

Illinois Department of Transportation

Illinois Statewide Intelligent Transportation Systems (ITS) Architecture and ITS Strategic Plan

ITS Architecture Document

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**Edwards
AND Kelcey**





Illinois Statewide Intelligent Transportation Systems (ITS) Architecture and ITS Strategic Plan

STATEWIDE ITS ARCHITECTURE DOCUMENT

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for



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TABLE OF CONTENTS

1. INTRODUCTION.....	1
2. APPROACH TO DEVELOPING THE ILLINOIS STATEWIDE ITS ARCHITECTURE.....	1
3. OVERVIEW OF THE STATEWIDE ARCHITECTURE.....	3
3.1 Statewide Concept of Operations Overview.....	3
3.2 Structure of the Statewide Architecture.....	5
3.3 Commercial Vehicles and CVISN in Illinois.....	7
3.4 Building the Architecture	8
4. IDENTIFICATION OF STAKEHOLDERS.....	10
5. ILLINOIS STATEWIDE ITS ARCHITECTURE.....	19
5.1 Inventory and Needs Across the State	21
5.2 Market Packages	32
5.3 Subsystem Elements & Functionality.....	46
5.4 Interconnects and Interfaces	47
6. STANDARDS AND THE ILLINOIS STATEWIDE ITS ARCHITECTURE	48
7. SEQUENCING OF FUNCTIONALITY	51
8. AGREEMENTS AND MEMORANDA OF UNDERSTANDING (MOU)	53
9. ARCHITECTURE MAINTENANCE	58

LIST OF APPENDICES

Appendix A	Meeting/Workshop Listing
Appendix B	Stakeholder Needs by Region
Appendix C	Detailed Needs Ranking
Appendix D	Inventory to Market Packages Mapping
Appendix E	Listing of Functional Requirements (Equipment Packages)
Appendix F	Nomenclature Guide
Appendix G	Architecture Maintenance Plan

TABLE OF ACRONYMS

AAMVNET	Association of American Motor Vehicle Administrators Network
AASHTO	American Association of State Highway and Transportation Officials
AFT	Automatic Funds Transfer
AHS	Automated Highway System
APCO	Association of Public Safety Communications Officials
ASPEN	Commercial vehicle reporting system software
ASTM	American Society for Testing and Materials
ATIS	Advanced Traveler Information System
ATMS	Advanced Traffic Management Systems
AVI	Automatic Vehicle Identification
AVL	Automatic Vehicle Location
BNPTS	Bloomington-Normal Public Transit System
CAA	Clean Air Act
CAD	Computer-Aided Dispatch
CAPRI	Audit inspection software
CATS	Chicago-Area Transportation Study
CCTV	Closed-Circuit Television
CDL	Commercial Drivers License
CDLIS	Commercial Drivers License Information System
CDPD	Cellular Data / Packet Data
CI	Credentialing Interface
CIPT	Central Illinois Public Transit
CMAQ	Congestion Mitigation and Air Quality (Improvement Program)
CMS	Central Management Services
CUUATS	Champaign-Urbana Urbanized Area Transportation Study
CUMTD	Champaign-Urbana Mass Transit District
CVIEW	Commercial Vehicle Information Exchange Window
CVISN	Commercial Vehicle Information Systems and Networks
CVO	Commercial Vehicle Operations
DATS	Danville Area Transportation Study
DMS	Dynamic Message Signs
DMV	Department of Motor Vehicles
DOT	Department of Transportation
DPTS	Decatur Public Transit System
DSRC	Dedicated Short Range Communications
EAS	Emergency Alert System
EFT	Electronic Funds Transfer
EMC	Emergency Management Center
EOSS	Electronic One-Stop Shopping
EPV	Emergency Patrol Vehicle
ESDA	Emergency Services and Disaster Agency
ETC	Electronic Toll Collection
ETP	Emergency Traffic Patrol
ETSA	Emergency Telephone System Act
ETSB	Emergency Telephone System Board

TABLE OF ACRONYMS

FCC	Federal Communications Commission
FHWA	Federal Highway Administration
FMCSA	Federal Motor Carrier Safety Administration
FTA	Federal Transit Administration
FTP	File Transfer Protocol
GCM	Gary-Chicago-Milwaukee
GIS	Geographic Information Systems
GPS	Global Positioning System
HAR	Highway Advisory Radio
HAZMAT	Hazardous Materials
HOV	High Occupancy Vehicle (lane)
HRI	Highway Railroad Intersection
HTML	Hypertext Markup Language
ICC	Illinois Commerce Commission
ICJA	Illinois Criminal Justice Information Authority
IDOT	Illinois Department of Transportation
IEEE	Institute of Electrical and Electronics Engineers
IEMA	Illinois Emergency Management Agency
IEPA	Illinois Environmental Protection Agency
IFERN	Interagency Fire Emergency Radio Network
IFTA	International Fuel Tax Agreement
ILEAS	Illinois Law Enforcement Alarm System
INDOT	Indiana Department of Transportation
IPS	Itinerary Planning System
IREACH	Illinois Radio Emergency Assistance Channel
IRP	International Registration Plan
ISP	Information Service Provider
ISP	Illinois State Police
ISPERN	Illinois State Police Emergency Radio Network
ISTHA	Illinois State Toll Highway Authority
ITE	Institute of Transportation Engineers
ITS	Intelligent Transportation Systems
ITSP0	Intelligent Transportation Systems Program Office
ITTF	Illinois Terrorism Task Force
IWIN	Illinois Wireless Information Network
JCMTD	Jackson County Mass Transit District
JDCT	Jo Daviess County Transit
LEADS	Law Enforcement Agency Data Service
LM	Legacy Modification
LRTP	Long Range Transportation Plan
LSI	Legacy System Interface
MABAS	Mutual Aid Box Alarm System
MCR	Mobile Capture & Reporting System
MCT	Madison County Transit
MDT	Mobile Data Terminal

TABLE OF ACRONYMS

MCMIS	Motor Carrier Management Information System
MMIS	Maintenance Management Information System
MoDOT	Missouri Department of Transportation
MOE	Measures of Effectiveness
MOU	Memorandum of Understanding
MPO	Metropolitan Planning Organization
MYP	Multi Year Plan
NCIC	National Crime Information Center
NEMA	National Electronics Manufacturers' Association
NLETS	National Law Enforcement Telecommunications System
NMVTIS	National Motor Vehicle Title Identification System
NTCIP	National Transportation Communications for ITS Protocol
OSOW	Oversize-Overweight
PMB	Pekin Municipal Bus
PRISM	Performance and Registration Information Systems Management
PSAP	Public Safety Access Point
PTZ	Pan-Tilt-Zoom
RICMMD	Rock Island County Metropolitan Mass Transit District
RMTD	Rockford Mass Transit District
RPC	Regional Planning Commission
RTA	Regional Transportation Authority
RTIP	Regional Transit ITS Plan
RVMMD	River Valley Metro Mass Transit District
RWIS	Road Weather Information Systems
SAE	Society of Automotive Engineers
SAFER	Safety and Fitness Electronic Records
SEDP	Strategic Early Deployment Plan
SEOC	State Emergency Operations Center
SCT	South Central Transit
SMART	Shawnee Mass Transit District
SMTD	Springfield Mass Transit District
SSRS	Single State Registration System
STIP	Statewide Transportation Improvement Plan
SWS	Safety Warning System
TCIP	Transit Communications Interface Profiles
TCRPC	Tri-County Regional Planning Commission
TEA-21	"Transportation Equity Act for the 21 st Century" – authorizing legislation for federal transportation programs (1998 – 2004)
TIMS	Traffic and Incident Management System
TIP	Transportation Improvement Plan
TMC	Traffic Management Center
TRB	Transportation Research Board
TSC	Traffic Systems Center
UIC	University of Illinois-Chicago
USDOT	United States Department of Transportation

TABLE OF ACRONYMS

USCG	United States Coast Guard
VMS	Variable Message Signs
WCMTD	West Central Mass Transit District
WIM	Weigh-in-Motion
WisDOT	Wisconsin Department of Transportation
XML	Extensible Markup Language

1. INTRODUCTION

The Illinois Statewide Intelligent Transportation Systems (ITS) Architecture and Strategic Plan Report consists of four primary components:

- Concept of Operations,
- Statewide ITS Architecture Document,
- Statewide ITS Strategic Plan, and
- Statewide Turbo Architecture® database.

This document presents the Illinois Department of Transportation's (IDOT) Statewide ITS Architecture. It is a living document, and will evolve as the work related to maintaining a Statewide ITS Architecture progresses.

The purpose of this Architecture Document is to give a brief overview of the Statewide ITS Architecture and to assist stakeholders in using the architecture for project definition and program planning. By using the architecture as a part of project development, stakeholders can better ensure that they take advantage of system integration opportunities, develop a correct system design, and create systems that interoperate with other technical systems throughout the state.

In addition to the statewide ITS architecture, seven regional ITS architectures exist for metropolitan areas across the state. A great effort has been made to ensure that each regional architecture is consistent with and accurately depicts the Statewide Architecture. These seven regional ITS architectures are as follows:

- Champaign-Urbana-Savoy Urbanized Area (CUSUA) Regional ITS Architecture: <http://www.ccrpc.org/CUUATS/its/home.html> (Champaign-Urbana)
- Interstate 74 Reconstruction Project ITS Project System Architecture/Peoria-Pekin Regional ITS Architecture (Peoria)
- Bi-State Regional ITS Architecture Plan (Quad Cities)
- North-Central Illinois ITS Architecture (Rockford)
- Northeastern Illinois Regional ITS Architecture: <http://www.catsmpo.com/itsarc/illinois-final-arch/neil/neilintro.htm> (Chicago)
- Springfield-Sangamon County (Springfield)
- Bi-State St. Louis ITS Regional Architecture (St. Louis Metro East)

Inquiries regarding the Statewide ITS Architecture should be directed to the IDOT ITS Program Office.

2. APPROACH TO DEVELOPING THE ILLINOIS STATEWIDE ITS ARCHITECTURE

The Project Team followed a systems engineering approach through a series of tasks, including a technical review of existing documentation, outreach and stakeholder participation, and an initial

phase ITS architecture. Within the architecture task, the Team performed a number of subtasks specifically related to developing the Statewide ITS Architecture:

- § Concept of Operations
- § Description of Region and Identification of Stakeholder Needs
- § Description of Services and Integration
- § Interfaces and Information Flows
- § Functional Requirements Analysis
- § Standards
- § Sequencing
- § Agreements

A subsequent portion of this study includes the development of a Statewide ITS Strategic Plan. The Strategic Plan will identify recommendations for ITS deployment across the state, as well as the steps that should be taken to build the functionality described in this Architecture Document.

The Illinois Department of Transportation has a 40-year history of employing what are now known as Intelligent Transportation Systems and brings significant infrastructure, services, and capabilities to bear in developing the Statewide ITS Architecture. The Project Team began the development of the architecture by performing an inventory of systems and services across the state through stakeholder surveys and telephone interviews. The Team hosted eight workshops with regional and statewide stakeholders to identify and confirm assets and needs. In addition to the workshops, the project also conducted several steering and technical committee meetings to solicit stakeholder input. Based on the results of that work, the Team documented the Concept of Operations for ITS across the state and between regions. The Team then used the Concept of Operations to derive requirements and identify functions. Using the National ITS Architecture as a starting point, the Team customized the architecture to reflect the unique nature of ITS in Illinois.

The Statewide ITS Architecture concentrates on inter-state and inter-regional functions. These functions focus on long distance and interregional travel and include emergency management, traveler information, standardization of data, and commercial vehicle operations (CVO). The individual regional architectures listed in Section 1 concentrate on local or regional functions within their metropolitan area boundaries. Regional functions include traffic management, maintenance, and local implementations that support statewide functions. Besides using a common architecture development process, the Statewide and regional architectures are linked through common nomenclature (where adjacent or legacy regional architectures do not override), and a consistent identification of subsystems/terminators, market packages, functions, and interconnections and data flows between subsystems/terminators. These linkages are a result of ongoing coordination between the Statewide Architecture and various regional architecture development teams through attendance at meetings, participation in workshops, and correspondence via the project website.

The Statewide Architecture also focuses on rural functions, such as rural paratransit and winter maintenance. As such, rural areas and smaller communities that are located outside of the

individual regional architecture boundaries should consider the Statewide ITS Architecture to be their regional ITS architecture.

In general, the Statewide ITS Architecture provides both a statewide and regional framework for insuring institutional agreement and technical integration for the implementation of ITS projects. The Statewide ITS Architecture describes functions – not technologies. Specific technologies that implement the functions in the architecture are left to individual projects, and are discussed further in the Strategic Plan. The architecture shows how functions and systems relate to each other.

3. OVERVIEW OF THE STATEWIDE ARCHITECTURE

3.1 Statewide Concept of Operations Overview

The Illinois DOT is organized into five regions and nine districts, each of which consists of between six and nineteen counties. Transportation services are provided at the district level. Regions coordinate transportation services that cross district boundaries and provide administrative efficiencies to the Department. The Central Office provides assistance in technical areas, auditing processes at a district and regional level, and providing oversight. Operations begin at the district level.

Figure 1 is a context diagram illustrating the Statewide ITS Concept of Operations at the highest level of information exchange for the state of Illinois. This “Level 0” diagram is intended to demonstrate that each district will gather information locally about the surface transportation network and share information between and among the various state and local agencies as warranted and as necessary. Since IDOT consists of multiple districts, each one has a specific collection of services, functions, and requirements. The IDOT districts and Central Office work together to provide transportation services to the public.

In this context diagram, each circle represents an entity, along with its services, functions, and requirements. A solid line between circles represents explicit protocols and procedures that the two entities use in performing operations in general. A dashed line represents information exchange or other communications that can *support* operations, but which do not perform a *primary* or *direct* operational function or service.

At a statewide level, the Illinois Statewide Hub performs operations for traveler information (via 511), commercial vehicle operations (for movement of goods), and coordination of statewide operations with District Hubs, the Illinois Tollway Authority, and neighboring State Departments of Transportation.

The Illinois Statewide Hub shares statewide transportation information with the Illinois State Police, transit operations, and public safety answering points (PSAPs)/emergency dispatch centers. These entities also share appropriate safety, transit, and law enforcement information to the Illinois Statewide Hub. For most activities, police, safety officials, and transit organizations

operate at a regional level. Information exchange at a statewide level occurs, but the primary interaction is at a regional or district level.

Figure 2 is another context diagram, this time at the next layer of detail. The purpose of this next level of context is to show how entities relate to each other for regional and/or district operations. While each district and region are unique, Figure 2 is a template, explicitly showing the functions and services that could potentially be addressed at the regional and/or district level. As such, an individual district may have all, some, or none of the entities shown.

As in Figure 1, each circle represents an entity’s services, functions, and requirements. This context diagram expands outward from the Illinois District Hub entity, which is the same entity found in the Level 0 diagram. In the Level 1 diagram, a solid line between circles represents explicit protocols and procedures that the two entities use in performing operations. A dashed line between a district entity and a statewide entity represents information exchange, or other communications that can *support* operations but which do not necessarily perform a *primary* or *direct* operational function or service. A dashed line between two district entities shows that those two entities have other primary means for information exchange outside of IDOT operations. For example, Figure 2 has a dashed line between “Local Law Enforcement” and “Illinois State Police.” This dashed line shows that the law enforcement entities have their own means to share information; IDOT is not their primary means of information exchange.

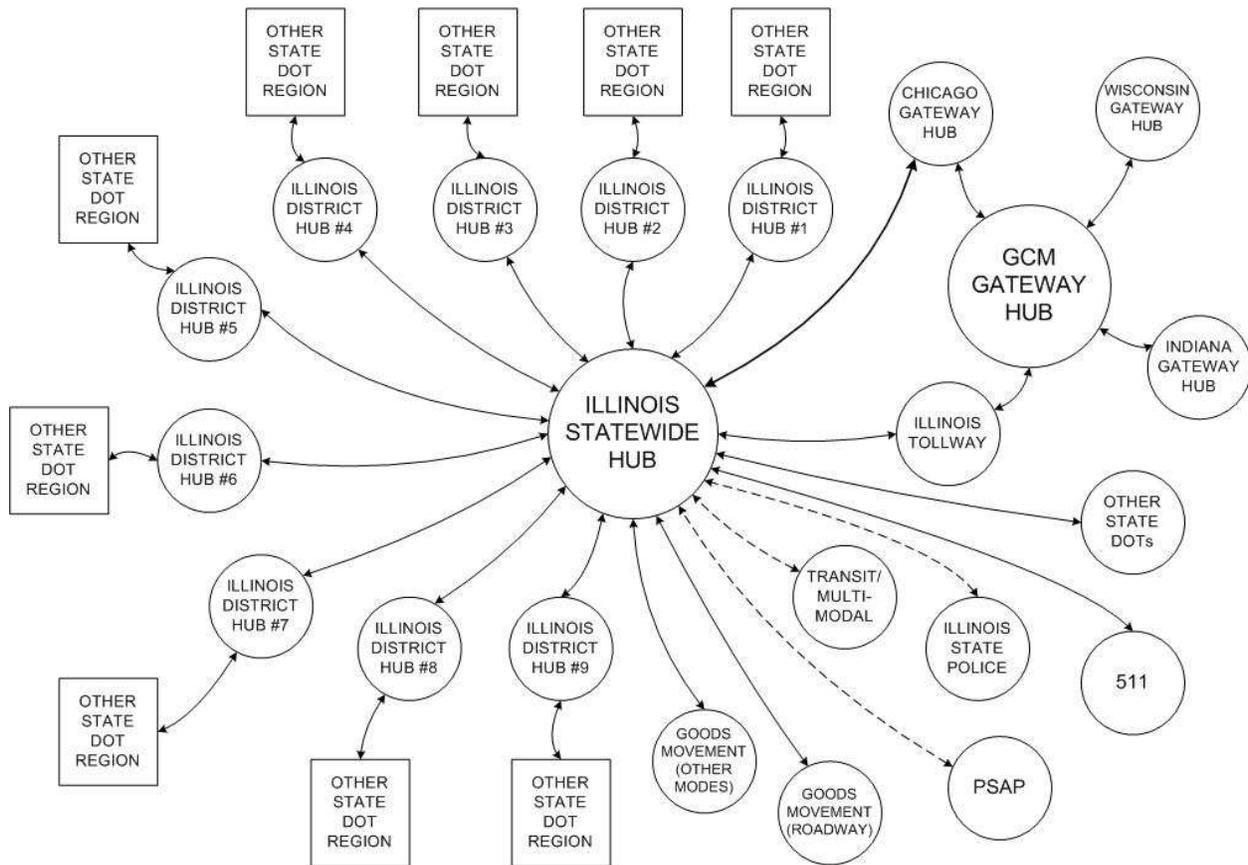


Figure 1: Statewide ITS Architecture Level 0 Diagram

Each District communicates and shares information with the Illinois Statewide Hub, which shares that information with all regions that need that data.

Figure 2 details Level 1. While still a high-level concept, in addition to IDOT it includes a broader range of stakeholders (e.g., Metropolitan Planning Organizations (MPOs)/Regional Planning Commissions (RPCs), transit agencies, Illinois State Police) that are expected to exchange information through a typical Illinois District Hub.

