which updates of digitized map data can be obtained and used as a background for traffic data.	Existing
Functional Area: **Traffic Maintenance**		
Requirement:	1 The center shall collect and store sensor (traffic, pedestrian, multimodal crossing) operational status.	Planned
Requirement:	3 The center shall collect and store sensor (traffic, pedestrian, multimodal crossing) fault data and send to the maintenance center for repair.	Planned
Requirement:	7 The center shall exchange data with maintenance centers concerning the reporting of faulty equipment and the schedule/status of their repair. Information exchanged includes details of new equipment faults, and clearances when the faults are cleared.	Existing

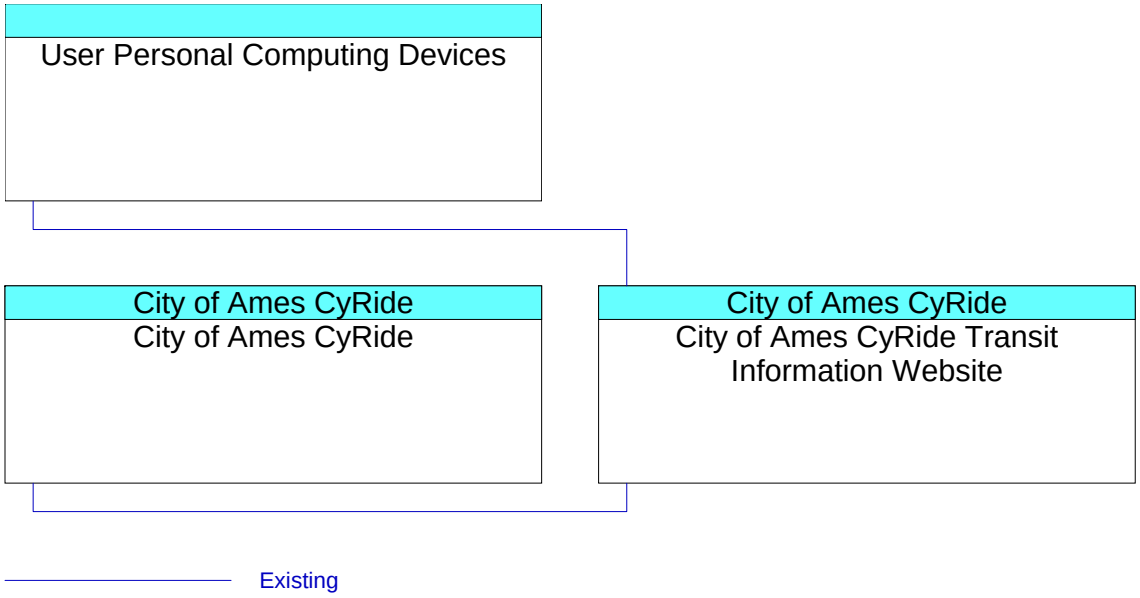
Architecture		Status
Iowa DOT Speed Detectors at RWIS Site		Planned
Element: **Iowa DOT Ames Maintenance Garage**		
Entity: **Traffic Management**		Functional Requirements
Functional Area: **Traffic Maintenance**		
Requirement:	8 The center shall support an interface with a map update provider, or other appropriate data sources, through which updates of digitized map data can be obtained and used as a background for traffic maintenance data.	Existing
Element: **Iowa DOT Speed Detectors at RWIS Site**		
Entity: **Roadway Subsystem**		
Functional Area: **Roadway Basic Surveillance**		
Requirement:	1 The field element shall collect, process, digitize, and send traffic sensor data (speed, volume, and occupancy) to the center for further analysis and storage, under center control.	Planned
Requirement:	4 The field element shall return sensor and CCTV system operational status to the controlling center.	Planned
Requirement:	5 The field element shall return sensor and CCTV system fault data	Planned
Element: **Iowa DOT WeatherView Website**		
Entity: **Information Service Provider**		
Functional Area: **ISP Traveler Data Collection**		
Requirement:	1 The center shall collect, process, and store traffic and highway condition information, including incident information, detours and road closures, event information, recommended routes, and current speeds on specific routes.	Planned
Requirement:	6 The center shall collect, process, and store weather information.	Existing
Functional Area: **Basic Information Broadcast**		
Requirement:	1 The center shall collect, process, store, and disseminate traffic and highway condition information to travelers, including incident information, detours and road closures, event information, recommended routes, and current speeds on specific routes.	Planned
Requirement:	6 The center shall collect, process, store, and disseminate weather information to travelers.	Existing
Requirement:	10 The center shall provide the capability for a system operator to control the type and update frequency of broadcast traveler information.	Existing
Mary Greeley Medical Center Dispatch Upgrade		Planned
Element: **Mary Greeley Medical Center Ambulances**		
Entity: **Emergency Vehicle Subsystem**		
Functional Area: **On-board EV Incident Management Communication**		
Requirement:	1 The emergency vehicle shall receive dispatch instructions sufficient to enable emergency personnel in the field to implement an effective incident response. It includes local traffic road, and weather conditions, hazardous material information, and the current status of resources that have been allocated to an incident.	Planned

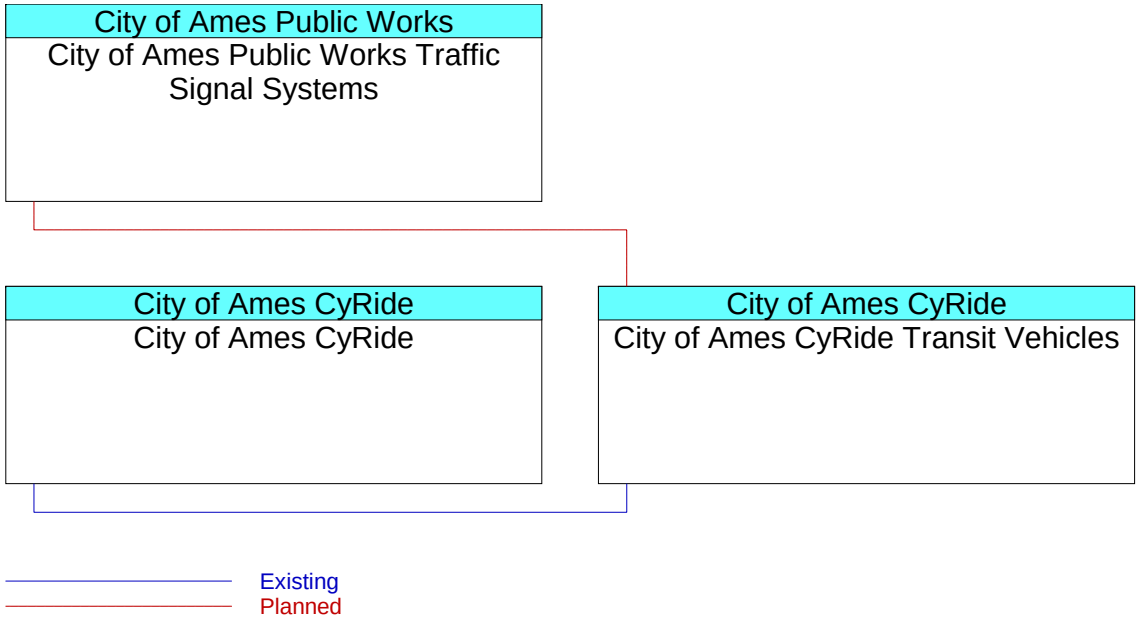
Architecture		Status
Mary Greeley Medical Center Dispatch Upgrade		Planned
Element: **Mary Greeley Medical Center Ambulances**		
Entity: **Emergency Vehicle Subsystem**		Functional Requirements
Functional Area: **On-board EV Incident Management Communication**		
Requirement:	2 The emergency vehicle shall provide an interface to the center for emergency personnel to transmit information about the incident site such as the extent of injuries, identification of vehicles and	Planned
Requirement:	3 The emergency vehicle shall provide an interface to the center for emergency personnel to transmit information about the current incident response status such as the identification of the resources	Planned
Element: **Mary Greeley Medical Center Dispatch**		
Entity: **Emergency Management**		
Functional Area: **Emergency Call-Taking**		
Requirement:	1 The center shall support the interface to the Emergency Telecommunications System (e.g. 911 or 7-digit call routing) to receive emergency notification information and provide it to the emergency system operator.	Existing
Requirement:	2 The center shall receive emergency call information from 911 services and present the possible incident information to the emergency system operator.	Existing
Requirement:	5 The center shall receive emergency notification information from other public safety agencies and present the possible incident information to the emergency system operator.	Existing
Requirement:	9 The center shall forward the verified emergency information to the responding agency based on the location and nature of the emergency.	Existing
Requirement:	10 The center shall update the incident information log once the emergency system operator has verified the incident.	Existing
Functional Area: **Emergency Dispatch**		
Requirement:	1 The center shall dispatch emergency vehicles to respond to verified emergencies under center personnel control.	Planned
Requirement:	2 The center shall store the current status of all emergency vehicles available for dispatch and those that have been dispatched.	Planned
Requirement:	3 The center shall relay location and incident details to the responding vehicles.	Planned
Requirement:	5 The center shall store and maintain the emergency service responses in an action log.	Planned
Requirement:	6 The center shall provide the capability for digitized map data to act as the background to the information presented to the emergency system operator.	Planned
Requirement:	9 The center shall coordinate response to incidents with other Emergency Management centers to ensure appropriate resources are dispatched and utilized.	Planned
Functional Area: **Incident Command**		

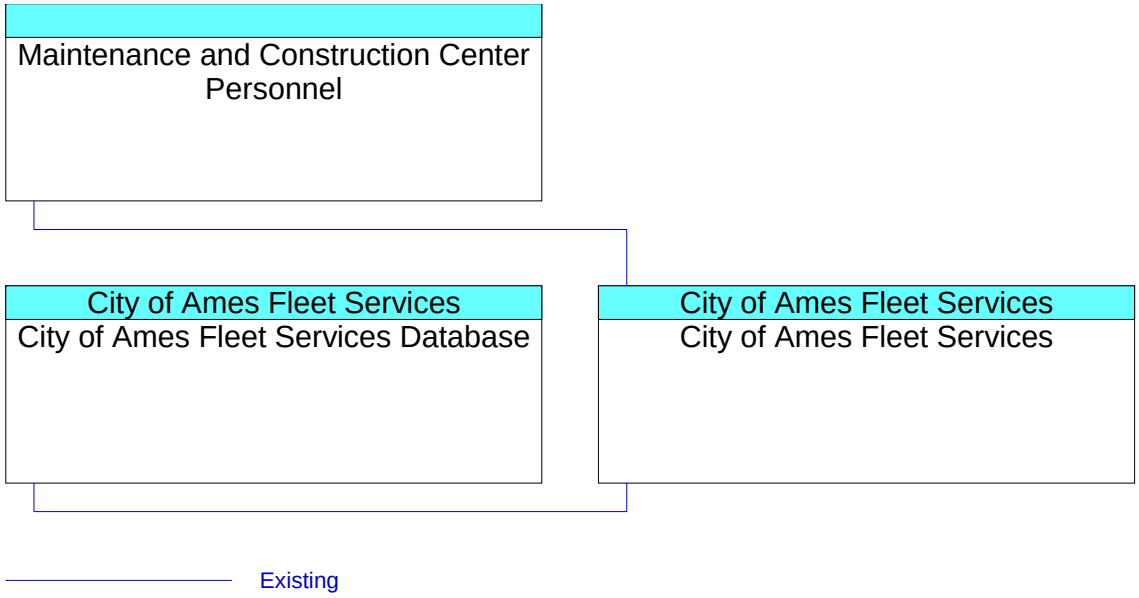
Architecture		Status
Mary Greeley Medical Center Dispatch Upgrade		Planned
Element: **Mary Greeley Medical Center Dispatch**		
Entity: **Emergency Management**		
Functional Area: **Incident Command**		
Requirement:	1 The center shall provide tactical decision support, resource coordination, and communications integration for Incident Commands that are established by first responders to support local management of an incident.	Planned
Requirement:	2 The center shall provide incident command communications with public safety, emergency management, transportation, and other	Planned
Requirement:	3 The center shall track and maintain resource information and action plans pertaining to the incident command.	Planned
Requirement:	4 The center shall share incident command information with other public safety agencies including resource deployment status, hazardous material information, rail incident information, evacuation advice as well as traffic, road, and weather conditions	Planned
Requirement:	5 The center shall assess the status of responding emergency vehicles as part of an incident command.	Planned
Story County Engineers Automated Vehicle Maintenance Scheduling System		Planned
Element: **Story County Engineers**		
Entity: **Maintenance and Construction Management**		
Functional Area: **MCM Vehicle and Equipment Maintenance Management**		
Requirement:	1 The center shall collect and analyze vehicle diagnostics information from maintenance and construction vehicles. The information includes engine temperature, mileage, tire wear, brake wear, belt wear, and any warnings or alarms concerning the	Planned
Requirement:	2 The center shall exchange information with equipment repair facilities including status and history of repairs concerning maintenance and construction vehicles. This information includes vehicle status and diagnostic information, vehicle utilization, and coordination of when vehicles will be available for preventative and corrective maintenance.	Planned
Requirement:	3 The center shall schedule preventive and corrective vehicle maintenance with the equipment repair facility based on fleet health reports, maintenance records, vehicle utilization and vehicle availability schedules.	Planned

Appendix C: Architecture Interconnect Diagrams


Transit System Operators
City of Ames Public Works
City of Ames Public Works
City of Ames Police
City of Ames Police Communications Center
City of Ames CyRide
City of Ames CyRide Transit Database
City of Ames CyRide
City of Ames CyRide
City of Ames CyRide
City of Ames CyRide Transit Information Website
City of Ames CyRide
City of Ames CyRide Bus Stop Electronic Displays/Audio Announcement
City of Ames CyRide
City of Ames CyRide Transit Vehicles
Existing
Planned


User Personal Computing Devices
City of Ames CyRide
City of Ames CyRide
City of Ames CyRide
City of Ames CyRide Transit Information Website
Existing


City of Ames Public Works
City of Ames Public Works Traffic Signal Systems
City of Ames CyRide
City of Ames CyRide
City of Ames CyRide
City of Ames CyRide Transit Vehicles
Existing
Planned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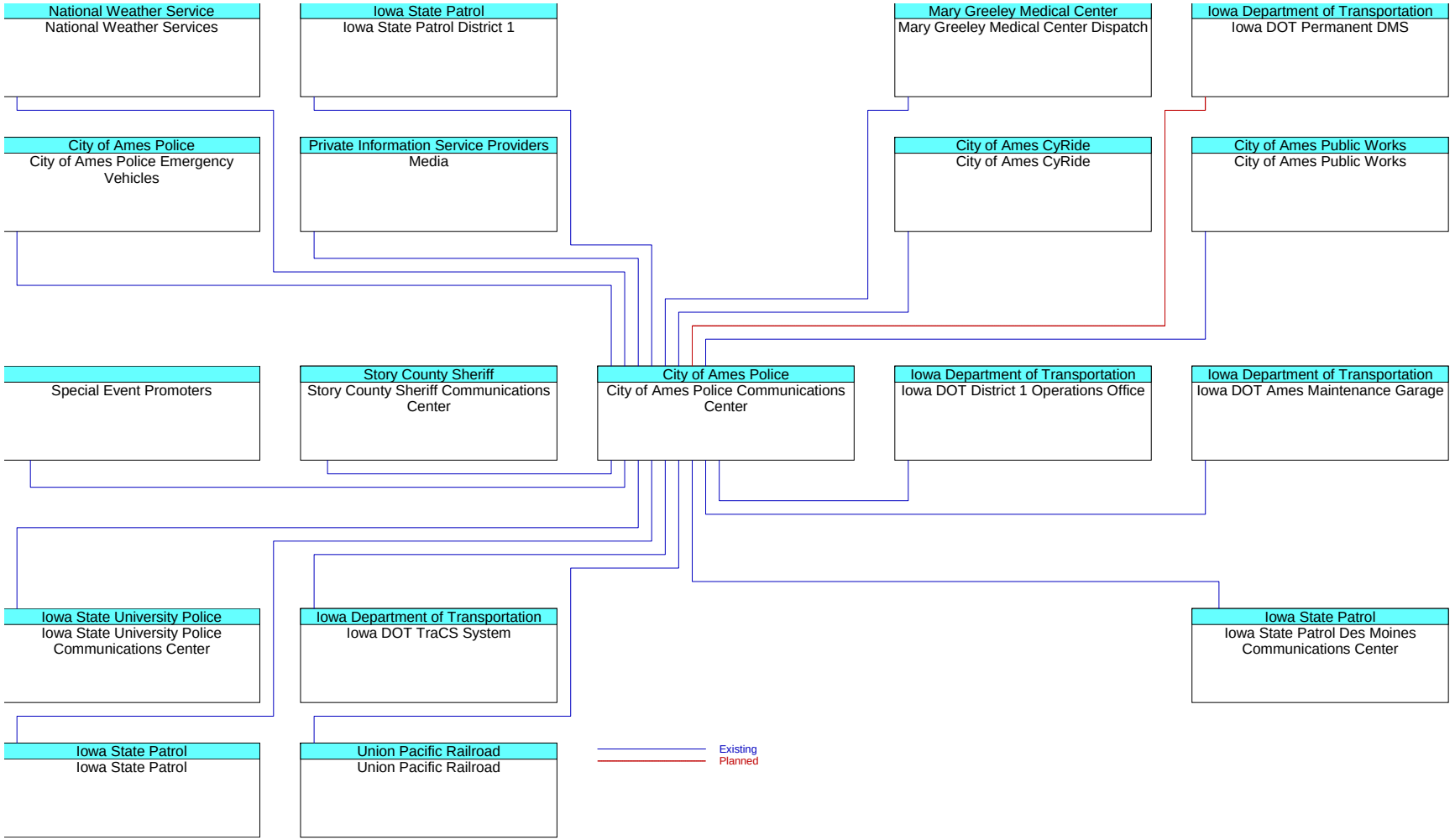
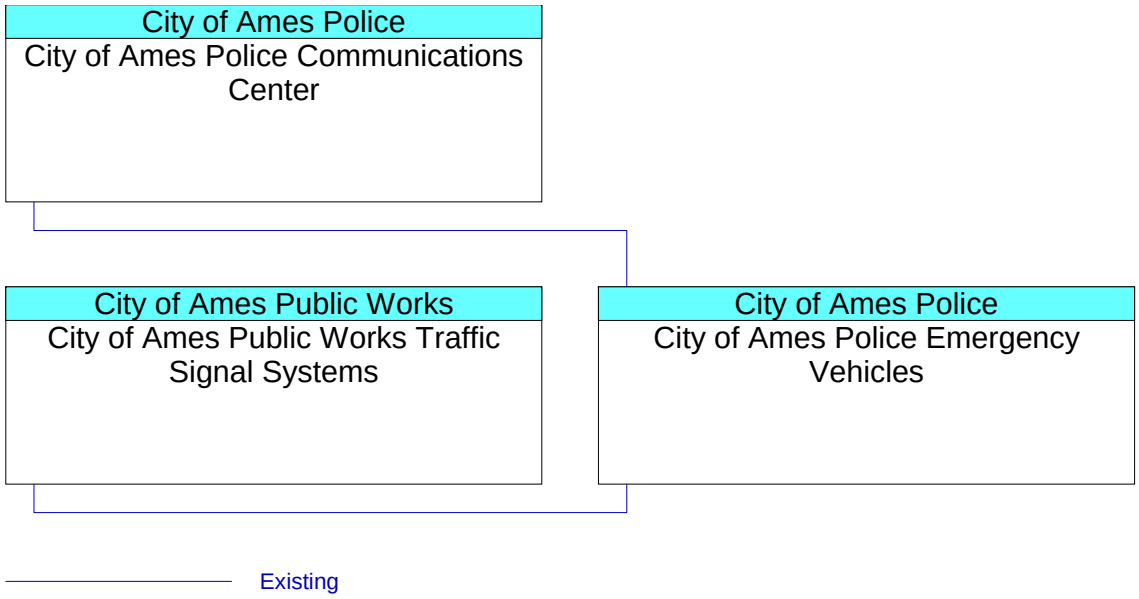
City of Ames Fleet Services Database
City of Ames Fleet Services
City of Ames Fleet Services
Existing


National Weather Service
National Weather Services
Iowa State Patrol
Iowa State Patrol District 1
Mary Greeley Medical Center
Mary Greeley Medical Center Dispatch
Iowa Department of Transportation
Iowa DOT Permanent DMS
City of Ames Police
City of Ames Police Emergency Vehicles
Private Information Service Providers
Media
City of Ames CyRide
City of Ames CyRide
City of Ames Public Works
City of Ames Public Works
Special Event Promoters
Story County Sheriff
Story County Sheriff Communications Center
City of Ames Police
City of Ames Police Communications Center
Iowa Department of Transportation
Iowa DOT District 1 Operations Office
Iowa Department of Transportation
Iowa DOT Ames Maintenance Garage
Iowa State University Police
Iowa State University Police Communications Center
Iowa Department of Transportation
Iowa DOT TraCS System
Iowa State Patrol
Iowa State Patrol Des Moines Communications Center
Iowa State Patrol
Iowa State Patrol
Union Pacific Railroad
Union Pacific Railroad
Existing
Planned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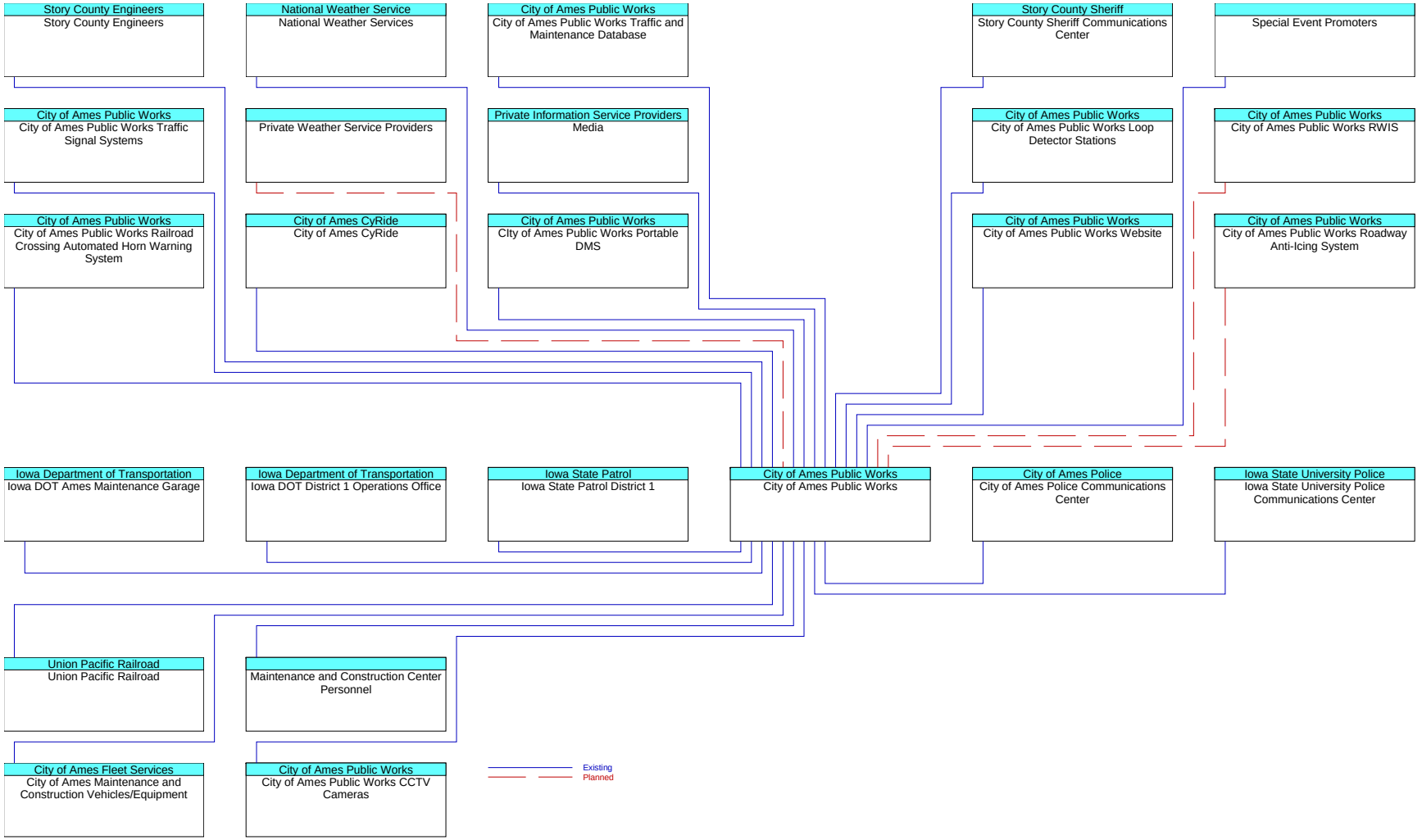
City of Ames Police Communications Center
City of Ames Public Works
City of Ames Public Works Traffic Signal Systems
City of Ames Police
City of Ames Police Emergency Vehicles
Existing


