

VIII. ITS Services:

A regional ITS architecture would be useless if the ITS elements existed in isolation. Instead, the elements work together to deliver ITS services. Northwest Indiana stakeholders and neighboring ITS architectures have selected those services through the architecture development process explained in Section II. The services that were selected come directly from a broader set of services in the National ITS Architecture. Thus, the regional architecture services are deployments of those National ITS Architecture services found by stakeholders and neighboring architectures to be most useful and worthwhile to include in the regional architecture.

In total, the Northwest Indiana Regional ITS Architecture includes 65 services. These 65 services can be grouped into seven service categories (parenthesis after indicates the letters of the National ITS Architecture service abbreviation): Archived Data Services (AD), Transit Services (APTS), Traveler Information Services (ATIS), Traffic Management Services (ATMS), Commercial Vehicle Operations Services (CVO), Emergency Management Services (EM), and Maintenance and Construction Services (MC).

Table 7 lists all of the 65 ITS services deployed in the Northwest Indiana Regional ITS Architecture (in bold), if the service is an instance (in bold and in parenthesis, and explained later), the National ITS Architecture abbreviation of the service (in bold and in parenthesis), status of the (particular instance of the) service (in bold), description of the service, and the elements that deliver the service (in the particular instance). Note that some services appear in more than one entry in Table 7. This happens when some of the elements that deliver the service are in different maturation stages than others. Table 7 reflects this by listing the service in multiple instances, each with a different status and the elements that deliver the service in that particular instance.

Service Packages (Transportation Services)



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Service Packages for Region Northwest Indiana Regional Intelligent Transportation System

Service Package

Element(s)

ITS Data Mart (AD1) -- Existing

This service package provides a focused archive that houses data collected and owned by a single agency, district, private sector provider, research institution, or other organization. This focused archive typically includes data covering a single transportation mode and one jurisdiction that is collected from an operational data store and archived for future use. It provides the basic data quality, data privacy, and meta data management common to all ITS archives and provides general query and report access to archive data users.

Academic and Research Organizations
 Amtrak Rail Asset Management
 Archived Data Administrator
 Archived Data Management System
 Archived Data User Systems
 Borman TMC
 City of Gary 311 Center
 City of Hammond 311 Center
 ECT Agency Management
 Gary-Chicago Airport
 Government Reporting Systems
 GPTC Agency Management
 Illiana Corridor Asset Management
 Illiana Corridor Operations Center
 Indiana Toll Road Asset Management
 Indiana Toll Road Operations Center
 INDOT Asset Management
 INDOT Maintenance and Construction Management System
 Lake County Asset Management
 Lake County Highway Department
 Lake County Maintenance and Construction Management System
 LaPorte County Asset Management
 LaPorte County Highway Department
 LaPorte County Maintenance and Construction Management System
 Local Asset Management
 Local Maintenance and Construction Management System
 Local Streets Departments
 Map Update Provider
 MCT Agency Management
 NICTD Agency Management
 NICTD Asset Management
 NIRPC Data Archive
 North Township Dial-a-Ride Agency Management
 Northwest Indiana Archive
 Opportunity Enterprises Agency Management
 Porter County Asset Management
 Porter County Highway Department
 Porter County Maintenance and Construction Management System
 Private Information Service Providers

Table 7

Private Maintenance and Construction Management System
 RTA Operations
 SLCCS Agency Management
 TransPorte Agency Management
 Valparaiso Transit Agency Management

ITS Data Mart (Instance 1) (AD1) -- Planned

This service package provides a focused archive that houses data collected and owned by a single agency, district, private sector provider, research institution, or other organization. This focused archive typically includes data covering a single transportation mode and one jurisdiction that is collected from an operational data store and archived for future use. It provides the basic data quality, data privacy, and meta data management common to all ITS archives and provides general query and report access to archive data users.

Illiana Corridor Asset Management
 Illiana Corridor Operations Center
 Indiana Dunes National Lakeshore Shuttle Agency Management
 Triangle Transit Agency Management

ITS Data Mart (Instance 2) (AD1) -- Potential

This service package provides a focused archive that houses data collected and owned by a single agency, district, private sector provider, research institution, or other organization. This focused archive typically includes data covering a single transportation mode and one jurisdiction that is collected from an operational data store and archived for future use. It provides the basic data quality, data privacy, and meta data management common to all ITS archives and provides general query and report access to archive data users.

INDOT-Northwest District Arterial TMC
 Local TMCs

ITS Data Warehouse (AD2) -- Existing

This service package includes all the data collection and management capabilities provided by the ITS Data Mart, and adds the functionality and interface definitions that allow collection of data from multiple agencies and data sources spanning across modal and jurisdictional boundaries. It performs the additional transformations and provides the additional meta data management features that are necessary so that all this data can be managed in a single repository with consistent formats. The potential for large volumes of varied data suggests additional on-line analysis and data mining features that are also included in this service package in addition to the basic query and reporting user access features offered by the ITS Data Mart.

Academic and Research Organizations
 Archived Data Administrator
 Archived Data Management System
 Archived Data User Systems
 Borman TMC
 Government Reporting Systems
 Indiana Gateway
 Indiana Toll Road Operations Center
 Lake Michigan Interstate Gateway Alliance (LMIGA) Archive
 Lake Michigan Interstate Gateway Alliance (LMIGA) Website
 Map Update Provider
 NIRPC Data Archive
 Private Information Service Providers
 Vehicle ITS Equipment
 Weather Services

ITS Data Warehouse (Instance 1) (AD2) -- Potential

This service package includes all the data collection and management capabilities provided by the ITS Data Mart, and adds the functionality and interface definitions that allow collection of data from multiple agencies and data sources spanning across modal and jurisdictional boundaries. It performs the additional transformations and provides the additional meta data management features that are necessary so that all this data can be managed in a single repository with consistent formats. The potential for large volumes of varied data suggests additional on-line analysis and data mining features that are also included in this service package in addition to the basic query and reporting user access features offered by the ITS Data Mart.

Northwest Indiana Archive

RTA Operations

Transit Vehicle Tracking (APTS01) -- Existing

This service package monitors current transit vehicle location using an Automated Vehicle Location System. The location data may be used to determine real time schedule adherence and update the transit system's schedule in real-time. Vehicle position may be determined either by the vehicle (e.g., through GPS) and relayed to the infrastructure or may be determined directly by the communications infrastructure. A two-way wireless communication link with the Transit Management Subsystem is used for relaying vehicle position and control measures. Fixed route transit systems may also employ beacons along the route to enable position determination and facilitate communications with each vehicle at fixed intervals. The Transit Management Subsystem processes this information, updates the transit schedule and makes real-time schedule information available to the Information Service Provider.

ECT Agency Management
 ECT Transit Vehicles
 GPTC Agency Management
 GPTC Transit Vehicles
 Indiana Gateway
 Location Data Source
 Map Update Provider
 MCT Agency Management
 MCT Transit Vehicles
 NICTD Agency Management
 NICTD Rail Transit Vehicles
 North Township Dial-a-Ride Agency Management
 North Township Dial-a-Ride Transit Vehicles
 PCACS Agency Management
 PCACS Transit Vehicles
 Private Information Service Providers
 RTA Operations
 SLCCS Agency Management
 SLCCS Transit Vehicles
 TransPorte Agency Management
 TransPorte Transit Vehicles
 Valparaiso Transit Agency Management
 Valparaiso Transit Transit Vehicles
 Vehicle ITS Equipment

Transit Vehicle Tracking (Instance 1) (APTS01) -- Potential

This service package monitors current transit vehicle location using an Automated Vehicle Location System. The location data may be used to determine real time schedule adherence and update the transit system's schedule in real-time. Vehicle position may be determined either by the vehicle (e.g., through GPS) and relayed to the infrastructure or may be determined directly by the communications infrastructure. A two-way wireless communication link with the Transit Management Subsystem is used for relaying vehicle position and control measures. Fixed route transit systems may also employ beacons along the route to enable position determination and facilitate communications with each vehicle at fixed intervals. The Transit Management Subsystem processes this information, updates the transit schedule and makes real-time schedule information available to the Information Service Provider.

Indiana Dunes National Lakeshore Shuttle Agency Management
 Indiana Dunes National Lakeshore Shuttle Transit Vehicles
 NIRPC Data Archive
 Opportunity Enterprises Agency Management
 Opportunity Enterprises Transit Vehicles
 Triangle Transit Agency Management
 Triangle Transit Transit Vehicles

Transit Fixed-Route Operations (APTS02) -- Existing

This service package performs automated dispatch and system monitoring for fixed-route and flexible-route transit services. This service performs scheduling activities including the creation of schedules, blocks and runs, as well as operator assignment. This service determines the transit vehicle trip performance against the schedule using AVL data and provides information displays at the Transit

Table 7

Management Subsystem. Static and real time transit data is exchanged with Information Service Providers where it is integrated with that from other transportation modes (e.g. rail, ferry, air) to provide the public with integrated and personalized dynamic schedules.

- ECT Agency Management
- ECT Drivers
- ECT Personnel
- ECT Transit Vehicles
- GPTC Agency Management
- GPTC Drivers
- GPTC Personnel
- GPTC Transit Vehicles
- Indiana Gateway
- INDOT Maintenance and Construction Management System
- Lake County Maintenance and Construction Management System
- LaPorte County Maintenance and Construction Management System
- Local Maintenance and Construction Management System
- MCT Agency Management
- MCT Drivers
- MCT Personnel
- MCT Transit Vehicles
- NICTD Agency Management
- NICTD Drivers
- NICTD Personnel
- NICTD Rail Transit Vehicles
- Porter County Maintenance and Construction Management System
- Private Information Service Providers
- Private Maintenance and Construction Management System
- RTA Operations
- Valparaiso Transit Agency Management
- Valparaiso Transit Drivers
- Valparaiso Transit Personnel
- Valparaiso Transit Transit Vehicles

Transit Fixed-Route Operations (Instance 1) (APTS02) -- Planned

This service package performs automated dispatch and system monitoring for fixed-route and flexible-route transit services. This service performs scheduling activities including the creation of schedules, blocks and runs, as well as operator assignment. This service determines the transit vehicle trip performance against the schedule using AVL data and provides information displays at the Transit Management Subsystem. Static and real time transit data is exchanged with Information Service Providers where it is integrated with that from other transportation modes (e.g. rail, ferry, air) to provide the public with integrated and personalized dynamic schedules.

- Indiana Dunes National Lakeshore Shuttle Agency Management
- Indiana Dunes National Lakeshore Shuttle Drivers
- Indiana Dunes National Lakeshore Shuttle Personnel
- Indiana Dunes National Lakeshore Shuttle Transit Vehicles
- Lake Michigan Interstate Gateway Alliance (LMIGA) Website
- Triangle Transit Agency Management
- Triangle Transit Drivers
- Triangle Transit Personnel
- Triangle Transit Transit Vehicles

Transit Fixed-Route Operations (Instance 2) (APTS02) -- Potential

This service package performs automated dispatch and system monitoring for fixed-route and flexible-route transit services. This service performs scheduling activities including the creation of schedules, blocks and runs, as well as operator assignment. This service determines the transit vehicle trip performance against the schedule using AVL data and provides information displays at the Transit

Table 7

Management Subsystem. Static and real time transit data is exchanged with Information Service Providers where it is integrated with that from other transportation modes (e.g. rail, ferry, air) to provide the public with integrated and personalized dynamic schedules.

INDOT-Northwest District Arterial TMC
Local TMCs

Demand Response Transit Operations (APTS03) -- Existing

This service package performs automated dispatch and system monitoring for demand responsive transit services. This service performs scheduling activities as well as operator assignment. In addition, this service package performs similar functions to support dynamic features of flexible-route transit services. This package monitors the current status of the transit fleet and supports allocation of these fleet resources to service incoming requests for transit service while also considering traffic conditions. The Transit Management Subsystem provides the necessary data processing and information display to assist the transit operator in making optimal use of the transit fleet. This service includes the capability for a traveler request for personalized transit services to be made through the Information Service Provider (ISP) Subsystem. The ISP may either be operated by a transit management center or be independently owned and operated by a separate service provider. In the first scenario, the traveler makes a direct request to a specific paratransit service. In the second scenario, a third party service provider determines that the paratransit service is a viable means of satisfying a traveler request and makes a reservation for the traveler.

ECT Agency Management
ECT Drivers
ECT Personnel
ECT Transit Vehicles
GPTC Agency Management
GPTC Drivers
GPTC Personnel
GPTC Transit Vehicles
Indiana Gateway
INDOT Maintenance and Construction Management System
Lake County Maintenance and Construction Management System
LaPorte County Maintenance and Construction Management System
Local Maintenance and Construction Management System
MCT Agency Management
MCT Drivers
MCT Personnel
MCT Transit Vehicles
North Township Dial-a-Ride Agency Management
North Township Dial-a-Ride Drivers
North Township Dial-a-Ride Personnel
North Township Dial-a-Ride Transit Vehicles
Opportunity Enterprises Agency Management
Opportunity Enterprises Drivers
Opportunity Enterprises Personnel
Opportunity Enterprises Transit Vehicles
PCACS Agency Management
PCACS Drivers
PCACS Personnel
PCACS Transit Vehicles
Porter County Maintenance and Construction Management System
Private Information Service Providers
Private Maintenance and Construction Management System
SLCCS Agency Management
SLCCS Drivers
SLCCS Personnel
SLCCS Transit Vehicles

Table 7

TransPorte Agency Management
 TransPorte Drivers
 TransPorte Personnel
 TransPorte Transit Vehicles
 Valparaiso Transit Agency Management
 Valparaiso Transit Drivers
 Valparaiso Transit Personnel
 Valparaiso Transit Transit Vehicles

Demand Response Transit Operations (Instance 1) (APTS03) -- Potential

This service package performs automated dispatch and system monitoring for demand responsive transit services. This service performs scheduling activities as well as operator assignment. In addition, this service package performs similar functions to support dynamic features of flexible-route transit services. This package monitors the current status of the transit fleet and supports allocation of these fleet resources to service incoming requests for transit service while also considering traffic conditions. The Transit Management Subsystem provides the necessary data processing and information display to assist the transit operator in making optimal use of the transit fleet. This service includes the capability for a traveler request for personalized transit services to be made through the Information Service Provider (ISP) Subsystem. The ISP may either be operated by a transit management center or be independently owned and operated by a separate service provider. In the first scenario, the traveler makes a direct request to a specific paratransit service. In the second scenario, a third party service provider determines that the paratransit service is a viable means of satisfying a traveler request and makes a reservation for the traveler.

Borman TMC
 Indiana Dunes National Lakeshore Shuttle Agency Management
 Indiana Dunes National Lakeshore Shuttle Drivers
 Indiana Dunes National Lakeshore Shuttle Personnel
 Indiana Dunes National Lakeshore Shuttle Transit Vehicles
 INDOT-Northwest District Arterial TMC
 Local TMCs
 Triangle Transit Agency Management
 Triangle Transit Drivers
 Triangle Transit Personnel
 Triangle Transit Transit Vehicles

Transit Fare Collection Management (APTS04) -- Existing

This service package manages transit fare collection on-board transit vehicles and at transit stops using electronic means. It allows transit users to use a traveler card or other electronic payment device. Readers located either in the infrastructure or on-board the transit vehicles enable electronic fare payment. Data is processed, stored, and displayed on the transit vehicle and communicated as needed to the Transit Management Subsystem. Two other service packages, ATMS10: Electronic Toll Collection and ATMS16: Parking Facility Management, also provide electronic payment services. These three service packages in combination provide an integrated electronic payment system for transportation services.

Amtrak Rail
 Financial Institutions
 GPTC Agency Management
 GPTC Kiosks
 GPTC Personnel
 GPTC Transit Vehicles
 NICTD Agency Management
 NICTD Kiosks
 NICTD Personnel
 NICTD Rail Transit Vehicles
 Payment Instruments
 Private Information Service Providers
 RTA Operations
 Transit Users
 Valparaiso Transit Agency Management

Table 7

Valparaiso Transit Personnel
 Valparaiso Transit Transit Vehicles

Transit Fare Collection Management (Instance 1) (APTS04) -- Potential

This service package manages transit fare collection on-board transit vehicles and at transit stops using electronic means. It allows transit users to use a traveler card or other electronic payment device. Readers located either in the infrastructure or on-board the transit vehicles enable electronic fare payment. Data is processed, stored, and displayed on the transit vehicle and communicated as needed to the Transit Management Subsystem. Two other service packages, ATMS10: Electronic Toll Collection and ATMS16: Parking Facility Management, also provide electronic payment services. These three service packages in combination provide an integrated electronic payment system for transportation services.

Indiana Dunes National Lakeshore Shuttle Agency Management
 Indiana Dunes National Lakeshore Shuttle Kiosks
 Indiana Dunes National Lakeshore Shuttle Personnel
 Indiana Dunes National Lakeshore Shuttle Transit Vehicles
 MCT Agency Management
 MCT Personnel
 MCT Transit Vehicles
 Opportunity Enterprises Agency Management
 Opportunity Enterprises Personnel
 Opportunity Enterprises Transit Vehicles
 PCACS Agency Management
 PCACS Personnel
 PCACS Transit Vehicles
 SLCCS Agency Management
 SLCCS Personnel
 SLCCS Transit Vehicles
 TransPorte Agency Management
 TransPorte Personnel
 TransPorte Transit Vehicles
 Triangle Transit Agency Management
 Triangle Transit Personnel
 Triangle Transit Transit Vehicles

Transit Security (APTS05) -- Existing

This service package provides for the physical security of transit passengers and transit vehicle operators. On-board equipment is deployed to perform surveillance and sensor monitoring in order to warn of potentially hazardous situations. The surveillance equipment includes video (e.g., CCTV cameras), audio systems and/or event recorder systems. The sensor equipment includes threat sensors (e.g., chemical agent, toxic industrial chemical, biological, explosives, and radiological sensors) and object detection sensors (e.g., metal detectors). Transit user or transit vehicle operator activated alarms are provided on-board. Public areas (e.g., transit stops, park and ride lots, stations) are also monitored with similar surveillance and sensor equipment and provided with transit user activated alarms. In addition this service package provides surveillance and sensor monitoring of non-public areas of transit facilities (e.g., transit yards) and transit infrastructure such as bridges, tunnels, and transit railways or bus rapid transit (BRT) guideways. The surveillance equipment includes video and/or audio systems. The sensor equipment includes threat sensors and object detection sensors as described above as well as, intrusion or motion detection sensors and infrastructure integrity monitoring (e.g., rail track continuity checking or bridge structural integrity monitoring).

The surveillance and sensor information is transmitted to the Emergency Management Subsystem, as are transit user activated alarms in public secure areas. On-board alarms, activated by transit users or transit vehicle operators are transmitted to both the Emergency Management Subsystem and the Transit Management Subsystem, indicating two possible approaches to implementing this service package.

In addition the service package supports remote transit vehicle disabling by the Transit Management Subsystem and transit vehicle operator authentication.

Amtrak Rail
 ECT Agency Management
 ECT Drivers

Table 7

ECT Personnel
 ECT Transit Vehicles
 Emergency Management Agencies
 Emergency Medical Services
 GPTC Agency Management
 GPTC Drivers
 GPTC Kiosks
 GPTC Personnel
 GPTC Transit Vehicles
 Hazmat Management and Cleanup
 Indiana Department of Homeland Security State Emergency Operations Center

 Indiana State Police District 13
 Lake County E-911 Center
 Lake County Emergency Operations Center
 Lake County Sheriff Department
 LaPorte County E-911 Communications Center
 LaPorte County Emergency Operations Center
 LaPorte County Sheriff Office
 Local Emergency Services
 Local Emergency Services Personnel
 Local Emergency Telecommunications Systems
 MCT Agency Management
 MCT Drivers
 MCT Personnel
 MCT Transit Vehicles
 Media
 NICTD Agency Management
 NICTD Drivers
 NICTD Kiosks
 NICTD Personnel
 NICTD Positive Train Control
 NICTD Rail Transit Vehicles
 Porter County Central Communications
 Porter County Emergency Operations Center
 Porter County Sheriff Department
 Private Information Service Providers
 Private Towing Companies
 RTA Operations
 Secure Area Environment
 Transit Users
 Valparaiso Transit Agency Management
 Valparaiso Transit Drivers
 Valparaiso Transit Personnel
 Valparaiso Transit Transit Vehicles

Transit Security (Instance 1) (APTS05) -- Planned

This service package provides for the physical security of transit passengers and transit vehicle operators. On-board equipment is deployed to perform surveillance and sensor monitoring in order to warn of potentially hazardous situations. The surveillance equipment includes video (e.g., CCTV cameras), audio systems and/or event recorder systems. The sensor equipment includes threat sensors (e.g., chemical agent, toxic industrial chemical, biological, explosives, and radiological sensors) and object detection sensors (e.g., metal detectors). Transit user or transit vehicle operator activated alarms are provided on-board. Public areas (e.g., transit stops, park and ride lots, stations) are also monitored with similar surveillance and sensor equipment and provided with transit user activated alarms. In addition this service package provides surveillance and sensor monitoring of non-public areas of transit facilities (e.g., transit yards) and transit infrastructure such as bridges, tunnels, and transit railways or bus rapid transit (BRT) guideways. The surveillance equipment includes video and/or

Table 7

audio systems. The sensor equipment includes threat sensors and object detection sensors as described above as well as, intrusion or motion detection sensors and infrastructure integrity monitoring (e.g., rail track continuity checking or bridge structural integrity monitoring).

The surveillance and sensor information is transmitted to the Emergency Management Subsystem, as are transit user activated alarms in public secure areas. On-board alarms, activated by transit users or transit vehicle operators are transmitted to both the Emergency Management Subsystem and the Transit Management Subsystem, indicating two possible approaches to implementing this service package.

In addition the service package supports remote transit vehicle disabling by the Transit Management Subsystem and transit vehicle operator authentication.

- Indiana Dunes National Lakeshore Shuttle Agency Management
- Indiana Dunes National Lakeshore Shuttle Drivers
- Indiana Dunes National Lakeshore Shuttle Personnel
- Indiana Dunes National Lakeshore Shuttle Transit Vehicles
- North Township Dial-a-Ride Agency Management
- North Township Dial-a-Ride Drivers
- North Township Dial-a-Ride Personnel
- North Township Dial-a-Ride Transit Vehicles
- Opportunity Enterprises Agency Management
- Opportunity Enterprises Drivers
- Opportunity Enterprises Personnel
- Opportunity Enterprises Transit Vehicles
- PCACS Agency Management
- PCACS Drivers
- PCACS Personnel
- PCACS Transit Vehicles
- SLCCS Agency Management
- SLCCS Drivers
- SLCCS Personnel
- SLCCS Transit Vehicles
- TransPorte Agency Management
- TransPorte Drivers
- TransPorte Personnel
- TransPorte Transit Vehicles
- Triangle Transit Agency Management
- Triangle Transit Drivers
- Triangle Transit Personnel
- Triangle Transit Transit Vehicles

Transit Security (Instance 2) (APTS05) -- Potential

This service package provides for the physical security of transit passengers and transit vehicle operators. On-board equipment is deployed to perform surveillance and sensor monitoring in order to warn of potentially hazardous situations. The surveillance equipment includes video (e.g., CCTV cameras), audio systems and/or event recorder systems. The sensor equipment includes threat sensors (e.g., chemical agent, toxic industrial chemical, biological, explosives, and radiological sensors) and object detection sensors (e.g., metal detectors). Transit user or transit vehicle operator activated alarms are provided on-board. Public areas (e.g., transit stops, park and ride lots, stations) are also monitored with similar surveillance and sensor equipment and provided with transit user activated alarms. In addition this service package provides surveillance and sensor monitoring of non-public areas of transit facilities (e.g., transit yards) and transit infrastructure such as bridges, tunnels, and transit railways or bus rapid transit (BRT) guideways. The surveillance equipment includes video and/or audio systems. The sensor equipment includes threat sensors and object detection sensors as described above as well as, intrusion or motion detection sensors and infrastructure integrity monitoring (e.g., rail track continuity checking or bridge structural integrity monitoring).