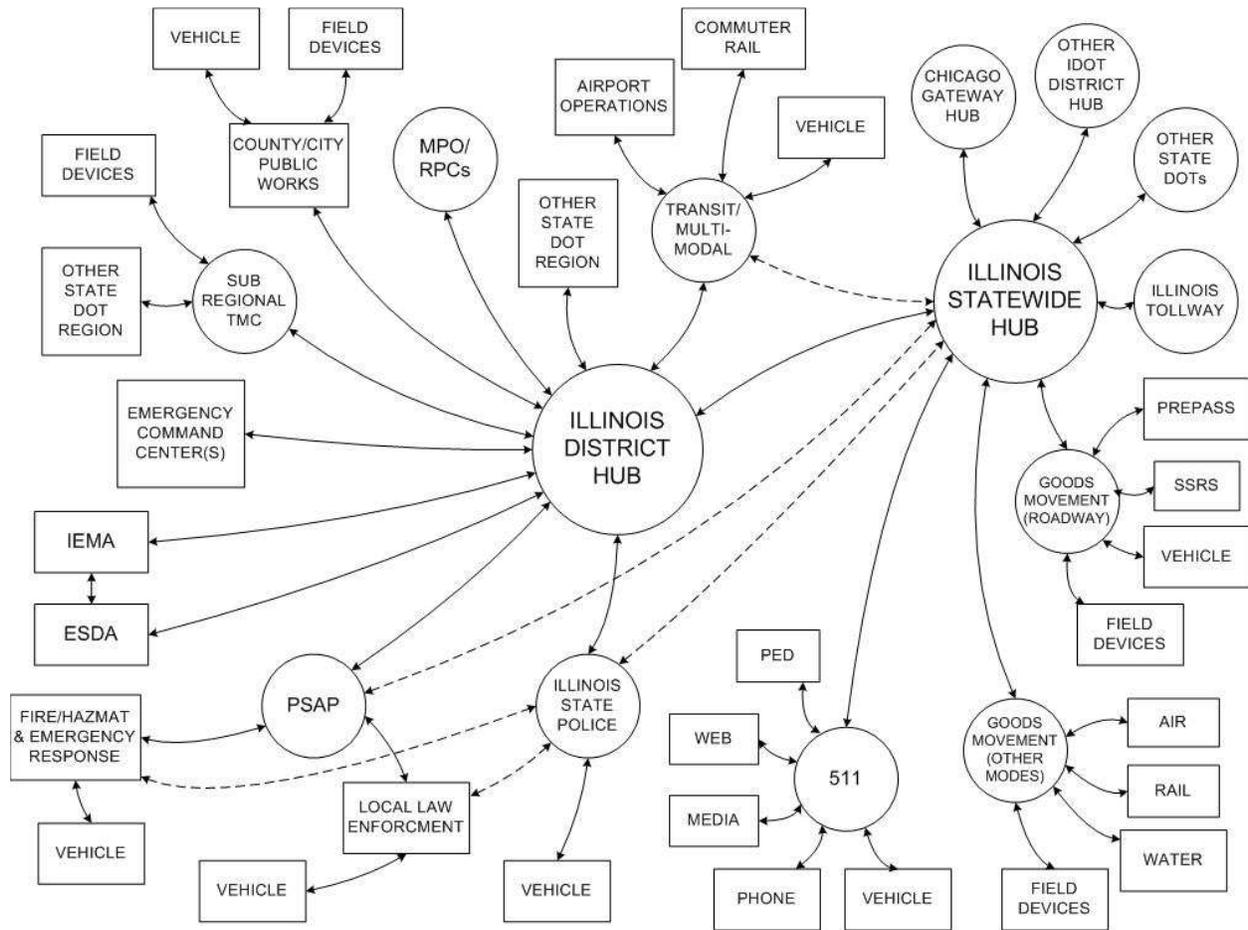


Figure 2: Statewide ITS Architecture Level 1 Diagram

The Concept of Operations Document provides additional details on the relationship between district hubs and also provides more detailed context diagrams for transit operations.

3.2 Structure of the Statewide Architecture

Details of the Statewide ITS Architecture have been developed using Turbo Architecture® software developed by the Federal Highway Administration. Illinois is a complex state with multiple cooperating stakeholders providing transportation services at both a regional and statewide level. Because of the limitations of the Turbo Tool, the Statewide ITS Architecture

has been divided into two files – one file for commercial vehicle operations – based on the CVISN (Commercial Vehicle Information Systems and Networks) Program plan currently being developed – and a second file for all other statewide transportation needs.

Within the statewide Turbo file, three levels of entities are modeled in the statewide ITS architecture (Table 1). One is a Metropolitan template corresponding to major population centers like Chicago and East St. Louis. Another is a Medium Community or City template corresponding to the Rockford, Peoria, Springfield, Quad Cities, Champaign-Urbana, and other communities of similar size and transportation complexities. Lastly, there is a template that is rural in nature covering small communities and large areas of the state where the population is dispersed and the transportation infrastructure needs are less complex. Whether it be transit, corridor traffic and incident management, emergency management, or traveler information, these three models provide a framework that all areas of the state and all ITS projects can fit into. More detailed interfaces and more complex inventories are in the regional level as opposed to the statewide level; at the statewide level, the focus is on the sharing of information across the state and with the traveling public.

When you look at the statewide architecture entities, you see that they are generic in most cases in keeping with the template approach. Specific names of regional operations centers or regional entities have been made generic so that each template fits to the appropriate region. The specific (i.e., named) regional entities are addressed in the individual regional architectures, which encompass metropolitan areas (e.g., Chicago, St. Louis area) and large cities (e.g., Rockford, Quad Cities). Statewide functions such as CVO and traveler information reference specific entities because they are statewide in scope and all regions will need to interface to those statewide entities. The Nomenclature Guide (Appendix F), developed as a separate document, can help identify the naming conventions related to entities in your individual project.

Population Area	Architecture Template			
	Metropolitan Area	Medium Community/ City	Small Community/ Rural	
Chicago/NE Illinois	X			Separate regional ITS architecture
St. Louis Metro	X			
Rockford/DeKalb		X		
Peoria		X		
Springfield		X		
Quad Cities		X		
Champaign		X		
Decatur		X		Included in Statewide ITS Architecture
Bloomington-Normal		X		
Danville			X	
Kankakee			X	
Remainder of state			X	

Table 1: Statewide Architecture Template Hierarchy

Inquiries regarding the Statewide ITS Architecture should be directed to the IDOT ITS Program Office.

3.3 Commercial Vehicles and CVISN in Illinois

The architectural elements and entities found in the Statewide ITS Architecture relating to commercial vehicle operations are based almost entirely on the Illinois CVISN Program Plan that was simultaneously under development.¹ The CVISN Program in Illinois is based on the national initiative administered by the Federal Motor Carrier Safety Administration (FMCSA). Illinois's CVISN Program is being designed to meet the following goals:

1. Protect public safety
2. Promote adequate, economical, efficient and responsive commercial transportation services
3. Ensure a carrier's safety fitness prior to the carrier operating and throughout their operation
4. Provide on-line registration, credentialing and reporting to carriers for the International Registration Plan (IRP), International Fuel Tax Agreement (IFTA), Oversize/Overweight Permitting (OSOW), and Single State Registration System (SSRS)

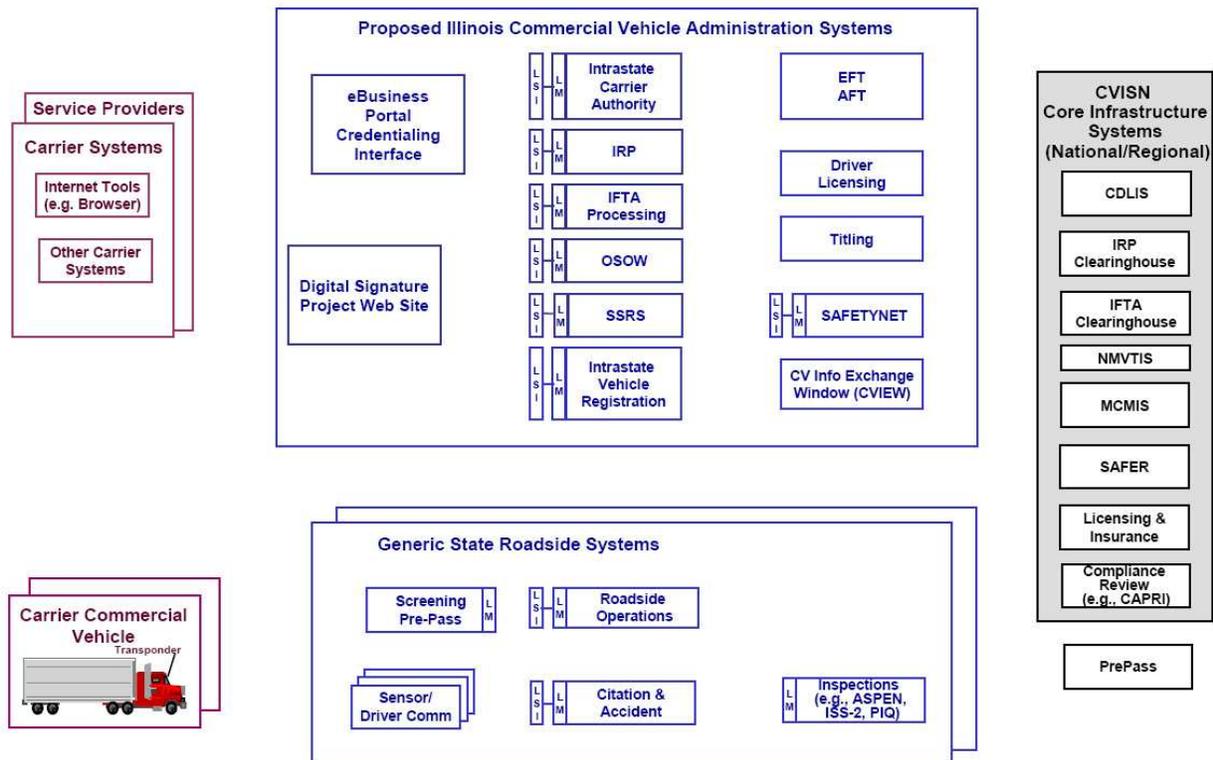


Figure 3: State of Illinois CVISN Design Template

¹ Illinois CVISN Top-Level Design, Illinois CVISN Task Team, July 2004

In order to meet these goals, deployment of the core CVISN Level 1 functionality has the highest priority. This includes deploying safety and fitness enforcement capabilities at the roadside through fixed and mobile site automated roadside screening as well as on-line carrier status information to roadside enforcement officers. Information on a carrier and vehicle safety and fitness information will be exchanged with Federal systems and other state jurisdictions via Safety and Fitness Electronic Records (SAFER). Conformance with federal and state safety and fitness standards is encouraged through education and ease of use through the Electronic One Stop Shop (EOSS) being implemented. Finally, Illinois-based interstate and intrastate carriers will be issued USDOT numbers for the various databases. Linkage of a commercial vehicle's registration to the carrier's safety performance will become more widespread with support to the Performance and Registration Information Systems Management (PRISM) program. Figure 3 shows the design template while Figure 4 illustrates the networking of the various elements into a user-friendly, real-time data sharing environment. The CVISN Program Plan and High Level Design reports document the extensive planning and work to date in Illinois and are an invaluable source for any ITS project in Illinois with CVO aspects.

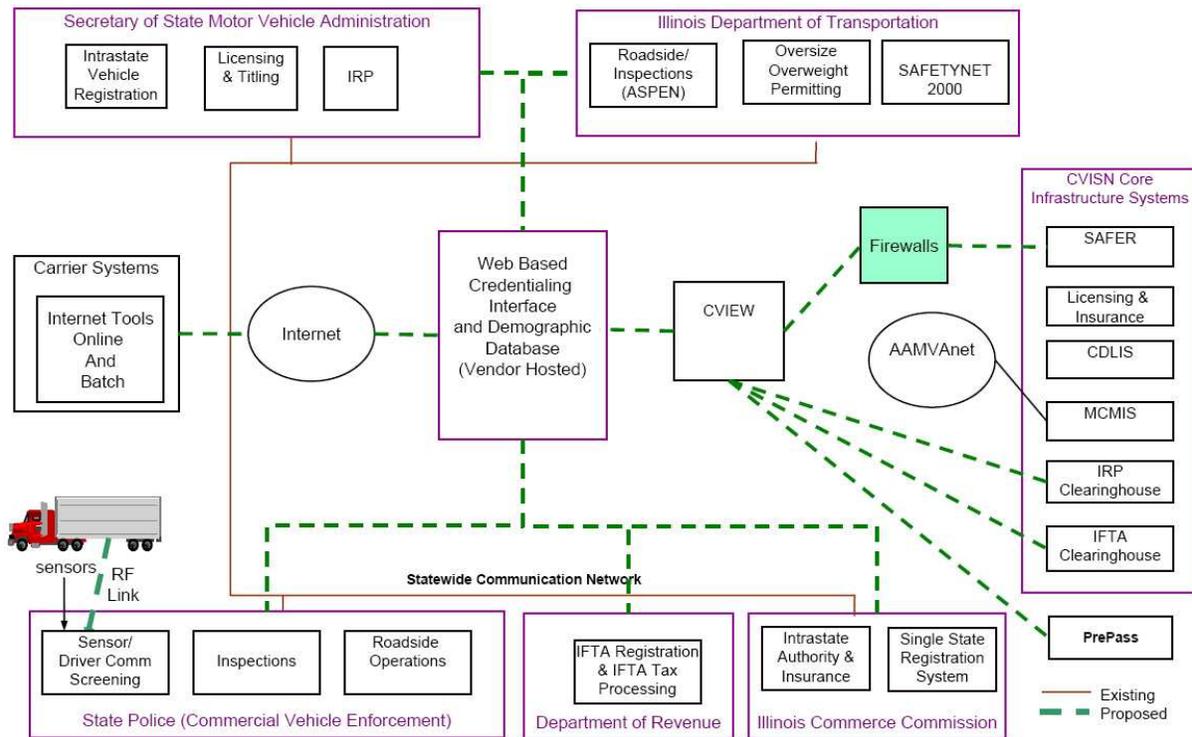


Figure 4: State of Illinois CVISN Network Template

3.4 Building the Architecture

The Statewide ITS Architecture, supported by the Statewide ITS Concept of Operations, describes transportation services and associated functions. These services include some that are

statewide in scope, such as 511/traveler information, and some services that are regional in scope, such as signal optimization.

The architecture describes existing and future transportation services. As transportation agencies plan and deploy systems for enhanced transportation services, the architecture can be used to take maximum advantage of existing transportation investments. Using the architecture as a guide, existing transportation infrastructure can be re-used or slightly modified to implement new services. The Statewide ITS Architecture is a tool that can be used to assure the best use of existing transportation assets, save money, and guide a smoother transition to enhanced services.

Based on experience to date, the benefits of ITS architectures combined with system engineering practices include:

- Reduced Design Costs and Development Time
- Orderly and Efficient Expansion
- Lower System Costs of the Project's Life-Cycle
- Improved Communications Between Stakeholders
- Improved Communications Between Systems
- Lower Project Risk
- Interoperability
- Interchangeability of Equipment and Devices

When using the Statewide ITS Architecture as a part of strategic planning, systems already deployed in the field can be re-used to perform new or expanded functions. The architecture helps identify those systems and the associated interfaces, data flows, and specifications for providing new services.

A number of examples can be easily identified:

TMC Software – the Statewide Concept of Operations identifies an Illinois Statewide Hub that performs statewide functions and district hubs that perform district functions. In Northeastern Illinois, software is already in place that performs most of the regional functions identified in the Statewide ITS Architecture. Using the architecture as a guide, this software could be enhanced and re-used at a statewide level and copied to perform regional transportation functions in other regions. Using the architecture to standardize on one consistent software architecture and one consistent software interface across all districts can save significant money – especially when having to maintain software systems across multiple districts.

511 Traveler Information Data – 511 is the national telephone number for real-time traffic and traveler information. Each state is responsible for maintaining and operating the 511 system if the state chooses to deploy one. Many states have spent significant time and money to deploy 511 only to discover that the real-time traffic data to support the 511 system does not exist – or does not provide the correct type of data for traveler information. By using the Statewide ITS Architecture as a guide, the Illinois's 511 system can identify the data sources, the data types, and the data interfaces required to provide real-time traffic and traveler information before significant resources are spent deploying 511. Enhancements to existing data collection

activities can be properly coordinated and planned by using the Statewide ITS Architecture to identify the data sources and associated interfaces to those data collection systems.

Performance Based Metrics – Many departments of transportation are under pressure to demonstrate that they are providing effective transportation services and making the best transportation investments with the limited funding and resources available. “What gets measured, gets improved.” By quantifying the performance of the transportation network, the quality of the transportation services performed, and even the efficiency of DOT staff, transportation officials can demonstrate how well the surface transportation system is performing and/or identify specific measurable areas for improvement. The Statewide ITS Architecture identifies data flows and data types that can be measured as a part of system operations. By selecting and tracking specific metrics derived from the ITS architecture, transportation officials can demonstrate performance based metrics and better quantify the effectiveness of the DOT and explicitly show where transportation investments should be made.

4. IDENTIFICATION OF STAKEHOLDERS

IDOT employs an extensive public outreach effort during the transportation planning process, working closely with metropolitan planning organizations and regional planning commissions. This is done through mailings, an informational telephone number, the media, and public forums. In addition, planning documents are made available to interested parties for review and comment through press releases, mailings and emails, and the IDOT website.

Many different agencies and organizations have a stake in ITS in Illinois. Throughout the evolution of ITS planning and deployment in Illinois, and particularly during the development of the Statewide ITS Architecture, these stakeholders have played a key role. They include:

- Regional transit agencies,
- MPOs & RPCs,
- Roadway maintainers,
- Traveler information providers,
- Commercial vehicle operators,
- Emergency and incident management services,
- Railroads,
- Traffic management centers,
- Elected officials,
- Special event providers,
- Environmental groups,
- Toll authorities,
- Private partners,
- Major traffic generators, and
- The traveling public.

As a part of developing the Statewide ITS Architecture, the architecture team held two workshops in each region. The first workshop identified needs at both a regional and statewide level. The second workshop helped assure consistency between the statewide architecture and both the region’s needs and the regional architecture. Table 2 includes a listing of the architecture workshops.