Story County Engineers
Story County Engineers
National Weather Service
National Weather Services
City of Ames Public Works
City of Ames Public Works Traffic and Maintenance Database
Story County Sheriff
Story County Sheriff Communications Center
Special Event Promoters
City of Ames Public Works
City of Ames Public Works Traffic Signal Systems
Private Weather Service Providers
Private Information Service Providers
Media
City of Ames Public Works
City of Ames Public Works Loop Detector Stations
City of Ames Public Works
City of Ames Public Works RWIS
City of Ames Public Works
City of Ames Public Works Railroad Crossing Automated Horn Warning System
City of Ames CyRide
City of Ames CyRide
City of Ames Public Works
CIty of Ames Public Works Portable DMS
City of Ames Public Works
City of Ames Public Works Website
City of Ames Public Works
City of Ames Public Works Roadway Anti-Icing System
Iowa Department of Transportation
Iowa DOT Ames Maintenance Garage
Iowa Department of Transportation
Iowa DOT District 1 Operations Office
Iowa State Patrol
Iowa State Patrol District 1
City of Ames Public Works
City of Ames Public Works
City of Ames Police
City of Ames Police Communications Center
Iowa State University Police
Iowa State University Police Communications Center
Union Pacific Railroad
Union Pacific Railroad
Maintenance and Construction Center Personnel
City of Ames Fleet Services
City of Ames Maintenance and Construction Vehicles/Equipment
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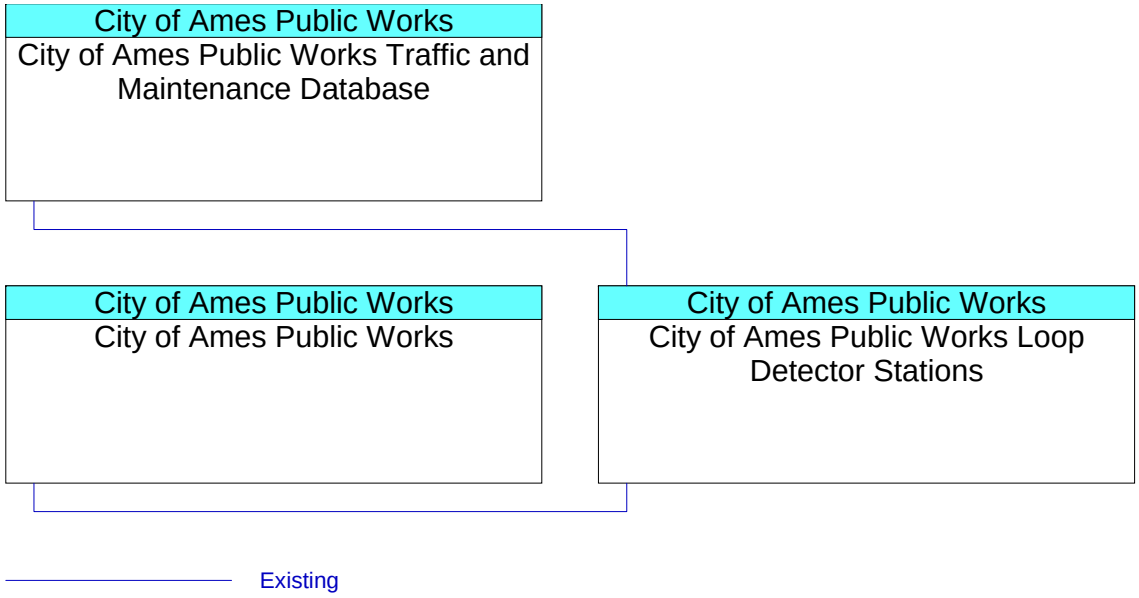
City of Ames Public Works CCTV Cameras
Existing
Planned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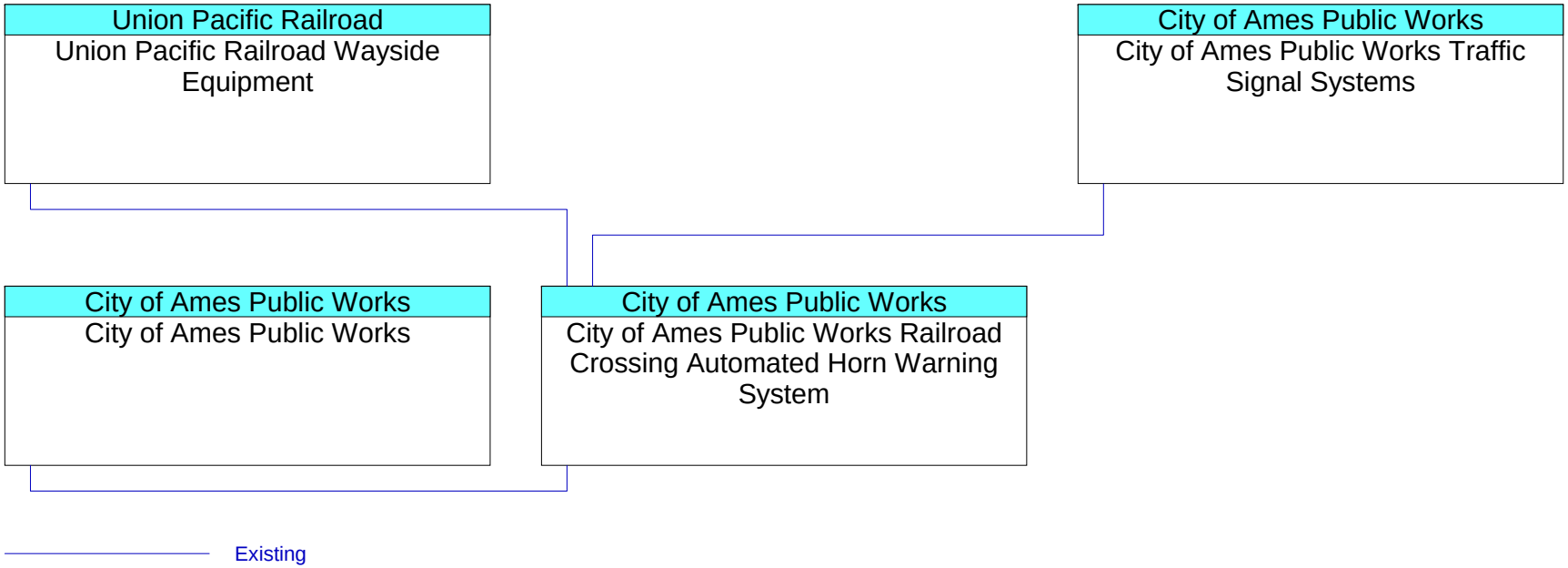
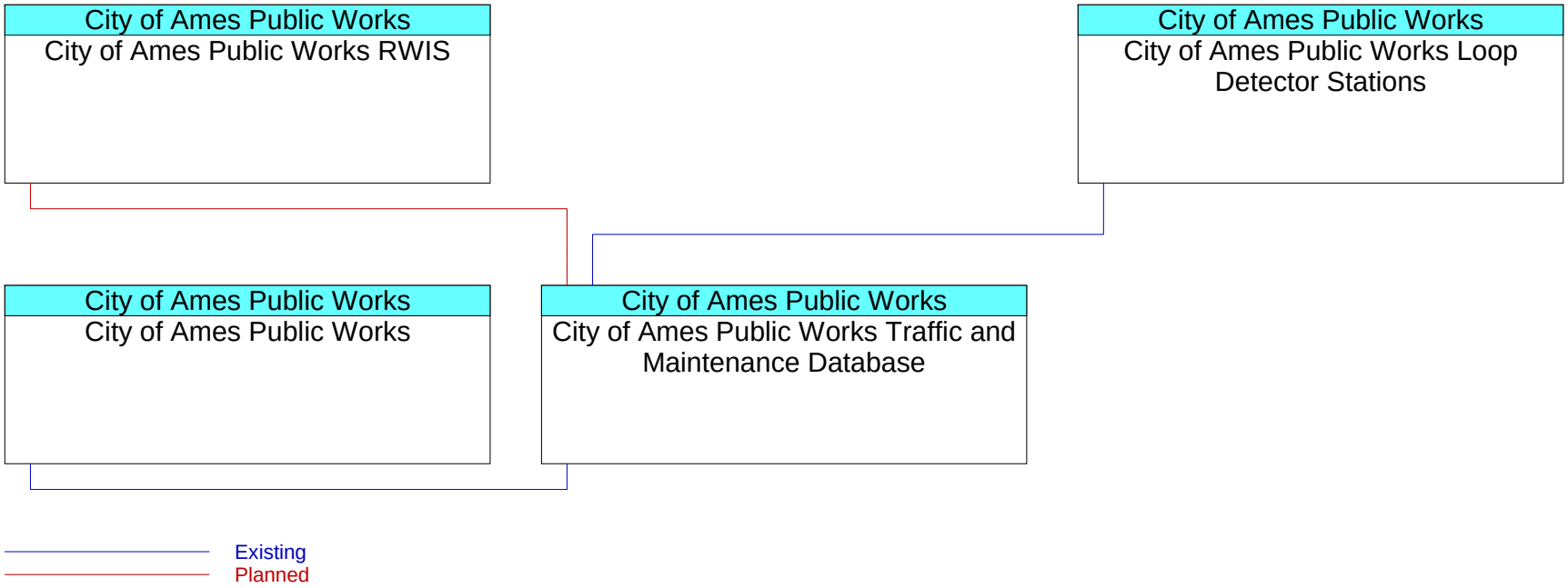
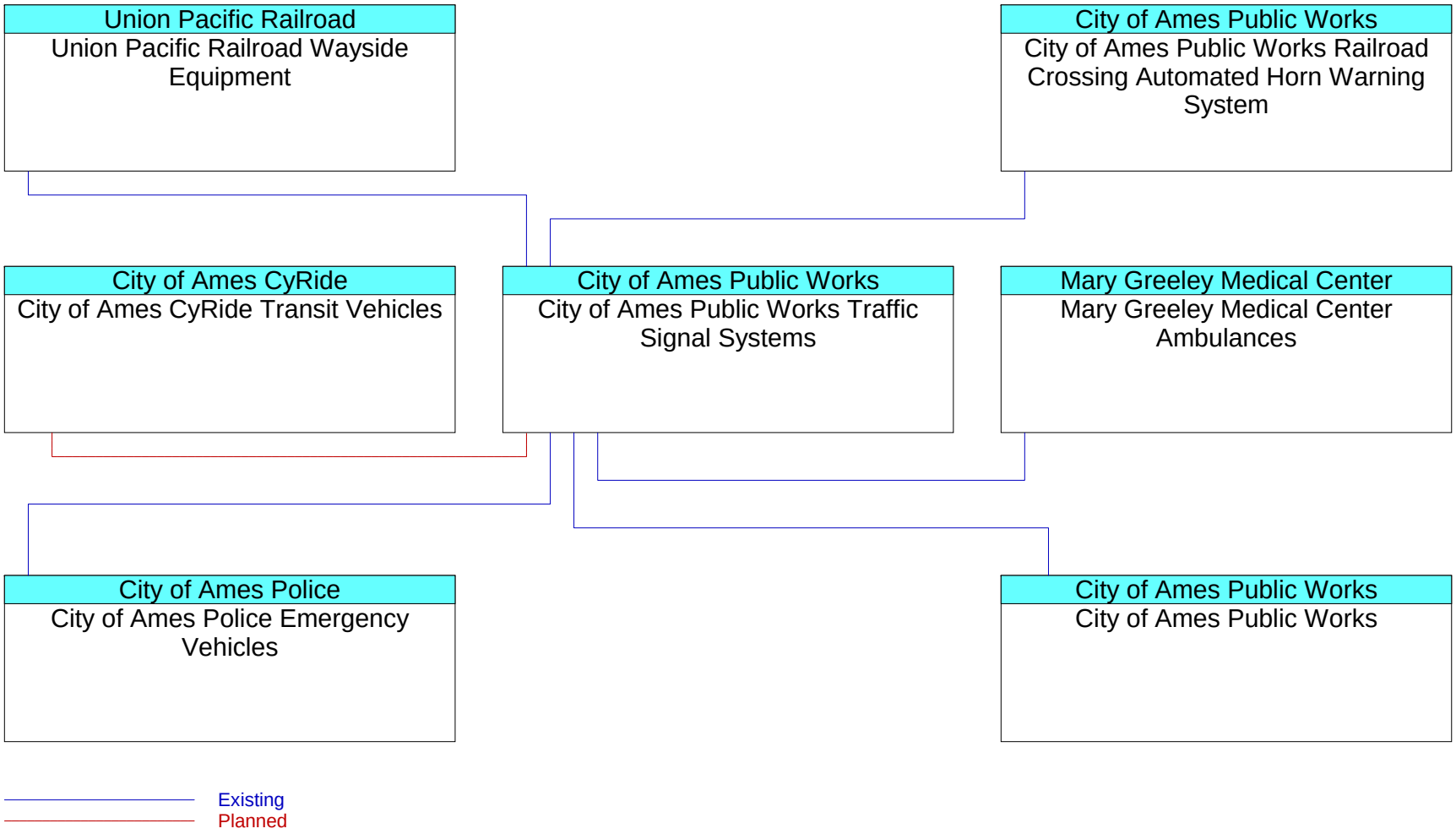
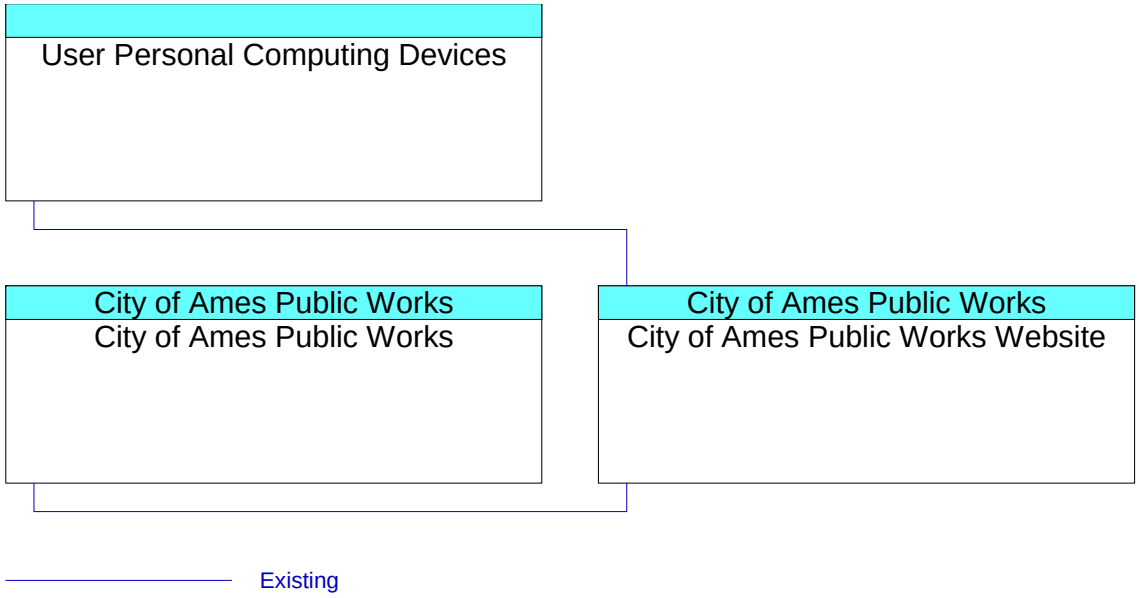
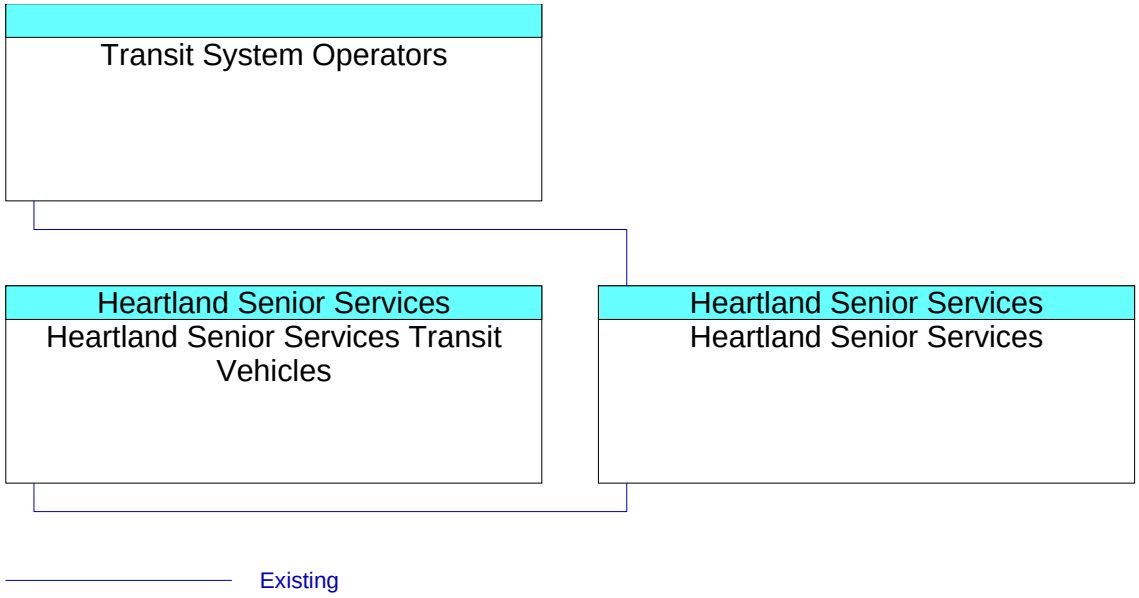
City of Ames Public Works Traffic and Maintenance Database
City of Ames Public Works
City of Ames Public Works
City of Ames Public Works
City of Ames Public Works Loop Detector Stations
Existing

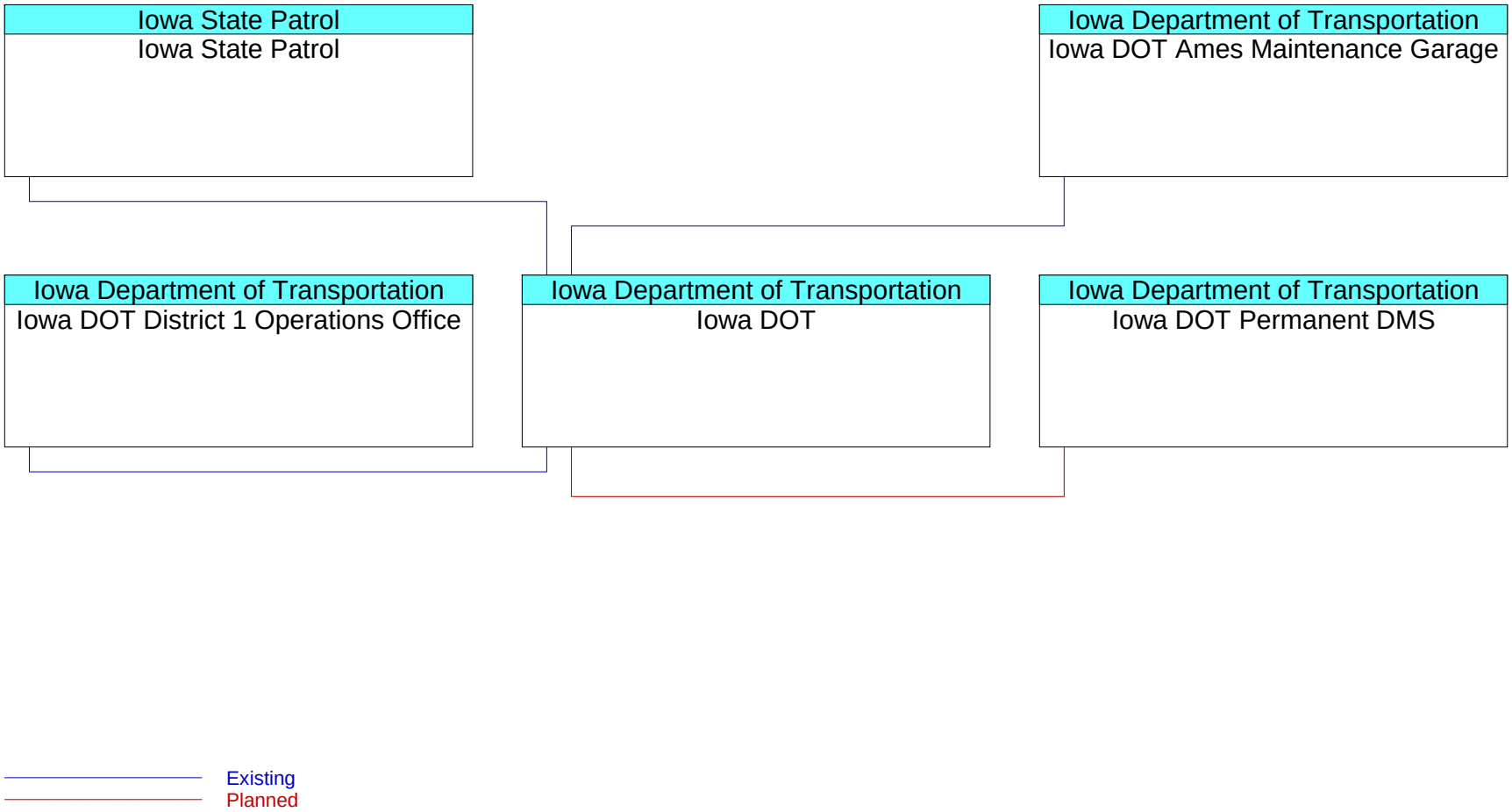

Union Pacific Railroad
Union Pacific Railroad Wayside Equipment
City of Ames Public Works
City of Ames Public Works Traffic Signal Systems
City of Ames Public Works
City of Ames Public Works
City of Ames Public Works
City of Ames Public Works Railroad Crossing Automated Horn Warning System
Existing

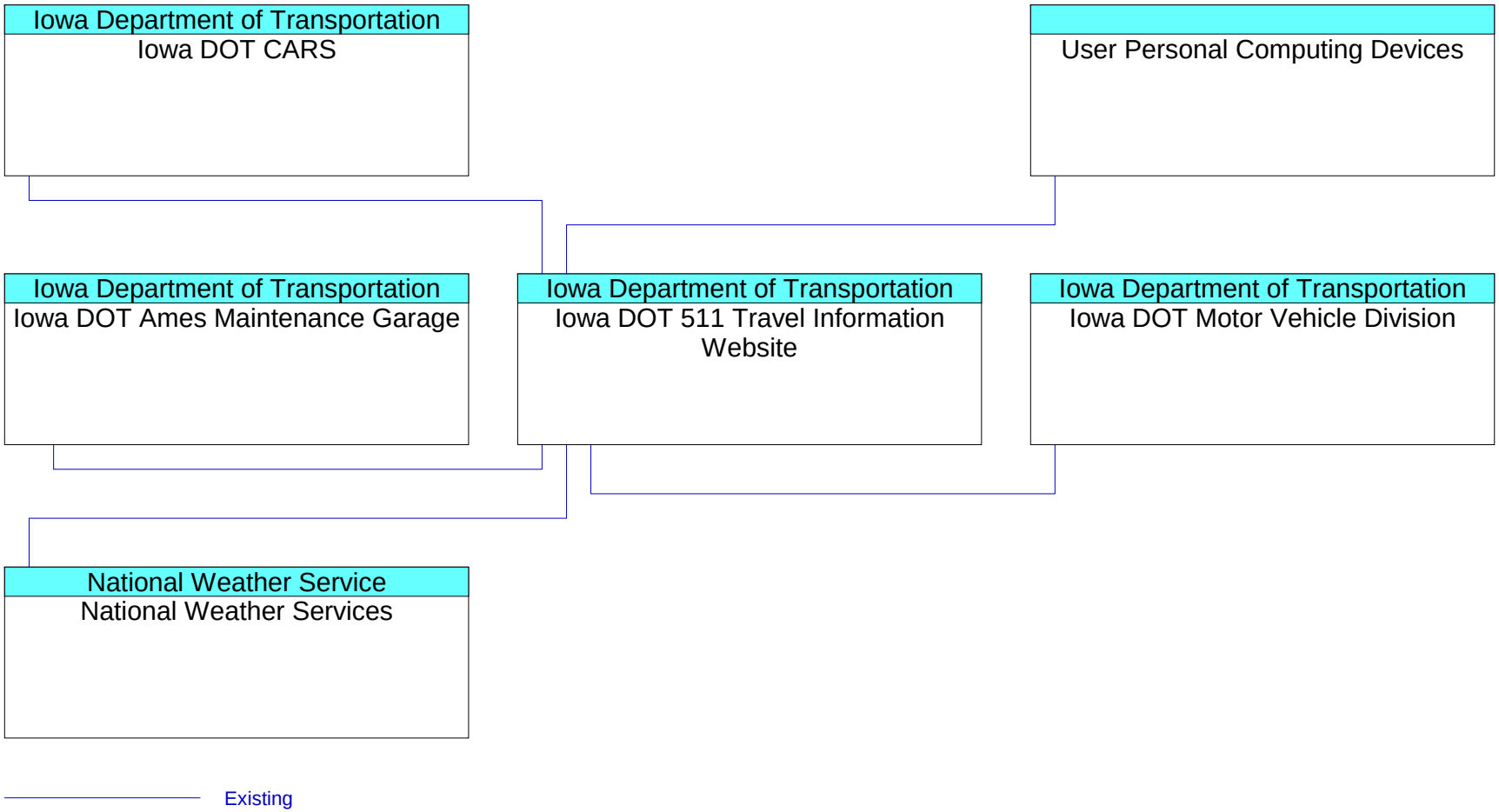

City of Ames Public Works
City of Ames Public Works RWIS
City of Ames Public Works
City of Ames Public Works Loop Detector Stations
City of Ames Public Works
City of Ames Public Works
City of Ames Public Works
City of Ames Public Works Traffic and Maintenance Database
Existing
Planned


Union Pacific Railroad
Union Pacific Railroad Wayside Equipment
City of Ames Public Works
City of Ames Public Works Railroad Crossing Automated Horn Warning System
City of Ames CyRide
City of Ames CyRide Transit Vehicles
City of Ames Public Works
City of Ames Public Works Traffic Signal Systems
Mary Greeley Medical Center
Mary Greeley Medical Center Ambulances
City of Ames Police
City of Ames Police Emergency Vehicles
City of Ames Public Works
City of Ames Public Works
Existing
Planned


User Personal Computing Devices
City of Ames Public Works
City of Ames Public Works
City of Ames Public Works
City of Ames Public Works Website
Existing


Transit System Operators
Heartland Senior Services
Heartland Senior Services Transit Vehicles
Heartland Senior Services
Heartland Senior Services
Existing


Iowa State Patrol
Iowa State Patrol
Iowa Department of Transportation
Iowa DOT Ames Maintenance Garage
Iowa Department of Transportation
Iowa DOT District 1 Operations Office
Iowa Department of Transportation
Iowa DOT
Iowa Department of Transportation
Iowa DOT Permanent DMS
Existing
Planned


Iowa Department of Transportation
Iowa DOT CARS
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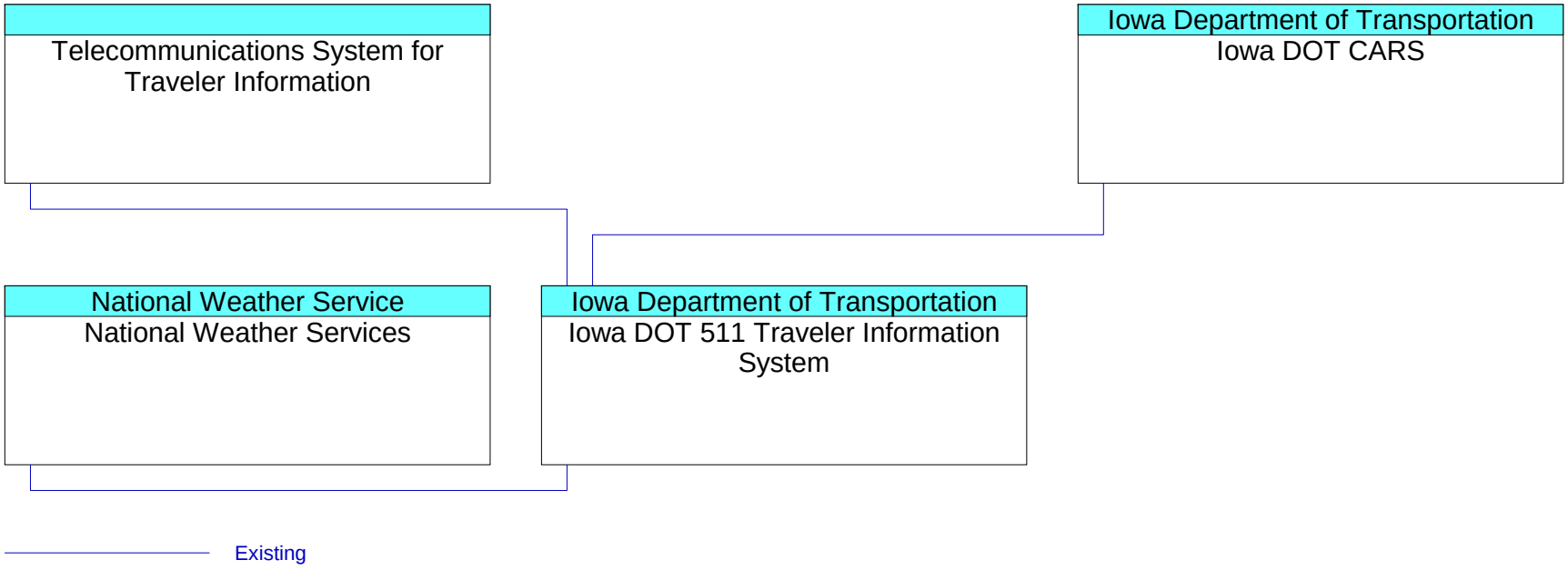
Iowa Department of Transportation
Iowa DOT Ames Maintenance Garage
Iowa Department of Transportation
Iowa DOT 511 Travel Information Website
Iowa Department of Transportation
Iowa DOT Motor Vehicle Division
National Weather Service
National Weather Services
Existing