The surveillance and sensor information is transmitted to the Emergency Management Subsystem, as are transit user activated alarms in public secure areas. On-board alarms, activated by transit users or transit vehicle operators are transmitted to both the Emergency Management Subsystem and the Transit Management Subsystem, indicating two possible approaches to implementing this service

Table 7

package.

In addition the service package supports remote transit vehicle disabling by the Transit Management Subsystem and transit vehicle operator authentication.

INDOT-Northwest District Arterial TMC
Local TMCs

Transit Fleet Management (APTS06) -- Planned

This service package supports automatic transit maintenance scheduling and monitoring. On-board condition sensors monitor system status and transmit critical status information to the Transit Management Subsystem. Hardware and software in the Transit Management Subsystem processes this data and schedules preventative and corrective maintenance. The service package also supports the day to day management of the transit fleet inventory, including the assignment of specific transit vehicles to blocks.

ECT Agency Management
ECT Personnel
ECT Transit Vehicles
GPTC Agency Management
GPTC Personnel
GPTC Transit Vehicles
NICTD Agency Management
NICTD Personnel
NICTD Rail Transit Vehicles

Multi-modal Coordination (APTS07) -- Planned

This service package establishes two way communications between multiple transit and traffic agencies to improve service coordination. Multimodal coordination between transit agencies can increase traveler convenience at transit transfer points and clusters (a collection of stops, stations, or terminals where transfers can be made conveniently) and also improve operating efficiency. Transit transfer information is shared between Multimodal Transportation Service Providers and Transit Agencies.

Amtrak Rail
ECT Agency Management
ECT Personnel
ECT Transit Vehicles
Event Promoters
Gary-Chicago Airport
GPTC Agency Management
GPTC Personnel
GPTC Transit Vehicles
Indiana Dunes National Lakeshore Shuttle Agency Management
Indiana Dunes National Lakeshore Shuttle Personnel
Indiana Dunes National Lakeshore Shuttle Transit Vehicles
Indiana Dunes National Lakeshore Visitors Center and Park Access
Indiana Gateway
MCT Agency Management
MCT Personnel
MCT Transit Vehicles
NICTD Agency Management
NICTD Parking
NICTD Personnel
NICTD Rail Transit Vehicles
Non-Profits and Advocacy Groups Promotions
North Township Dial-a-Ride Agency Management
North Township Dial-a-Ride Personnel
North Township Dial-a-Ride Transit Vehicles
Opportunity Enterprises Agency Management
Opportunity Enterprises Personnel

Table 7

Opportunity Enterprises Transit Vehicles
 Parking Management
 PCACS Agency Management
 PCACS Personnel
 PCACS Transit Vehicles
 RTA Operations
 SLCCS Agency Management
 SLCCS Personnel
 SLCCS Transit Vehicles
 TransPorte Agency Management
 TransPorte Personnel
 TransPorte Transit Vehicles
 Triangle Transit Agency Management
 Triangle Transit Personnel
 Triangle Transit Transit Vehicles
 Valparaiso Transit Agency Management
 Valparaiso Transit Personnel
 Valparaiso Transit Transit Vehicles

Multi-modal Coordination (Instance 1) (APTS07) -- Potential

This service package establishes two way communications between multiple transit and traffic agencies to improve service coordination. Multimodal coordination between transit agencies can increase traveler convenience at transit transfer points and clusters (a collection of stops, stations, or terminals where transfers can be made conveniently) and also improve operating efficiency. Transit transfer information is shared between Multimodal Transportation Service Providers and Transit Agencies.

INDOT-Northwest District Arterial TMC
 Local TMCs

Transit Traveler Information (APTS08) -- Existing

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

Amtrak Rail
 GPTC Agency Management
 GPTC Kiosks
 GPTC Transit Vehicles
 Media
 NICTD Agency Management
 NICTD Kiosks
 NICTD Rail Transit Vehicles
 Personal Travel Information Access
 Private Information Service Providers
 RTA Operations
 Transit Users

Transit Traveler Information (Instance 1) (APTS08) -- Planned

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

ECT Agency Management
 ECT Transit Vehicles
 Indiana Dunes National Lakeshore Shuttle Agency Management
 Indiana Dunes National Lakeshore Shuttle Kiosks

Table 7

Indiana Dunes National Lakeshore Shuttle Transit Vehicles
 Indiana Gateway
 Lake Michigan Interstate Gateway Alliance (LMIGA) Website
 MCT Agency Management
 MCT Transit Vehicles
 Triangle Transit Agency Management
 Triangle Transit Transit Vehicles
 Valparaiso Transit Agency Management
 Valparaiso Transit Transit Vehicles

Transit Traveler Information (Instance 2) (APTS08) -- Potential

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

Kiosks, Yellow Pages, and Other Remote Traveler Support
 Local TMCs Kiosks

Transit Passenger Counting (APTS10) -- Planned

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

GPTC Agency Management
 GPTC Personnel
 GPTC Transit Vehicles
 RTA Operations
 Transit Users

Transit Passenger Counting (Instance 1) (APTS10) -- Potential

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

ECT Agency Management
 ECT Personnel
 ECT Transit Vehicles
 Indiana Dunes National Lakeshore Shuttle Agency Management
 Indiana Dunes National Lakeshore Shuttle Personnel
 Indiana Dunes National Lakeshore Shuttle Transit Vehicles
 MCT Agency Management
 MCT Personnel
 MCT Transit Vehicles
 NICTD Agency Management
 NICTD Personnel
 NICTD Rail Transit Vehicles
 North Township Dial-a-Ride Agency Management
 North Township Dial-a-Ride Personnel
 North Township Dial-a-Ride Transit Vehicles
 Opportunity Enterprises Agency Management
 Opportunity Enterprises Personnel
 Opportunity Enterprises Transit Vehicles
 PCACS Agency Management
 PCACS Personnel
 PCACS Transit Vehicles
 SLCCS Agency Management

Table 7

SLCCS Personnel
 SLCCS Transit Vehicles
 TransPorte Agency Management
 TransPorte Personnel
 TransPorte Transit Vehicles
 Triangle Transit Agency Management
 Triangle Transit Personnel
 Triangle Transit Transit Vehicles
 Valparaiso Transit Agency Management
 Valparaiso Transit Personnel
 Valparaiso Transit Transit Vehicles

Multimodal Connection Protection (APTS11) -- Planned

This service package supports the coordination of multimodal services to optimize the travel time of travelers as they move from mode to mode (or to different routes within a single mode). A near term function supported by this service package would be for a single transit agency to coordinate crossing routes so that passengers on one route would have the opportunity to transfer with minimum wait time to another route within the same transit system. The next level of complexity of this service package would be for this coordination to occur across transit agencies, or between transit agencies and other modes of transportation. The most advanced functions of this service package would be to track the route of an individual traveler and ensure that connections are properly scheduled on an individual basis. This final capability represents a long-term functionality, which could be managed either through an Information Served Provider or through a Transit Management subsystem.

ECT Agency Management
 ECT Transit Vehicles
 GPTC Agency Management
 GPTC Kiosks
 GPTC Transit Vehicles
 Indiana Dunes National Lakeshore Shuttle Agency Management
 Indiana Dunes National Lakeshore Shuttle Transit Vehicles
 Lake Michigan Interstate Gateway Alliance (LMIGA) Website
 MCT Agency Management
 MCT Transit Vehicles
 NICTD Agency Management
 NICTD Kiosks
 NICTD Rail Transit Vehicles
 Personal Travel Information Access
 Private Information Service Providers
 RTA Operations
 Triangle Transit Agency Management
 Triangle Transit Transit Vehicles
 Valparaiso Transit Agency Management
 Valparaiso Transit Transit Vehicles

Broadcast Traveler Information (ATIS01) -- Existing

This service package collects traffic conditions, advisories, general public transportation, toll and parking information, incident information, roadway maintenance and construction information, air quality and weather information, and broadcasts the information to travelers using technologies such as FM subcarrier, satellite radio, cellular data broadcasts, and Internet web casts. The information may be provided directly to travelers or provided to merchants and other traveler service providers so that they can better inform their customers of travel conditions. Different from the service package ATMS06 - Traffic Information Dissemination, which provides localized HAR and DMS information capabilities, ATIS01 provides a wide area digital broadcast service. Successful deployment of this service package relies on availability of real-time traveler information from roadway instrumentation, probe vehicles or other sources.

Borman Hoosier Helpers
 Borman TMC
 City of Gary Traffic Division

Table 7

ECT Agency Management
 Emergency Medical Services
 Event Promoters
 GPTC Agency Management
 GPTC Kiosks
 Hazmat Management and Cleanup
 Indiana Department of Homeland Security State Emergency Operations Center

 Indiana Dunes National Lakeshore Visitors Center and Park Access
 Indiana Emissions Management
 Indiana Gateway
 Indiana State Police District 13
 Indiana State Police District 21 (Toll Road)
 Indiana Toll Road Kiosks
 Indiana Toll Road Maintenance and Construction Management System
 Indiana Toll Road Operations Center
 Indiana Toll Road Travel Plazas
 Indiana Welcome Center
 INDOT Maintenance and Construction Management System
 Kiosks, Yellow Pages, and Other Remote Traveler Support
 Lake County E-911 Center
 Lake County Emergency Operations Center
 Lake County Highway Department
 Lake County Maintenance and Construction Management System
 Lake County Sheriff Department
 Lake Michigan Interstate Gateway Alliance (LMIGA) Website
 LaPorte County E-911 Communications Center
 LaPorte County Emergency Operations Center
 LaPorte County Highway Department
 LaPorte County Maintenance and Construction Management System
 LaPorte County Sheriff Office
 Local Emergency Services
 Local Emergency Services Personnel
 Local Emergency Telecommunications Systems
 Local Maintenance and Construction Management System
 Local Streets Departments
 MCT Agency Management
 Media
 NICTD Agency Management
 NICTD Kiosks
 NICTD Parking
 Non-Profits and Advocacy Groups Promotions
 North Township Dial-a-Ride Agency Management
 Opportunity Enterprises Agency Management
 Parking Management
 PCACS Agency Management
 Personal Travel Information Access
 Porter County Central Communications
 Porter County Emergency Operations Center
 Porter County Highway Department
 Porter County Maintenance and Construction Management System
 Porter County Sheriff Department
 Private Information Service Providers

Table 7

Private Maintenance and Construction Management System
 Private Towing Companies
 RTA Operations
 SLCCS Agency Management
 Traffic
 TransPorte Agency Management
 Travelers
 Valparaiso Transit Agency Management
 Vehicle ITS Equipment
 Weather Services

Broadcast Traveler Information (Instance 1) (ATIS01) -- Planned

This service package collects traffic conditions, advisories, general public transportation, toll and parking information, incident information, roadway maintenance and construction information, air quality and weather information, and broadcasts the information to travelers using technologies such as FM subcarrier, satellite radio, cellular data broadcasts, and Internet web casts. The information may be provided directly to travelers or provided to merchants and other traveler service providers so that they can better inform their customers of travel conditions. Different from the service package ATMS06 - Traffic Information Dissemination, which provides localized HAR and DMS information capabilities, ATIS01 provides a wide area digital broadcast service. Successful deployment of this service package relies on availability of real-time traveler information from roadway instrumentation, probe vehicles or other sources.

Illiana Corridor Maintenance and Construction Management System
 Illiana Corridor Operations Center
 Indiana Dunes National Lakeshore Shuttle Agency Management
 Indiana Dunes National Lakeshore Shuttle Kiosks
 Triangle Transit Agency Management

Broadcast Traveler Information (Instance 2) (ATIS01) -- Potential

This service package collects traffic conditions, advisories, general public transportation, toll and parking information, incident information, roadway maintenance and construction information, air quality and weather information, and broadcasts the information to travelers using technologies such as FM subcarrier, satellite radio, cellular data broadcasts, and Internet web casts. The information may be provided directly to travelers or provided to merchants and other traveler service providers so that they can better inform their customers of travel conditions. Different from the service package ATMS06 - Traffic Information Dissemination, which provides localized HAR and DMS information capabilities, ATIS01 provides a wide area digital broadcast service. Successful deployment of this service package relies on availability of real-time traveler information from roadway instrumentation, probe vehicles or other sources.

Freight Rail Crews
 INDOT-Northwest District Arterial TMC
 INDOT-Northwest District Arterial TMC Kiosks
 Local TMCs
 Local TMCs Kiosks

Interactive Traveler Information (ATIS02) -- Existing

This service package provides tailored information in response to a traveler request. Both real-time interactive request/response systems and information systems that "push" a tailored stream of information to the traveler based on a submitted profile are supported. The traveler can obtain current information regarding traffic conditions, roadway maintenance and construction, transit services, ride share/ride match, parking management, detours and pricing information. Although the Internet is the predominate network used for traveler information dissemination, a range of two-way wide-area wireless and fixed-point to fixed-point communications systems may be used to support the required data communications between the traveler and Information Service Provider. A variety of interactive devices may be used by the traveler to access information prior to a trip or en route including phone via a 511-like portal and web pages via kiosk, personal digital assistant, personal computer, and a variety of in-vehicle devices. This service package also allows value-added resellers to collect transportation information that can be aggregated and be available to their personal devices or remote traveler systems to better inform their customers of transportation conditions. Successful deployment of this service package relies on availability of real-time transportation data from roadway instrumentation, transit, probe vehicles or other means. A traveler may also input personal preferences and identification information via a "traveler card" that can convey information to the system about the traveler as well as receive updates from the system so the card can be updated over time.

Borman Hoosier Helpers

Table 7

Borman TMC
Drivers
ECT Agency Management
Emergency Medical Services
Financial Institutions
Gary-Chicago Airport
GPTC Agency Management
GPTC Kiosks
Hazmat Management and Cleanup
Indiana Dunes National Lakeshore Visitors Center and Park Access
Indiana Gateway
Indiana State Police District 13
Indiana State Police District 21 (Toll Road)
Indiana Toll Road Kiosks
Indiana Toll Road Maintenance and Construction Management System
Indiana Toll Road Operations Center
Indiana Toll Road Travel Plazas
Indiana Welcome Center
INDOT Maintenance and Construction Management System
Lake County E-911 Center
Lake County Emergency Operations Center
Lake County Highway Department
Lake County Maintenance and Construction Management System
Lake County Sheriff Department
Lake Michigan Interstate Gateway Alliance (LMIGA) Website
LaPorte County E-911 Communications Center
LaPorte County Emergency Operations Center
LaPorte County Highway Department
LaPorte County Maintenance and Construction Management System
LaPorte County Sheriff Office
Local Emergency Services
Local Emergency Telecommunications Systems
Local Maintenance and Construction Management System
Local Streets Departments
Map Update Provider
MCT Agency Management
Media
NICTD Agency Management
NICTD Kiosks
NICTD Parking
North Township Dial-a-Ride Agency Management
Opportunity Enterprises Agency Management
Parking Management
Payment Instruments
PCACS Agency Management
Personal Travel Information Access
Porter County Central Communications
Porter County Emergency Operations Center
Porter County Highway Department
Porter County Maintenance and Construction Management System
Porter County Sheriff Department
Private Information Service Providers
Private Maintenance and Construction Management System

Table 7

RTA Operations
 SLCCS Agency Management
 Traffic
 Transit Users
 TransPorte Agency Management
 Travelers
 Valparaiso Transit Agency Management
 Vehicle ITS Equipment
 Weather Services

Interactive Traveler Information (Instance 1) (ATIS02) -- Planned

This service package provides tailored information in response to a traveler request. Both real-time interactive request/response systems and information systems that "push" a tailored stream of information to the traveler based on a submitted profile are supported. The traveler can obtain current information regarding traffic conditions, roadway maintenance and construction, transit services, ride share/ride match, parking management, detours and pricing information. Although the Internet is the predominate network used for traveler information dissemination, a range of two-way wide-area wireless and fixed-point to fixed-point communications systems may be used to support the required data communications between the traveler and Information Service Provider. A variety of interactive devices may be used by the traveler to access information prior to a trip or en route including phone via a 511-like portal and web pages via kiosk, personal digital assistant, personal computer, and a variety of in-vehicle devices. This service package also allows value-added resellers to collect transportation information that can be aggregated and be available to their personal devices or remote traveler systems to better inform their customers of transportation conditions. Successful deployment of this service package relies on availability of real-time transportation data from roadway instrumentation, transit, probe vehicles or other means. A traveler may also input personal preferences and identification information via a "traveler card" that can convey information to the system about the traveler as well as receive updates from the system so the card can be updated over time.

Illiana Corridor Maintenance and Construction Management System
 Illiana Corridor Operations Center
 Indiana Dunes National Lakeshore Shuttle Agency Management
 Indiana Dunes National Lakeshore Shuttle Kiosks
 Triangle Transit Agency Management

Interactive Traveler Information (Instance 2) (ATIS02) -- Potential

This service package provides tailored information in response to a traveler request. Both real-time interactive request/response systems and information systems that "push" a tailored stream of information to the traveler based on a submitted profile are supported. The traveler can obtain current information regarding traffic conditions, roadway maintenance and construction, transit services, ride share/ride match, parking management, detours and pricing information. Although the Internet is the predominate network used for traveler information dissemination, a range of two-way wide-area wireless and fixed-point to fixed-point communications systems may be used to support the required data communications between the traveler and Information Service Provider. A variety of interactive devices may be used by the traveler to access information prior to a trip or en route including phone via a 511-like portal and web pages via kiosk, personal digital assistant, personal computer, and a variety of in-vehicle devices. This service package also allows value-added resellers to collect transportation information that can be aggregated and be available to their personal devices or remote traveler systems to better inform their customers of transportation conditions. Successful deployment of this service package relies on availability of real-time transportation data from roadway instrumentation, transit, probe vehicles or other means. A traveler may also input personal preferences and identification information via a "traveler card" that can convey information to the system about the traveler as well as receive updates from the system so the card can be updated over time.

Freight Rail Crews
 INDOT-Northwest District Arterial TMC
 INDOT-Northwest District Arterial TMC Kiosks
 Kiosks, Yellow Pages, and Other Remote Traveler Support
 Local TMCs
 Local TMCs Kiosks

Autonomous Route Guidance (ATIS03) -- Planned

This service package relies on in-vehicle sensory, location determination, computational, map database, and interactive driver interface equipment to enable route planning and detailed route guidance based on static, stored information. No communication with the infrastructure is assumed or required. Identical capabilities are available to the traveler outside the vehicle by integrating a similar suite of equipment into portable devices.

Table 7

Drivers
 Indiana Gateway
 Location Data Source
 Map Update Provider
 Personal Travel Information Access
 Travelers
 Vehicle ITS Equipment

ISP Based Trip Planning and Route Guidance (ATIS05) -- Planned

This service package offers the user trip planning and en-route guidance services. It generates a trip plan, including a multimodal route and associated service information (e.g., parking information), based on traveler preferences and constraints. Routes may be based on static information or reflect real time network conditions. Unlike ATIS3 and ATIS4, where the user equipment determines the route, the route determination functions are performed in the Information Service Provider Subsystem in this service package. The trip plan may be confirmed by the traveler and advanced payment and reservations for transit and alternate mode (e.g., airline, rail, and ferry) trip segments, and ancillary services (e.g., parking reservations) are accepted and processed. The confirmed trip plan may include specific routing information that can be supplied to the traveler as general directions or as turn-by-turn route guidance depending on the level of user equipment.

Borman TMC
 Drivers
 ECT Agency Management
 Gary-Chicago Airport
 GPTC Agency Management
 GPTC Kiosks
 Illiana Corridor Maintenance and Construction Management System
 Illiana Corridor Operations Center
 Indiana Dunes National Lakeshore Visitors Center and Park Access
 Indiana Gateway
 Indiana Toll Road Maintenance and Construction Management System
 Indiana Toll Road Operations Center
 Indiana Toll Road Travel Plazas
 Indiana Welcome Center
 INDOT Maintenance and Construction Management System
 Kiosks, Yellow Pages, and Other Remote Traveler Support
 Lake County Maintenance and Construction Management System
 Lake Michigan Interstate Gateway Alliance (LMIGA) Website
 LaPorte County Maintenance and Construction Management System
 Local Maintenance and Construction Management System
 Location Data Source
 Map Update Provider
 MCT Agency Management
 NICTD Agency Management
 NICTD Kiosks
 NICTD Parking
 Parking Management
 Personal Travel Information Access
 Porter County Maintenance and Construction Management System
 Private Information Service Providers
 Private Maintenance and Construction Management System
 RTA Operations
 Transit Users
 Travelers
 Valparaiso Transit Agency Management
 Vehicle ITS Equipment

Transportation Operations Data Sharing (ATIS06) -- Planned

This service package makes real-time transportation operations data available to transportation system operators. The Information Service Provider collects, processes, and stores current information on traffic and travel conditions and other information about the current state of the transportation network and makes this information available to transportation system operators, facilitating the exchange of qualified, real-time information between agencies. Using the provided information, transportation system operators can manage their individual systems based on an overall view of the regional transportation system. The regional transportation operations data resource represented by the Information Service Provider may be implemented as a web application that provides a web-based access to system operators, an enterprise database that provides a network interface to remote center applications, or any implementation that supports regional sharing of real-time transportation operations data.

Borman TMC
Private Information Service Providers

Network Surveillance (ATMS01) -- Existing

This service package includes traffic detectors, other surveillance equipment, the supporting field equipment, and fixed-point to fixed-point communications to transmit the collected data back to the Traffic Management Subsystem. The derived data can be used locally such as when traffic detectors are connected directly to a signal control system or remotely (e.g., when a CCTV system sends data back to the Traffic Management Subsystem). The data generated by this service package enables traffic managers to monitor traffic and road conditions, identify and verify incidents, detect faults in indicator operations, and collect census data for traffic strategy development and long range planning. The collected data can also be analyzed and made available to users and the Information Service Provider Subsystem.

Borman Hoosier Helpers
Borman TMC
Borman TMC Personnel
Borman TMC Roadside Equipment
Indiana Gateway
Lake Michigan Interstate Gateway Alliance (LMIGA) Website
Map Update Provider
NIRPC Data Archive
Private Information Service Providers
Traffic

Network Surveillance (Instance 1) (ATMS01) -- Potential

This service package includes traffic detectors, other surveillance equipment, the supporting field equipment, and fixed-point to fixed-point communications to transmit the collected data back to the Traffic Management Subsystem. The derived data can be used locally such as when traffic detectors are connected directly to a signal control system or remotely (e.g., when a CCTV system sends data back to the Traffic Management Subsystem). The data generated by this service package enables traffic managers to monitor traffic and road conditions, identify and verify incidents, detect faults in indicator operations, and collect census data for traffic strategy development and long range planning. The collected data can also be analyzed and made available to users and the Information Service Provider Subsystem.