Meeting Name	Location	Date
Region 2A Statewide Workshop	Rockford	June 15th, 2004
Region 2B Statewide Workshop	Moline	June 14th, 2004
Region 3 Statewide Workshop	Ottawa	June 17th, 2004
Region 4 Statewide Workshop	Peoria	June 16th, 2004
Region 5 Statewide Workshop	Champaign	June 22nd, 2004
Region 6 Statewide Workshop	Springfield	May 26th, 2004
Regions 7 & 9 Statewide Workshop	Mount Vernon	June 21st, 2004
Region 8 Statewide Workshop	Collinsville	May 27th, 2004
Champaign Regional Workshop	Champaign	October 27th, 2004
Peoria Regional Workshop	Peoria	November 16th, 2004; January 22, 2005; and March 29, 2005
Quad Cities Regional Workshop	Rock Island	October 13th, 2004
Springfield Regional Workshop	Springfield	November 17th, 2004
St. Louis East Regional Workshop	Collinsville	November 10th, 2004

Table 2: Statewide and Regional ITS Architecture Workshops

As a way to provide assistance to regional architecture champions, the Project Team developed a Regional ITS Architecture Development Plan to guide. This document describes the steps for developing a regional ITS architecture, and provides recommendations on how these steps can be best accomplished. In addition, to help assure consistency between all the Statewide and regional architectures, the Project Team also developed an architecture Nomenclature Guide (Appendix F).

The participating stakeholders involved in the development of the Illinois Statewide Architecture are listed in Table 3. Upon inspection of Table 3, the reader will see listed both specific agency stakeholders and broadly defined “generic” stakeholders. The latter is what is used to keep the Statewide ITS Architecture at a high level. However, individual stakeholders are a key component to any ITS architecture and should be able to identify themselves in the Statewide Architecture. To address this concern, a recently added feature of the Turbo Architecture® tool allows for specific stakeholders to be combined under generic “stakeholder groups,” which helps to reduce the size of the architecture, making it more manageable. For example, note that **BNPTS, or Bloomington-Normal Public Transit System**, a specific real-world transit agency, is listed explicitly in Table 3 to demonstrate that it is included in the Statewide ITS Architecture. In addition, BNPTS is also part of the stakeholder group **City Transit Agencies** in the Turbo Architecture® file. In this way, using a transit stakeholder group allows all similar transit agencies to be included in the architecture without requiring each agency to be listed individually throughout the architecture.

This hierarchical structure allows specific agencies within a regional architecture to determine where future integration opportunities may exist. Using stakeholder groups in the Statewide Architecture also provides a means for those stakeholders who are not currently covered by a regional ITS architecture to demonstrate that their ITS efforts comply with the TEA-21 requirements for ITS funding from the National Highway Trust Fund. The organizational structure also helps to determine what inventory elements need closer inspection when using the Statewide ITS Architecture for use in developing a project, when updating and synchronizing with regional ITS architectures, and when creating a regional architecture.

Table 3: Illinois Statewide ITS Architecture Stakeholder List

Stakeholder	Generic	Group	Specific	Agency Name or Description
AMTRAK			x	Nationwide passenger rail organization with regional hub in downtown Chicago.
APCO			x	Illinois Chapter of the Association of Public Safety Communications Officials
BNPTS			x	Bloomington-Normal Public Transit System
BSRPC			x	Bi-State Regional Planning Commission
CATS			x	Chicago Area Transportation Study
CIPT			x	Central Illinois Public Transit (Tuscola)
City Transit Agencies	x	x		City transit agencies are transit operators in medium size cities (roughly 50,000 – 150,000 population) that connect through District hubs to share information beyond their local spheres of influence. Includes the transit agencies CityLink, CUMTD, MCT, PMB, RICMTD, RMTD, and SMTD that are included by name in their respective areas' regional architectures, as well as other transit agencies that are addressed solely in the Statewide Architecture such as BNPTS and DPTS.
CityLink			x	Greater Peoria Mass Transit District
Colleges & Universities			x	Colleges and universities typically host a variety of special events. Some Colleges and Universities operate transit systems and have a police staff and/or dispatch center on campus.
Community Transit Agencies	x			Community transit agencies operate at the municipal or township area in Illinois. They may be found in large and medium size cities. They are typically demand responsive services. Some community transit is operated by larger agencies; others are operated by the township or municipalities themselves.
Convention and Tourism Bureau	x			An organization that maintains up-to-date information on events, attractions, and venues in their coverage area.
County Dept of GIS	x			County departments of geographic information services (GIS)
County Dept of Public Works	x			County departments of public works are those agencies and other non-municipal entities that are primarily responsible for maintenance of the surface transportation network outside the municipal borders. The following counties are specifically addressed in a regional ITS architecture: McHenry, Lake, Cook, Kane, DuPage, Will, Boone, Ogle, De Kalb, Winnebago, Henry, Mercer, Muscatine, Rock Island, Scott, Peoria, Woodford, Tazewell, Sangamon, Madison, Monroe, St. Clair, Vermillion, Champaign.

Stakeholder	Generic	Group	Specific	Agency Name or Description
				All remaining counties in the state are addressed in a generic format in the Statewide Architecture.
County Emergency Dispatch	x			County emergency management dispatch agencies include fire and ambulance dispatch and all other first responders who respond to incidents along the surface transportation network.
County ESDA			x	Illinois county Emergency Services & Disaster Agency (ESDA) coordinators that provide support at the regional or county level.
County Highway Dept	x			County highway departments are those agencies responsible for operation of the surface transportation network and roadside equipment outside the municipal borders.
County Human Services	x			County human services are those agencies responsible for emergency government operations and the emergency alert system. County human services coordinate closely with IEMA.
CUMTD			x	Champaign-Urbana Mass Transit District
CUUATS			x	Champaign Urbana Urbanized Area Transportation Study
CVISN/EOSS Stakeholders		x	x	This stakeholder group includes the ICC, Secretary of State, Departments of Revenue and Transportation and the State Police who are tasked with leading the Illinois CVISN Phase One implementation. Includes the ICC, IDOT Division of Highways, IDOT Division of Traffic Safety, IL Dept of Revenue, IL Secretary of State Motor Vehicle Administration, and ISP Commercial Vehicle Enforcement.
DATS			x	Danville Area Transportation Study
DMT			x	Danville Mass Transit
DPTS			x	Decatur Public Transit System
East-West Gateway Council of Governments			x	St. Louis Metropolitan Planning Organization
Emergency Responders	x			Local responders such as fire and ambulance are represented by this stakeholder.
Enforcement Agencies	x	x		Enforcement agencies represent the various agencies who are responsible for enforcing traffic codes along the surface transportation network.
EPA			x	US and Illinois Environmental Protection Agency (EPA) provides hazardous waste transporter permits to carriers as well as is involved with emergency and disaster response situations as necessary. The EPA also monitors air quality levels and determines Ozone Action days.

Stakeholder	Generic	Group	Specific	Agency Name or Description
ESDA		x	x	Emergency Services & Disaster Agency (ESDA), including both County and Municipal ESDA.
ETSB	x			A board appointed by the corporate authorities of any county or municipality that provides for the management and operation of a 9-1-1 system within the scope of such duties and powers as are prescribed by the Emergency Telephone System Act (ETSA).
FHWA			x	Federal Highway Administration
FMCSA			x	Federal Motor Carrier Safety Administration
FTA			x	Federal Transit Administration
Gateway Guide Regional Partners		x	x	Group that administers the Gateway Guide Website, including IDOT District 8, MoDOT District 6, East-West Gateway Council of Governments, and the METRO/Bi-State Development Agency (St. Louis area transit agency)
GT			x	Galesburg Transit (and Galesburg Handivan)
Health Care Providers	x			This is a pseudo-stakeholder group that represents generically the health care providers who either influence the transportation network or are active participants in emergency/incident response teams.
HELP, Inc.	x			Heavy Vehicle Electronic License Plate, Incorporated is the stakeholder that owns and oversees the IRP program in the United States.
ICC			x	Illinois Commerce Commission
ICJIA			x	Illinois Criminal Justice Information Authority
IDOT		x	x	Illinois Department of Transportation (IDOT) departments.
IDOT Central Bureau of Information Processing (BIP)			x	Illinois Department of Transportation, Central Bureau of Information Processing (BIP) is responsible for information technology (IT) applications throughout IDOT, including hardware and software procurement and integration.
IDOT Central Bureau of Operations			x	Illinois Department of Transportation, Central Bureau of Operations provides the statewide IDOT road conditions website and phone line to the public, oversees the Oversize - Overweight (OSOW) permitting process, and provides staffing for Station One, among its other responsibilities.
IDOT District Bureau of Construction			x	Illinois Department of Transportation, District Bureau of Construction. Project Implementation responsible for the construction and maintenance of the state highway system and the state's local roads and streets.
IDOT District Bureau of Design			x	Illinois Department of Transportation, District Bureau of Design. Responsible for the

Stakeholder	Generic	Group	Specific	Agency Name or Description
				design of the state highway system and the state's local roads and streets.
IDOT District Bureau of Electricity			x	Illinois Department of Transportation, District Bureau of Electricity. Responsible for the operations of electrical equipment along the state highway system and the state's local roads and streets.
IDOT District Bureau of Local Roads			x	Illinois Department of Transportation, District Bureau of Local Roads receives communication from villages, townships, cities and counties regarding construction information and project status information for coordination purposes.
IDOT District Bureau of Operations			x	Illinois Department of Transportation, District Bureau of Operations. Responsible for the design of traffic control equipment and operations along the state highway system and the state's local roads and streets.
IDOT Division of Traffic Safety			x	Illinois Department of Transportation, Division of Traffic Safety performs audit inspections and collects cash data that is provided to SAFETYNET and the Federal Motor Carrier Safety Administration (FMCSA).
IDOT ITS Program Office			x	Illinois Dept of Transportation ITS Program Office is a part of the IDOT Office of Programming and Planning. It houses the Gateway Traveler Information System.
IEMA		x	x	Illinois Emergency Management Agency at both the regional and Statewide office levels.
IFTA, Inc.	x			International Fuel Tax Association (IFTA), Incorporated is the stakeholder that oversees and administers the fuel tax program in the United States.
IL CMS			x	Illinois Department of Central Management Services
IL Dept of Driver Services			x	Illinois Department of Driver Services (commonly known as the Department of Motor Vehicles)
IL Dept of Revenue			x	Illinois Department of Revenue
IL Secretary of State Motor Vehicle Administration			x	Illinois Secretary of State Motor Vehicle Administration
IRP, Inc.	x			International Registration Plan, Incorporated, a partially-owned subsidiary of the American Association of Motor Vehicle Administrators, serves as the repository of the International Registration Plan.
ISP		x	x	Illinois State Police
ISP Central Operations			x	Illinois State Police Central Operations holds the data archives and collects information from around the state from each ISP district and provides statewide information to the various federal agencies that require it. In

Stakeholder	Generic	Group	Specific	Agency Name or Description
				large scale emergency management operations, ISP Central Operations plays a coordinator role between the local ISP districts affected and other agencies.
ISP - Commercial Vehicle Enforcement			x	Portion of the Illinois State Police that performs the roadside driver/sensor communication screening, roadside operations in general operations and physical inspections regarding commercial vehicles.
ISP District Operations	x			Illinois State Police District Operations have jurisdiction over the state roads. In the more rural areas of Illinois, the role of first responder is likely to be the ISP.
ISTHA			x	Illinois State Toll Highway Authority
ITTF				The Illinois Terrorism Task Force is responsible for developing and helping to implement the state's terrorism preparedness strategy as an advisory body to the Governor as established by Executive Order 2003-17. ITTF goals are two-fold. One goal is strengthening the Illinois infrastructure to respond to acts of terrorism. The second goal of the ITTF is implementing prevention activities that foster improved communication of intelligence information both horizontally and vertically throughout the state.
IWIN Stakeholders		x	x	This is a stakeholder group that represents all the various law enforcement and other related organizations involved with the Illinois Wireless Information Network communication system. These agencies include ICJIA, IL CMS, and ISP.
JCMTD			x	Jackson County Mass Transit District (Carbondale)
JDCT			x	Jo Daviess County Transit (Galena)
Local Law Enforcement	x			This pseudo-grouping represents all city and county (i.e., non-state police) law enforcement agencies that focus on maintaining a safe and secure surface transportation network in the state of Illinois.
MCT			x	Madison County Transit (Granite City)
Media Outlets	x			Newspapers, television stations, radio stations and Internet sites that provide transportation information to the public.
METRO			x	Transit agency for the St. Louis Metro Area (formerly Bi-State Development Agency)
Motorola			x	Motorola built, owns and operates STARCOM21 - a 700/800 MHz, trunked, digital, voice public safety network.
MPO/RPC	x	x		Metropolitan Planning Organizations and/or Regional Planning Commissions who are most often the champion and developers of

Stakeholder	Generic	Group	Specific	Agency Name or Description
				a region's ITS architecture. This is a stakeholder group that represents all the specific planning organizations, including BSRPC, CATS, CUUATS, DATS, the East-West Gateway Council of Governments, TCRPC, and RATS.
Municipal Dept of Transportation	x			These are the municipal agencies responsible for operation of the municipality's surface transportation network and roadside equipment.
Municipal Emergency Dispatch	x			These are the municipal public safety answering points (PSAPs) responsible for receiving and coordinating information in response to emergency incidents.
Municipal ESDA			x	Illinois county Emergency Services & Disaster Agency coordinators that provide support within a municipality sphere of influence.
Municipal Public Works	x			Municipal departments of public works are those agencies and other municipal entities that are primarily responsible for maintenance of the surface transportation network within the municipal borders.
National/State Park and Recreation Areas			x	Park and recreation areas function as regional/special event generators and provide travel information to park users.
National Weather Service			x	National Weather Service functions as a weather information service provider and generates severe weather alerts.
Other State DOTs	x			Other state DOT's include Indiana, Iowa, Kentucky, Missouri, and Wisconsin that border Illinois.
Other State Motor Carrier Services Agencies	x			This stakeholder group includes the surrounding states who participate (now or in the future) in Illinois' current CVISN expansion program. Currently Indiana and Wisconsin are actively involved with Illinois. Iowa and Missouri may become more involved in the future as funding and consensus is reached.
PMB			x	Pekin Municipal Bus
Private CVO Inspection Services	x			Private operators certified for emissions testing and/or safety checks.
Private HAZMAT Agencies	x			Regional specialized teams for hazardous materials incident response.
Private Information Service Providers	x			Private information service providers include private entities that provide traveler information for a fee.
Private Medical Carriers	x			These are firms that provide non-emergency medical transportation services, usually under sponsorship of public agencies or for private nursing homes. They may be in some cases available for use in regional paratransit coordination.

Stakeholder	Generic	Group	Specific	Agency Name or Description
Private Tow and Recovery Operators	x			Private tow and recovery operators work with emergency responders to clear incidents from freeways and arterial streets.
Private Trucking Companies	x			Private trucking companies deliver goods and interact with law enforcement, multi-modal, and CVISN functions.
Private Weather Information Providers	x			Companies from private industry that augment and/or provide weather information and products to the government sector and other private sector information service providers.
Rail Freight Operators	x			Rail freight operators oversee freight train operations and coordinate with surface transportation entities.
Rail Transit Operators	x	x		These are agencies that operate urban heavy or light rail transit systems in large metropolitan areas. For both Chicago and St. Louis metropolitan regions, this is actually an operating unit within a single organization (RTA or METRO).
RATS			x	Rockford Area Transportation Study
Regional / Special Event Organizations	x	x		Organizations that oversee major special events and tourist centers, including colleges and universities, convention and tourism bureaus, and national/state park and recreation areas.
Regional Airport Authority	x			Regional airport authorities manage regional airport operations including transportation, security, and travel information.
Regional IEMA Coordinators			x	Illinois Emergency Management Agency Coordinators at a regional level.
Regional Transit Providers	x	x		These are multimodal transit agencies in the largest metropolitan areas of Illinois (Chicago and IL suburbs of St. Louis).
RICMTD			x	Rock Island County Metropolitan Mass Transit District (MetroLINK)
Rides MTD			x	Rides Mass Transit District (Harrisburg)
RMTD			x	Rockford Mass Transit District
RTA			x	Regional Transportation Authority (Chicago Area)
Rural Transportation Agencies	x	x		These are transit agencies serving smaller communities, often across regions of the state. These operations typically use smaller vehicles and operate a largely demand responsive service. Agencies in this group include CIPT, DMT, GT, JCMTD, JDCT, Rides MTD, RVMTD, SCT, SMART, and WCMTD.
RVMTD			x	River Valley Metro Mass Transit District (Kankakee)
SCT			x	South Central Transit (Centralia)
SMART			x	Shawnee Mass Transit District (Far Southern Illinois)
SMTD			x	Springfield Mass Transit District

Stakeholder	Generic	Group	Specific	Agency Name or Description
Statewide Emergency Management Incident Command	x	x		This group includes County Dept of Public Works, County Emergency Dispatch, IEPA, ESDA, IEMA, IDOT Central Office, IDOT Central Bureau of Operations, IDOT District Operations, ISP Central Operations, Municipal Dept of Transportation, and Municipal Emergency Dispatch
Statewide IEMA Operations			x	Illinois Emergency Management Agency Coordination at an inter-regional / statewide level.
Taxi Operators	x			These are taxi operators under contract to a transit agency of any size who provide service on demand. Specifically, this applies to taxicabs that accept trips from paratransit dispatch and are required to report back trip completion and any exceptions in a timely fashion. It does not include taxi companies involved in simple voucher based service if the transit operator is not taking the call from the traveler.
TCRPC			x	Tri-County Regional Planning Commission (Peoria, Tazewell, Woodford Counties)
Telecommunication Providers	x			Telecommunications providers are those public and private entities that provide infrastructure to support 511 and other traveler information services.
Traffic Operations Stakeholders	x	x		This grouping reflects those agencies that have or are likely to install, operate, and maintain field elements or systems to control the flow of traffic or report on the state of traffic flow at that location. These agencies include Municipal Departments of Transportation, County Highway Departments, and IDOT District Operations at a minimum.
Travelers	x			Generic term that covers the traveling public in and through the state of Illinois
USCG			x	US Coast Guard
WCMTD			x	West Central Mass Transit District (Jacksonville)

For a more detailed discussion of the project stakeholder participation, please refer to Section 3 of the ITS Strategic Plan.

5. ILLINOIS STATEWIDE ITS ARCHITECTURE

The Illinois Statewide ITS Architecture provides a common framework for planning, defining, and integrating intelligent transportation systems. The architecture defines:

- The functions that are required to support an Intelligent Transportation System service (e.g., emergency management, traffic operations, 511, traveler information)
- The physical entities or subsystems where these functions reside
- The information, or ‘architecture’ flows (e.g., flow between subsystems and terminators) and data flows (e.g., incident notification, route information) that connect these functions and subsystems together into an integrated system.

The Illinois Statewide ITS Architecture is derived from the National ITS Architecture and has been tailored to meet the needs of transportation stakeholders at a statewide level. Figure 5 presents the top level architecture interconnect diagram from the National ITS Architecture showing all the subsystems and the basic communication channels between those subsystems.

This section of the Statewide ITS Architecture Document is intended to help ITS Project Managers use the Statewide ITS Architecture to develop individual projects, confirm that the project is consistent and conformant with the Statewide ITS Architecture, and better ensure that the project takes advantage of existing systems and the integration opportunities that those systems present.

