Northeastern Illinois ITS Deployment Plan Update

Final Report

July 2005

The Northeastern Illinois ITS Deployment Plan Update provides a blueprint for Intelligent Transportation System (ITS) investment and deployment in northeastern Illinois for the next fifteen years.

Chicago Area Transportation Study

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Chicago Area Transportation Study (CATS) was formed in 1955 to develop the first comprehensive long-range transportation plan for the northeastern Illinois region. Since then the CATS has been designated by the governor of Illinois and northeastern Illinois local officials as the metropolitan planning organization (MPO) for the region.

The Policy Committee is the metropolitan planning organization for northeastern Illinois. It plans, develops and maintains an affordable, safe and efficient transportation system for the region, and provides the forum through which local decision makers develop regional plans and programs.

This document was prepared by the Chicago Area Transportation Study sponsored by the agencies on the Policy Committee. The report has been financed in part by the U.S. Department of Transportation, Federal Highway Administration and the Federal Transit Administration and authorized by the State of Illinois.

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Prepared by:
Chicago Area Transportation Study
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With Support of:
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1.0 Introduction and Project Overview

As we enter the 21st century the crucial importance of getting the most out of our existing systems is increasingly recognized. Budget limits, quality of life, the environment and many other forces have clearly constrained our ability and desire to build or expand physical infrastructure except in those areas of most critical need. Technology, in the form of Intelligent Transportation Systems (ITS), offers a valuable tool to improve the operations and management of our existing transportation facilities. One key element of ITS is the ability to monitor and respond to actual conditions on the transportation system in real time. This performance-based approach allows operators to use the real-time information to identify, respond to and mitigate non-recurring events (such as crashes or weather) that significantly affect the quality of service offered by the system. It also provides the information to travelers that they need to make effective choices, such as time, mode and route of travel.

Recent analysis by the Texas Transportation Institute (TTI) finds, not surprisingly, that congestion is increasing in our largest metropolitan areas. Northeastern Illinois is no exception to this national trend, and in fact is listed by TTI as the third most congested region in the U.S. The typical commuter in northeastern Illinois spends an estimated 58 hours stuck in traffic annually. Recurring traffic tie-ups (or systematic congestion) and non-recurring congestion (from individual events like crashes or construction) have been roughly characterized as being equally responsible for these delays. Traditional tools such as enhancing the linkages between transportation and land use, adding highway capacity, improving and increasing transit services, or offering more alternative non-motorized modes can, and do, help alleviate the problems, particularly the systematic congestion. ITS can help here as well, but ITS and the improved operations, management and information it offers are essential strategies to address the non-recurring congestion.

The *Northeastern Illinois ITS Deployment Plan Update* (ITS Plan Update) recognizes these facts. The ITS Plan Update takes advantage of the tools that ITS can provide as part of the mix of capital, operational, management and informational actions that will enhance the quality of service offered to people and businesses in the region. Further, the ITS Plan Update has been developed within the structure offered by the National ITS Program Plan and Architecture with particular emphasis on how the various ITS elements and systems interact. It recognizes that ITS elements covering surveillance, detection, traffic control, video cameras, transit management, electronic payment, incident management, traveler information and others are most effective when they are developed, deployed and operated as part of a standards-based, open and integrated system. Finally, the ITS Plan Update supports the cost-effective use of ITS in northeastern Illinois, continuing the region's long and successful use of this essential tool.

Building intelligence into our transportation facilities has been greatly empowered by the conceptual aggregation of ITS. Included in the Intermodal Surface Transportation

Efficiency Act of 1991 (ISTEA), the Intelligent Vehicle Highway Systems Act effectively nurtured the relationship between the quickly expanding technology sector and traditional transportation developers. Start-up funding for national ITS corridors, standards development and the Intelligent Transportation Society of America created platforms for sharing concepts. A national mindset and language for the transportation community was initiated.

The National ITS Architecture and Standards requirements provide a practical incentive for agencies to build integrated and interoperable technologies into the transportation networks. The establishment of local development plans that conform to a National ITS Architecture are now directly tied to the Highway Trust Fund, and as National ITS Standards mature, their requirements will come increasingly into play. Ultimately, a nation-wide perspective on travel information will arise in the form of the 511 Traveler Information Service that will be practically accessible for travelers, emergency responders and the commerce sector alike.

Funding ITS has moved implementers toward creative solutions. In 1991 the establishment of programs in ISTEA indicated a possible dedicated source of funds for technology, but as the Transportation Efficiency Act for the 21st Century was developed in 1998, it became clear that local agencies would need to use traditional funding mechanisms to support technology projects. The further need to share scarce funds was recognized, and new concepts that incorporate private sector participation emerged, along with a perception that ITS will greatly enhance national security. The outlook is not clear, but the initiation of national technology and information system development seems to have taken hold at the local level, indicating that the vision for ITS will advance towards maturity.

In northeastern Illinois, transportation providers have chosen to update ITS deployment planning and the Regional ITS Architecture on an alternating schedule. This ITS Update Plan is the first revision of the original ITS deployment planning effort called the *Northeastern Illinois Strategic Early Deployment Plan for Intelligent Transportation Systems*, completed in 1999 (1999 SEDP).

1.1 Scope

The 1999 SEDP provided the first blueprint for integrated deployment of ITS across the region, envisioning the need to better manage transportation facilities, providing more information to travelers, and culminating in a prioritization of projects building a technological network to support the vision.

The 1999 SEDP was developed under the direction of the Chicago Area Transportation Study's (CATS) Advanced Technology Task Force representing a broad range of stakeholders responsible for transportation facilities in northeastern Illinois. The Task Force today includes representatives from other technology planning groups, such as the Gary-Chicago-Milwaukee (GCM) Corridor Coalition, which has been instrumental in deployment of ITS in the states of Illinois, Indiana and Wisconsin.

In preparing the 1999 SEDP, the ATTF recognized that the plan would need periodic revision and updates, given the dynamic nature of ITS and project implementation. Accordingly, CATS initiated a project to update the 1999 SEDP in 2004, contracting with the consulting team of Parsons Transportation Group (Parsons), Consensus Systems Technologies (ConSysTec) and National Engineering Technologies (NET). This document is the resulting ITS Plan Update.

While not as broad in scope as the original 1999 SEDP, this document focuses on the need for a new list of projects and associated funding needs. Since the 1999 SEDP, an architecture has been completed for northeastern Illinois (*Regional ITS Architecture for Northeastern Illinois,* December 2002; Regional ITS Architecture). The Regional ITS Architecture was found to be consistent with the National ITS Architecture by the Federal Highway Administration and the Federal Transit Administration in June of 2003. Accordingly, this ITS Plan Update relates projects to the Regional ITS Architecture and anticipates the need to revise that architecture as a result of this effort.

The specific scope of this document is as follows:

- Context – a review of how this document relates to other ITS work plus an overview of ITS standards (Section 1).

- Accomplishments – an assessment of ITS deployment progress since the 1999 SEDP, including a broad overview of major ITS elements (Section 2).

- Vision and Goals – based on reviews of 1999 SEDP goals and *2030 Regional Transportation Plan* goals relative to ITS, a revised vision and goals for ITS implementation in the region are developed (Section 3).

- Updated Project List and Prioritization – based on inputs from various stakeholders, an updated Project List including costs is presented (Section 4).

- Prototype Operational Concept – emphasizing roles and responsibilities, a prototype operational concept for incident management is presented (Section 5).

- Regional Integration Strategies Update and Benefits Estimation - reviewed and revised are the integration levels as defined in the 1999 SEDP and the Regional ITS Architecture to make them compatible. In addition, an approach to benefits estimation is provided (Section 6).

- Projects of Regional Significance – these projects are identified, as related to regional priorities (Section 7).

- Action Plan – addresses funding shortfalls, early action projects, project gaps per the Regional ITS Architecture, and a schedule for maintaining the architecture including needed revisions (Section 8).

- Appendices – cover support materials, particularly a mapping of projects to the Regional ITS Architecture. Two of the appendices are in a standalone *Addendum* document.

Overall direction to the consultant team was provided by the ATTF. A subgroup of the ATTF, called the ITS Plan Workgroup, included representatives of IDOT, CATS, the IDOT ITS Program Office, the Regional Transportation Authority (RTA), the Illinois State Toll Highway Authority (ISTHA) and the Chicago Department of Transportation (CDOT). The workgroup took the most direct role in guiding the work.

1.2 Relation to Other ITS Initiatives

This section relates the ITS Plan Update to several other ITS planning and implementation activities of significance, including the Gary-Chicago-Milwaukee (GCM) ITS Priority Corridor and the Illinois Statewide ITS Strategic Plan and Architecture Technical Assistance Project. This discussion helps to set the context for the ITS Plan Update.

1.2.1 GCM

Initiated in 1993 as one of four national ITS priority corridors, the GCM Corridor has been planned and implemented as a variety of ITS projects and initiatives over a wide area. The 130-mile GCM Corridor area encompasses 16 counties in northwestern Indiana, northeast Illinois and southeast Wisconsin. The six Illinois counties in the area are the same six counties included in the Northeastern Illinois ITS Plan Update: Cook, DuPage, Kane, Lake, McHenry and Will.

The GCM Corridor Coalition, the organization and personnel who direct corridor activities, has prepared three Corridor Program plans (CPP; 1995, 1997 and 2001), and is scheduled to prepare another one in 2005. Through 1997, the corridor had received almost $19 million in federal funds on an 80/20 funding basis, after which earmarked federal funds expired. Since 1997, IDOT has funded about $4 million annually on ITS projects. Other key members of the coalition, namely the Indiana Department of Transportation, the Wisconsin Department of Transportation and ISTHA have spent several million on ITS projects in the corridor area.

The underlying foundation of the GCM Corridor is the Gateway Traveler Information System, a corridor-wide system providing real-time data sharing for agencies and travel information for the traveling public (www.gcmtravel.com). Another major accomplishment has been development of an overall GCM Architecture, plus several sub-regional architectures that identify existing and future technology systems and interactions.

The GCM Corridor Coalition Executive Committee develops program activities through 13 committees and work groups that lead project planning, development and implementation. Three key entities are the Awareness & Communications Group, the Gateway Regional Integration Committee for the Corridor and the ITS Deployment Committee. The GCM has both a Public Information Center Website and a password-

accessible website (GCM Communicator) that provides a wealth of documents describing corridor activities. For example, the "2003/2004 Annual Report: Project Accomplishments & 2005 Targets" lists recent CPP accomplishments and 11 projects that are either on-going or targeted for the near future. Brief project descriptions of these 11 follow.

GATEWAY OPERATIONS AND ENHANCEMENTS
The Gateway Traveler Information system is the hub for the GCM corridor with its purpose being data collection, processing and data distribution. The distributed system is built around a Central Gateway Hub operated by the Illinois DOT (IDOT). The ultimate goal of the Central Gateway Hub is receiving real-time data from, and providing real-time data to Illinois, Indiana and Wisconsin state Gateway Hubs.

CONTINUED PROGRAM MANAGEMENT SUPPORT
The objective of this project is to provide continued management and support of GCM Corridor Coalition activities. Technical and administrative support for various committees, work groups and action teams is included.

PROVIDE COMMUNICATIONS LINKS AT STATE BORDERS
The objective of this project is to establish high-speed communications capacity across both the Wisconsin/ Illinois and the Illinois/Indiana borders. Transmittal of CCTV images and other data are enhanced by this project.

VIRTUAL WEIGH STATIONS
Weigh-in-motion scales (WIMs) used in conjunction with a set of highly focused commercial vehicle enforcement strategies to improve truck weight compliance are the primary objective of this pilot study. Each state's remote virtual weigh station sites will enable their enforcement personnel to screen for excessively loaded trucks without disturbing majority of legal vehicles. Downstream enforcement vehicles will be equipped with computers to provide real time information on suspected vehicles. They will then conduct roadside inspections using certified portable scales.

CORRIDOR-WIDE 511 TRAVELER INFORMATION HOTLINE
The goal of this project is to produce three independent 511 systems that will function as one. This project will provide coordinated 511 services throughout the corridor that are transparent to the user through a unique mix of data sharing, application sharing and call transfer methods.

MULTI-STATE AGREEMENTS FOR COORDINATED VMS MESSAGE POSTING
This project addresses the institutional issues that impede the posting of coordinated variable message sign messages across agency/state lines. The product of this effort will result in an agreement between the GCM agencies to authorize this coordination and a specific set of policies and guidelines to facilitate coordinated message posting.

COORDINATED INCIDENT MANAGEMENT
The objective of this project is to encourage the use of proven incident response strategies and reduce the jurisdictional barriers that can hinder rapid incident response.

CORRIDOR COMMUNICATIONS INFRASTRUCTURE PLAN
This project will develop a master plan for the GCM Corridor communications infrastructure. This plan will be built upon the GCM Corridor System Architecture, which identifies interfaces and data to be exchanged.

MOBILE TECHNOLOGIES TO MEASURE TRAVEL TIME
The objective of this project is to develop a partnership with a private sector firm for the collection of traffic information using non-traditional detection technology, such as cell phones or possibly by using dedicated vehicle-tracking systems. There are a number of companies that have developed strategies for this purpose. This project would develop a partnership with one of these companies and implement the system at one or more locations within the GCM corridor.

CORRIDOR ELECTRONIC DATA ARCHIVAL STRATEGY
This project will identify a strategy for the GCM Corridor for archiving transportation data. Development of the strategy will include: identification of data sources, existing practices, needs and benefits related to data archival. This project also includes the identification of best practices for archiving and retrieving data.

MULTI-STATE RADIO COMMUNICATIONS INTEGRATION/COMPATIBILITY
The intent of this project is to improve the effectiveness of traffic incident management in the GCM Corridor state border regions to reduce traffic congestion, delay and secondary incident risk. The activities envisioned for this project include planning/design or equipment procurement.

The GCM Corridor ties most directly to the ITS Plan Update in two ways. First, the system architecture developed for the corridor has been explicitly incorporated in the Regional ITS Architecture. Since the GCM Architecture was developed in 2001 prior to the Regional ITS Architecture (which completed its initial version in December 2002), it was used as a key input to the creation of the Regional ITS Architecture. The Regional ITS Architecture has been subsequently found to be consistent with National ITS Architecture by the Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) in June of 2003. The Regional ITS Architecture covers elements and interfaces of the GCM Architecture that relate to northeastern Illinois, extending the earlier work by considering additional services such as maintenance and construction operations and providing additional details for the elements, interfaces and information flows. The GCM Corridor is fundamental to planning and implementing ITS throughout the region, forming a cornerstone for interconnecting devices and systems, connecting centers and communicating with various stakeholders.

Second, the GCM Corridor Coalition develops and maintains a list of project needs and directions. While it is not the intent to incorporate every GCM Corridor project in this ITS Plan Update, it is desirable to include the most pertinent efforts. Thus the project list developed in the ITS Plan Update covers some IDOT-led initiatives from the GCM Corridor target list.

1.2.2 Illinois Statewide ITS Strategic Plan and Architecture Technical Assistance Project

The U.S. Department of Transportation has adopted a rule that requires all states and metropolitan areas to develop an ITS Architecture no later than April 8, 2005. One goal of the Illinois Statewide ITS Strategic Plan and Architecture project is to satisfy this federal requirement.

This initiative will prepare a Statewide ITS Strategic Plan and Architecture for Illinois that will incorporate ITS efforts underway or completed throughout Illinois, and identify the affected parties as stakeholders throughout the state. By documenting and understanding the requirements of IDOT and partner agencies, ITS services can be identified and a statewide ITS Concept of Operations developed. This will guide IDOT and its partner agencies in deploying ITS strategies and technologies throughout the state.

A key part of this project is to provide technical assistance to metropolitan planning organizations and IDOT districts throughout the state as they develop Regional Architectures. These architectures will be tailored to local conditions and needs, consistent with the Statewide ITS Architecture.

By mid-2005, the following primary project tasks are scheduled for completion:

1. Collect and Review Relevant Existing Inventory Documentation
2. Conduct Outreach and Stakeholder Participation Activities
3. Develop a Statewide ITS Architecture and Strategic Plan
4. Prepare a Communications Infrastructure Inventory and Assessment
5. Develop a Maintenance Plan for the Statewide and Regional ITS Architectures
6. Provide Technical Assistance in the Development of Regional ITS Architectures

The initial project focus will be on developing the Statewide ITS Architecture, which will then be used by each of the regions beginning in the fall of 2004 as a starting point in developing regional ITS architectures. It is expected that there will be five such Regional Architectures initially, with potentially more later.

Development of the Statewide ITS Strategic Plan began in the summer of 2004 and will. be completed in 2005. The plan will identify short and long-term projects focused on needs. Stakeholder surveys and meetings have been conducted across the state to identify what has been accomplished and to help determine future priorities.

The northeastern Illinois ITS Plan Update parallels the statewide effort in that both are developing project lists, and both deal with ITS architecture to varying extents.

Preliminary discussion has focused on coordinating project lists, with the northeastern Illinois projects treated as inputs to the statewide plan, while recognizing the potential need for feedback between both plans. The northeastern Illinois Regional ITS Architecture may help in developing both the statewide architecture and the new Regional Architectures across the state. By the same token, the statewide architecture effort may suggest needed updates to the northeastern Illinois Regional ITS Architecture.

1.2.3 RTA RTIP

Since the completion of the 1999 SEDP, the RTA has focused on the development of the transit components of the Gateway Architecture and joint development of ITS technologies for transit. To date, individual technologies have demonstrated a range of benefits including operational efficiencies, service improvements and expanded trip planning options. The resultant hierarchy of ITS benefits and outcomes has this principal theme: seamless public transportation, facilitated by a fully integrated multi-modal traveler information system.

RTA's experiences have provided valuable insights into the challenges of implementing a fully capable, ITS-enhanced regional transit system. The key challenges include: size of the RTA system; diversity of modes and operations; rapidly changing technology and technical complexity. In response to these challenges, the RTA adopted the *Regional Transit ITS Plan* (RTIP), as a means of developing a vision and strategic plan for further ITS deployments. With input and participation from the Service Boards and other transportation agencies, the RTIP concluded with a "best case, high impact" ITS deployment scenario by the year 2011. With a focus on projects to incorporate, the RTIP has been used in development of this ITS Plan Update.

1.2.4 ISTHA

ISTHA operates 275 centerline miles of roadway. With the recent approval of a long-range capital improvement plan known as the Congestion-Relief Plan, ISTHA is slated to spend $5.3 billion over the next 10 years to rebuild and restore the entire tollway system, as discussed in Section 4.4. Full-scale ITS deployment along the Tollway is included in ISTHA's master plan. Initial deployment of a traffic management center (TMC) is complete with enhancements planned for the short and medium term. Integration of ISTHA's program in the ITS Plan Update is an important part of regional ITS planning.

1.2.5 Lake County TMC

This project will continue the system implementation of the Lake County TMC. The initial phase will include 250+ traffic signals. Two more phases are planned with automated diversion routes, a link to County Sheriff computer-aided dispatch, a link to the Gateway, and links to municipal TMCs, municipal public safety and County Emergency Operations Center. The ITS Plan Update needs to consider the interrelationship of the Lake County TMC for the regional exchange of data between the Gateway and Lake County.

1.2.6 Chicago TMC

This project will integrate management of traffic signals and traffic systems throughout the City of Chicago. Also included is the integration of CCTV cameras, priority control for CTA buses and links to the IDOT Communications Center to provide arterial traffic information.