Illiana Corridor Operations Center
Illiana Corridor Operations Center Personnel
Illiana Corridor Roadside Equipment/Toll Plazas/Gantries
Indiana Toll Road Operations Center
Indiana Toll Road Operations Center Personnel
Indiana Toll Road Roadside Equipment/Toll Plazas/Gantries
INDOT-Northwest District Arterial TMC
INDOT-Northwest District Arterial TMC Personnel
INDOT-Northwest District Arterial TMC Roadside Equipment
Local TMCs
Local TMCs Personnel
Local TMCs Roadside Equipment
Traffic

Traffic Probe Surveillance (ATMS02) -- Existing

This service package provides an alternative approach for surveillance of the roadway network. Two general implementation paths are

Table 7

supported by this service package: 1) wide-area wireless communications between the vehicle and center is used to communicate vehicle operational information and status directly to the center, and 2) dedicated short range communications between passing vehicles and the roadside is used to provide equivalent information to the center. The first approach leverages wide area communications equipment that may already be in the vehicle to support personal safety and advanced traveler information services. The second approach utilizes vehicle equipment that supports toll collection, in-vehicle signing, and other short range communications applications identified within the architecture. The service package enables transportation operators and traveler information providers to monitor road conditions, identify incidents, analyze and reduce the collected data, and make it available to users and private information providers. It requires one of the communications options identified above, on-board equipment, data reduction software, and fixed-point to fixed-point links between centers to share the collected information. Both “Opt out” and “Opt in” strategies are available to ensure the user has the ability to turn off the probe functions to ensure individual privacy. Due to the large volume of data collected by probes, data reduction techniques are required, such as the ability to identify and filter out-of-bounds or extreme data reports.

- Borman TMC
- Indiana Gateway
- INDOT Field Equipment
- INDOT Traffic Management
- Lake Michigan Interstate Gateway Alliance (LMIGA) Website
- NIRPC Data Archive
- Private Information Service Providers
- Vehicle ITS Equipment

Traffic Probe Surveillance (Instance 1) (ATMS02) -- Potential

This service package provides an alternative approach for surveillance of the roadway network. Two general implementation paths are supported by this service package: 1) wide-area wireless communications between the vehicle and center is used to communicate vehicle operational information and status directly to the center, and 2) dedicated short range communications between passing vehicles and the roadside is used to provide equivalent information to the center. The first approach leverages wide area communications equipment that may already be in the vehicle to support personal safety and advanced traveler information services. The second approach utilizes vehicle equipment that supports toll collection, in-vehicle signing, and other short range communications applications identified within the architecture. The service package enables transportation operators and traveler information providers to monitor road conditions, identify incidents, analyze and reduce the collected data, and make it available to users and private information providers. It requires one of the communications options identified above, on-board equipment, data reduction software, and fixed-point to fixed-point links between centers to share the collected information. Both “Opt out” and “Opt in” strategies are available to ensure the user has the ability to turn off the probe functions to ensure individual privacy. Due to the large volume of data collected by probes, data reduction techniques are required, such as the ability to identify and filter out-of-bounds or extreme data reports.

- Illiana Corridor Operations Center
- Illiana Corridor Roadside Equipment/Toll Plazas/Gantries
- Indiana Toll Road Operations Center
- Indiana Toll Road Roadside Equipment/Toll Plazas/Gantries
- INDOT-Northwest District Arterial TMC
- INDOT-Northwest District Arterial TMC Roadside Equipment
- Lake County Field Equipment
- Lake County Highway Department
- LaPorte County Field Equipment
- LaPorte County Highway Department
- Local Field Equipment
- Local Streets Departments
- Local TMCs
- Local TMCs Roadside Equipment
- Porter County Field Equipment
- Porter County Highway Department

Traffic Signal Control (ATMS03) -- Existing

This service package provides the central control and monitoring equipment, communication links, and the signal control equipment that support traffic control at signalized intersections. A range of traffic signal control systems are represented by this service package ranging from fixed-schedule control systems to fully traffic responsive systems that dynamically adjust control plans and strategies based on current traffic conditions and priority requests. This service package is generally an intra-jurisdictional package. Systems that achieve

Table 7

coordination across jurisdictions by using a common time base or other strategies that do not require real time coordination would also be represented by this package. Coordination of traffic signal systems using real-time communications is covered in the ATMS07-Regional Traffic Management service package. This service package is consistent with typical traffic signal control systems.

INDOT Field Equipment
INDOT Traffic Management
INDOT Traffic Management Personnel
Lake County Field Equipment
Lake County Highway Department
LaPorte County Field Equipment
LaPorte County Highway Department
Local Field Equipment
Local Streets Departments
Porter County Field Equipment
Porter County Highway Department
Traffic

Traffic Signal Control (Instance 1) (ATMS03) -- Potential

This service package provides the central control and monitoring equipment, communication links, and the signal control equipment that support traffic control at signalized intersections. A range of traffic signal control systems are represented by this service package ranging from fixed-schedule control systems to fully traffic responsive systems that dynamically adjust control plans and strategies based on current traffic conditions and priority requests. This service package is generally an intra-jurisdictional package. Systems that achieve coordination across jurisdictions by using a common time base or other strategies that do not require real time coordination would also be represented by this package. Coordination of traffic signal systems using real-time communications is covered in the ATMS07-Regional Traffic Management service package. This service package is consistent with typical traffic signal control systems.

INDOT-Northwest District Arterial TMC
INDOT-Northwest District Arterial TMC Personnel
INDOT-Northwest District Arterial TMC Roadside Equipment
Local TMCs
Local TMCs Personnel
Local TMCs Roadside Equipment

Traffic Information Dissemination (ATMS06) -- Existing

This service package provides driver information using roadway equipment such as dynamic message signs or highway advisory radio. A wide range of information can be disseminated including traffic and road conditions, closure and detour information, travel restrictions, incident information, and emergency alerts and driver advisories. This package provides information to drivers at specific equipped locations on the road network. Careful placement of the roadway equipment provides the information at points in the network where the drivers have recourse and can tailor their routes to account for the new information. This package also covers the equipment and interfaces that provide traffic information from a traffic management center to the media (for instance via a direct tie-in between a traffic management center and radio or television station computer systems), Transit Management, Emergency Management, and Information Service Providers. A link to the Maintenance and Construction Management subsystem allows real time information on road/bridge closures and restrictions due to maintenance and construction activities to be disseminated. The sharing of transportation operations data described in this service package also supports other services like ATMS09- Traffic Decision Support and Demand Management.

Basic Vehicles
Borman Hoosier Helpers
Borman TMC
Borman TMC Personnel
Borman TMC Roadside Equipment
City of Gary 311 Center
City of Gary Traffic Division
City of Hammond 311 Center
Drivers

Table 7

ECT Agency Management
 Emergency Medical Services
 GPTC Agency Management
 Hazmat Management and Cleanup
 Indiana Department of Homeland Security State Emergency Operations Center

 Indiana Gateway
 Indiana State Police Commercial Vehicle Enforcement Division
 Indiana State Police District 13
 Indiana State Police District 21 (Toll Road)
 Indiana Toll Road Maintenance and Construction Management System
 Indiana Toll Road Operations Center
 Indiana Toll Road Operations Center Personnel
 INDOT Field Equipment
 INDOT Maintenance and Construction Management System
 INDOT Traffic Management
 INDOT Traffic Management Personnel
 Lake County E-911 Center
 Lake County Emergency Operations Center
 Lake County Highway Department
 Lake County Maintenance and Construction Management System
 Lake County Sheriff Department
 Lake Michigan Interstate Gateway Alliance (LMIGA) Website
 LaPorte County E-911 Communications Center
 LaPorte County Emergency Operations Center
 LaPorte County Highway Department
 LaPorte County Maintenance and Construction Management System
 LaPorte County Sheriff Office
 Local Emergency Services
 Local Emergency Telecommunications Systems
 Local Maintenance and Construction Management System
 Local Streets Departments
 MCT Agency Management
 Media
 NICTD Agency Management
 North Township Dial-a-Ride Agency Management
 Opportunity Enterprises Agency Management
 PCACS Agency Management
 Porter County Central Communications
 Porter County Emergency Operations Center
 Porter County Highway Department
 Porter County Maintenance and Construction Management System
 Porter County Sheriff Department
 Private Information Service Providers
 Private Maintenance and Construction Management System
 Private Towing Companies
 RTA Operations
 SLCCS Agency Management
 TransPorte Agency Management
 Valparaiso Transit Agency Management

Traffic Information Dissemination (Instance 1) (ATMS06) -- Potential

This service package provides driver information using roadway equipment such as dynamic message signs or highway advisory radio. A wide range of information can be disseminated including traffic and road conditions, closure and detour information, travel restrictions,

Table 7

incident information, and emergency alerts and driver advisories. This package provides information to drivers at specific equipped locations on the road network. Careful placement of the roadway equipment provides the information at points in the network where the drivers have recourse and can tailor their routes to account for the new information. This package also covers the equipment and interfaces that provide traffic information from a traffic management center to the media (for instance via a direct tie-in between a traffic management center and radio or television station computer systems), Transit Management, Emergency Management, and Information Service Providers. A link to the Maintenance and Construction Management subsystem allows real time information on road/bridge closures and restrictions due to maintenance and construction activities to be disseminated. The sharing of transportation operations data described in this service package also supports other services like ATMS09- Traffic Decision Support and Demand Management.

- Illiana Corridor Maintenance and Construction Management System
- Illiana Corridor Operations Center
- Illiana Corridor Operations Center Personnel
- Illiana Corridor Roadside Equipment/Toll Plazas/Gantries
- Indiana Dunes National Lakeshore Shuttle Agency Management
- Indiana State Police District 21 (Toll Road)
- Indiana Toll Road Maintenance and Construction Management System
- Indiana Toll Road Operations Center
- Indiana Toll Road Operations Center Personnel
- Indiana Toll Road Roadside Equipment/Toll Plazas/Gantries
- INDOT-Northwest District Arterial TMC
- INDOT-Northwest District Arterial TMC Personnel
- INDOT-Northwest District Arterial TMC Roadside Equipment
- Local TMCs
- Local TMCs Personnel
- Local TMCs Roadside Equipment
- Triangle Transit Agency Management

Regional Traffic Management (ATMS07) -- Planned

This service package provides for the sharing of traffic information and control among traffic management centers to support regional traffic management strategies. Regional traffic management strategies that are supported include inter-jurisdictional, real-time coordinated traffic signal control systems and coordination between freeway operations and traffic signal control within a corridor. This service package advances the ATMS03-Traffic Signal Control and ATMS04-Traffic Metering service packages by adding the communications links and integrated control strategies that enable integrated, interjurisdictional traffic management. The nature of optimization and extent of information and control sharing is determined through working arrangements between jurisdictions. This package relies principally on roadside instrumentation supported by the Traffic Signal Control and Traffic Metering service packages and adds hardware, software, and fixed-point to fixed-point communications capabilities to implement traffic management strategies that are coordinated between allied traffic management centers. Several levels of coordination are supported from sharing of information through sharing of control between traffic management centers.

- Borman Hoosier Helpers
- Borman TMC
- Borman TMC Personnel
- Borman TMC Roadside Equipment
- City of Gary Traffic Division
- Illinois Department of Transportation District 1 Traffic Systems Center (TSC)
- Indiana Gateway
- Indiana Toll Road Operations Center
- Indiana Toll Road Operations Center Personnel
- Indiana Toll Road Roadside Equipment/Toll Plazas/Gantries
- INDOT Field Equipment
- INDOT Traffic Management
- INDOT Traffic Management Personnel
- Lake County Field Equipment
- Lake County Highway Department

Table 7

LaPorte County Field Equipment
 LaPorte County Highway Department
 Local Field Equipment
 Local Streets Departments
 Porter County Field Equipment
 Porter County Highway Department

Regional Traffic Management (Instance 1) (ATMS07) -- Potential

This service package provides for the sharing of traffic information and control among traffic management centers to support regional traffic management strategies. Regional traffic management strategies that are supported include inter-jurisdictional, real-time coordinated traffic signal control systems and coordination between freeway operations and traffic signal control within a corridor. This service package advances the ATMS03-Traffic Signal Control and ATMS04-Traffic Metering service packages by adding the communications links and integrated control strategies that enable integrated, interjurisdictional traffic management. The nature of optimization and extent of information and control sharing is determined through working arrangements between jurisdictions. This package relies principally on roadside instrumentation supported by the Traffic Signal Control and Traffic Metering service packages and adds hardware, software, and fixed-point to fixed-point communications capabilities to implement traffic management strategies that are coordinated between allied traffic management centers. Several levels of coordination are supported from sharing of information through sharing of control between traffic management centers.

Illiana Corridor Operations Center
 Illiana Corridor Operations Center Personnel
 Illiana Corridor Roadside Equipment/Toll Plazas/Gantries
 INDOT-Northwest District Arterial TMC
 INDOT-Northwest District Arterial TMC Personnel
 INDOT-Northwest District Arterial TMC Roadside Equipment
 Local TMCs
 Local TMCs Personnel
 Local TMCs Roadside Equipment

Traffic Incident Management System (ATMS08) -- Existing

This service package manages both unexpected incidents and planned events so that the impact to the transportation network and traveler safety is minimized. The service package includes incident detection capabilities through roadside surveillance devices (e.g. CCTV) and through regional coordination with other traffic management, maintenance and construction management and emergency management centers as well as rail operations and event promoters. Information from these diverse sources is collected and correlated by this service package to detect and verify incidents and implement an appropriate response. This service package supports traffic operations personnel in developing an appropriate response in coordination with emergency management, maintenance and construction management, and other incident response personnel to confirmed incidents. The response may include traffic control strategy modifications or resource coordination between center subsystems. Incident response also includes presentation of information to affected travelers using the Traffic Information Dissemination service package and dissemination of incident information to travelers through the Broadcast Traveler Information or Interactive Traveler Information service packages. The roadside equipment used to detect and verify incidents also allows the operator to monitor incident status as the response unfolds. The coordination with emergency management might be through a CAD system or through other communication with emergency field personnel. The coordination can also extend to tow trucks and other allied response agencies and field service personnel.

Amtrak Rail
 Borman Hoosier Helpers
 Borman TMC
 Borman TMC Personnel
 Borman TMC Roadside Equipment
 City of Gary Traffic Division
 Emergency Management Agencies
 Emergency Medical Personnel
 Emergency Medical Services
 Event Promoters
 Freight Rail Operators
 Hazmat Management and Cleanup

Table 7

Hazmat Response Vehicles
 Illinois Department of Transportation District 1 Traffic Systems Center (TSC)
 Illinois Department of Transportation Emergency Traffic Patrol (ETP)
 Indiana Department of Homeland Security State Emergency Operations Center
 Indiana Gateway
 Indiana State Police District 13
 Indiana State Police District 21 (Toll Road)
 Indiana Toll Road Maintenance and Construction Center Personnel
 Indiana Toll Road Maintenance and Construction Management System
 Indiana Toll Road Operations Center
 Indiana Toll Road Operations Center Personnel
 Indiana Toll Road Roadside Equipment/Toll Plazas/Gantries
 INDOT Field Equipment
 INDOT Maintenance and Construction Center Personnel
 INDOT Maintenance and Construction Management System
 Lake County E-911 Center
 Lake County Emergency Operations Center
 Lake County Field Equipment
 Lake County Highway Department
 Lake County Maintenance and Construction Center Personnel
 Lake County Maintenance and Construction Management System
 Lake County Sheriff Department
 Lake Michigan Interstate Gateway Alliance (LMIGA) Website
 LaPorte County E-911 Communications Center
 LaPorte County Emergency Operations Center
 LaPorte County Field Equipment
 LaPorte County Highway Department
 LaPorte County Maintenance and Construction Center Personnel
 LaPorte County Maintenance and Construction Management System
 LaPorte County Sheriff Office
 Local Emergency Services
 Local Emergency Services Personnel
 Local Emergency Telecommunications Systems
 Local Emergency Vehicles
 Local Field Equipment
 Local Maintenance and Construction Center Personnel
 Local Maintenance and Construction Management System
 Local Streets Departments
 Map Update Provider
 Media
 NICTD Agency Management
 NICTD Personnel
 Non-Profits and Advocacy Groups Promotions
 Porter County Central Communications
 Porter County Emergency Operations Center
 Porter County Field Equipment
 Porter County Highway Department
 Porter County Maintenance and Construction Center Personnel
 Porter County Maintenance and Construction Management System
 Porter County Sheriff Department
 Private Information Service Providers
 Private Maintenance and Construction Center Personnel

Table 7

Private Maintenance and Construction Management System
 Private Towing Companies
 Private Towing Companies Tow Vehicles
 Traffic
 US Coast Guard Michigan City Station Dispatch
 US Coast Guard Vessels

Traffic Incident Management System (Instance 1) (ATMS08) -- Potential

This service package manages both unexpected incidents and planned events so that the impact to the transportation network and traveler safety is minimized. The service package includes incident detection capabilities through roadside surveillance devices (e.g. CCTV) and through regional coordination with other traffic management, maintenance and construction management and emergency management centers as well as rail operations and event promoters. Information from these diverse sources is collected and correlated by this service package to detect and verify incidents and implement an appropriate response. This service package supports traffic operations personnel in developing an appropriate response in coordination with emergency management, maintenance and construction management, and other incident response personnel to confirmed incidents. The response may include traffic control strategy modifications or resource coordination between center subsystems. Incident response also includes presentation of information to affected travelers using the Traffic Information Dissemination service package and dissemination of incident information to travelers through the Broadcast Traveler Information or Interactive Traveler Information service packages. The roadside equipment used to detect and verify incidents also allows the operator to monitor incident status as the response unfolds. The coordination with emergency management might be through a CAD system or through other communication with emergency field personnel. The coordination can also extend to tow trucks and other allied response agencies and field service personnel.

ECT Agency Management
 GPTC Agency Management
 Illiana Corridor Operations Center
 Illiana Corridor Operations Center Personnel
 Illiana Corridor Roadside Equipment/Toll Plazas/Gantries
 Indiana Dunes National Lakeshore Shuttle Agency Management
 Indiana Dunes National Lakeshore Visitors Center and Park Access
 INDOT Arterial Multimodal Crossings
 INDOT-Northwest District Arterial TMC
 INDOT-Northwest District Arterial TMC Personnel
 INDOT-Northwest District Arterial TMC Roadside Equipment
 Lake County Multimodal Crossings
 LaPorte County Multimodal Crossings
 Local Multimodal Crossings
 Local TMCs
 Local TMCs Personnel
 Local TMCs Roadside Equipment
 MCT Agency Management
 North Township Dial-a-Ride Agency Management
 Opportunity Enterprises Agency Management
 PCACS Agency Management
 Porter County Multimodal Crossings
 RTA Operations
 SLCCS Agency Management
 TransPorte Agency Management
 Triangle Transit Agency Management
 Valparaiso Transit Agency Management

Transportation Decision Support and Demand Management (ATMS09) -- Planned

This service package recommends courses of action to traffic operations personnel based on an assessment of current and forecast road network performance. Recommendations may include predefined incident response plans and regional surface street and freeway control strategies that correct network imbalances. Where applicable, this service package also recommends transit, parking, and toll strategies to influence traveler route and mode choices to support travel demand management (TDM) programs and policies managing both traffic and

Table 7

the environment. TDM recommendations are coordinated with transit, parking, and toll administration centers to support regional implementation of TDM strategies. Incident response and congestion management recommendations are implemented by the local traffic management center and coordinated with other regional centers by other service packages (see ATMS07-Regional Traffic Management and ATMS08-Traffic Incident Management). All recommendations are based on historical evaluation, real-time assessment, and forecast of the roadway network performance based on predicted travel demand patterns. Traffic data is collected from sensors and surveillance equipment as well as other transportation management centers (see ATIS06-Transportation Operations Data Sharing). Forecasted traffic loads are derived from historical data and route plans supplied by the Information Service Provider Subsystem. This service package also collects air quality, parking availability, transit usage, and vehicle occupancy data to support TDM, where applicable.

Archived Data Management System
Borman TMC
Borman TMC Personnel
Borman TMC Roadside Equipment
ECT Agency Management
Event Promoters
GPTC Agency Management
Illiana Corridor Operations Center
Illiana Corridor Operations Center Personnel
Illiana Corridor Roadside Equipment/Toll Plazas/Gantries
Indiana Dunes National Lakeshore Shuttle Agency Management
Indiana Emissions Management
Indiana Gateway
Indiana Toll Road Operations Center
Indiana Toll Road Operations Center Personnel
Indiana Toll Road Roadside Equipment/Toll Plazas/Gantries
Indiana Transportation Tolling/Finance
INDOT Field Equipment
INDOT Traffic Management
INDOT Traffic Management Personnel
Lake County Field Equipment
Lake County Highway Department
Lake Michigan Interstate Gateway Alliance (LMIGA) Archive
Lake Michigan Interstate Gateway Alliance (LMIGA) Website
LaPorte County Field Equipment
LaPorte County Highway Department
Local Field Equipment
Local Streets Departments
Map Update Provider
MCT Agency Management
NICTD Agency Management
NICTD Parking
NIRPC Data Archive
Non-Profits and Advocacy Groups Promotions
North Township Dial-a-Ride Agency Management
Opportunity Enterprises Agency Management
Parking Management
PCACS Agency Management
Porter County Field Equipment
Porter County Highway Department
Private Information Service Providers
RTA Operations
SLCCS Agency Management
Traffic

Table 7

TransPorte Agency Management
 Triangle Transit Agency Management
 Valparaiso Transit Agency Management

Transportation Decision Support and Demand Management (Instance 1) (ATMS09) -- Potential

This service package recommends courses of action to traffic operations personnel based on an assessment of current and forecast road network performance. Recommendations may include predefined incident response plans and regional surface street and freeway control strategies that correct network imbalances. Where applicable, this service package also recommends transit, parking, and toll strategies to influence traveler route and mode choices to support travel demand management (TDM) programs and policies managing both traffic and the environment. TDM recommendations are coordinated with transit, parking, and toll administration centers to support regional implementation of TDM strategies. Incident response and congestion management recommendations are implemented by the local traffic management center and coordinated with other regional centers by other service packages (see ATMS07-Regional Traffic Management and ATMS08-Traffic Incident Management). All recommendations are based on historical evaluation, real-time assessment, and forecast of the roadway network performance based on predicted travel demand patterns. Traffic data is collected from sensors and surveillance equipment as well as other transportation management centers (see ATIS06-Transportation Operations Data Sharing). Forecasted traffic loads are derived from historical data and route plans supplied by the Information Service Provider Subsystem. This service package also collects air quality, parking availability, transit usage, and vehicle occupancy data to support TDM, where applicable.

INDOT Arterial Multimodal Crossings
 INDOT-Northwest District Arterial TMC
 INDOT-Northwest District Arterial TMC Personnel
 INDOT-Northwest District Arterial TMC Roadside Equipment
 Lake County Multimodal Crossings
 LaPorte County Multimodal Crossings
 Local Multimodal Crossings
 Local TMCs
 Local TMCs Personnel
 Local TMCs Roadside Equipment
 Porter County Multimodal Crossings

Electronic Toll Collection (ATMS10) -- Existing

This service package provides toll operators with the ability to collect tolls electronically and detect and process violations. The fees that are collected may be adjusted to implement demand management strategies. Field-Vehicle Communication between the roadway equipment and the vehicle is required as well as Fixed Point-Fixed Point interfaces between the toll collection equipment and transportation authorities and the financial infrastructure that supports fee collection. Toll violations are identified and electronically posted to vehicle owners. Standards, inter-agency coordination, and financial clearinghouse capabilities enable regional, and ultimately national interoperability for these services. Two other service packages, APTS04: Transit Fare Collection Management and ATMS16: Parking Facility Management also provide electronic payment services. These three service packages in combination provide an integrated electronic payment system for transportation services.

The vehicle equipment and roadside readers that these systems utilize can also be used to collect road use statistics for highway authorities. This data can be collected as a natural by-product of the toll collection process or collected by separate readers that are dedicated to probe data collection.