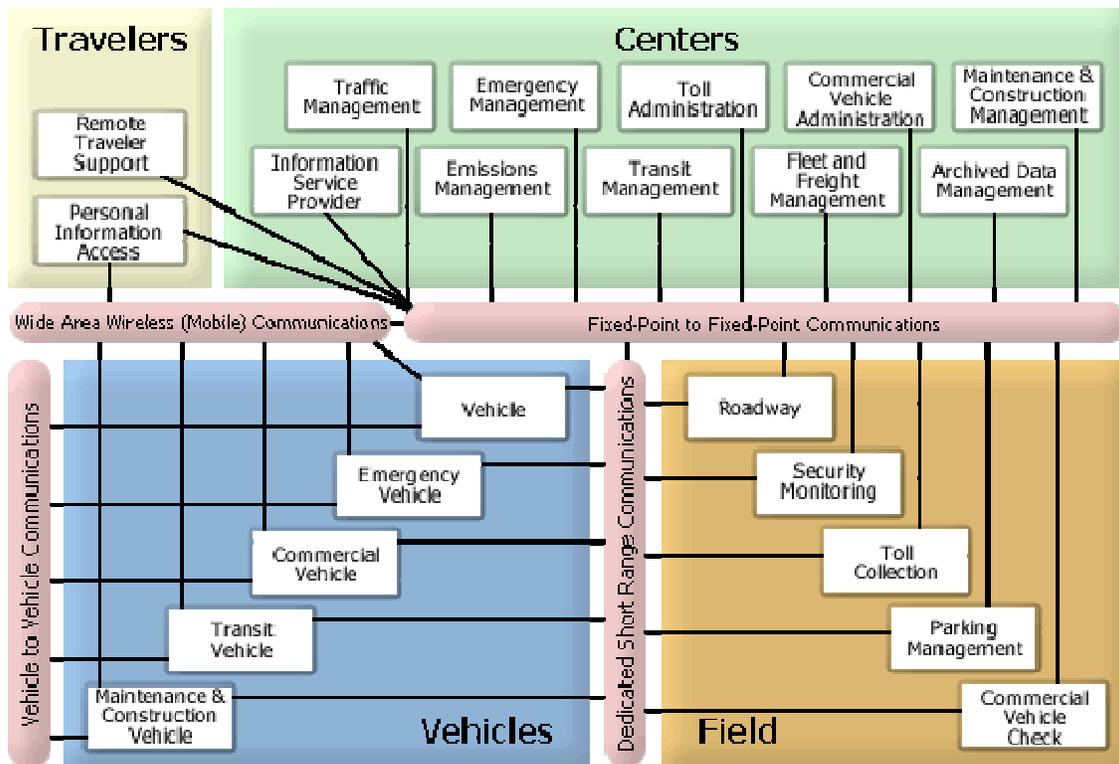


Figure 5: National ITS Architecture Interconnect Diagram

In order to take full advantage of this Statewide ITS Architecture Document, the ITS Project Manager should use the following process in defining and developing a new project.

1. Identify and document the needs that the new project seeks to address.
2. Document the concept of operations for your project, i.e., identify the roles and responsibilities of participating agencies.
3. Review the existing inventory (see Section 5.1) to determine if the existing inventory of systems can address the project needs or if a new entity needs to be developed and added to the inventory.
4. Select market packages based upon the identified needs.
5. Identify the functionality associated with the selected market packages.
6. Tailor the functions from each market package, i.e., include the function in the new project or delete the function from your project.
7. Review the requirements associated with each function, i.e., include the requirement in the new project, exclude the requirement, modify the requirement, or incorporate a new requirement based on the concept of operations.
8. Review the data associated with the selected functions and requirements.
9. Identify architecture flows to use in the new project based on the data and functions.

By following this process, the ITS Project Manager should have a conceptual system design and specifications for the new project and can be assured that the planned project is consistent with the Statewide ITS Architecture. This will provide a basis for seeking federal funding for such a project.

Sections 5.1 through 5.4 provide additional information associated with particular steps in this process. To take best advantage of the Statewide ITS Architecture, you should use the Turbo Tool and the associated Turbo files for the Statewide ITS Architecture. If you have any questions or need copies of the Turbo Tool and Turbo Files, contact the IDOT ITS Program Office.

5.1 Inventory and Needs Across the State

The Statewide ITS Architecture documents the needs and existing inventory of ITS elements throughout the state. As a part of defining the concept of operations and requirements of individual projects, you can use the tables in the following sections to determine if your project has similar needs and if your project needs to interface and communicate with an existing system.

5.1.1 NEEDS ACROSS THE STATE

As a part of developing the Statewide ITS Architecture, the Project Team held a series of workshops in the summer of 2004 (see Table 2).

The following transportation needs were articulated by the stakeholders present at each regional workshop. For further details of each workshop and how the “dot” ranking exercise was conducted, see Section 3 of the ITS Strategic Plan. Each ITS region’s individual needs are found in Appendix B. The Northeast Regional Architecture was developed in 1997 and adopted by the Chicago Area Transportation Study (CATS). Please note that Northeast Illinois was not explicitly included since a separate architecture update was being done in parallel; telephone

interviews in the fall of 2004 were conducted with parties responsible for the District 1 regional architecture update to ensure coordination between the architectures.

Table 4 lists the Transportation Needs Summary for Illinois. Column 1 lists the various key needs categories, or “program areas,” that were identified. Section 3 of the Statewide ITS Strategic Plan defines these categories in greater detail. Column 2 shows the statewide voting totals from the “dot” exercises where stakeholders prioritized the identified needs. Not all articulated needs received votes, and the identified needs were not the same across the state. Higher scores represent more pressing needs as identified by stakeholders throughout the state. One of the goals of this process was to look for interregional needs that serve as the focus of the Statewide ITS Architecture.

Column 3 depicts the number of workshops in which a need from each program area was identified by the attendees. For instance, Traveler Information was cited as a need in all eight of the Statewide ITS Architecture workshops, while Asset Sharing and Control was only raised at two workshops. This column is intended to demonstrate the dispersion of these issues across the state, and serves as a tiebreaker for program area prioritization.

When columns 2 and 3 are considered together, high total scores coupled with frequent stakeholder identification such as for Traveler Information, became primary areas of focus in the Statewide ITS Architecture and Strategic Plan. Those with the opposite (low total scores coupled with infrequent identification) such as Asset Sharing and Control, will be situated nearer to the bottom of priority rankings in the Strategic Plan.

Table 4: 2004 Statewide ITS Architecture Workshops – Transportation Needs Summary

Program Area	Votes Received	Workshop Instances*
Traveler Information	455	8
Traffic Management	278	6
Incident Management	275	8
Interagency Coordination	186	6
Improved Communications	111	6
Data Management	109	7
Commercial Vehicle Operations	96	6
Transportation Safety	95	6
Construction & Maintenance	85	3
Transit	83	5
Standardization	54	4
System Security	51	4
Outreach/Public Education	43	3
Multi-modal Coordination	43	2
Asset Sharing and Control	31	2

* out of 8 regional workshops

5.1.2 INVENTORY

Table 5 presents the inventory that was used for creating the Turbo Architecture® files. The inventory of items reflects the need to keep the Statewide ITS Architecture at a high level of detail and yet recognize the many decades of infrastructure that has been put in place.

Upon initial investigation of Table 5, there are inventory elements that appear to be superfluous for a statewide ITS architecture that focuses purely on statewide issues. However, there are those communities that do have ITS projects on the horizon but no regional ITS architecture in place at this time. To support these areas as well as future infrastructure improvement throughout the state, the decision was made early on that the Illinois Statewide ITS Architecture would provide coverage and a broader set of interfaces including field element interfaces to support these areas. That is why such broad statewide systems such as the traveler 511 system and District Hubs are in the same list as CCTV, signal priority systems, and weather sensors deployed at the local level.

As a part of developing your ITS project, you can use Table 5 to determine what systems you should consider for integration with your project.

Table 5: Statewide ITS Inventory

Inventory	Description
511 System	The comprehensive 511 traveler information system being implemented in state of Illinois.
ASPEN	ASPEN is a laptop-based system used by the Federal Motor Carrier Safety Administration (FMCSA) that allows safety inspectors to enter inspection reports at the roadside and forwards them to CVIEW. It allows them to retrieve inspection reports, carrier profiles, and snapshots to help in selecting vehicles for inspection.
Automatic Anti-icing System	Several anti-icing systems have been deployed in the state of Illinois. These systems detect pavement temperatures and distribute an anti-icing agent when necessary.
CAPRI	Carrier Automated Performance Review Information (CAPRI) is used by the Federal Motor Carrier Safety Administration (FMCSA) to perform compliance reviews of commercial vehicles.
CCTV Camera System (City of Chicago)	Closed circuit television (CCTV) cameras are currently located in various locations in the Chicago Metro area. In the future, additional CCTV for both traffic management and security/safety monitoring are envisioned to be added to the network. Currently these are not shared systems.
CCTV Camera System (IDOT)	IDOT District 1 operates numerous pan-tilt-zoom (PTZ) surveillance cameras throughout the district's freeway system. IDOT District 4 operates 15 PTZ surveillance cameras along the I-74 corridor in downtown Peoria and East Peoria for traffic surveillance. IDOT District 8 operates 24 PTZ surveillance cameras in the East St. Louis Area for traffic surveillance. IDOT District 6 plans to install a limited number of PTZ cameras in the near future.
CCTV Camera System (ISTHA)	Closed circuit television (CCTV) cameras are located throughout the Tollway system.
CCTV Camera System (Municipal)	Pan-tilt-zoom (PTZ) and fixed video cameras are used by various municipalities in Illinois.
CCTV Camera Systems (Rest)	Closed circuit television (CCTV) security cameras are placed currently in rest areas along I-27, I-39, I-80, I-90, I-55, I-57, I-74, I-72, I-70, I-64, and I-24 that are

Inventory	Description
Areas)	operated by the ISP districts.
CDL Registration Database	CDL Registration Database is maintained by the IL Secretary of State's Office and supplies CDL data to the Federal Motor Carrier Safety Administration (FMCSA) CDLIS.
CDLIS	Commercial Driver's License Information System (CDLIS) exchanges CDL data (e.g., CMV drivers, traffic convictions, and disqualifications) with the IL Secretary of State's Office.
City Centric District Hub	This template hub has varied data sources and destinations and is meant for those larger metropolitan areas found in Districts 1 and 8 (Chicago and East St. Louis respectively).
City Transit Agency Dispatch	Medium size city transit management agencies that connect through the district hubs to share information beyond their local sphere of influence.
City Transit Agency Vehicles	Vehicles operated by medium sized city transit agencies.
Commercial Vehicles	This is the all-purpose system in the architecture representing all commercial vehicles. This system is different from Vehicles in that it has the added characteristics such as fleet dispatching, onboard diagnostics and maintenance, and automatic vehicle locationing.
Community Centric District Hub	This template hub has varied data sources and destinations that pertain to medium sized cities and communities found in Districts 2,3,4,5, and 6.
Community Transit Agency Dispatch	These are community based transit systems that may use vans or small buses to provide demand responsive service within a town or township. These are differentiated from rural transit agencies in that these are in communities that are part of metropolitan areas.
Community Transit Vehicles	Vehicles used by community transit operations.
Commuter Rail Operations	Currently the only ones of these operating in Illinois are Metra and South Shore (Metra subsidized in IL). In the future, however, there may be others.
Contract Taxi Operators	These are taxi operators under contract to a transit agency of any size who provide service on demand. Specifically, this applies to taxicabs that accept trips from paratransit dispatch and are required to report back trip completion and any exceptions in a timely fashion. It does not include taxi companies involved in simple voucher based service if the transit operator is not taking the call from the traveler.
County Emergency Dispatch - PSAP	Outside metropolitan and large urban areas, the Public Safety Answering Point or PSAP is likely to be operated by the County as part of their Emergency Management function. In many of the communities in Illinois, the PSAP dispatches both fire and police when incidents occur along the surface transportation network.
County Maintenance and Construction Dispatch	These systems include mobile data terminals (MDTs), computer-aided dispatch (CAD) systems and radio dispatch communications systems to allow County Highway Departments and other analogous agencies to dispatch and track their fleets for construction and maintenance activities.
County Maintenance and Construction Vehicles	Vehicles equipped for snow removal and to maintain roads outside municipal boundaries; no plans for AVL in 10 year horizon but maintenance scheduling software in place.
County Maintenance & Construction Website	As an aid to travelers, websites detailing maintenance and construction within a region are available in some portions of Illinois.
Dept of Driver Services	The Illinois Department of Driver Services (commonly known as the Department of Motor Vehicles) is a terminator in this architecture.

Inventory	Description
CVIEW	CVIEW is a system that ties multiple legacy systems in Illinois into a single accessible entry point. CVIEW will be responsible for receiving data from State commercial vehicle systems, building/creating snapshots; exchanging data with SAFER, PrePass and other third-party systems (IRP & IFTA Clearinghouses), and making CVIEW data available to authorized Illinois personnel.
Detectorization	This is the all-purpose system in the architecture representing network surveillance systems such as loop detectors, radar, acoustic, machine vision, and any other technology that provides data about the flow of travel along the surface transportation network. Such areas such as District 1 have a large inventory of such devices already in place where as other areas of the state such as District 7 or 9 have little to no detectorization.
DMS (IDOT)	Dynamic Message Signs (DMS) are operated by IDOT in their various districts (22 in District 1, 9 in District 2, 5 in District 3, 2 in District 4, and 3 in District 8). DMS are also planned for District 6. In the future, more signage may be added.
DMS (ISTHA)	Illinois State Toll Highway Authority (ISTHA) operates 8 Dynamic Message Signs (DMS) at various points along I-90, I-88, I-94/294.
DMS (Municipal)	Dynamic message signs are currently planned by the City of Chicago are considered future elements for various other municipalities in Illinois.
Driver	The driver represents the human behind the wheel and is a terminator in this architecture.
Dynamic Warning Systems	Dynamic warning systems monitor vehicle speeds and provide warning to drivers and/or vehicles that are traveling at unsafe speeds. These systems should be deployed at locations where excessive speed is a problem such as in advance of curves and downgrades or where white-out conditions are possible during winter weather. These systems have a variety of levels of technical sophistication as well as level of autonomous operation.
Emergency Call Boxes	A series of highway call boxes to aid travelers in IDOT District 8 in East St. Louis and at rest stops located throughout the state in each IDOT district (along I-24, I-39, I-55, I-57, I-64, I-70, I-72, I-74, I-80, and I-90).
Emergency Vehicle Preemption System	These systems provide emergency vehicles with priority along their approach to an intersection.
Emergency Vehicles	Emergency vehicles for local fire/police/emergency responders whether they be city or county are covered by this element.
EOSS/CI System	Illinois Electronic One-Stop Shop / Credentialing Interface (EOSS/CI) supports all on-line credentialing operations which automates the application, processing and issuance of motor carrier operating credentials and permits.
Emergency Patrol Vehicles	IDOT's Emergency Patrol Vehicle (EPV) System provides motorist assistance through the East St. Louis area and is particularly effective in providing incident information/confirmation to IDOT District 8 traffic management system operations.
ETS/911 System	IDOT's Emergency Patrol Vehicles (EPV) provide motorist assistance throughout the Chicagoland and East St. Louis areas and are particularly effective in providing incident information/confirmation to IDOT district traffic management system operations.
Gateway Guide Website	The Gateway Guide serves the metropolitan St. Louis area, including East St. Louis, with traveler information.
Gateway Travel Information Website	The Gary-Chicago-Milwaukee Gateway Traveler Information website serves the Chicagoland region with traveler information.
HAR	Highway Advisory Radio (HAR) is a means of getting up to date information to travelers on road conditions.
Hazardous Waste Transporter Permit	Carriers must apply to the Illinois EPA for permits to carry hazardous waste along the surface transportation network in Illinois.

Inventory	Description
System	
HAZMAT Management and Cleanup	Private agencies that specialize in hazardous materials incident cleanup.
HAZMAT Response Vehicle	Specialized emergency response vehicles for hazardous materials incident response and cleanup.
HELP Vehicles	ISTHA's Highway Emergency Lane Patrol (HELP) vehicles provide motorist assistance on the Illinois Tollway and are particularly effective in providing incident information/confirmation to the TIMS.
Highway Rail Information Systems	Advanced highway rail information system for highway rail crossing blockages in East Peoria at IL-116.
Hospitals/Medical Centers	Regional care facilities.
HRI Quad/Dual Gate System	Highway Rail Intersection systems include Quad Gate Systems in Districts 3 & 6 and Dual Gate Systems in District 3. Systems with HRI functionality are of particular interest in those areas with large numbers of rail/highway crossings and also in rural areas.
IDOT Bureau of Local Roads Construction Coordination System	Villages, townships, cities, and counties all coordinate the local construction and maintenance with IDOT who then puts the agencies in contact with the appropriate IDOT department (construction, design, Central Office, etc.).
IDOT District Communication Center	Each IDOT District has a central operations center for communicating with the region's various ITS elements. These are located in District 1 (Communication Center at IDOT in Schaumburg and the Traffic Systems Center (TSC) in Oak Park), Communication Center at IDOT in Dixon for District 2, Communication Center at IDOT in Ottawa for District 3, Communication Center at IDOT in Peoria for District 4, Communication Center at IDOT in Paris for District 5, Communication Center in Springfield for District 6, Communication Center at IDOT in Effingham for District 7, Communication Center at IDOT in East St. Louis for District 8, and Communication Center at IDOT in Carbondale for District 9.
IDOT District Construction Website	As an aid to travelers, websites detailing maintenance and construction activities within a district are available in some portions of Illinois such as District 4 with the I-74 reconstruction project and other ongoing transportation efforts.
IDOT CVO Inspection Facility	Commercial vehicle inspection facilities are located along major commercial vehicle corridors throughout the state of Illinois operated by IDOT Division of Traffic Safety.
IDOT CVO Permitting - Oversize/Overweight	The Oversize/Overweight (OSO) permitting system is used to provide permits electronically to carriers via the Electronic One-Stop Shop (EOSS) website within the state of Illinois. This information is provided to ISP as needed.
IDOT District Kiosks	Kiosks are public informational displays supporting various levels of interaction and information access.
IDOT District Maintenance Dispatch	These systems include mobile data terminals (MDTs), computer-aided dispatch (CAD) systems and radio dispatch communications systems to allow IDOT districts that perform maintenance activities to dispatch and track their vehicles. Most districts have GIS systems and scheduling software for routine and corrective maintenance and are capable of distributing information to other agencies at some level (fax, phone, email, on-line, etc.).
IDOT District Maintenance Field	Illinois Department of Transportation (IDOT) maintenance systems include work zone dynamic message signs (DMS), queue detection and warning systems,