Reflection of key elements of the Chicago TMC in the ITS Plan Update ensures that key elements of the region are incorporated as multi-jurisdictional aspects of regional ITS. The aims are improved service reliability, enhanced safety and security, and regional coordination between traffic agencies.

1.3 Role of ITS Standards

1.3.1 Overview

ITS standards establish a common way in which systems and devices connect and communicate with one another. ITS standards are industry-consensus standards that define how ITS system components operate within a consistent framework, the National ITS Architecture. By specifying how systems and components interconnect, the standards promote interoperability, allowing transportation agencies to implement systems that cost-effectively exchange pertinent data and accommodate equipment replacement, system upgrades, and system expansion.

Standards benefit the traveling public by providing products that will function consistently and reliably throughout the region. ITS standards contribute to a safer and more efficient transportation system, facilitate regional interoperability, and promote an innovative and competitive market for transportation products and services. Standards are an important tool that will allow efficient implementation of the Regional ITS Architecture over time. Establishing regional and national standards for exchanging information among ITS systems is important not only from an interoperability point of view, it also reduces risk and cost since the region can select among multiple vendors for deployment products. Standards facilitate deployment of interoperable systems at local, regional, and national levels without impeding innovation as technology advances and new approaches evolve.

For the northeastern Illinois region, the overall goal should be to use tested and proven national standards as much as possible in project planning, development and implementation. In this way, maximum benefits may be realized in terms of minimizing cost, simplifying development and allowing for system and susbsystem interoperability.

The U.S. Department of Transportation's (U.S. DOT) ITS Joint Program Office has been funding the development of ITS standards since 1996 in an extensive, multi-year program of accelerated standards development to strengthen and facilitate the successful deployment of ITS. From its beginning, this standards acceleration program has chosen to support, guide, and reinforce the existing consensus standards efforts in the U.S. by providing funding to existing Standards Development Organizations (SDOs). This "bottoms-up" approach was meant to allow U.S. DOT to leverage significant volunteer

resources and to foster public-private partnerships in the deployment of ITS. The SDOs that are involved in the development of ITS standards are:

- American Association of State Highway and Transportation Officials (AASHTO)
- American Public Transportation Association (APTA)
- American Society for Testing & Materials (ASTM)
- Institute of Electrical and Electronics Engineers (IEEE)
- Institute of Transportation Engineers (ITE)
- National Electrical Manufacturers Association (NEMA)
- Society of Automotive Engineers (SAE)

The overall goal of the U.S. DOT ITS Standards Program has been to promote the widespread deployment of integrated ITS through robust, non-proprietary standards. Through cooperative agreements with the SDOs, the Standards Program is accelerating development of almost 120 non-proprietary, industry-based, consensus ITS standards, and is encouraging public-sector participation in the development process.

Figure 1-1 shows the relation of the ITS standards activities to the National ITS Architecture.

1.3.2 Current Scope and Vision

The following paragraphs are excerpted from the ITS Standards Program 2002 Update.

The ITS Standards Program is the U.S. DOT's primary vehicle for encouraging the use of open interface standards in publicly funded ITS deployments. It is an integral part of the DOT's overall effort to build safe, integrated, and interoperable transportation systems. In the six years since its inception, the Standards Program has grown into a robust and multifaceted program and is regarded as a leading source of ITS standards information and activity for both the domestic and international transportation communities. The Program encompasses five key areas of standards activity: Development, Testing, Deployment, Technical Assistance, and Training and Outreach.

Over the recent past , the program has migrated its focus from standards development to standards deployment, aggressively building up resources—technical assistance, training, and outreach programs—that help state and local deployers implement standards- based ITS. This evolution is essential, given that standards need to be evaluated in real transportation applications if they are to gain widespread use. By focusing on deployment strategies, the program is building upon the intensive standards development activities that took place in preceding years.

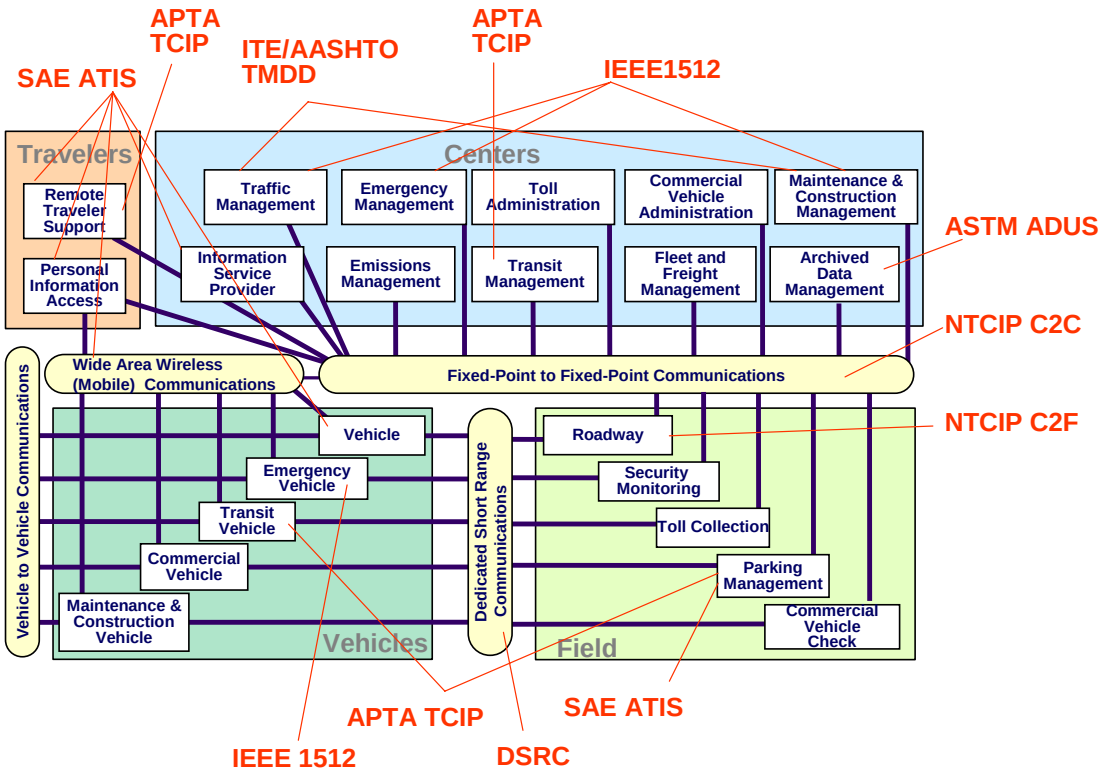

Figure 1-1 Relation of National ITS Architecture to ITS Standards

1.3.3 Development Activities

While the emphasis on standards development has decreased in the past couple years, the U.S. DOT is still actively supporting a wide array of standards development activities. As of November 2004, the U.S. DOT reported the following Table 1-1 statistics on standards development.

While these statistics seem to indicate that ITS standards development is fairly complete, the reality of the situation is far different. Most of the published standards have not been tested, and some of the key ones are undergoing major rewrites as the originally published versions are considered inadequate for use.

Table 1-1 U.S. DOT ITS Standards Status Levels

Status Level	Status Level Description
75 - Published	Standards that are available for purchase.
10 - Approved	Standards that have passed all necessary ballots and have been approved by a standards development organization, but not yet published.
6 – In Ballot	Standards that are being voted upon by a committee or working group, or are undergoing other SDO procedures.
27 - Under Development	Standards that are being written, but are not yet ready for a formal ballot.
Total: 118 Standards	

1.3.4 Standards Development, Deployment, Testing and Technical Support

The ITS Standards Web site (www.standards.its.dot.gov/standards.htm) contains resources and tools that can help deployers learn about and implement standards-based ITS. Among the areas covered on the Web site are general information about ITS standards, testing information, status, standards development information, deployment contacts, training, and deployment assistance. The Standards Contacts Database, a searchable database of standards deployers, is another resource available on the Web site and reflects a new generation of interactive Web site.

The ITS Standards Field Support Team (FST) was launched in April 2002 and now serves as the primary mechanism for delivering ITS standards technical assistance to public agencies. In general, an agency seeking assistance from the FST contacts a Federal Highway Administration (FHWA) Field Office (Division Office or Resource Center). In all cases, the Program attempts to provide the best possible technical assistance, which includes assessing who is best suited to provide the services.

In March 1999 the U.S. Department of Transportation (USDOT) contracted to test ITS standards that have been approved and published, or are currently under development by the SDOs. The purpose of this program was to build confidence in the maturity and quality of the ITS Standards that have been developed. The program hopes to prove that

deploying standards is effective and will lead to interoperability and interchangeability. The program is intended to be an objective assessment and evaluation of deployed, operational systems, with the focus on field test sites as opposed to laboratory testing.

The Standards Program has a wide range of training courses delivered by the Program's training partners, namely the Institute of Transportation Engineers (www.ite.org) and the Transit Standards Consortium (TSC; www.tsconsortium.org).

1.3.5 Standards Conformance

One of the most common misconceptions regarding the USDOT Standards Program is that conformance to ITS standards is mandated by the program. The U.S. DOT has put in place a methodology for requiring conformance to ITS standards in the Final Rule for Architecture and Standards (Rule 940) and the corresponding FTA Final Policy. The Rule/ Policy state that "all ITS projects funded with highway trust funds shall use applicable ITS standards and interoperability tests that have been officially adopted through rulemaking by the DOT".

To date no standards or interoperability tests have been officially adopted. To do so will require a Notice of Proposed Rulemaking, appropriate comment period, followed by issuance of a rule adopting the standard. To date not even the first step has been taken with any standard. The U.S. DOT has stated repeatedly that they will not consider mandating a standard until it is tested and proven in deployments. Currently there are only two standards that even come close to this level of maturity. Some standards could eventually be mandated if the U.S. DOT feels that state and local deployers are not implementing standards that they feel are tested and mature.

1.3.6 Regional Use of Standards

Several agencies in northeastern Illinois have begun using, or are planning to use, national ITS standards. The following sections provide a sampling of these. The overall intent is to continue to design and develop such systems using national standards to the maximum degree possible, with the overall goal of promoting interoperability at minimum cost.

1.3.6.1 GCM Gateway

Initial Implementation of the GCM Gateway

- ITE/AASHTO Traffic Management Data Dictionary (TMDD) and Message Sets for External Traffic Management Center Communications (MS/ETMCC)
- SAE J2354 – Message Sets for Advanced Traveler Information Systems
- SAE J2266 – Location Referencing Message Specification
- CORBA-based NTCIP Center-to-Center (C2C) standard suite (e.g., 2305, 2502.)

Pending Gateway Phase II

- NTCIP 2306 - Web Service Description Language / Simple Object Access Protocol (WSDL/SOAP) Profile
- NTCIP 1204 v2 Object Definitions for Environmental Sensor Stations
- NTCIP 1205 Objects for CCTV Camera Control

- NTCIP 1203 Object Definitions for Dynamic Message Signs (DMS)
- NTCIP 1211 Objects for Signal Control and Prioritization
- NTCIP 1210 v1Objects for Signal System Masters
- SAE J2540-2

1.3.6.2 RTA

All ITS Projects

- NTCIP 1201 Global Object (GO) Definitions
- TCIP 1401 Common Public Transportation (CPT) Objects
- TCIP 1403 Passenger Information (PI) Bus. Area Std.
- NTCIP 2306 Application Profile for XML in ITS Center to Center Communications (AP-C2CXML)
- NTCIP 9010 XML in ITS Center-to-Center Communications

Active Transit Station Signs, Parking Management Guidance System and Kiosk Projects

- NTCIP 1203 Object Definitions for Dynamic Message Signs (DMS)
- NTCIP 2301 AP-STMF

Illinois Transit Hub and BusInfo Projects

- TCIP 1402 Incident Management (IM) Bus. Area Std.
- TCIP 1404 Scheduling/Runcutting (SCH) Bus. Area Std.
- TCIP 1407 Control Center (CC) Objects

1.3.6.3 ISTHA – TIMS and Lake County TMC

GCM Interface

- NTCIP 1104 CORBA Naming Convention Specification
- NTCIP 1105 CORBA Security Service Specification
- NTCIP 2305 AP-CORBA

DMS Interface

- NTCIP 1203 Object Definitions for Dynamic Message Signs (DMS)

Database & IPC format

- ITE/AASHTO Traffic Management Data Dictionary (TMDD)
- SAE J2374 NIST Location Reference Message Specification (LRMS)

In addition for the Lake County Signal System, the following interface standard is being used:

- NTCIP 2306 Application Profile for XML in ITS Center to Center Communications (AP-C2CXML)

2.0 Accomplishments

This section first provides an overview of major ITS in northeastern Illinois. Following that is an assessment of ITS deployment accomplishments, mainly focused on the recommended projects of the 1999 SEDP, and within the context of the Regional ITS Architecture.

2.1 Northeastern Illinois ITS

ITS in northeastern Illinois has a long history covering a wide variety of technologies and applications. Rather than cataloguing an exhaustive list, following is a broad overview.

2.1.1 IDOT Freeway System

The IDOT Traffic Systems Center (TSC) in Oak Park has been in operation for over 40 years. IDOT has actively and continuously incorporated various ITS technologies to the metropolitan area freeways, including:

- over 136 centerline miles with 2,208 detectors and 113 ramp meter locations
- a growing fiber optic communications network connecting the various devices
- almost 50 CCTV cameras at strategic locations
- 28 dynamic message signs
- 9 weather stations
- a recent major upgrade of the TSC, enhancing performance and adding new capabilities.

In addition, IDOT operates the Emergency Traffic patrol (ETP, known as the "Minutemen"), providing over 100,000 expressway motorist assists annually.

2.1.2 Toll Highway Systems

ISTHA operates 274 centerline miles of roadway, of which about 150 miles are in northeastern Illinois. Key ITS features of the Tollway include:

- an optical fiber network on the entire system
- an Automatic Vehicle Identification/Electronic Toll Collection (AVI/ETC) system known as I-PASS, first implemented in 1995
- the Traffic and Incident Management System (TIMS) to manage operations and incidents, integrated with Illinois State Police computer-aided dispatch
- about 400 CCTV cameras, with more being installed (see Section 2.2.2)
- over 100 non-intrusive detectors providing travel time estimates from spot speed measurements (a public-private partnership with Mobility Technologies)
- 14 Road Weather Information System (RWIS) stations, with 11 located in northeastern Illinois.
- queue detection systems to warn drivers of excessive back-ups via DMS at three locations: northbound I-94 at 6 Flags/Great America, westbound I-88 at Farnsworth and on the Edens Spur.

ISTHA is nearly complete in adding I-PASS Only express lanes to 19 barrier toll plazas. In addition the Tollway is implementing "open-road" tolling (no slowing for vehicles equipped with I-PASS; see Table 4-2). Supported by the recent toll hike for non-I-PASS users (double the rate of those with I-PASS), the overall aim is to increase I-PASS use to be the vast majority of tollway users, from approximately 50%.

The I-PASS transponders provide travel time information over lengths of Tollway, typically between toll booths. ISTHA thus has two real-time monitoring sources: I-PASS transponders and the 100 non-intrusive spot speed detectors. Travel time information is fed to the Gateway Traveler Information System described below.

2.1.3 Arterial Systems

Many agencies in the region operate signal systems along major arterials. These agencies include IDOT and the CDOT, plus many of the region's city and county transportation agencies. Most of these signal systems are of the closed loop type with on-street masters interconnected to local intersection controllers. A dial-up telephone connection or a dedicated connection provides communication between the on-street master and a central computer. An exception is CDOT's MIST (Management Information System for Traffic) for controlling about 120 signals in and near downtown Chicago at present. That system requires real-time connections between on-street signals and central MIST servers.

Lake County is currently developing an Advanced Traffic Management System (ATMS) that will include coordinated signal operations along major arterials. Key features include an advanced traffic control system, CCTV cameras and integration with the county sheriff computer-aided dispatch system (see Section 2.2.11 for more information).

2.1.4 Transit Systems and Regional Rideshare System

The Regional Transportation Authority (RTA) and the three component Service Boards (Chicago Transit Authority [CTA], Metra Commuter Rail Division, and Pace Suburban Bus Division) have also been active in the deployment of ITS in the region. The RTA currently operates the transit Travel Information Center that provides phone-in routing assistance to riders. A complementary web-based transit trip planning system was implemented in 1999. The CTA and Pace have deployed Global Positioning System (GPS) equipment and Mobile Data Terminals (MDT) on over 2,000 fixed route vehicles for bus management and automatic location. Ongoing RTA and Service Board ITS projects include:

Illinois Transit Hub (ITH)
Itinerary Planning System (IPS)
Active Transit Station Signs (ATSS)
Bus Arrival Information System (BusInfo)
Parking Management Guidance Systems (PMGS)
Transfer Connection Protection (TCP)
Regional Transit Signal Priority Integration Plan (RTSPIP)
Traveler Information Kiosks

CTA Bus Service Management System (BSMS) and Bus Emergency Communications System (BECS), also known as BusWatch
Pace Intelligent Bus System (IBS)
Metra Train Information Management System (TIMS)

Regional Rideshare System
CATS' Ridematch Systems 21 became operational in the fall of 2003. This real-time, Internet-based system matches individuals with potential carpool or vanpool opportunities based on similarities in participants' commutes to work. The system is operated in conjunction with the Artificial Intelligence Laboratory at the University of Illinois at Chicago and is accessed through www.sharethedrive.org.

2.1.5 GCM Gateway Traveler Information System

The Gateway Traveler Information System is the primary data collection, processing and distribution hub for the GCM Corridor. The system is built around a central Gateway Hub operated by the IDOT ITS Program Office. The Gateway provides both web-based and CORBA-based data distribution interfaces to authorized entities and the public. Following is a summary of key features.

Data Sources
- Traffic/Transit Management Centers
- Emergency Response Centers
- Weather Sensor Systems
- IDOT, Indiana DOT, Wisconsin DOT

Information Provided
- Events: Incident, Construction, Special Events
- Traffic: Travel Time and Congestion Level on Freeways and Tollway
- CCTV Camera: Real-time Snapshots
- Devices: Detectors, DMS Messages, HAR Messages

Communications Equipment and Hardware
- Wide Area Network – Fiber Optic Backbone With Supplemental Connections (e.g., DSL)
- Local Area Network - 100 BaseT Ethernet Network And Dual Fiber Network
- Backend Servers – Sun Servers (Unix); Web Servers – Intel-Based Servers (Linux)
- Front-end Workstations – Intel-based PCs (Windows NT)

Software and Interfaces
- Programming: Java/C++/html/jsp…; Database: Versant/MySql
- Center-to-Center and Internal Inter-Process Communication: CORBA
- Web Server: Tomcat
- External Interfaces: CORBA, XML, Serial & Fax

The traveler information Web site (www.gcmtravel.com) has been very successful with the public, as indicated by the volume of 7 million "hits" in the month of January 2004. A nationally recognized travel Web site, the Gateway envisions expansion into greater interaction with traffic management centers.

Related to the Gateway, IDOT has an extensive Highway Advisory Radio (HAR) system in place with transmitters along the covered expressways. Drivers receive automatically generated travel time information, updated every 5 minutes.

2.2 SEDP Project Status

The 1999 SEDP presented 30 projects, grouped into 20 categories, though some of the categories are themselves actually projects (Table 9-2). Following is a status summary of these.