Drivers
 Financial Institutions
 Fleet and Freight Management System
 Indiana Bureau of Motor Vehicles
 Indiana State Police District 21 (Toll Road)
 Indiana Toll Road Operations Center
 Indiana Toll Road Operations Center Personnel
 Indiana Toll Road Operator
 Indiana Toll Road Roadside Equipment/Toll Plazas/Gantries
 Indiana Transportation Tolling/Finance
 Payment Instruments
 Private Information Service Providers
 Vehicle Characteristics

Table 7

Vehicle ITS Equipment

Electronic Toll Collection (Instance 1) (ATMS10) -- Planned

This service package provides toll operators with the ability to collect tolls electronically and detect and process violations. The fees that are collected may be adjusted to implement demand management strategies. Field-Vehicle Communication between the roadway equipment and the vehicle is required as well as Fixed Point-Fixed Point interfaces between the toll collection equipment and transportation authorities and the financial infrastructure that supports fee collection. Toll violations are identified and electronically posted to vehicle owners. Standards, inter-agency coordination, and financial clearinghouse capabilities enable regional, and ultimately national interoperability for these services. Two other service packages, APTS04: Transit Fare Collection Management and ATMS16: Parking Facility Management also provide electronic payment services. These three service packages in combination provide an integrated electronic payment system for transportation services.

The vehicle equipment and roadside readers that these systems utilize can also be used to collect road use statistics for highway authorities. This data can be collected as a natural by-product of the toll collection process or collected by separate readers that are dedicated to probe data collection.

- Illiana Corridor Operations Center
- Illiana Corridor Operations Center Personnel
- Illiana Corridor Operator
- Illiana Corridor Roadside Equipment/Toll Plazas/Gantries

Emissions Monitoring and Management (ATMS11) -- Existing

This service package monitors individual vehicle emissions and provides general air quality monitoring using distributed sensors to collect the data. The collected information is transmitted to the emissions management subsystem for processing. Both area wide air quality monitoring and point emissions monitoring are supported by this service package. For area wide monitoring, this service package measures air quality, identifies sectors that are non-compliant with air quality standards, and collects, stores and reports supporting statistical data. For point emissions monitoring, this service package collects data from on-board diagnostic systems and measures tail pipe emissions to identify vehicles that exceed emissions standards and/or clean vehicles that could be released from standard emissions tests, depending on policy and regulations. Summary emissions information or warnings can also be displayed to drivers. The gathered information can be used to implement environmentally sensitive TDM programs, policies, and regulations.

- Drivers
- Environment
- Indiana Bureau of Motor Vehicles
- Indiana Emissions Management

Emissions Monitoring and Management (Instance 1) (ATMS11) -- Planned

This service package monitors individual vehicle emissions and provides general air quality monitoring using distributed sensors to collect the data. The collected information is transmitted to the emissions management subsystem for processing. Both area wide air quality monitoring and point emissions monitoring are supported by this service package. For area wide monitoring, this service package measures air quality, identifies sectors that are non-compliant with air quality standards, and collects, stores and reports supporting statistical data. For point emissions monitoring, this service package collects data from on-board diagnostic systems and measures tail pipe emissions to identify vehicles that exceed emissions standards and/or clean vehicles that could be released from standard emissions tests, depending on policy and regulations. Summary emissions information or warnings can also be displayed to drivers. The gathered information can be used to implement environmentally sensitive TDM programs, policies, and regulations.

- Borman TMC
- Borman TMC Personnel
- Borman TMC Roadside Equipment
- Indiana Emissions Management
- Indiana Gateway
- Indiana Toll Road Operations Center
- Indiana Toll Road Operations Center Personnel
- Indiana Toll Road Roadside Equipment/Toll Plazas/Gantries
- Lake Michigan Interstate Gateway Alliance (LMIGA) Website
- Media
- NIRPC Data Archive
- Private Information Service Providers

Table 7

Traffic
 Vehicle Characteristics
 Weather Services

Standard Railroad Grade Crossing (ATMS13) -- Existing

This service package manages highway traffic at highway-rail intersections (HRIs) where operational requirements do not dictate more advanced features (e.g., where rail operational speeds are less than 80 miles per hour). Both passive (e.g., the crossbuck sign) and active warning systems (e.g., flashing lights and gates) are supported. (Note that passive systems exercise only the single interface between the roadway subsystem and the driver in the architecture definition.) These traditional HRI warning systems may also be augmented with other standard traffic management devices. The warning systems are activated on notification by interfaced wayside equipment of an approaching train. The equipment at the HRI may also be interconnected with adjacent signalized intersections so that local control can be adapted to highway-rail intersection activities. Health monitoring of the HRI equipment and interfaces is performed; detected abnormalities are reported to both highway and railroad officials through wayside interfaces and interfaces to the traffic management subsystem.

Amtrak Rail
 Amtrak Railroad Wayside Equipment
 Drivers
 Freight Rail Crews
 Freight Rail Operators
 Freight Rail Wayside Equipment
 INDOT Arterial Multimodal Crossings
 Lake County Multimodal Crossings
 LaPorte County Multimodal Crossings
 Local Multimodal Crossings
 NICTD Agency Management
 NICTD Railroad Wayside Equipment
 Pedestrians and Bicyclists
 Porter County Multimodal Crossings
 Traffic

Advanced Railroad Grade Crossing (ATMS14) -- Planned

This service package manages highway traffic at highway-rail intersections (HRIs) where operational requirements demand advanced features (e.g., where rail operational speeds are greater than 80 miles per hour). This service package includes all capabilities from the Standard Railroad Grade Crossing service package and augments these with additional safety features to mitigate the risks associated with higher rail speeds. The active warning systems supported by this service package include positive barrier systems that preclude entrance into the intersection when the barriers are activated. Like the Standard package, the HRI equipment is activated on notification by wayside interface equipment which detects, or communicates with the approaching train. In this service package, the wayside equipment provides additional information about the arriving train so that the train's direction of travel, estimated time of arrival, and estimated duration of closure may be derived. This enhanced information may be conveyed to the driver prior to, or in context with, warning system activation. This service package also includes additional detection capabilities that enable it to detect an entrapped or otherwise immobilized vehicle within the HRI and provide an immediate notification to highway and railroad officials.

Amtrak Rail
 Amtrak Railroad Wayside Equipment
 Drivers
 Freight Rail Crews
 Freight Rail Operators
 Freight Rail Wayside Equipment
 Indiana Gateway
 INDOT Arterial Multimodal Crossings
 INDOT Field Equipment
 INDOT Traffic Management
 Lake County Highway Department
 Lake County Multimodal Crossings
 LaPorte County Highway Department

Table 7

LaPorte County Multimodal Crossings
 Local Multimodal Crossings
 Local Streets Departments
 NICTD Agency Management
 NICTD Railroad Wayside Equipment
 Pedestrians and Bicyclists
 Porter County Highway Department
 Porter County Multimodal Crossings
 Traffic
 Vehicle ITS Equipment

Advanced Railroad Grade Crossing (Instance 1) (ATMS14) -- Potential

This service package manages highway traffic at highway-rail intersections (HRIs) where operational requirements demand advanced features (e.g., where rail operational speeds are greater than 80 miles per hour). This service package includes all capabilities from the Standard Railroad Grade Crossing service package and augments these with additional safety features to mitigate the risks associated with higher rail speeds. The active warning systems supported by this service package include positive barrier systems that preclude entrance into the intersection when the barriers are activated. Like the Standard package, the HRI equipment is activated on notification by wayside interface equipment which detects, or communicates with the approaching train. In this service package, the wayside equipment provides additional information about the arriving train so that the train's direction of travel, estimated time of arrival, and estimated duration of closure may be derived. This enhanced information may be conveyed to the driver prior to, or in context with, warning system activation. This service package also includes additional detection capabilities that enable it to detect an entrapped or otherwise immobilized vehicle within the HRI and provide an immediate notification to highway and railroad officials.

INDOT-Northwest District Arterial TMC
 INDOT-Northwest District Arterial TMC Roadside Equipment
 Local TMCs
 Local TMCs Roadside Equipment

Railroad Operations Coordination (ATMS15) -- Planned

This service package provides an additional level of strategic coordination between freight rail operations and traffic management centers. Rail operations provides train schedules, maintenance schedules, and any other forecast events that will result in highway-rail intersection (HRI) closures. This information is used to develop forecast HRI closure times and durations that may be used in advanced traffic control strategies or to enhance the quality of traveler information.

Amtrak Rail
 Borman TMC
 Borman TMC Roadside Equipment
 City of Gary Traffic Division
 Freight Rail Operators
 Indiana Gateway
 INDOT Arterial Multimodal Crossings
 INDOT Field Equipment
 Lake County Field Equipment
 Lake County Highway Department
 Lake County Multimodal Crossings
 Lake Michigan Interstate Gateway Alliance (LMIGA) Website
 LaPorte County Field Equipment
 LaPorte County Highway Department
 LaPorte County Multimodal Crossings
 Local Field Equipment
 Local Multimodal Crossings
 Local Streets Departments
 NICTD Agency Management
 NICTD Positive Train Control
 Porter County Field Equipment

Table 7

Porter County Highway Department
Porter County Multimodal Crossings
Private Information Service Providers

Railroad Operations Coordination (Instance 1) (ATMS15) -- Potential

This service package provides an additional level of strategic coordination between freight rail operations and traffic management centers. Rail operations provides train schedules, maintenance schedules, and any other forecast events that will result in highway-rail intersection (HRI) closures. This information is used to develop forecast HRI closure times and durations that may be used in advanced traffic control strategies or to enhance the quality of traveler information.

INDOT-Northwest District Arterial TMC
INDOT-Northwest District Arterial TMC Roadside Equipment
Local TMCs
Local TMCs Roadside Equipment

Parking Facility Management (ATMS16) -- Planned

This service package provides enhanced monitoring and management of parking facilities. It assists in the management of parking operations, coordinates with transportation authorities, and supports electronic collection of parking fees. This service package collects current parking status, shares this data with Information Service Providers and Traffic Management, and collects parking fees using the same in-vehicle equipment utilized for electronic toll collection or contact or proximity traveler cards used for electronic payment. Two other service packages, APTS04: Transit Fare Collection Management and ATMS10: Electronic Toll Collection also provide electronic payment services. These three service packages in combination provide an integrated electronic payment system for transportation services.

City of Gary Traffic Division
Drivers
Financial Institutions
Gary-Chicago Airport
Indiana Bureau of Motor Vehicles
Indiana Dunes National Lakeshore Visitors Center and Park Access
Indiana Gateway
Lake County Sheriff Department
LaPorte County Sheriff Office
Local Emergency Services
Local Emergency Services Personnel
NICTD Agency Management
NICTD Parking
Parking Management
Parking Operators
Payment Instruments
Porter County Sheriff Department
Vehicle Characteristics
Vehicle ITS Equipment

Speed Warning and Enforcement (ATMS19) -- Existing

This service package monitors vehicle speeds and supports warning drivers when their speed is excessive. Also the service includes notifications to an enforcement agency to enforce the speed limit of the roadway. Speed monitoring can be made via spot speed or average speed measurements. Roadside equipment can display the speed of passing vehicles and/or suggest a safe driving speed. Environmental conditions and vehicle characteristics may be monitored and factored into the safe speed advisories that are provided to the motorist. For example, warnings can be generated recognizing the limitations of a given vehicle for the geometry of the roadway such as rollover risk for tall vehicles.

This service focuses on monitoring of vehicle speeds and enforcement of the speed limit while the variable speed limits service (covered in ATMS22-Variable Speed Limits service package) focuses on varying the posted speed limits to create more uniform speeds along a roadway, to promote safer driving during adverse conditions (such as fog) and/or to reduce air pollution.

Borman TMC
Borman TMC Personnel

Table 7

Borman TMC Roadside Equipment
 Drivers
 Indiana Gateway
 Indiana State Police District 13
 Indiana State Police District 21 (Toll Road)
 Indiana Toll Road Maintenance and Construction Center Personnel
 Indiana Toll Road Maintenance and Construction Management System
 Indiana Toll Road Operations Center
 Indiana Toll Road Operations Center Personnel
 Indiana Toll Road Roadside Equipment/Toll Plazas/Gantries
 INDOT Field Equipment
 INDOT Maintenance and Construction Center Personnel
 INDOT Maintenance and Construction Management System
 INDOT Traffic Management
 Lake County Field Equipment
 Lake County Highway Department
 Lake County Maintenance and Construction Center Personnel
 Lake County Maintenance and Construction Management System
 Lake County Sheriff Department
 LaPorte County Field Equipment
 LaPorte County Highway Department
 LaPorte County Maintenance and Construction Center Personnel
 LaPorte County Maintenance and Construction Management System
 LaPorte County Sheriff Office
 Local Emergency Services
 Local Emergency Services Personnel
 Local Field Equipment
 Local Maintenance and Construction Center Personnel
 Local Maintenance and Construction Management System
 Local Streets Departments
 Porter County Field Equipment
 Porter County Highway Department
 Porter County Maintenance and Construction Center Personnel
 Porter County Maintenance and Construction Management System
 Porter County Sheriff Department
 Private Maintenance and Construction Center Personnel
 Private Maintenance and Construction Management System
 Roadway Environment
 Traffic
 Vehicle Characteristics
 Vehicle ITS Equipment

Speed Warning and Enforcement (Instance 1) (ATMS19) -- Planned

This service package monitors vehicle speeds and supports warning drivers when their speed is excessive. Also the service includes notifications to an enforcement agency to enforce the speed limit of the roadway. Speed monitoring can be made via spot speed or average speed measurements. Roadside equipment can display the speed of passing vehicles and/or suggest a safe driving speed. Environmental conditions and vehicle characteristics may be monitored and factored into the safe speed advisories that are provided to the motorist. For example, warnings can be generated recognizing the limitations of a given vehicle for the geometry of the roadway such as rollover risk for tall vehicles.

This service focuses on monitoring of vehicle speeds and enforcement of the speed limit while the variable speed limits service (covered in ATMS22-Variable Speed Limits service package) focuses on varying the posted speed limits to create more uniform speeds along a roadway, to promote safer driving during adverse conditions (such as fog) and/or to reduce air pollution.

Illiana Corridor Maintenance and Construction Center Personnel

Table 7

Illiana Corridor Maintenance and Construction Management System
 Illiana Corridor Operations Center
 Illiana Corridor Operations Center Personnel
 Illiana Corridor Roadside Equipment/Toll Plazas/Gantries

Speed Warning and Enforcement (Instance 2) (ATMS19) -- Potential

This service package monitors vehicle speeds and supports warning drivers when their speed is excessive. Also the service includes notifications to an enforcement agency to enforce the speed limit of the roadway. Speed monitoring can be made via spot speed or average speed measurements. Roadside equipment can display the speed of passing vehicles and/or suggest a safe driving speed. Environmental conditions and vehicle characteristics may be monitored and factored into the safe speed advisories that are provided to the motorist. For example, warnings can be generated recognizing the limitations of a given vehicle for the geometry of the roadway such as rollover risk for tall vehicles.

This service focuses on monitoring of vehicle speeds and enforcement of the speed limit while the variable speed limits service (covered in ATMS22-Variable Speed Limits service package) focuses on varying the posted speed limits to create more uniform speeds along a roadway, to promote safer driving during adverse conditions (such as fog) and/or to reduce air pollution.

INDOT-Northwest District Arterial TMC
 INDOT-Northwest District Arterial TMC Personnel
 INDOT-Northwest District Arterial TMC Roadside Equipment
 Local TMCs
 Local TMCs Personnel
 Local TMCs Roadside Equipment

Drawbridge Management (ATMS20) -- Planned

This service package supports systems that manage drawbridges at rivers and canals and other multimodal crossings (other than railroad grade crossings which are specifically covered by other service packages). The equipment managed by this service package includes control devices (e.g., gates, warning lights, dynamic message signs) at the drawbridge as well as the information systems that are used to keep travelers apprised of current and forecasted drawbridge status.

Local Field Equipment
 Local Multimodal Crossings
 Local TMCs
 Local TMCs Roadside Equipment
 Private Information Service Providers

Roadway Closure Management (ATMS21) -- Planned

This service package closes roadways to vehicular traffic when driving conditions are unsafe, maintenance must be performed, and other scenarios where access to the roadway must be prohibited. The service package includes automatic or remotely controlled gates or barriers that control access to roadway segments including ramps and traffic lanes. Remote control systems allow the gates to be controlled from a central location or from a vehicle at the gate/barrier location, improving system efficiency and reducing personnel exposure to unsafe conditions during severe weather and other situations where roads must be closed. Surveillance systems allow operating personnel to visually verify the safe activation of the closure system and driver information systems (e.g., DMS) provide closure information to motorists in the vicinity of the closure. The equipment managed by this service package includes the control and monitoring systems, the field devices (e.g., gates, warning lights, DMS, CCTV cameras) at the closure location(s), and the information systems that notify other systems of a closure. This service package covers general road closure applications; specific closure systems that are used at railroad grade crossings, drawbridges, reversible lanes, etc. are covered by other ATMS service packages.

Borman TMC
 Borman TMC Personnel
 Borman TMC Roadside Equipment
 Drivers
 ECT Agency Management
 Emergency Management Agencies
 Emergency Medical Personnel
 Emergency Medical Services
 GPTC Agency Management

Table 7

Illiana Corridor Maintenance and Construction Center Personnel
 Illiana Corridor Maintenance and Construction Field Personnel
 Illiana Corridor Maintenance and Construction Management System
 Illiana Corridor Maintenance and Construction Vehicles
 Illiana Corridor Operations Center
 Illiana Corridor Operations Center Personnel
 Illiana Corridor Roadside Equipment/Toll Plazas/Gantries
 Illinois Department of Transportation Emergency Traffic Patrol (ETP)
 Indiana Dunes National Lakeshore Shuttle Agency Management
 Indiana Gateway
 Indiana State Police District 13
 Indiana State Police District 21 (Toll Road)
 Indiana Toll Road Maintenance and Construction Center Personnel
 Indiana Toll Road Maintenance and Construction Field Personnel
 Indiana Toll Road Maintenance and Construction Management System
 Indiana Toll Road Maintenance and Construction Vehicles
 Indiana Toll Road Operations Center
 Indiana Toll Road Operations Center Personnel
 Indiana Toll Road Roadside Equipment/Toll Plazas/Gantries
 INDOT Field Equipment
 INDOT Maintenance and Construction Center Personnel
 INDOT Maintenance and Construction Field Personnel
 INDOT Maintenance and Construction Management System
 INDOT Maintenance and Construction Vehicles
 Lake County E-911 Center
 Lake County Emergency Operations Center
 Lake County Sheriff Department
 Lake Michigan Interstate Gateway Alliance (LMIGA) Website
 LaPorte County E-911 Communications Center
 LaPorte County Emergency Operations Center
 LaPorte County Sheriff Office
 Local Emergency Services
 Local Emergency Services Personnel
 Local Emergency Telecommunications Systems
 Local Emergency Vehicles
 MCT Agency Management
 North Township Dial-a-Ride Agency Management
 Opportunity Enterprises Agency Management
 PCACS Agency Management
 Porter County Central Communications
 Porter County Emergency Operations Center
 Porter County Sheriff Department
 Private Towing Companies
 Private Towing Companies Tow Vehicles
 RTA Operations
 SLCCS Agency Management
 TransPorte Agency Management
 Triangle Transit Agency Management
 Valparaiso Transit Agency Management

Roadway Closure Management (Instance 1) (ATMS21) -- Potential

This service package closes roadways to vehicular traffic when driving conditions are unsafe, maintenance must be performed, and other scenarios where access to the roadway must be prohibited. The service package includes automatic or remotely controlled gates or barriers that control access to roadway segments including ramps and traffic lanes. Remote control systems allow the gates to be controlled from a

Table 7

central location or from a vehicle at the gate/barrier location, improving system efficiency and reducing personnel exposure to unsafe conditions during severe weather and other situations where roads must be closed. Surveillance systems allow operating personnel to visually verify the safe activation of the closure system and driver information systems (e.g., DMS) provide closure information to motorists in the vicinity of the closure. The equipment managed by this service package includes the control and monitoring systems, the field devices (e.g., gates, warning lights, DMS, CCTV cameras) at the closure location(s), and the information systems that notify other systems of a closure. This service package covers general road closure applications; specific closure systems that are used at railroad grade crossings, drawbridges, reversible lanes, etc. are covered by other ATMS service packages.

- INDOT-Northwest District Arterial TMC
- INDOT-Northwest District Arterial TMC Personnel
- INDOT-Northwest District Arterial TMC Roadside Equipment
- Lake County Field Equipment
- Lake County Highway Department
- Lake County Maintenance and Construction Center Personnel
- Lake County Maintenance and Construction Field Personnel
- Lake County Maintenance and Construction Management System
- Lake County Maintenance and Construction Vehicles
- LaPorte County Field Equipment
- LaPorte County Highway Department
- LaPorte County Maintenance and Construction Center Personnel
- LaPorte County Maintenance and Construction Field Personnel
- LaPorte County Maintenance and Construction Management System
- LaPorte County Maintenance and Construction Vehicles
- Local Field Equipment
- Local Maintenance and Construction Center Personnel
- Local Maintenance and Construction Field Personnel
- Local Maintenance and Construction Management System
- Local Maintenance and Construction Vehicles
- Local Streets Departments
- Local TMCs
- Local TMCs Personnel
- Local TMCs Roadside Equipment
- Porter County Field Equipment
- Porter County Highway Department
- Porter County Maintenance and Construction Center Personnel
- Porter County Maintenance and Construction Field Personnel
- Porter County Maintenance and Construction Management System
- Porter County Maintenance and Construction Vehicles
- Private Maintenance and Construction Center Personnel
- Private Maintenance and Construction Field Personnel
- Private Maintenance and Construction Management System
- Private Maintenance and Construction Vehicles

Variable Speed Limits (ATMS22) -- Potential

This service package sets variable speed limits along a roadway to create more uniform speeds, to promote safer driving during adverse conditions (such as fog), and/or to reduce air pollution. Also known as speed harmonization, this service monitors traffic and environmental conditions along the roadway. Based on the measured data, the system calculates and sets suitable speed limits, usually by lane. Equipment over and along the roadway displays the speed limits and additional information such as basic safety rules and current traffic information. The system can be centrally monitored and controlled by a traffic management center or it can be autonomous.

This service establishes variable speed limits and communicates the speed limits to drivers. Speed warnings and enforcement of speeds limits, including variable speed limits, is covered in the ATMS19-Automated Speed Warning and Enforcement service package.

Variable speed limits are an Active Traffic Management (ATM) strategy and are typically used in conjunction with other ATM strategies

Table 7

(such as ATMS23-Dynamic Lane Management and Shoulder Use and ATMS24-Dynamic Roadway Warning).

Borman TMC
Borman TMC Personnel
Borman TMC Roadside Equipment
Drivers
Illiana Corridor Operations Center
Illiana Corridor Operations Center Personnel
Illiana Corridor Roadside Equipment/Toll Plazas/Gantries
Indiana Toll Road Operations Center
Indiana Toll Road Operations Center Personnel
Indiana Toll Road Roadside Equipment/Toll Plazas/Gantries
INDOT Field Equipment
INDOT Traffic Management
INDOT Traffic Management Personnel
INDOT-Northwest District Arterial TMC
INDOT-Northwest District Arterial TMC Personnel
INDOT-Northwest District Arterial TMC Roadside Equipment
Local TMCs
Local TMCs Personnel
Local TMCs Roadside Equipment
Roadway Environment
Traffic

Dynamic Lane Management and Shoulder Use (ATMS23) -- Potential

This service package provides for active management of travel lanes along a roadway. The package includes the field equipment, physical overhead lane signs and associated control electronics that are used to manage and control specific lanes and/or the shoulders. This equipment can be used to change the lane configuration on the roadway according to traffic demand and lane destination along a typical roadway section or on approach to or access from a border crossing, multimodal crossing or intermodal freight depot. This package can be used to allow temporary or interim use of shoulders as travel lanes. The equipment can be used to electronically reconfigure intersections and interchanges and manage right-of-way dynamically including merges. Also, lanes can be designated for use by special vehicles only, such as buses, high occupancy vehicles (HOVs), vehicles attending a special event, etc. Prohibitions or restrictions of types of vehicles from using particular lanes can be implemented.