Inventory	Description
Equipment	and speed warning systems (SWS) to aid IDOT workers in the field by providing information to travelers of upcoming and on-going activities.
IDOT District Maintenance Vehicles	Vehicles equipped for snow removal and to maintain roads; no plans for AVL in 10 year horizon but maintenance scheduling software in-place.
IDOT Geographic Information Services (GIS)	The Illinois Department of Transportation (IDOT) Geographic Information Services (GIS) acts as the map update provider for all IDOT agencies and is a terminator in this architecture.
IDOT Road Condition Telephone Line	Statewide Winter Road Condition/Construction Telephone Line operated by IDOT as part of the environmental warning system. Provides pre-recorded information at 1-800-452-IDOT (4368).
IDOT RWIS System Display	IDOT provides, on the IDOT website statewide, a display of the RWIS System data for the public. In the future, this data will be made available to more travelers through rest stop kiosks.
IDOT Statewide Transportation Websites	Road construction, winter road condition and road closure information can be accessed at a number of IDOT websites, including www.gis.dot.il.gov , www.dot.state.il.us/tpublic.html , www.illinoisroads.info , and www.gettingaroundillinois.com . In the future the information that drives this site would be available in an intra-agency manner via the district hubs in the district communication centers as well.
IDOT Traffic Systems Center (TSC)	The Traffic Systems Center is operated by IDOT in Oak Park and provides the surface transportation network flow information in District 1.
IDOT Weigh Stations	IDOT owns and operates 35 fixed site weigh scales. PrePass Systems are being installed at most weigh stations.
IEPA	The mission of the Illinois Environmental Protection Agency (IEPA) is to safeguard environmental quality, consistent with the social and economic needs of the state, so as to protect health, welfare, property and the quality of life.
IFTA Clearinghouse	International Fuel Tax Agreement (IFTA) Clearinghouse is a core federal system under CVISN.
Illinois Electronic Permitting System (IFTA)	International Fuel Tax Agreement (IFTA) is the system that electronically provides motor fuel tax and licensing. This information is provided to the Illinois State Police (ISP) as needed.
Illinois Electronic Permitting System (IRP)	International Registration Plan (IRP) system is used by 48 states, Canada and Mexico for plating and registration of commercial vehicles. This system provides one-stop shopping for license fees with the funds collected distributed to the states on a pro-rated share.
Illinois Electronic Permitting System (SSRS)	This information from the Single State Registration System (SSRS) is provided to the Illinois State Police as needed via phone.
Illinois Statewide Hub	Statewide collection point for transportation data across the state. The hub supports interagency coordination, data fusion, and supply of transportation data to multimodal traveler information applications.
Indiana Motor Carrier Services Electronic Permits	Neighboring state system(s) that issues credentials and collects fees and taxes (IRP, IFTA, overheight/overweight permits) and exchanges data with Illinois services via CVIEW.
Iowa Motor Carrier Services	Neighboring state system(s) that issues credentials and collects fees and taxes (IRP, IFTA, overheight/overweight permits) and exchanges data with Illinois services via CVIEW.
IPASS	Automatic vehicle identification/electronic toll collection (AVI/ETC) system operated by the Illinois State Toll Highway Authority (ISTHA).
IREACH	The Illinois Radio Emergency Assistance Channel (155.055 MHz) was designed to serve as a means of interjurisdictional communications between public safety

Inventory	Description
	answering points (PSAP) during emergencies. While some PSAPs do use IREACH, the system been used primarily for mobile-to-mobile communications between emergency responders.
IRP Clearinghouse	International Registration Plan (IRP) Clearinghouse is a core federal systems under CVISN.
ISP Dispatch	Illinois State Police (ISP) dispatching systems that interface within ISP districts (which are different than IDOT districts and regions) as well as to ISP Central Operations for use in wide area alerts and large scale disaster efforts. These systems can include computer-aided dispatch (CAD) to interface with the mobile data terminals (MDT) found in the ISP vehicles. These systems also provide a means of communication to local law enforcement and first responders.
ISP Vehicles	Illinois State Police (ISP) vehicles are equipped with computer aided dispatch (CAD) interfaces to their mobile data terminals (MDTs).
ISP Winter Road Condition Telephone Line	Illinois State Police operates a Winter Road Condition telephone line in each Illinois State Police (ISP) District. This information is also included in the statewide recorded message system for winter road condition and construction information.
ISPERN	The Illinois State Police also have their own statewide communications channel, ISPERN (Illinois State Police Emergency Radio Network). As a means of secondary coordination, law enforcement officials around the state monitor the ISPERN frequency (155.475 MHz) to stay informed of ISP activities.
ISTHA TMC (TIMS)	Traffic and Incident Management System is operated by Illinois State Toll Highway Authority (ISTHA) and shares information and selected control functionality with IDOT District 1 Communication Center.
IWIN	Illinois Wireless Information Network (IWIN) has developed into the primary means of communication between different law enforcement agencies. IWIN is a statewide communications system (CDPD through Verizon Wireless set up by the Illinois State Police, Central Management Services (CMS), and the Illinois Criminal Justice Information Authority (ICJIA). It is linked to statewide/national databases like Law Enforcement Agency Data Service (LEADS), National Crime Information Center (NCIC), National Law Enforcement Telecommunications System (NLETS) and the Illinois Secretary of State databases. It can also be linked to an agency's CAD system or record management system.
Kentucky Motor Carrier Services	Neighboring state system(s) that issues credentials and collects fees and taxes (IRP, IFTA, overheight/overweight permits) and exchanges data with Illinois services via CVIEW.
Large Bus Transit Agency Dispatch	This is a large bus transit system in a metropolitan area with population over 1 million. It is characterized by the greatest extent of interagency coordination and extensive use of ITS services. This agency operates both fixed route and paratransit operations.
Large Bus Transit Agency Vehicles	Vehicles operated by large urban bus transit agencies, including both their paratransit operations and fixed route operations.
Licensing and Titling System	Illinois state system for issuing licenses and titles for commercial vehicle operations. In the future, this system will be available through CVIEW and the EOSS/CI.
Local Media	Media who interact with transportation agencies to get information on current delays, as well as planned or emergency reroutes or service interruptions such as radio, television and cable networks.
MABAS	Mutual Aid Box Alarm System (MABAS) allows hundreds of fire and emergency services personnel to coordinate their response to incidents. Recently adopted for fire and EMS Mutual Aid across Illinois, MABAS includes over 25,000 firefighters and emergency response units, including more than 750 fire stations and 600 ambulances. Using a common radio frequency, Interagency Fire

Inventory	Description
	Emergency Radio Network (IFERN), MABAS agencies are activated for response through pre designed "run" cards that each participating agency designs and tailors to meet their local risk need. Fire departments, particularly those in the northern part of the state, also utilize these dedicated communication channels to coordinate their operations.
MCMIS	Motor Carrier Management Information System (MCMIS) calculates a carrier's safety and fitness records.
MCR System	Mobile Capture & Reporting (MCR) System provides crash data from law enforcement agencies via the Illinois Wireless Network (IWIN) to an MCR crash database overseen by IDOT Division of Traffic Safety.
Medical Carriers	Medical carriers handle non-emergency medical transportation throughout the state. Often they do this under contract to local government units or to state or federal government human services programs
MMIS	Maintenance Management Information System (MMIS) is housed in Springfield and keeps track of all IDOT maintenance activities throughout the state. This information is used as a maintenance inventory and to feed the display on the various websites with regards to road construction.
Missouri Motor Carrier Services	Neighboring state system(s) that issues credentials and collects fees and taxes (IRP, IFTA, overheight/overweight permits) and exchanges data with Illinois services via CVIEW.
Municipal Emergency Dispatch - PSAP	Within municipal boundaries, a municipal 911 Center may exist as the Public Safety Answering Point or PSAP is likely to be operated by the City as part of their Emergency Management function. In many of the communities in Illinois, the PSAP dispatches both fire and police when incidents occur along the surface transportation network as well as has connections to the Sub-Regional TMC in that City.
Municipal EMC	Emergency Management Centers operated by municipalities that serve as command centers for large-scale emergencies.
Municipal Maintenance and Construction Dispatch	These systems include mobile data terminals (MDTs), computer-aided dispatch (CAD) systems, and radio dispatch communications systems to allow city department of public works and other analogous agencies to dispatch and track their fleets for construction and maintenance activities.
Municipal Maintenance Field Equipment	This includes roadside portable message signs and other work zone equipment.
Municipal Maintenance Vehicles	Vehicles equipped for snow removal and to maintain streets; no plans for AVL in 10 year horizon but maintenance scheduling software in-place.
Municipal TMCs	Higher functioning transportation management facilities run by municipalities. Represents a level of TMC below the Sub-Regional TMC (e.g., Peoria, Rockford). May include multi-jurisdictional signal coordination within subareas or corridors that may or may not be contiguous.
Other Rural Transit Agencies	Other rural transit agencies with which Rural Transit Agencies coordinate. This element is a terminator in this architecture.
Other Urban Transit Agencies	Other large or medium size agencies with which City Transit Agencies coordinate. This element is a terminator in this architecture.
Parking Management Systems	Systems like the RTA/Metra Parking Management Guidance System (PMGS) and rest area commercial vehicle signs that maintain an inventory of open parking spaces and make that available to DMS designed to inform motorists.
Potential Obstacles	Potential Obstacles is a terminator in this architecture and could be anything from debris on the highway to a vehicle in the roadway to animals crossing the highway in rural areas.
PrePass	PrePass is a motor carrier enrolled system to provide updated carrier and

Inventory	Description
	vehicle information to improve a roadside facility's decision on selection of vehicles for enforcement activity.
PrePass WIM Stations	PrePass Weigh-in-Motion (WIM) stations are located along major commercial vehicle corridors throughout the state of Illinois (12 in District 1, 4 in District 2, 2 in District 3, 1 in District 5, 3 in District 6, 2 in District 7, 2 in District 8, 3 in District 9).
Private Carrier Operations	Private Carrier Operations is a generic term for all commercial vehicle operators operating in and through the state of Illinois and the ITS systems they use to operate their fleets.
Private CVO Inspection Facilities	Commercial vehicle inspection facilities are located along major commercial vehicle corridors throughout the state of Illinois operated by private CVO inspection services.
Private ISPs	Private sector information service providers (ISPs), such as Shadow Traffic, Metro Networks, Traffic.com, etc. that disseminate general and customized transportation information to the traveling public, including commercial vehicles.
Rail Freight Operations	Rail operations centers for private rail firms operating in Illinois.
Rail Passenger Operations	AMTRAK intercity passenger rail operations.
Rail Transit Operations	Rail transit centers that operate urban heavy or light rail transit systems in large metropolitan areas. For both Chicago and St Louis, this is actually an operating unit within a single organization (CTA or METRO).
Ramp Merge Warning System	Ramp merge warning systems increase safety on highways by alerting drivers of merging traffic. One existing example of such a system is installed at the Belmont entrance ramp in on North Lake Shore Drive in Chicago.
Ramp Meter System	Traffic control systems deployed on entrance ramps to limited access roadways to meter the levels of traffic entering the highway. Ramp metering is currently in use in the Chicago area.
Regional Airports	Regional airports that coordinate multi-modal passenger movement with transit agencies.
Roadside Equipment for In-Vehicle Signing	Roadside systems that communicate directly with vehicles to alert motorists of location-specific travel advisories, including crash warning systems.
Rural Centric District Hub	This template hub has a focused set of data sources and destinations and applies to predominately rural transportation needs. This hub is appropriate for Districts 5, 7, and 9.
Rural Transit Agency Dispatch	Rural Transit Agencies service the majority of the state of Illinois geographically. These agencies commonly maintain ties to the nearest medium-sized transit agency(s) for coordination on specific routes through a variety of systems and communications technologies
Rural Transit Agency Vehicles	Rural transit agency vehicles. These may range from sedans to SUVs to vans to small buses.
RWIS	There are a total of 57 roadway weather information system (RWIS) stations deployed in all nine IDOT districts (ten in District 1, eight in District 2, five in District 3, eight in District 4, five in District 5, eleven in District 6, three in District 7, five in District 8, and two in District 9). These systems feed their data in to the IDOT District Communications center currently and in the future, to their district's hub. This information is made available on the IDOT website.
SAFER	The Federal Motor Carrier Safety Administration (FMCSA) provides the SAFER web access tool at www.safer.org which hold safety ratings/data by carrier. Inputs from the MCMIS are used to drive this system.
SAFETYNET	Data management system for driver/vehicle inspections, commercial vehicle crashes, compliance reviews, assignments, complaints, enforcement cases, etc.

Inventory	Description
	It supports links to SAFER, MCMIS, and CAPRI.
Security Monitoring Equipment	Sensors that monitor critical infrastructure such as river bridges, tunnels, and interchanges. These systems can include motion sensors, radiological sensors, and object detection.
Statewide Emergency Operations Center	Statewide Emergency Operations Center (SEOC) located in Springfield. The SEOC houses numerous statewide emergency management agencies, and serves as the disaster command center for the state of Illinois.
Statewide Incident Management System	This system ties all Illinois State Police and Emergency Management agencies electronically to respond and manage incidents and emergencies. This set of systems and application software being implemented throughout the state of Illinois provides a single common set of incident management systems to all incident and emergency services stakeholders.
Station One	Station One was established by IDOT to serve as a universal communications network between all nine IDOT districts. Station One is based at the IDOT Central Office in Springfield, and is operated 24/7. Station One serves two primary purposes: emergency dispatch when the local district office is closed, and maintenance of traveler information, specifically road conditions, across the state. As such, it also acts as a central repository for such information, as collected by IDOT personnel and equipment across the state.
Sub-Regional TMC	This template transportation management center represents those set of systems providing traffic management functionality along with incident management capabilities that exist in a region. These will primarily be found in the larger cities and communities (e.g., Chicago, Collinsville, Peoria, Rockford, etc.) that have a larger number of travelers in their region as compared to the more rural areas of Illinois.
Toll Tag Reader	Transponder reader equipment on or along the roadside for reading toll tag information. Currently used by ISTHA on its toll roads and the Chicago Skyway. Compatible with the IPASS and EZPASS systems.
Traffic Signal Systems	Traffic signal systems owned, operated, and maintained by traffic operations stakeholders, including IDOT, county highway departments, and municipal departments of transportation.
Transit Hub	Transit hub for a large urban area such as Chicago or St. Louis. The hub supports interagency coordination, data fusion, and supply of transit data to multimodal traveler information applications. A transit hub structure is not envisioned elsewhere in the state because the integration needs among transit agencies and between transit agencies and other agencies are more straightforward. City Transit Agencies (e.g., Moline) may have kiosks, transit information signs and the like, but that they will be driven not by a regional transit hub, but rather by the agency's systems.
Transit Information Signs	Transit Information Signs are displays at transportation centers, stations, and stops that show when the next vehicle is coming, by route and direction. These may be found in large urban systems as well as small-medium sized transit agencies.
Transit Kiosks	These kiosks may provide basic transit information, and/or access to a trip planner, and/or access to event and attraction information. In the future, all the necessary information will be resident on the transit hub.
Transit Signal Priority System	These systems provide transit vehicles with preferential treatment along their approach to an intersection.
Transit Trip Planning Mobile Device Support	These systems support providing personalized transit trip planning information to the traveler.
Traveler	Any individual who uses transportation services. The interfaces to the traveler provide general pre-trip and en-route information supporting trip planning,

Inventory	Description
	personal guidance, and requests for assistance in an emergency that are relevant to all transportation system users.
Universal Fare Card	A fare card that can be used at minimum on all transit agencies in a region seamlessly. May also be available for other transportation or non-transportation uses.
User Personal Computing Devices	User Personal Computing Devices refers to equipment an individual owns and can personalize with their choices for information about transportation networks. An Internet-connected PC is an example.
Vehicle	This subsystem provides the sensory, processing, storage, and communications functions necessary to support efficient, safe, and convenient travel. These functions reside in general vehicles including personal automobiles, commercial vehicles, emergency vehicles, transit vehicles, or other vehicle types.
Violation Enforcement Systems	Violation enforcement systems are used by enforcement agencies to receive violations information for issuing driver fines.
Weather Service Feed	This terminator provides weather, hydrologic, and climate information and warnings of hazardous weather including thunderstorms, flooding, hurricanes, tornadoes, winter weather, tsunamis, and climate events.
WisDOT Motor Carrier Services	Neighboring state system(s) that issues credentials and collects fees and taxes (IRP, IFTA, overheight/overweight permits) and exchanges data with Illinois services via CVIEW.
Work Zone Photo Enforcement System	These systems include portable traffic control and enforcement equipment that are dynamically positioned in work zones and other locations where excessive speed is an issue. These systems monitor the roadway environment, photograph vehicles when speed conditions for that location are exceeded, and provide this information for speed enforcement.
Yellow Pages Service Provider	This terminator represents the individual organizations that provide any service oriented towards the Traveler. Example services that could be included are gas, food, lodging, vehicle repair, points of interest, and recreation areas.

Each system listed in the inventory can be found in the Turbo files for the Statewide ITS Architecture. If you need to interface to an existing system, you may use the Turbo files to examine current and planned architecture flows for that system.

5.2 Market Packages

Market packages are a convenient tool for grouping functions and requirements within an ITS architecture. Market packages enable transportation planners and decision makers to determine appropriate ITS services that satisfy local and statewide needs. Market packages help project stakeholders organize and plan the implementation of their projects in a manner that helps assure that different technology applications will actually work in concert with one another. Market packages can act as building blocks that can either stand alone or work in combination with other packages.

The National ITS Architecture Market Package Document presents a table (presented here as Table 6) to assist in directly mapping market packages to transportation problems. The table provides a range of solutions that can be considered to address identified problems and deficiencies. Note that the distinction between “conventional” and “advanced” transportation

solutions identified in the table is often obscured since there are many examples where “conventional” solutions are implemented in innovative ways and other examples where “advanced” solutions have been implemented using manual systems for years.

The column in the table that identifies "Supporting Market Packages" provides the necessary linkage between the general solutions and the National ITS Architecture to support succeeding steps in the process. As implied by the table, the conventional transportation solutions do not map directly into the National ITS Architecture. In addition, there are several alternative solutions (such as telecommuting or other uses of telecommunications to substitute for traveling) that are not directly supported by the National ITS Architecture definition.