2.2.1 Fiber Installation

IDOT installs fiber optic cable along all major freeways as opportunities arise with freeway reconstruction. For example, most of the Stevenson Expressway (I-55) had fiber installed with the reconstruction completed in 2001. The ultimate goal is to have fiber in place on all of the approximately 400 centerline miles of IDOT freeway in northeastern Illinois.

On the 274 centerline mile ISTHA system, there is total fiber coverage (48-strand). ISTHA shares fiber with the Gateway and Lake County by written agreement. In the near future, Lake County will share just over 100 miles of fiber of other agencies (ISTHA, IDOT and Cook County), plus will have 38 miles of county-owned fiber.

The CTA system has fiber coverage on its entire rapid transit system as well as connections to all maintenance facilities. The CTA has thus made significant progress since 1999 on its wire line communications system.

2.2.2 CCTV Surveillance

IDOT currently has 40-50 CCTV cameras along its freeways, with an ultimate goal of about 400+ cameras (spaced every mile or closer depending on site conditions). ISTHA has about 120 cameras for road coverage near toll plazas, plus about 280 security cameras. The long-range Tollway vision is for a camera about every mile. An additional 30 cameras are slated for installation by the end of 2005, with another 15 to be relocated.

Lake County will soon have CCTV cameras at 29 intersections as a part of their traffic management center development. Similarly, by mid-2005, the Chicago Department of Transportation (CDOT) will have about 17 cameras installed on Cicero Avenue near Midway Airport and Pulaski Road in the same vicinity, plus almost 60 cameras at various other locations. In coordination with the Office of Emergency Management and Communications (OEMC), there are approximately 100 CCTV cameras viewable at CDOT's traffic signal control room at 30 N. LaSalle Street (75 CDOT and 25 OEMC).

The long-range plan is for 2,000 additional cameras, with about 250 funded for implementation by 2006.

The transit agencies have also installed CCTV for surveillance at rail stations and on board buses for transit security. Four (4) CTA rail stations, the CTA bus fleet and 183 Pace buses are currently equipped with CCTV.

2.2.3 DMS Deployment

By the end of 2005, IDOT will have about 28 Dynamic Message Sign (DMS) on freeways inbound towards downtown Chicago, with plans for future outbound signs. The ISTHA system will have 33 DMS by the mid-summer of 2005. The Tollway has 17 portable changeable message signs, with another 10 due by mid-summer 2005. Both IDOT and ISTHA DMS typically have CCTV cameras located nearby. Both agencies are working on cross-border shared use of DMS with Indiana and Wisconsin.

By fall of 2005, CDOT will have two arterial DMS installed as a part of the Cicero Avenue Smart Corridor. A DMS at Lake Shore drive and 23rd Street is also being placed. CDOT is considering procuring about 20 additional DMS, some of which may attach to existing street light poles. The department also has 25 trailer portable DMS. Lake County similarly will have three portable DMS integrated into new county ATMS.

2.2.4 Parking Management Guidance System Pilot

The RTA Parking Management Guidance System Pilot project is being implemented in conjunction with Metra, and the Villages of Tinley Park and Mokena at the 80th Avenue stations of the Rock Island District commuter rail line. Based on performance and evaluation results, the demonstration system may be expanded to other locations as identified in the feasibility study completed in 2000.

2.2.5 CDOT Data Pipeline

The CDOT Data Pipeline project is dependent on deployment of the Chicago Traffic Management Center (CTMC). Phase II design of the CTMC likely will begin in 2005.

2.2.6 Intelligent Transit Vehicles and Systems

The CTA Bus Emergency Communications System (BECS) has instrumented over 1,500 buses with GPS and MDTs that provide Automatic Vehicle Location (AVL), polling buses every 10 to 20 minutes, plus emergency alarms. Bus run information is downloaded anytime a bus pulls into a garage. The Bus Services Management System, intended to provide real-time scheduling and monitoring, has been renamed the BusWatch system. CTA has CCTV cameras on all buses mainly for security.

Related to the above, Metra has a Train Information Management System that uses GPS devices to monitor all trains. This monitoring allows Metra to keep track of train activity, automatically generating audio messages that are provided to on-board riders regarding service disruptions. Metra conductors are also linked to provide further voice announcements.

2.2.7 Pace Intelligent Bus System

The initial implementation of the Pace Intelligent Bus System (IBS) is complete as of the spring of 2005. Key features are AVL/GPS on every bus, Computer Aided Dispatch (CAD) and Schedule/Route Adherence (SRA) information dissemination, tying to the Pace Hub in Arlington Heights. The WebWatch project is coming on-line currently and will allow riders to monitor bus arrivals based on 1-2 minute polling via the Web. Various enhancements to the IBS are planned, with the aim of tying it to the Illinois Transit Hub.

2.2.8 Paratransit Management System

Pace is still in the development phase for the Paratransit Management System. This system will use scheduling software to support ADA paratransit and dial-a-ride service, plus MDTs and AVL/GPS equipment on vehicles.

2.2.9 Gateway Completion

The initial Gateway implementation is complete, providing a variety of traveler information via both web site and CORBA services: freeway congestion and travel times, vehicle detector data, incident and construction information primarily. Password-protected data distribution provides more detailed and sensitive incident and other information to operating agencies and authorized individuals.

Current efforts aim to provide better connections toWisconsin using ISTHA fiber, improved interfaces with external systems and enhancements to overall system performance.

Scoping of the next Gateway phase, with an overall goal of interconnecting several centers, is underway. Other goals are to enhance the Gateway technical platform to keep up with information technology advancement, and to improve Gateway service by integration with additional systems. Among enhancements under consideration are: an upgrade of existing XML based data distribution to full fledged web services; improved Gateway geographical coverage; data archiving and historical traveler information services; and enhanced interfaces/integration with other ITS systems such as 511, the Illinois Transit Hub and ETP vehicles with AVL/MDT capability.

2.2.10 Development of Illinois Transit Hub

For the RTA and the Service Boards, the entry point to the GCM Gateway is a parallel feeder system known as the Illinois Transit Hub (ITH). Currently, RTA has an on-line Itinerary Planning System (IPS) that allows riders to determine transit route/schedule via the Web using static schedule information. The ITH will integrate regional transit service, routes, schedule and travel time information to the Gateway using real-time data. Designed to function as the central collection and distribution point for regional transit information, the ITH is both an internal and external communication system for multi-modal operations, emergency services, system management and information services. The ITH functionality is dependent upon virtually all of the currently underway and planned transit technologies in the region.

2.2.11 Development of Traffic Management Centers (TMCs)

ISTHA TIMS
The base implementation of ISTHA's Traffic and Incident Management System (TIMS) is complete. The TIMS, located at ISTHA's headquarters in Downers Grove, provides an Advanced Transportation Management System (ATMS) integrated with Illinois State Police District 15 Computer Aided Dispatch (CAD). The CAD handles District 15 police, maintenance units and HELP (vehicle aid) vehicles, as well as fire and emergency services. The CAD is located on the floor below the TIMS in the Downer's Grove complex. The TIMS monitors traffic flows via detectors and CCTV cameras and controls ISTHA DMS. It also automatically generates incident response plans and DMS messages for operator review prior to implementation.

CDOT TMC
The City of Chicago has completed a Phase I study for its traffic management center (Chicago TMC, or CTMC), and Phase II design is likely to begin sometime in 2005. Currently major emergency management, which typically involves traffic, operates out of the Office of Emergency Management and Communications 911 Center, located just west of downtown. It is expected that the CTMC and the 911 Center will integrate operations and communications to some degree. It can be noted that at present, CDOT operates a "mini-TMC" out of its Traffic Control Room (30 N. LaSalle Street), which will be expanded as needed until a more permanent facility is built.

Lake County TMC
As part of a comprehensive seven year ITS implementation plan, Lake County is currently deploying a TMC, focusing on arterial operations in the county, in coordination with IDOT and ISTHA. Under construction in Libertyville at the Division of Transportation, the Lake County TMC will have a video wall and consoles that link to arterial traffic signal systems, CCTV cameras and HAR equipment via fiber optic cable. Near-term pending work includes central signal system upgrade, traffic signal controller improvements and signal timing plan development. Arterial diversion routing during incidents will be suggested by central software, and the system will link to the Lake County Sheriff CAD system. IDOT will have access to the ATMS and will likely station an employee on-site. Lake County will receive and post ISTHA travel information to the Gateway. Supporting the effort, intergovernmental agreements are in place with IDOT, ISTHA, and the ETSB, and local municipalities are expected to join the county program over the next few years. The county ITS plan includes staging of ITS communications.

Other County TMCs
Other counties are in various stages of development of TMCs. DuPage County expects to undertake a feasibility study of the purpose and function of its Transportation Coordination Initiative, which may or may not become a TMC. Will County will conduct a TMC feasibility/conceptual design study, possibly collocating at its Emergency Operations Center in Joliet. A TMC is a future consideration for Cook, Kane and Will Counties. Cook County may collocate at the Chicago TMC or an IDOT facility, or may be stand alone.

2.2.12 Expansion of Cicero Smart Corridor

By the fall of 2005, the City of Chicago will have deployed its initial implementation on Cicero Avenue involving fiber optic interconnect of 19 traffic signals on and crossing Cicero Avenue near Midway Airport. Also included are seven CCTV cameras and two arterial DMS. The signals will operate as a channel on the city MIST system, with local control at an airport workstation and from downtown Chicago via CTA Orange Line fiber. The initial deployment will use traffic responsive signal control, and will have links to the nearby Pulaski Road and Central Avenue interconnect projects as well as the Midway Airport Area Enhanced Traveler Information/Highway Advisory Radio Upgrade Project when they are completed.

2.2.13 Interagency Signal Coordination

Interagency Signal Coordination generally is an on-going activity between agencies, notably IDOT with local cities and counties. Multi-jurisdictional signal interconnect projects have been deployed on St. Charles Road in Elmhurst, Villa Park and Lombard; and on 75th Street in Naperville involving Naperville, DuPage County and IDOT. The Lake County TMC project may serve as a prototype for signal coordination, since IDOT and the county are currently developing a base interagency agreement and working out operational specifics.

Pace Suburban bus is spearheading an effort to recognize the relationship between traffic signal coordination, transit signal priority and emergency signal preemption, in order to efficiently plan for reliable emergency response and bus service and improved person throughput on the regional arterial system. The Transit Signal Priority Working Group is moving toward a regional understanding of the interrelationships among traffic operators, transit operators and emergency responders that provide service on the arterial system. As these relationships emerge, it is becoming apparent that there is a need for a regional oversight policy/plan for arterial technology that will ensure proper service to the users of the arterial system and help in the more efficient deployment of technology.

2.2.14 Integrated Corridors – Pilot and Deployment

This concept involves traditional expressway management functions integrated with arterial traffic signal and incident management. To date, no pilot or deployment projects have taken place.

2.2.15 Advance Transit Signaling

This project would involve use of an additional signal timing phase and by-pass lane to allow transit vehicles to pull out first when a traffic signal turns green. Originally identified as a CDOT effort, current program activities under the RTA's Regional Transit Signal Priority (TSP, next section) Implementation Plan are investigating the feasibility of these types of operations as part of TSP planning in cooperation with CDOT, IDOT and the six counties. To date, no pilot or deployment projects have taken place.

2.2.16 Transit Signal Priority (TSP)

The RTA is coordinating a Regional Transit Signal Priority (TSP) Integration Plan to guide the deployment of TSP systems for improved bus service and operating efficiencies. The approach involves a multi-year program to identify priority transit routes and corridors and assess operational impacts through both model simulation and field demonstrations. To date, the RTA has completed a regional Traffic Signal Inventory, a Location Study and a Model Simulation Study. An initial test implementation on Cermak Road in Chicago is operational.

RTA along with its transit operators, Pace and CTA, are planning TSP Deployment in the region. TSP is a main component of Arterial Bus Rapid Transit Initiatives of the region. As part of these initiatives, Pace is planning a TSP deployment and demonstration along Halsted Street in Harvey, and CTA likewise is planning a similar demonstration along Western Avenue in Chicago. It is expected that the experiences from these demonstration projects will help in developing TSP standards and in formulating a technology oversight policy/plan for the region.

2.2.17 Arterial Incident Management (Lake-Cook Road)

A feasibility study of this concept, led by Cook County, has been completed covering incident detection and management plus traveler information along Lake-Cook Road. Design work for implementation is pending.

2.2.18 Regional Kiosk

Kiosks, or Traveler Information Kiosks, were identified as a promising technology for distributing 'en-route' and 'pre-trip' traveler information. Customer surveys and focus groups conducted by the RTA over the last few years support the development and implementation of a regional kiosk system. The RTA has implemented a pilot deployment at six host sites in Chicago, from which operational experience and design refinements will be evaluated. Kiosks are available at the Chicago Cultural Center, Navy Pier, Pace Headquarters, Palmer House Hilton, Regional Transportation Authority (RTA) Customer Service Center, Shedd Aquarium, Union Station, and Westfield Northbridge Shopping Mall. Other agencies and content providers, as facilitated through the Regional ITS Architecture will be integrated in the future. The kiosks will ultimately connect to the ITH.

2.2.19 Active Transit Signing

This project has been renamed Active Transit Station Signs (ATSS) consistent with the established GCM architecture and ITH subsystem. This traveler information effort aims to deploy variable message signs that display "next transit vehicle" arrival times at major stops, rail stations and transfer centers. An initial design covering aspects such as display technologies, mounting and ADA requirements has been completed. In coordination with the CTA, IDOT and the Chicago Department of Aviation, the RTA has deployed a total of 33 signs at Midway and O'Hare airports, CTA Blue and Orange line terminals and the Cumberland and Davis Street intermediate rail stations. The Regional Bus Arrival Information System, referred to as BusInfo, is another ITH subsystem. Similar to the ATSS program, this initiative undertaken in partnership with the Service Boards is

designed to test the integration of bus management with traveler information systems. The RTA is currently testing integrated messaging functionality for bus and rail. Further deployment by CTA, Pace and Metra is pending test performance and evaluation.

2.2.20 Travel Information Archive

The concept of this project is to create an electronic archive of traffic conditions on the entire GCM Corridor, for use in a variety of planning, traffic and incident management tasks. To date, only general concepts have been discussed, with further definition and implementation likely to be included in the next phase of Gateway development.

In a similar effort, the RTA has deployed a web-based Regional Transit Asset Management System (RTAMS) that serves as the transit archive for the region, located at http://rtams.rtachicago.com. RTAMS is an interactive web site for retrieving planning and financial information on the transportation system in northeastern Illinois. The system allows users to search and cross-reference various datasets, including geographic inventories of transportation assets and transit services, asset/service utilization results, capital projects, planning studies, transit sales tax revenues, and political jurisdictions. The system is currently used by partner planning agencies and some transportation advocacy groups to facilitate regional planning efforts. The RTA is coordinating with the GCM Corridor Coalition on the ultimate design for regional users and contributors.

As part of a contract with the ISTHA and the FHWA, Mobility Technologies has developed a Sensor Information Management System. This system provides public agencies with access to real-time sensor data collected from the Mobility Technologies network of roadside sensors deployed along the ISTHA facilities. These data are combined with information from the IDOT Traffic Systems Center, resulting in a reporting system for northeastern Illinois expressways and the Tollway.

2.2.21 Other Observations

A few observations on trends and possible ITS directions can be made, based on contacts with regional stakeholders as a part of this update plan (see Section 4). These observations may help frame ideas for future projects, as follows:

- Many agencies are implementing AVL/GPS tracking of maintenance, police and transit vehicles, including ISTHA, CTA, Pace, the Illinois State Police and CDOT. Kane County has GPS on all of its maintenance vehicles (snow plows, dump trucks, administration trucks). Vehicle tracking of I-PASS transponders offers another rich source of information. As these real-time data sources multiply, several potential applications to better monitor and manage traffic can be imagined, at relatively low cost.
- Incident detection today is greatly supported by cell phone calls, given the pervasive presence of cell phones among the traveling public. While posing challenges to Public Safety Answering Points (PSAP) to quickly sort through usually a large number of calls, cell phones are another valuable source of real-time traffic information, particularly as automatic cell phone location becomes a reality.

- Emergency vehicle preemption of traffic signals is now widespread in many suburban areas, though not in the City of Chicago proper. This highlights the importance of emergency services and management on the surface street system.

2.3 Summary

As can be seen, there has been significant progress in implementing some aspects of ITS in northeastern Illinois since completion of the 1999 SEDP. Many of the recommended projects have been deployed or are close, or are in the middle of long-term implementation schedules. Nearly half of the project categories, however, have not been implemented. This may be attributable to the less than ideal environment for transportation project funding in general over the past few years, particularly in light of the events of September 11, 2001.

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3.0 Regional ITS Vision and Major Goals

In an effort to provide continuing policy direction for the deployment of technologies, this plan has considered previous statements of northeastern Illinois ITS vision and goals, and revised these statements based on experiences of ITS stakeholders over the past several years.

3.1 Regional ITS Vision

The current vision statement for the northeastern Illinois Intelligent Transportation system is to:

Use advanced technologies (including computer, electronic, and communications devices) to share information to improve the operation, management and use of the region's transportation system in order to provide safer, more accessible, more reliable, and more secure roadway and transit services to our customers.

3.2 Major Goals

A review of the 1999 SEDP vision, desired outcomes (which are effectively goals) and family of actions or program areas was performed by the ITS Plan Work Group. The following list of 16 Major Goals was developed primarily based on the desired outcomes section of the 1999 SEDP. A one-page synopsis of the 1999 SEDP visioning process is presented in Appendix 1.

Use ITS to build, operate, maintain and manage a regional multimodal transportation system and to provide services that are:

Informed - to provide quality, reliable, real-time, multi-modal information on the condition and performance of the transportation system to users and operators.

Seamless - to ensure that the users' travel experience is minimally affected by changes in mode, time, location, operator or other aspects of the facilities or services used.

Reliable - to provide transportation services that meet or exceed users' expectations.

Secure - to provide transportation services that consider and enhance the personal security of the user, to minimize and mitigate the jeopardy and risk to the user.

Safe - to reduce accidents through system operation and management, operator training, and public awareness.

Effective - to meet peak travel demands and provide alternate travel options to help minimize the travel times of users.

Predictable - to accommodate and support alternative travel options with few if any surprises should random events result in non-recurrent congestion or delay.

User-friendly - to make information about the system readily available and accessible to users.

Valued - to provide affordable and good value in transportation services.

Cost-effective - to deploy and operate ITS where the benefits exceed the costs.

Equitable - to provide transportation services that are consistently available to all users.

Efficient - to provide transportation services and systems that help match transport supply and demand.

Positive Image - to present a positive image as an understandable, secure, and well-run transportation system.

Performance-based - to develop and utilize meaningful performance measures to evaluate and improve transportation services.

Accessible - to provide transportation services that meet the travel needs of customers with physical limitations and that do not limit their travel options.

Customer Service-oriented - to implement all of these goals in order to provide a transportation system that reflects the needs of the customers.

3.3 Relating the ITS Plan Update to the Regional Transportation Plan

The 1999 SEDP and the ITS Plan Update are designed as a support document for the *CATS' 2030 Regional Transportation Plan* (CATS RTP). The ITS planning policies and project listing feed directly into the CATS RTP, Regional Transportation Strategy area: Management and Operations. The following text from the CATS RTP clarifies this relationship.