The lane management system can be centrally monitored and controlled by a traffic management center or it can be autonomous. This service also can include automated enforcement equipment that notifies the enforcement agency of violators of the lane controls.

Dynamic lane management and shoulder use is an Active Traffic Management (ATM) strategy and is typically used in conjunction with other ATM strategies (such as ATMS22-Variable Speed Limits and ATMS24-Dynamic Roadway Warning).

Borman TMC
Borman TMC Personnel
Borman TMC Roadside Equipment
Drivers
Roadway Environment
Traffic
Vehicle Characteristics
Vehicle ITS Equipment

Dynamic Roadway Warning (ATMS24) -- Planned

This service package includes systems that dynamically warn drivers approaching hazards on a roadway. Such hazards include roadway weather conditions, road surface conditions, traffic conditions including queues, obstacles or animals in the roadway and any other transient event that can be sensed. These dynamic roadway warning systems can alert approaching drivers via warning signs, flashing lights, in-vehicle messages, etc. Such systems can increase the safety of a roadway by reducing the occurrence of incidents. The system can be centrally monitored and controlled by a traffic management center or it can be autonomous.

Table 7

Speed warnings that consider the limitations of a given vehicle for the geometry of the roadway (e.g., rollover risk for tall vehicles) are not included in this service package but are covered by the ATMS19 – Speed Warning and Enforcement service package.

Roadway warning systems, especially queue warning systems are an Active Traffic Management (ATM) strategy and are typically used in conjunction with other ATM strategies (such as ATMS22-Variable Speed Limits and ATMS23-Dynamic Lane Management and Shoulder Use).

Borman TMC
Borman TMC Personnel
Borman TMC Roadside Equipment
Drivers
Illiana Corridor Operations Center
Illiana Corridor Operations Center Personnel
Illiana Corridor Roadside Equipment/Toll Plazas/Gantries
Indiana Gateway
Indiana Toll Road Operations Center
Indiana Toll Road Operations Center Personnel
Indiana Toll Road Roadside Equipment/Toll Plazas/Gantries
INDOT Field Equipment
Potential Obstacles
Roadway Environment
Traffic

Dynamic Roadway Warning (Instance 1) (ATMS24) -- Potential

This service package includes systems that dynamically warn drivers approaching hazards on a roadway. Such hazards include roadway weather conditions, road surface conditions, traffic conditions including queues, obstacles or animals in the roadway and any other transient event that can be sensed. These dynamic roadway warning systems can alert approaching drivers via warning signs, flashing lights, in-vehicle messages, etc. Such systems can increase the safety of a roadway by reducing the occurrence of incidents. The system can be centrally monitored and controlled by a traffic management center or it can be autonomous.

Speed warnings that consider the limitations of a given vehicle for the geometry of the roadway (e.g., rollover risk for tall vehicles) are not included in this service package but are covered by the ATMS19 – Speed Warning and Enforcement service package.

Roadway warning systems, especially queue warning systems are an Active Traffic Management (ATM) strategy and are typically used in conjunction with other ATM strategies (such as ATMS22-Variable Speed Limits and ATMS23-Dynamic Lane Management and Shoulder Use).

INDOT-Northwest District Arterial TMC
INDOT-Northwest District Arterial TMC Personnel
INDOT-Northwest District Arterial TMC Roadside Equipment
Local TMCs
Local TMCs Personnel
Local TMCs Roadside Equipment

Carrier Operations and Fleet Management (CVO01) -- Existing

This service package provides the capabilities to manage a fleet of commercial vehicles. The Fleet and Freight Management subsystem provides the route for a commercial vehicle by either utilizing an in-house routing software package or an Information Service Provider. Routes generated by either approach are constrained by hazardous materials and other restrictions (such as height or weight). Any such restricted areas are determined by the Commercial Vehicle Administration. A route would be electronically sent to the Commercial Vehicle with any appropriate dispatch instructions. The location of the Commercial Vehicle can be monitored by the Fleet and Freight Management subsystem and routing changes can be made depending on current road network conditions. Once a route has been assigned, changes must be coordinated between the Fleet and Freight Management subsystem and the Commercial Vehicle. Commercial Vehicle Drivers would be alerted to any changes in route from the planned route and given an opportunity to justify a rerouting. Any unauthorized or unexpected route changes by the Commercial Vehicle will register a route deviation alert with the Fleet and Freight Management subsystem. The Fleet and Freight Management subsystem can also notify local public safety agencies of the route deviation when appropriate (e.g., if there is safety sensitive HAZMAT being carried), by sending an alarm to the Emergency Management subsystem.

Table 7

Borman Hoosier Helpers
 Borman TMC
 Commercial Vehicle Drivers
 Commercial Vehicle Managers
 Commercial Vehicles
 Emergency Medical Services
 Fleet and Freight Management System
 Hazmat Management and Cleanup
 Illinois Department of Transportation Emergency Traffic Patrol (ETP)
 Indiana Department of Homeland Security State Emergency Operations Center

 Indiana Department of Revenue International Fuel Tax Agreement (IFTA) On-Line filing
 Indiana Department of Revenue Unified Carrier Registration (UCR)
 Indiana Gateway
 Indiana State Police Commercial Vehicle Enforcement Division
 Indiana State Police District 13
 Indiana State Police District 21 (Toll Road)
 Indiana Toll Road Operations Center
 Lake County E-911 Center
 Lake County Emergency Operations Center
 Lake County Sheriff Department
 Lake Michigan Interstate Gateway Alliance (LMIGA) Website
 LaPorte County E-911 Communications Center
 LaPorte County Emergency Operations Center
 LaPorte County Sheriff Office
 Local Emergency Services
 Local Emergency Services Personnel
 Local Emergency Telecommunications Systems
 Location Data Source
 Map Update Provider
 Porter County Central Communications
 Porter County Emergency Operations Center
 Porter County Sheriff Department
 Private Information Service Providers
 Private Towing Companies
 Vehicle ITS Equipment

Carrier Operations and Fleet Management (Instance 1) (CVO01) -- Planned

This service package provides the capabilities to manage a fleet of commercial vehicles. The Fleet and Freight Management subsystem provides the route for a commercial vehicle by either utilizing an in-house routing software package or an Information Service Provider. Routes generated by either approach are constrained by hazardous materials and other restrictions (such as height or weight). Any such restricted areas are determined by the Commercial Vehicle Administration. A route would be electronically sent to the Commercial Vehicle with any appropriate dispatch instructions. The location of the Commercial Vehicle can be monitored by the Fleet and Freight Management subsystem and routing changes can be made depending on current road network conditions. Once a route has been assigned, changes must be coordinated between the Fleet and Freight Management subsystem and the Commercial Vehicle. Commercial Vehicle Drivers would be alerted to any changes in route from the planned route and given an opportunity to justify a rerouting. Any unauthorized or unexpected route changes by the Commercial Vehicle will register a route deviation alert with the Fleet and Freight Management subsystem. The Fleet and Freight Management subsystem can also notify local public safety agencies of the route deviation when appropriate (e.g., if there is safety sensitive HAZMAT being carried), by sending an alarm to the Emergency Management subsystem.

Illiana Corridor Operations Center

Carrier Operations and Fleet Management (Instance 2) (CVO01) -- Potential

This service package provides the capabilities to manage a fleet of commercial vehicles. The Fleet and Freight Management subsystem provides the route for a commercial vehicle by either utilizing an in-house routing software package or an Information Service Provider. Routes generated by either approach are constrained by hazardous materials and other restrictions (such as height or weight). Any such restricted areas are determined by the Commercial Vehicle Administration. A route would be electronically sent to the Commercial Vehicle with any appropriate dispatch instructions. The location of the Commercial Vehicle can be monitored by the Fleet and Freight Management subsystem and routing changes can be made depending on current road network conditions. Once a route has been assigned, changes must be coordinated between the Fleet and Freight Management subsystem and the Commercial Vehicle. Commercial Vehicle Drivers would be alerted to any changes in route from the planned route and given an opportunity to justify a rerouting. Any unauthorized or unexpected route changes by the Commercial Vehicle will register a route deviation alert with the Fleet and Freight Management subsystem. The Fleet and Freight Management subsystem can also notify local public safety agencies of the route deviation when appropriate (e.g., if there is safety sensitive HAZMAT being carried), by sending an alarm to the Emergency Management subsystem.

INDOT-Northwest District Arterial TMC

Local TMCs

Freight Administration (CVO02) -- Planned

This service package tracks the movement of cargo and monitors the cargo condition. Interconnections are provided to intermodal freight shippers and intermodal freight depots for tracking of cargo from source to destination. In addition to the usual cargo monitoring required to insure that cargo gets from origin to destination, the Fleet and Freight Management subsystem monitors shipments to make sure that no tampering or breach of security occurs to the cargo on commercial vehicles. Any such tampering will be reported to the Fleet and Freight Management subsystem. In addition to exceptions (e.g., alerts) that are reported, on-going indications of the state of the various freight equipment are reported to the Fleet and Freight Management subsystem. The commercial vehicle driver is also alerted of any tampering or breach of cargo security. Freight managers may decide to take further action on the alerts and/or provide responses that explain that the alerts are false alarms. If no explanation is received, the Fleet and Freight Management subsystem may notify the Emergency Management subsystem. Commercial vehicle and freight security breaches may also be sent to the Commercial Vehicle Check subsystem.

Commercial Vehicle Drivers

Commercial Vehicle Managers

Commercial Vehicles

Fleet and Freight Management System

Gary-Chicago Airport

Hazmat Management and Cleanup

Indiana State Police Commercial Vehicle Enforcement Division

Intermodal Freight Shippers

Lake County E-911 Center

LaPorte County E-911 Communications Center

Local Emergency Telecommunications Systems

Port of Indiana at Burns Harbor

Porter County Central Communications

US Coast Guard Michigan City Station Dispatch

Vehicle ITS Equipment

Electronic Clearance (CVO03) -- Existing

This service package provides for automated clearance at roadside check facilities. The roadside check facility communicates with the Commercial Vehicle Administration subsystem to retrieve infrastructure snapshots of critical carrier, vehicle, and driver data to be used to sort passing vehicles. This allows a good driver/vehicle/carrier to pass roadside facilities at highway speeds using transponders and Field-Vehicle Communications to the roadside. Results of roadside clearance activities will be passed on to the Commercial Vehicle Administration. The roadside check facility may be equipped with Automated Vehicle Identification (AVI), weighing sensors, transponder read/write devices and computer workstations.

Commercial Vehicle Drivers

Commercial Vehicle PrePass

Commercial Vehicle Weigh Stations

Table 7

Commercial Vehicles
 Fleet and Freight Management System
 Hazmat Management and Cleanup
 Indiana Bureau of Motor Vehicles
 Indiana Department of Revenue International Fuel Tax Agreement (IFTA) On-Line filing
 Indiana Department of Revenue Unified Carrier Registration (UCR)
 Indiana State Police Commercial Vehicle Enforcement Division
 Indiana State Police District 13
 Indiana State Police District 21 (Toll Road)

Electronic Clearance (Instance 1) (CVO03) -- Potential

This service package provides for automated clearance at roadside check facilities. The roadside check facility communicates with the Commercial Vehicle Administration subsystem to retrieve infrastructure snapshots of critical carrier, vehicle, and driver data to be used to sort passing vehicles. This allows a good driver/vehicle/carrier to pass roadside facilities at highway speeds using transponders and Field-Vehicle Communications to the roadside. Results of roadside clearance activities will be passed on to the Commercial Vehicle Administration. The roadside check facility may be equipped with Automated Vehicle Identification (AVI), weighing sensors, transponder read/write devices and computer workstations.

INDOT-Northwest District Arterial TMCs Inspection Facilities.
 Local TMCs Inspection Facilities

CV Administrative Processes (CVO04) -- Existing

This service package supports program administration and enrollment and provides for electronic application, processing, fee collection, issuance, and distribution of CVO credential and tax filing. Through this process, carriers, drivers, and vehicles may be enrolled in a variety of programs including electronic clearance and wireless inspection programs which allow commercial vehicles to be screened at mainline speeds. Through this enrollment process, current profile databases are maintained in the Commercial Vehicle Administration subsystem and snapshots of this data are made available to the roadside check facilities. Current program status is maintained and made available to carriers, drivers, and other authorized users of the data. Enrolled carriers are provided the option to review and challenge the collected data.

Commercial Vehicle Administration subsystems can share current program status and credential information with other Commercial Vehicle Administration subsystems, so that it is possible for any Commercial Vehicle Administration subsystem to have access to all credentials, credential fees, credentials status and safety status information. In addition, it is possible for one Commercial Vehicle Administration subsystem to collect HAZMAT route restrictions information from other Commercial Vehicle Administration subsystems and then act as a clearinghouse for this route restrictions information for Information Service Providers, Map Update Providers, and Fleet and Freight Management subsystems.

Commercial Vehicle Information Requestors
 Commercial Vehicle Managers
 Commercial Vehicle PrePass
 Commercial Vehicle Weigh Stations
 Financial Institutions
 Fleet and Freight Management System
 Hazmat Management and Cleanup
 Indiana Bureau of Motor Vehicles
 Indiana Department of Revenue International Fuel Tax Agreement (IFTA) On-Line filing
 Indiana Department of Revenue Unified Carrier Registration (UCR)
 Indiana Gateway
 Indiana State Police Commercial Vehicle Enforcement Division
 Indiana State Police District 13
 Indiana State Police District 21 (Toll Road)
 Indiana Toll Road Maintenance and Construction Management System
 INDOT Maintenance and Construction Management System
 Lake County Sheriff Department
 LaPorte County Sheriff Office

Table 7

Map Update Provider
Porter County Sheriff Department
Private Information Service Providers

CV Administrative Processes (Instance 1) (CVO04) -- Planned

This service package supports program administration and enrollment and provides for electronic application, processing, fee collection, issuance, and distribution of CVO credential and tax filing. Through this process, carriers, drivers, and vehicles may be enrolled in a variety of programs including electronic clearance and wireless inspection programs which allow commercial vehicles to be screened at mainline speeds. Through this enrollment process, current profile databases are maintained in the Commercial Vehicle Administration subsystem and snapshots of this data are made available to the roadside check facilities. Current program status is maintained and made available to carriers, drivers, and other authorized users of the data. Enrolled carriers are provided the option to review and challenge the collected data.

Commercial Vehicle Administration subsystems can share current program status and credential information with other Commercial Vehicle Administration subsystems, so that it is possible for any Commercial Vehicle Administration subsystem to have access to all credentials, credential fees, credentials status and safety status information. In addition, it is possible for one Commercial Vehicle Administration subsystem to collect HAZMAT route restrictions information from other Commercial Vehicle Administration subsystems and then act as a clearinghouse for this route restrictions information for Information Service Providers, Map Update Providers, and Fleet and Freight Management subsystems.

Illiana Corridor Maintenance and Construction Management System

CV Administrative Processes (Instance 2) (CVO04) -- Potential

This service package supports program administration and enrollment and provides for electronic application, processing, fee collection, issuance, and distribution of CVO credential and tax filing. Through this process, carriers, drivers, and vehicles may be enrolled in a variety of programs including electronic clearance and wireless inspection programs which allow commercial vehicles to be screened at mainline speeds. Through this enrollment process, current profile databases are maintained in the Commercial Vehicle Administration subsystem and snapshots of this data are made available to the roadside check facilities. Current program status is maintained and made available to carriers, drivers, and other authorized users of the data. Enrolled carriers are provided the option to review and challenge the collected data.

Commercial Vehicle Administration subsystems can share current program status and credential information with other Commercial Vehicle Administration subsystems, so that it is possible for any Commercial Vehicle Administration subsystem to have access to all credentials, credential fees, credentials status and safety status information. In addition, it is possible for one Commercial Vehicle Administration subsystem to collect HAZMAT route restrictions information from other Commercial Vehicle Administration subsystems and then act as a clearinghouse for this route restrictions information for Information Service Providers, Map Update Providers, and Fleet and Freight Management subsystems.

INDOT-Northwest District Arterial TMCs Inspection Facilities.
Local Maintenance and Construction Management System
Local TMCs Inspection Facilities

Weigh-In-Motion (CVO06) -- Planned

This service package provides for high speed weigh-in-motion with or without Automated Vehicle Identification (AVI) capabilities. This service package provides the roadside equipment that could be used as a stand-alone system or to augment the Electronic Clearance (CVO03) service package.

Commercial Vehicle Drivers
Commercial Vehicle PrePass
Commercial Vehicle Weigh Stations
Commercial Vehicles

Roadside CVO Safety (CVO07) -- Planned

This service package provides for automated roadside safety monitoring and reporting. It automates commercial vehicle safety inspections at the roadside check locations. The capabilities for performing the safety inspection are shared between this service package and the On-board CVO and Freight Safety & Security (CVO08) service package which enables a variety of implementation options. The basic option, directly supported by this service package, facilitates safety inspection of vehicles that have been pulled off the highway, perhaps as a result of the automated screening process provided by the Electronic Clearance (CVO03) service package. In this scenario, only basic identification data and status information is read from the electronic tag on the commercial vehicle. The identification data from the tag

Table 7

enables access to additional safety data maintained in the infrastructure which is used to support the safety inspection, and may also inform the pull-in decision if system timing requirements can be met. More advanced implementations, supported by the On-board CVO and Freight Safety & Security (CVO08) service package, utilize additional on-board vehicle safety monitoring and reporting capabilities in the commercial vehicle to augment the roadside safety check.

- Commercial Vehicle Drivers
- Commercial Vehicle PrePass
- Commercial Vehicle Weigh Stations
- Commercial Vehicles
- Fleet and Freight Management System
- Hazmat Management and Cleanup
- Indiana Bureau of Motor Vehicles
- Indiana Department of Revenue International Fuel Tax Agreement (IFTA) On-Line filing
- Indiana Department of Revenue Unified Carrier Registration (UCR)
- Indiana State Police Commercial Vehicle Enforcement Division
- Indiana State Police District 13
- Indiana State Police District 21 (Toll Road)
- Lake County Sheriff Department
- LaPorte County Sheriff Office
- Porter County Sheriff Department

Roadside CVO Safety (Instance 1) (CVO07) -- Potential

This service package provides for automated roadside safety monitoring and reporting. It automates commercial vehicle safety inspections at the roadside check locations. The capabilities for performing the safety inspection are shared between this service package and the On-board CVO and Freight Safety & Security (CVO08) service package which enables a variety of implementation options. The basic option, directly supported by this service package, facilitates safety inspection of vehicles that have been pulled off the highway, perhaps as a result of the automated screening process provided by the Electronic Clearance (CVO03) service package. In this scenario, only basic identification data and status information is read from the electronic tag on the commercial vehicle. The identification data from the tag enables access to additional safety data maintained in the infrastructure which is used to support the safety inspection, and may also inform the pull-in decision if system timing requirements can be met. More advanced implementations, supported by the On-board CVO and Freight Safety & Security (CVO08) service package, utilize additional on-board vehicle safety monitoring and reporting capabilities in the commercial vehicle to augment the roadside safety check.

- INDOT-Northwest District Arterial TMCs Inspection Facilities.
- Local Emergency Services
- Local Emergency Services Personnel
- Local TMCs Inspection Facilities

On-board CVO Safety (CVO08) -- Planned

This service package provides for on-board commercial vehicle safety monitoring and reporting. It is an enhancement of the Roadside CVO Safety Service Package and includes support for collecting on-board safety data via transceivers or other means. The on-board safety data are assessed by an off-board system. In some cases the monitoring and safety assessment may occur remotely (i.e., not at a roadside site). Following the assessment, safety warnings are provided to the driver, the Commercial Vehicle Check roadside elements, and carrier. This service package allows for the Fleet and Freight Management subsystem to have access to the on-board safety data.

- Commercial Vehicle Drivers
- Commercial Vehicle Managers
- Commercial Vehicle PrePass
- Commercial Vehicle Weigh Stations
- Commercial Vehicles
- Fleet and Freight Management System
- Hazmat Management and Cleanup
- Indiana Department of Revenue International Fuel Tax Agreement (IFTA) On-Line filing
- Indiana Department of Revenue Unified Carrier Registration (UCR)

Table 7

Indiana State Police Commercial Vehicle Enforcement Division
 Indiana State Police District 13
 Indiana State Police District 21 (Toll Road)
 Lake County Sheriff Department
 LaPorte County Sheriff Office
 Location Data Source
 Porter County Sheriff Department
 Vehicle ITS Equipment

On-board CVO Safety (Instance 1) (CVO08) -- Potential

This service package provides for on-board commercial vehicle safety monitoring and reporting. It is an enhancement of the Roadside CVO Safety Service Package and includes support for collecting on-board safety data via transceivers or other means. The on-board safety data are assessed by an off-board system. In some cases the monitoring and safety assessment may occur remotely (i.e., not at a roadside site). Following the assessment, safety warnings are provided to the driver, the Commercial Vehicle Check roadside elements, and carrier. This service package allows for the Fleet and Freight Management subsystem to have access to the on-board safety data.

Local Emergency Services
 Local Emergency Services Personnel
 Local TMCs Inspection Facilities

CVO Fleet Maintenance (CVO09) -- Existing

This service package supports maintenance of CVO fleet vehicles with on-board monitoring equipment and Automated Vehicle Location (AVL) capabilities within the Fleet and Freight Management Subsystem. Records of vehicle mileage, repairs, and safety violations are maintained to assure safe vehicles on the highway.

Commercial Vehicles
 Fleet and Freight Management System
 Hazmat Management and Cleanup
 Indiana Department of Revenue International Fuel Tax Agreement (IFTA) On-Line filing
 Indiana Department of Revenue Unified Carrier Registration (UCR)
 Indiana State Police Commercial Vehicle Enforcement Division

HAZMAT Management (CVO10) -- Existing

This service package integrates incident management capabilities with commercial vehicle tracking to assure effective treatment of HAZMAT material and incidents. HAZMAT tracking is performed by the Fleet and Freight Management Subsystem. The Emergency Management subsystem is notified by the Commercial Vehicle if an incident occurs and coordinates the response. The response is tailored based on information that is provided as part of the original incident notification or derived from supplemental information provided by the Fleet and Freight Management Subsystem. The latter information can be provided prior to the beginning of the trip or gathered following the incident depending on the selected policy and implementation.

Borman Hoosier Helpers
 Borman TMC
 Borman TMC Personnel
 Commercial Vehicles
 Emergency Management Agencies
 Emergency Medical Services
 Fleet and Freight Management System
 Hazmat Management and Cleanup
 Illinois Department of Transportation Emergency Traffic Patrol (ETP)
 Indiana Department of Homeland Security State Emergency Operations Center
 Indiana Gateway
 Indiana State Police Commercial Vehicle Enforcement Division
 Indiana State Police District 13
 Indiana State Police District 21 (Toll Road)

Table 7

Indiana Toll Road Operations Center
 Indiana Toll Road Operations Center Personnel
 Lake County E-911 Center
 Lake County Emergency Operations Center
 Lake County Sheriff Department
 LaPorte County E-911 Communications Center
 LaPorte County Emergency Operations Center
 LaPorte County Sheriff Office
 Local Emergency Services
 Local Emergency Services Personnel
 Location Data Source
 Porter County Central Communications
 Porter County Emergency Operations Center
 Porter County Sheriff Department
 Private Towing Companies
 Vehicle ITS Equipment

HAZMAT Management (Instance 1) (CVO10) -- Planned

This service package integrates incident management capabilities with commercial vehicle tracking to assure effective treatment of HAZMAT material and incidents. HAZMAT tracking is performed by the Fleet and Freight Management Subsystem. The Emergency Management subsystem is notified by the Commercial Vehicle if an incident occurs and coordinates the response. The response is tailored based on information that is provided as part of the original incident notification or derived from supplemental information provided by the Fleet and Freight Management Subsystem. The latter information can be provided prior to the beginning of the trip or gathered following the incident depending on the selected policy and implementation.