Table 6: Mapping Market Packages to Transportation Problems

Transportation following emergencies problem / solution pairs, and the National ITS Architecture					
Problem	Solution	Conventional Approach	Advanced Systems Approach	Supporting Market Packages	Considerations
Transportation following emergencies	Improve disaster response plans	<ul style="list-style-type: none"> Review and improve existing emergency plans 	Establish emergency response center (ERC) Internetwork ERC with law enforcement, emergency units, traffic management, transit, ...	ATMS08 - Traffic Incident Management System EM01 - Emergency Call-Taking and Dispatch EM02 - Emergency Routing EM04 - Roadway Service Patrols EM08 - Disaster Response and Recovery EM09 - Evacuation and Reentry Management EM10 - Disaster Traveler Information	Conventional <ul style="list-style-type: none"> Interagency coordination challenges Advanced <ul style="list-style-type: none"> Interagency coordination challenges Standards

Severe budgetary constraints problem / solution pairs, and the National ITS Architecture					
Problem	Solution	Conventional Approach	Advanced Systems Approach	Supporting Market Packages	Considerations
Severe budgetary constraints	Leverage new funding sources	<ul style="list-style-type: none"> Concierge/Voice service 	Increased emphasis on fee-for-use services	ATIS2 - Interactive Traveler Information ATIS5 - ISP Based Trip Planning and Route Guidance ATIS7 - Yellow Pages and Reservation ATMS10 - Electronic Toll Collection	<ul style="list-style-type: none"> Equity

**Severe budgetary constraints problem / solution pairs,
and the National ITS Architecture**

Problem	Solution	Conventional Approach	Advanced Systems Approach	Supporting Market Packages	Considerations
	Use existing funding efficiently	<ul style="list-style-type: none"> Existing funding authorizations and selection processes 	Advanced maintenance strategies Barter right-of-way Privatization Public-private partnerships	APTS6 - Transit Maintenance MC02 - Maintenance and Construction Vehicle Maintenance MC07 - Roadway Maintenance and Construction -- -- --	<ul style="list-style-type: none"> Market uncertainties make private sector cautious Telecommunications deregulation makes right-of-way barter a near-term opportunity

**Lack of transportation information problem / solution pairs,
and the National ITS Architecture**

Problem	Solution	Conventional Approach	Advanced Systems Approach	Supporting Market Packages	Considerations
Lack of transportation information	Provide user friendly access to quality transportation services	<ul style="list-style-type: none"> Concierge/Voice service 	Provide route guidance and turn by turn directions Real-time traffic conditions monitoring and reporting	ATIS3 - Autonomous Route Guidance ATIS2 - Interactive Traveler Information	Advanced <ul style="list-style-type: none"> Sufficient and accurate information is necessary to gain public trust

**Traffic accidents, injuries, and fatalities problem / solution pairs,
and the National ITS Architecture**

Problem	Solution	Conventional Approach	Advanced Systems Approach	Supporting Market Packages	Considerations
Traffic accidents, injuries, and fatalities	Improve safety	<ul style="list-style-type: none"> Driver training Grade separate crossings Improve roadway geometry (increase radius of curvature, widen lanes,...) Improve 	Advanced fleet and freight management Advanced grade crossing systems Automated detection	CVO01 - Fleet Administration CVO02 - Freight Administration ATMS13 - Standard Railroad Grade Crossing ATMS14 - Advanced Railroad Grade Crossing ATIS9 - In Vehicle Signing	Conventional <ul style="list-style-type: none"> High costs Human error is primary cause Advanced <ul style="list-style-type: none"> High speed grade crossing systems may require extended closure times

**Traffic accidents, injuries, and fatalities problem / solution pairs,
and the National ITS Architecture**

Problem	Solution	Conventional Approach	Advanced Systems Approach	Supporting Market Packages	Considerations
		sight distances <ul style="list-style-type: none"> • Lighten dark roads to improve visibility/better lighting • Reduce speed limits/post warnings in problem areas • Sobriety check points • Traffic signals, protected left hand turns at intersections 	of adverse weather and road conditions, vehicle warning, and road crew notification	ATMS01 - Network Surveillance ATMS06 - Traffic Information Dissemination ATMS21 - Roadway Closure Management EM06 - Wide-Area Alert EM07 - Early Warning System EM09 - Evacuation and Reentry Management EM10 - Disaster Traveler Information MC03 - Road Weather Data Collection MC04 - Weather Information Processing and Distribution MC05 - Roadway Automated Treatment EM03 - Mayday and Alarms Support ATIS9 - In Vehicle Signing ATMS19 - Speed Monitoring MC09 - Work Zone Safety Monitoring CVO10 - HAZMAT Management AVSS02 - Driver Safety Monitoring AVSS07 - Driver Visibility Improvement AVSS10 - Intersection Collision Avoidance CVO08 - On-board CVO and Freight Safety & Security CVO09 - CVO Fleet Maintenance AVSS01 - Vehicle Safety Monitoring AVSS02 - Driver Safety Monitoring AVSS03 - Longitudinal Safety Warning	<ul style="list-style-type: none"> • Mixed results for initial collision warning devices • Relatively slow roll out for AVSS services anticipated • Tort liability issues hinder innovative deployments

Traffic accidents, injuries, and fatalities problem / solution pairs, and the National ITS Architecture						
Problem	Solution	Conventional Approach	Advanced Systems Approach	Supporting Market Packages	Considerations	
				AVSS04 - Lateral Safety Warning AVSS05 - Intersection Safety Warning AVSS06 - Pre-Crash Restraint Deployment AVSS07 - Driver Visibility Improvement AVSS08 - Advanced Vehicle Longitudinal Control AVSS09 - Advanced Vehicle Lateral Control AVSS10 - Intersection Collision Avoidance AVSS11 - Automated Highway System Vehicle condition monitoring	AVSS01 - Vehicle Safety Monitoring	

Unanticipated transportation needs problem / solution pairs, and the National ITS Architecture					
Problem	Solution	Conventional Approach	Advanced Systems Approach	Supporting Market Packages	Considerations
Unanticipated transportation needs	Improved transportation planning	<ul style="list-style-type: none"> Visual inspection and case history 	Transportation data storage and analysis	AD1 - ITS Data Mart AD2 - ITS Data Warehouse AD3 - ITS Virtual Data Warehouse	<p><u>Conventional</u></p> <ul style="list-style-type: none"> Funding to support analysis to accommodate the dynamic nature of transportation growth <p><u>Advanced</u></p> <ul style="list-style-type: none"> Funding to support analysis to accommodate the dynamic nature of transportation growth

Goods movement delays problem / solution pairs, and the National ITS Architecture					
Problem	Solution	Conventional Approach	Advanced Systems Approach	Supporting Market Packages	Considerations
Goods movement delays	Improved efficiency in vehicle/cargo clearance	<ul style="list-style-type: none"> Visual/Human inspection 	Efficient use of fleet/freight resources	CVO01 - Fleet Administration CVO02 - Freight Administration	<u>Conventional</u> <ul style="list-style-type: none"> Proper training and retraining of inspectors may be necessary to address new threats <u>Advanced</u> <ul style="list-style-type: none"> Proper training and retraining of inspectors may be necessary to address new threats
			Support electronic clearance	CVO03 - Electronic Clearance CVO04 - CV Administrative Processes CVO05 - International Border Electronic Clearance CVO06 - Weigh-In-Motion CVO07 - Roadside CVO Safety	

Safety and security problem / solution pairs, and the National ITS Architecture					
Problem	Solution	Conventional Approach	Advanced Systems Approach	Supporting Market Packages	Considerations
Safety and security	Improve safety		Surveillance and sensor monitoring	APTS5 - Transit Security	
	Protection of assets	<ul style="list-style-type: none"> Lock and key Manned guard posts, video surveillance 	Asset tracking Biometric identification Electronic seals, GPS tracking Threat detection	CVO02 - Freight Administration CVO13 - Freight Assignment Tracking CVO12 - CV Driver Security Authentication CVO02 - Freight Administration CVO08 - On-board CVO and Freight Safety & Security CVO11 - Roadside HAZMAT Security Detection and Mitigation CVO12 - CV Driver Security Authentication EM05 - Transportation Infrastructure Protection	<u>Conventional</u> <ul style="list-style-type: none"> Need to protect privacy, maintain balance between privacy and security <u>Advanced</u> <ul style="list-style-type: none"> Need to protect privacy, maintain balance between privacy and security

**Safety and security problem / solution pairs,
and the National ITS Architecture**

Problem	Solution	Conventional Approach	Advanced Systems Approach		Supporting Market Packages	Considerations				
			Advanced Systems Approach	Supporting Market Packages						
	Provide user friendly access to quality transportation services	<ul style="list-style-type: none"> • Call boxes • Provide maps 	<table border="1"> <tr> <td>Mayday services</td> <td>EM03 - Mayday and Alarms Support</td> </tr> <tr> <td>Provide route guidance and turn by turn directions</td> <td>ATIS3 - Autonomous Route Guidance</td> </tr> </table>	Mayday services	EM03 - Mayday and Alarms Support	Provide route guidance and turn by turn directions	ATIS3 - Autonomous Route Guidance			
Mayday services	EM03 - Mayday and Alarms Support									
Provide route guidance and turn by turn directions	ATIS3 - Autonomous Route Guidance									

**Air pollution problem / solution pairs,
and the National ITS Architecture**

Problem	Solution	Conventional Approach	Advanced Systems Approach		Supporting Market Packages	Considerations																					
			Advanced Systems Approach	Supporting Market Packages																							
Air pollution	Increase transportation system efficiency, reduce travel and fuel consumption	<ul style="list-style-type: none"> • Increased capacity to reduce vehicle delay • More efficient conventional vehicles • Promotion of alternatives to single occupant vehicle travel • Regulations • Vehicle emissions inspections 	<table border="1"> <tr> <td rowspan="5">Advanced traffic management to smooth flows</td> <td>ATMS03 - Surface Street Control</td> </tr> <tr> <td>ATMS04 - Freeway Control</td> </tr> <tr> <td>ATMS07 - Regional Traffic Control</td> </tr> <tr> <td>ATMS19 - Speed Monitoring</td> </tr> <tr> <td>MC08 - Work Zone Management</td> </tr> <tr> <td>Alternative fuel vehicles</td> <td>--</td> </tr> <tr> <td>Multi-modal pre-trip info</td> <td>ATIS2 - Interactive Traveler Information</td> </tr> <tr> <td rowspan="2">Provide route guidance to smooth demand</td> <td>ATIS4 - Dynamic Route Guidance</td> </tr> <tr> <td>ATIS5 - ISP Based Trip Planning and Route Guidance</td> </tr> <tr> <td>Real-time ride matching</td> <td>ATIS8 - Dynamic Ridesharing</td> </tr> <tr> <td>Remote sensing of emissions</td> <td>ATMS11 - Emissions Monitoring and Management</td> </tr> <tr> <td>Telecommuting and other telesubstitutions</td> <td>--</td> </tr> <tr> <td>Transportation pricing</td> <td>ATMS10 - Electronic Toll Collection</td> </tr> </table>	Advanced traffic management to smooth flows	ATMS03 - Surface Street Control	ATMS04 - Freeway Control	ATMS07 - Regional Traffic Control	ATMS19 - Speed Monitoring	MC08 - Work Zone Management	Alternative fuel vehicles	--	Multi-modal pre-trip info	ATIS2 - Interactive Traveler Information	Provide route guidance to smooth demand	ATIS4 - Dynamic Route Guidance	ATIS5 - ISP Based Trip Planning and Route Guidance	Real-time ride matching	ATIS8 - Dynamic Ridesharing	Remote sensing of emissions	ATMS11 - Emissions Monitoring and Management	Telecommuting and other telesubstitutions	--	Transportation pricing	ATMS10 - Electronic Toll Collection			<p><u>Conventional</u></p> <ul style="list-style-type: none"> • Increasing demand can offset initial benefit of added capacity. • Regulations, inspections are unpopular and onerous <p><u>Advanced</u></p> <ul style="list-style-type: none"> • Increasing demand can offset efficiency improvements
Advanced traffic management to smooth flows	ATMS03 - Surface Street Control																										
	ATMS04 - Freeway Control																										
	ATMS07 - Regional Traffic Control																										
	ATMS19 - Speed Monitoring																										
	MC08 - Work Zone Management																										
Alternative fuel vehicles	--																										
Multi-modal pre-trip info	ATIS2 - Interactive Traveler Information																										
Provide route guidance to smooth demand	ATIS4 - Dynamic Route Guidance																										
	ATIS5 - ISP Based Trip Planning and Route Guidance																										
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Remote sensing of emissions	ATMS11 - Emissions Monitoring and Management																										
Telecommuting and other telesubstitutions	--																										
Transportation pricing	ATMS10 - Electronic Toll Collection																										

**Disconnected transportation modes problem / solution pairs,
and the National ITS Architecture**

Problem	Solution	Conventional Approach	Advanced Systems Approach	Supporting Market Packages	Considerations
Disconnected transportation modes	Improve intermodality	<ul style="list-style-type: none"> Inter-agency agreements 	Disseminate multi-mode information pre-trip and en-route	APTS7 - Multi-modal Coordination	<p>Conventional</p> <ul style="list-style-type: none"> Often static and/or slow to adapt as needs change <p>Advanced</p> <ul style="list-style-type: none"> Existing system incompatibilities Standards
			Regional transportation information clearinghouse	ATIS2 - Interactive Traveler Information	
			Regional transportation management systems	APTS7 - Multi-modal Coordination ATMS07 - Regional Traffic Control	

**Lack of mobility and accessibility problem / solution pairs,
and the National ITS Architecture**

Problem	Solution	Conventional Approach	Advanced Systems Approach	Supporting Market Packages	Considerations
Lack of mobility and accessibility	Provide user friendly access to quality transportation services	<ul style="list-style-type: none"> Expand fixed route transit and paratransit services Radio and TV traffic reports 	Automatic vehicle location	APTS1 - Transit Vehicle Tracking	<p>Conventional</p> <ul style="list-style-type: none"> Declining ridership <p>Advanced</p> <ul style="list-style-type: none"> Equitable access to information Interjurisdictional cooperation Standards
			Common, enhanced fare card	APTS4 - Transit Passenger and Fare Management	
			Multi-modal and pre-trip traveler information services	ATIS1 - Broadcast Traveler Information	
			Multi-modal pre-trip and en-route traveler information services	ATIS2 - Interactive Traveler Information EM10 - Disaster Traveler Information	
			Personalized public transportation services	APTS3 - Demand Response Transit Operations	
			Provide route guidance and turn by turn directions	ATIS3 - Autonomous Route Guidance	
			Real-time transit traveler information dissemination	APTS8 - Transit Traveler Information	
			Respond dynamically to changing demand	APTS3 - Demand Response Transit Operations ATMS16 - Parking Facility Management ATMS17 - Regional Parking Management	

**Traffic congestion problem / solution pairs,
and the National ITS Architecture**

Problem	Solution	Conventional Approach	Advanced Systems Approach	Supporting Market Packages	Considerations
Traffic congestion	Increase passenger throughput	<ul style="list-style-type: none"> • Car pooling • Fixed route transit • HOV lanes 	Flexible route transit HOV lane management Integrate transit and feeder services New personalized public transit Real-time ride matching	APTS3 - Demand Response Transit Operations ATMS05 - HOV Lane Management APTS7 - Multi-modal Coordination APTS2 - Transit Fixed-Route Operations APTS8 - Transit Traveler Information ATIS8 - Dynamic Ridesharing	<ul style="list-style-type: none"> • Privacy and personal security

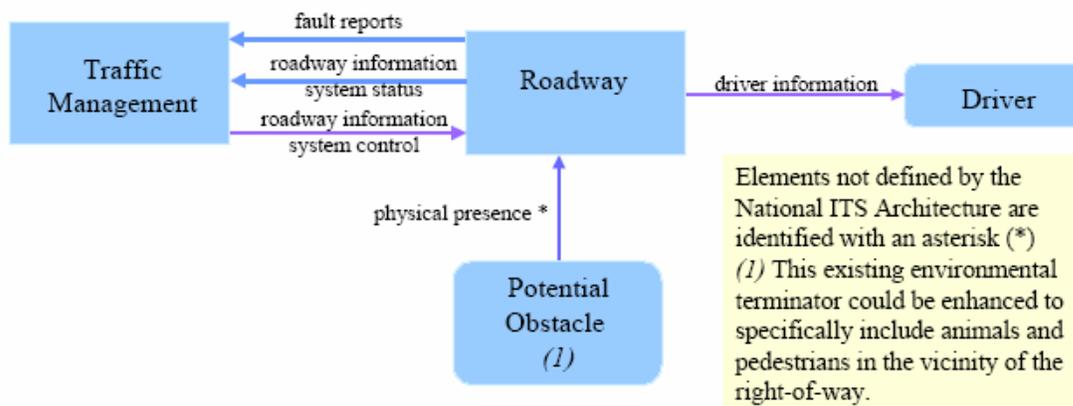
**Traffic congestion problem / solution pairs,
and the National ITS Architecture**

Problem	Solution	Conventional Approach	Advanced Systems Approach	Supporting Market Packages	Considerations
	Increase roadway capacity (vehicular throughput)	<ul style="list-style-type: none"> • New lanes • New roads 	<p>Advanced traffic control</p> <p>Advanced vehicle systems (reduce headway)</p> <p>Corridor management</p> <p>Electronic toll collection</p> <p>Incident management</p> <p>Maintenance and work zone management</p> <p>Provide route guidance to smooth demand</p>	<p>ATMS03 - Surface Street Control</p> <p>ATMS04 - Freeway Control</p> <p>ATMS18 - Reversible Lane Management</p> <p>AVSS08 - Advanced Vehicle Longitudinal Control</p> <p>AVSS11 - Automated Highway System</p> <p>ATMS07 - Regional Traffic Control</p> <p>ATMS09 - Traffic Forecast and Demand Management</p> <p>ATMS15 - Railroad Operations Coordination</p> <p>ATMS20 - Drawbridge Management</p> <p>MC06 - Winter Maintenance</p> <p>ATMS10 - Electronic Toll Collection</p> <p>ATMS08 - Traffic Incident Management System</p> <p>EM08 - Disaster Response and Recovery</p> <p>MC01 - Maintenance and Construction Vehicle and Equipment Tracking</p> <p>MC10 - Maintenance and Construction Activity Coordination</p> <p>ATIS6 - Integrated Transportation Management/Route Guidance</p>	<p><u>Conventional</u></p> <ul style="list-style-type: none"> • Environmental constraints • High cost of construction • Land use and community resistance <p><u>Advanced</u></p> <ul style="list-style-type: none"> • Inter-jurisdictional issues • Latent demand effects • Near-term services yield modest benefits
	Manage transportation system more efficiently	<ul style="list-style-type: none"> • Respond to problems called in by public 	<p>Probe surveillance</p> <p>Virtual TMC and probe surveillance</p>	<p>ATMS02 - Probe Surveillance</p> <p>ATMS12 - Virtual TMC and Smart Probe Data</p>	

Traffic congestion problem / solution pairs, and the National ITS Architecture					
Problem	Solution	Conventional Approach	Advanced Systems Approach	Supporting Market Packages	Considerations
	Reduce demand	<ul style="list-style-type: none"> Flex time programs 	Provide route guidance to smooth demand Telecommuting and other telesubstitutions Transportation pricing	ATIS4 - Dynamic Route Guidance ATIS5 - ISP Based Trip Planning and Route Guidance ATIS8 - Dynamic Ridesharing -- ATMS10 - Electronic Toll Collection	<ul style="list-style-type: none"> Significant component of demand relatively inelastic

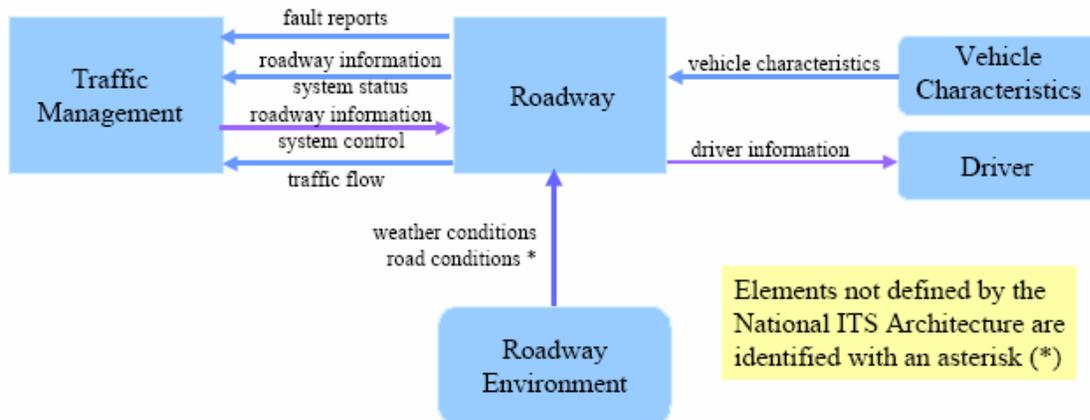
In the Statewide Concept of Operations document, a set of market packages were described in each functional area as potential candidates for use in the Statewide ITS Architecture development. In addition, based on the needs expressed in some of the more rural areas of Illinois, three additional “rural” market packages were added. These are Animal-Vehicle Collision Avoidance Counter Measures, Dynamic Warning Systems, and Mobile Traffic Management. Descriptions of these three market packages are as follows:

Animal-Vehicle Collision Counter Measures: Encroachment of animals on the roadway is a significant problem in rural areas in the United States. The Animal-Vehicle Collision Counter Measures market package combines sensors that detect animals with a dynamic warning system that warns drivers of the animal’s presence on or near the roadway. While early implementations are likely to operate autonomously, future implementations may allow remote status reporting and calibration of the system.