> ***Intelligent Transportation Systems (ITS)***
>
> *Extensive deployment of highway-based elements of ITS communications and management strategies can be achieved during major highway maintenance and reconstruction. In addition, interjurisidictional coordination and information, particularly ITS traffic management centers and rapid response incident management, can be used to maintain regional mobility during major maintenance and reconstruction work.*
>
> *The RTP supports inclusion of current and anticipated ITS technology as part of highway maintenance and reconstruction projects.*

A mapping of goals and objectives from the CATS RTP to ITS has been developed in order to clarify planning relationships. The primary focus of ITS initiatives falls under the "Maintain the Integrity of the Existing Transportation System" goal and various "Transportation Management and Operations" objectives of the CATS RTP. ITS initiatives serve regional management and operations strategies, and as a result provide benefit under many CATS RTP objectives and goals. A full mapping of this relationship is provided in Appendix 1.

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4.0 Planning Project List

This section presents the planning project list developed for the plan update. The list is the result of review and input from a number of sources, particularly the ITS stakeholders throughout the region.

4.1 Stakeholder Meetings

Both to clarify the status of ITS in the region and to solicit input on new projects, a series of stakeholder meetings were held between late July and late October, 2004. In addition to introducing participants to the plan update, stakeholders were given an overview of the Regional ITS Architecture. Next, previous and recently identified projects and project concepts were presented, with the aim of gathering input and better defining stakeholder needs and wants. Sources of prior projects and concepts included the 1999 SEDP, the Regional ITS Architecture document, the Congestion Management and Air Quality (CMAQ) Program, the Transportation Improvement Program (TIP) and the IDOT ITS Program Office. Stakeholders were then given the opportunity to describe their ITS efforts to date as well as their future plans.

Table 4-1 lists dates and participants in the stakeholder meetings. Appendix 2 contains the minutes of all 11 meetings.

4.2 ITS Planning Project List

Based mainly on the stakeholder inputs, a new ITS planning project list has been prepared, as presented in Table 4-2. A total of 100 projects are proposed, ranging in size from small actions at low cost to multi-million dollar efforts.

The projects are presented in Lead Agency groups, as follows:

- CDOT
- County (Cook, DuPage, Kane, Lake, McHenry and Will)
- IDOT
- ISTHA
- Transit: RTA, CTA, Metra and Pace

Table 4-1 ITS Deployment Plan Stakeholder Meetings

DATE	LOCATION	PARTICIPANTS
July 21, 2004	DuPage County Government Center, Wheaton	DuPage County DOT, City of Naperville, DuPage Mayors & Managers Conference, Kane County DOT, Pace
July 21, 2004	ISTHA Administration Bldng, Downers Grove	ISTHA
July 22, 2004	Will County Emergency Operations Center, Joliet	Various emergency service providers, Will County DOT (regular meeting of the Southwest Area Regional Incident Management team, SWARIM)
July 22, 2004	Chicago Dept. of Transportation	CDOT Bureau of Traffic, Chicago Bureau of Electricity, Cook County Highway Department, IDOT ITS Program Office
July 28, 2004	CTA Offices, Chicago	CTA
July 29, 2004	Pace Offices, Arlington Heights	Pace
July 29, 2004	Lake County DOT, Libertyville	Lake County DOT, Lake County Radio, Lake County Maintenance, McHenry County Highway Department
September 27, 2004	RTA Offices, Chicago	RTA
October 14, 2004	IDOT ITS Program Office, Schaumburg	IDOT ITS Office, IDOT District 1 Traffic, IDOT District 1 IT, IDOT District 1 Comm. Center, IDOT Traffic Systems Center, IDOT District 1 Electrical Operations, University of Illinois at Chicago (Gateway consultants)
October 15, 2004 (Session 1)	Metra Offices, Chicago	Metra
October 28, 2004 (Session 2)	Metra Offices, Chicago	Metra

All meetings also attended by CATS Project Manager and the consultant team.
See Appendix 2 for meeting minutes with complete list of participants.

Table 4-2 Planning Project List - ITS Deployment Plan for Northeastern Illinois

(1) **Plan Categories**: Com - Communications Projects Traf Mgt/Sfty - Traffic Management/Safety
Emerg/IM/HS - Emergency/Incident Management/Homeland Security Transit - Transit/Transit Management
ATIS - Advanced Traveler Information Systems Maint Con - Maintenance & Construction
CVO - Commercial Vehicle Operations/CVISN Other - Archived Data, Planning, Demo, Research & VII

(2) **Market Package Service Areas**: ATMS – Advanced Traffic Management Systems APTS – Advanced Public Transportation Systems
ATIS – Advanced Traveler Information Systems AVSS – Advanced Vehicle Safety Systems CVO – Commercial Vehicle Operations
EM – Emergency Management AD - Archived Data MC – Maintenance and Construction Management

(3) **Funding Sources:**
CMAQ - Congestion Mitigation and Air Quality
DIPT - Illinois Department of Intermodal and Public Transportation
IDOT-IDOT Bond, General Revenue or other
ISTHA CRP - ISTHA Congestion Relief Plan
MFT - Motor Fuel Tax
RTA - Regional Transportation Authority
TCSP - Transportation and Community System Preservation
DHS - Department of Homeland Security
FTA - Federal Transit Administration
ITS- Intelligent Transportation Systems Deployment Incentive Program
Local - Agency capital
NHS - National Highway System
STPL - Surface Transportation Program-Locally Funded
UWP - (CATS) Unified Work Program

(4) **Time Frames:** Short - 2004 to 2005 Mid - 2006 to 2009 Long - 2010+

NO.	NAME	DESCRIPTION	PLAN CATEGORY (1)	MARKET PACKAGES (2)	COST (Thousands) DEPLOYMENT	COST (Thousands) Notes	ANNUAL O & M COST (Thousands)	ANNUAL STAFFING COST (Thousands)	LEAD AGENCY	FUNDING SOURCE(S) IF SECURED (3)	FUNDING GAP (Thousands)	DEPLOYMENT TIME FRAME (4)
	CDOT											
1	CDOT Data Pipeline	Provide connectivity from Daley center to IDOT-CTIC and Gateway servers at ITS Program Office. Will include fiber along CTA Blue Line and Tollway to the IDOT office.	Com		$975		$98		CDOT		$975	Mid
2	Chicago TMC	Design and implementation of city traffic management center & hub w/interfaces to 911 Center, NE IL Gateway. CMAQ ID #01-99-0014. Covers traffic management, traveler information, emergency/incident management.	Traf Mgt	ATMS01, ATMS03, ATMS06, ATMS07, ATMS08, ATMS13	$14,916		$1,492	$1,600	CDOT	CMAQ		Phase II design starts 2005.
3	O'Hare Airport Satellite TMC	Implementation of additional vehicle monitoring equipment and improved integration with other TMCs.	Traf Mgt	ATMS01, ATMS03, ATMS06, ATMS07, ATMS08	$1,000	May be staffed at Chicago TMC.	$100	$125	CDOT		$1,000	Mid
4	Cicero Ave Smart Corridor ATMS with Midway Airport Satellite Traffic Mgt Ctr	Corridor signals from I-55 to Marquette to be interconnected with a fiber backbone. Includes 7 CCTVs, 2 DMSs and system detectors. Ph I uses traffic responsive control. Links to Pulaski & Central Smart Corridors and Cicero ATIS. Ph II to use traffic adaptive control. Future enhancements may make this a test bed for multiple ITS technologies.	Traf Mgt	ATMS01, ATMS03, ATMS06, ATMS07, ATMS08	$4,100	Deploy $2,600 for Phase I and $1,500 for Phase II. O&M $160 for Phase I & $100 for Phase II May be staffed at Chicago TMC.	$260	$125	CDOT	CMAQ, STPL, ITS		Ph I using traffic responsive control by mid-2005 Phase II-Mid
5	Cicero Ave Smart Corridor ATIS	HAR upgrade/RR notification, enhanced traveler information kiosks, Dynamic Message Signs, a combination of 4 projects.	ATIS	ATMS06, ATMS13, ATIS2	$2,200		$220		CDOT	CMAQ, ITS, STPL		Mid
6	CDOT Smart Corridors on: Pulaski Road, Western Ave.,Archer/55th, Central Ave., Ashland, Michigan/Indiana, 87th St., 95th St. Sheridan/Broadway, Congress Parkway, Cicero (I-290 to Peterson).	Arterial traffic management utilizing fiber interconnected signals, CCTVs vehicle detector stations and/or VMS. Future consideration for RWIS and environmental sensors.	Traf Mgt	ATMS01, ATMS03, ATMS06, ATMS13, ATIS2	$22,240		$2,224		CDOT		$22,240	Listed corridors are for Short Range. City plans to build 3-5 corridors/year for the next 15 years.

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7	Museum Campus Transportation System	Use portable VMS and CCTV for parking and special events management including facilities from McCormick Place to Navy Pier	ATIS	ATMS06, ATMS08, ATMS17	$1,513		$151		CDOT		$1,513	Short
8	Chicago HTMS	Highway Traffic Monitoring System (HTMS) to count traffic at 30-33 locations throughout Chicago.	Other	AD1	$370		$37		CDOT		$370	Short
9	CDOT Red-light Camera Enforcement Program	Approximately 5 percent (100-200) of traffic signals will be monitored by red-light running cameras with automated process to ticket violators.	Sfty	ATMS22 (not part of the Market Package of the National ITS Architecture)	$5,000	20 have been installed, another 10 have been funded, @$750.	$500		CDOT	Local; $750k funded, remainder unfunded.	$4,250	Mid
10	CDOT Field Devices	Addition of CCTV cameras at 2,000 locations across the city. 20 Portable DMS.	Traf Mgt	ATMS01, ATMS03, ATMS08, MC03			$0		CDOT		$30,800	250 by 2006. Remainder - Long
11	City of Chicago Interconnects	Coordination of signals on city of Chicago arterials. May include signal timing across municipal and county boundaries. May expand regional communications network.	Traf Mgt	ATMS03, ATMS07	$66,600	Deployment costs for 5 years per TIP	$6,660		CDOT	CMAQ, IDOT		Short to Mid
12	CDOT Fleet AVL	GPS for asphalt paving trucks and snow plows.	Maint Con	MC01	$1,000		$100		CDOT		$1,000	Mid
13	Chicago Skyway Travel Monitoring and Integration with IDOT Gateway	Through vehicle detection generate real-time travel time data that would be sent to the Chicago TMC and integrated in the IDOT/GCM regional expressway/tollway travel time maps. Monitoring would require placement of detection devices at 1/2 mile intervals	ATIS	ATMS01, ATIS1	$750		$75		Private		$750	Mid
14	US 41 Lake Shore Drive Surveillance and Information System	Dynamic Message Signs on US 41 Lake Shore Drive (LSD) from Hollywood Ave to 57th St; may use portable signs. Also, traffic monitoring & CCTV surveillance, Hollywood to Randolph & 23rd to 57th Street.	ATIS	ATMS01, ATMS06	$8,685		$869		CDOT	CMAQ		Short

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15	Chicago Truck Route Advisory System	Provide an interactive web page for truck route decision-making aimed at clearances, route restrictions, weight limits and special permits. Future expansion would add street closures and special events.	CVO	ATIS6	$320		$32		CDOT	CMAQ		Mid
16	Chicago Special Event Advisory System	Potentially integrated into Chicago Truck Route Advisory System, would add shuttle and parking information. Information would be accessed on the City of Chicago web site.	ATIS	ATIS2	$420		$42		CDOT	CMAQ		Mid
17	Chicago Arterial Congestion Advisory System	Provide real-time congestion and travel time information on the surface street system via City of Chicago web site. Network surveillance will use detection of smart corridor and closed loop signal systems.	ATIS	ATIS1	$600		$60		CDOT		$600	Mid
18	Parking Information Projects	Provide real-time parking and traveler information for Navy-pier and Grant Park/ Millenium park.	ATIS	ATMS16	$8,000	Navy pier- $3,300 Grant Park/ Millenium Park - $4,700	$800		CDOT	CMAQ		Mid
SUB-TOTAL					$138,689		$13,719				$63,498	
	COUNTY - COOK, DUPAGE, KANE, LAKE, MCHENRY & WILL											
19	Cook County Traffic Management Center	Centered in Schaumburg, initally covering northern Cook County. May collocate with CDOT or IDOT TMC, or stand alone.	Traf Mgt	ATMS01, ATMS03, ATMS06, ATMS07, ATMS08	$1,000	Covers hardware and software, not TMC building.	$100	$250	COOK		$1,000	Long
20	Cook County - Lake Cook Travel Demonstration	Travel demonstration study coordinated with Northwestern University, including arterial incident management and enhanced traveler information. May also use transponders, cell phone, GPS or license plate readers for arterial perfformance monitoring.	Other	ATMS01, ATMS02, ATMS08, ATIS1	$675		$68		COOK	CMAQ		Short

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21	Cook County Field Devices	Emergency vehicle preemption (EVP), video image detection for side streets, arterial DMS and arterial performance monitoring (developed in Lake Cook Travel Demonstration project).	Traf Mgt	ATMS01, ATMS06, EM02	$750	EVP typically funded by emergency responders.	$75		COOK		$750	Mid
22	Cook County Fleet AVL	GPS tracking for asphalt paving vehicles and snow plows.	Maint Con	MC01	$1,000		$100		COOK		$1,000	Mid
23	Cook County Signal Interconnects	Coordination of signals on county highways. May include signal timing across municipal and county boundaries. May expand regional communications network.	Traf Mgt	ATMS07	$2,500	Deployment costs for 5 years at $500/year.	$250		COOK	CMAQ, MFT		Short to Mid
24	DuPage County Transportation Coordination Initiative (TCI)	Coordinated operations throughout the county, including signal coordination, transit signal priority, traveler information, and incident management leading to specific demo projects. Initial effort is feasibility/scoping study.	Traf Mgt	ATMS01, ATMS03, ATMS06, ATMS07, ATMS08, ATIS1, APTS7	$500	$250 for feasibility study and $250 for prototype projects	$50	$250	DUPAGE	CMAQ for feasibility/demo, STP-L for prototype projects		Short for feasibility study. Mid for prototype projects.
25	DuPage Emergency Management and Signal Preemption	Plan, implement, operate, maintain and monitor coordinated signal preemption system across county for state, county and municipal systems. Consider interface with Glendale Heights EOC.	Emerg	ATMS07, EM02	$634		$63		DUPAGE	ITS		Mid
26	DuPage County Paratransit Coordination	Feasibility study of implementing centralized coordination of local paratransit services	Transit	APTS3, APTS7, APTS5	$100		$10		DUPAGE		$100	Short
27	DuPage County Signal Interconnects	Coordination of signals on county highways. May include signal timing across municipal and county boundaries. May expand regional communications network.	Traf Mgt	ATMS07	$650	Deployment costs for 5 years per TIP	$65		DUPAGE	CMAQ, MFT		Short to Mid
28	Kane County Traffic Management Center	Design and implementation of county TMC with interfaces to traffic management, fleet management and incident management. May locate in existing building.	Traf Mgt	ATMS01, ATMS03, ATMS06, ATMS07, ATMS08	$3,200	Likely will begin with feasibility study.	$320	$250	KANE		$3,200	Short for feasibility study. Mid for center deployment.

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			(1)	(2)	DEPLOYMENT	Notes				(3)		(4)
29	Kane County Field Devices	RWIS, emergency vehicle preemption, DMS and CCTV.	Traf Mgt	ATMS01, ATMS06, EM02, MC03	$500		$50		KANE	STPL		Mid
30	Kane County Signal Interconnects	Coordination of signals on county highways. May include signal timing across municipal and county boundaries. May expand regional communications network.	Traf Mgt	ATMS03, ATMS07	$2,500	Deployment costs for 5 years at $500/year.	$250		KANE	CMAQ, STPL		Short to Mid
31	Lake County Traffic Management Center	Full build out of Lake County TMC. Initial Phase 1a will be ~ 140 signals, two more phases planned, with automated diversion routes, link to County Sheriff CAD, link to Gateway, future link to municipal TMCs.	Traf Mgt	ATMS01, ATMS03, ATMS06, ATMS07, ATMS08	$3,995		$400	$1,150	LAKE		$3,995	Short for Ph 1a Mid for subsequent phases
32	Lake County Field Devices	CCTV surveillance of Lake County roadways, HAR, RWIS, both portable and permanent DMS, future TSP, signal system implementaion and upgrades, future wireless connections to outlying signals	Traf Mgt	ATMS01, ATMS06, APTS7, MC03	$4,720		$472		LAKE		$4,720	Short to Mid
33	Lake County Signal Interconnects	Coordination of signals on county highways. May include signal timing across municipal and county boundaries. May expand regional communications network.	Traf Mgt	ATMS03, ATMS07	$10,000	Deployment costs for 5 years per TIP	$1,000		LAKE	CMAQ, MFT		Short to Mid
34	McHenry County Traffic Management Center	Design and implementation of county TMC with interfaces to traffic management, fleet management and incident management.	Traf Mgt	ATMS01, ATMS03, ATMS06, ATMS07, ATMS08	$2,800		$280	$250	MCHENRY		$2,800	Long
35	McHenry County Field Devices	Emergency vehicle preemption on signals	Traf Mgt	EM02	$205		$21		MCHENRY		$205	Mid
36	McHenry County Signal Interconnects	Coordination of signals on county highways. May include signal timing across municipal and county boundaries. May expand regional communications network.	Traf Mgt	ATMS03, ATMS07	$170	Deployment costs for 5 years per TIP	$17		MCHENRY	CMAQ		Short to Mid

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37	Will County Traffic Management Center	Initial effort is feasibility study/conceptual design. Possible collocation of TMC at existing Emergency Operations Center.	Traf Mgt	ATMS01, ATMS03, ATMS06, ATMS07, ATMS08	$3,200	$100 feasibility study is underway.	$320	$250	WILL		$3,200	Mid
38	Will County Field Devices	Emergency vehicle preemption (EVP), CCTV and DMS considered at expressway interchanges, portable DMS, video in police vehicles.	Traf Mgt	ATMS01, ATMS03, ATMS06, ATMS08, EM02	$1,828	EVP typically funded by emergency responders.	$183		WILL		$1,828	Mid
39	Will County Signal Interconnects	Coordination of signals on county highways. May include signal timing across municipal and county boundaries. May expand regional communications network.	Traf Mgt	ATMS03, ATMS07	$2,300	Deployment costs for 5 years per TIP	$230		WILL	CMAQ, STPL		Short to Mid
SUB-TOTAL					$43,227		$4,323				$22,798	
	Note: County Signal Interconnects in some cases have a local municipality as the Lead Agency.											
	IDOT (including CATS)											
40	Regional Communications Backbone	Provide communications infrastructure to connect major transportation, public safety and research entities in the region (e.g., ISTHA, Chicago 911 Center, county TMCs, University of Illinois Chicago). Fiber installation is typically accomplished as a part of road construction or reconstruction projects. Fiber capacity may also be provided through shared use agreements with public or private entities. In addition, communication services for transportation management and control functions are provided by wireless technology.	Com		$2,000		$200		IDOT		$2,000	Short