Illiana Corridor Operations Center
 Illiana Corridor Operations Center Personnel

HAZMAT Management (Instance 2) (CVO10) -- Potential

This service package integrates incident management capabilities with commercial vehicle tracking to assure effective treatment of HAZMAT material and incidents. HAZMAT tracking is performed by the Fleet and Freight Management Subsystem. The Emergency Management subsystem is notified by the Commercial Vehicle if an incident occurs and coordinates the response. The response is tailored based on information that is provided as part of the original incident notification or derived from supplemental information provided by the Fleet and Freight Management Subsystem. The latter information can be provided prior to the beginning of the trip or gathered following the incident depending on the selected policy and implementation.

INDOT-Northwest District Arterial TMC
 INDOT-Northwest District Arterial TMC Personnel
 Local TMCs
 Local TMCs Personnel

Freight Assignment Tracking (CVO13) -- Planned

This service package provides for the planning and tracking of three aspects of commercial vehicle shipments. For each shipment, the commercial vehicle, the freight equipment, and the commercial vehicle driver are monitored for consistency with the planned assignment. Any unauthorized changes are determined by the Fleet and Freight Management subsystem and then the appropriate people and subsystems are notified. Data collected by the On-board CV and Freight Safety & Security and the On-board Driver Authentication equipment packages used in other service packages are also used to monitor the three aspects of assignment for this service package. In addition to this service package, Fleet and Freight Managers may also monitor routes and itineraries and this capability is included in Fleet Administration.

Borman TMC
 Commercial Vehicle Drivers
 Commercial Vehicle Managers
 Commercial Vehicles
 Fleet and Freight Management System
 Gary-Chicago Airport

Table 7

Hazmat Management and Cleanup
 Illiana Corridor Operations Center
 Illinois Department of Transportation Emergency Traffic Patrol (ETP)
 Indiana Department of Homeland Security State Emergency Operations Center

 Indiana State Police Commercial Vehicle Enforcement Division
 Indiana State Police District 13
 Indiana State Police District 21 (Toll Road)
 Indiana Toll Road Operations Center
 Intermodal Freight Shippers
 Lake County E-911 Center
 Lake County Emergency Operations Center
 Lake County Sheriff Department
 LaPorte County E-911 Communications Center
 LaPorte County Emergency Operations Center
 LaPorte County Sheriff Office
 Local Emergency Telecommunications Systems
 Port of Indiana at Burns Harbor
 Porter County Central Communications
 Porter County Emergency Operations Center
 Porter County Sheriff Department
 US Coast Guard Michigan City Station Dispatch

Emergency Call-Taking and Dispatch (EM01) -- Existing

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

Borman Hoosier Helpers
 Borman TMC
 Borman TMC Personnel
 Emergency Management Agencies
 Emergency Medical Personnel
 Emergency Medical Services
 Hazmat Management and Cleanup
 Hazmat Response Vehicles
 Illinois Department of Transportation Emergency Traffic Patrol (ETP)
 Indiana Department of Homeland Security State Emergency Operations Center

 Indiana State Police Commercial Vehicle Enforcement Division
 Indiana State Police District 13
 Indiana State Police District 21 (Toll Road)
 Indiana Toll Road Operations Center
 Indiana Toll Road Operations Center Personnel
 Lake County E-911 Center
 Lake County Emergency Operations Center
 Lake County Sheriff Department
 LaPorte County E-911 Communications Center
 LaPorte County Emergency Operations Center
 LaPorte County Sheriff Office
 Local Emergency Services
 Local Emergency Services Personnel
 Local Emergency Telecommunications Systems

Table 7

Local Emergency Vehicles
 Map Update Provider
 Porter County Central Communications
 Porter County Emergency Operations Center
 Porter County Sheriff Department
 Private Towing Companies
 Private Towing Companies Tow Vehicles
 US Coast Guard Michigan City Station Dispatch
 US Coast Guard Vessels

Emergency Call-Taking and Dispatch (Instance 1) (EM01) -- Planned

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

Illiana Corridor Operations Center
 Illiana Corridor Operations Center Personnel

Emergency Call-Taking and Dispatch (Instance 2) (EM01) -- Potential

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

INDOT-Northwest District Arterial TMC
 INDOT-Northwest District Arterial TMC Personnel
 Local TMCs
 Local TMCs Personnel

Emergency Routing (EM02) -- Existing

This service package supports automated vehicle location and dynamic routing of emergency vehicles. Traffic information, road conditions, and suggested routing information are provided to enhance emergency vehicle routing. Special priority or other specific emergency traffic control strategies can be coordinated to improve the safety and time-efficiency of responding vehicle travel on the selected route(s). The Emergency Management Subsystem provides the routing for the emergency fleet based on real-time conditions and has the option of requesting a route from the Traffic Management subsystem. The Emergency Vehicle may also be equipped with dedicated short range communications for local signal preemption and the transmission of alerts to surrounding vehicles. The service provides for information exchange between care facilities and both the Emergency Management Subsystem and emergency vehicles.

Borman Hoosier Helpers
 Borman TMC
 Borman TMC Personnel
 Borman TMC Roadside Equipment
 Emergency Management Agencies
 Emergency Medical Personnel
 Emergency Medical Services
 Hazmat Management and Cleanup
 Hazmat Response Vehicles
 Illinois Department of Transportation Emergency Traffic Patrol (ETP)
 Indiana Department of Homeland Security State Emergency Operations Center

 Indiana Gateway
 Indiana State Police Commercial Vehicle Enforcement Division
 Indiana State Police District 13

Table 7

Indiana State Police District 21 (Toll Road)
 Indiana Toll Road Maintenance and Construction Management System
 Indiana Toll Road Operations Center
 Indiana Toll Road Operations Center Personnel
 Indiana Toll Road Roadside Equipment/Toll Plazas/Gantries
 INDOT Field Equipment
 INDOT Maintenance and Construction Management System
 Lake County E-911 Center
 Lake County Emergency Operations Center
 Lake County Field Equipment
 Lake County Highway Department
 Lake County Maintenance and Construction Management System
 Lake County Sheriff Department
 LaPorte County E-911 Communications Center
 LaPorte County Emergency Operations Center
 LaPorte County Field Equipment
 LaPorte County Highway Department
 LaPorte County Maintenance and Construction Management System
 LaPorte County Sheriff Office
 Local Emergency Services
 Local Emergency Services Personnel
 Local Emergency Telecommunications Systems
 Local Emergency Vehicles
 Local Field Equipment
 Local Maintenance and Construction Management System
 Local Streets Departments
 Location Data Source
 Map Update Provider
 Porter County Central Communications
 Porter County Emergency Operations Center
 Porter County Field Equipment
 Porter County Highway Department
 Porter County Maintenance and Construction Management System
 Porter County Sheriff Department
 Private Maintenance and Construction Management System
 Private Towing Companies
 Private Towing Companies Tow Vehicles
 Regional Hospitals
 US Coast Guard Michigan City Station Dispatch
 US Coast Guard Vessels
 Vehicle ITS Equipment

Emergency Routing (Instance 1) (EM02) -- Planned

This service package supports automated vehicle location and dynamic routing of emergency vehicles. Traffic information, road conditions, and suggested routing information are provided to enhance emergency vehicle routing. Special priority or other specific emergency traffic control strategies can be coordinated to improve the safety and time-efficiency of responding vehicle travel on the selected route(s). The Emergency Management Subsystem provides the routing for the emergency fleet based on real-time conditions and has the option of requesting a route from the Traffic Management subsystem. The Emergency Vehicle may also be equipped with dedicated short range communications for local signal preemption and the transmission of alerts to surrounding vehicles. The service provides for information exchange between care facilities and both the Emergency Management Subsystem and emergency vehicles.

Amtrak Rail
 Freight Rail Operators
 Illiana Corridor Maintenance and Construction Management System

Table 7

Illiana Corridor Operations Center
 Illiana Corridor Operations Center Personnel
 Illiana Corridor Roadside Equipment/Toll Plazas/Gantries
 INDOT Arterial Multimodal Crossings
 Lake County Multimodal Crossings
 LaPorte County Multimodal Crossings
 Local Multimodal Crossings
 NICTD Agency Management
 NICTD Personnel
 Porter County Multimodal Crossings

Emergency Routing (Instance 2) (EM02) -- Potential

This service package supports automated vehicle location and dynamic routing of emergency vehicles. Traffic information, road conditions, and suggested routing information are provided to enhance emergency vehicle routing. Special priority or other specific emergency traffic control strategies can be coordinated to improve the safety and time-efficiency of responding vehicle travel on the selected route(s). The Emergency Management Subsystem provides the routing for the emergency fleet based on real-time conditions and has the option of requesting a route from the Traffic Management subsystem. The Emergency Vehicle may also be equipped with dedicated short range communications for local signal preemption and the transmission of alerts to surrounding vehicles. The service provides for information exchange between care facilities and both the Emergency Management Subsystem and emergency vehicles.

INDOT-Northwest District Arterial TMC
 INDOT-Northwest District Arterial TMC Personnel
 INDOT-Northwest District Arterial TMC Roadside Equipment
 Local TMCs
 Local TMCs Personnel
 Local TMCs Roadside Equipment

Mayday and Alarms Support (EM03) -- Existing

This service package allows the user (driver or non-driver) to initiate a request for emergency assistance and enables the Emergency Management Subsystem to locate the user, gather information about the incident, and determine the appropriate response. The request for assistance may be manually initiated or automated and linked to vehicle sensors. This service package also includes general surveillance capabilities that enable the Emergency Management Subsystem to remotely monitor public areas (e.g., rest stops, parking lots) to improve security in these areas. The Emergency Management Subsystem may be operated by the public sector or by a private sector telematics service provider.

Borman Hoosier Helpers
 Emergency Management Agencies
 Emergency Medical Services
 Indiana Department of Homeland Security State Emergency Operations Center

 Lake County E-911 Center
 Lake County Emergency Operations Center
 Lake County Sheriff Department
 LaPorte County E-911 Communications Center
 LaPorte County Emergency Operations Center
 LaPorte County Sheriff Office
 Local Emergency Services
 Local Emergency Telecommunications Systems
 Location Data Source
 Porter County Central Communications
 Porter County Emergency Operations Center
 Porter County Sheriff Department
 Travelers
 US Coast Guard Michigan City Station Dispatch

Mayday and Alarms Support (Instance 1) (EM03) -- Planned

This service package allows the user (driver or non-driver) to initiate a request for emergency assistance and enables the Emergency

Table 7

Management Subsystem to locate the user, gather information about the incident, and determine the appropriate response. The request for assistance may be manually initiated or automated and linked to vehicle sensors. This service package also includes general surveillance capabilities that enable the Emergency Management Subsystem to remotely monitor public areas (e.g., rest stops, parking lots) to improve security in these areas. The Emergency Management Subsystem may be operated by the public sector or by a private sector telematics service provider.

- Drivers
- ECT Agency Management
- Freight Rail Crews
- GPTC Agency Management
- MCT Agency Management
- NICTD Agency Management
- Secure Area Environment
- Transit Users
- Triangle Transit Agency Management
- Valparaiso Transit Agency Management
- Vehicle ITS Equipment

Roadway Service Patrols (EM04) -- Existing

This service package supports roadway service patrol vehicles that monitor roads that aid motorists, offering rapid response to minor incidents (flat tire, accidents, out of gas) to minimize disruption to the traffic stream. If problems are detected, the roadway service patrol vehicles will provide assistance to the motorist (e.g., push a vehicle to the shoulder or median). The service package monitors service patrol vehicle locations and supports vehicle dispatch to identified incident locations. Incident information collected by the service patrol is shared with traffic, maintenance and construction, and traveler information systems.

- Borman Hoosier Helpers
- Borman TMC
- Borman TMC Personnel
- City of Gary 311 Center
- City of Hammond 311 Center
- Hazmat Management and Cleanup
- Hazmat Response Vehicles
- Illinois Department of Transportation Emergency Traffic Patrol (ETP)

- Indiana Gateway
- Indiana State Police District 13
- Indiana State Police District 21 (Toll Road)
- INDOT Maintenance and Construction Management System
- Lake County E-911 Center
- Lake County Maintenance and Construction Management System
- Lake County Sheriff Department
- Lake Michigan Interstate Gateway Alliance (LMIGA) Website
- LaPorte County E-911 Communications Center
- LaPorte County Maintenance and Construction Management System
- LaPorte County Sheriff Office
- Local Emergency Services
- Local Emergency Services Personnel
- Local Emergency Telecommunications Systems
- Local Maintenance and Construction Management System
- Location Data Source
- Media
- Porter County Central Communications
- Porter County Maintenance and Construction Management System
- Porter County Sheriff Department
- Private Information Service Providers

Table 7

Private Maintenance and Construction Management System
 Private Towing Companies
 Private Towing Companies Tow Vehicles
 Vehicle ITS Equipment

Roadway Service Patrols (Instance 1) (EM04) -- Potential

This service package supports roadway service patrol vehicles that monitor roads that aid motorists, offering rapid response to minor incidents (flat tire, accidents, out of gas) to minimize disruption to the traffic stream. If problems are detected, the roadway service patrol vehicles will provide assistance to the motorist (e.g., push a vehicle to the shoulder or median). The service package monitors service patrol vehicle locations and supports vehicle dispatch to identified incident locations. Incident information collected by the service patrol is shared with traffic, maintenance and construction, and traveler information systems.

Illiana Corridor Operations Center
 Illiana Corridor Operations Center Personnel
 Indiana Toll Road Operations Center
 Indiana Toll Road Operations Center Personnel

Wide-Area Alert (EM06) -- Existing

This service package uses ITS driver and traveler information systems to alert the public in emergency situations such as child abductions, severe weather events, civil emergencies, and other situations that pose a threat to life and property. The alert includes information and instructions for transportation system operators and the traveling public, improving public safety and enlisting the public's help in some scenarios. The ITS technologies will supplement and support other emergency and homeland security alert systems such as the Emergency Alert System (EAS). When an emergency situation is reported and verified and the terms and conditions for system activation are satisfied, a designated agency broadcasts emergency information to traffic agencies, transit agencies, information service providers, toll operators, and others that operate ITS systems. The ITS systems, in turn, provide the alert information to transportation system operators and the traveling public using ITS technologies such as dynamic message signs, highway advisory radios, in-vehicle displays, transit displays, 511 traveler information systems, and traveler information web sites.

Borman TMC
 Borman TMC Personnel
 Borman TMC Roadside Equipment
 Drivers
 Emergency Management Agencies
 Hazmat Management and Cleanup
 Illinois Department of Transportation Emergency Traffic Patrol (ETP)
 Indiana Department of Homeland Security State Emergency Operations Center

 Indiana Gateway
 Indiana State Police Commercial Vehicle Enforcement Division
 Indiana State Police District 13
 Indiana State Police District 21 (Toll Road)
 Indiana Toll Road Kiosks
 Indiana Toll Road Maintenance and Construction Center Personnel
 Indiana Toll Road Maintenance and Construction Management System
 Indiana Toll Road Operations Center
 Indiana Toll Road Operations Center Personnel
 Indiana Toll Road Roadside Equipment/Toll Plazas/Gantries
 Indiana Toll Road Travel Plazas
 Indiana Transportation Tolling/Finance
 Indiana Welcome Center
 INDOT Maintenance and Construction Center Personnel
 INDOT Maintenance and Construction Management System
 INDOT Traffic Management
 Lake County E-911 Center
 Lake County Emergency Operations Center
 Lake County Highway Department
 Lake County Maintenance and Construction Center Personnel

Table 7

Lake County Maintenance and Construction Management System
 Lake County Sheriff Department
 Lake Michigan Interstate Gateway Alliance (LMIGA) Website
 LaPorte County E-911 Communications Center
 LaPorte County Emergency Operations Center
 LaPorte County Highway Department
 LaPorte County Maintenance and Construction Center Personnel
 LaPorte County Maintenance and Construction Management System
 LaPorte County Sheriff Office
 Local Emergency Telecommunications Systems
 Local Maintenance and Construction Center Personnel
 Local Maintenance and Construction Management System
 Local Streets Departments
 Media
 Personal Travel Information Access
 Porter County Central Communications
 Porter County Emergency Operations Center
 Porter County Highway Department
 Porter County Maintenance and Construction Center Personnel
 Porter County Maintenance and Construction Management System
 Porter County Sheriff Department
 Private Information Service Providers
 Private Maintenance and Construction Center Personnel
 Private Maintenance and Construction Management System
 Private Towing Companies
 Travelers
 US Coast Guard Michigan City Station Dispatch
 Vehicle ITS Equipment

Wide-Area Alert (Instance 1) (EM06) -- Planned

This service package uses ITS driver and traveler information systems to alert the public in emergency situations such as child abductions, severe weather events, civil emergencies, and other situations that pose a threat to life and property. The alert includes information and instructions for transportation system operators and the traveling public, improving public safety and enlisting the public's help in some scenarios. The ITS technologies will supplement and support other emergency and homeland security alert systems such as the Emergency Alert System (EAS). When an emergency situation is reported and verified and the terms and conditions for system activation are satisfied, a designated agency broadcasts emergency information to traffic agencies, transit agencies, information service providers, toll operators, and others that operate ITS systems. The ITS systems, in turn, provide the alert information to transportation system operators and the traveling public using ITS technologies such as dynamic message signs, highway advisory radios, in-vehicle displays, transit displays, 511 traveler information systems, and traveler information web sites.

ECT Agency Management
 ECT Personnel
 ECT Transit Vehicles
 GPTC Agency Management
 GPTC Personnel
 GPTC Transit Vehicles
 Illiana Corridor Maintenance and Construction Center Personnel
 Illiana Corridor Maintenance and Construction Management System
 Illiana Corridor Operations Center
 Illiana Corridor Operations Center Personnel
 Illiana Corridor Roadside Equipment/Toll Plazas/Gantries
 Indiana Dunes National Lakeshore Shuttle Agency Management
 Indiana Dunes National Lakeshore Shuttle Personnel
 Indiana Dunes National Lakeshore Shuttle Transit Vehicles
 MCT Agency Management

Table 7

MCT Personnel
MCT Transit Vehicles
NICTD Agency Management
NICTD Personnel
NICTD Rail Transit Vehicles
North Township Dial-a-Ride Agency Management
North Township Dial-a-Ride Personnel
North Township Dial-a-Ride Transit Vehicles
Opportunity Enterprises Agency Management
Opportunity Enterprises Personnel
Opportunity Enterprises Transit Vehicles
PCACS Agency Management
PCACS Personnel
PCACS Transit Vehicles
SLCCS Agency Management
SLCCS Personnel
SLCCS Transit Vehicles
Transit Users
TransPorte Agency Management
TransPorte Personnel
TransPorte Transit Vehicles
Triangle Transit Agency Management
Triangle Transit Personnel
Triangle Transit Transit Vehicles
Valparaiso Transit Agency Management
Valparaiso Transit Personnel
Valparaiso Transit Transit Vehicles

Wide-Area Alert (Instance 2) (EM06) -- Potential

This service package uses ITS driver and traveler information systems to alert the public in emergency situations such as child abductions, severe weather events, civil emergencies, and other situations that pose a threat to life and property. The alert includes information and instructions for transportation system operators and the traveling public, improving public safety and enlisting the public’s help in some scenarios. The ITS technologies will supplement and support other emergency and homeland security alert systems such as the Emergency Alert System (EAS). When an emergency situation is reported and verified and the terms and conditions for system activation are satisfied, a designated agency broadcasts emergency information to traffic agencies, transit agencies, information service providers, toll operators, and others that operate ITS systems. The ITS systems, in turn, provide the alert information to transportation system operators and the traveling public using ITS technologies such as dynamic message signs, highway advisory radios, in-vehicle displays, transit displays, 511 traveler information systems, and traveler information web sites.

INDOT-Northwest District Arterial TMC
INDOT-Northwest District Arterial TMC Personnel
INDOT-Northwest District Arterial TMC Roadside Equipment
Local TMCs
Local TMCs Personnel
Local TMCs Roadside Equipment

Early Warning System (EM07) -- Planned

This service package monitors and detects potential, looming, and actual disasters including natural disasters (hurricanes, earthquakes, floods, winter storms, tsunamis, etc.) and technological and man-made disasters (hazardous materials incidents, nuclear power plant accidents, and acts of terrorism including nuclear, chemical, biological, and radiological weapons attacks). The service package monitors alerting and advisory systems, ITS sensors and surveillance systems, field reports, and emergency call-taking systems to identify emergencies and notifies all responding agencies of detected emergencies.

Borman Hoosier Helpers
Borman TMC

Table 7

Borman TMC Personnel
 Emergency Management Agencies
 Emergency Medical Services
 Hazmat Management and Cleanup
 Illiana Corridor Maintenance and Construction Center Personnel
 Illiana Corridor Maintenance and Construction Management System
 Illiana Corridor Operations Center
 Illiana Corridor Operations Center Personnel
 Illinois Department of Transportation Emergency Traffic Patrol (ETP)
 Indiana Department of Homeland Security State Emergency Operations Center

 Indiana State Police Commercial Vehicle Enforcement Division
 Indiana State Police District 13
 Indiana State Police District 21 (Toll Road)
 Indiana Toll Road Maintenance and Construction Center Personnel
 Indiana Toll Road Maintenance and Construction Management System
 Indiana Toll Road Operations Center
 Indiana Toll Road Operations Center Personnel
 INDOT Maintenance and Construction Center Personnel
 INDOT Maintenance and Construction Management System
 Lake County E-911 Center
 Lake County Emergency Operations Center
 Lake County Highway Department
 Lake County Maintenance and Construction Center Personnel
 Lake County Maintenance and Construction Management System
 Lake County Sheriff Department
 LaPorte County E-911 Communications Center
 LaPorte County Emergency Operations Center
 LaPorte County Highway Department
 LaPorte County Maintenance and Construction Center Personnel
 LaPorte County Maintenance and Construction Management System
 LaPorte County Sheriff Office
 Local Emergency Services
 Local Emergency Services Personnel
 Local Emergency Telecommunications Systems
 Local Maintenance and Construction Center Personnel
 Local Maintenance and Construction Management System
 Local Streets Departments
 Porter County Central Communications
 Porter County Emergency Operations Center
 Porter County Highway Department
 Porter County Maintenance and Construction Center Personnel
 Porter County Maintenance and Construction Management System
 Porter County Sheriff Department
 Private Maintenance and Construction Center Personnel
 Private Maintenance and Construction Management System
 Private Towing Companies
 US Coast Guard Michigan City Station Dispatch
 Weather Services

Early Warning System (Instance 1) (EM07) -- Potential

This service package monitors and detects potential, looming, and actual disasters including natural disasters (hurricanes, earthquakes, floods, winter storms, tsunamis, etc.) and technological and man-made disasters (hazardous materials incidents, nuclear power plant accidents, and acts of terrorism including nuclear, chemical, biological, and radiological weapons attacks). The service package monitors

Table 7

alerting and advisory systems, ITS sensors and surveillance systems, field reports, and emergency call-taking systems to identify emergencies and notifies all responding agencies of detected emergencies.

INDOT-Northwest District Arterial TMC
INDOT-Northwest District Arterial TMC Personnel
Local TMCs
Local TMCs Personnel

Disaster Response and Recovery (EM08) -- Existing

This service package enhances the ability of the surface transportation system to respond to and recover from disasters. It addresses the most severe incidents that require an extraordinary response from outside the local community. All types of disasters are addressed including natural disasters (hurricanes, earthquakes, floods, winter storms, tsunamis, etc.) and technological and man-made disasters (hazardous materials incidents, nuclear power plant accidents, and national security emergencies such as nuclear, chemical, biological, and radiological weapons attacks).