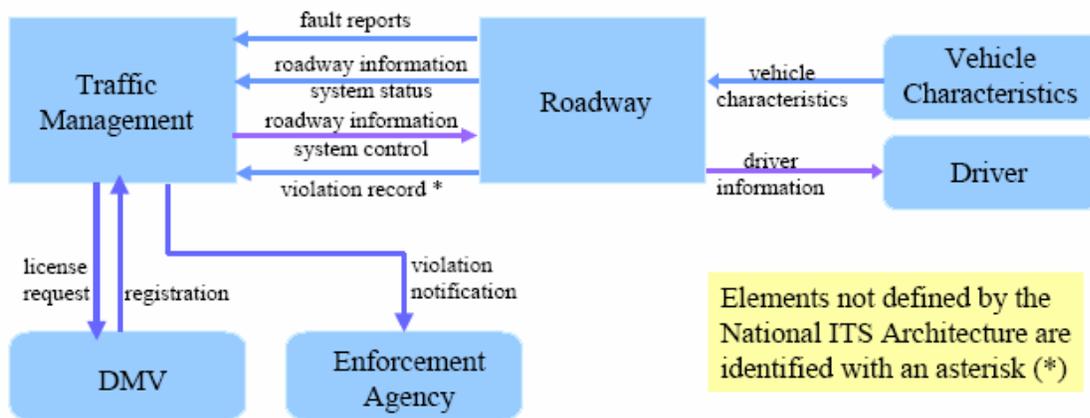


Dynamic Warning Systems: A dynamic warning system monitors vehicle speeds and provides warnings to vehicles that are traveling at unsafe speeds. These systems can be deployed at spot locations where excessive speed is a problem such as locations in advance of curves and

downgrades. Various levels of sophistication are possible including systems that simply measure vehicle speeds (safe speed advisory systems), systems that combine this speed information with real-time measures of road conditions, and systems that also classify approaching vehicles by weight and size so that increasingly selective warnings can be given to drivers that are exceeding the safe performance levels of either their vehicles and/or current conditions. Systems that operate autonomously and systems that communicate with and provide remote access to an operating center may be implemented.



Mobile Traffic Management/Enforcement: The Mobile Traffic Management/Enforcement market package includes portable traffic control and enforcement equipment to be dynamically positioned in work zones and other locations where excessive speed is an issue. These systems use dynamic message signs to provide pertinent regulatory information to drivers at targeted locations. Optionally, sensors can be included to monitor the traffic stream and video imaging and recording systems can be added to support automatic detection and recording of infractions for enforcement applications.



Using all the information gleaned from the needs and the inventory as well as the vision and goals provided from the Concept of Operations document, Table 7 shows the list of applicable market packages (66) for Illinois as contained in the Turbo Architecture tool, based on those candidate market packages identified in the Concept of Operations.

Table 7: Applicable Market Packages

Operational Area	Market Packages		Applicable to Illinois Statewide ITS Architecture	Applicable to Illinois Statewide CVO Architecture
Traveler Information	ATIS1	Broadcast Traveler Information	X	X
	ATIS2	Interactive Traveler Information	X	
	ATIS3	Autonomous Route Guidance	X	
	ATIS4	Dynamic Route Guidance		
	ATIS5	ISP Based Trip Planning and Route Guidance	X	
	ATIS6*	Integrated Transportation Management/Route Guidance	X	
	ATIS7*	Yellow Pages and Reservation	X	
	ATIS8	Dynamic Ridesharing		
	ATIS9	In-Vehicle Signing	X	
Freeway Management	ATMS01	Network Surveillance	X	
	ATMS02	Probe Surveillance	X	
	ATMS04	Freeway Control	X	
	ATMS05	HOV Lane Management		
	ATMS06	Traffic Information Dissemination	X	X
	ATMS07	Regional Traffic Control	X	
	ATMS08	Traffic Incident Management System	X	
	ATMS09	Traffic Forecast and Demand Management		
	ATMS12	Virtual TMC and Smart Probe Data	X	
	ATMS18	Reversible Lane Management		
	ATMS19	Speed Monitoring	X	
	ATMS20	Drawbridge Management		
	ATMS21	Roadway Closure Management		
	MC01*	Maintenance and Construction Vehicle and Equipment Tracking	X	
	MC02*	Maintenance and Construction Vehicle Maintenance	X	
	MC03	Road Weather Data Collection	X	
	MC04	Weather Information Processing and Distribution	X	X
	MC05	Roadway Automated Treatment	X	
	MC06	Winter Maintenance	X	
	MC07	Roadway Maintenance and Construction	X	
MC08	Work Zone Management	X		
MC10	Maintenance and Construction Activity Coordination	X		
Incident Management	ATMS08	Traffic Incident Management System	X	
	EM01	Emergency Call-Taking and Dispatch	X	
	EM02	Emergency Routing	X	
	EM03	Mayday Support	X	

Operational Area	Market Packages		Applicable to Illinois Statewide ITS Architecture	Applicable to Illinois Statewide CVO Architecture
	EM04	Roadway Service Patrols	X	
Arterial Management	ATMS01	Network Surveillance	X	
	ATMS02	Probe Surveillance	X	
	ATMS03	Surface Street Control	X	
	ATMS07	Regional Traffic Control	X	
	ATMS08	Traffic Incident Management System	X	
	ATMS09	Traffic Forecast and Demand Management		
	ATMS11	Emissions Monitoring and Management	X	
	ATMS21	Roadway Closure Management		
	APTS7	Multi-modal Coordination	X	
	EM02	Emergency Routing	X	X
	MC01*	Maintenance and Construction Vehicle and Equipment Tracking	X	
	MC02*	Maintenance and Construction Vehicle Maintenance	X	
	MC03	Road Weather Data Collection	X	
	MC04	Weather Information Processing and Distribution	X	X
	MC05	Roadway Automated Treatment	X	
	MC06	Winter Maintenance	X	
	MC07	Roadway Maintenance and Construction	X	
	MC08	Work Zone Management	X	
	MC09	Work Zone Safety Monitoring	X	
MC10	Maintenance and Construction Activity Coordination	X		
Electronic Fare/Toll Payment	APTS4	Transit Passenger and Fare Management	X	
	ATMS10	Electronic Toll Collection	X	X
	ATMS16	Parking Facility Management		
Transit Management	APTS1	Transit Vehicle Tracking	X	
	APTS2	Transit Fixed-Route Operations	X	
	APTS3	Demand Response Transit Operations	X	
	APTS4	Transit Passenger and Fare Management	X	
	APTS5	Transit Security	X	
	APTS6	Transit Maintenance	X	
	APTS7	Multi-modal Coordination	X	
	APTS8	Transit Traveler Information	X	
Security and Disaster Response Management	EM05	Transportation Infrastructure Protection	X	
	EM06	Wide-Area Alert	X	
	EM07	Early Warning System	X	
	EM08	Disaster Response and Recovery	X	
	EM09	Evacuation and Reentry Management		

Operational Area	Market Packages		Applicable to Illinois Statewide ITS Architecture	Applicable to Illinois Statewide CVO Architecture
	EM10	Disaster Traveler Information	X	
Highway Railroad Grade Crossing	ATMS13	Standard Railroad Grade Crossing	X	
	ATMS14	Advanced Railroad Grade Crossing	X	
	ATMS15	Railroad Operations Coordination		
Commercial Vehicle Operations	CVO1	Fleet Administration		X
	CVO2	Freight Administration		X
	CVO3	Electronic Clearance		X
	CVO4	CV Administrative Processes		X
	CVO5	International Boarder Electronic Clearance		
	CVO6	Weigh-In-Motion		X
	CVO7	Roadside CVO Safety		X
	CVO8	On-Board CVO and Freight Safety & Security		X
	CVO9	CVO Fleet Maintenance		X
	CVO10	HAZMAT Management		X
	CVO11	Roadside HAZMAT Security Detection and Mitigation		
	CVO12	Driver Security Authentication		
	CVO13	Freight Assignment Tracking		
ITS as a Data Resource	AD1	ITS Data Mart	X	X
	AD2	ITS Data Warehouse	X	X
	AD3	Virtual Data Warehouse		
Advanced Vehicle Safety Systems	AVSS02*	Driver Safety Monitoring	X	
	AVSS03*	Longitudinal Safety Warning	X	
	AVSS04*	Lateral Safety Warning	X	
	AVSS05*	Intersection Safety Warning	X	
	AVSS09*	Advanced Vehicle Lateral Control	X	
Rural Issues	-	Animal-Vehicle Collision Avoidance Counter Measures	X	
	-	Dynamic Warning Systems	X	
	-	Mobile Traffic Management	X	

* not identified in Concept of Operations

5.3 Subsystem Elements & Functionality

Based upon selection of needs, examination of the inventory, and selection of market packages, you can use the Statewide ITS Architecture to identify subsystem elements required for integration and define functional requirements for your project.

Appendix E presents an initial list of functional requirements from the Statewide ITS Architecture. Based upon the concept of operations for the new project, you may adopt an individual requirement as shown or modified, delete a requirement as unnecessary, or add new requirements that do not appear in the architecture. The Turbo Tool can be used to select functionality by selecting and/or deleting requirements.

5.4 Interconnects and Interfaces

Based on subsystem elements and functionality that were selected, the Turbo Tool can be used to review and confirm the interfaces and associated data within the Statewide ITS Architecture that apply to your project.

Figure 6 illustrates the high level interconnects and interfaces for Illinois' Statewide ITS Architecture. Applicable subsystems are depicted as white boxes. As shown in the diagram, Illinois has (or plans to have) an example of each of the architecture subsystems as defined by the National ITS Architecture.

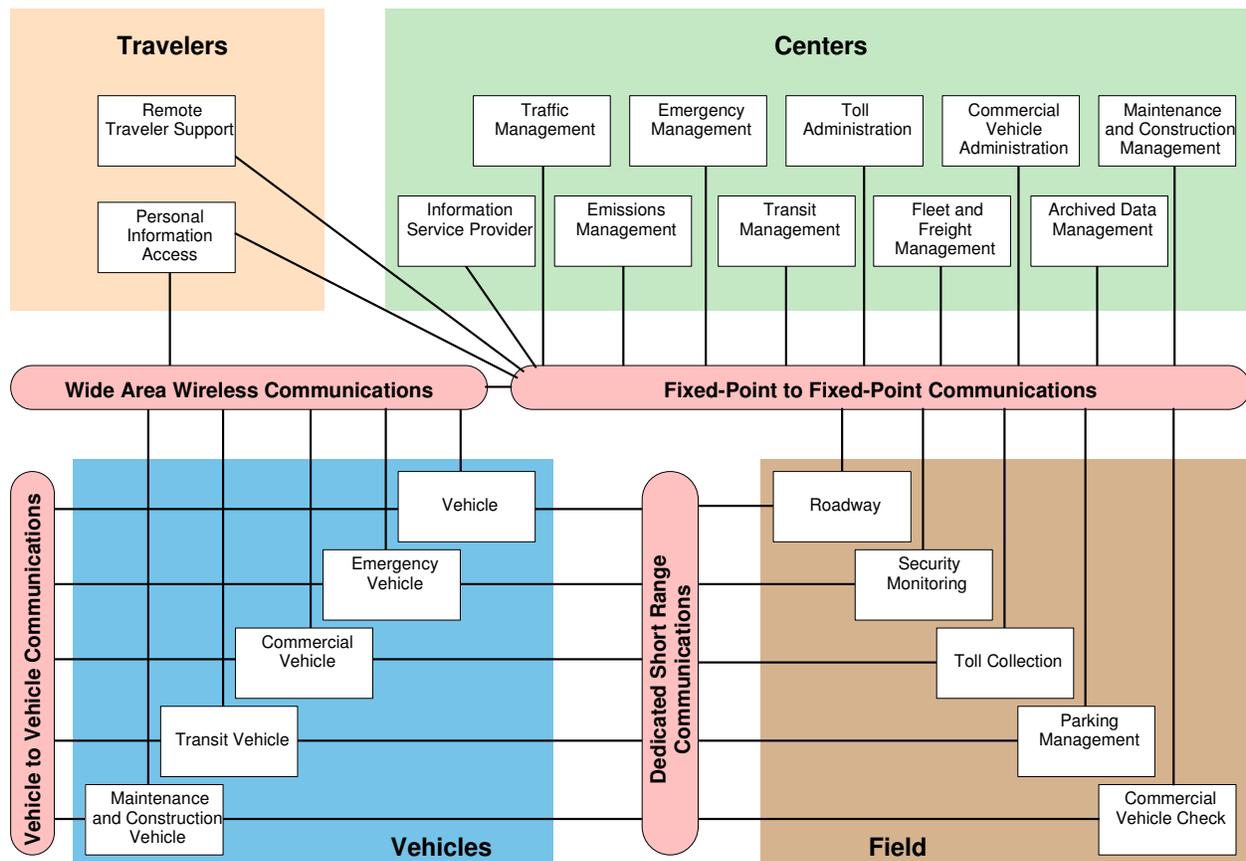


Figure 6: High-Level Subsystem Interconnect Diagram for Illinois

Based upon the interfaces to different systems and the associated stakeholder that owns, operates, and maintains that system, you can also determine if you need additional institutional agreements to accomplish a particular interface.

Communications is one of the most significant issues when planning a project. The interconnects included in the architecture demonstrate the interagency communications that

occur from center to center and the links between center and the field. While the identification of specific communications media involved in these interconnections is outside of the scope of the architecture, the architecture can be used to determine communications requirements.

6. STANDARDS AND THE ILLINOIS STATEWIDE ITS ARCHITECTURE

The Statewide ITS Architecture follows a standards strategy that takes maximum advantage of technical standards that help advance the projects developed under the architecture. The Statewide ITS Architecture and associated projects shall use technical standards that meet the following requirements:

1. The standard is applicable to specific technical elements of the project.
2. The standard is commercially available and does not add significant cost to the project.
3. The standard is an approved national standard from a recognized national or international standards organization.

Projects being developed in accordance with the Illinois Statewide ITS Architecture should perform the following steps to develop a standards plan and determine which standards to use:

1. Document project concept of operations
2. Document project requirements
3. Train selected technical staff in standards, uses, and applications
4. Develop initial high level design
5. Identify technical elements of the project
6. Survey available standards that meet the requirements of the standards strategy of the funding agency
7. Select standards that meet the requirements for use in the project
8. Document selected standards in a Standards Plan
9. Develop Detailed Design
10. Confirm selected standards for use in the project
11. Develop Final Design

Standards Application Areas that may apply to individual projects include:

- Center to Roadside Data Collection/Monitoring
- Center to Roadside Dynamic Message Sign
- Center to Roadside Environmental Sensor Systems
- Center to Roadside Signal systems
- Center to Roadside Vehicle Sensors
- Center to Roadside Video Surveillance
- Center to Center Data Archival
- Center to Center Incident Management
- Center to Center Rail Coordination
- Center to Center Traffic Management
- Center to Center Transit Management

- Center to Center Traveler Information
- Center to Vehicle/Traveler Mayday
- Center to Vehicle/Traveler Transit Vehicle Communications
- Center to Vehicle/Traveler Traveler Information
- Roadside to Roadside Highway Rail Intersection
- Roadside to Vehicle Toll/Fee Collection
- Roadside to Vehicle Signal Priority

A complete listing of the standards identified in the Illinois Statewide ITS Architecture can be found in Table 8.

Table 8: Summary of Illinois Statewide ITS Standards

SDO	Description	Number
AASHTO/ITE/NEMA	NTCIP Center-to-Center Standards Group	NTCIP 1102, NTCIP 1104, NTCIP 1105, NTCIP 1106, NTCIP 2104, NTCIP 2202, NTCIP 2303, NTCIP 2304, NTCIP 2305, NTCIP 2501, NTCIP 2502
	NTCIP Center-to-Field Standards Group	NTCIP 1101, NTCIP 1102, NTCIP 1103, NTCIP 2101, NTCIP 2102, NTCIP 2103, NTCIP 2104, NTCIP 2201, NTCIP 2202, NTCIP 2301, NTCIP 2302, NTCIP 2303
	Global Object Definitions	NTCIP 1201
	Object Definitions for Actuated Traffic Signal Controller Units	NTCIP 1202
	Object Definitions for Dynamic Message Signs	NTCIP 1203
	Object Definitions for Environmental Sensor Stations & Roadside Weather Information System	NTCIP 1204
	Data Dictionary for Closed Circuit Television (CCTV)	NTCIP 1205
	Data Collection & Monitoring Devices	NTCIP 1206
	Ramp Meter Controller Objects	NTCIP 1207
	Object Definitions for Video Switches	NTCIP 1208
	Transportation System Sensor Objects	NTCIP 1209
	Objects for Signal Systems Master	NTCIP 1210
	Objects for Signal Control Priority	NTCIP 1211
	TCIP - Common Public Transportation (CPT) Business Area Standard	NTCIP 1401
	TCIP - Incident Management (IM) Business Area Standard	NTCIP 1402
TCIP - Passenger Information (PI) Business Area Standard	NTCIP 1403	

SDO	Description	Number
	TCIP - Scheduling/Runcutting (SCH) Business Area Standard	NTCIP 1404
	TCIP - Spatial Representation (SP) Business Area Standard	NTCIP 1405
	TCIP - Onboard (OB) Business Area Standard	NTCIP 1406
	TCIP - Control Center (CC) Business Area Standard	NTCIP 1407
	TCIP - Fare Collection (FC) Business Area Standard	NTCIP 1408
ASTM	Dedicated Short Range Communication at 915 MHz Standards Group	ASTM E2158-01, ASTM PS 105-99
	Standard Specification for Archiving ITS Generated Traffic Monitoring Data	ASTM E2259-xx
IEEE	Incident Management Standards Group	IEEE 1512.1-2003, IEEE 1512.3-2002, IEEE 1512-2000, IEEE P1512.2
	Standard for Message Sets for Vehicle/Roadside Communications	IEEE Std 1455-1999
ITE	Standard for Functional Level Traffic Management Data Dictionary (TMDD)	ITE TM 1.03
	Message Sets for External TMC Communication (MS/ETMCC)	ITE TM 2.01
SAE	Advanced Traveler Information Systems (ATIS) Bandwidth Limited Standards Group	SAE J2266, SAE J2354, SAE J2369, SAE J2529, SAE J2540, SAE J2540-1, SAE J2540-2, SAE J2540-3, SAE J2630
	Advanced Traveler Information Systems (ATIS) General Use Standards Group	SAE J2266, SAE J2354, SAE J2529, SAE J2540, SAE J2540-1, SAE J2540-2, SAE J2540-3, SAE J2630
	On-board Vehicle Mayday Standards Group	SAE J2266, SAE J2313, SAE J2354, SAE J2529, SAE J2540, SAE J2540-1, SAE J2540-2, SAE J2540-3, SAE J2630
	ITS In-Vehicle Message Priority	SAE J2395
	Measurement of Driver Visual Behavior Using Video Based Methods (Def. & Meas.)	SAE J2396
	Adaptive Cruise Control: Operating Characteristics and User Interface	SAE J2399
	Forward Collision Warning: Operating Characteristics and User Interface	SAE J2400
SAE/IEEE	Dedicated Short Range Communication at 5.9 GHz Standards Group	IEEE 1609.1, IEEE 1609.2, IEEE 1609.3, IEEE 1609.4, IEEE 802.11, IEEE 802.2, ISO 21210

Selection of the specific application areas and the specific standards should wait until the use of the systems engineering process completes the initial high-level design and the associated steps for developing the Standards Plan. The Illinois CVISN Program has already identified standards

that should be followed for commercial vehicle operations and the Illinois Statewide Terrorism Task Force has identified software standards for incident management for the state.