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41	Integration of Centers	Connect public safety agencies (e.g., Il State Police # 2, 5, 15 & 21) to Gateway Traveler Information System, Chicago 911 Center and others to be identified. Includes network connections and software, often utilizing the Regional Communications Backbone (preceding project).	Traf Mgt	ATMS08	$1,875		$188		IDOT	CMAQ		Mid
42	Interagency Operations and Signal Coordination	Coordination of signals on Strategic Regional Arterials throughout NE Illinois. Often includes signal timing across municipal and county boundaries. Also includes coordination among counties and municipalities without IDOT. May expand regional communications network, and may involve IDOT coordination with local TMCs.	Traf Mgt	ATMS03, ATMS07	$1,200	$200 per county.	$120		IDOT	Lake County funded by an earmark.		Mid to Long
43	IDOT Signal Interconnects	Coordination of signals on state highways. May include signal timing across municipal and county boundaries and centralized traffic control. May expand regional communications network.	Traf Mgt	ATMS03, ATMS07	$10,000	$2,000/yr for 5 years.	$1,000		IDOT	IDOT, ITS, CMAQ, NHS & STPL		
44	Suburban Chicago ATMS - Centralized Traffic Control	Infrastructure, software/workstation licensing & initial set-up/monitoring of an ATMS in Chicago northwest suburbs. Coordination of over 200 signals within IL 62, Arlington Heights Rd, US 20 & Barrington Rd. Also video monitoring and detection on a fiber backbone, with central hub at IDOT Dist 1 Schaumburg. Involves IDOT Dist. 1, Cook County Hwy Dept and Schaumburg. Future enhancements would add other elements (e.g., DMS, transit signal priority).	Traf Mgt	ATMS01, ATMS03, ATMS06, ATMS07, ATMS08, APTS7	$2,500		$250		IDOT		$2,500	Mid

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45	SRA Traffic Signal Battery Back-Up	Pilot installation of LED signal sections and battery back-up on ~100 Strategic Regional Arterial (SRA) routes in and near Chicago (e.g., IL 38, 43, 64). Potential future expansion to ~1,000 signals.	Other		$2,500	Covers the 100 pilot signals.	$250		IDOT	Potential DHS.		Mid
46	Surveillance of Critical Bridge Infrastructure	Installation of lighting, fencing and CCTV on 16 bridges in northeast Illinois.	HS		$5,000		$500		IDOT	DHS		Short
47	NE Illinois Regional ITS Architecture Update	Update the 2002 Regional ITS Architecture to reflect changes in national program outlook and regional perspective on ITS.	Other		$100				IDOT/CATS	UWP		Mid
48	CCTV Surveillance Sharing	1) Government partnership to allow image sharing with password-protected access, potentially shared CCTV control. 2) Public-Private Regional Video Sharing Network via Internet; private entities to have view-only rights of public agency motion jpeg.	Traf Mgt	ATMS08	$300	Potential DHS funding for 2).	$50		IDOT		$300	Mid
49	IDOT CCTV Systems, Expressway	IDOT CCTV along freeways at 1 mi. intervals or less. Approximate 40-50 cameras today would become 400.	Traf Mgt	ATMS01, ATMS08	$12,250	Typically included as part of road construction projects.	$1,225		IDOT		$12,250	Long
50	Integrated Expressway/Arterial Corridors	Pilot project on I-290/Eisenhower Expressway: Expressway management integrated with ramp terminal signal management, and possibly (often parallel) arterial incident management.	Other	ATMS07	$1,400		$140		IDOT		$1,400	Mid
51	Expressway Traffic Diversion Demo	Arterial DMS to divert traffic from expressways due to expressway incidents/heavy congestion. Initial tests at 6-12 ramps.	Other	ATMS06, ATMS08	$480		$48		IDOT		$480	Mid
52	Automatic Crash Notification (ACN) to PSAPs	Initial South Com Regional Dispatch Trauma Center TIP project in progress. Proposed expansion throughout NE IL.	Emerg	EM03	$1,014	Covers 5-10 PSAPs. May eventually expand to ~75 PSAPs.	$101		IDOT	South Com project funded by TCSP & ITS		Mid

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NO.	NAME	DESCRIPTION	PLAN CATEGORY (1)	MARKET PACKAGES (2)	COST (Thousands) DEPLOYMENT	COST (Thousands) Notes	ANNUAL O & M COST (Thousands)	ANNUAL STAFFING COST (Thousands)	LEAD AGENCY	FUNDING SOURCE(S) IF SECURED (3)	FUNDING GAP (Thousands)	DEPLOYMENT TIME FRAME (4)
53	Regionwide Emergency Traffic Operations Systems (ETOS) Upgrade	Pilot project with 6 Emergency Traffic Patrol (ETP) vehicles completed. Deployment will install AVL and simplified Mobile Data Terminal (MDT; a keypad) to get incident data to Gateway. Will include 65 ETP vehicles, up to 400 maintenance vehicles later.	Emerg / Maint Con	EM04	$360	$360 for ETP vehciles	$36		IDOT	CMAQ for ETP vehicles.		Short
54	IDOT Dist 1 DMS Deployment	DMS deployment on freeways. After installation of ~28 inbound DMS to CBD by 12/04, install ~25 outbound signs on IDOT expressways primarily. Message generation and posting could be statewide.	ATIS	ATMS06	$6,250	Outbound expressways potentially funded by Department of Homeland Security	$625		IDOT	IDOT		Mid
55	GATEWAY Traveler Information System, Phase II	Program of multiple projects for completion of Gateway connectivity over next 10 years with increased functionality. Connection to statewide 511 system.	ATIS	ATMS08, ATIS1	$3,075		$308	$75 for Gateway $2,500 for IDOT Comm. Center $1,400 for IDOT Traffic Systems Ctr	IDOT	ITS	$500	Mid
56	Statewide 511 Service	Implementation of a statewide integrated traveler information system using a common three digit number 511. Includes RTA and Gateway links.	ATIS	ATIS2	$825	Pro-rata share to NE IL based on VMT. CMAQ funding application pending.	$83	$400	IDOT	ITS		Short
57	IDOT - HAR System Coordination	Coordinate Highway Advisory Radio (HAR) operations across agencies, e.g., IDOT and counties, or IDOT and O'Hare/Midway HAR systems. May include text-to-voice conversion. Two-way communication and automated sharing of event information.	ATIS	ATMS06, ATMS08	$160		$16		IDOT		$160	Mid
58	IDOT HAR System Enhancement	Upgrades including more transmitters, potentially including common HAR frequency and synchronized broadcasts in Dist 1. May use emerging digital technologies (e.g. satellite radio)	ATIS	ATMS06	$100		$10		IDOT		$100	Mid

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59	Accident Database and Reporting System	Development of database for use by law enforcement and other incident response agencies to aid in incident response.	Emerg	AD1	$250		$25		IDOT		$250	Mid
60	ITS Applications for Work Zones	Study to identify current "best practices" and application to field demonstration. Identify locations, procure and deploy at a few locations. Includes temporary CCTV and traveler information.	Maint Con		$650	$150 for study, $500 for implementation.	$50		IDOT		$650	Mid
61	IDL/XML Schema for Centers Communication	Develop Interface Definition Language (IDL) and Extensible Markup Language (XML) for connecting local/regional TMCs to Gateway. Covers how and what arterial performance info to send, how to display, whether or not control to be shared.	Traf Mgt		$160		$16		IDOT		$160	Mid
62	Mobile Technologies to Measure Travel Times Using Probe Vehicles	Develop a cost-effective approach for collecting travel time data and other traffic conditions using non-traditional detection methods. Potentially a public-private partnership demo using cell phones.	Other		$300		$30		IDOT		$300	Short
63	Travel Time Prediction Project	Demo project to use archived info and simulation to predict near-term performance.	Other		$500		$50		IDOT		$500	Mid
64	Railroad Grade Crossing Delay - Traveler Information System	ATIS to provide travelers with information to make decisions regarding delays due to trains	ATIS	ATIS1	$150		$15		IDOT		$150	Short
65	ITS Planning Database	GIS database of corridor ITS assets, including IDOT & ISTHA performance data.	Other	AD1	$250		$25		IDOT/CATS		$250	Mid

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66	Traveler Information Archive	Develop an electronic archive for the travel information collected by GCM corridor	Other	AD1	$700		$70		IDOT/CATS		$700	Mid
SUB-TOTAL					$54,349		$5,430				$22,650	
	ISTHA											
67	ISTHA fleet AVL	GPS tracking of ISP Dist. 15, maintenance and HELP vehicles.	Emerg	MC01, EM02	$400		$40		ISTHA		$400	Short
68	ISTHA Kiosks	Deploy kiosks at all 7 oases plus 2 kiosks on I-94 & I-90 (north ends) to distribute traveleler information for NE Illinois region	ATIS	ATIS1, ATIS2	$900		$90		ISTHA		$900	Long
69	ISTHA TIMS Enhancement	Miscellaneous improvements such as fleet AVL tracking.	Maint Con	ATMS07, ATMS08	$300		$30	$1,100	ISTHA	ISTHA CRP		Short
70	Portable Queue Detection Sys	10 relocatable "hot spot" queue detection systems to warn motorists of excessive back-ups via DMS or portable changeable message signs.	Sfty	ATMS01, ATMS06, ATMS08	$570		$57		ISTHA		$570	Short to Mid
71	ISTHA CCTV Coverage	Full CCTV coverage of entire 274-mile tollway system, at ~ 1 mile intervals. Requires installation of ~170 new cameras.	Traf Mgt	ATMS08	$3,400		$340		ISTHA			Long
72	ISTHA Systemwide Open Road Tolling (ORT)	Mixed use truck/car lane enhancements at all toll plazas. Conversion of 18 total plazas to ORT, 7 in 2005 and 11 in 2006.	Traf Mgt	ATMS10	$330,000	See text.	$5,000		ISTHA	ISTHA CRP		Short
73	ISTHA DMS Deployment	DMS deployment on tollways, 33 initial locations. Additional deployment for 5 locations.	ATIS	ATMS06	$1,750		$175		ISTHA		$1,750	Long
74	Expansion of Public-Private Partnership to Monitor Traffic	Addition of ~100 non-intrusive detector stations(~105 existing) to monitor speed/travel time and incidents.	ATIS	ATMS01	$1,700	Expect to fund from partnership revenues.	$170		ISTHA	Funded as noted.		Mid
SUB-TOTAL					$339,020		$5,902				$3,620	

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	TRANSIT - RTA, CTA, METRA & PACE											
75	Transit Hub: APTS (see also Transit Hub: ATIS)	Continue to develop Transit Hub to better manage transit operations. Includes real-time monitoring of CTA, PACE, and Metra operations to protect interagency transfers, deployment of a regional electronic payment system, and implementation of signal priority systems.	Transit	AD1, APTS4, PATS5, APTS7, APTS8, ATMS16	$1,000		$100	$1,550 for (Illinois) Transit Hub/RTA Travel Information Center	RTA		$1,000	
76	RTA Demo Projects: APTS (see also RTA Demo Projects: ATIS)	Various transit APTS demo projects. Includes:	Transit						RTA			
76-a	RTA Demo Projects: APTS	Transit Signal Priority (TSP) demonstrations. Initial CTA demonstration on Western Avenue and Pace demonstration on Halsted Street corridors.	Transit	APTS7	$4,000	$2,000 each for 2005 and 2006. $2,500 is CMAQ.	$400		RTA	CMAQ as noted.	$1,500	Short to Mid
76-b	RTA Demo Projects: APTS	Transit Vehicle Probe Data Feasibility Study, Northeast Illinois: Feasibility study, design, development and implementation of the use of transit location and time information to estimate arterial travel times.	Transit	ATMS2	$1,400		$140		RTA		$1,400	Mid
76-c	RTA Demo Projects: APTS	Wireless Supervisory Control Data Distribution System (WSCDDS)	Transit	APTS2	$100	$100 for 2005	$10		RTA	RTA		Short to Mid
77	Transit HUB: ATIS (see also Transit Hub: APTS)	Continue to develop Transit Hub to disseminate transit information to Gateway and service boards. Includes development of ITH website, interface to RTA Travel Information Center:	Transit	APTS8	$1,000		$100		RTA		$1,000	
78	RTA Demo Projects: ATIS (see also RTA Demo Projects: APTS)	Various transit ATIS demo projects. Includes:	Transit						RTA			

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			(1)	(2)	DEPLOYMENT	Notes				(3)		(4)
78-a	RTA Demo Projects: ATIS	Regional Bus Arrival Information System, or BusInfo, Initiative: Integration of bus management with traveler information systems, providing real-time status of bus arrivals from PACE and CTA AVL. Will integrate with Interactive Voice Response, Regional Transit Asset Management System, Internet, & Regional Traveler Information Kiosk Demonstration.	Transit	APTS8	$6,000		$600		RTA	ITS, RTA		Short to Mid
78-b	RTA Demo Projects: ATIS	RTA - Regional Traveler Information Kiosk: Develop and deploy regional multi-modal kiosk based information system with real-time information, 6 locations initially.	Transit	APTS8	$600		$60		RTA	DIPT, UWP, RTA		Short to Mid
78-c	RTA Demo Projects: ATIS	RTA Multi-Modal Trip Planner: Enhancement of RTA Itinerary Planning System, a demo project, to integrate transit and highway planning tools.	Transit	APTS8	$2,000	Involves CATS and IDOT.	$200		RTA	FTA, RTA		Short to Mid
78-d	RTA Demo Projects: ATIS	RTA Active Transit Station Signing Demonstration: Deployment of active transit signs that provide countdown to next transit vehicle.	Transit	APTS8	$2,000	$20 per sign, $10 per station	$200		RTA	ITS, RTA		Short
78-e	RTA Demo Projects: ATIS	Info Trans - integrated information on transportation demonstration at O'Hare and Midway airports.	Transit	APTS8	$800		$80		RTA	ITS, RTA		Short
78-f	RTA Demo Projects: ATIS	Parking Management Guidance Systems - multimodal coordinated effort to provide route guidance for park and ride utilization for Metra, CTA and Pace facilities.	Transit	ATMS16	$5,000		$500		RTA	ITS, RTA		Short to Mid
79	Transit Vehicle Safety Projects	Study, design, and implementation of full motion video monitoring of transit vehicles and collision avoidance of transit vehicles.	Transit	APTS5. AVSS03, AVSS04	$1,500	$1,500 for cameras	$150		RTA, CTA, METRA, PACE			Mid

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80	Automatic Train Supervision (ATS) System	CTA train tracking system made up of a) full communication of signal indications to CTA control center, b) Centralized Traffic Control (CTC) and c) new software in CTA control center.	Transit	APTS2	$40,000	$3,200 funded by FTA	$4,000		CTA	FTA as noted	$36,800	Short to Mid
81	Train Passenger Information System	LED display of train arrivals at all stations on a countdown clock.	Transit	APTS8	$120,000		$12,000		CTA		$120,000	Long
82	CTA Paratransit AVL/MDT	Equipping of CTA paratransit contract operators with CAD/AVL/MDT systems and networking them with CTA hub.	Transit	APTS3, APTS7	$1,000		$100		CTA	Funded		Short
83	CTA Hub Enhancements	Upgrade transit management center including data source interfaces and modernization of communications networks.	Transit	APTS2, APTS7	$1,500		$150	$1,200	CTA		$1,500	Mid
84	CTA Automatic Passenger Counter (APC) System Replacement	Procurement of replacement or new units for buses that will be networked with an on-board processor	Transit	APTS4	$1,000		$100		CTA	FTA, Local		Mid
85	CTA AVL Upgrade	Improved GPS tracking capabilities for CTA buses, may provide "Wireless Hot Spots" as a means of communicating with buses.	Transit	APTS1	$3,000	Limited funding avaialable for concept demonstration.	$300		CTA		$3,000	Mid
86	CTA Maintenance Managers Information System (MIMS)	Maintenance system with links to CTA databases and legacy systems.	Transit		$1,000	A pilot project has been funded.	$100		CTA	FTA, Local		Currently in pilot phase - Short to Mid.
87	CTA AVM Initiative	Addition of Automated Vehicle Monitoring (AVM) of maintenance needs for about 410 buses, info read as buses enter garages.	Transit	APTS6	$1,640		$164		CTA	Funded		Short
88	CTA Archive	CTA system to utilize archived data	Transit	AD1	$600		$60		CTA		$600	Mid
89	Metra Rail Dispatch & Signaling System Upgrade	Enhancement to Consolidated Control Facility (CCF) at 14th/Canal to improve operations/management of freight & commuter operations in Chicago area.	Transit	APTS2	$10,000		$1,000		METRA	FTA, Local		Mid to Long

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90	PIDS Modernization	Passenger Information Display System (PIDS) refurbishing to working system. Large screen displays of train schedules at 5 downtown stations, individual track displays of run schedule/stops.	Transit	APTS8	$10,000		$1,000		METRA	FTA, Local		Short to Mid
91	Emergency Management Messaging	Provide emergency management and messaging at about 8 signs per station. Exact types of messages to be displayed have yet to be determined.	Transit	APTS5	$850		$85		METRA	DHS		Mid
92	Metra TIMS Enhancements	Upgrade and enhancement of Train Information Management System (TIMS), particularly for off-peak periods. Using GPS, TIMS provides real-time train location information to riders via automated audio and visual announcements.	Transit	APTS8	$700		$70	$1,860	METRA		$700	Mid
93	Constant Time Warning at Grade Crossings	System to provide constant time between the moment the gates go down until the arrival of the train, using the track circuitry.	Transit	ATMS13	$130		$13		METRA		$130	Mid
94	PACE Intelligent Bus System	Continue to deploy an integrated bus management system incorporating Voice Annunciation, AVL and Fleet Management techniques. Will share data on schedule adherence and passenger loading.	Transit	APTS1, APTS2, APTS5, APTS8	$15,000	FTA funding for $2,000	$1,500		Pace	FTA, IDOT		Short to Mid
95	PACE Paratransit MDT/AVL Project	Upgrade of existing paratransit scheduling system by adding MDT/AVL to interface with Trapeze's software for automated scheduling and dispatch. There will be 5 sites that will support dial a-ride that will be managed by contractors. Also included is the utilization in a cooperative project with DuPage County to implement a central scheduling and dispatch center for all paratransit services provided in DuPage County.	Transit	APTS1, APTS3	$1,997		$200		Pace	FTA, IDOT, Local		Installation and testing begun in early 2005.

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96	PACE Hub Enhancement	Upgrade established hub server, data source interfaces along with modernization of communications networks. The Pace Hub is located at the Arlington Heights office.	Transit	APTS7	$500		$50	$965	Pace		$500	Short to Mid
97	Pace Transit Operations Decision Support System	A system that will quickly develop new routes when an incident impacts an existing route	Transit	APTS2	$110		$11		Pace	FTA		Mid
98	Pace Demo Projects: Queue Jump Lane	A system with bus-specific signal indications and signs will give early green to allow bus to move ahead of long traffic queues at signalized intersections.	Transit		$100		$10		Pace	RTA		Mid
99	Pace Demo Projects: Driver Assistive Navigational Technology	The system will equip transit vehicles with driver assistive technology that will enable a driver to better guide a wide bus on a narrow shoulder or lanes, especially under difficult conditions.	Transit		$800		$80		Pace		$800	Long
100	Region Wide Transit Signal Priority Deployment	A system that will give priority to buses at traffic signals in the region. Implementation on 650 route-miles.	Transit	APTS7	$24,000		$2,400		Pace		$24,000	Long
SUB-TOTAL					$259,327		$25,933				$192,930	
GRAND TOTAL					**$834,612**		**$55,306**				**$305,496**	

For each project, a Name and brief Description are given. More detail on project content is presented in Appendix 3, contained in the *Addendum* to this document. Each project is then placed into a Plan Category, each of which represents a technology or functional group. The eight categories are:

- Communications
- Traffic Management/Safety
- Emergency/Incident Management/Homeland Security
- Transit/Transit Management
- Advanced Traveler Information Systems
- Maintenance & Construction
- Commercial Vehicle Operations/ Commercial Vehicle Information Systems & Networks
- Other: Archived Data, Planning, Demo, Research and Vehicle Infrastructure Initiative (VII)

Next, to relate the projects to the Regional ITS Architecture and the National ITS Architecture, the applicable Market Packages are identified. This information represents a similar but finer breakdown of projects than Plan Category. The National ITS Architecture has 85 defined Market Packages broken down into eight service areas, as presented in Appendix 4.