Telecommunications System for Traveler Information
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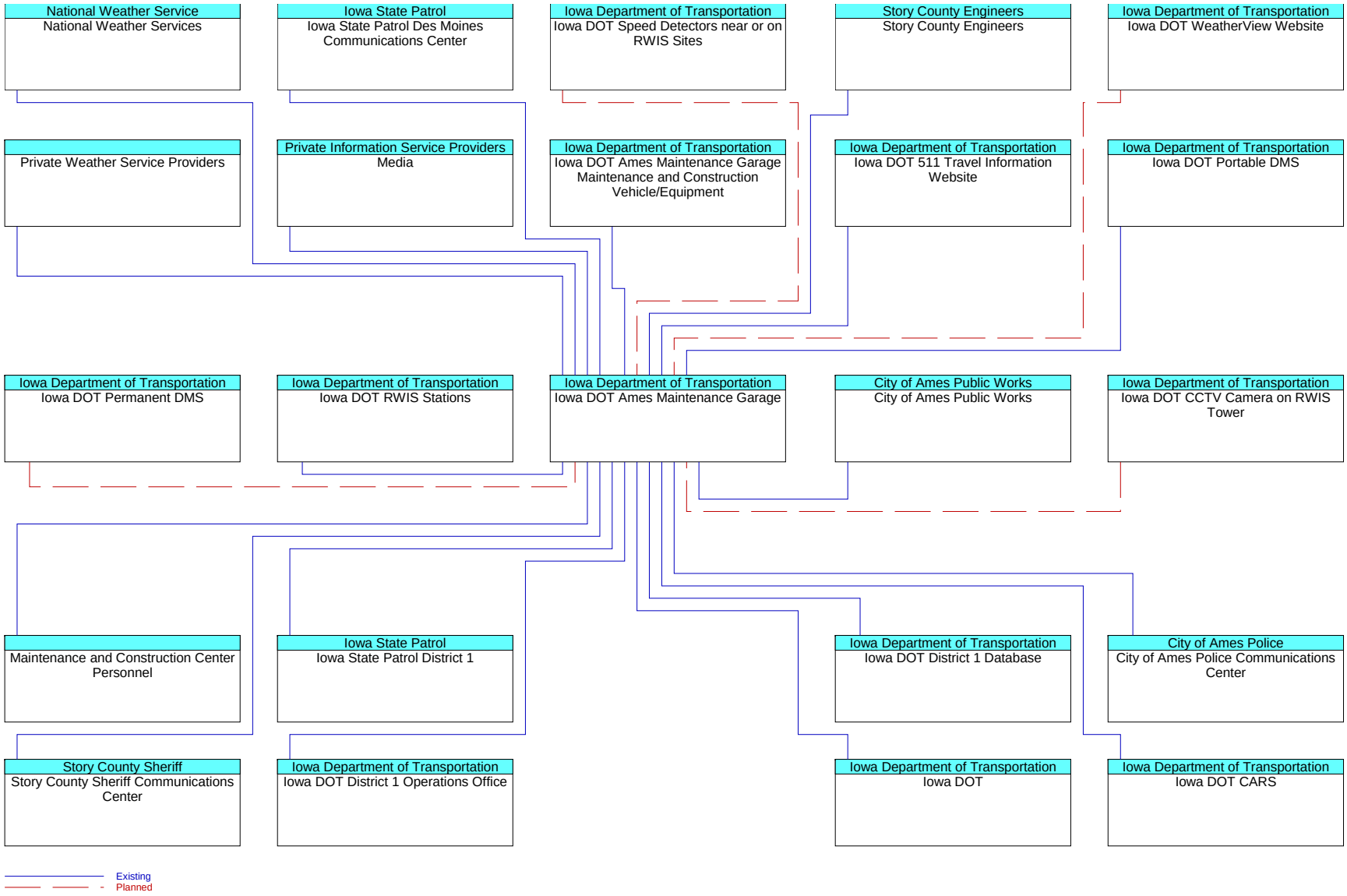
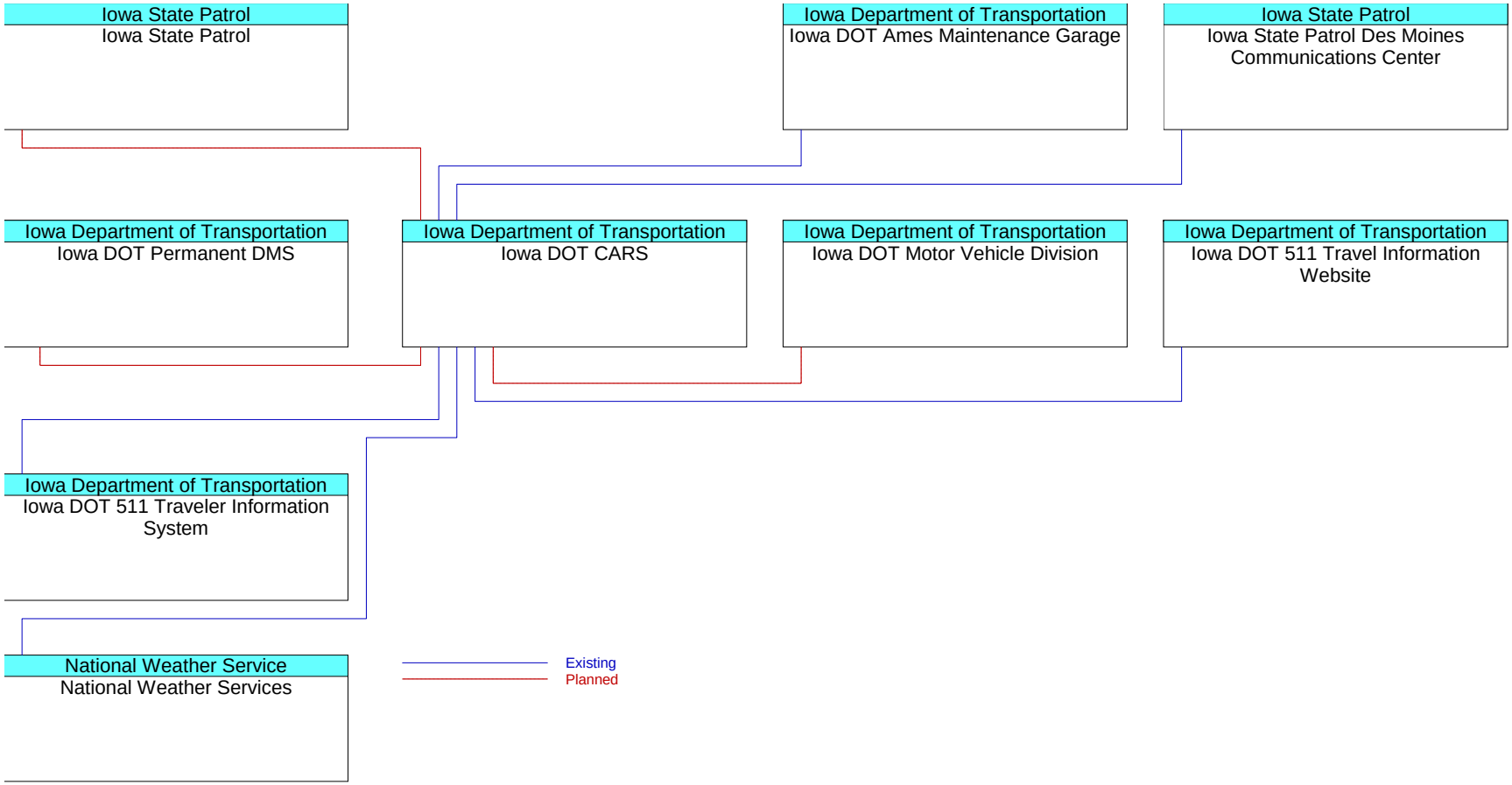
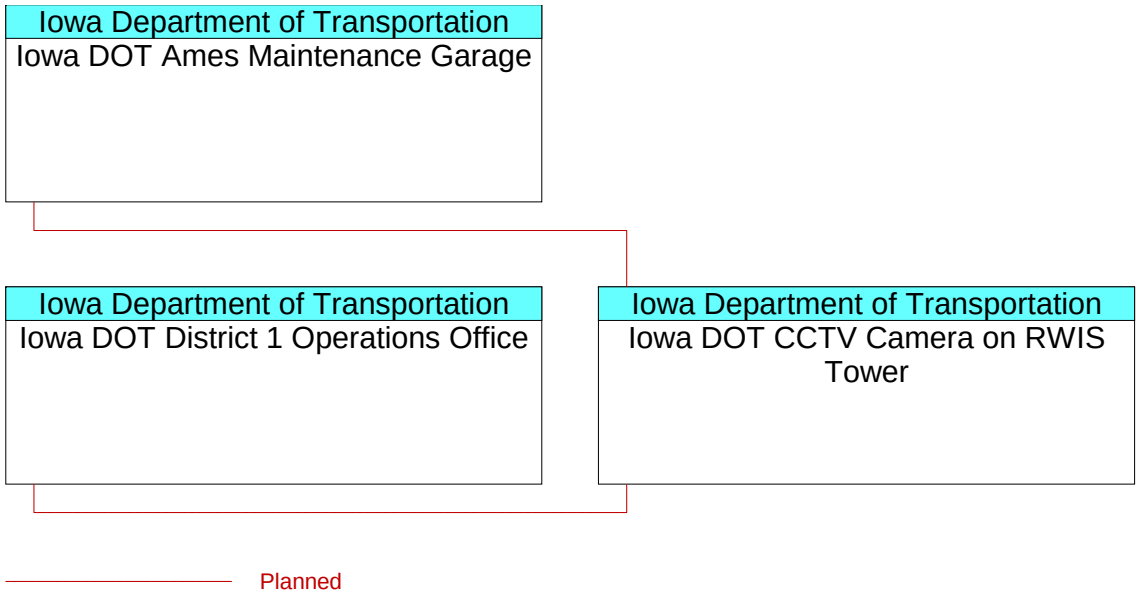
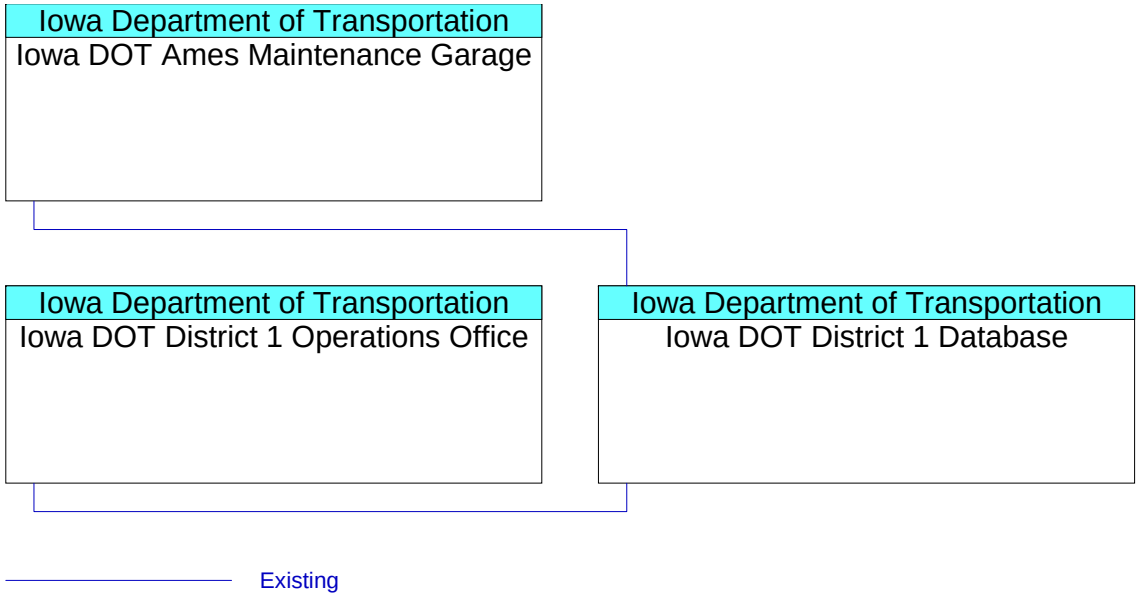
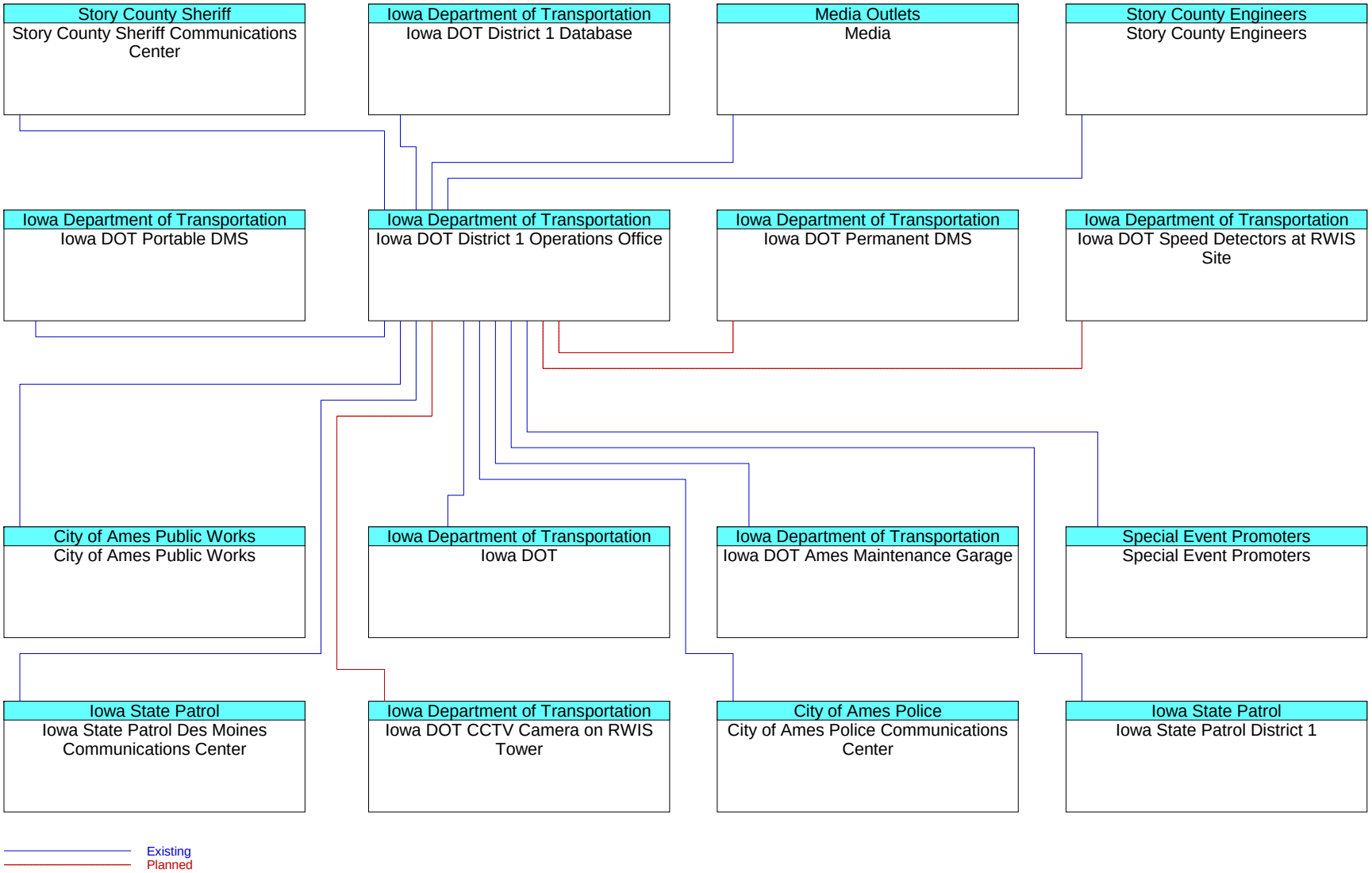
National Weather Service
National Weather Services
Iowa Department of Transportation
Iowa DOT 511 Traveler Information System
Existing

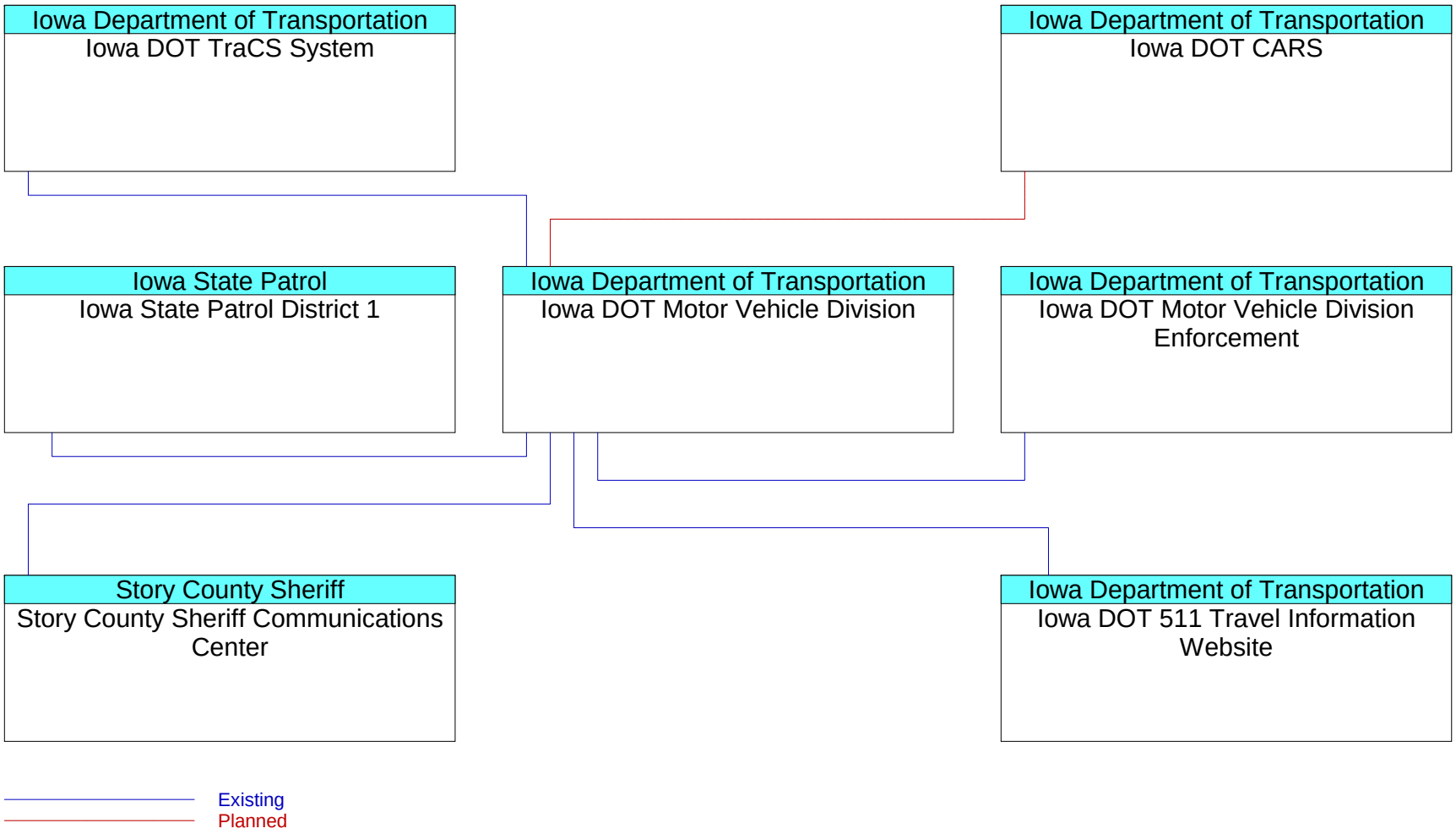

National Weather Service
National Weather Services
Iowa State Patrol
Iowa State Patrol Des Moines Communications Center
Iowa Department of Transportation
Iowa DOT Speed Detectors near or on RWIS Sites
Story County Engineers
Story County Engineers
Iowa Department of Transportation
Iowa DOT WeatherView Website
Private Weather Service Providers
Private Information Service Providers
Media
Iowa Department of Transportation
Iowa DOT Ames Maintenance Garage Maintenance and Construction Vehicle/Equipment
Iowa Department of Transportation
Iowa DOT 511 Travel Information Website
Iowa Department of Transportation
Iowa DOT Portable DMS
Iowa Department of Transportation
Iowa DOT Permanent DMS
Iowa Department of Transportation
Iowa DOT RWIS Stations
Iowa Department of Transportation
Iowa DOT Ames Maintenance Garage
City of Ames Public Works
City of Ames Public Works
Iowa Department of Transportation
Iowa DOT CCTV Camera on RWIS Tower
Maintenance and Construction Center Personnel
Iowa State Patrol
Iowa State Patrol District 1
Iowa Department of Transportation
Iowa DOT District 1 Database
City of Ames Police
City of Ames Police Communications Center
Story County Sheriff
Story County Sheriff Communications Center
Iowa Department of Transportation
Iowa DOT District 1 Operations Office
Iowa Department of Transportation
Iowa DOT
Iowa Department of Transportation
Iowa DOT CARS
Existing
Planned

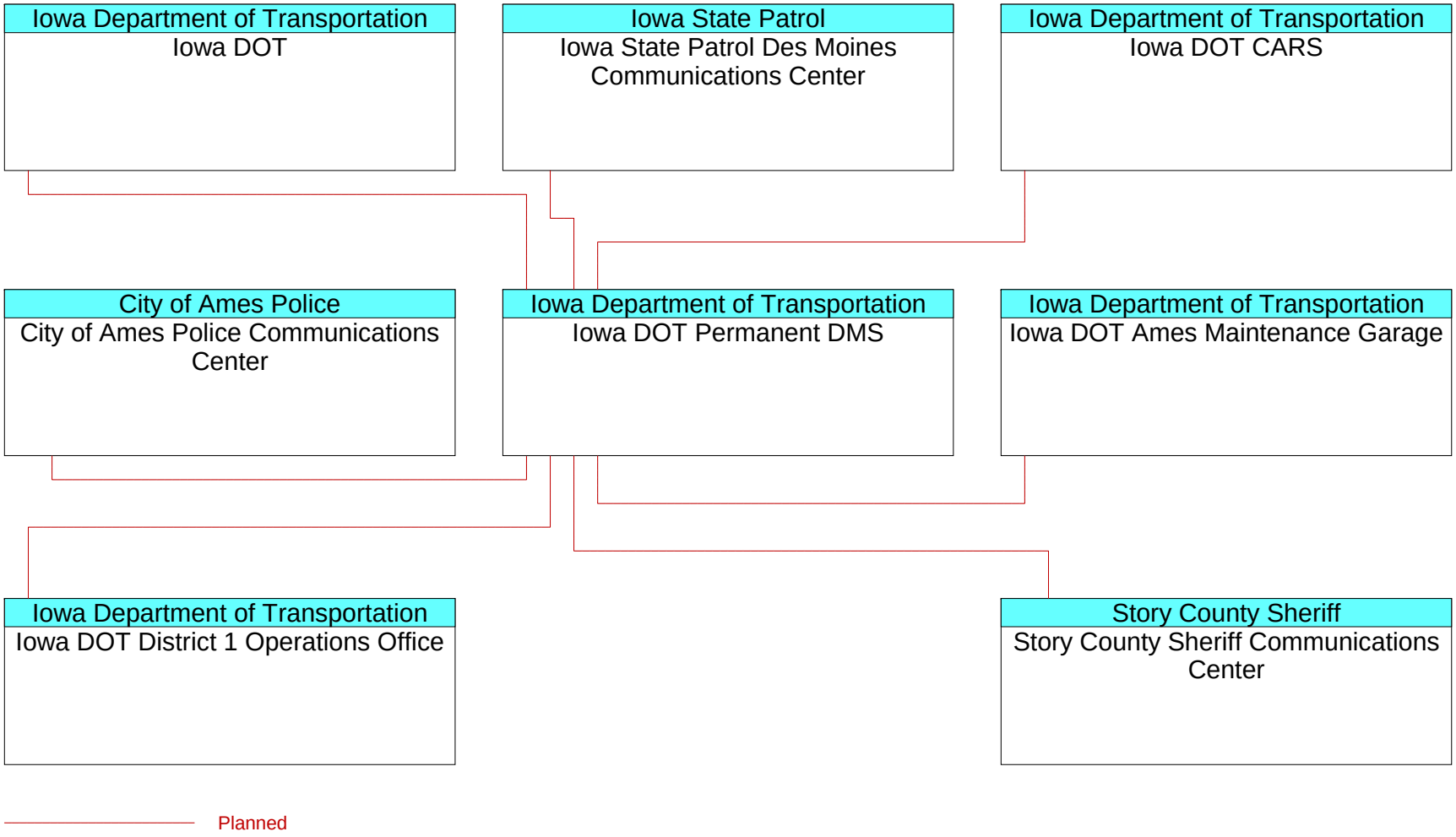

Iowa State Patrol
Iowa State Patrol
Iowa Department of Transportation
Iowa DOT Ames Maintenance Garage
Iowa State Patrol
Iowa State Patrol Des Moines Communications Center
Iowa Department of Transportation
Iowa DOT Permanent DMS
Iowa Department of Transportation
Iowa DOT CARS
Iowa Department of Transportation
Iowa DOT Motor Vehicle Division
Iowa Department of Transportation
Iowa DOT 511 Travel Information Website
Iowa Department of Transportation
Iowa DOT 511 Traveler Information System
National Weather Service
National Weather Services
Existing
Planned

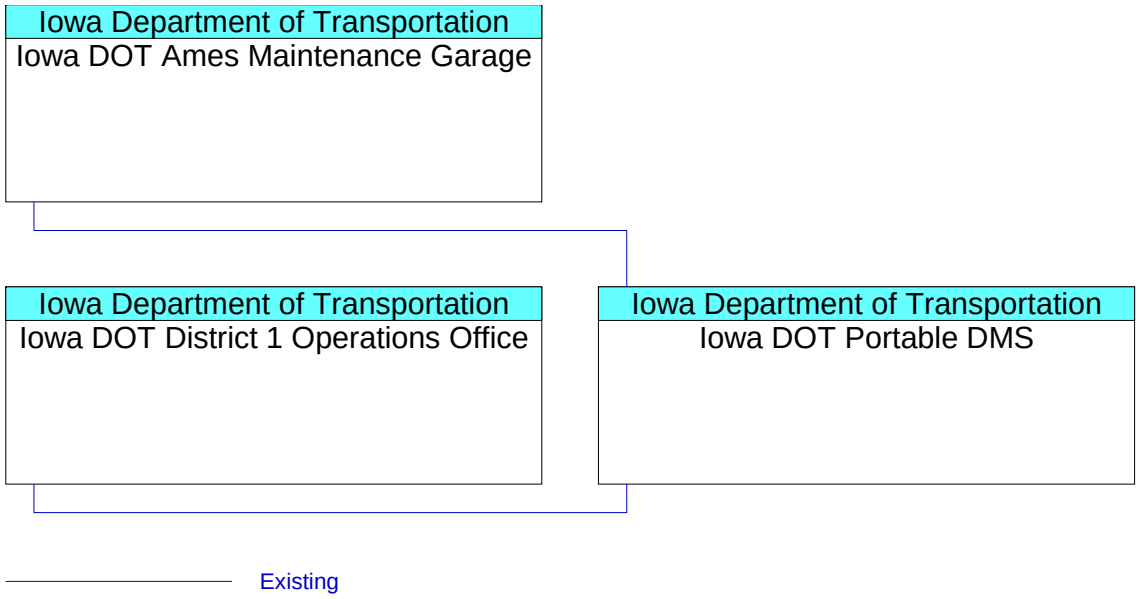

Iowa Department of Transportation
Iowa DOT Ames Maintenance Garage
Iowa Department of Transportation
Iowa DOT District 1 Operations Office
Iowa Department of Transportation
Iowa DOT CCTV Camera on RWIS Tower
Planned