The service package supports coordination of emergency response plans, including general plans developed before a disaster as well as specific tactical plans with short time horizon that are developed as part of a disaster response. The service package provides enhanced access to the scene for response personnel and resources, provides better information about the transportation system in the vicinity of the disaster, and maintains situation awareness regarding the disaster itself. In addition, this service package tracks and coordinates the transportation resources - the transportation professionals, equipment, and materials - that constitute a portion of the disaster response.

The service package identifies the key points of integration between transportation systems and the public safety, emergency management, public health, and other allied organizations that form the overall disaster response. In this service package, the Emergency Management subsystem represents the federal, regional, state, and local Emergency Operations Centers and the Incident Commands that are established to respond to the disaster. The interface between the Emergency Management Subsystem and the other center subsystems provides situation awareness and resource coordination among transportation and other allied response agencies. In its role, traffic management implements special traffic control strategies and detours and restrictions to effectively manage traffic in and around the disaster. Maintenance and construction provides damage assessment of road network facilities and manages service restoration. Transit management provides a similar assessment of status for transit facilities and modifies transit operations to meet the special demands of the disaster. As immediate public safety concerns are addressed and disaster response transitions into recovery, this service package supports transition back to normal transportation system operation, recovering resources, managing on-going transportation facility repair, supporting data collection and revised plan coordination, and other recovery activities.

This service package builds on the basic traffic incident response service that is provided by ATMS08, the Traffic Incident Management service package. This service package addresses the additional complexities and coordination requirements that are associated with the most severe incidents that warrant an extraordinary response from outside the local jurisdictions and require special measures such as the activation of one or more emergency operations centers. Many users of the National ITS Architecture will want to consider both ATMS08 and this service package since every region is concerned with both day-to-day management of traffic-related incidents and occasional management of disasters that require extraordinary response.

Disaster Response and Recovery is also supported by EM10, the "Disaster Traveler Information" service package that keeps the public informed during a disaster response. See that service package for more information.

Amtrak Rail
Borman Hoosier Helpers
Borman TMC
Borman TMC Personnel
ECT Agency Management
ECT Personnel
Emergency Management Agencies
Emergency Medical Services
GPTC Agency Management
GPTC Personnel
Hazmat Management and Cleanup
Illinois Department of Transportation District 1 Traffic Systems Center (TSC)
Illinois Department of Transportation Emergency Traffic Patrol (ETP)

Table 7

Indiana Department of Homeland Security State Emergency Operations Center

Indiana State Police Commercial Vehicle Enforcement Division

Indiana State Police District 13

Indiana State Police District 21 (Toll Road)

Indiana Toll Road Maintenance and Construction Center Personnel

Indiana Toll Road Maintenance and Construction Management System

Indiana Toll Road Operations Center

Indiana Toll Road Operations Center Personnel

INDOT Maintenance and Construction Center Personnel

INDOT Maintenance and Construction Management System

Lake County E-911 Center

Lake County Emergency Operations Center

Lake County Highway Department

Lake County Maintenance and Construction Center Personnel

Lake County Maintenance and Construction Management System

Lake County Sheriff Department

LaPorte County E-911 Communications Center

LaPorte County Emergency Operations Center

LaPorte County Highway Department

LaPorte County Maintenance and Construction Center Personnel

LaPorte County Maintenance and Construction Management System

LaPorte County Sheriff Office

Local Emergency Services

Local Emergency Services Personnel

Local Emergency Telecommunications Systems

Local Maintenance and Construction Center Personnel

Local Maintenance and Construction Management System

Local Streets Departments

MCT Agency Management

MCT Personnel

NICTD Agency Management

NICTD Personnel

North Township Dial-a-Ride Agency Management

North Township Dial-a-Ride Personnel

Opportunity Enterprises Agency Management

Opportunity Enterprises Personnel

PCACS Agency Management

PCACS Personnel

Porter County Central Communications

Porter County Emergency Operations Center

Porter County Highway Department

Porter County Maintenance and Construction Center Personnel

Porter County Maintenance and Construction Management System

Porter County Sheriff Department

Private Maintenance and Construction Center Personnel

Private Maintenance and Construction Management System

Private Towing Companies

RTA Operations

SLCCS Agency Management

SLCCS Personnel

TransPorte Agency Management

TransPorte Personnel

Table 7

US Coast Guard Michigan City Station Dispatch
Valparaiso Transit Agency Management
Valparaiso Transit Personnel

Disaster Response and Recovery (Instance 1) (EM08) -- Planned

This service package enhances the ability of the surface transportation system to respond to and recover from disasters. It addresses the most severe incidents that require an extraordinary response from outside the local community. All types of disasters are addressed including natural disasters (hurricanes, earthquakes, floods, winter storms, tsunamis, etc.) and technological and man-made disasters (hazardous materials incidents, nuclear power plant accidents, and national security emergencies such as nuclear, chemical, biological, and radiological weapons attacks).

The service package supports coordination of emergency response plans, including general plans developed before a disaster as well as specific tactical plans with short time horizon that are developed as part of a disaster response. The service package provides enhanced access to the scene for response personnel and resources, provides better information about the transportation system in the vicinity of the disaster, and maintains situation awareness regarding the disaster itself. In addition, this service package tracks and coordinates the transportation resources - the transportation professionals, equipment, and materials - that constitute a portion of the disaster response.

The service package identifies the key points of integration between transportation systems and the public safety, emergency management, public health, and other allied organizations that form the overall disaster response. In this service package, the Emergency Management subsystem represents the federal, regional, state, and local Emergency Operations Centers and the Incident Commands that are established to respond to the disaster. The interface between the Emergency Management Subsystem and the other center subsystems provides situation awareness and resource coordination among transportation and other allied response agencies. In its role, traffic management implements special traffic control strategies and detours and restrictions to effectively manage traffic in and around the disaster. Maintenance and construction provides damage assessment of road network facilities and manages service restoration. Transit management provides a similar assessment of status for transit facilities and modifies transit operations to meet the special demands of the disaster. As immediate public safety concerns are addressed and disaster response transitions into recovery, this service package supports transition back to normal transportation system operation, recovering resources, managing on-going transportation facility repair, supporting data collection and revised plan coordination, and other recovery activities.

This service package builds on the basic traffic incident response service that is provided by ATMS08, the Traffic Incident Management service package. This service package addresses the additional complexities and coordination requirements that are associated with the most severe incidents that warrant an extraordinary response from outside the local jurisdictions and require special measures such as the activation of one or more emergency operations centers. Many users of the National ITS Architecture will want to consider both ATMS08 and this service package since every region is concerned with both day-to-day management of traffic-related incidents and occasional management of disasters that require extraordinary response.

Disaster Response and Recovery is also supported by EM10, the "Disaster Traveler Information" service package that keeps the public informed during a disaster response. See that service package for more information.

Illiana Corridor Maintenance and Construction Center Personnel
Illiana Corridor Maintenance and Construction Management System
Illiana Corridor Operations Center
Illiana Corridor Operations Center Personnel
Indiana Dunes National Lakeshore Shuttle Agency Management
Indiana Dunes National Lakeshore Shuttle Personnel
Triangle Transit Agency Management
Triangle Transit Personnel

Disaster Response and Recovery (Instance 2) (EM08) -- Potential

This service package enhances the ability of the surface transportation system to respond to and recover from disasters. It addresses the most severe incidents that require an extraordinary response from outside the local community. All types of disasters are addressed including natural disasters (hurricanes, earthquakes, floods, winter storms, tsunamis, etc.) and technological and man-made disasters (hazardous materials incidents, nuclear power plant accidents, and national security emergencies such as nuclear, chemical, biological, and radiological weapons attacks).

The service package supports coordination of emergency response plans, including general plans developed before a disaster as well as specific tactical plans with short time horizon that are developed as part of a disaster response. The service package provides enhanced

Table 7

access to the scene for response personnel and resources, provides better information about the transportation system in the vicinity of the disaster, and maintains situation awareness regarding the disaster itself. In addition, this service package tracks and coordinates the transportation resources - the transportation professionals, equipment, and materials - that constitute a portion of the disaster response.

The service package identifies the key points of integration between transportation systems and the public safety, emergency management, public health, and other allied organizations that form the overall disaster response. In this service package, the Emergency Management subsystem represents the federal, regional, state, and local Emergency Operations Centers and the Incident Commands that are established to respond to the disaster. The interface between the Emergency Management Subsystem and the other center subsystems provides situation awareness and resource coordination among transportation and other allied response agencies. In its role, traffic management implements special traffic control strategies and detours and restrictions to effectively manage traffic in and around the disaster. Maintenance and construction provides damage assessment of road network facilities and manages service restoration. Transit management provides a similar assessment of status for transit facilities and modifies transit operations to meet the special demands of the disaster. As immediate public safety concerns are addressed and disaster response transitions into recovery, this service package supports transition back to normal transportation system operation, recovering resources, managing on-going transportation facility repair, supporting data collection and revised plan coordination, and other recovery activities.

This service package builds on the basic traffic incident response service that is provided by ATMS08, the Traffic Incident Management service package. This service package addresses the additional complexities and coordination requirements that are associated with the most severe incidents that warrant an extraordinary response from outside the local jurisdictions and require special measures such as the activation of one or more emergency operations centers. Many users of the National ITS Architecture will want to consider both ATMS08 and this service package since every region is concerned with both day-to-day management of traffic-related incidents and occasional management of disasters that require extraordinary response.

Disaster Response and Recovery is also supported by EM10, the "Disaster Traveler Information" service package that keeps the public informed during a disaster response. See that service package for more information.

INDOT-Northwest District Arterial TMC
INDOT-Northwest District Arterial TMC Personnel
Local TMCs
Local TMCs Personnel

Evacuation and Reentry Management (EM09) -- Potential

This service package supports evacuation of the general public from a disaster area and manages subsequent reentry to the disaster area. The service package addresses evacuations for all types of disasters, including disasters like hurricanes that are anticipated and occur slowly, allowing a well-planned orderly evacuation, as well as disasters like terrorist acts that occur rapidly, without warning, and allow little or no time for preparation or public warning.

This service package supports coordination of evacuation plans among the federal, state, and local transportation, emergency, and law enforcement agencies that may be involved in a large-scale evacuation. All affected jurisdictions (e.g., states and counties) at the evacuation origin, evacuation destination, and along the evacuation route are informed of the plan. Information is shared with 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. Reversible lanes, shoulder use, closures, special signal control strategies, and other special strategies may be implemented to maximize capacity along the evacuation routes. Transit resources play an important role in an evacuation, removing many people from an evacuated area while making efficient use of limited capacity. Additional shared transit resources may be added and managed in evacuation scenarios. Resource requirements are forecast based on the evacuation plans, and the necessary resources are located, shared between agencies if necessary, and deployed at the right locations at the appropriate times.

Evacuations are also supported by EM10, the "Disaster Traveler Information" service package, which keeps the public informed during evacuations. See that service package for more information.

Amtrak Rail
Borman Hoosier Helpers
Borman TMC
Borman TMC Personnel
ECT Agency Management
ECT Personnel
Emergency Management Agencies
Emergency Medical Services

Table 7

Freight Rail Operators
 GPTC Agency Management
 GPTC Personnel
 Hazmat Management and Cleanup
 Illiana Corridor Maintenance and Construction Center Personnel
 Illiana Corridor Maintenance and Construction Management System
 Illiana Corridor Operations Center
 Illiana Corridor Operations Center Personnel
 Illinois Department of Transportation District 1 Traffic Systems Center (TSC)

 Illinois Department of Transportation Emergency Traffic Patrol (ETP)
 Indiana Department of Homeland Security State Emergency Operations Center

 Indiana Dunes National Lakeshore Shuttle Agency Management
 Indiana Dunes National Lakeshore Shuttle Personnel
 Indiana Gateway
 Indiana State Police Commercial Vehicle Enforcement Division
 Indiana State Police District 13
 Indiana State Police District 21 (Toll Road)
 Indiana Toll Road Maintenance and Construction Center Personnel
 Indiana Toll Road Maintenance and Construction Management System
 Indiana Toll Road Operations Center
 Indiana Toll Road Operations Center Personnel
 INDOT Maintenance and Construction Center Personnel
 INDOT Maintenance and Construction Management System
 INDOT-Northwest District Arterial TMC
 INDOT-Northwest District Arterial TMC Personnel
 Lake County E-911 Center
 Lake County Emergency Operations Center
 Lake County Highway Department
 Lake County Maintenance and Construction Center Personnel
 Lake County Maintenance and Construction Management System
 Lake County Sheriff Department
 Lake Michigan Interstate Gateway Alliance (LMIGA) Website
 LaPorte County E-911 Communications Center
 LaPorte County Emergency Operations Center
 LaPorte County Highway Department
 LaPorte County Maintenance and Construction Center Personnel
 LaPorte County Maintenance and Construction Management System
 LaPorte County Sheriff Office
 Local Emergency Services
 Local Emergency Services Personnel
 Local Emergency Telecommunications Systems
 Local Maintenance and Construction Center Personnel
 Local Maintenance and Construction Management System
 Local Streets Departments
 Local TMCs
 Local TMCs Personnel
 MCT Agency Management
 MCT Personnel
 Media
 NICTD Agency Management
 NICTD Personnel
 North Township Dial-a-Ride Agency Management

Table 7

North Township Dial-a-Ride Personnel
 Opportunity Enterprises Agency Management
 Opportunity Enterprises Personnel
 PCACS Agency Management
 PCACS Personnel
 Porter County Central Communications
 Porter County Emergency Operations Center
 Porter County Highway Department
 Porter County Maintenance and Construction Center Personnel
 Porter County Maintenance and Construction Management System
 Porter County Sheriff Department
 Private Information Service Providers
 Private Maintenance and Construction Center Personnel
 Private Maintenance and Construction Management System
 Private Towing Companies
 RTA Operations
 SLCCS Agency Management
 SLCCS Personnel
 TransPorte Agency Management
 TransPorte Personnel
 Triangle Transit Agency Management
 Triangle Transit Personnel
 US Coast Guard Michigan City Station Dispatch
 Valparaiso Transit Agency Management
 Valparaiso Transit Personnel

Disaster Traveler Information (EM10) -- Potential

This service package uses ITS to provide disaster-related traveler information to the general public, including evacuation and reentry information and other information concerning the operation of the transportation system during a disaster. This service package collects information from multiple sources including traffic, transit, public safety, emergency management, shelter provider, and travel service provider organizations. The collected information is processed and the public is provided with real-time disaster and evacuation information using ITS traveler information systems.

A disaster will stress the surface transportation system since it may damage transportation facilities at the same time that it places unique demands on these facilities to support public evacuation and provide access for emergency responders. Similarly, a disaster may interrupt or degrade the operation of many traveler information systems at the same time that safety-critical information must be provided to the traveling public. This service package keeps the public informed in these scenarios, using all available means to provide information about the disaster area including damage to the transportation system, detours and closures in effect, special traffic restrictions and allowances, special transit schedules, and real-time information on traffic conditions and transit system performance in and around the disaster.

This service package also provides emergency information to assist the public with evacuations when necessary. Information on mandatory and voluntary evacuation zones, evacuation times, and instructions are provided. Available evacuation routes and destinations and current and anticipated travel conditions along those routes are provided so evacuees are prepared and know their destination and preferred evacuation route. Information on available transit services and traveler services (shelters, medical services, hotels, restaurants, gas stations, etc.) is also provided. In addition to general evacuation information, this service package provides specific evacuation trip planning information that is tailored for the evacuee based on origin, selected destination, and evacuee-specified evacuation requirements and route parameters.

This service package augments the ATIS service packages that provide traveler information on a day-to-day basis for the surface transportation system. This service package provides focus on the special requirements for traveler information dissemination in disaster situations.

Borman Hoosier Helpers
 Borman TMC
 Drivers
 ECT Agency Management
 Emergency Management Agencies

Table 7

Emergency Medical Services
 Freight Rail Crews
 GPTC Agency Management
 GPTC Kiosks
 Hazmat Management and Cleanup
 Illiana Corridor Operations Center
 Illinois Department of Transportation Emergency Traffic Patrol (ETP)
 Indiana Department of Homeland Security State Emergency Operations Center

 Indiana Dunes National Lakeshore Shuttle Agency Management
 Indiana Dunes National Lakeshore Shuttle Kiosks
 Indiana Gateway
 Indiana State Police Commercial Vehicle Enforcement Division
 Indiana State Police District 13
 Indiana State Police District 21 (Toll Road)
 Indiana Toll Road Kiosks
 Indiana Toll Road Operations Center
 Indiana Toll Road Travel Plazas
 Indiana Welcome Center
 INDOT-Northwest District Arterial TMC
 INDOT-Northwest District Arterial TMC Kiosks
 Kiosks, Yellow Pages, and Other Remote Traveler Support
 Lake County E-911 Center
 Lake County Emergency Operations Center
 Lake County Highway Department
 Lake County Sheriff Department
 Lake Michigan Interstate Gateway Alliance (LMIGA) Website
 LaPorte County E-911 Communications Center
 LaPorte County Emergency Operations Center
 LaPorte County Highway Department
 LaPorte County Sheriff Office
 Local Emergency Services
 Local Emergency Services Personnel
 Local Emergency Telecommunications Systems
 Local Streets Departments
 Local TMCs
 Local TMCs Kiosks
 MCT Agency Management
 Media
 NICTD Agency Management
 NICTD Kiosks
 North Township Dial-a-Ride Agency Management
 Opportunity Enterprises Agency Management
 PCACS Agency Management
 Personal Travel Information Access
 Porter County Central Communications
 Porter County Emergency Operations Center
 Porter County Highway Department
 Porter County Sheriff Department
 Private Information Service Providers
 Private Towing Companies
 Regional Hospitals
 RTA Operations

Table 7

SLCCS Agency Management
 Transit Users
 TransPorte Agency Management
 Travelers
 Triangle Transit Agency Management
 US Coast Guard Michigan City Station Dispatch
 Valparaiso Transit Agency Management
 Vehicle ITS Equipment
 Weather Services

Maintenance and Construction Vehicle and Equipment Tracking (MC01) -- Planned

This service package will track the location of maintenance and construction vehicles and other equipment to ascertain the progress of their activities. These activities can include ensuring the correct roads are being plowed and work activity is being performed at the correct locations.

Illiana Corridor Maintenance and Construction Center Personnel
 Illiana Corridor Maintenance and Construction Management System
 Illiana Corridor Maintenance and Construction Vehicles
 Indiana Toll Road Maintenance and Construction Center Personnel
 Indiana Toll Road Maintenance and Construction Management System
 Indiana Toll Road Maintenance and Construction Vehicles
 INDOT Maintenance and Construction Center Personnel
 INDOT Maintenance and Construction Management System
 INDOT Maintenance and Construction Vehicles
 Lake County Maintenance and Construction Center Personnel
 Lake County Maintenance and Construction Management System
 Lake County Maintenance and Construction Vehicles
 LaPorte County Maintenance and Construction Center Personnel
 LaPorte County Maintenance and Construction Management System
 LaPorte County Maintenance and Construction Vehicles
 Local Maintenance and Construction Center Personnel
 Local Maintenance and Construction Management System
 Local Maintenance and Construction Vehicles
 Location Data Source
 Map Update Provider
 Porter County Maintenance and Construction Center Personnel
 Porter County Maintenance and Construction Management System
 Porter County Maintenance and Construction Vehicles
 Private Maintenance and Construction Center Personnel
 Private Maintenance and Construction Management System
 Private Maintenance and Construction Vehicles
 Vehicle ITS Equipment

Maintenance and Construction Vehicle Maintenance (MC02) -- Existing

This service package performs vehicle maintenance scheduling and manages both routine and corrective maintenance activities on vehicles and other maintenance and construction equipment. It includes on-board sensors capable of automatically performing diagnostics for maintenance and construction vehicles, and the systems that collect this diagnostic information and use it to schedule and manage vehicle maintenance.

Indiana Toll Road Maintenance and Construction Center Personnel
 Indiana Toll Road Maintenance and Construction Field Personnel
 Indiana Toll Road Maintenance and Construction Management System
 Indiana Toll Road Maintenance and Construction Vehicles
 INDOT Equipment Repair Facilities
 INDOT Maintenance and Construction Center Personnel

Table 7

INDOT Maintenance and Construction Field Personnel
 INDOT Maintenance and Construction Management System
 INDOT Maintenance and Construction Vehicles
 Lake County Equipment Repair Facilities
 Lake County Maintenance and Construction Center Personnel
 Lake County Maintenance and Construction Field Personnel
 Lake County Maintenance and Construction Management System
 Lake County Maintenance and Construction Vehicles
 LaPorte County Equipment Repair Facilities
 LaPorte County Maintenance and Construction Center Personnel
 LaPorte County Maintenance and Construction Field Personnel
 LaPorte County Maintenance and Construction Management System
 LaPorte County Maintenance and Construction Vehicles
 Local Equipment Repair Facilities
 Local Maintenance and Construction Center Personnel
 Local Maintenance and Construction Field Personnel
 Local Maintenance and Construction Management System
 Local Maintenance and Construction Vehicles
 Porter County Equipment Repair Facilities
 Porter County Maintenance and Construction Center Personnel
 Porter County Maintenance and Construction Field Personnel
 Porter County Maintenance and Construction Management System
 Porter County Maintenance and Construction Vehicles
 Private Equipment and Repair Facilities
 Private Maintenance and Construction Center Personnel
 Private Maintenance and Construction Field Personnel
 Private Maintenance and Construction Management System
 Private Maintenance and Construction Vehicles
 Vehicle ITS Equipment

Maintenance and Construction Vehicle Maintenance (Instance 1) (MC02) -- Planned

This service package performs vehicle maintenance scheduling and manages both routine and corrective maintenance activities on vehicles and other maintenance and construction equipment. It includes on-board sensors capable of automatically performing diagnostics for maintenance and construction vehicles, and the systems that collect this diagnostic information and use it to schedule and manage vehicle maintenance.

Illiana Corridor Maintenance and Construction Center Personnel
 Illiana Corridor Maintenance and Construction Field Personnel
 Illiana Corridor Maintenance and Construction Management System
 Illiana Corridor Maintenance and Construction Vehicles

Road Weather Data Collection (MC03) -- Existing

This service package collects current road and weather conditions using data collected from environmental sensors deployed on and about the roadway (or guideway in the case of transit related rail systems). In addition to fixed sensor stations at the roadside, sensing of the roadway environment can also occur from sensor systems located on Maintenance and Construction Vehicles. The collected environmental data is used by the Weather Information Processing and Distribution service package to process the information and make decisions on operations. The collected environmental data may be aggregated, combined with data attributes and sent to meteorological systems for data qualification and further data consolidation. The service package may also request and receive qualified data sets from meteorological systems.

Borman TMC
 Borman TMC Roadside Equipment
 Indiana Gateway
 Indiana Toll Road Operations Center
 Indiana Toll Road Roadside Equipment/Toll Plazas/Gantries
 INDOT Field Equipment

Table 7

Media
 Private Information Service Providers
 Roadway Environment
 Weather Services

Road Weather Data Collection (Instance 1) (MC03) -- Potential

This service package collects current road and weather conditions using data collected from environmental sensors deployed on and about the roadway (or guideway in the case of transit related rail systems). In addition to fixed sensor stations at the roadside, sensing of the roadway environment can also occur from sensor systems located on Maintenance and Construction Vehicles. The collected environmental data is used by the Weather Information Processing and Distribution service package to process the information and make decisions on operations. The collected environmental data may be aggregated, combined with data attributes and sent to meteorological systems for data qualification and further data consolidation. The service package may also request and receive qualified data sets from meteorological systems.