Planning level cost for each project is then presented in terms of Deployment (planning, design and construction), with Notes as needed. Annual Operations and Maintenance (O&M) Cost is next identified. For traffic management center projects, the additional personnel charges are presented as Annual Staffing Cost, associated with build-out of each respective center (see Section 4.3.3). The Lead Agency is then identified, followed by Funding Source(s) If Secured. If an entry is made in this column, money for the project has been obligated, qualified as noted. The Funding Gap is then tabulated. Lastly, an estimated Deployment Time Frame is given as either Short (2004-05), Mid (2006-09) or Long (2010+). In some cases, more detailed deployment time information is presented.

Appendix 3 in the *Addendum* document presents mappings of the projects to the Regional ITS Architecture, including interfaces and information flows.

4.3 Project Costs

4.3.1 Deployment Cost

Table 4-3 summarizes project costs by Lead Agency, including identification of obligated and not obligated (unfunded) amounts. The total deployment cost for all 100 projects is $834.6 million. Of this total, about $529 million (63%) is obligated, and about $306 million (37%) is unfunded. The funding gaps are discussed further in Section 8.1.

4.3.2 Annual Operating and Maintenance Cost

In general, annual operating and maintenance cost is estimated to be in the range of 8-12% of initial deployment cost. For planning purposes, a 10% figure can be used, though a few projects have specifically identified amounts. The total for all projects is $58.4 million.

Table 4-2 Total ITS Deployment Plan Project Costs, Obligated and Unfunded Amounts by Lead Agency (Millions)

Lead Agency	No. of Projects	Deployment Cost	Obligated Amount	Percent Obligated	Unfunded Amount
CDOT	18	$138.7	$75.2	54%	$63.5
Counties	21	43.2	20.4	47%	22.8
IDOT	27	54.4	31.7	58%	22.7
ISTHA	8	339.0	335.4	99%	3.6
Transit	26	259.3	66.4	26%	192.9
TOTAL	**100**	**$834.6**	**$529.1**	**63%**	**$305.5**

The majority of the ISTHA obligations are provided in the Open Tolling project. Other agencies will typically use discretionary funding through an annual appropriation process. A large portion of the unobligated transit share is related to the CTA's Train Passenger Information System project. Counties are also developing funding strategies for the construction of traffic management centers.

4.3.3 TMC Staffing and Costs

For data collection, system management and information dissemination, TMCs constitute major enabling facilities of ITS. Depending on the nature of a particular TMC, it may include centralized traffic control as one of its functions. TMCs typically have staffing and equipment costs different from those of other ITS infrastructure. Table 4-2 already provided estimated annual staffing cost of the TMC projects associated with build-out. Table 4-4 summarizes this information for these various facilities in the region. In total,

annual TMC staffing costs are significant at about $15 million (see Appendix 5 for details).

In developing and implementing TMCs, appropriate staff skills are needed. Typically, in addition to operators, traffic engineering, information systems and communications expertise will be required. In many cases, staff with the needed skills may already work for the implementing agency, which may ease the initiation of operations. An overall goal should be to minimize the number of new staff, since as seen in Table 4-2, personnel costs can be quite high relative to the initial deployment costs.

Another consideration with TMCs is the need for equipment upgrades. In general, TMC equipment (e.g., computers, workstations, communications equipment) can be expected to require replacement about every seven years. Typically this should be done on a rotating basis so that the costs can be spread out over annual budget cycles.

4.3.4 ISTHA Congestion-Relief Plan

As seen in Table 4-3, ISTHA has the largest share of projects in terms of cost, constituting about 40% of the total, at $339 million. Most of this amount is associated with Project 72, Systemwide Open Road Tolling (ORT), at $330 million. ORT allows vehicles equipped with I-PASS transponders to pass through tolling areas without slowing down. This initiative is part of a major ISTHA capital improvement program known as the Congestion-Relief Plan (CRP).

The CRP is a 10-year, $5.3 billion funded program to add capacity, expand the Tollway network and incorporate ITS aspects. The overall goal is to better manage congestion, reduce travel times and guide Tollway operations and maintenance. The program will extend I-355 from I-55 to I-80, add lanes in selected locations and rebuild portions of the Tollway. The principal ITS project is the ORT initiative, which will convert 18 toll plazas in 2005 and 2006. The $330 million cost covers the physical retrofits and reconstruction of the toll plazas plus associated ITS equipment. For purposes of this ITS Plan Update, costs to widen roadway in the vicinity of the toll plazas are not included. The ORT project significantly enhances Electronic Toll Collection on the Tollway. Electronic Toll Collection is one of the building blocks of ITS, constituting market package ATMS10 of the National ITS Architecture.

Table 4-3 Annual Staffing Costs for TMCs at Build-Out[1]

TMC	Annual Staffing Cost
CDOT TMC[2]	$1,850,000
Cook County TMC	$250,000
DuPage County TCI[3]	$250,000
Kane County TMC	$250,000
Lake County TMC	$1,150,000
McHenry County TMC	$250,000
Will County TMC	$250,000
GCM Gateway	$75,000
IDOT Communications Center	$2,500,000
IDOT Traffic Systems Center	$1,400,000
ISTHA Traffic and Incident Management System	$1,100,000
Illinois Transit Hub/RTA Travel Information Center	$1,550,000
CTA Control Center/Hub	$1,200,000
Metra Train Information System	$1,860,000
PACE Hub	$965,000
TOTAL	**$14,900,000**

[1] See Appendix 5 for details.
[2] Includes staffing for satellite TMCs at O'Hare and Midway Airports.
[3] Transportation Coordination Initiative, which may or may not include a TMC.

5.0 Prototype Operational Concept – Incident Management

An Operational Concept documents each stakeholder's roles and responsibilities in the operation of the regional ITS systems. The concept documents these roles and responsibilities across a range of transportation services. The original Regional ITS Architecture document provided information on the following service areas:

- Traffic Signal Control: the development of signaling systems that react to changing traffic conditions and provide coordinated intersection timing over a corridor, an area, or multiple jurisdictions.
- Freeway Control: the development of systems to monitor freeway (or tollway) traffic flow and roadway conditions, and provide strategies such as ramp metering or lane access control to improve the flow of traffic on the freeway. Includes systems to provide information to travelers on the roadway.
- Incident Management: the development of systems to provide rapid and effective response to incidents. Includes systems to detect and verify incidents, along with coordinated agency response to the incidents.
- Transit Management: the development of systems to more efficiently manage fleets of transit vehicles or transit rail. Includes systems to provide transit traveler information both pre-trip and during the trip.
- Traveler Information: the development of systems to provide static and real time transportation information to travelers.
- Emergency Management: the development of systems to provide emergency call taking, public safety dispatch, and emergency operations center operations.
- Maintenance and Construction Management: the development of systems to manage the maintenance of roadways in the region, including winter snow and ice clearance. Includes the managing of construction operations.
- Archive Data Management: the development of systems to collect transportation data for use in non-operational purposes (e.g. planning and research).

An Operational Concept developed in conjunction with a regional ITS architecture describes roles and responsibilities within the region at a high level. By contrast, a Concept of Operations is a more detailed description, usually associated with a single project, that covers not only roles and responsibilities on the project, but the overall environment in which the system(s) of the project will operate. According to the NHI course "Introduction to Systems Engineering for Advanced Transportation", a Concept of Operations includes:

- identification of stakeholders,
- development of a vision for the project,
- description of where the system(s) will be used,
- description of organizational procedures or practices appropriate to the system(s),

- definition of critical performance parameters associated with the systems(s),
- description of the utilization environment (conditions under which various parts of the system(s) will be used,
- definition of performance measures used to evaluate the effectiveness of the system(s),
- considerations of life cycle expectations, and
- the conditions under which the system(s) must operate (e.g. environmental conditions).

A variety of additional aspects also are appropriate. This level of detail is appropriate for an individual project, but not for a regional description of ITS. Therefore the presentation made here is of an Operational Concept, which has the level of detail appropriate for the discussion of regional ITS strategies.

While the information provided in the original Operational Concept did address roles and responsibilities, it did not consider whether the roles and responsibilities were existing or would be assumed in the future. In addition the previous effort did not consider each stakeholder's objectives in altering the current roles and responsibilities into the future. Providing this information as well as the "changes to achieve objectives" will provide a link between the concept and the project list that is one of the major outputs of the ITS Plan Update. Since the "changes to achieve objectives" represents near term actions to be taken by a stakeholder, they should correlate with the projects defined in the project list. Where they do not, these would represent "gaps" that would be discussed in the Gap Analysis (Section 8.3).

For this ITS Plan Update, a prototype expanded Operational Concept was created for one transportation service area. After discussion with the ATTF at the July 28, 2004 meeting, it was decided that Incident Management would serve as the focus of the prototype expanded Operational Concept. This was chosen in part because it impacts such a wide range of stakeholders in the region.

The prototype Operational Concept is shown in Table 5-1. The table is sorted alphabetically by stakeholder (Column 1). The next three columns describe the current Roles and Responsibilities of each stakeholder in participating in Incident Management. The three columns represent the current roles and responsibilities in Implementation (of systems that support incident management), Operations (for performing the incident management service), and Maintenance (of systems that support incident management). The next column, Objectives, indicates an estimate of ways the particular stakeholder would wish to improve, expand, or modify its current Roles and Responsibilities in the next 3-5 years.

Because a regional ITS architecture focuses on integration of systems and sharing of data between systems, objectives have usually been expressed with a thought to how system integration might expand over this near term. The final column in the table, Changes to Achieve Objectives, indicates systems that the stakeholder might bring on-line, or improve, or additional integration that might be undertaken in order to meet the stated

Objectives. In this prototype Operational Concept, the completion of this final column has drawn heavily on the projects that have been defined in Section 4. This table represents a prototype, which once its form and format have been considered and approved, would need to be expanded in a future update of the Regional ITS Architecture to include the other seven transportation service areas covered in the original Regional ITS Architecture.

Table 5-1 Prototype Operational Concept for Incident Management

Stakeholder	Current Roles and Responsibilities			Objectives	Changes to Achieve Objectives
	Implementation	Operations	Maintenance		
Chicago Transit Authority	• Install surveillance equipment (e.g. CCTV) onboard transit vehicles and in passenger areas.	• Monitor transit vehicles and passenger areas for incidents or emergency calls	• Provide maintenance of dispatch system and security equipment on-board transit vehicles and in passenger areas.	• Improve security monitoring of transit vehicles, passenger areas, and transit facilities for incidents or emergency calls	• Add additional security monitoring equipment to transit vehicles, passenger areas, and/or transit facilities
		• Coordinate with municipal and county public safety for response to incidents involving the transit fleet.		• Improve coordination with municipal and county public safety for response to incidents involving the transit fleet.	• Add data communications links with municipal and county public safety for sharing incident information and coordinating incident response.
				• Improve dissemination of transit incident information to other transit agencies and the traveling public.	• Connect to Illinois Transit Hub for sharing incident information with peer transit agencies and for providing incident information to the general public.
City of Chicago Office of Emergency Mgmt and Comm	• Provide upgrades to emergency dispatch systems and to systems in the police, fire, and EMS vehicles	• Receive emergency calls for incidents within the City of Chicago	• Provide maintenance of dispatch system and of equipment in the police, fire, and EMS vehicles.	• Improve coordination with City of Chicago DOT and City of Chicago Department of Streets and Sanitation for response to incidents.	• Add data communications links with City of Chicago DOT for sharing incident information and coordinating incident response.
	• Install surveillance equipment (e.g. CCTV) within the Loop to detect and verify incidents.	• Dispatch Police, Fire, and EMS to incidents within the City of Chicago		• Improve surveillance capabilities within the Loop	• Implement additional incident surveillance (e.g. CCTV) at key intersections.

Table 5-1 Prototype Operational Concept for Incident Management

Stakeholder	Current Roles and Responsibilities			Objectives	Changes to Achieve Objectives
	Implementation	Operations	Maintenance		
		• Operate video surveillance cameras to detect and verify incidents within the Loop.		• Provide incident information to Illinois Gateway	• Add data communications links with Illinois Gateway for providing incident information
				• Provide incident information to traffic and public safety agencies.	
City of Chicago Department of Streets and Sanitation	• Provide upgrades to maintenance vehicle dispatch systems and to systems in the maintenance vehicles	• Dispatch maintenance vehicles to support incident response	• Maintain dispatch system and any ITS equipment in maintenance vehicles.	• Improve coordination with City of Chicago DOT and City of Chicago Office of Emergency Mgmt and Comm for response to incidents.	• Add data communications links with City of Chicago DOT and City of Chicago Office of Emergency Mgmt and Comm for sharing incident information and coordinating incident response.
City of Chicago DOT	• Install incident detection (e.g. loop sensors) and incident verification (e.g. CCTV) equipment on City of Chicago arterials	• Perform incident detection and verification for arterial streets in the City of Chicago through video surveillance.		• Improve coordination with City of Chicago DOT and City of Chicago Office of Emergency Mgmt and Comm for response to incidents.	• Add data communications links with City of Chicago Department of Streets and Sanitation and City of Chicago Office of Emergency Mgmt and Comm for sharing incident information and coordinating incident response.
		• Coordinate incident response with City of Chicago Office of Emergency Mgmt and Comm and City of Chicago		• Inform travelers of incidents through use of Dynamic Message Signs on City of Chicago arterials	• Implement DMS at key intersections to report incidents to travelers.

Table 5-1 Prototype Operational Concept for Incident Management

Stakeholder	Current Roles and Responsibilities			Objectives	Changes to Achieve Objectives
	Implementation	Operations	Maintenance		
		Department of Streets and Sanitation			
		• Operate Dynamic Message Signs on City of Chicago arterials to inform travelers of incidents		• Provide incident information to Illinois Gateway	• Add data communications links with Illinois Gateway for providing incident information
Cook County Emergency Services	• Provide upgrades to emergency dispatch systems and to systems in the sheriff's vehicles	• Receive emergency calls for incidents within the unincorporated portions of Cook County.	• Provide maintenance of dispatch system and of equipment in the sheriff's vehicles.	• Improve coordination with DuPage County Division of Transportation for response to incidents.	• Add data communications links with Illinois Gateway for providing incident information
		• Dispatch Police, Fire, and EMS to incidents within the unincorporated portions of Cook County		• Provide incident information to Illinois Gateway	• Add data communications links with Cook County Highway Department for sharing incident information and coordinating incident response.
		• Provide incident information to Illinois Gateway		• Provide improved incident information to municipal traffic and public safety agencies.	
		• Provide incident information to traffic and public safety agencies.			

Table 5-1 Prototype Operational Concept for Incident Management

Stakeholder	Current Roles and Responsibilities			Objectives	Changes to Achieve Objectives
	Implementation	Operations	Maintenance		
Cook County Highway Department	• Provide upgrades to maintenance vehicle dispatch systems and to systems in the maintenance vehicles	• Respond to incidents requiring maintenance actions such as clearing roadways for arterial streets in the unincorporated portions of Cook County.	• Maintain dispatch system and any ITS equipment in maintenance vehicles.	• Develop initial incident detection and verification for arterial streets in the unincorporated portions of Cook County.	• Implement incident surveillance (e.g. CCTV) at key intersections.
		• Dispatch maintenance vehicles to support incident response		• Coordinate incident response for unincorporated portions of Cook County with Cook County Emergency Services.	• Implement DMS at key intersections to report incidents to travelers.
				• Operate DMS on Cook County arterials to inform travelers of incidents	• Add data communications links with Illinois Gateway for providing incident information
				• Provide incident information to Illinois Gateway	• Add data communications links with Kane County Sheriff for sharing incident information and coordinating incident response
DuPage County Sheriff	• Provide upgrades to emergency dispatch systems and to systems in the sheriff's vehicles	• Receive emergency calls for incidents within the unincorporated portions of DuPage County.	• Provide maintenance of dispatch system and of equipment in the sheriff's vehicles.	• Improve coordination with DuPage County Division of Transportation for response to incidents.	• Add data communications links with Illinois Gateway for providing incident information

Table 5-1 Prototype Operational Concept for Incident Management

Stakeholder	Current Roles and Responsibilities			Objectives	Changes to Achieve Objectives
	Implementation	Operations	Maintenance		
		• Dispatch Police, Fire, and EMS to incidents within the unincorporated portions of DuPage County		• Provide incident information to Illinois Gateway	• Add data communications links with DuPage County Division of Transportation for sharing incident information and coordinating incident response
				• Provide improved incident information to municipal traffic and public safety agencies.	
DuPage County Division of Transportation	• Provide upgrades to maintenance vehicle dispatch systems and to systems in the maintenance vehicles	• Coordinate incident response for unincorporated portions of DuPage County with DuPage County Sheriff.	• Maintain dispatch system and any ITS equipment in maintenance vehicles.	• Develop initial incident detection and verification capabilities for arterial streets in the unincorporated portions of DuPage County.	• Implement incident surveillance (e.g. CCTV) at key intersections.
				• Improve ability to inform travelers of incidents through deployment of DMS on DuPage County arterials	• Implement DMS at key intersections to report incidents to travelers.
				• Provide incident information to Illinois Gateway	• Add data communications links with Illinois Gateway for providing incident information
Illinois Dept of Transportation District 1 Bureau of Maintenance	• Provide upgrades to maintenance vehicle dispatch systems and to systems in the	• Dispatch IDOT District 1 maintenance vehicles to respond to incident related resource requests.	• Maintain dispatch system and any ITS equipment in maintenance vehicles. • Maintain ITS	• Improve ability to dispatch maintenance vehicles to incidents.	• Improve Add AVL or mobile data terminal capabilities to maintenance vehicles to improve

Table 5-1 Prototype Operational Concept for Incident Management

Stakeholder	Current Roles and Responsibilities			Objectives	Changes to Achieve Objectives
	Implementation	Operations	Maintenance		
	maintenance vehicles		incident detection equipment operated by othe IDOT Bureaus		maintenance operations.
Illinois Dept of Transportation District 1 Electrical Operations	• Install incident detection (e.g. loop sensors) and incident verification (e.g. CCTV) equipment on portions of Expressway system	• Provide centralized District 1 Incident coordination 24/7.	Note: Maintenance of ITS Equipment is provided by District 1 Bureau of Maintenance	• Improve coordination with Illinois State Police and county/municipal public safety agencies for response to incidents.	• Provide additional upgrades to ComCenter equipment to improve incident management capabilities
	• Provide upgrades to ComCenter equipment	• Perform incident detection and verification for portions of Expressway system.		• Improve incident detection and verification capabilities on Expressway network	• Add additional data communications links with Illinois State Police or municipalities for sharing incident information and coordinating incident response
		• Coordinate incident response with Illinois State Police and county/ municipal public safety agencies.			
		• Operate DMS and HAR on expressways to inform travelers of incidents			
		• Provide incident information to Illinois Gateway			