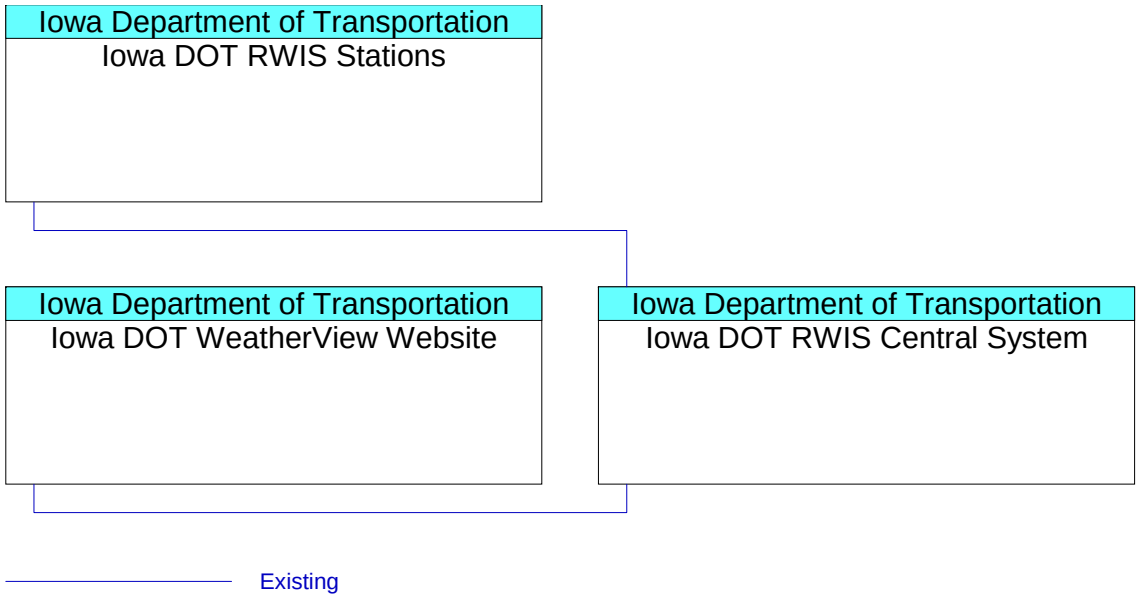

Iowa Department of Transportation
Iowa DOT Ames Maintenance Garage
Iowa Department of Transportation
Iowa DOT District 1 Operations Office
Iowa Department of Transportation
Iowa DOT District 1 Database
Existing

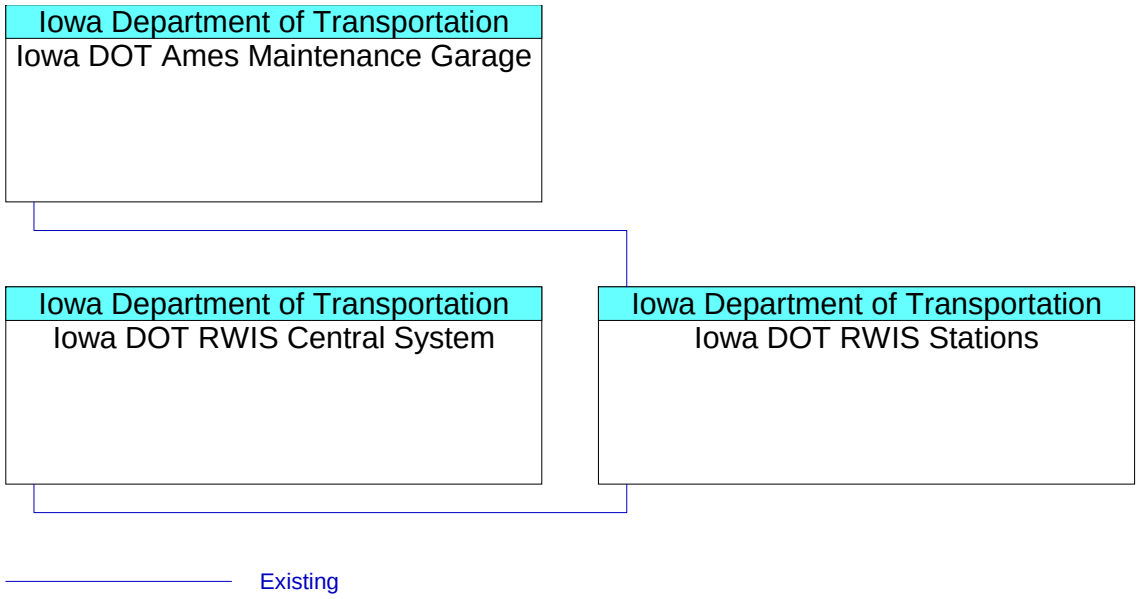

Story County Sheriff
Story County Sheriff Communications Center
Iowa Department of Transportation
Iowa DOT District 1 Database
Media Outlets
Media
Story County Engineers
Story County Engineers
Iowa Department of Transportation
Iowa DOT Portable DMS
Iowa Department of Transportation
Iowa DOT District 1 Operations Office
Iowa Department of Transportation
Iowa DOT Permanent DMS
Iowa Department of Transportation
Iowa DOT Speed Detectors at RWIS Site
City of Ames Public Works
City of Ames Public Works
Iowa Department of Transportation
Iowa DOT
Iowa Department of Transportation
Iowa DOT Ames Maintenance Garage
Special Event Promoters
Special Event Promoters
Iowa State Patrol
Iowa State Patrol Des Moines Communications Center
Iowa Department of Transportation
Iowa DOT CCTV Camera on RWIS Tower
City of Ames Police
City of Ames Police Communications Center
Iowa State Patrol
Iowa State Patrol District 1
Existing
Planned


Iowa Department of Transportation
Iowa DOT TraCS System
Iowa Department of Transportation
Iowa DOT CARS
Iowa State Patrol
Iowa State Patrol District 1
Iowa Department of Transportation
Iowa DOT Motor Vehicle Division
Iowa Department of Transportation
Iowa DOT Motor Vehicle Division Enforcement
Story County Sheriff
Story County Sheriff Communications Center
Iowa Department of Transportation
Iowa DOT 511 Travel Information Website
Existing
Planned


Iowa Department of Transportation
Iowa DOT
Iowa State Patrol
Iowa State Patrol Des Moines Communications Center
Iowa Department of Transportation
Iowa DOT CARS
City of Ames Police
City of Ames Police Communications Center
Iowa Department of Transportation
Iowa DOT Permanent DMS
Iowa Department of Transportation
Iowa DOT Ames Maintenance Garage
Iowa Department of Transportation
Iowa DOT District 1 Operations Office
Story County Sheriff
Story County Sheriff Communications Center
Planned


Iowa Department of Transportation
Iowa DOT Ames Maintenance Garage
Iowa Department of Transportation
Iowa DOT District 1 Operations Office
Iowa Department of Transportation
Iowa DOT Portable DMS
Existing


Iowa Department of Transportation
Iowa DOT RWIS Stations
Iowa Department of Transportation
Iowa DOT WeatherView Website
Iowa Department of Transportation
Iowa DOT RWIS Central System
Existing


Iowa Department of Transportation
Iowa DOT Ames Maintenance Garage
Iowa Department of Transportation
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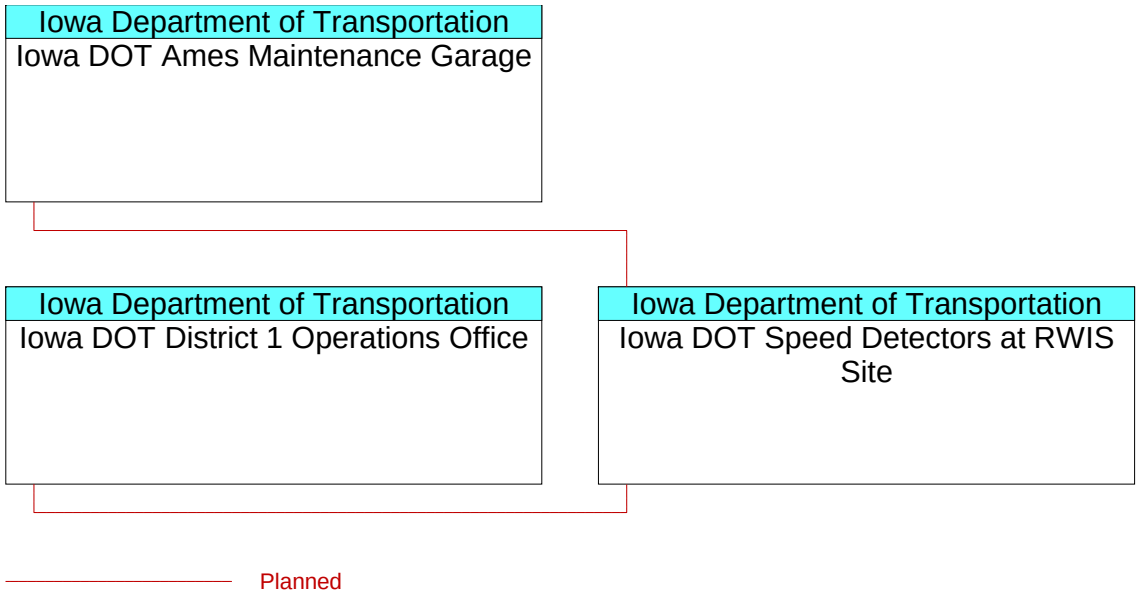
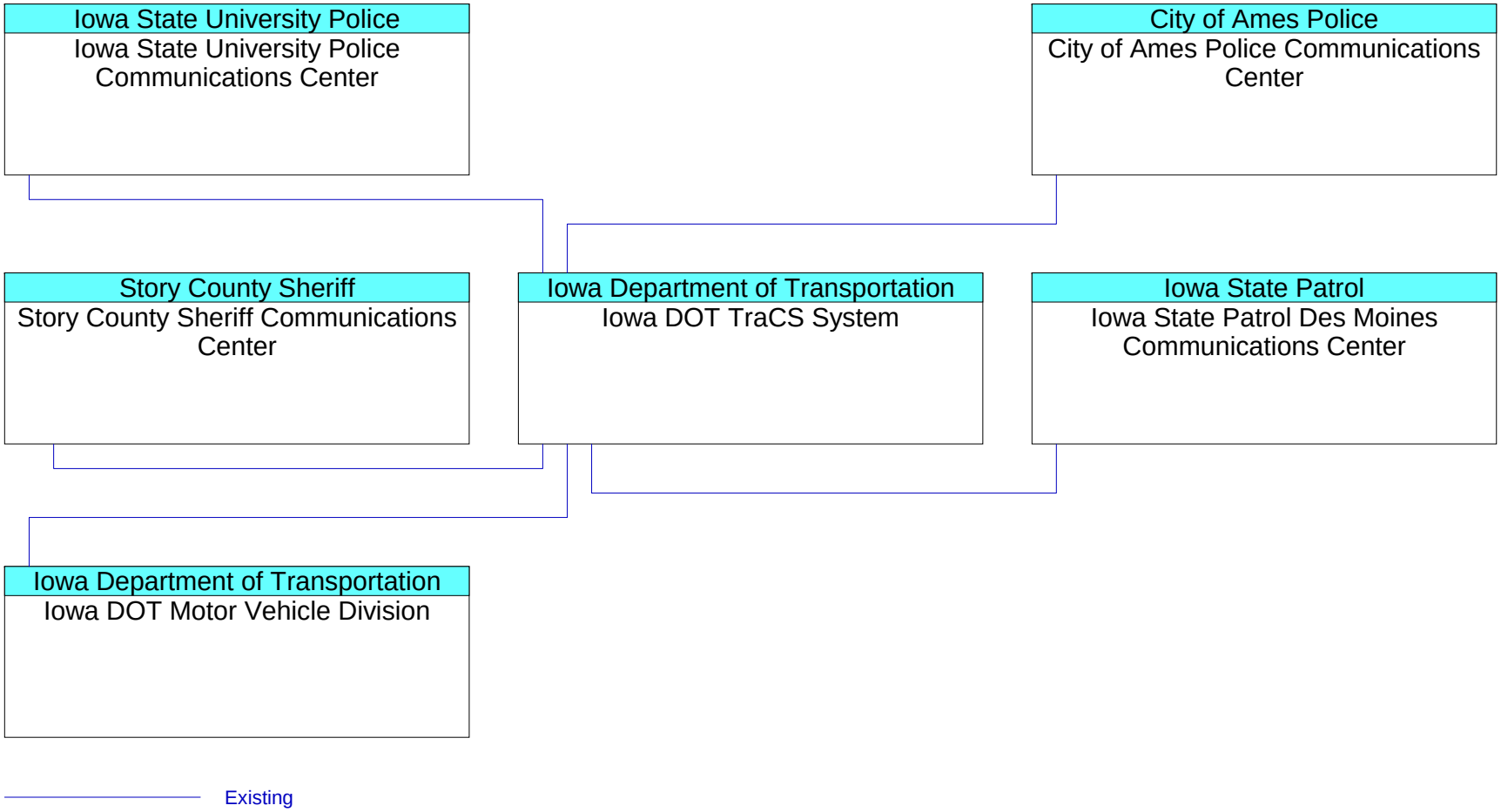
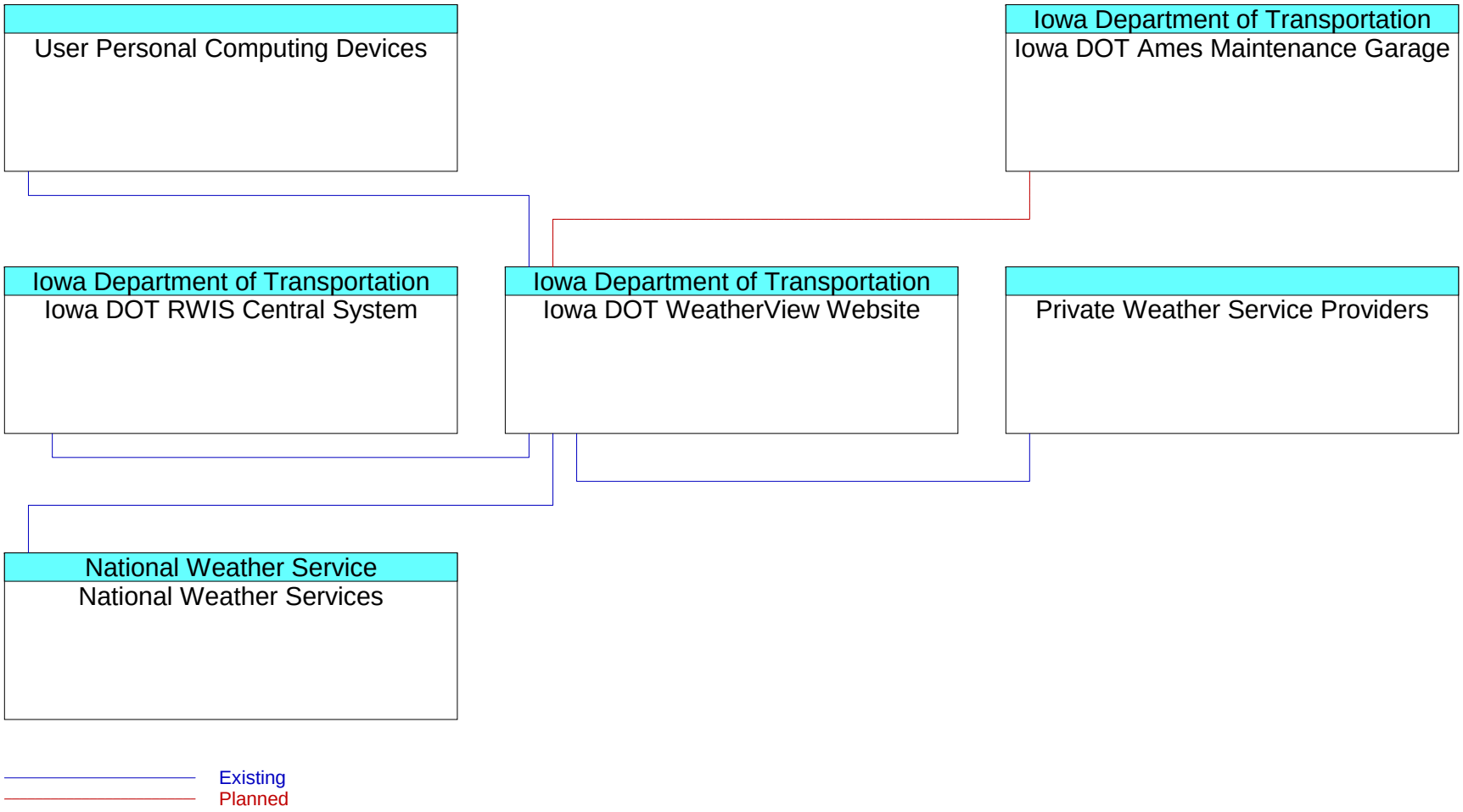
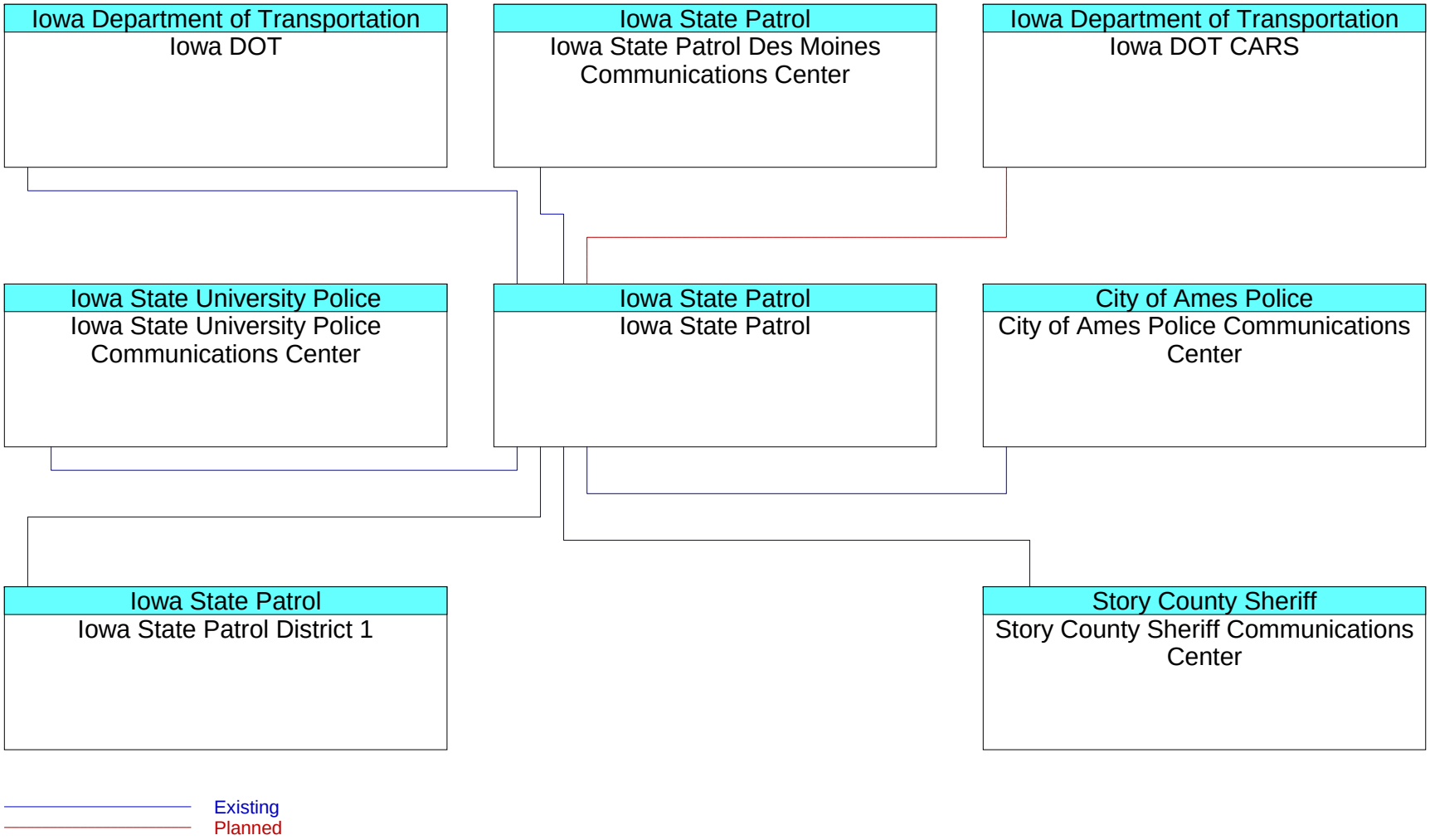
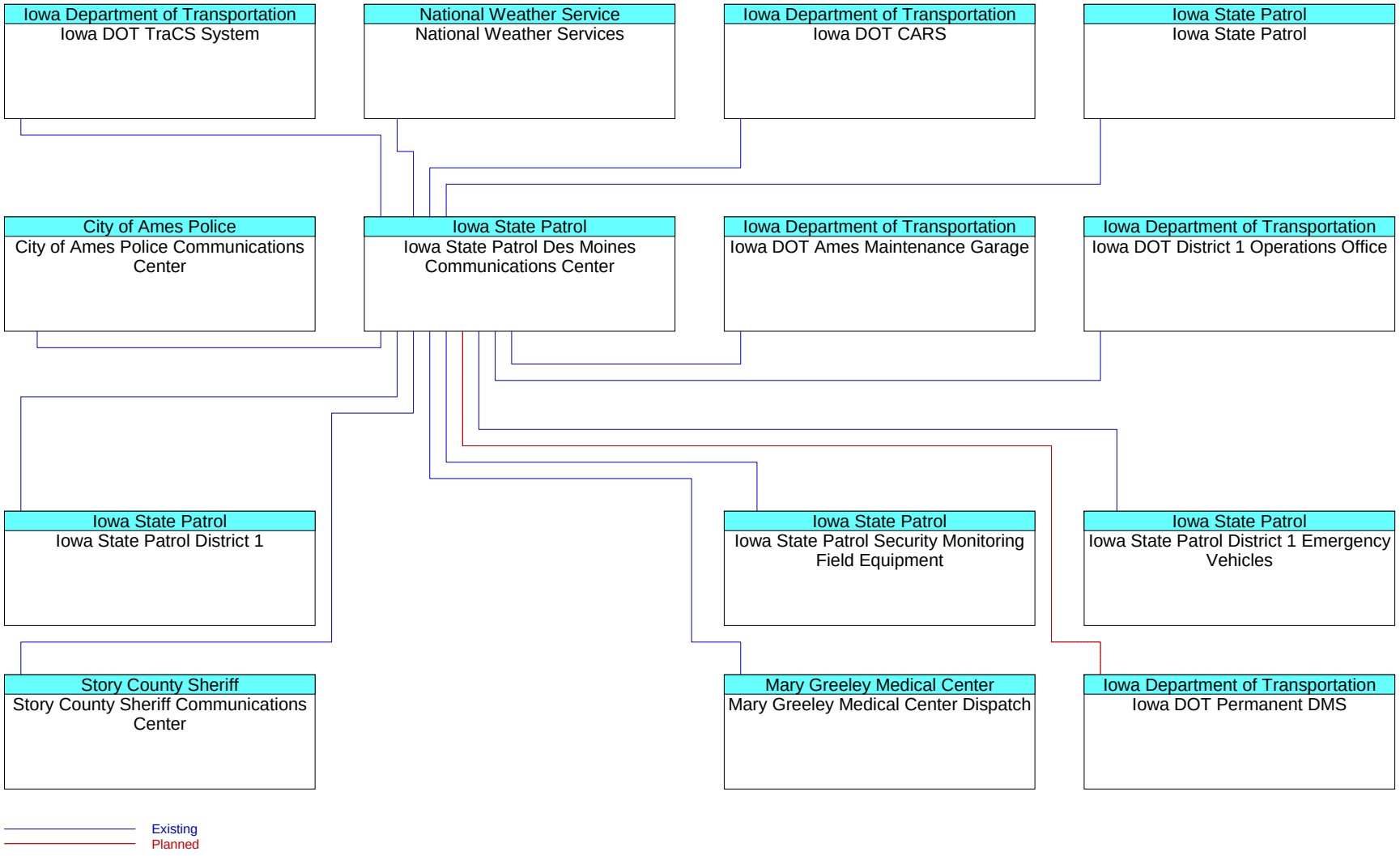
Iowa DOT RWIS Stations
Existing