Illiana Corridor Maintenance and Construction Management System
 Illiana Corridor Maintenance and Construction Vehicles
 Illiana Corridor Operations Center
 Illiana Corridor Roadside Equipment/Toll Plazas/Gantries
 Indiana Toll Road Maintenance and Construction Management System
 Indiana Toll Road Maintenance and Construction Vehicles
 INDOT Arterial Multimodal Crossings
 INDOT Maintenance and Construction Management System
 INDOT Maintenance and Construction Vehicles
 INDOT-Northwest District Arterial TMC
 INDOT-Northwest District Arterial TMC Roadside Equipment
 Lake County Field Equipment
 Lake County Maintenance and Construction Management System
 Lake County Maintenance and Construction Vehicles
 Lake County Multimodal Crossings
 Lake Michigan Interstate Gateway Alliance (LMIGA) Website
 LaPorte County Field Equipment
 LaPorte County Maintenance and Construction Management System
 LaPorte County Maintenance and Construction Vehicles
 LaPorte County Multimodal Crossings
 Local Field Equipment
 Local Maintenance and Construction Management System
 Local Maintenance and Construction Vehicles
 Local Multimodal Crossings
 Local TMCs
 Local TMCs Roadside Equipment
 Porter County Field Equipment
 Porter County Maintenance and Construction Management System
 Porter County Maintenance and Construction Vehicles
 Porter County Multimodal Crossings
 Private Maintenance and Construction Management System
 Private Maintenance and Construction Vehicles

Weather Information Processing and Distribution (MC04) -- Existing

This service package processes and distributes the environmental information collected from the Road Weather Data Collection service package. This service package uses the environmental data to detect environmental hazards such as icy road conditions, high winds, dense fog, etc. so system operators and decision support systems can make decision on corrective actions to take. The continuing updates of road condition information and current temperatures can be used by system operators to more effectively deploy road maintenance resources, issue general traveler advisories, issue location specific warnings to drivers using the Traffic Information Dissemination service package, and aid operators in scheduling work activity.

Amtrak Rail

Table 7

Borman TMC
 Borman TMC Personnel
 ECT Agency Management
 Emergency Management Agencies
 Freight Rail Operators
 GPTC Agency Management
 Illinois Department of Transportation Emergency Traffic Patrol (ETP)
 Indiana Department of Homeland Security State Emergency Operations Center

 Indiana Gateway
 Indiana State Police District 13
 Indiana State Police District 21 (Toll Road)
 Indiana Toll Road Maintenance and Construction Center Personnel
 Indiana Toll Road Maintenance and Construction Management System
 Indiana Toll Road Operations Center
 Indiana Toll Road Operations Center Personnel
 INDOT Maintenance and Construction Center Personnel
 INDOT Maintenance and Construction Management System
 Lake County Emergency Operations Center
 Lake County Maintenance and Construction Center Personnel
 Lake County Maintenance and Construction Management System
 Lake County Sheriff Department
 Lake Michigan Interstate Gateway Alliance (LMIGA) Website
 LaPorte County Emergency Operations Center
 LaPorte County Maintenance and Construction Center Personnel
 LaPorte County Maintenance and Construction Management System
 LaPorte County Sheriff Office
 Local Maintenance and Construction Center Personnel
 Local Maintenance and Construction Management System
 MCT Agency Management
 Media
 NICTD Agency Management
 North Township Dial-a-Ride Agency Management
 Opportunity Enterprises Agency Management
 PCACS Agency Management
 Porter County Emergency Operations Center
 Porter County Maintenance and Construction Center Personnel
 Porter County Maintenance and Construction Management System
 Porter County Sheriff Department
 Private Information Service Providers
 Private Maintenance and Construction Center Personnel
 Private Maintenance and Construction Management System
 RTA Operations
 SLCCS Agency Management
 TransPorte Agency Management
 Valparaiso Transit Agency Management
 Weather Services

Weather Information Processing and Distribution (Instance 1) (MC04) -- Planned

This service package processes and distributes the environmental information collected from the Road Weather Data Collection service package. This service package uses the environmental data to detect environmental hazards such as icy road conditions, high winds, dense fog, etc. so system operators and decision support systems can make decision on corrective actions to take. The continuing updates of road condition information and current temperatures can be used by system operators to more effectively deploy road maintenance resources, issue general traveler advisories, issue location specific warnings to drivers using the Traffic Information Dissemination service package, and aid operators in scheduling work activity.

Table 7

Illiana Corridor Maintenance and Construction Center Personnel
 Illiana Corridor Maintenance and Construction Management System
 Illiana Corridor Operations Center
 Illiana Corridor Operations Center Personnel
 Indiana Dunes National Lakeshore Shuttle Agency Management
 Triangle Transit Agency Management

Weather Information Processing and Distribution (Instance 2) (MC04) -- Potential

This service package processes and distributes the environmental information collected from the Road Weather Data Collection service package. This service package uses the environmental data to detect environmental hazards such as icy road conditions, high winds, dense fog, etc. so system operators and decision support systems can make decision on corrective actions to take. The continuing updates of road condition information and current temperatures can be used by system operators to more effectively deploy road maintenance resources, issue general traveler advisories, issue location specific warnings to drivers using the Traffic Information Dissemination service package, and aid operators in scheduling work activity.

INDOT-Northwest District Arterial TMC
 INDOT-Northwest District Arterial TMC Personnel
 Local TMCs
 Local TMCs Personnel

Winter Maintenance (MC06) -- Existing

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

Borman Hoosier Helpers
 Borman TMC
 Emergency Management Agencies
 Illinois Department of Transportation Emergency Traffic Patrol (ETP)
 Indiana Department of Homeland Security State Emergency Operations Center

Indiana Gateway
 Indiana State Police Commercial Vehicle Enforcement Division
 Indiana State Police District 13
 Indiana State Police District 21 (Toll Road)
 Indiana Toll Road Maintenance and Construction Center Personnel
 Indiana Toll Road Maintenance and Construction Field Personnel
 Indiana Toll Road Maintenance and Construction Management System
 Indiana Toll Road Maintenance and Construction Vehicles
 Indiana Toll Road Operations Center
 INDOT Maintenance and Construction Center Personnel
 INDOT Maintenance and Construction Field Personnel
 INDOT Maintenance and Construction Management System
 INDOT Maintenance and Construction Vehicles
 Lake County Emergency Operations Center
 Lake County Maintenance and Construction Center Personnel
 Lake County Maintenance and Construction Field Personnel
 Lake County Maintenance and Construction Management System
 Lake County Maintenance and Construction Vehicles
 Lake County Sheriff Department
 LaPorte County Emergency Operations Center
 LaPorte County Maintenance and Construction Center Personnel
 LaPorte County Maintenance and Construction Field Personnel
 LaPorte County Maintenance and Construction Management System

Table 7

LaPorte County Maintenance and Construction Vehicles
 LaPorte County Sheriff Office
 Local Maintenance and Construction Center Personnel
 Local Maintenance and Construction Field Personnel
 Local Maintenance and Construction Management System
 Local Maintenance and Construction Vehicles
 Location Data Source
 Map Update Provider
 Media
 Porter County Emergency Operations Center
 Porter County Maintenance and Construction Center Personnel
 Porter County Maintenance and Construction Field Personnel
 Porter County Maintenance and Construction Management System
 Porter County Maintenance and Construction Vehicles
 Porter County Sheriff Department
 Private Information Service Providers
 Private Maintenance and Construction Center Personnel
 Private Maintenance and Construction Field Personnel
 Private Maintenance and Construction Management System
 Private Maintenance and Construction Vehicles
 Roadway Environment
 Vehicle ITS Equipment
 Weather Services

Winter Maintenance (Instance 1) (MC06) -- Planned

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

Illiana Corridor Maintenance and Construction Center Personnel
 Illiana Corridor Maintenance and Construction Field Personnel
 Illiana Corridor Maintenance and Construction Management System
 Illiana Corridor Maintenance and Construction Vehicles
 Illiana Corridor Operations Center
 Private Towing Companies

Winter Maintenance (Instance 2) (MC06) -- Potential

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

INDOT-Northwest District Arterial TMC
 Local TMCs

Roadway Maintenance and Construction (MC07) -- Existing

This service package supports numerous services for scheduled and unscheduled maintenance and construction on a roadway system or right-of-way. Maintenance services would include landscape maintenance, hazard removal (roadway debris, dead animals), routine maintenance activities (roadway cleaning, grass cutting), and repair and maintenance of both ITS and non-ITS equipment on the roadway (e.g., signs, traffic controllers, traffic detectors, dynamic message signs, traffic signals, CCTV, etc.). Environmental conditions information is also received from various weather sources to aid in scheduling maintenance and construction activities.

Amtrak Rail Asset Management
 Borman Hoosier Helpers
 Borman TMC
 Borman TMC Roadside Equipment

Table 7

Indiana Gateway
 Indiana State Police Commercial Vehicle Enforcement Division
 Indiana State Police District 13
 Indiana State Police District 21 (Toll Road)
 Indiana Toll Road Asset Management
 Indiana Toll Road Maintenance and Construction Center Personnel
 Indiana Toll Road Maintenance and Construction Field Personnel
 Indiana Toll Road Maintenance and Construction Management System
 Indiana Toll Road Maintenance and Construction Vehicles
 Indiana Toll Road Operations Center
 Indiana Toll Road Roadside Equipment/Toll Plazas/Gantries
 INDOT Asset Management
 INDOT Field Equipment
 INDOT Maintenance and Construction Center Personnel
 INDOT Maintenance and Construction Field Personnel
 INDOT Maintenance and Construction Management System
 INDOT Maintenance and Construction Vehicles
 INDOT Traffic Management
 Lake County Asset Management
 Lake County Field Equipment
 Lake County Maintenance and Construction Center Personnel
 Lake County Maintenance and Construction Field Personnel
 Lake County Maintenance and Construction Management System
 Lake County Maintenance and Construction Vehicles
 Lake County Sheriff Department
 Lake Michigan Interstate Gateway Alliance (LMIGA) Website
 LaPorte County Asset Management
 LaPorte County Field Equipment
 LaPorte County Maintenance and Construction Center Personnel
 LaPorte County Maintenance and Construction Field Personnel
 LaPorte County Maintenance and Construction Management System
 LaPorte County Maintenance and Construction Vehicles
 LaPorte County Sheriff Office
 Local Asset Management
 Local Field Equipment
 Local Maintenance and Construction Center Personnel
 Local Maintenance and Construction Field Personnel
 Local Maintenance and Construction Management System
 Local Maintenance and Construction Vehicles
 Location Data Source
 Map Update Provider
 Media
 NICTD Asset Management
 Porter County Asset Management
 Porter County Field Equipment
 Porter County Maintenance and Construction Center Personnel
 Porter County Maintenance and Construction Field Personnel
 Porter County Maintenance and Construction Management System
 Porter County Maintenance and Construction Vehicles
 Porter County Sheriff Department
 Private Information Service Providers
 Private Maintenance and Construction Center Personnel
 Private Maintenance and Construction Field Personnel

Table 7

Private Maintenance and Construction Management System
 Private Maintenance and Construction Vehicles
 Private Towing Companies
 Vehicle ITS Equipment
 Weather Services

Roadway Maintenance and Construction (Instance 1) (MC07) -- Planned

This service package supports numerous services for scheduled and unscheduled maintenance and construction on a roadway system or right-of-way. Maintenance services would include landscape maintenance, hazard removal (roadway debris, dead animals), routine maintenance activities (roadway cleaning, grass cutting), and repair and maintenance of both ITS and non-ITS equipment on the roadway (e.g., signs, traffic controllers, traffic detectors, dynamic message signs, traffic signals, CCTV, etc.). Environmental conditions information is also received from various weather sources to aid in scheduling maintenance and construction activities.

Illiana Corridor Asset Management
 Illiana Corridor Maintenance and Construction Center Personnel
 Illiana Corridor Maintenance and Construction Field Personnel
 Illiana Corridor Maintenance and Construction Management System
 Illiana Corridor Maintenance and Construction Vehicles
 Illiana Corridor Operations Center
 Illiana Corridor Roadside Equipment/Toll Plazas/Gantries

Roadway Maintenance and Construction (Instance 2) (MC07) -- Potential

This service package supports numerous services for scheduled and unscheduled maintenance and construction on a roadway system or right-of-way. Maintenance services would include landscape maintenance, hazard removal (roadway debris, dead animals), routine maintenance activities (roadway cleaning, grass cutting), and repair and maintenance of both ITS and non-ITS equipment on the roadway (e.g., signs, traffic controllers, traffic detectors, dynamic message signs, traffic signals, CCTV, etc.). Environmental conditions information is also received from various weather sources to aid in scheduling maintenance and construction activities.

INDOT-Northwest District Arterial TMC
 INDOT-Northwest District Arterial TMC Roadside Equipment
 Local TMCs
 Local TMCs Roadside Equipment

Work Zone Management (MC08) -- Existing

This service package manages work zones, controlling traffic in areas of the roadway where maintenance, construction, and utility work activities are underway. Traffic conditions are monitored using CCTV cameras and controlled using dynamic message signs (DMS), Highway Advisory Radio (HAR), gates and barriers. Work zone information is coordinated with other groups (e.g., ISP, traffic management, other maintenance and construction centers). Work zone speeds and delays are provided to the motorist prior to the work zones. This service package provides control of field equipment in all maintenance and construction areas, including fixed, portable, and truck-mounted devices supporting both stationary and mobile work zones.

Borman TMC
 Borman TMC Roadside Equipment
 Drivers
 Illinois Department of Transportation Emergency Traffic Patrol (ETP)
 Indiana Gateway
 Indiana State Police Commercial Vehicle Enforcement Division
 Indiana State Police District 13
 Indiana State Police District 21 (Toll Road)
 Indiana Toll Road Maintenance and Construction Center Personnel
 Indiana Toll Road Maintenance and Construction Field Personnel
 Indiana Toll Road Maintenance and Construction Management System
 Indiana Toll Road Maintenance and Construction Vehicles
 Indiana Toll Road Operations Center
 Indiana Toll Road Roadside Equipment/Toll Plazas/Gantries
 INDOT Field Equipment
 INDOT Maintenance and Construction Center Personnel

Table 7

INDOT Maintenance and Construction Field Personnel
 INDOT Maintenance and Construction Management System
 INDOT Maintenance and Construction Vehicles
 INDOT Traffic Management
 Lake County Field Equipment
 Lake County Maintenance and Construction Center Personnel
 Lake County Maintenance and Construction Field Personnel
 Lake County Maintenance and Construction Management System
 Lake County Maintenance and Construction Vehicles
 Lake County Sheriff Department
 Lake Michigan Interstate Gateway Alliance (LMIGA) Website
 LaPorte County Field Equipment
 LaPorte County Maintenance and Construction Center Personnel
 LaPorte County Maintenance and Construction Field Personnel
 LaPorte County Maintenance and Construction Management System
 LaPorte County Maintenance and Construction Vehicles
 LaPorte County Sheriff Office
 Local Field Equipment
 Local Maintenance and Construction Center Personnel
 Local Maintenance and Construction Field Personnel
 Local Maintenance and Construction Management System
 Local Maintenance and Construction Vehicles
 Media
 Porter County Field Equipment
 Porter County Maintenance and Construction Center Personnel
 Porter County Maintenance and Construction Field Personnel
 Porter County Maintenance and Construction Management System
 Porter County Maintenance and Construction Vehicles
 Porter County Sheriff Department
 Private Information Service Providers
 Private Maintenance and Construction Center Personnel
 Private Maintenance and Construction Field Personnel
 Private Maintenance and Construction Management System
 Private Maintenance and Construction Vehicles

Work Zone Management (Instance 1) (MC08) -- Planned

This service package manages work zones, controlling traffic in areas of the roadway where maintenance, construction, and utility work activities are underway. Traffic conditions are monitored using CCTV cameras and controlled using dynamic message signs (DMS), Highway Advisory Radio (HAR), gates and barriers. Work zone information is coordinated with other groups (e.g., ISP, traffic management, other maintenance and construction centers). Work zone speeds and delays are provided to the motorist prior to the work zones. This service package provides control of field equipment in all maintenance and construction areas, including fixed, portable, and truck-mounted devices supporting both stationary and mobile work zones.

Illiana Corridor Maintenance and Construction Center Personnel
 Illiana Corridor Maintenance and Construction Field Personnel
 Illiana Corridor Maintenance and Construction Management System
 Illiana Corridor Maintenance and Construction Vehicles
 Illiana Corridor Operations Center
 Illiana Corridor Roadside Equipment/Toll Plazas/Gantries

Work Zone Management (Instance 2) (MC08) -- Potential

This service package manages work zones, controlling traffic in areas of the roadway where maintenance, construction, and utility work activities are underway. Traffic conditions are monitored using CCTV cameras and controlled using dynamic message signs (DMS), Highway Advisory Radio (HAR), gates and barriers. Work zone information is coordinated with other groups (e.g., ISP, traffic management, other maintenance and construction centers). Work zone speeds and delays are provided to the motorist prior to the work zones. This service package provides control of field equipment in all maintenance and construction areas, including fixed, portable, and

Table 7

truck-mounted devices supporting both stationary and mobile work zones.

- INDOT-Northwest District Arterial TMC
- INDOT-Northwest District Arterial TMC Roadside Equipment
- Local TMCs
- Local TMCs Roadside Equipment

Work Zone Safety Monitoring (MC09) -- Potential

This service package includes systems that improve work crew safety and reduce collisions between the motoring public and maintenance and construction vehicles. This service package detects vehicle intrusions in work zones and warns crew workers and drivers of imminent encroachment or other potential safety hazards. Crew movements are also monitored so that the crew can be warned of movement beyond the designated safe zone. The service package supports both stationary and mobile work zones. The intrusion detection and alarm systems may be collocated or distributed, allowing systems that detect safety issues far upstream from a work zone (e.g., detection of over dimension vehicles before they enter the work zone).

- Borman TMC Roadside Equipment
- Drivers
- Illiana Corridor Maintenance and Construction Center Personnel
- Illiana Corridor Maintenance and Construction Field Personnel
- Illiana Corridor Maintenance and Construction Management System
- Illiana Corridor Maintenance and Construction Vehicles
- Illiana Corridor Roadside Equipment/Toll Plazas/Gantries
- Indiana Toll Road Maintenance and Construction Center Personnel
- Indiana Toll Road Maintenance and Construction Field Personnel
- Indiana Toll Road Maintenance and Construction Management System
- Indiana Toll Road Maintenance and Construction Vehicles
- Indiana Toll Road Roadside Equipment/Toll Plazas/Gantries
- INDOT Field Equipment
- INDOT Maintenance and Construction Center Personnel
- INDOT Maintenance and Construction Field Personnel
- INDOT Maintenance and Construction Management System
- INDOT Maintenance and Construction Vehicles
- INDOT-Northwest District Arterial TMC Roadside Equipment
- Lake County Field Equipment
- Lake County Maintenance and Construction Center Personnel
- Lake County Maintenance and Construction Field Personnel
- Lake County Maintenance and Construction Management System
- Lake County Maintenance and Construction Vehicles
- LaPorte County Field Equipment
- LaPorte County Maintenance and Construction Center Personnel
- LaPorte County Maintenance and Construction Field Personnel
- LaPorte County Maintenance and Construction Management System
- LaPorte County Maintenance and Construction Vehicles
- Local Field Equipment
- Local Maintenance and Construction Center Personnel
- Local Maintenance and Construction Field Personnel
- Local Maintenance and Construction Management System
- Local Maintenance and Construction Vehicles
- Local TMCs Roadside Equipment
- Porter County Field Equipment
- Porter County Maintenance and Construction Center Personnel
- Porter County Maintenance and Construction Field Personnel
- Porter County Maintenance and Construction Management System
- Porter County Maintenance and Construction Vehicles
- Private Maintenance and Construction Center Personnel

Table 7

Private Maintenance and Construction Field Personnel
 Private Maintenance and Construction Management System
 Private Maintenance and Construction Vehicles
 Traffic
 Vehicle ITS Equipment

Maintenance and Construction Activity Coordination (MC10) -- Planned

This service package supports the dissemination of maintenance and construction activity to centers that can utilize it as part of their operations, or to the Information Service Providers who can provide the information to travelers.

Amtrak Rail Asset Management
 Borman TMC
 Illiana Corridor Asset Management
 Illiana Corridor Maintenance and Construction Center Personnel
 Illiana Corridor Maintenance and Construction Management System
 Illiana Corridor Operations Center
 Illinois Department of Transportation Emergency Traffic Patrol (ETP)
 Indiana Gateway
 Indiana State Police Commercial Vehicle Enforcement Division
 Indiana State Police District 13
 Indiana State Police District 21 (Toll Road)
 Indiana Toll Road Asset Management
 Indiana Toll Road Maintenance and Construction Center Personnel
 Indiana Toll Road Maintenance and Construction Management System
 Indiana Toll Road Operations Center
 INDOT Asset Management
 INDOT Maintenance and Construction Center Personnel
 INDOT Maintenance and Construction Management System
 INDOT Traffic Management
 Lake County Asset Management
 Lake County Maintenance and Construction Center Personnel
 Lake County Maintenance and Construction Management System
 Lake County Sheriff Department
 Lake Michigan Interstate Gateway Alliance (LMIGA) Website
 LaPorte County Asset Management
 LaPorte County Maintenance and Construction Center Personnel
 LaPorte County Maintenance and Construction Management System
 LaPorte County Sheriff Office
 Local Asset Management
 Local Maintenance and Construction Center Personnel
 Local Maintenance and Construction Management System
 Media
 NICTD Asset Management
 Porter County Asset Management
 Porter County Maintenance and Construction Center Personnel
 Porter County Maintenance and Construction Management System
 Porter County Sheriff Department
 Private Information Service Providers
 Private Maintenance and Construction Center Personnel
 Private Maintenance and Construction Management System

Infrastructure Monitoring (MC12) -- Planned

This service package monitors the condition of pavement, bridges, tunnels, associated hardware, and other transportation-related infrastructure (e.g., culverts) using both fixed and vehicle-based infrastructure monitoring sensors. Fixed sensors monitor vibration, stress, temperature, continuity, and other parameters and mobile sensors and data logging devices collect information on current infrastructure

Table 7

condition. This service package also monitors vehicle probes for vertical acceleration data and other probe data that may be used to determine current pavement condition.

Borman TMC Roadside Equipment
Illiana Corridor Asset Management
Illiana Corridor Maintenance and Construction Management System
Illiana Corridor Maintenance and Construction Vehicles
Illiana Corridor Roadside Equipment/Toll Plazas/Gantries
Indiana Toll Road Asset Management
Indiana Toll Road Maintenance and Construction Management System
Indiana Toll Road Maintenance and Construction Vehicles
Indiana Toll Road Roadside Equipment/Toll Plazas/Gantries
INDOT Asset Management
INDOT Field Equipment
INDOT Maintenance and Construction Management System
INDOT Maintenance and Construction Vehicles
Vehicle ITS Equipment

Infrastructure Monitoring (Instance 1) (MC12) -- Potential

This service package monitors the condition of pavement, bridges, tunnels, associated hardware, and other transportation-related infrastructure (e.g., culverts) using both fixed and vehicle-based infrastructure monitoring sensors. Fixed sensors monitor vibration, stress, temperature, continuity, and other parameters and mobile sensors and data logging devices collect information on current infrastructure condition. This service package also monitors vehicle probes for vertical acceleration data and other probe data that may be used to determine current pavement condition.

Lake County Asset Management
Lake County Field Equipment
Lake County Maintenance and Construction Management System
Lake County Maintenance and Construction Vehicles
LaPorte County Asset Management
LaPorte County Field Equipment
LaPorte County Maintenance and Construction Management System
LaPorte County Maintenance and Construction Vehicles
Local Asset Management
Local Field Equipment
Local Maintenance and Construction Management System
Local Maintenance and Construction Vehicles
Porter County Asset Management
Porter County Field Equipment
Porter County Maintenance and Construction Management System
Porter County Maintenance and Construction Vehicles
Private Maintenance and Construction Management System
Private Maintenance and Construction Vehicles