Table 5-1 Prototype Operational Concept for Incident Management

Stakeholder	Current Roles and Responsibilities			Objectives	Changes to Achieve Objectives
	Implementation	Operations	Maintenance		
Illinois Dept of Transportation District 1 Traffic	• Install incident detection (e.g. loop sensors) and incident verification (e.g. CCTV) equipment on Expressways	• Perform incident detection and verification at key Expressway locations.	Note: Maintenance of ITS Equipment is provided by District 1 Bureau of Maintenance	• Improve incident detection and verification capabilities on Expressway	• Augment existing incident surveillance (e.g. CCTV) at key locations on the Expressway network
	• Install communications infrastructure along Expressways to support communications with field devices and between centers	• Operate DMS and HAR on expressways to inform travelers of incidents		• Improve coordination between TSC/ ETP and Comm Center.	• Improve Upgrade ETP vehicles with AVL and MDTs to improve coordination with Comm Center and to get incident information directly to Gateway.
	• Installation and upgrades to ETP dispatch and in-vehicle equipment.	• Dispatch Emergency Traffic Patrol (ETP) vehicles to incidents.		• Improve dissemination of incident information along Expressways.	• Implement additional DMS along Expressways.
	• Installation and upgrades to TSC equipment.	• Provide incident reports to media			
	• Installation and upgrades to DMS on the Expressways	• Provide incident information to Illinois Gateway			
		• Coordinate incident response with Illinois Dept of Transportation District 1 Electrical Operations (IDOT District 1 Com Center)			

Table 5-1 Prototype Operational Concept for Incident Management

Stakeholder	Current Roles and Responsibilities			Objectives	Changes to Achieve Objectives
	Implementation	Operations	Maintenance		
IDOT ITS Program Office		• Operate GCM Gateway, including Gateway Central and Illinois Gateway to collect and share incident information.	[	• Improve scope of coverage for incidents in region. Improve ability for regional centers to exchange information.	• Integrate additional systems into Gateway.
Illinois State Police District 15	• Upgrade to dispatch and in-vehicle equipment	• Dispatch State Police vehicles for incidents on the Tollway.	• Provide maintenance of dispatch system and of equipment in the sheriff's vehicles.	• Improve coordination with Illinois State Toll Highway Authority for response to incidents.	• Add data communications links with IDOT or municipalities for sharing incident information and coordinating incident response
		• Coordinate incident response with Illinois State Toll Highway Authority		• Provide incident information to traffic and public safety agencies.	
		• Provide incident information to Illinois Gateway			
Illinois State Police Districts 2, 5, and Chicago	• Upgrade to dispatch and in-vehicle equipment	• Dispatch State Police vehicles for incidents on the expressways in the region.	• Provide maintenance of dispatch system and of equipment in the sheriff's vehicles.	• Improve coordination with IDOT for response to incidents.	• Add data communications links with Illinois Gateway for providing incident information
		• Coordinate incident response with Illinois Dept of Transportation District 1		• Provide incident information to Illinois Gateway	• Add data communications links with IDOT for sharing incident information and coordinating incident response

Table 5-1 Prototype Operational Concept for Incident Management

Stakeholder	Current Roles and Responsibilities			Objectives	Changes to Achieve Objectives
	Implementation	Operations	Maintenance		
				• Provide incident information to traffic and public safety agencies.	
Illinois State Toll Highway Authority	• Install incident detection (e.g. loop sensors) and incident verification (e.g. CCTV) equipment on Tollway	• Perform incident detection for Tollways in region by receiving cell calls of incidents.	• Maintain dispatch system and any ITS equipment in maintenance vehicles.	• Improve coordination with Illinois State Police for response to incidents.	• Implement incident surveillance (e.g. CCTV) at key locations on the Tollway
	• Provide upgrades to maintenance vehicle dispatch systems and to systems in the maintenance vehicles	• Perform incident detection and verification using video surveillance on key sections of Tollway.		• Improve incident detection and verification capabilities on Tollway	
		• Coordinate incident response with Illinois State Police			
		• Dispatch maintenance assets to support incident response.			
		• Report incidents to traffic management agencies, Illinois Gateway, and public safety agencies.			
Kane County Division of Transportation	• Provide upgrades to maintenance vehicle dispatch systems and to systems in the maintenance vehicles	• Coordinate incident response for unincorporated portions of Kane County with the Kane County Sheriff.	• Maintain dispatch system and any ITS equipment in maintenance vehicles.	• Develop initial incident detection and verification capabilities for arterial streets in the unincorporated portions of Kane County.	• Implement incident surveillance (e.g. CCTV) at key intersections.

Table 5-1 Prototype Operational Concept for Incident Management

Stakeholder	Current Roles and Responsibilities			Objectives	Changes to Achieve Objectives
	Implementation	Operations	Maintenance		
		• Dispatch maintenance vehicles to support incident response		• Improve coordination between county traffic, county maintenance, and county emergency services for response to incidents.	• Add data communications links with Kane County Sheriff for sharing incident information and coordinating incident response
Kane County Sheriff	• Provide upgrades to emergency dispatch systems and to systems in the sheriff's vehicles	• Receive emergency calls for incidents within the unincorporated portions of Kane County.	• Provide maintenance of dispatch system and of equipment in the sheriff's vehicles.	• Improve coordination with Kane County Division of Transportation for response to incidents.	• Add data communications links with Illinois Gateway for providing incident information
		• Dispatch Police, Fire, and EMS to incidents within the unincorporated portions of Kane County.		• Provide incident information to Illinois Gateway	• Add data communications links with Kane County Division of Transportation for sharing incident information and coordinating incident response
		• Coordinate incident response with Kane County Division of Transportation		• Provide improved incident information to municipal traffic and public safety agencies.	
Lake County Division of Transportation	• Install surveillance equipment (e.g. CCTV) on Lake County arterials to detect and verify incidents.	• Perform incident detection and verification for arterial streets in the unincorporated portions of Lake County.	• Maintain ITS field devices and traffic management systems that support incident management.	• Improve coordination with Lake County Sheriff for response to incidents.	• Implement additional incident surveillance and incident reporting (e.g. DMS) field equipment

Table 5-1 Prototype Operational Concept for Incident Management

Stakeholder	Current Roles and Responsibilities			Objectives	Changes to Achieve Objectives
	Implementation	Operations	Maintenance		
	• Install DMS equipment on Lake County arterials to inform travelers of incidents	• Coordinate incident response for unincorporated portions of Lake County with the Lake County Sheriff.	• Maintain dispatch system and any ITS equipment in maintenance vehicles.	• Provide incident information to Illinois Gateway	• Add data communications links with Illinois Gateway for providing incident information
	• Provide upgrades to maintenance vehicle dispatch systems and to systems in the maintenance vehicles			• Improve reporting of incidents to travelers through use of DMS on Lake County arterials	• Add data communications links with Lake County Sheriff for sharing incident information and coordinating incident response
Lake County Sheriff	• Provide upgrades to emergency dispatch systems and to systems in the sheriff's vehicles	• Receive emergency calls for incidents within the unincorporated portions of Lake County.	• Provide maintenance of dispatch system and of equipment in the sheriff's vehicles.	• Improve coordination with Lake County Division of Transportation for response to incidents.	• Add data communications links with Lake County Division of Transportation for sharing incident information and coordinating incident response
		• Dispatch Police, Fire, and EMS to incidents within the unincorporated portions of Lake County		• Provide incident information to Illinois Gateway	
		• Coordinate incident response with Lake County Division of Transportation.		• Provide improved incident information to municipal traffic and public safety agencies.	

Table 5-1 Prototype Operational Concept for Incident Management

Stakeholder	Current Roles and Responsibilities			Objectives	Changes to Achieve Objectives
	Implementation	Operations	Maintenance		
McHenry County Highway	• Provide upgrades to maintenance vehicle dispatch systems and to any ITS systems in the maintenance vehicles	• Coordinate incident response (for traffic or maintenance) for unincorporated portions of McHenry County with the McHenry County Sheriff.	• Maintain ITS field devices and traffic management systems that support incident management.	• Improve coordination between county traffic, county maintenance, and county emergency services for response to incidents.	• Add data communications links with McHenry County Sheriff for sharing incident information
	• Install incident detection (e.g. loop sensors) and incident verification (e.g. CCTV) equipment on county roadways	• Dispatch maintenance vehicles to support incident response	• Maintain dispatch system and any ITS equipment in maintenance vehicles.		
McHenry County Sheriff	• Provide upgrades to emergency dispatch systems and to systems in the sheriff's vehicles	• Receive emergency calls for incidents within the unincorporated portions of McHenry County.	• Provide maintenance of dispatch system and of equipment in the sheriff's vehicles.	• Improve coordination with McHenry County Highway Department for response to incidents.	• Add data communications links with Illinois Gateway for providing incident information
		• Dispatch Police, Fire, and EMS to incidents within the unincorporated portions of McHenry County		• Provide incident information to Illinois Gateway	• Add data communications links with McHenry County Highway Department for sharing incident information and coordinating incident response
		• Coordinate incident response with McHenry County Highway.			

Table 5-1 Prototype Operational Concept for Incident Management

Stakeholder	Current Roles and Responsibilities			Objectives	Changes to Achieve Objectives
	Implementation	Operations	Maintenance		
		• Provide incident information to traffic and public safety agencies.			
Metra	• Install surveillance equipment (e.g. CCTV) onboard trains and in passenger areas.	• Monitor trains and passenger areas for incidents or emergency calls	• Provide maintenance of dispatch system and security equipment on-board trains and in passenger areas.	• Improve security monitoring of trains, passenger areas, and transit facilities for incidents or emergency calls	• Add additional security monitoring equipment to trains, passenger areas, and/or transit facilities
		• Coordinate with municipal and county public safety for response to incidents involving the transit fleet.		• Improve coordination with municipal and county public safety for response to incidents involving the transit fleet.	• Add data communications links with municipal and county public safety for sharing incident information and coordinating incident response.
				• Improve dissemination of transit incident information to other transit agencies and the traveling public.	• Connect to Illinois Transit Hub for sharing incident information with peer transit agencies and for providing incident information to the general public.
Municipalities (with some level of current incident management capability)	• Install incident detection (e.g. loop sensors) and incident verification (e.g. CCTV) equipment on municipal roadways	• Perform incident detection and verification for arterial streets within municipalities in the region.	• Maintain ITS field devices and traffic management systems that support incident management.	• Improve coordination between municipal traffic, maintenance, and emergency services for response to incidents.	• Add data communications links between municipal traffic, maintenance, and emergency services for sharing incident information
	• Provide	• Dispatch Police,	• Maintain	• Improve	• Add data

Table 5-1 Prototype Operational Concept for Incident Management

Stakeholder	Current Roles and Responsibilities			Objectives	Changes to Achieve Objectives
	Implementation	Operations	Maintenance		
	upgrades to maintenance vehicle dispatch systems and to systems in the maintenance vehicles	Fire, and EMS to incidents within the municipalities.	dispatch system and any ITS equipment in maintenance vehicles.	coordination with County traffic, maintenance, and sheriff for response to incidents.	communications links between municipal and county services for sharing incident information and coordinating incident response
		• Coordinate incident response for incidents within the municipality.			
		• Dispatch maintenance vehicles to support response to incidents			
Municipalities (with little or no current incident management capability)		• Dispatch Police, Fire, and EMS to incidents within the municipalities.		• Develop incident detection and verification capability.	• Install CCTV to provide incident detection and verification.
				• Improve ability of maintenance vehicles to respond to incidents.	• Automate dispatch of maintenance vehicles to support response to incidents.
Pace	• Install surveillance equipment (e.g. CCTV) onboard transit vehicles and in passenger areas.	• Monitor transit vehicles and passenger areas for incidents or emergency calls	• Provide maintenance of dispatch system and security equipment on-board transit vehicles and in passenger areas.	• Improve security monitoring of transit vehicles, passenger areas, and transit facilities for incidents or emergency calls	• Add additional security monitoring equipment to transit vehicles, passenger areas, and/or transit facilities

Table 5-1 Prototype Operational Concept for Incident Management

Stakeholder	Current Roles and Responsibilities			Objectives	Changes to Achieve Objectives
	Implementation	Operations	Maintenance		
		• Coordinate with municipal and county public safety for response to incidents involving the transit fleet.		• Improve coordination with municipal and county public safety for response to incidents involving the transit fleet.	• Add data communications links with municipal and county public safety for sharing incident information and coordinating incident response.
				• Improve dissemination of transit incident information to other transit agencies and the traveling public.	• Connect to Illinois Transit Hub for sharing incident information with peer transit agencies and for providing incident information to the general public.
Skyway Concession Co.		• Coordinate incident response for Skyway with the public safety agencies.		• Perform incident detection and verification on the Skyway	• Install CCTV to provide incident detection and verification.
				• Provide incident information to Illinois Gateway	• Add data communications links with Illinois Gateway for providing incident information
Will County Department of Highways	• Install surveillance equipment (e.g. CCTV) on Will County arterials to detect and verify incidents.	• Coordinate incident response (including traffic or maintenance actions) for unincorporated portions of Will County with the Will County Sheriff.	• Maintain dispatch system and any ITS equipment in maintenance vehicles.	• Perform incident detection and verification for arterial streets in the unincorporated portions of Will County.	• Develop a Transportation Management Center to support detection and verification of incidents.

Table 5-1 Prototype Operational Concept for Incident Management

Stakeholder	Current Roles and Responsibilities			Objectives	Changes to Achieve Objectives
	Implementation	Operations	Maintenance		
	• Install DMS equipment on Will County arterials to inform travelers of incidents	• Dispatch maintenance vehicles to support incident response			• Implement CCTV at key freeway interchanges or other areas needing incident detection.
	• Provide upgrades to maintenance vehicle dispatch systems and to systems in the maintenance vehicles				• Implement DMS at key locations to support providing travelers with incident information.
					• Add data communications links with Illinois Gateway for providing incident information
Will County Sheriff	• Provide upgrades to emergency dispatch systems and to systems in the sheriff's vehicles	• Receive emergency calls for incidents within the unincorporated portions of Will County.	• Provide maintenance of dispatch system and of equipment in the sheriff's vehicles.	• Improve coordination with Will County Department of Highways for response to incidents.	• Add data communications links with Illinois Gateway for providing incident information
		• Dispatch Police, Fire, and EMS to incidents within the unincorporated portions of Will County		• Provide incident information to Illinois Gateway	• Add data communications links with Will County Department of Highways for sharing incident information and coordinating incident response
		• Coordinate incident response with Will County Department of		• Provide improved incident information to municipal traffic and public safety agencies.	

Table 5-1 Prototype Operational Concept for Incident Management

Stakeholder	Current Roles and Responsibilities			Objectives	Changes to Achieve Objectives
	Implementation	Operations	Maintenance		
		Highways.			
		• Coordinate incident response with municipal and state police.			

6.0 Regional Integration Strategies Update and Benefits Estimation

This section deals with two support aspects to the plan update, namely an update to the regional integration strategies of the original 1999 SEDP plus an overall approach to estimating project benefits. These aspects will be used later in more detailed planning and implementation of northeast Illinois ITS initiatives.

6.1 Regional Integration Strategies

The original 1999 SEDP presented regional integration strategies primarily in the context of the Gateway Traveler Information System (1999 SEDP Section 6). The text states, "*The SEDP addresses this issue of shared information by identifying levels of integration for compatibility with the Gateway regional architecture. This regional integration strategy provides a guide to information transfer requirements.*" The 1999 SEDP goes on to point out that technology integration provides the ability to store, use, and disseminate orders of magnitude more data than possible manually or through stand-alone systems. Furthermore, the level of integration of each transportation system in the region with the Gateway must be evaluated on a case by case basis during design. Design issues are coordinated through the Gateway Regional Integration Committee for the Corridor (GRICC, one of the Gateway working committees) to address the detailed project requirements.

In large part, this approach represented the view that at that time, the Gateway architecture essentially constituted the Regional ITS Architecture, and it was assumed that the Gateway would be the basic connecting and interfacing/integration mechanism. The 1999 SEDP went on to define five levels of integration, all the time emphasizing compatibility with the Gateway.

The subsequent Regional ITS Architecture completed in 2003 did not explicitly address the integration strategies defined in the 1999 SEDP. In mapping entities and information flows, however, it did make clear that the Gateway would not be the interfacing element for all systems and subsystems in the region. For example, the Regional ITS Architecture recognized that integration among the transit service providers (CTA, Metra and Pace) would occur at the Transit Hub. The information collected at the Transit Hub would be passed along to the Gateway and might serve as a means of integrating the transit elements with elements in other disciplines, such as traffic management. Another example is the existing direct interface and integration between ISTHA's Traffic and Incident Management System and the Illinois State Police District 15 computer-aided dispatch. Information from these systems is already flowing to the Gateway, but more to support the traveler information aspects of the Gateway, than to serve as a path for integration with other systems. In short, the Regional ITS Architecture represents the concept that while much integration will be via the Gateway, not all will take place this way.

Following is an update to the 1999 SEDP integration strategies that incorporates this new perspective on the role of the Gateway. Included are examples of each level as currently represented in the Regional ITS Architecture.

Level 0 – At the lowest level of integration, there is no connectivity between the individual system or with the Gateway. Requests for information are via traditional means such as telephone calls and personal contacts. Data is transmitted via facsimile, mail, courier, e-mail or other means and manually input into the receiving system. The Regional ITS Architecture is full of examples of this level of integration- it applies to all the interfaces that are defined as planned rather than existing. In the Regional ITS Architecture there are 1198 interfaces defined. Of these 118 are defined as having existing information flows on them. That means the rest do not currently have any data integration. As time goes on many of these interfaces will be implemented.

Level 1 – Read-only data is shared between the individual systems and usually with the Gateway. The data can be easily viewed, but it is not formatted for insertion into system databases except through manual means. Examples would include roadway maintenance reports obtained electronically or via other means. Gateway operators could manually key in the data as required. An example of this type of integration from the Regional ITS Architecture might be work zone information from IDOT District 1 Maintenance Management, which is passed along to the Gateway. This information would not be entered into system databases, but some of it might be keyed into overall traveler information provided by the Gateway.

Level 2 – Data is shared between the individual systems and usually with the Gateway. Data formats would be previously agreed to and exchanged such that a semi-automated response is possible. Manual data entry is not required, although some file handling may be necessary. Data is transmitted electronically. Level 2 introduces automated information concepts into the operational features of the system. An example of this level of integration from the Regional ITS Architecture might be the current interface between the ISTHA TMC (TIMS) and the Illinois State Police District 15 Operations Desk. These two systems (which reside in the same building) currently exchange incident information in an automated way with each other. They will probably move to higher levels of integration as time goes on.

Level 3 – Data and limited control is shared between individual systems and frequently with the Gateway. All data formats are compatible such that information is seamlessly exchanged between systems. An automated and coordinated response between agencies is possible. Limited control of remote field devices is possible from the Gateway or other operating agencies as previously agreed by all parties and documented in memoranda of understanding. Due to the region's high level of ITS implementation, there are even examples of this more advanced level of integration in the region today. One example would be the interface between the IDOT District 1 ComCenter and the IDOT District 1

Traffic Systems Center (TSC). The ComCenter is a 24/7 operation and at certain times assumes control of some of the TSC's ITS elements.