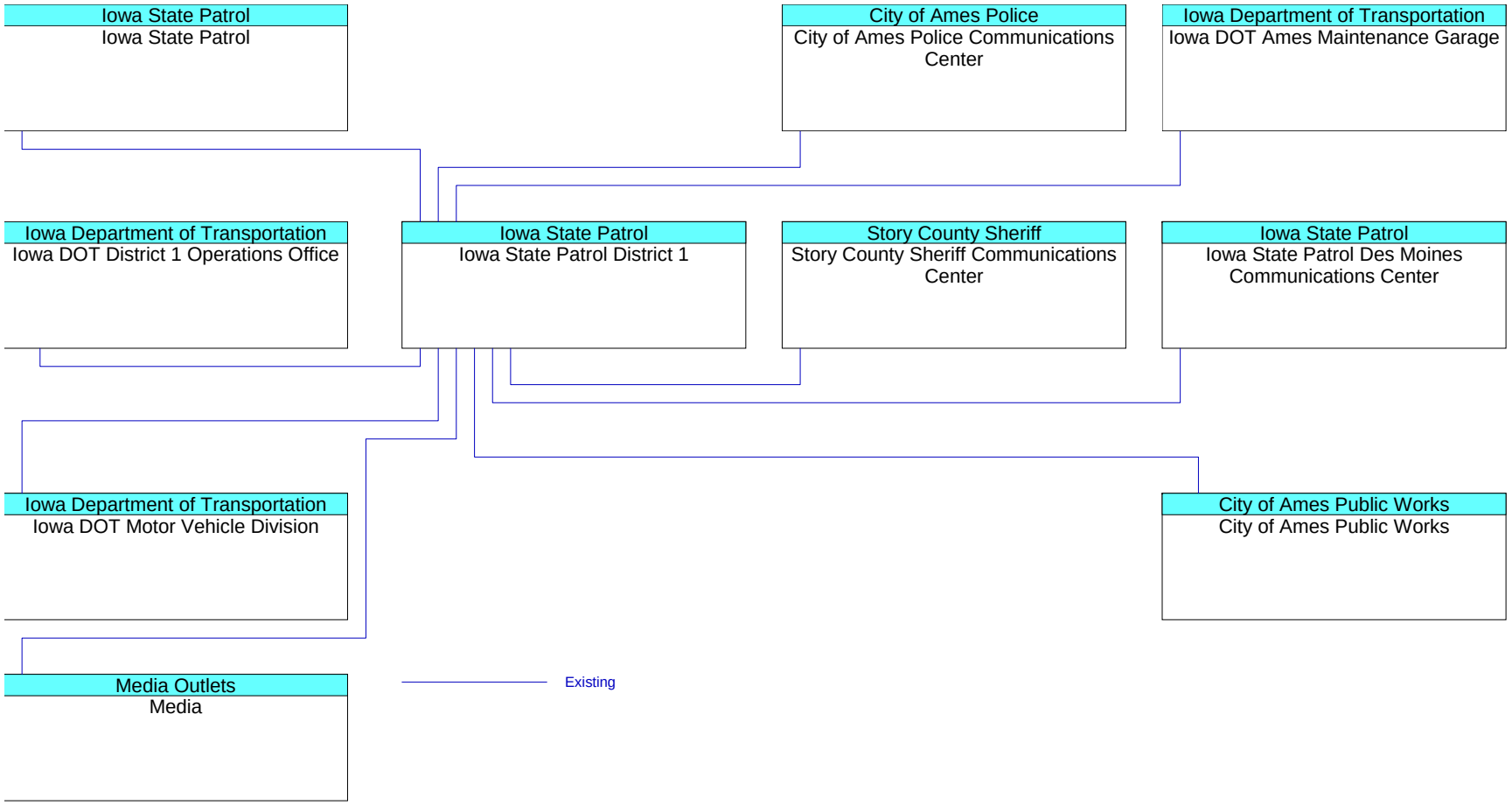

Iowa Department of Transportation
Iowa DOT Ames Maintenance Garage
Iowa Department of Transportation
Iowa DOT District 1 Operations Office
Iowa Department of Transportation
Iowa DOT Speed Detectors at RWIS Site
Planned


Iowa State University Police
Iowa State University Police Communications Center
City of Ames Police
City of Ames Police Communications Center
Story County Sheriff
Story County Sheriff Communications Center
Iowa Department of Transportation
Iowa DOT TraCS System
Iowa State Patrol
Iowa State Patrol Des Moines Communications Center
Iowa Department of Transportation
Iowa DOT Motor Vehicle Division
Existing


User Personal Computing Devices
Iowa Department of Transportation
Iowa DOT Ames Maintenance Garage
Iowa Department of Transportation
Iowa DOT RWIS Central System
Iowa Department of Transportation
Iowa DOT WeatherView Website
Private Weather Service Providers
National Weather Service
National Weather Services
Existing
Planned


Iowa Department of Transportation
Iowa DOT
Iowa State Patrol
Iowa State Patrol Des Moines Communications Center
Iowa Department of Transportation
Iowa DOT CARS
Iowa State University Police
Iowa State University Police Communications Center
Iowa State Patrol
Iowa State Patrol
City of Ames Police
City of Ames Police Communications Center
Iowa State Patrol
Iowa State Patrol District 1
Story County Sheriff
Story County Sheriff Communications Center
Existing
Planned


Iowa Department of Transportation
Iowa DOT TraCS System
National Weather Service
National Weather Services
Iowa Department of Transportation
Iowa DOT CARS
Iowa State Patrol
Iowa State Patrol
City of Ames Police
City of Ames Police Communications Center
Iowa State Patrol
Iowa State Patrol Des Moines Communications Center
Iowa Department of Transportation
Iowa DOT Ames Maintenance Garage
Iowa Department of Transportation
Iowa DOT District 1 Operations Office
Iowa State Patrol
Iowa State Patrol District 1
Iowa State Patrol
Iowa State Patrol Security Monitoring Field Equipment
Iowa State Patrol
Iowa State Patrol District 1 Emergency Vehicles
Story County Sheriff
Story County Sheriff Communications Center
Mary Greeley Medical Center
Mary Greeley Medical Center Dispatch
Iowa Department of Transportation
Iowa DOT Permanent DMS
Existing
Planned


Iowa State Patrol
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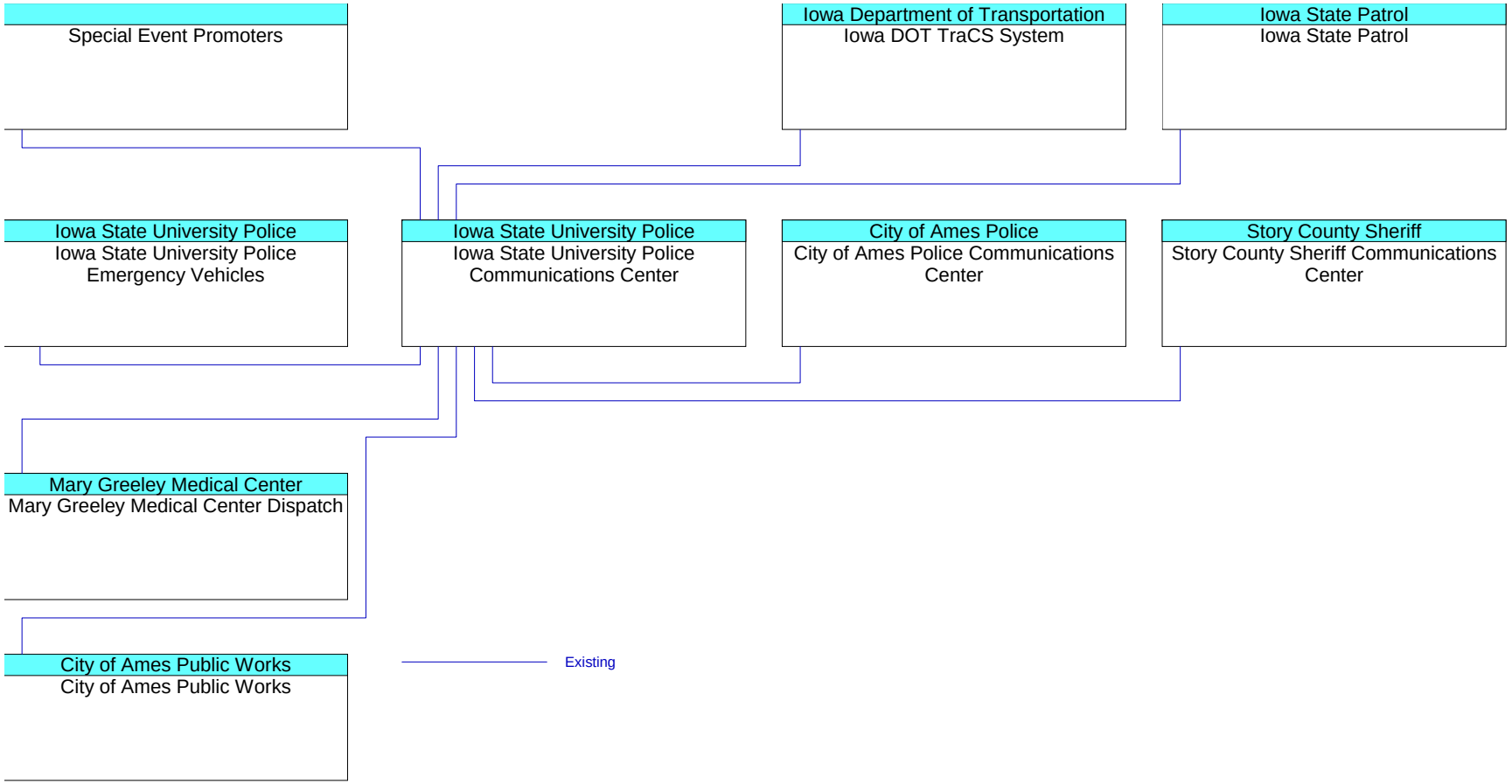
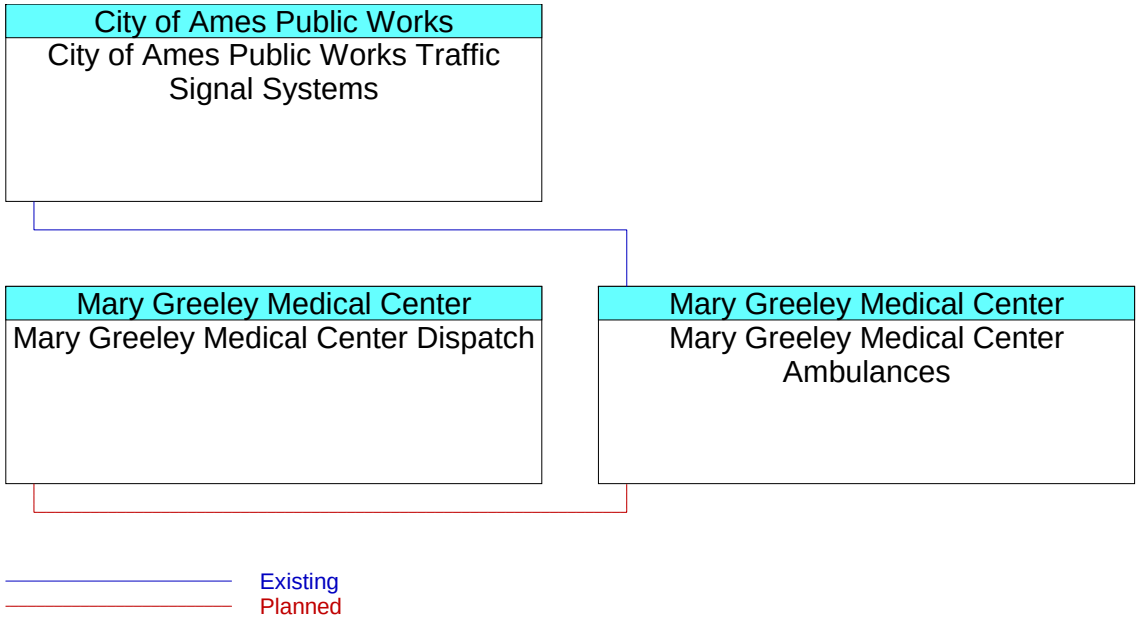
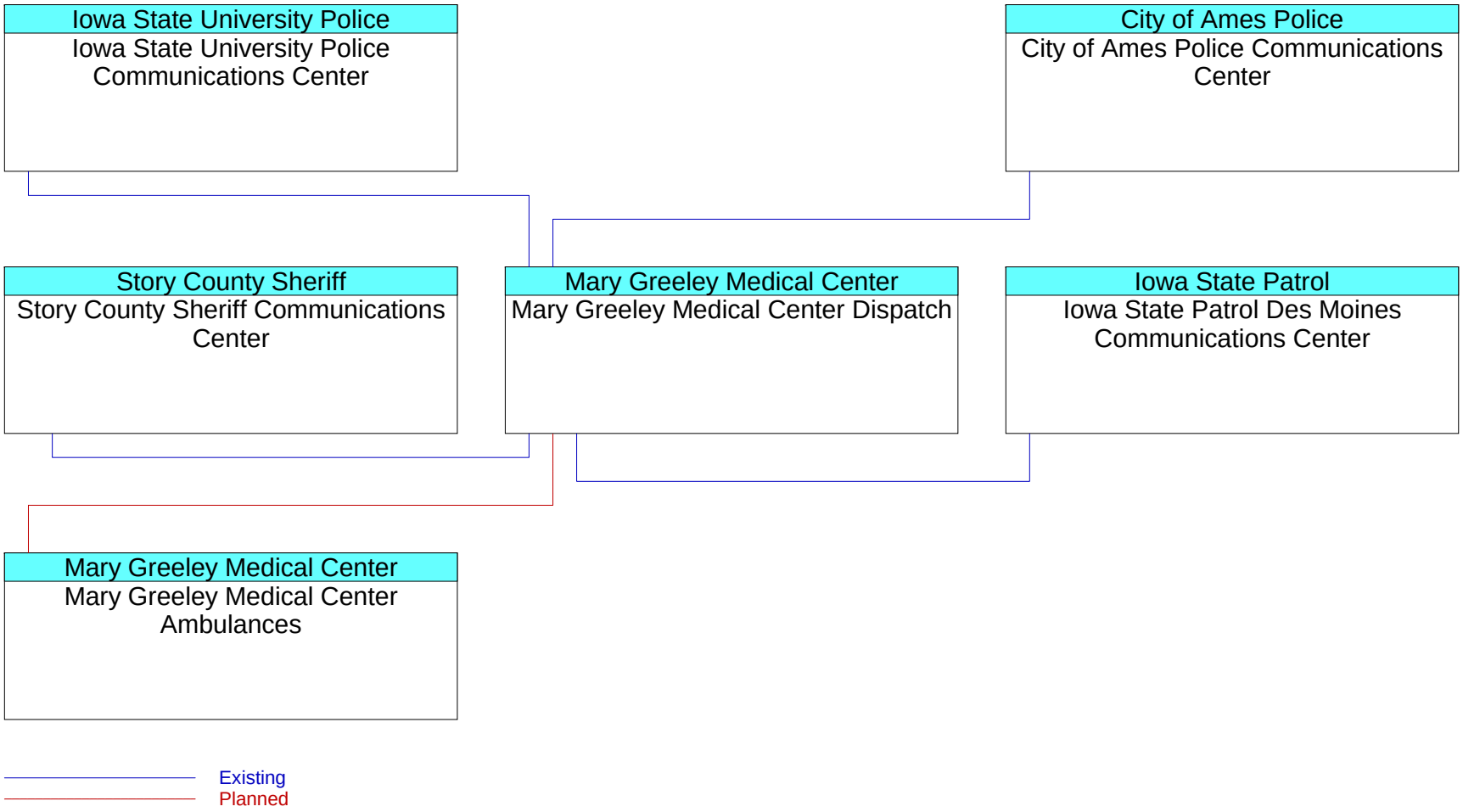
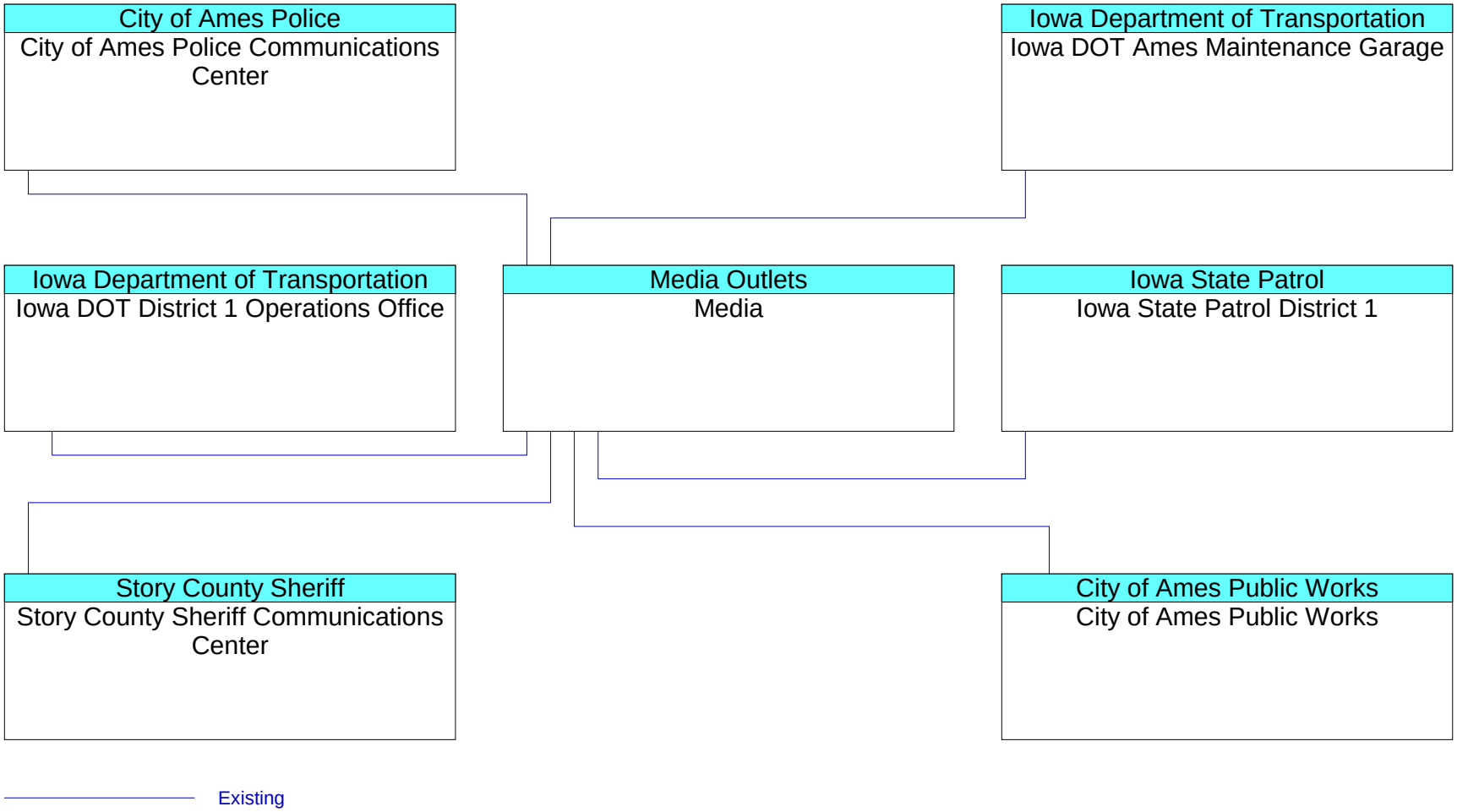
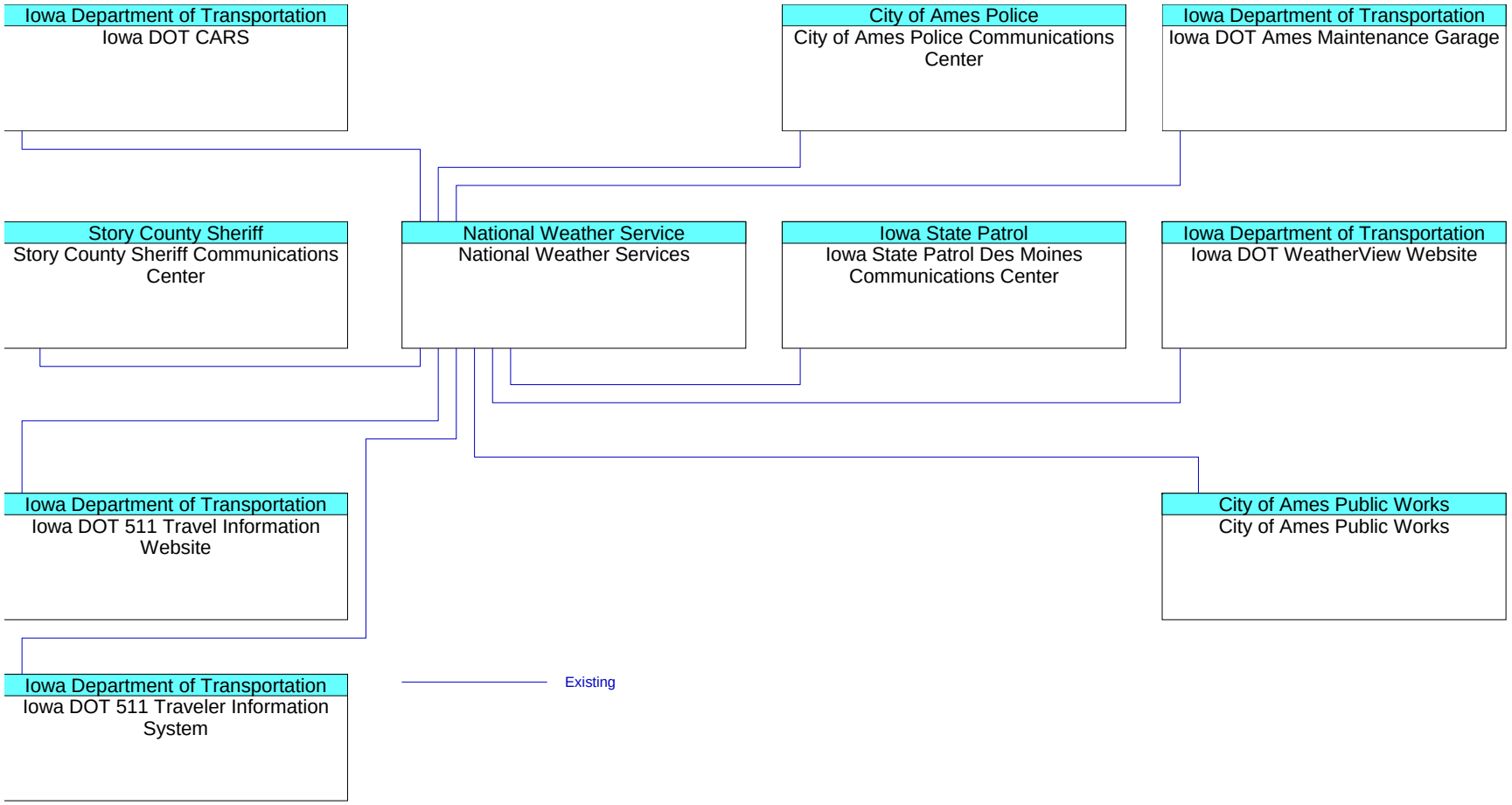
City of Ames Police Communications Center
Iowa Department of Transportation
Iowa DOT Ames Maintenance Garage
Iowa Department of Transportation
Iowa DOT District 1 Operations Office
Iowa State Patrol
Iowa State Patrol District 1
Story County Sheriff
Story County Sheriff Communications Center
Iowa State Patrol
Iowa State Patrol Des Moines Communications Center
Iowa Department of Transportation
Iowa DOT Motor Vehicle Division
City of Ames Public Works
City of Ames Public Works
Media Outlets
Media
Existing

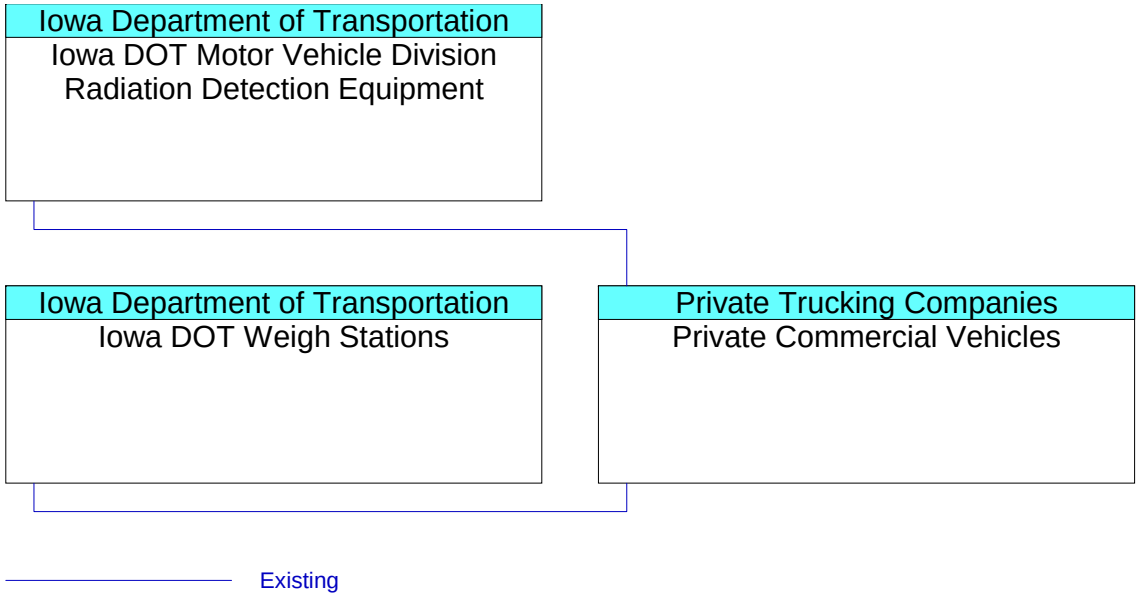

Special Event Promoters
Iowa Department of Transportation
Iowa DOT TraCS System
Iowa State Patrol
Iowa State Patrol
Iowa State University Police
Iowa State University Police Emergency Vehicles
Iowa State University Police
Iowa State University Police Communications Center
City of Ames Police
City of Ames Police Communications Center
Story County Sheriff
Story County Sheriff Communications Center
Mary Greeley Medical Center
Mary Greeley Medical Center Dispatch
City of Ames Public Works
City of Ames Public Works
Existing

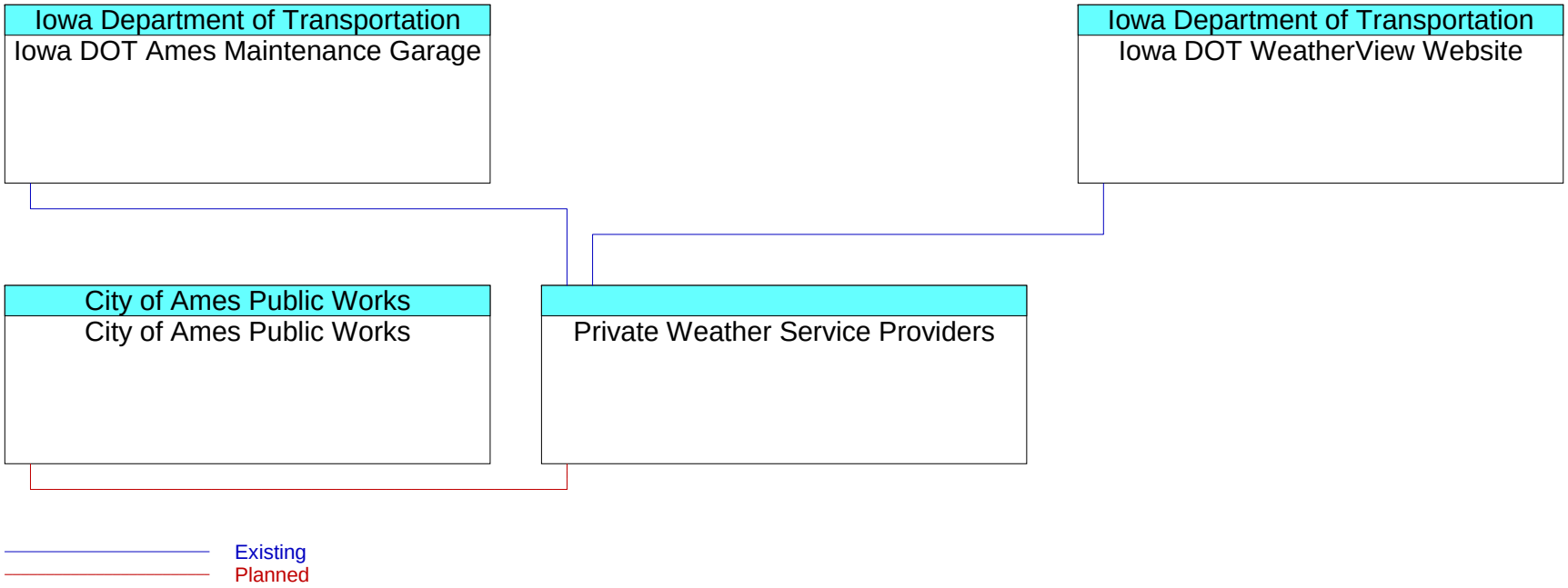

City of Ames Public Works
City of Ames Public Works Traffic Signal Systems
Mary Greeley Medical Center
Mary Greeley Medical Center Dispatch
Mary Greeley Medical Center
Mary Greeley Medical Center Ambulances
Existing
Planned