Table 9 summarizes the proposed CVISN standards.

Having identified those portions of the Statewide ITS architecture that appear to cover your ITS project’s functionality, an initial listing of standards for further investigation can be readily identified from the Turbo files. Premature selection and commitment to specific standards could conflict with existing work and could pose a significant technical risk to your project. Technical staff participating in the project should receive training in the applicable standards, their uses, their application, and their testing. By following a standards strategy and developing a Standards Plan, you can reduce the technical risk associated with your planned project.

Table 9: Illinois CVISN Summary of Interface Standards

Standard	Systems Interconnected
HTML	Website to/from EOSS/CI
	Roadside Enforcement to CVIEW (Query)
Flat File via FTP	State IFTA license/tax information to/from IFTA Clearinghouse
	IFTA Clearinghouse revocation file to CVIEW
XML	CVIEW to/from SAFER
	EOSS/CI to/from CVIEW
	EOSS/CI to State legacy systems
	Interface to Statewide e-payment system
DSRC – A, B, E, F, G	Transponder or Screening/Driver Comm. to Screening/Driver Comm. or Transponder
AFF-B	ASPEN to SAFER and SAFER to ASPEN
AFF-C	SAFER to SAFETYNET
AFF-D	SAFETYNET to MCMIS and MCMIS to SAFETYNET
AFF-E	ASPEN to SAFETYNET
AFF-I	SAFETYNET to SAFER
CIA-E	ASPEN to SAFETYNET
CIA-G	SAFETYNET to MCMIS
CIA-N	SAFETYNET to MCMIS
CIA-O	Sensor Communication to/from Screening
CIA-P	Roadside Operations to/from Screening
CIA-Q	Roadside Operations to/from Sensor/Driver Communication

7. SEQUENCING OF FUNCTIONALITY

In order to provide the functionality described in the Statewide ITS Concept of Operations, a number of initiatives need to occur in a logical sequence. This may require a sequencing of individual projects by many different agencies over the course of several years. In many cases, these projects may be deployed at the regional level, but they will then combine with other regional efforts to provide statewide ITS functions. Primary examples would be 511 Traveler Information, the Illinois CVISN Program, the Illinois Statewide Hub Concept described in

Section 2, and any number of ongoing interstate projects, such as the Gateway Guide in St. Louis. ITS project managers should always consider the effects of their individual regional project on the rest of the region and on the larger statewide scale.

While this Statewide ITS Architecture is not intended to outline specific ITS implementations (such ITS implementations will be addressed in the Illinois Statewide ITS Strategic Plan), it does describe the desired functionality that is obtained by implementing ITS technologies. As an example, the Illinois 511 System is intended to provide travelers with information about:

- Incidents, Construction, Road / Lane Closures
- Travel Times, Congestion
- Weather, Road Conditions
- Transit / Connection
- Special Events, Tourist / Connection

In addition, to meet the desired functionality, the Illinois 511 service needs to support voice recognition, hands-free access, and it must be user-friendly.²

To meet these requirements, a number of underlying elements must be in place. First, a 511 traveler information system cannot function without reliable, timely, and accurate data. This data must be collected from multiple sources, processed, and integrated, all of which require a sturdy communications infrastructure and coordinated interagency policies and protocols. Next, once the information has been prepared for public use, traveler information systems that disseminate the data must be designed, tested, and deployed. This involves the development of user interface systems, such as a telephone system and/or website. Lastly, the system must be advertised so that the traveling public is aware of the service and how it can be accessed.

Like 511, a sequence of necessary functionality must be delivered to implement the Illinois Statewide Hub Concept described in Section 3. At a high level, this functionality includes the following stages:

1. Creation of an Illinois Statewide Hub
2. Continued development of Illinois District Hubs
3. Deployment of a communications backbone between the Statewide and District Hubs
4. Development of policies and protocols to address interfaces between the Statewide and District Hubs
5. Development of operational procedures to address coordination between the Statewide and District Hubs
6. Communications linkages between hubs (both Statewide and District) and partner agencies, which includes other traffic management, maintenance and construction management, incident/emergency management, transit management, and commercial vehicle operations

² 511 Traveler Information Program Assistance, *Draft* Technical Memorandum #3 Implementation Plan, PBS&J, July, 2004.

7. Development of policies and protocols to address interfaces between the hubs (both Statewide and District) and partner agencies
8. Development of operational procedures and agreements to address coordination between the hubs (both Statewide and District) and partner agencies

Some of these elements can and should be developed simultaneously. The development of district hubs should not await deployment of the Statewide Hub, rather they should be developed as transportation needs in the district dictate. This may involve the creation and cultivation of district-level linkages with partner agencies that do not depend on links to the Statewide Hub. This way, when the Statewide Hub is brought online and linked to district hubs, the partner agency linkages will be introduced as well.

For ITS project managers at the regional level, the sequencing of functionality will be important for individual ITS projects that are part of a coordinated regional program or those that play a role in larger, statewide initiatives. For instance, as data collection systems are deployed at a local or regional level, they should consider the statewide function that the data may provide for a 511 system or incident management system. As the Illinois Statewide ITS Architecture maintainer, the IDOT Program Office can assist ITS project managers to see where their projects are situated within ITS development across the state.

8. AGREEMENTS AND MEMORANDA OF UNDERSTANDING (MOU)

Interagency cooperation and coordination will play a critical role as ITS projects are developed to create the functionality described above. Often, this cooperation is documented in written agreements both to clearly define the responsibilities of partnering agencies and to demonstrate the level of integration involved in a project. In many cases, formal written agreements are necessary before funding can be made available for a project. In general, transportation agencies may determine an agreement is necessary for the following situations, all of which represent some form of interagency integration:

- Joint or overlapping maintenance responsibilities (traffic signal maintenance, power fees)
- Operational support (mutual aid, resource sharing)
- Field element control sharing (regional traffic signal control, CCTV camera control)
- Data sharing
- Video sharing with media
- Funding arrangements

These interagency agreements can take several forms, as described below in Table 10.

Table 10: Types of Agreements

Type of Agreement	Description
Handshake Agreement	<ul style="list-style-type: none"> • Early agreement between one or more partners • Not recommended for long term operations.

Type of Agreement	Description
Memorandum of Understanding	<ul style="list-style-type: none"> Initial agreement used to provide minimal detail and usually demonstrating a general consensus. Used to expand a more detailed agreement like an Interagency Agreement which may be broad in scope but contains all of the standard contract clauses required by a specific agency. May serve as a means to modify a much broader Master Funding Agreement, allowing the master agreement to cover various ITS projects throughout the region and the MOUs to specify the scope and differences between the projects.
Interagency Agreement	<ul style="list-style-type: none"> Between public agencies (e.g., transit authorities, cities, counties, etc.) for operations, services or funding Documents responsibility, functions and liability, at a minimum.
Intergovernmental Agreement	<ul style="list-style-type: none"> Between governmental agencies (e.g., <i>Agreements between universities and State DOT, MPOs and State DOT, etc.</i>)
Operational Agreement	<ul style="list-style-type: none"> Between any agency involved in funding, operating, maintaining or using the right-of-way of another public or private agency Identifies respective responsibilities for all activities associated with shared systems being operated and/or maintained
Funding Agreement	<ul style="list-style-type: none"> Documents the funding arrangements for ITS projects (<i>and other projects</i>) Includes at a minimum standard funding clauses, detailed scope, services to be performed, detailed project budgets, etc
Master Agreements	<ul style="list-style-type: none"> Standard contract and/or legal verbiage for a specific agency and serving as a master agreement by which all business is done. These agreements can be found in the legal department of many public agencies Allows states, cities, transit agencies, and other public agencies that do business with the same agencies over and over (e.g., cities and counties) to have one <i>Master Agreement</i> that uses smaller agreements (e.g., <i>MOUs, Scope-of-Work and Budget Modifications, Funding Agreements, Project Agreements, etc.</i>) to modify or expand the boundaries of the larger agreement to include more specific language.
Contract	<ul style="list-style-type: none"> Standard contract and/or legal verbiage for a specific agency and serving as an agreement by which all business is done. These agreements can be found in the legal department of many public agencies Single document with changes made through contract amendments

Interagency agreements are necessary for statewide ITS initiatives, such as 511 Traveler Information, the Illinois Law Enforcement Alarm System (ILEAS), the Illinois CVISN Program, the Illinois Statewide Hub Concept, and various interstate projects. Below is a listing of potential and previously identified IDOT agreements for each of these statewide projects.

Table 11: Interagency Agreements for Statewide Initiatives

Project	Status	Participating Agencies	Description
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Project	Status	Participating Agencies	Description
511 Traveler Information	Planned	<ul style="list-style-type: none"> Neighboring states 	<ul style="list-style-type: none"> Agreement to transfer misplaced calls between systems
		<ul style="list-style-type: none"> Wireless carriers 	<ul style="list-style-type: none"> Agreements to offer 511 access
		<ul style="list-style-type: none"> Local exchange carriers 	<ul style="list-style-type: none"> Agreements to provide translations for the 511 dialing code
		<ul style="list-style-type: none"> Other traffic management/traveler information agencies 	<ul style="list-style-type: none"> Data sharing agreements
Illinois Law Enforcement Alarm System (ILEAS)	Existing	<ul style="list-style-type: none"> All Illinois sheriff's departments Various municipal police/fire departments Illinois State Police 	<ul style="list-style-type: none"> The mission of ILEAS is to meet the needs of law enforcement throughout the State of Illinois in matters of mutual aid, emergency response and the combining of resources for public safety.
Illinois CVISN	Planned	<ul style="list-style-type: none"> Participating agencies 	<ul style="list-style-type: none"> Business interoperability agreements among roadside electronic screening programs Data privacy agreements Interface agreements (open standards, Internet-based exchanges, and custom interface agreements)
Statewide Hub Concept	Planned	<ul style="list-style-type: none"> Private telecommunications companies 	<ul style="list-style-type: none"> Resource sharing agreements
		<ul style="list-style-type: none"> Municipalities, transit agencies, law enforcement 	<ul style="list-style-type: none"> Data sharing agreements
		<ul style="list-style-type: none"> Neighboring states 	<ul style="list-style-type: none"> Data sharing agreements
Interstate Projects	Existing	<ul style="list-style-type: none"> Gary, Chicago, Milwaukee (GCM) Corridor 	<ul style="list-style-type: none"> GCM Program Management Contract
	Existing	<ul style="list-style-type: none"> Iowa DOT 	<ul style="list-style-type: none"> Ownership and maintenance agreement for dynamic message signs

Project	Status	Participating Agencies	Description
	Existing	<ul style="list-style-type: none"> Iowa DOT, Iowa municipalities, Iowa law enforcement 	<ul style="list-style-type: none"> Bridge Incident Management Response System Shared video monitoring
	Existing	<ul style="list-style-type: none"> MoDOT 	<ul style="list-style-type: none"> Mississippi River Bridge Maintenance Mississippi River Bridge Emergency Management
	Existing	<ul style="list-style-type: none"> WisDOT 	<ul style="list-style-type: none"> State-Line Interstate Transportation and Security Enhancement Project North Central Illinois Integrated Traffic Management System

In addition to these statewide level agreements, interagency agreements are often necessary for ITS projects that are developed and deployed at the regional level. The various regional ITS architectures listed in Section 1 address agreements for ITS initiatives within their boundaries. Likewise, the Statewide Architecture can be used as a starting point for ITS projects located outside of those metropolitan regional architecture boundaries. These projects could include rural paratransit initiatives, winter maintenance projects, or special event traffic management systems. Such projects could involve transit agencies, municipal/county/state departments of transportation, special event promoters, emergency dispatch centers, and local law enforcement, among others. Many of these agreements have already been developed, as shown below in Table 12.

In addition to those listed below, stakeholders involved in such projects should consult the Statewide ITS Architecture to determine if interagency agreements are already in place for a planned ITS project. When these agreements have not yet been developed, affected stakeholders can use examples the Statewide ITS Architecture for developing such agreements.

Table 12: Interagency Agreements for Regional Initiatives

Project	Status	Participating Agencies	Description
Bureau Area Rural Transit Gateway Services (BART)	Existing	<ul style="list-style-type: none"> Gateway Services St. Margaret's Hospital 	Operating agreement for BART paratransit service
City of Decatur Maintenance	Existing	<ul style="list-style-type: none"> City of Decatur IDOT District 5 Macon County 	Roadway and traffic signal maintenance agreements
City of DeKalb Maintenance	Existing	<ul style="list-style-type: none"> City of DeKalb IDOT District 2 DeKalb County ISTHA 	Roadway, bridge, and traffic signal maintenance agreements

Project	Status	Participating Agencies	Description
DeWitt County Emergency Services	Existing	<ul style="list-style-type: none"> DeWitt County IEMA/ESDA MABAS participants Red Cross Illinois Department of Nuclear Safety 	Emergency and disaster response coordination
Franklin County Traffic Signals	Existing	<ul style="list-style-type: none"> Franklin County IDOT District 9 	MOU for operation of traffic signals
IDOT District 3 Maintenance	Existing	<ul style="list-style-type: none"> IDOT District 3 Local Governments 	Snow plowing, storm sewer, and traffic signal maintenance agreements
IDOT District 7 Maintenance	Existing	<ul style="list-style-type: none"> IDOT District 7 City of Effingham City of Mount Vernon 	Roadway and traffic signal maintenance agreements
IDOT District 9 Emergency Services	Existing	<ul style="list-style-type: none"> IDOT District 9 Illinois State Police 	
IDOT District 9 Maintenance	Existing	<ul style="list-style-type: none"> IDOT District 9 Local Governments 	Traffic signal maintenance and operations agreements
Illinois State Police District 17 Crash Data	Existing	<ul style="list-style-type: none"> ISP District 17 IDOT District 3 	Sharing of crash data between ISP and IDOT
Kankakee County Emergency Services	Existing	<ul style="list-style-type: none"> Kankakee County Sheriff Kankakee County Police/Fire Departments 	Mutual aid/emergency response coordination agreements
Kankakee County Emergency Notifications	Existing	<ul style="list-style-type: none"> Kankakee County ETSB WKAN Radio 	Media agreement
Kankakee County Planning Initiatives	Existing	<ul style="list-style-type: none"> Kankakee County Planning Department Aroma Park Bourbonnais Bradley City of Kankakee IDOT District 3 	Transportation data sharing and planning functions
City of LaSalle Maintenance	Existing	<ul style="list-style-type: none"> City of LaSalle IDOT District 3 LaSalle County 	Traffic signal maintenance agreements
Logan County Mutual Aid	Existing	<ul style="list-style-type: none"> Logan County ESDA Logan County emergency services 	Mutual aid agreement
Macoupin County Emergency Services	Existing	<ul style="list-style-type: none"> Macoupin County ESDA IEMA 	Mutual aid/emergency response coordination agreements
	Planned	<ul style="list-style-type: none"> Macoupin County 	MABAS agreement
City of Metropolis Emergency Services	Existing	<ul style="list-style-type: none"> Metropolis ESDA Adjoining counties 	Mutual aid/emergency response coordination agreements
South Central	Existing	<ul style="list-style-type: none"> SCIRPDC 	Assistance in obtaining

Project	Status	Participating Agencies	Description
Illinois Regional Planning and Development Commission (SCIRPDC)		<ul style="list-style-type: none"> Local governments 	and applying state and federal funding
Schuyler County GIS	Existing	<ul style="list-style-type: none"> IDOT District 6 Schuyler County 	Sharing of GIS data
Union County Emergency Services	Existing	<ul style="list-style-type: none"> Union County Sheriff Union County 911 	

9. ARCHITECTURE MAINTENANCE

As ITS projects are implemented, the Statewide ITS Architecture will need to be updated to reflect new ITS priorities and strategies that emerge through the transportation planning process. To account for expansion in ITS scope, and to allow for the evolution and incorporation of new ideas, a maintenance process has been defined for the Illinois Statewide ITS Architecture. This process includes a periodic update to the Statewide ITS Architecture, defined Configuration Management techniques to maintain the architecture, and a specific group – the IDOT ITS Program Office - responsible for maintaining the Statewide ITS Architecture. This maintenance process is described in detail in Appendix G of this report, Architecture Maintenance Plan.

The goal of the Maintenance Plan is to guide controlled updates to the Statewide ITS Architecture baseline so that it continues to accurately reflect the state’s existing ITS capabilities and future plans.

The Statewide ITS Architecture is not static. It must change as plans change; ITS projects are implemented; and the ITS needs and services evolve in throughout the state. The Statewide ITS architecture must be maintained so that it continues to reflect the current and planned ITS systems, interconnections, and services to provide to the public and associated stakeholders. Many events may cause change to the Statewide ITS architecture:

- Changes in statewide needs
- Changes in regional needs
- Stakeholders added, deleted, or revised
- Changes in scope of services considered
- Changes in other architectures
- Changes in ITS standards
- Interagency agreements added, deleted, or revised
- Changes due to project addition/deletion
- Changes in project priority
- Changes to existing regional and statewide transportation plans, including the local transportation improvement plan (TIP), the long range transportation plan (LRTP), the State Transportation Plan, or the Illinois ITS Strategic Plan

The purpose of maintaining an ITS architecture is to keep it current and relevant, so that stakeholders will use it as a technical and institutional reference when developing specific ITS project plans.