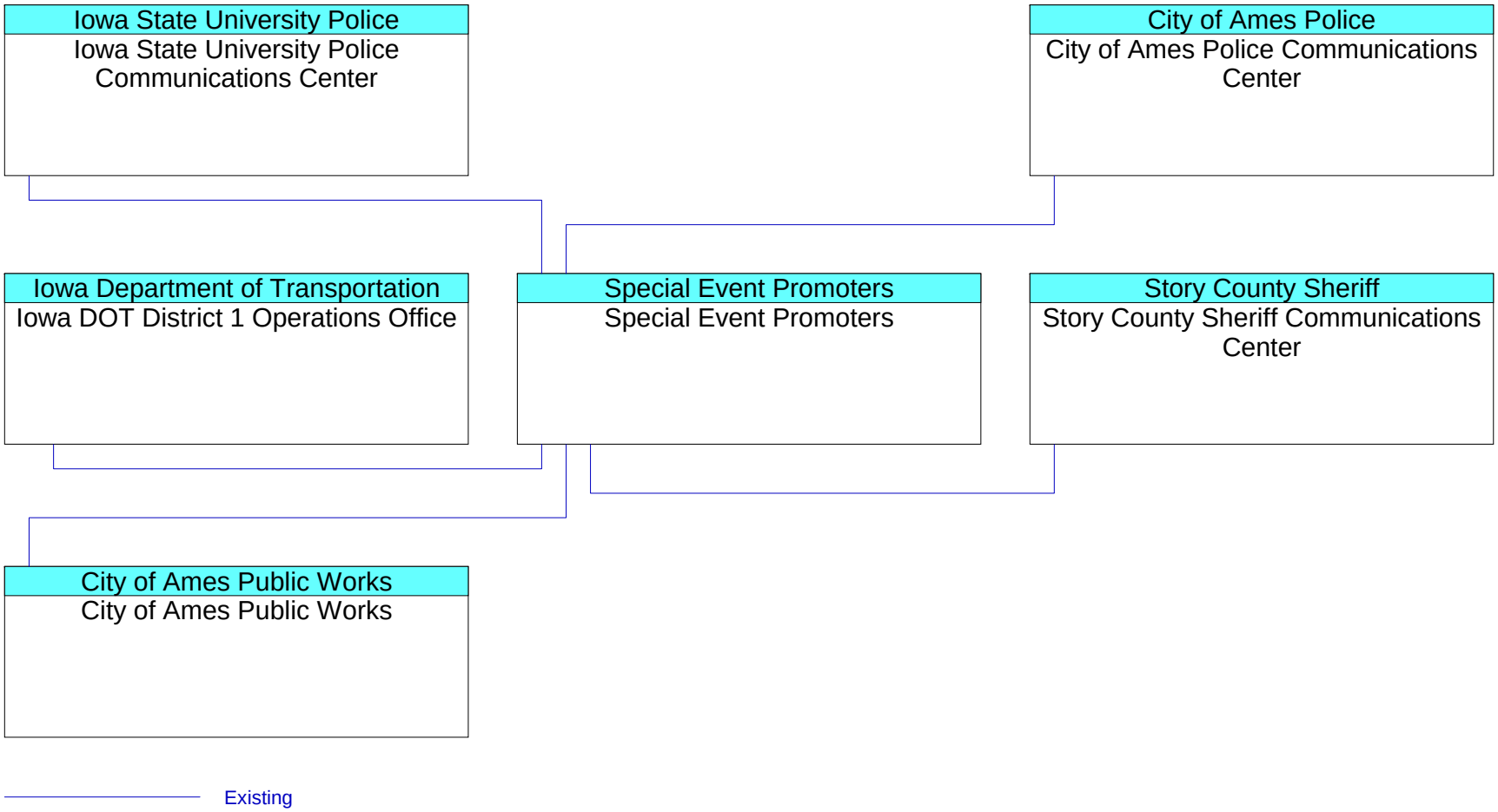

Iowa State University Police
Iowa State University Police Communications Center
City of Ames Police
City of Ames Police Communications Center
Story County Sheriff
Story County Sheriff Communications Center
Mary Greeley Medical Center
Mary Greeley Medical Center Dispatch
Iowa State Patrol
Iowa State Patrol Des Moines Communications Center
Mary Greeley Medical Center
Mary Greeley Medical Center Ambulances
Existing
Planned

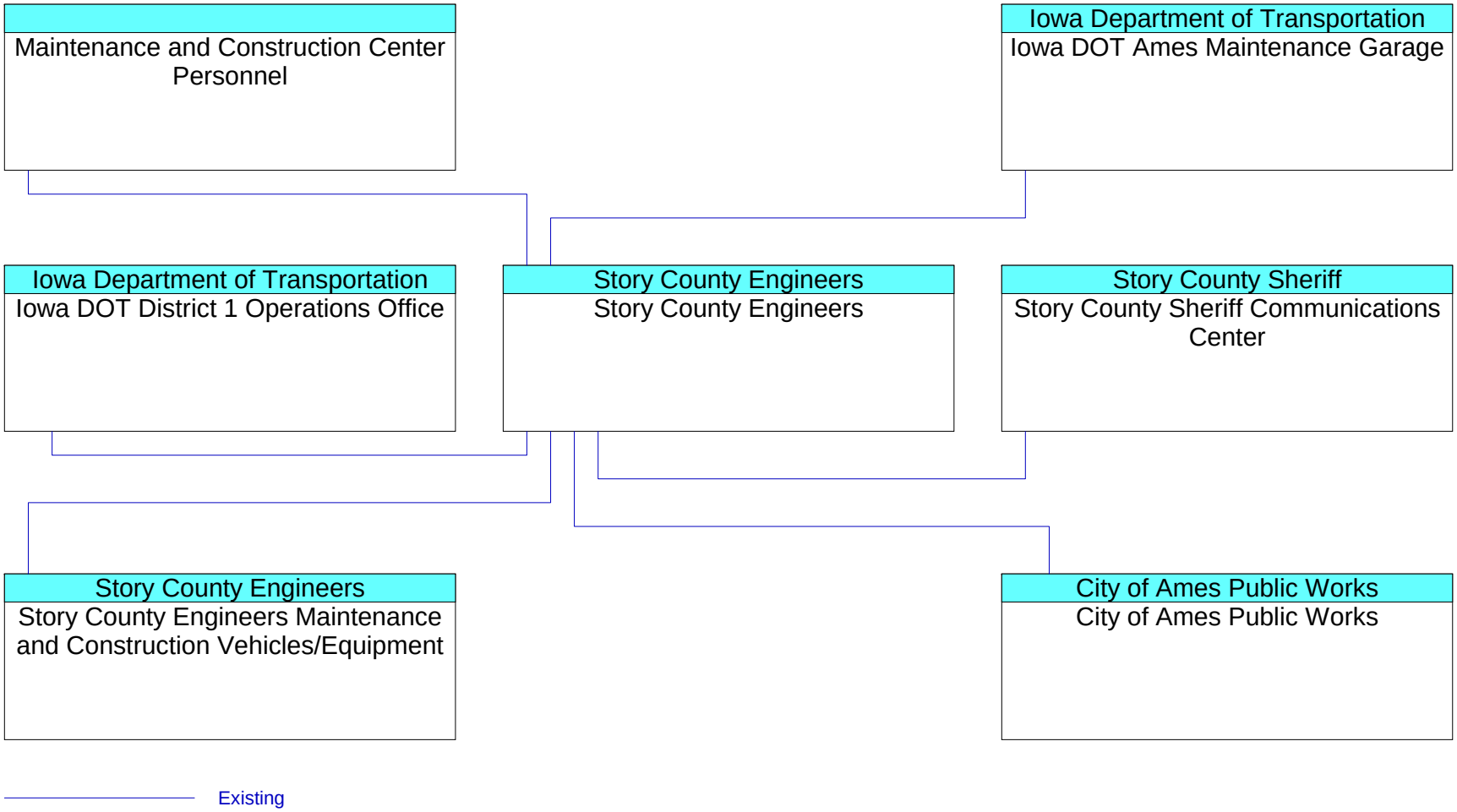

City of Ames Police
City of Ames Police Communications Center
Iowa Department of Transportation
Iowa DOT Ames Maintenance Garage
Iowa Department of Transportation
Iowa DOT District 1 Operations Office
Media Outlets
Media
Iowa State Patrol
Iowa State Patrol District 1
Story County Sheriff
Story County Sheriff Communications Center
City of Ames Public Works
City of Ames Public Works
Existing

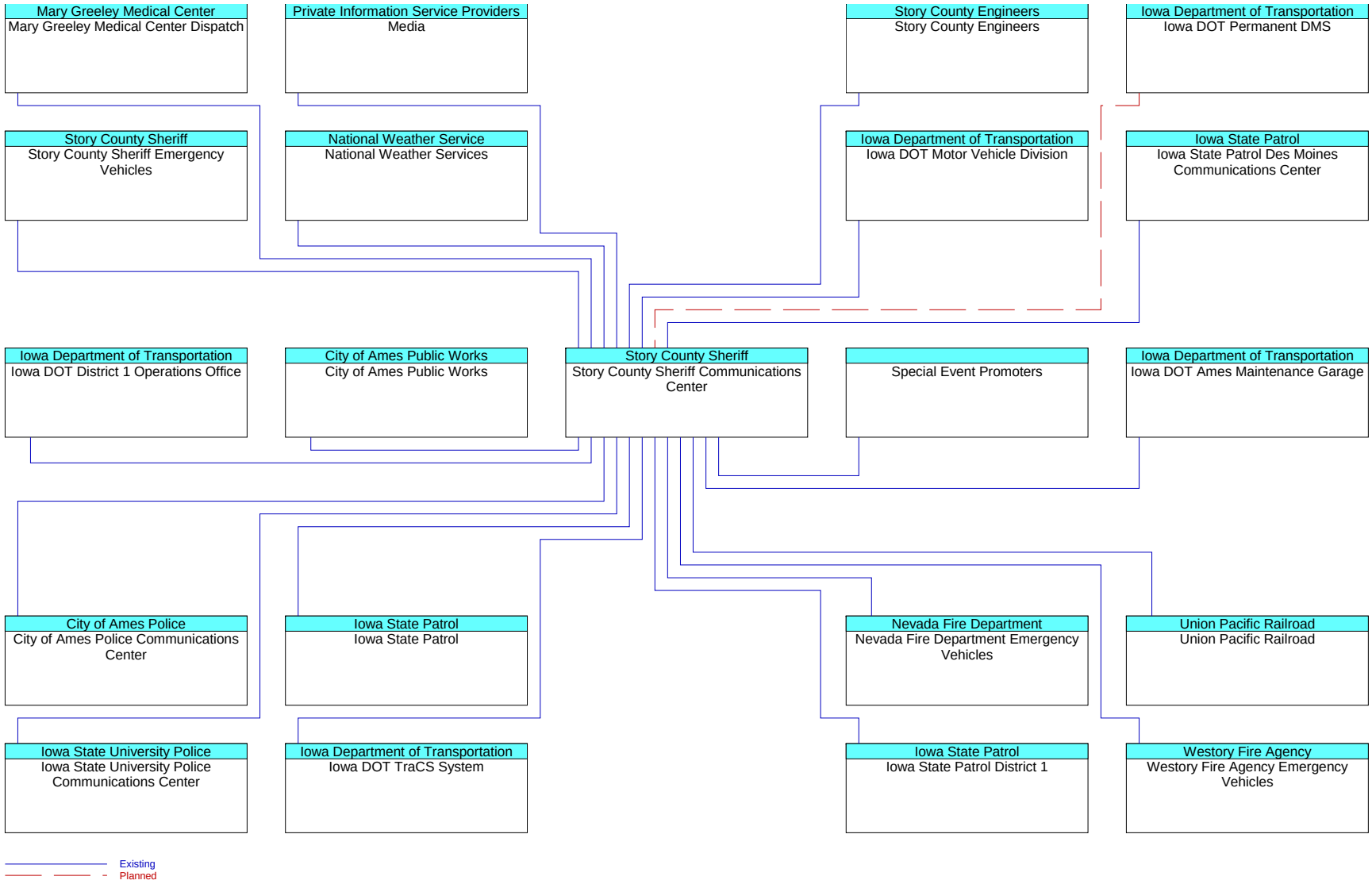

Iowa Department of Transportation
Iowa DOT CARS
City of Ames Police
City of Ames Police Communications Center
Iowa Department of Transportation
Iowa DOT Ames Maintenance Garage
Story County Sheriff
Story County Sheriff Communications Center
National Weather Service
National Weather Services
Iowa State Patrol
Iowa State Patrol Des Moines Communications Center
Iowa Department of Transportation
Iowa DOT WeatherView Website
Iowa Department of Transportation
Iowa DOT 511 Travel Information Website
City of Ames Public Works
City of Ames Public Works
Iowa Department of Transportation
Iowa DOT 511 Traveler Information System
Existing

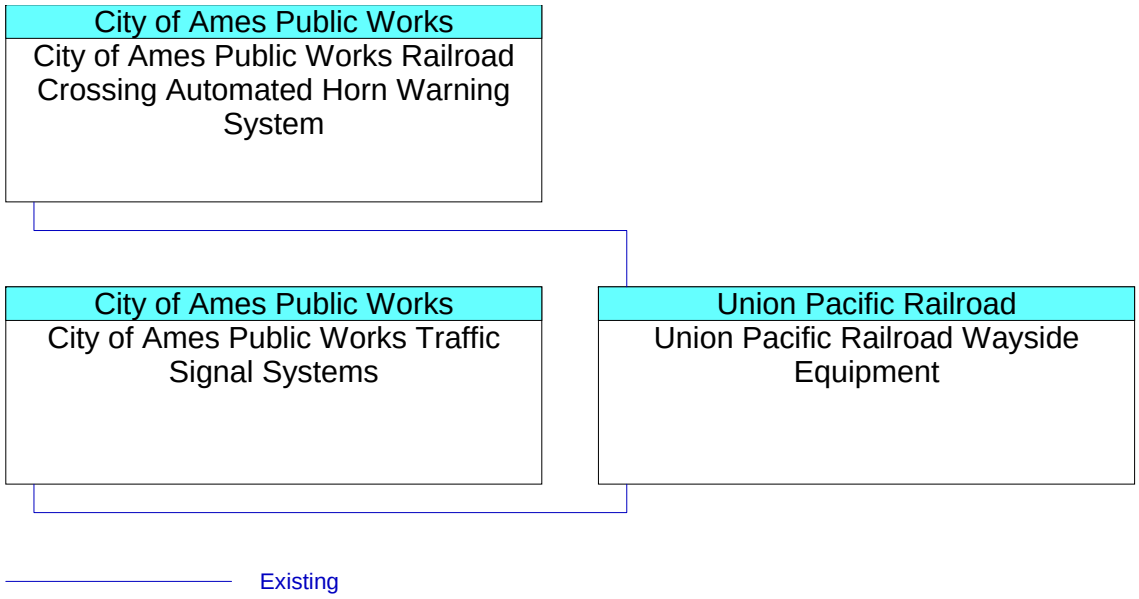

Iowa Department of Transportation
Iowa DOT Motor Vehicle Division
Radiation Detection Equipment
Iowa Department of Transportation
Iowa DOT Weigh Stations
Private Trucking Companies
Private Commercial Vehicles
Existing

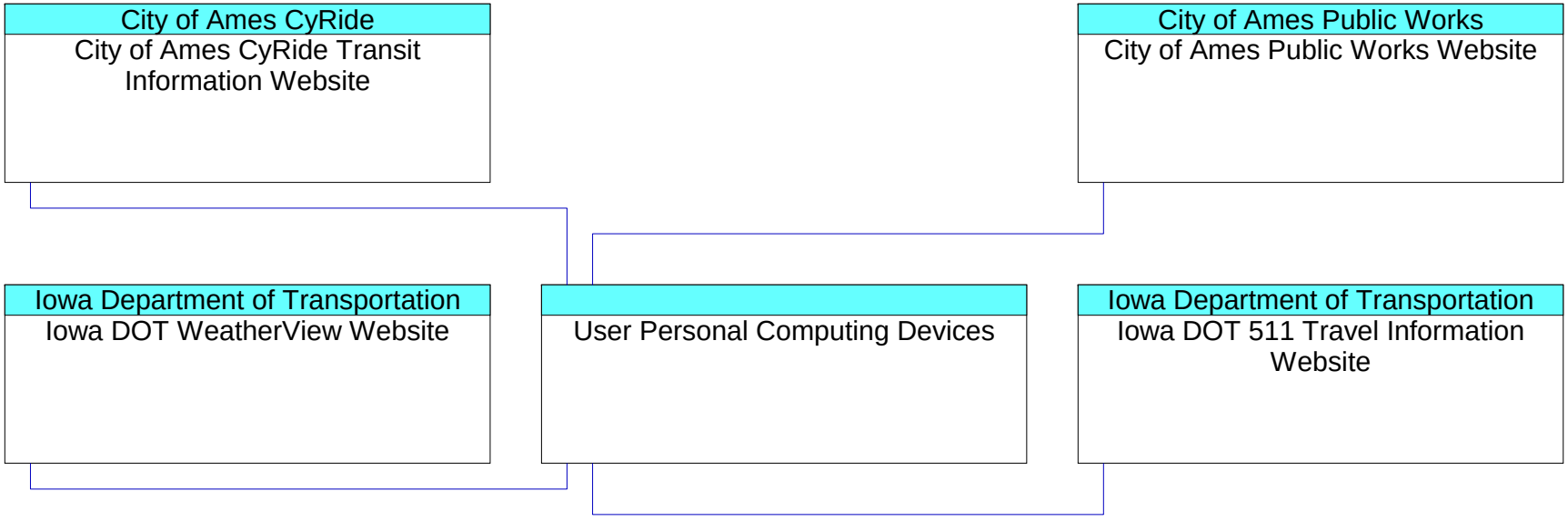

Iowa Department of Transportation
Iowa DOT Ames Maintenance Garage
Iowa Department of Transportation
Iowa DOT WeatherView Website
City of Ames Public Works
City of Ames Public Works
Private Weather Service Providers
Existing
Planned


Iowa State University Police
Iowa State University Police Communications Center
City of Ames Police
City of Ames Police Communications Center
Iowa Department of Transportation
Iowa DOT District 1 Operations Office
Special Event Promoters
Special Event Promoters
Story County Sheriff
Story County Sheriff Communications Center
City of Ames Public Works
City of Ames Public Works
Existing


Maintenance and Construction Center Personnel
Iowa Department of Transportation
Iowa DOT Ames Maintenance Garage
Iowa Department of Transportation
Iowa DOT District 1 Operations Office
Story County Engineers
Story County Engineers
Story County Sheriff
Story County Sheriff Communications Center
Story County Engineers
Story County Engineers Maintenance and Construction Vehicles/Equipment
City of Ames Public Works
City of Ames Public Works
Existing


Mary Greeley Medical Center
Mary Greeley Medical Center Dispatch
Private Information Service Providers
Media
Story County Engineers
Story County Engineers
Iowa Department of Transportation
Iowa DOT Permanent DMS
Story County Sheriff
Story County Sheriff Emergency Vehicles
National Weather Service
National Weather Services
Iowa Department of Transportation
Iowa DOT Motor Vehicle Division
Iowa State Patrol
Iowa State Patrol Des Moines Communications Center
Iowa Department of Transportation
Iowa DOT District 1 Operations Office
City of Ames Public Works
City of Ames Public Works
Story County Sheriff
Story County Sheriff Communications Center
Special Event Promoters
Iowa Department of Transportation
Iowa DOT Ames Maintenance Garage
City of Ames Police
City of Ames Police Communications Center
Iowa State Patrol
Iowa State Patrol
Nevada Fire Department
Nevada Fire Department Emergency Vehicles
Union Pacific Railroad
Union Pacific Railroad
Iowa State University Police
Iowa State University Police Communications Center
Iowa Department of Transportation
Iowa DOT TraCS System
Iowa State Patrol
Iowa State Patrol District 1
Westory Fire Agency
Westory Fire Agency Emergency Vehicles
Existing
Planned


City of Ames Public Works
City of Ames Public Works Railroad Crossing Automated Horn Warning System
City of Ames Public Works
City of Ames Public Works Traffic Signal Systems
Union Pacific Railroad
Union Pacific Railroad Wayside Equipment
Existing


City of Ames CyRide
City of Ames CyRide Transit Information Website
City of Ames Public Works
City of Ames Public Works Website
Iowa Department of Transportation
Iowa DOT WeatherView Website
User Personal Computing Devices
Iowa Department of Transportation
Iowa DOT 511 Travel Information Website
Existing

Appendix D: Architecture Flows

Architecture Flow Name	Source	Destination	Status
transit traveler information	City of Ames CyRide	City of Ames CyRide Bus Stop Electronic Displays/Audio Announcement	Planned
transit archive data	City of Ames CyRide	City of Ames CyRide Transit Database	Planned
transit and fare schedules	City of Ames CyRide	City of Ames CyRide Transit Information Website	Existing
transit incident information	City of Ames CyRide	City of Ames CyRide Transit Information Website	Existing
transit request confirmation	City of Ames CyRide	City of Ames CyRide Transit Information Website	Planned
alarm acknowledge	City of Ames CyRide	City of Ames CyRide Transit Vehicles	Existing
secure area surveillance control	City of Ames CyRide	City of Ames CyRide Transit Vehicles	Existing
transit vehicle operator authentication update	City of Ames CyRide	City of Ames CyRide Transit Vehicles	Existing
request for vehicle measures	City of Ames CyRide	City of Ames CyRide Transit Vehicles	Planned
transit traveler information	City of Ames CyRide	City of Ames CyRide Transit Vehicles	Planned
transit vehicle operator information	City of Ames CyRide	City of Ames CyRide Transit Vehicles	Planned
incident information	City of Ames CyRide	City of Ames Police Communications Center	Existing
threat information coordination	City of Ames CyRide	City of Ames Police Communications Center	Existing
transit emergency data	City of Ames CyRide	City of Ames Police Communications Center	Existing
work plan feedback	City of Ames CyRide	City of Ames Public Works	Existing
traffic control priority request	City of Ames CyRide	City of Ames Public Works	Planned
transit system data	City of Ames CyRide	City of Ames Public Works	Planned
transit operations status	City of Ames CyRide	Transit System Operators	Existing
transit information user request	City of Ames CyRide Bus Stop Electronic Displays/Audio Announcement	City of Ames CyRide	Planned
archive requests	City of Ames CyRide Transit Database	City of Ames CyRide	Planned
archive status	City of Ames CyRide Transit Database	City of Ames CyRide	Planned
transit information request	City of Ames CyRide Transit Information Website	City of Ames CyRide	Planned
broadcast information	City of Ames CyRide Transit Information Website	User Personal Computing Devices	Existing
traveler information	City of Ames CyRide Transit Information Website	User Personal Computing Devices	Planned
trip plan	City of Ames CyRide Transit Information Website	User Personal Computing Devices	Planned
alarm notification	City of Ames CyRide Transit Vehicles	City of Ames CyRide	Existing
secure area surveillance data	City of Ames CyRide Transit Vehicles	City of Ames CyRide	Existing

Architecture Flow Name	Source	Destination	Status
transit vehicle operator authentication information	City of Ames CyRide Transit Vehicles	City of Ames CyRide	Existing
transit traveler request	City of Ames CyRide Transit Vehicles	City of Ames CyRide	Planned
transit vehicle conditions	City of Ames CyRide Transit Vehicles	City of Ames CyRide	Planned
transit vehicle location data	City of Ames CyRide Transit Vehicles	City of Ames CyRide	Planned
transit vehicle passenger and use data	City of Ames CyRide Transit Vehicles	City of Ames CyRide	Planned
local signal priority request	City of Ames CyRide Transit Vehicles	City of Ames Public Works Traffic Signal Systems	Planned
maint and constr archive data	City of Ames Fleet Services	City of Ames Fleet Services Database	Existing
maint and constr operations information presentation	City of Ames Fleet Services	Maintenance and Construction Center Personnel	Existing
archive requests	City of Ames Fleet Services Database	City of Ames Fleet Services	Existing
archive status	City of Ames Fleet Services Database	City of Ames Fleet Services	Existing
maint and constr dispatch status	City of Ames Maintenance and Construction Vehicles/Equipment	City of Ames Public Works	Existing
maint and constr vehicle location data	City of Ames Maintenance and Construction Vehicles/Equipment	City of Ames Public Works	Planned
maint and constr vehicle operational data	City of Ames Maintenance and Construction Vehicles/Equipment	City of Ames Public Works	Planned
incident information	City of Ames Police Communications Center	City of Ames CyRide	Existing
incident response status	City of Ames Police Communications Center	City of Ames CyRide	Existing
threat information coordination	City of Ames Police Communications Center	City of Ames CyRide	Existing
decision support information	City of Ames Police Communications Center	City of Ames Police Emergency Vehicles	Existing
emergency dispatch requests	City of Ames Police Communications Center	City of Ames Police Emergency Vehicles	Existing
emergency plan coordination	City of Ames Police Communications Center	City of Ames Public Works	Existing
emergency traffic control request	City of Ames Police Communications Center	City of Ames Public Works	Existing
incident information	City of Ames Police Communications Center	City of Ames Public Works	Existing
incident response status	City of Ames Police Communications Center	City of Ames Public Works	Existing
maint and constr resource request	City of Ames Police Communications Center	City of Ames Public Works	Existing
resource request	City of Ames Police Communications Center	City of Ames Public Works	Existing
work plan feedback	City of Ames Police Communications Center	City of Ames Public Works	Existing

Architecture Flow Name	Source	Destination	Status
emergency plan coordination	City of Ames Police Communications Center	Iowa DOT Ames Maintenance Garage	Existing
emergency traffic control request	City of Ames Police Communications Center	Iowa DOT Ames Maintenance Garage	Existing
incident information	City of Ames Police Communications Center	Iowa DOT Ames Maintenance Garage	Existing
incident response status	City of Ames Police Communications Center	Iowa DOT Ames Maintenance Garage	Existing
road network conditions	City of Ames Police Communications Center	Iowa DOT Ames Maintenance Garage	Existing
traffic control coordination	City of Ames Police Communications Center	Iowa DOT Ames Maintenance Garage	Planned
emergency plan coordination	City of Ames Police Communications Center	Iowa DOT District 1 Operations Office	Existing
emergency traffic control request	City of Ames Police Communications Center	Iowa DOT District 1 Operations Office	Existing
incident information	City of Ames Police Communications Center	Iowa DOT District 1 Operations Office	Existing
incident response status	City of Ames Police Communications Center	Iowa DOT District 1 Operations Office	Existing
resource request	City of Ames Police Communications Center	Iowa DOT District 1 Operations Office	Existing
traffic control coordination	City of Ames Police Communications Center	Iowa DOT District 1 Operations Office	Planned
roadway information system data	City of Ames Police Communications Center	Iowa DOT Permanent DMS	Planned
emergency archive data	City of Ames Police Communications Center	Iowa DOT TraCS System	Existing
alert notification coordination	City of Ames Police Communications Center	Iowa State Patrol	Existing
alert notification coordination	City of Ames Police Communications Center	Iowa State Patrol Des Moines Communications Center	Existing
emergency plan coordination	City of Ames Police Communications Center	Iowa State Patrol Des Moines Communications Center	Existing
incident command information coordination	City of Ames Police Communications Center	Iowa State Patrol Des Moines Communications Center	Existing
incident report	City of Ames Police Communications Center	Iowa State Patrol Des Moines Communications Center	Existing
incident response coordination	City of Ames Police Communications Center	Iowa State Patrol Des Moines Communications Center	Existing
resource coordination	City of Ames Police Communications Center	Iowa State Patrol Des Moines Communications Center	Existing
traffic control coordination	City of Ames Police Communications Center	Iowa State Patrol Des Moines Communications Center	Planned
emergency plan coordination	City of Ames Police Communications Center	Iowa State Patrol District 1	Existing
incident report	City of Ames Police Communications Center	Iowa State Patrol District 1	Existing
emergency plan coordination	City of Ames Police Communications Center	Iowa State University Police Communications Center	Existing
evacuation coordination	City of Ames Police Communications Center	Iowa State University Police Communications Center	Existing

Architecture Flow Name	Source	Destination	Status
incident command information coordination	City of Ames Police Communications Center	Iowa State University Police Communications Center	Existing
incident report	City of Ames Police Communications Center	Iowa State University Police Communications Center	Existing
incident response coordination	City of Ames Police Communications Center	Iowa State University Police Communications Center	Existing
resource coordination	City of Ames Police Communications Center	Iowa State University Police Communications Center	Existing
emergency plan coordination	City of Ames Police Communications Center	Mary Greeley Medical Center Dispatch	Existing
incident command information coordination	City of Ames Police Communications Center	Mary Greeley Medical Center Dispatch	Planned
incident report	City of Ames Police Communications Center	Mary Greeley Medical Center Dispatch	Planned
incident response coordination	City of Ames Police Communications Center	Mary Greeley Medical Center Dispatch	Planned
resource coordination	City of Ames Police Communications Center	Mary Greeley Medical Center Dispatch	Planned
incident information for media	City of Ames Police Communications Center	Media	Existing
event confirmation	City of Ames Police Communications Center	Special Event Promoters	Existing
emergency plan coordination	City of Ames Police Communications Center	Story County Sheriff Communications Center	Existing
evacuation coordination	City of Ames Police Communications Center	Story County Sheriff Communications Center	Existing
incident command information coordination	City of Ames Police Communications Center	Story County Sheriff Communications Center	Existing
incident report	City of Ames Police Communications Center	Story County Sheriff Communications Center	Existing
incident response coordination	City of Ames Police Communications Center	Story County Sheriff Communications Center	Existing
resource coordination	City of Ames Police Communications Center	Story County Sheriff Communications Center	Existing
traffic control coordination	City of Ames Police Communications Center	Story County Sheriff Communications Center	Planned
incident information	City of Ames Police Communications Center	Union Pacific Railroad	Existing
incident response status	City of Ames Police Communications Center	Union Pacific Railroad	Existing
emergency dispatch response	City of Ames Police Emergency Vehicles	City of Ames Police Communications Center	Existing
incident status	City of Ames Police Emergency Vehicles	City of Ames Police Communications Center	Existing
emergency vehicle tracking data	City of Ames Police Emergency Vehicles	City of Ames Police Communications Center	Planned
local signal preemption request	City of Ames Police Emergency Vehicles	City of Ames Public Works Traffic Signal Systems	Existing
current asset restrictions	City of Ames Public Works	City of Ames CyRide	Existing
maint and constr work plans	City of Ames Public Works	City of Ames CyRide	Existing
road network conditions	City of Ames Public Works	City of Ames CyRide	Existing
work zone information	City of Ames Public Works	City of Ames CyRide	Existing
request transit information	City of Ames Public Works	City of Ames CyRide	Planned

Architecture Flow Name	Source	Destination	Status
traffic control priority status	City of Ames Public Works	City of Ames CyRide	Planned
maint and constr dispatch information	City of Ames Public Works	City of Ames Maintenance and Construction Vehicles/Equipment	Existing
current asset restrictions	City of Ames Public Works	City of Ames Police Communications Center	Existing
emergency plan coordination	City of Ames Public Works	City of Ames Police Communications Center	Existing
emergency traffic control information	City of Ames Public Works	City of Ames Police Communications Center	Existing
incident information	City of Ames Public Works	City of Ames Police Communications Center	Existing
maint and constr resource response	City of Ames Public Works	City of Ames Police Communications Center	Existing
maint and constr work plans	City of Ames Public Works	City of Ames Police Communications Center	Existing
resource deployment status	City of Ames Public Works	City of Ames Police Communications Center	Existing
work zone information	City of Ames Public Works	City of Ames Police Communications Center	Existing
video surveillance control	City of Ames Public Works	City of Ames Public Works CCTV Cameras	Existing
traffic sensor control	City of Ames Public Works	City of Ames Public Works Loop Detector Stations	Existing
roadway information system data	City of Ames Public Works	City of Ames Public Works Portable DMS	Existing
hri control data	City of Ames Public Works	City of Ames Public Works Railroad Crossing Automated Horn Warning System	Existing
hri request	City of Ames Public Works	City of Ames Public Works Railroad Crossing Automated Horn Warning System	Existing
roadway treatment system control	City of Ames Public Works	City of Ames Public Works Roadway Anti-Icing System	Planned
environmental sensors control	City of Ames Public Works	City of Ames Public Works RWIS	Planned
maint and constr archive data	City of Ames Public Works	City of Ames Public Works Traffic and Maintenance Database	Existing
traffic archive data	City of Ames Public Works	City of Ames Public Works Traffic and Maintenance Database	Existing
signal control data	City of Ames Public Works	City of Ames Public Works Traffic Signal Systems	Existing
maint and constr work plans	City of Ames Public Works	City of Ames Public Works Website	Existing
road network conditions	City of Ames Public Works	City of Ames Public Works Website	Planned
work zone information	City of Ames Public Works	City of Ames Public Works Website	Planned
incident information	City of Ames Public Works	Iowa DOT Ames Maintenance Garage	Existing

Architecture Flow Name	Source	Destination	Status
maint and constr resource coordination	City of Ames Public Works	Iowa DOT Ames Maintenance Garage	Existing
work plan coordination	City of Ames Public Works	Iowa DOT Ames Maintenance Garage	Existing
work zone information	City of Ames Public Works	Iowa DOT Ames Maintenance Garage	Existing
incident information	City of Ames Public Works	Iowa DOT District 1 Operations Office	Existing
traffic information coordination	City of Ames Public Works	Iowa DOT District 1 Operations Office	Existing
work zone information	City of Ames Public Works	Iowa DOT District 1 Operations Office	Existing
emergency plan coordination	City of Ames Public Works	Iowa State Patrol District 1	Existing
incident information	City of Ames Public Works	Iowa State Patrol District 1	Existing
emergency plan coordination	City of Ames Public Works	Iowa State University Police Communications Center	Existing
emergency traffic control information	City of Ames Public Works	Iowa State University Police Communications Center	Existing
incident information	City of Ames Public Works	Iowa State University Police Communications Center	Existing
maint and constr operations information presentation	City of Ames Public Works	Maintenance and Construction Center Personnel	Existing
road network conditions	City of Ames Public Works	Media	Existing
roadway maintenance status	City of Ames Public Works	Media	Existing
work zone information	City of Ames Public Works	Media	Existing
transportation weather information request	City of Ames Public Works	Private Weather Service Providers	Planned
event confirmation	City of Ames Public Works	Special Event Promoters	Existing
incident information	City of Ames Public Works	Story County Engineers	Existing
maint and constr resource coordination	City of Ames Public Works	Story County Engineers	Existing
work plan coordination	City of Ames Public Works	Story County Engineers	Existing
work zone information	City of Ames Public Works	Story County Engineers	Existing
emergency plan coordination	City of Ames Public Works	Story County Sheriff Communications Center	Existing
incident information	City of Ames Public Works	Story County Sheriff Communications Center	Existing
emergency traffic control information	City of Ames Public Works	Story County Sheriff Communications Center	Planned
hri advisories	City of Ames Public Works	Union Pacific Railroad	Existing
maint and constr work plans	City of Ames Public Works	Union Pacific Railroad	Existing
work plan feedback	City of Ames Public Works	Union Pacific Railroad	Existing
field device status	City of Ames Public Works CCTV Cameras	City of Ames Public Works	Existing
traffic images	City of Ames Public Works CCTV Cameras	City of Ames Public Works	Existing
field device status	City of Ames Public Works Loop Detector Stations	City of Ames Public Works	Existing
traffic flow	City of Ames Public Works Loop Detector Stations	City of Ames Public Works	Existing

Architecture Flow Name	Source	Destination	Status
roadside archive data	City of Ames Public Works Loop Detector Stations	City of Ames Public Works Traffic and Maintenance Database	Existing
field device status	City of Ames Public Works Portable DMS	City of Ames Public Works	Existing
roadway information system status	City of Ames Public Works Portable DMS	City of Ames Public Works	Existing
field device status	City of Ames Public Works Railroad Crossing Automated Horn Warning System	City of Ames Public Works	Existing
hri status	City of Ames Public Works Railroad Crossing Automated Horn Warning System	City of Ames Public Works	Existing
roadway equipment coordination	City of Ames Public Works Railroad Crossing Automated Horn Warning System	City of Ames Public Works Traffic Signal Systems	Existing
hri operational status	City of Ames Public Works Railroad Crossing Automated Horn Warning System	Union Pacific Railroad Wayside Equipment	Existing
field device status	City of Ames Public Works Roadway Anti-Icing System	City of Ames Public Works	Planned
roadway treatment system status	City of Ames Public Works Roadway Anti-Icing System	City of Ames Public Works	Planned
environmental conditions data	City of Ames Public Works RWIS	City of Ames Public Works	Planned
field device status	City of Ames Public Works RWIS	City of Ames Public Works	Planned
roadside archive data	City of Ames Public Works RWIS	City of Ames Public Works Traffic and Maintenance Database	Planned
archive requests	City of Ames Public Works Traffic and Maintenance Database	City of Ames Public Works	Existing
archive status	City of Ames Public Works Traffic and Maintenance Database	City of Ames Public Works	Existing
data collection and monitoring control	City of Ames Public Works Traffic and Maintenance Database	City of Ames Public Works Loop Detector Stations	Existing
data collection and monitoring control	City of Ames Public Works Traffic and Maintenance Database	City of Ames Public Works RWIS	Planned
field device status	City of Ames Public Works Traffic Signal Systems	City of Ames Public Works	Existing
request for right-of-way	City of Ames Public Works Traffic Signal Systems	City of Ames Public Works	Existing
signal control status	City of Ames Public Works Traffic Signal Systems	City of Ames Public Works	Existing
roadway equipment coordination	City of Ames Public Works Traffic Signal Systems	City of Ames Public Works Railroad Crossing Automated Horn Warning System	Existing
hri operational status	City of Ames Public Works Traffic Signal Systems	Union Pacific Railroad Wayside Equipment	Existing

Architecture Flow Name	Source	Destination	Status
broadcast information	City of Ames Public Works Website	User Personal Computing Devices	Existing
traveler information	City of Ames Public Works Website	User Personal Computing Devices	Planned
transit vehicle operator information	Heartland Senior Services	Heartland Senior Services Transit Vehicles	Existing
transit operations status	Heartland Senior Services	Transit System Operators	Existing
work plan feedback	Iowa DOT	Iowa DOT Ames Maintenance Garage	Existing
traffic control coordination	Iowa DOT	Iowa DOT District 1 Operations Office	Existing
traffic information coordination	Iowa DOT	Iowa DOT District 1 Operations Office	Existing
roadway information system data	Iowa DOT	Iowa DOT Permanent DMS	Planned
alert status	Iowa DOT	Iowa State Patrol	Existing
broadcast information	Iowa DOT 511 Travel Information Website	User Personal Computing Devices	Existing
emergency traveler information	Iowa DOT 511 Travel Information Website	User Personal Computing Devices	Existing
voice-based traveler information	Iowa DOT 511 Traveler Information System	Telecommunications System for Traveler Information	Existing
emergency plan coordination	Iowa DOT Ames Maintenance Garage	City of Ames Police Communications Center	Existing
emergency traffic control information	Iowa DOT Ames Maintenance Garage	City of Ames Police Communications Center	Existing
incident information	Iowa DOT Ames Maintenance Garage	City of Ames Police Communications Center	Existing
road network conditions	Iowa DOT Ames Maintenance Garage	City of Ames Police Communications Center	Existing
work zone information	Iowa DOT Ames Maintenance Garage	City of Ames Police Communications Center	Existing
traffic control coordination	Iowa DOT Ames Maintenance Garage	City of Ames Police Communications Center	Planned
incident information	Iowa DOT Ames Maintenance Garage	City of Ames Public Works	Existing
maint and constr resource coordination	Iowa DOT Ames Maintenance Garage	City of Ames Public Works	Existing
work plan coordination	Iowa DOT Ames Maintenance Garage	City of Ames Public Works	Existing
work zone information	Iowa DOT Ames Maintenance Garage	City of Ames Public Works	Existing
maint and constr work plans	Iowa DOT Ames Maintenance Garage	Iowa DOT	Existing
road network conditions	Iowa DOT Ames Maintenance Garage	Iowa DOT 511 Travel Information Website	Existing
work zone information	Iowa DOT Ames Maintenance Garage	Iowa DOT 511 Travel Information Website	Existing
maint and constr dispatch information	Iowa DOT Ames Maintenance Garage	Iowa DOT Ames Maintenance Garage Maintenance and Construction Vehicle/Equipment	Existing
incident information	Iowa DOT Ames Maintenance Garage	Iowa DOT CARS	Existing

Architecture Flow Name	Source	Destination	Status
maint and constr archive data	Iowa DOT Ames Maintenance Garage	Iowa DOT CARS	Existing
road network conditions	Iowa DOT Ames Maintenance Garage	Iowa DOT CARS	Existing
traffic archive data	Iowa DOT Ames Maintenance Garage	Iowa DOT CARS	Existing
work zone information	Iowa DOT Ames Maintenance Garage	Iowa DOT CARS	Existing
video surveillance control	Iowa DOT Ames Maintenance Garage	Iowa DOT CCTV Camera on RWIS Tower	Planned
maint and constr archive data	Iowa DOT Ames Maintenance Garage	Iowa DOT District 1 Database	Existing
equipment maintenance status	Iowa DOT Ames Maintenance Garage	Iowa DOT District 1 Operations Office	Existing
incident information	Iowa DOT Ames Maintenance Garage	Iowa DOT District 1 Operations Office	Existing
maint and constr resource response	Iowa DOT Ames Maintenance Garage	Iowa DOT District 1 Operations Office	Existing
maint and constr work plans	Iowa DOT Ames Maintenance Garage	Iowa DOT District 1 Operations Office	Existing
roadway maintenance status	Iowa DOT Ames Maintenance Garage	Iowa DOT District 1 Operations Office	Existing
traffic control coordination	Iowa DOT Ames Maintenance Garage	Iowa DOT District 1 Operations Office	Existing
work zone information	Iowa DOT Ames Maintenance Garage	Iowa DOT District 1 Operations Office	Existing
roadway information system data	Iowa DOT Ames Maintenance Garage	Iowa DOT Permanent DMS	Planned
roadway information system data	Iowa DOT Ames Maintenance Garage	Iowa DOT Portable DMS	Existing
environmental sensors control	Iowa DOT Ames Maintenance Garage	Iowa DOT RWIS Stations	Existing
traffic sensor control	Iowa DOT Ames Maintenance Garage	Iowa DOT Speed Detectors at RWIS Site	Planned
road network conditions	Iowa DOT Ames Maintenance Garage	Iowa DOT WeatherView Website	Planned
emergency plan coordination	Iowa DOT Ames Maintenance Garage	Iowa State Patrol Des Moines Communications Center	Existing
emergency traffic control information	Iowa DOT Ames Maintenance Garage	Iowa State Patrol Des Moines Communications Center	Existing
incident information	Iowa DOT Ames Maintenance Garage	Iowa State Patrol Des Moines Communications Center	Existing
maint and constr resource response	Iowa DOT Ames Maintenance Garage	Iowa State Patrol Des Moines Communications Center	Existing
road network conditions	Iowa DOT Ames Maintenance Garage	Iowa State Patrol Des Moines Communications Center	Existing
work zone information	Iowa DOT Ames Maintenance Garage	Iowa State Patrol Des Moines Communications Center	Existing
traffic control coordination	Iowa DOT Ames Maintenance Garage	Iowa State Patrol Des Moines Communications Center	Planned
emergency plan coordination	Iowa DOT Ames Maintenance Garage	Iowa State Patrol District 1	Existing

Architecture Flow Name	Source	Destination	Status
incident information	Iowa DOT Ames Maintenance Garage	Iowa State Patrol District 1	Existing
maint and constr resource response	Iowa DOT Ames Maintenance Garage	Iowa State Patrol District 1	Existing
maint and constr work plans	Iowa DOT Ames Maintenance Garage	Iowa State Patrol District 1	Existing
work zone information	Iowa DOT Ames Maintenance Garage	Iowa State Patrol District 1	Existing
maint and constr operations information presentation	Iowa DOT Ames Maintenance Garage	Maintenance and Construction Center Personnel	Existing
maint and constr work plans	Iowa DOT Ames Maintenance Garage	Media	Existing
roadway maintenance status	Iowa DOT Ames Maintenance Garage	Media	Existing
work zone information	Iowa DOT Ames Maintenance Garage	Media	Existing
transportation weather information request	Iowa DOT Ames Maintenance Garage	Private Weather Service Providers	Existing
incident information	Iowa DOT Ames Maintenance Garage	Story County Engineers	Existing
maint and constr resource coordination	Iowa DOT Ames Maintenance Garage	Story County Engineers	Existing
work plan coordination	Iowa DOT Ames Maintenance Garage	Story County Engineers	Existing
work zone information	Iowa DOT Ames Maintenance Garage	Story County Engineers	Existing
emergency plan coordination	Iowa DOT Ames Maintenance Garage	Story County Sheriff Communications Center	Existing
emergency traffic control information	Iowa DOT Ames Maintenance Garage	Story County Sheriff Communications Center	Existing
incident information	Iowa DOT Ames Maintenance Garage	Story County Sheriff Communications Center	Existing
road network conditions	Iowa DOT Ames Maintenance Garage	Story County Sheriff Communications Center	Existing
work zone information	Iowa DOT Ames Maintenance Garage	Story County Sheriff Communications Center	Existing
traffic control coordination	Iowa DOT Ames Maintenance Garage	Story County Sheriff Communications Center	Planned
maint and constr dispatch status	Iowa DOT Ames Maintenance Garage Maintenance and Construction Vehicle/Equipment	Iowa DOT Ames Maintenance Garage	Existing
road network conditions	Iowa DOT CARS	Iowa DOT 511 Travel Information Website	Existing
road network conditions	Iowa DOT CARS	Iowa DOT 511 Traveler Information System	Existing
archive requests	Iowa DOT CARS	Iowa DOT Ames Maintenance Garage	Existing
archive status	Iowa DOT CARS	Iowa DOT Ames Maintenance Garage	Existing
roadway information system data	Iowa DOT CARS	Iowa DOT Permanent DMS	Planned
alert status	Iowa DOT CARS	Iowa State Patrol	Planned

Architecture Flow Name	Source	Destination	Status
field device status	Iowa DOT CCTV Camera on RWIS Tower	Iowa DOT Ames Maintenance Garage	Planned
traffic images	Iowa DOT CCTV Camera on RWIS Tower	Iowa DOT Ames Maintenance Garage	Planned
traffic images	Iowa DOT CCTV Camera on RWIS Tower	Iowa DOT District 1 Operations Office	Planned
archive requests	Iowa DOT District 1 Database	Iowa DOT Ames Maintenance Garage	Existing
archive status	Iowa DOT District 1 Database	Iowa DOT Ames Maintenance Garage	Existing
archive requests	Iowa DOT District 1 Database	Iowa DOT District 1 Operations Office	Existing
archive status	Iowa DOT District 1 Database	Iowa DOT District 1 Operations Office	Existing
emergency plan coordination	Iowa DOT District 1 Operations Office	City of Ames Police Communications Center	Existing
emergency traffic control information	Iowa DOT District 1 Operations Office	City of Ames Police Communications Center	Existing
incident information	Iowa DOT District 1 Operations Office	City of Ames Police Communications Center	Existing
resource deployment status	Iowa DOT District 1 Operations Office	City of Ames Police Communications Center	Existing
road network conditions	Iowa DOT District 1 Operations Office	City of Ames Police Communications Center	Existing
traffic control coordination	Iowa DOT District 1 Operations Office	City of Ames Police Communications Center	Planned
incident information	Iowa DOT District 1 Operations Office	City of Ames Public Works	Existing
traffic information coordination	Iowa DOT District 1 Operations Office	City of Ames Public Works	Existing
traffic control coordination	Iowa DOT District 1 Operations Office	Iowa DOT	Existing
traffic information coordination	Iowa DOT District 1 Operations Office	Iowa DOT	Existing
field equipment status	Iowa DOT District 1 Operations Office	Iowa DOT Ames Maintenance Garage	Existing
incident information	Iowa DOT District 1 Operations Office	Iowa DOT Ames Maintenance Garage	Existing
maint and constr resource request	Iowa DOT District 1 Operations Office	Iowa DOT Ames Maintenance Garage	Existing
road network conditions	Iowa DOT District 1 Operations Office	Iowa DOT Ames Maintenance Garage	Existing
traffic control coordination	Iowa DOT District 1 Operations Office	Iowa DOT Ames Maintenance Garage	Existing
work plan feedback	Iowa DOT District 1 Operations Office	Iowa DOT Ames Maintenance Garage	Existing
video surveillance control	Iowa DOT District 1 Operations Office	Iowa DOT CCTV Camera on RWIS Tower	Planned
traffic archive data	Iowa DOT District 1 Operations Office	Iowa DOT District 1 Database	Existing
roadway information system data	Iowa DOT District 1 Operations Office	Iowa DOT Permanent DMS	Planned

Architecture Flow Name	Source	Destination	Status
roadway information system data	Iowa DOT District 1 Operations Office	Iowa DOT Portable DMS	Existing
traffic sensor control	Iowa DOT District 1 Operations Office	Iowa DOT Speed Detectors at RWIS Site	Planned
emergency plan coordination	Iowa DOT District 1 Operations Office	Iowa State Patrol Des Moines Communications Center	Existing
emergency traffic control information	Iowa DOT District 1 Operations Office	Iowa State Patrol Des Moines Communications Center	Existing
incident information	Iowa DOT District 1 Operations Office	Iowa State Patrol Des Moines Communications Center	Existing
resource deployment status	Iowa DOT District 1 Operations Office	Iowa State Patrol Des Moines Communications Center	Existing
road network conditions	Iowa DOT District 1 Operations Office	Iowa State Patrol Des Moines Communications Center	Existing
traffic control coordination	Iowa DOT District 1 Operations Office	Iowa State Patrol Des Moines Communications Center	Planned
emergency plan coordination	Iowa DOT District 1 Operations Office	Iowa State Patrol District 1	Existing
emergency traffic control information	Iowa DOT District 1 Operations Office	Iowa State Patrol District 1	Existing
incident information	Iowa DOT District 1 Operations Office	Iowa State Patrol District 1	Existing
resource deployment status	Iowa DOT District 1 Operations Office	Iowa State Patrol District 1	Existing
road network conditions	Iowa DOT District 1 Operations Office	Media	Existing
event confirmation	Iowa DOT District 1 Operations Office	Special Event Promoters	Existing
incident information	Iowa DOT District 1 Operations Office	Story County Engineers	Existing
emergency plan coordination	Iowa DOT District 1 Operations Office	Story County Sheriff Communications Center	Existing
emergency traffic control information	Iowa DOT District 1 Operations Office	Story County Sheriff Communications Center	Existing
incident information	Iowa DOT District 1 Operations Office	Story County Sheriff Communications Center	Existing
resource deployment status	Iowa DOT District 1 Operations Office	Story County Sheriff Communications Center	Existing
road network conditions	Iowa DOT District 1 Operations Office	Story County Sheriff Communications Center	Existing
traffic control coordination	Iowa DOT District 1 Operations Office	Story County Sheriff Communications Center	Planned
route restrictions	Iowa DOT Motor Vehicle Division	Iowa DOT 511 Travel Information Website	Existing
route restrictions	Iowa DOT Motor Vehicle Division	Iowa DOT CARS	Planned
commercial vehicle archive data	Iowa DOT Motor Vehicle Division	Iowa DOT TraCS System	Existing
accident report	Iowa DOT Motor Vehicle Division	Iowa State Patrol District 1	Existing
citation	Iowa DOT Motor Vehicle Division	Iowa State Patrol District 1	Existing

Architecture Flow Name	Source	Destination	Status
violation notification	Iowa DOT Motor Vehicle Division	Iowa State Patrol District 1	Existing
accident report	Iowa DOT Motor Vehicle Division	Story County Sheriff Communications Center	Existing
citation	Iowa DOT Motor Vehicle Division	Story County Sheriff Communications Center	Existing
violation notification	Iowa DOT Motor Vehicle Division	Story County Sheriff Communications Center	Existing
information on violators	Iowa DOT Motor Vehicle Division Enforcement	Iowa DOT Motor Vehicle Division	Existing
roadway information system status	Iowa DOT Permanent DMS	City of Ames Police Communications Center	Planned
roadway information system status	Iowa DOT Permanent DMS	Iowa DOT	Planned
field device status	Iowa DOT Permanent DMS	Iowa DOT Ames Maintenance Garage	Planned
roadway information system status	Iowa DOT Permanent DMS	Iowa DOT Ames Maintenance Garage	Planned
roadway information system status	Iowa DOT Permanent DMS	Iowa DOT CARS	Planned
roadway information system status	Iowa DOT Permanent DMS	Iowa DOT District 1 Operations Office	Planned
roadway information system status	Iowa DOT Permanent DMS	Iowa State Patrol Des Moines Communications Center	Planned
roadway information system status	Iowa DOT Permanent DMS	Story County Sheriff Communications Center	Planned
field device status	Iowa DOT Portable DMS	Iowa DOT Ames Maintenance Garage	Existing
roadway information system status	Iowa DOT Portable DMS	Iowa DOT Ames Maintenance Garage	Existing
roadway information system status	Iowa DOT Portable DMS	Iowa DOT District 1 Operations Office	Existing
data collection and monitoring control	Iowa DOT RWIS Central System	Iowa DOT RWIS Stations	Existing
environmental sensors control	Iowa DOT RWIS Central System	Iowa DOT RWIS Stations	Existing
road weather information	Iowa DOT RWIS Central System	Iowa DOT WeatherView Website	Existing
environmental conditions data	Iowa DOT RWIS Stations	Iowa DOT Ames Maintenance Garage	Existing
field device status	Iowa DOT RWIS Stations	Iowa DOT Ames Maintenance Garage	Existing
environmental conditions data	Iowa DOT RWIS Stations	Iowa DOT RWIS Central System	Existing
roadside archive data	Iowa DOT RWIS Stations	Iowa DOT RWIS Central System	Existing
field device status	Iowa DOT Speed Detectors at RWIS Site	Iowa DOT Ames Maintenance Garage	Planned
traffic flow	Iowa DOT Speed Detectors at RWIS Site	Iowa DOT Ames Maintenance Garage	Planned
traffic flow	Iowa DOT Speed Detectors at RWIS Site	Iowa DOT District 1 Operations Office	Planned

Architecture Flow Name	Source	Destination	Status
archive requests	Iowa DOT TraCS System	City of Ames Police Communications Center	Existing
archive status	Iowa DOT TraCS System	City of Ames Police Communications Center	Existing
archive requests	Iowa DOT TraCS System	Iowa DOT Motor Vehicle Division	Existing
archive status	Iowa DOT TraCS System	Iowa DOT Motor Vehicle Division	Existing
archive requests	Iowa DOT TraCS System	Iowa State Patrol Des Moines Communications Center	Existing
archive status	Iowa DOT TraCS System	Iowa State Patrol Des Moines Communications Center	Existing
archive requests	Iowa DOT TraCS System	Iowa State University Police Communications Center	Existing
archive status	Iowa DOT TraCS System	Iowa State University Police Communications Center	Existing
archive requests	Iowa DOT TraCS System	Story County Sheriff Communications Center	Existing
archive status	Iowa DOT TraCS System	Story County Sheriff Communications Center	Existing
transportation weather information request	Iowa DOT WeatherView Website	Private Weather Service Providers	Existing
broadcast information	Iowa DOT WeatherView Website	User Personal Computing Devices	Existing
pass/pull-in	Iowa DOT Weigh Stations	Private Commercial Vehicles	Existing
alert notification coordination	Iowa State Patrol	City of Ames Police Communications Center	Existing
alert notification	Iowa State Patrol	Iowa DOT	Existing
alert notification	Iowa State Patrol	Iowa DOT CARS	Planned
alert notification coordination	Iowa State Patrol	Iowa State Patrol Des Moines Communications Center	Existing
alert notification coordination	Iowa State Patrol	Iowa State Patrol District 1	Existing
alert notification coordination	Iowa State Patrol	Iowa State University Police Communications Center	Existing
alert notification coordination	Iowa State Patrol	Story County Sheriff Communications Center	Existing
alert notification coordination	Iowa State Patrol Des Moines Communications Center	City of Ames Police Communications Center	Existing
emergency plan coordination	Iowa State Patrol Des Moines Communications Center	City of Ames Police Communications Center	Existing
incident command information coordination	Iowa State Patrol Des Moines Communications Center	City of Ames Police Communications Center	Existing
incident report	Iowa State Patrol Des Moines Communications Center	City of Ames Police Communications Center	Existing
incident response coordination	Iowa State Patrol Des Moines Communications Center	City of Ames Police Communications Center	Existing
resource coordination	Iowa State Patrol Des Moines Communications Center	City of Ames Police Communications Center	Existing
traffic control coordination	Iowa State Patrol Des Moines Communications Center	City of Ames Police Communications Center	Planned
emergency plan coordination	Iowa State Patrol Des Moines Communications Center	Iowa DOT Ames Maintenance Garage	Existing

Architecture Flow Name	Source	Destination	Status
emergency traffic control request	Iowa State Patrol Des Moines Communications Center	Iowa DOT Ames Maintenance Garage	Existing
incident information	Iowa State Patrol Des Moines Communications Center	Iowa DOT Ames Maintenance Garage	Existing
incident response status	Iowa State Patrol Des Moines Communications Center	Iowa DOT Ames Maintenance Garage	Existing
maint and constr resource request	Iowa State Patrol Des Moines Communications Center	Iowa DOT Ames Maintenance Garage	Existing
traffic control coordination	Iowa State Patrol Des Moines Communications Center	Iowa DOT Ames Maintenance Garage	Planned
road network conditions	Iowa State Patrol Des Moines Communications Center	Iowa DOT CARS	Existing
emergency plan coordination	Iowa State Patrol Des Moines Communications Center	Iowa DOT District 1 Operations Office	Existing
emergency traffic control request	Iowa State Patrol Des Moines Communications Center	Iowa DOT District 1 Operations Office	Existing
incident information	Iowa State Patrol Des Moines Communications Center	Iowa DOT District 1 Operations Office	Existing
incident response status	Iowa State Patrol Des Moines Communications Center	Iowa DOT District 1 Operations Office	Existing
resource request	Iowa State Patrol Des Moines Communications Center	Iowa DOT District 1 Operations Office	Existing
traffic control coordination	Iowa State Patrol Des Moines Communications Center	Iowa DOT District 1 Operations Office	Planned
roadway information system data	Iowa State Patrol Des Moines Communications Center	Iowa DOT Permanent DMS	Planned
emergency archive data	Iowa State Patrol Des Moines Communications Center	Iowa DOT TraCS System	Existing
alert notification coordination	Iowa State Patrol Des Moines Communications Center	Iowa State Patrol	Existing
emergency plan coordination	Iowa State Patrol Des Moines Communications Center	Iowa State Patrol District 1	Existing
incident report	Iowa State Patrol Des Moines Communications Center	Iowa State Patrol District 1	Existing
decision support information	Iowa State Patrol Des Moines Communications Center	Iowa State Patrol District 1 Emergency Vehicles	Existing
emergency dispatch requests	Iowa State Patrol Des Moines Communications Center	Iowa State Patrol District 1 Emergency Vehicles	Existing
suggested route	Iowa State Patrol Des Moines Communications Center	Iowa State Patrol District 1 Emergency Vehicles	Existing
secure area surveillance control	Iowa State Patrol Des Moines Communications Center	Iowa State Patrol Security Monitoring Field Equipment	Existing
emergency plan coordination	Iowa State Patrol Des Moines Communications Center	Mary Greeley Medical Center Dispatch	Existing
incident command information coordination	Iowa State Patrol Des Moines Communications Center	Mary Greeley Medical Center Dispatch	Planned
incident report	Iowa State Patrol Des Moines Communications Center	Mary Greeley Medical Center Dispatch	Planned
incident response coordination	Iowa State Patrol Des Moines Communications Center	Mary Greeley Medical Center Dispatch	Planned
resource coordination	Iowa State Patrol Des Moines Communications Center	Mary Greeley Medical Center Dispatch	Planned

Architecture Flow Name	Source	Destination	Status
alert notification coordination	Iowa State Patrol Des Moines Communications Center	Story County Sheriff Communications Center	Existing
emergency plan coordination	Iowa State Patrol Des Moines Communications Center	Story County Sheriff Communications Center	Existing
incident command information coordination	Iowa State Patrol Des Moines Communications Center	Story County Sheriff Communications Center	Existing
incident report	Iowa State Patrol Des Moines Communications Center	Story County Sheriff Communications Center	Existing
incident response coordination	Iowa State Patrol Des Moines Communications Center	Story County Sheriff Communications Center	Existing
resource coordination	Iowa State Patrol Des Moines Communications Center	Story County Sheriff Communications Center	Existing
traffic control coordination	Iowa State Patrol Des Moines Communications Center	Story County Sheriff Communications Center	Planned
emergency plan coordination	Iowa State Patrol District 1	City of Ames Police Communications Center	Existing
incident report	Iowa State Patrol District 1	City of Ames Police Communications Center	Existing
emergency plan coordination	Iowa State Patrol District 1	City of Ames Public Works	Existing
incident information	Iowa State Patrol District 1	City of Ames Public Works	Existing
incident response status	Iowa State Patrol District 1	City of Ames Public Works	Existing
emergency plan coordination	Iowa State Patrol District 1	Iowa DOT Ames Maintenance Garage	Existing
incident information	Iowa State Patrol District 1	Iowa DOT Ames Maintenance Garage	Existing
incident response status	Iowa State Patrol District 1	Iowa DOT Ames Maintenance Garage	Existing
maint and constr resource request	Iowa State Patrol District 1	Iowa DOT Ames Maintenance Garage	Existing
work plan feedback	Iowa State Patrol District 1	Iowa DOT Ames Maintenance Garage	Existing
emergency plan coordination	Iowa State Patrol District 1	Iowa DOT District 1 Operations Office	Existing
emergency traffic control request	Iowa State Patrol District 1	Iowa DOT District 1 Operations Office	Existing
incident information	Iowa State Patrol District 1	Iowa DOT District 1 Operations Office	Existing
incident response status	Iowa State Patrol District 1	Iowa DOT District 1 Operations Office	Existing
resource request	Iowa State Patrol District 1	Iowa DOT District 1 Operations Office	Existing
information on violators	Iowa State Patrol District 1	Iowa DOT Motor Vehicle Division	Existing
alert notification coordination	Iowa State Patrol District 1	Iowa State Patrol	Existing
emergency plan coordination	Iowa State Patrol District 1	Iowa State Patrol Des Moines Communications Center	Existing
incident report	Iowa State Patrol District 1	Iowa State Patrol Des Moines Communications Center	Existing
incident information for media	Iowa State Patrol District 1	Media	Existing
emergency plan coordination	Iowa State Patrol District 1	Story County Sheriff Communications Center	Existing
incident report	Iowa State Patrol District 1	Story County Sheriff Communications Center	Existing

Architecture Flow Name	Source	Destination	Status
emergency dispatch response	Iowa State Patrol District 1 Emergency Vehicles	Iowa State Patrol Des Moines Communications Center	Existing
incident status	Iowa State Patrol District 1 Emergency Vehicles	Iowa State Patrol Des Moines Communications Center	Existing
emergency vehicle tracking data	Iowa State Patrol District 1 Emergency Vehicles	Iowa State Patrol Des Moines Communications Center	Planned
secure area surveillance data	Iowa State Patrol Security Monitoring Field Equipment	Iowa State Patrol Des Moines Communications Center	Existing
emergency plan coordination	Iowa State University Police Communications Center	City of Ames Police Communications Center	Existing
evacuation coordination	Iowa State University Police Communications Center	City of Ames Police Communications Center	Existing
incident command information coordination	Iowa State University Police Communications Center	City of Ames Police Communications Center	Existing
incident report	Iowa State University Police Communications Center	City of Ames Police Communications Center	Existing
incident response coordination	Iowa State University Police Communications Center	City of Ames Police Communications Center	Existing
resource coordination	Iowa State University Police Communications Center	City of Ames Police Communications Center	Existing
emergency plan coordination	Iowa State University Police Communications Center	City of Ames Public Works	Existing
emergency traffic control request	Iowa State University Police Communications Center	City of Ames Public Works	Existing
incident information	Iowa State University Police Communications Center	City of Ames Public Works	Existing
incident response status	Iowa State University Police Communications Center	City of Ames Public Works	Existing
emergency archive data	Iowa State University Police Communications Center	Iowa DOT TraCS System	Existing
alert notification coordination	Iowa State University Police Communications Center	Iowa State Patrol	Existing
decision support information	Iowa State University Police Communications Center	Iowa State University Police Emergency Vehicles	Existing
emergency dispatch requests	Iowa State University Police Communications Center	Iowa State University Police Emergency Vehicles	Existing
emergency plan coordination	Iowa State University Police Communications Center	Mary Greeley Medical Center Dispatch	Existing
incident command information coordination	Iowa State University Police Communications Center	Mary Greeley Medical Center Dispatch	Planned
incident report	Iowa State University Police Communications Center	Mary Greeley Medical Center Dispatch	Planned
incident response coordination	Iowa State University Police Communications Center	Mary Greeley Medical Center Dispatch	Planned
resource coordination	Iowa State University Police Communications Center	Mary Greeley Medical Center Dispatch	Planned
event confirmation	Iowa State University Police Communications Center	Special Event Promoters	Existing
emergency plan coordination	Iowa State University Police Communications Center	Story County Sheriff Communications Center	Existing
evacuation coordination	Iowa State University Police Communications Center	Story County Sheriff Communications Center	Existing

Architecture Flow Name	Source	Destination	Status
incident command information coordination	Iowa State University Police Communications Center	Story County Sheriff Communications Center	Existing
incident report	Iowa State University Police Communications Center	Story County Sheriff Communications Center	Existing
incident response coordination	Iowa State University Police Communications Center	Story County Sheriff Communications Center	Existing
resource coordination	Iowa State University Police Communications Center	Story County Sheriff Communications Center	Existing
emergency dispatch response	Iowa State University Police Emergency Vehicles	Iowa State University Police Communications Center	Existing
incident status	Iowa State University Police Emergency Vehicles	Iowa State University Police Communications Center	Existing
maint and constr center personnel inputs	Maintenance and Construction Center Personnel	City of Ames Fleet Services	Existing
maint and constr center personnel inputs	Maintenance and Construction Center Personnel	City of Ames Public Works	Existing
maint and constr center personnel inputs	Maintenance and Construction Center Personnel	Iowa DOT Ames Maintenance Garage	Existing
maint and constr center personnel inputs	Maintenance and Construction Center Personnel	Story County Engineers	Existing
local signal preemption request	Mary Greeley Medical Center Ambulances	City of Ames Public Works Traffic Signal Systems	Existing
emergency dispatch response	Mary Greeley Medical Center Ambulances	Mary Greeley Medical Center Dispatch	Planned
incident status	Mary Greeley Medical Center Ambulances	Mary Greeley Medical Center Dispatch	Planned
emergency plan coordination	Mary Greeley Medical Center Dispatch	City of Ames Police Communications Center	Existing
incident command information coordination	Mary Greeley Medical Center Dispatch	City of Ames Police Communications Center	Planned
incident report	Mary Greeley Medical Center Dispatch	City of Ames Police Communications Center	Planned
incident response coordination	Mary Greeley Medical Center Dispatch	City of Ames Police Communications Center	Planned
resource coordination	Mary Greeley Medical Center Dispatch	City of Ames Police Communications Center	Planned
emergency plan coordination	Mary Greeley Medical Center Dispatch	Iowa State Patrol Des Moines Communications Center	Existing
incident command information coordination	Mary Greeley Medical Center Dispatch	Iowa State Patrol Des Moines Communications Center	Planned
incident report	Mary Greeley Medical Center Dispatch	Iowa State Patrol Des Moines Communications Center	Planned
incident response coordination	Mary Greeley Medical Center Dispatch	Iowa State Patrol Des Moines Communications Center	Planned
resource coordination	Mary Greeley Medical Center Dispatch	Iowa State Patrol Des Moines Communications Center	Planned
emergency plan coordination	Mary Greeley Medical Center Dispatch	Iowa State University Police Communications Center	Existing
incident command information coordination	Mary Greeley Medical Center Dispatch	Iowa State University Police Communications Center	Planned
incident report	Mary Greeley Medical Center Dispatch	Iowa State University Police Communications Center	Planned

Architecture Flow Name	Source	Destination	Status
incident response coordination	Mary Greeley Medical Center Dispatch	Iowa State University Police Communications Center	Planned
resource coordination	Mary Greeley Medical Center Dispatch	Iowa State University Police Communications Center	Planned
decision support information	Mary Greeley Medical Center Dispatch	Mary Greeley Medical Center Ambulances	Planned
emergency dispatch requests	Mary Greeley Medical Center Dispatch	Mary Greeley Medical Center Ambulances	Planned
emergency plan coordination	Mary Greeley Medical Center Dispatch	Story County Sheriff Communications Center	Existing
incident command information coordination	Mary Greeley Medical Center Dispatch	Story County Sheriff Communications Center	Planned
incident report	Mary Greeley Medical Center Dispatch	Story County Sheriff Communications Center	Planned
incident response coordination	Mary Greeley Medical Center Dispatch	Story County Sheriff Communications Center	Planned
resource coordination	Mary Greeley Medical Center Dispatch	Story County Sheriff Communications Center	Planned
media information request	Media	City of Ames Police Communications Center	Existing
media information request	Media	City of Ames Public Works	Existing
media information request	Media	Iowa DOT Ames Maintenance Garage	Existing
media information request	Media	Iowa DOT District 1 Operations Office	Existing
media information request	Media	Iowa State Patrol District 1	Existing
media information request	Media	Story County Sheriff Communications Center	Existing
weather information	National Weather Services	City of Ames Police Communications Center	Existing
weather information	National Weather Services	City of Ames Public Works	Existing
weather information	National Weather Services	Iowa DOT 511 Travel Information Website	Existing
weather information	National Weather Services	Iowa DOT 511 Traveler Information System	Existing
weather information	National Weather Services	Iowa DOT Ames Maintenance Garage	Existing
weather information	National Weather Services	Iowa DOT CARS	Existing
weather information	National Weather Services	Iowa DOT WeatherView Website	Existing
weather information	National Weather Services	Iowa State Patrol Des Moines Communications Center	Existing
weather information	National Weather Services	Story County Sheriff Communications Center	Existing
emergency dispatch response	Nevada Fire Department Emergency Vehicles	Story County Sheriff Communications Center	Existing
incident status	Nevada Fire Department Emergency Vehicles	Story County Sheriff Communications Center	Existing
CVO weight and presence	Private Commercial Vehicles	Iowa DOT Motor Vehicle Division Radiation Detection Equipment	Existing

Architecture Flow Name	Source	Destination	Status
hazmat environmental factors	Private Commercial Vehicles	Iowa DOT Motor Vehicle Division Radiation Detection Equipment	Existing
identification information	Private Commercial Vehicles	Iowa DOT Motor Vehicle Division Radiation Detection Equipment	Existing
transportation weather information	Private Weather Service Providers	City of Ames Public Works	Planned
transportation weather information	Private Weather Service Providers	Iowa DOT Ames Maintenance Garage	Existing
transportation weather information	Private Weather Service Providers	Iowa DOT WeatherView Website	Existing
event plans	Special Event Promoters	City of Ames Police Communications Center	Existing
event plans	Special Event Promoters	City of Ames Public Works	Existing
event plans	Special Event Promoters	Iowa DOT District 1 Operations Office	Existing
event plans	Special Event Promoters	Iowa State University Police Communications Center	Existing
event plans	Special Event Promoters	Story County Sheriff Communications Center	Existing
incident information	Story County Engineers	City of Ames Public Works	Existing
maint and constr resource coordination	Story County Engineers	City of Ames Public Works	Existing
work plan coordination	Story County Engineers	City of Ames Public Works	Existing
work zone information	Story County Engineers	City of Ames Public Works	Existing
incident information	Story County Engineers	Iowa DOT Ames Maintenance Garage	Existing
maint and constr resource coordination	Story County Engineers	Iowa DOT Ames Maintenance Garage	Existing
work plan coordination	Story County Engineers	Iowa DOT Ames Maintenance Garage	Existing
work zone information	Story County Engineers	Iowa DOT Ames Maintenance Garage	Existing
incident information	Story County Engineers	Iowa DOT District 1 Operations Office	Existing
maint and constr operations information presentation	Story County Engineers	Maintenance and Construction Center Personnel	Existing
maint and constr dispatch information	Story County Engineers	Story County Engineers Maintenance and Construction Vehicles/Equipment	Existing
emergency plan coordination	Story County Engineers	Story County Sheriff Communications Center	Existing
incident information	Story County Engineers	Story County Sheriff Communications Center	Existing
maint and constr resource response	Story County Engineers	Story County Sheriff Communications Center	Existing
maint and constr work plans	Story County Engineers	Story County Sheriff Communications Center	Existing
maint and constr dispatch status	Story County Engineers Maintenance and Construction Vehicles/Equipment	Story County Engineers	Existing

Architecture Flow Name	Source	Destination	Status
emergency plan coordination	Story County Sheriff Communications Center	City of Ames Police Communications Center	Existing
evacuation coordination	Story County Sheriff Communications Center	City of Ames Police Communications Center	Existing
incident command information coordination	Story County Sheriff Communications Center	City of Ames Police Communications Center	Existing
incident report	Story County Sheriff Communications Center	City of Ames Police Communications Center	Existing
incident response coordination	Story County Sheriff Communications Center	City of Ames Police Communications Center	Existing
resource coordination	Story County Sheriff Communications Center	City of Ames Police Communications Center	Existing
traffic control coordination	Story County Sheriff Communications Center	City of Ames Police Communications Center	Planned
emergency plan coordination	Story County Sheriff Communications Center	City of Ames Public Works	Existing
incident information	Story County Sheriff Communications Center	City of Ames Public Works	Existing
incident response status	Story County Sheriff Communications Center	City of Ames Public Works	Existing
emergency traffic control request	Story County Sheriff Communications Center	City of Ames Public Works	Planned
emergency plan coordination	Story County Sheriff Communications Center	Iowa DOT Ames Maintenance Garage	Existing
emergency traffic control request	Story County Sheriff Communications Center	Iowa DOT Ames Maintenance Garage	Existing
incident information	Story County Sheriff Communications Center	Iowa DOT Ames Maintenance Garage	Existing
incident response status	Story County Sheriff Communications Center	Iowa DOT Ames Maintenance Garage	Existing
traffic control coordination	Story County Sheriff Communications Center	Iowa DOT Ames Maintenance Garage	Planned
emergency plan coordination	Story County Sheriff Communications Center	Iowa DOT District 1 Operations Office	Existing
emergency traffic control request	Story County Sheriff Communications Center	Iowa DOT District 1 Operations Office	Existing
incident information	Story County Sheriff Communications Center	Iowa DOT District 1 Operations Office	Existing
incident response status	Story County Sheriff Communications Center	Iowa DOT District 1 Operations Office	Existing
resource request	Story County Sheriff Communications Center	Iowa DOT District 1 Operations Office	Existing
traffic control coordination	Story County Sheriff Communications Center	Iowa DOT District 1 Operations Office	Planned
information on violators	Story County Sheriff Communications Center	Iowa DOT Motor Vehicle Division	Existing
roadway information system data	Story County Sheriff Communications Center	Iowa DOT Permanent DMS	Planned
emergency archive data	Story County Sheriff Communications Center	Iowa DOT TraCS System	Existing
alert notification coordination	Story County Sheriff Communications Center	Iowa State Patrol	Existing

Architecture Flow Name	Source	Destination	Status
alert notification coordination	Story County Sheriff Communications Center	Iowa State Patrol Des Moines Communications Center	Existing
emergency plan coordination	Story County Sheriff Communications Center	Iowa State Patrol Des Moines Communications Center	Existing
incident command information coordination	Story County Sheriff Communications Center	Iowa State Patrol Des Moines Communications Center	Existing
incident report	Story County Sheriff Communications Center	Iowa State Patrol Des Moines Communications Center	Existing
incident response coordination	Story County Sheriff Communications Center	Iowa State Patrol Des Moines Communications Center	Existing
resource coordination	Story County Sheriff Communications Center	Iowa State Patrol Des Moines Communications Center	Existing
traffic control coordination	Story County Sheriff Communications Center	Iowa State Patrol Des Moines Communications Center	Planned
emergency plan coordination	Story County Sheriff Communications Center	Iowa State Patrol District 1	Existing
incident report	Story County Sheriff Communications Center	Iowa State Patrol District 1	Existing
emergency plan coordination	Story County Sheriff Communications Center	Iowa State University Police Communications Center	Existing
evacuation coordination	Story County Sheriff Communications Center	Iowa State University Police Communications Center	Existing
incident command information coordination	Story County Sheriff Communications Center	Iowa State University Police Communications Center	Existing
incident report	Story County Sheriff Communications Center	Iowa State University Police Communications Center	Existing
incident response coordination	Story County Sheriff Communications Center	Iowa State University Police Communications Center	Existing
resource coordination	Story County Sheriff Communications Center	Iowa State University Police Communications Center	Existing
emergency plan coordination	Story County Sheriff Communications Center	Mary Greeley Medical Center Dispatch	Existing
incident command information coordination	Story County Sheriff Communications Center	Mary Greeley Medical Center Dispatch	Planned
incident report	Story County Sheriff Communications Center	Mary Greeley Medical Center Dispatch	Planned
incident response coordination	Story County Sheriff Communications Center	Mary Greeley Medical Center Dispatch	Planned
resource coordination	Story County Sheriff Communications Center	Mary Greeley Medical Center Dispatch	Planned
incident information for media	Story County Sheriff Communications Center	Media	Existing
decision support information	Story County Sheriff Communications Center	Nevada Fire Department Emergency Vehicles	Existing
emergency dispatch requests	Story County Sheriff Communications Center	Nevada Fire Department Emergency Vehicles	Existing
event confirmation	Story County Sheriff Communications Center	Special Event Promoters	Existing
emergency plan coordination	Story County Sheriff Communications Center	Story County Engineers	Existing
incident information	Story County Sheriff Communications Center	Story County Engineers	Existing

Architecture Flow Name	Source	Destination	Status
incident response status	Story County Sheriff Communications Center	Story County Engineers	Existing
maint and constr resource request	Story County Sheriff Communications Center	Story County Engineers	Existing
work plan feedback	Story County Sheriff Communications Center	Story County Engineers	Existing
decision support information	Story County Sheriff Communications Center	Story County Sheriff Emergency Vehicles	Existing
emergency dispatch requests	Story County Sheriff Communications Center	Story County Sheriff Emergency Vehicles	Existing
incident information	Story County Sheriff Communications Center	Union Pacific Railroad	Existing
incident response status	Story County Sheriff Communications Center	Union Pacific Railroad	Existing
decision support information	Story County Sheriff Communications Center	Westory Fire Agency Emergency Vehicles	Existing
emergency dispatch requests	Story County Sheriff Communications Center	Westory Fire Agency Emergency Vehicles	Existing
emergency dispatch response	Story County Sheriff Emergency Vehicles	Story County Sheriff Communications Center	Existing
incident status	Story County Sheriff Emergency Vehicles	Story County Sheriff Communications Center	Existing
emergency vehicle tracking data	Story County Sheriff Emergency Vehicles	Story County Sheriff Communications Center	Planned
voice-based traveler request	Telecommunications System for Traveler Information	Iowa DOT 511 Traveler Information System	Existing
transit system operator inputs	Transit System Operators	City of Ames CyRide	Existing
transit system operator inputs	Transit System Operators	Heartland Senior Services	Existing
incident information	Union Pacific Railroad	City of Ames Police Communications Center	Existing
rail incident response status	Union Pacific Railroad	City of Ames Police Communications Center	Existing
railroad advisories	Union Pacific Railroad	City of Ames Public Works	Existing
railroad schedules	Union Pacific Railroad	City of Ames Public Works	Existing
work plan feedback	Union Pacific Railroad	City of Ames Public Works	Existing
incident information	Union Pacific Railroad	Story County Sheriff Communications Center	Existing
rail incident response status	Union Pacific Railroad	Story County Sheriff Communications Center	Existing
track status	Union Pacific Railroad Wayside Equipment	City of Ames Public Works Railroad Crossing Automated Horn Warning System	Existing
track status	Union Pacific Railroad Wayside Equipment	City of Ames Public Works Traffic Signal Systems	Existing
traveler request	User Personal Computing Devices	City of Ames CyRide Transit Information Website	Planned
trip confirmation	User Personal Computing Devices	City of Ames CyRide Transit Information Website	Planned
trip request	User Personal Computing Devices	City of Ames CyRide Transit Information Website	Planned
traveler request	User Personal Computing Devices	City of Ames Public Works Website	Planned

Architecture Flow Name	Source	Destination	Status
emergency traveler information request	User Personal Computing Devices	Iowa DOT 511 Travel Information Website	Existing
emergency dispatch response	Westory Fire Agency Emergency Vehicles	Story County Sheriff Communications Center	Existing
incident status	Westory Fire Agency Emergency Vehicles	Story County Sheriff Communications Center	Existing