Level 4 – All system functions and data are seamlessly networked and frequently with the Gateway. The Gateway could function as a remote or redundant point of system access. Control of system devices would be possible from the Gateway or other operating agencies as previously agreed by all parties and documented in memoranda of understanding. This highest level of integration does not exist yet in the region, but the projects listed in this plan update will move some of the centers (and the Gateway) toward developing this level of integration.

For systems to be compatible with the Gateway, lower levels of integration could first be investigated. The compatibility issues must first be addressed prior to system design or modernization. In any case, agencies desiring connectivity with the Gateway at one of the above levels would define what information is appropriate for inclusion in the Gateway. Developing protocols, such as NTCIP, will facilitate compatibility, but will not define more global issues for the Gateway, such as, "what systems information is truly meaningful to the Gateway concept."

The 1999 SEDP went on to define integration compliance levels in terms of transportation management data types. The Regional ITS Architecture does not fundamentally change these, though there is one refinement in the data types. The 1999 SEDP defines six of these: Real Time Data, Historical Data, Archive Data, Real Time Control, Real Time Video and Archive Video. The Regional ITS Architecture reduces these to five data types, making no distinction between Historical Data and Archive Data. Otherwise, the integration compliance levels have not changed.

6.2 Estimating Project Benefits

The determination of benefits for deploying ITS remains a critical item of interest for transportation agencies because of the need to justify expenditures and to be as cost effective as possible. Detailed quantification of benefits is complex and time consuming. FHWA's ITS Joint Programs Office (JPO) has spearheaded an effort to better identify costs and benefits of deploying ITS (*Intelligent Transportation Systems Benefits and Cost;* B&C Update). The latest version of the document was published in May 2003. The general approach to using this as a template or guide for determining quantifiable benefits for three sample projects within the northeastern Illinois is described below. Also identified are less quantifiable secondary benefits.

6.2.1 Cook County Traffic Management Center

Various sub-systems are classified within the Arterial Management Systems section of the B&C Update, along with the associated costs and benefits. Advanced Traffic Signal Systems is the focus of the Cook County Traffic Management Center, and the primary benefit will be in reduced vehicle delay. If the size and extent of the study described in the B&C Update table is comparable, the results listed may be directly used. In this case,

reduced vehicle delay reported in a study for California cities may apply, and is expected to be as much as 25%. Secondary benefits are improved satisfaction of the users of the system, improved safety due to reduced stops and potential provision of surface street travel information.

6.2.2 Regional Transit Signal Priority

Transit Signal Priority is one of the sub-systems of Arterial Management Systems, as well. The B&C Update provides in addition to quantitative benefits, some qualitative benefits. For the implementation of Transit Signal Priority in northeastern Illinois, the improvement in bus travel time can be expected to be in the range of 2% to 20%. Secondary benefits of implementing regional Transit Signal Priority include increased transit ridership and improved operator productivity.

6.2.3 ITS Applications for Work Zone

Work Zone management is one of the sub-systems of Roadway Operations and Maintenance section of the B&C Update. Benefits listed are directly applicable to the proposed project for northeastern Illinois in this area. Implementation of ITS during construction can have a major impact on incident clearance times: reductions in the range of 40-44%. Secondary benefits include increased safety of the system and provision of work zone information to travelers.

6.2.4 Summary

The estimates of benefits presented above are illustrative of comparable implementations elsewhere. The key is to find implementations similar in size and scope to the specific project under consideration in northeastern Illinois. In that case, expected benefits can be reasonably estimated. Otherwise, project-specific modeling of benefits may be required, involving forecasting and simulation studies. A good example in the region has been RTA's Regional Transit Signal Priority Program. For that effort, extensive studies to identify corridors and detailed simulation studies of performance were completed. When and whether to go to that level of analysis must be determined on a case-by-case basis, depending mainly on the project justification requirements of funding and support agencies.

In some cases, intermediate benefits may also accrue. For example, ease of implementation may give a project a higher overall ranking than other projects. Some projects might be bundled as a package. For instance, additional traffic signal interconnects might be justified if a community is constructing a traffic management center at the same time. Funding agencies should take into account these more qualitative considerations when estimating benefits and selecting projects for implementation.

7.0 Projects of Regional Significance

Over the course of the last several years, planners and implementers of ITS in the region have identified three overarching priorities in ITS implementations, as follows:

- Accumulation and dissemination of real-time travel information. This includes information on networks and routes, travel time and congestion, incidents and CCTV images from the travel systems.
- Pro-active incident management. This covers detection/verification, response, site and area traffic management, and clearance.
- Traffic management of freeways and arterials. Included are facility surveillance, ramp metering, surface street traffic signal control and electronic toll collection.

These priorities overlap to some degree (e.g., real-time incident information usually derives from incident management) and need to be considered from a broad overview.

Based on these priorities, Projects of Regional Significance have been identified from the planning project list. Essentially, the 25 identified projects satisfy address one or more of these priorities at a regional level, particularly with respect to advancing the higher level integration strategies discussed in Section 6.1. Table 7-1 lists the Projects of Regional Significance.

Table 7-1 Projects of Regional Significance

Project No.	Name	Lead Agency
2	Chicago TMC	CDOT
13	Chicago Skyway Travel Monitoring and Integration with IDOT Gateway	CDOT
19	Cook County Traffic Management Center	Cook County
24	DuPage County Transportation Coordination Initiative (TCI)	DuPage County
28	Kane County Traffic Management Center	Kane County
31	Lake County Traffic Management Center	Lake County
34	McHenry County Traffic Management Center	McHenry County
37	Will County Traffic Management Center	Will County
41	Integration of Centers	IDOT
42	Interagency Operations and Signal Coordination	IDOT
48	CCTV Surveillance Sharing	IDOT
53	Regionwide Emergency Traffic Operations Systems (ETOS) Upgrade	IDOT
55	GATEWAY Traveler Information System, Phase II	IDOT
56	Statewide 511 Service	IDOT
57	IDOT - HAR System Coordination	IDOT
61	IDL/XML Schema for Centers Communication	IDOT
69	ISTHA TIMS Enhancement	ISTHA
72	ISTHA Systemwide Open Road Tolling (ORT)	ISTHA
75	Transit Hub: APTS	RTA
77	Transit HUB: ATIS	RTA
81	Train Passenger Information System	CTA
83	CTA Hub Enhancements	CTA
92	Metra TIMS Enhancements	Metra
96	PACE Hub Enhancement	Pace
100	Region Wide Transit Signal Priority Deployment	Pace

8.0 Action Plan

This section addresses implementation aspects of this ITS Plan Update covering funding shortfalls and early action projects. These discussions are followed by considerations in developing future projects relative to the Regional ITS Architecture, plus an overall schedule for updating the architecture and what should be included in the effort.

8.1 Deployment Funding Shortfalls

Table 4-3 summarized project costs by Lead Agency, including identification of obligated and not obligated (unfunded) amounts. Over all agencies, the total deployment cost for all 100 projects is $834.6 million. Of this total, about $529 million (63%) is obligated, and about $306 million (37%) is unfunded.

The lead agencies have a number of potential funding sources to fill the shortfalls. Re-authorization of the current Federal transportation bill (TEA-21), delayed since 2003, is now expected later this year. The new bill may offer funding in the form of continuing programs (e.g., CMAQ, FTA, STP), required commitments of money to ITS on a percentage basis, or earmarks. In view of the heightened interest in homeland security, the Department of Homeland Security (DHS) is a possible source of dollars, particularly for any projects that can be cast in this light. Specific funding might come via the Transportation Security Administration (TSA), an agency of the DHS.

8.2 Early Action Projects

Effective deployment of ITS in the Northeast Illinois region is dependent on successful completion of three important categories of projects. These three categories are GCM Gateway projects, TMCs and communications-related projects. Each of the three requires several component projects to be completed as follows.

GCM Gateway Projects

Key enabling projects for successful completion of CGM Gateway include:

- Chicago Skyway Travel Monitoring and Integration with IDOT Gateway
- Statewide 511 Service (complementary to the Gateway)
- Regional Emergency Traffic Operations System (ETOS) Upgrade
- IDL/XML Schema for Centers Communication
- GATEWAY Traveler Information System, Phase II

TMCs

The projects listed below are the key TMC projects:

- Chicago TMC
- Cook County Traffic Management Center
- DuPage County Transportation Coordination Initiative (TCI)
- Kane County Traffic Management Center
- Lake County Traffic Management Center
- McHenry County Traffic Management Center
- Will County Traffic Management Center

- ISTHA TIMS Enhancement
- Transit Hub: APTS
- Transit HUB: ATIS
- CTA Hub Enhancements
- Metra TIMS Enhancement
- PACE Hub Enhancement

Communication-Related Projects
The following projects enable the successful completion of creating communications link for sharing of data:

- Regional Communications Backbone
- Integration of Centers
- Interagency Operations and Signal Coordination
- CCTV Surveillance Sharing

The listed projects should be considered early action projects for implementation in the region.

8.3 Gap Analysis

The current effort has identified 100 projects spanning a wide range of regional stakeholders. While this is an extensive list, it does not begin to cover all the elements and interfaces defined in the Northeastern Illinois Regional ITS Architecture. As a part of this current effort we have identified the portions of the Regional ITS Architecture covered by each project and so can determine from that information what portion of the Regional ITS Architecture will be implemented by the set of projects. The following statistics give some idea of how the much of the regional architecture is covered by the current set of projects.

Overall Regional Architecture:

- Existing information flows: 458 (which equates to 123 interfaces)
- Planned information flows: 3,459 (which equates to 1,075 interfaces)

Complete set of 100 Projects:

- Information flows addressed: 842 (which equates to 236 interfaces)

The projects as currently defined cover about 24% of the planned information flows in the Regional ITS Architecture. Therefore many aspects of the Regional ITS Architecture are not covered by the current set of projects. Because of the large number flows to consider it is not practical to try to define these gaps at a very detailed level. Rather we will focus on the market packages identified in the regional architecture (and in the projects) and identify areas that are not covered at all by the projects, or are incompletely covered by the projects.

The Regional ITS Architecture covers 53 different market packages (or ITS services). The complete set of projects as currently defined address 30 of these market packages. Does the difference between these two numbers represent the total of all the gaps?

Unfortunately the answer is a little more complex than that. When the 23 services in the Regional ITS Architecture not covered by the projects are considered, some of them already exist and have a high level of deployment (e.g. Freeway Control). So the number of services that are in the Regional ITS Architecture and are planned, rather than existing services is a somewhat smaller number. In addition, some services in the Regional ITS Architecture represent capabilities that may be implemented far in the future (e.g. In-Vehicle Signing) and do not need to be considered in the gap analysis. Taking these factors into consideration, Table 8-1 represents the list of market packages that are not covered in the current set of projects that need to be considered in the gap analysis.

Table 8-1 Market Packages Not Covered by Current Project List

Market Package ID	Market Package Name
AD2	ITS Data Warehouse
ATIS8	Dynamic Ridesharing
ATMS05	HOV Lane Management
EM1	Emergency Response
MC10	Maintenance and Construction Activity Coordination

In addition to the market packages above that are planned and have no coverage in the set of projects, there are other market packages that should be considered in this analysis. They should be considered for the following reasons:

- The market package is existing, but most of the information flows are planned and not covered by the current set of projects
- The market package is planned, has some coverage in the current set of projects, but there are key interfaces that are not covered.

Table 8-2 identifies market packages that meet one of these two criteria and will also be considered in the analysis.

Table 8-2 Additional Market Packages Covered by Gap Analysis

Market Package ID	Market Package Name	Comment
APTS5	Transit Security	Only two of Transit Service Agencies covered by Projects
APTS6	Transit Maintenance	Only two of Transit Service Agencies covered by Projects
ATMS08	Incident Management	While this market package is existing, most of flows are planned. Only 20% covered by projects
MC06	Winter Maintenance	While this market package is existing, most of flows are planned. Less than 10% covered by projects
MC07	Roadway Maintenance and Construction	While this market package is existing, most of flows are planned. Less than 10% covered by projects

In order to evaluate the "gaps" between the current set of projects and the Regional ITS Architecture, this analysis will consider the key interface areas that are not currently covered. To do this, we will make use of the definition of the market package from the National ITS Architecture. These market package definitions identify interfaces between "entities" of the National ITS Architecture (e.g., subsystems and terminators) that are needed to provide the service. For example the EM1 Emergency Response service has the key interfaces shown in Figure 8-1.

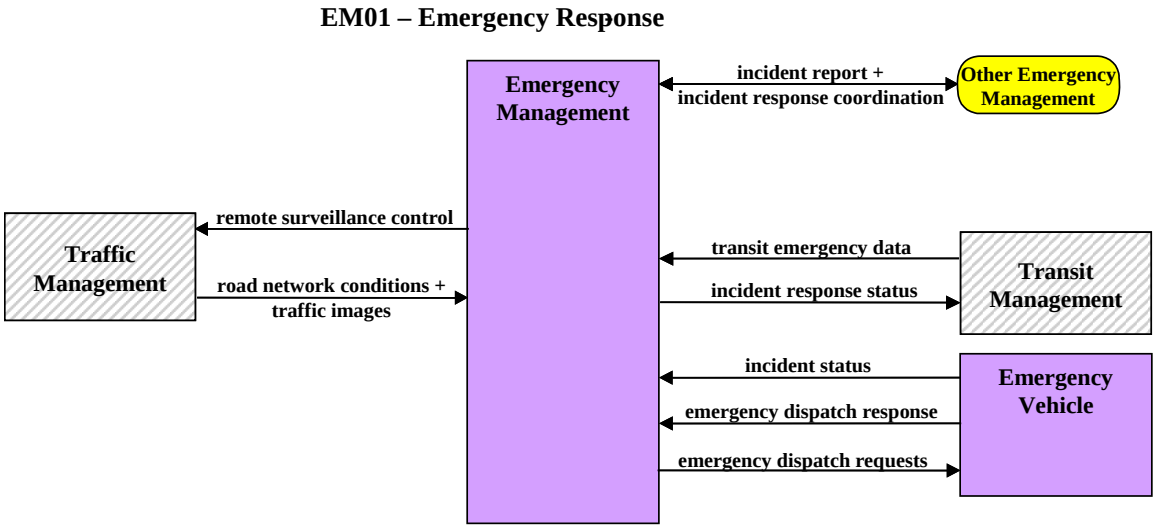

Figure 8-1 Example of Key Market Package Interfaces

The Regional ITS Architecture mapped regional elements to the various entities from the National ITS Architecture as shown in Table 8-3. The analysis will (in most cases) discuss the type of interface not covered by the projects (e.g., the Emergency Management to Other Emergency Management interface from market package EM1) and reference the list of elements to which this interface applies (e.g., those elements mapped to Emergency Management in Figure 8-1). In a couple of cases (e.g., APTS6 Transit Maintenance), the missing interface type relates to just a couple of the elements rather than all the elements mapped to an entity in Figure 8-1, and in this case the specific elements will be called out.

Table 8-3 Mapping of Regional Elements to Entities

Entity	Element	Stakeholder
Archived Data Management Subsystem	Academic/Research Organizations Data Warehouse	Academic/Research Organizations
Archived Data Management Subsystem	City of Chicago DOT TMC	City of Chicago Department of Transportation
Archived Data Management Subsystem	CTA Data Archive	Chicago Transit Authority
Archived Data Management Subsystem	GCM Data Archive	Illinois Dept of Transportation ITS Program Office
Archived Data Management Subsystem	IDOT District 1 ComCenter	Illinois Dept of Transportation District 1 Bureau of Electrical Operations
Archived Data Management Subsystem	Illinois Local Accident Reporting System	Illinois Dept of Transportation Division of Traffic Safety
Archived Data Management Subsystem	Illinois Transit Hub	Regional Transportation Authority
Archived Data Management Subsystem	Northeastern Illinois Regional Data Archive	Chicago Area Transportation Study (CATS)
Emergency Management	*999 Cellular Express Line	Illinois State Toll Highway Authority
Emergency Management	City of Chicago 311 Center	City of Chicago Office of Emergency Management and Communications

Entity	Element	Stakeholder
Emergency Management	City of Chicago 911 Emergency Communications Center	City of Chicago Office of Emergency Management and Communications
Emergency Management	City of Chicago Emergency Operations Center	City of Chicago Office of Emergency Management and Communications
Emergency Management	Coast Guard Dispatch	US Coast Guard
Emergency Management	Cook County EOC	Cook County Sheriff Emergency Management Agency
Emergency Management	Cook County Sheriff Communications Center	Cook County Sheriff
Emergency Management	DuPage County EOC	DuPage County Office of Emergency Management
Emergency Management	DuPage County Sheriff Communications Center	DuPage County Sheriff
Emergency Management	Great Lakes Training Center	US Navy
Emergency Management	IDOT District 1 ComCenter	Illinois Dept of Transportation District 1 Bureau of Electrical Operations
Emergency Management	IDOT Emergency Traffic Patrol (ETP)	Illinois Dept of Transportation District 1 Bureau of Traffic
Emergency Management	Illinois State Operations Center	Illinois Emergency Management Agency
Emergency Management	Illinois State Police Dispatch (Districts 2, 5 and Chicago)	Illinois State Police Districts 2, 5, and Chicago
Emergency Management	Illinois State Police District 15 Operations Desk	Illinois State Police District 15
Emergency Management	Indiana County/ Municipal Public Safety Dispatch	Indiana Public Safety Agencies
Emergency Management	Indiana State Police Dispatch	Indiana State Police
Emergency Management	ISTHA Dispatch Center	Illinois State Toll Highway Authority
Emergency Management	Kane County 911 Center	Kane County Sheriff
Emergency Management	Kane County EOC	Kane County Office of Emergency Management
Emergency Management	Kenosha County Public Safety Dispatch	Kenosha County Public Safety Agencies
Emergency Management	Lake County Communications Center	Lake County Sheriff
Emergency Management	Lake County EOC	Lake County Sheriff
Emergency Management	McHenry County EOC	McHenry County Emergency Services and Disaster Agency
Emergency Management	McHenry County Sheriff Dispatch	McHenry County Sheriff
Emergency Management	Municipal EMCs	Municipalities
Emergency Management	Municipal Public Safety Dispatch	Municipalities
Emergency Management	Private Tow and Recovery Operations	Private Towing Companies
Emergency Management	Will County EOC	Will County Emergency Management Agency
Emergency Management	Will County Sheriff Communications Center	Will County Sheriff
Emergency Management	Wisconsin Municipal Public Safety	Wisconsin Public Safety Agencies
Emergency Management	Wisconsin State Patrol District 2 Dispatch	Wisconsin Dept of Transportation
Emergency Vehicle	Highway Emergency Lane Patrol	Illinois State Toll Highway Authority

Entity	Element	Stakeholder
Subsystem	Vehicles	
Emergency Vehicle Subsystem	IDOT Emergency Traffic Patrol Vehicles	Illinois Dept of Transportation District 1 Bureau of Traffic
Emergency Vehicle Subsystem	Illinois State Police Vehicles	Illinois State Police
Emergency Vehicle Subsystem	Municipal Public Safety Vehicles*	Municipalities
Emergency Vehicle Subsystem	Will County Sheriff Vehicles*	Will County Sheriff
Emissions Management	Illinois Environmental Protection Agency (EPA)	Illinois Environmental Protection Agency
Event Promoters	Chicago Bureau of Convention and Tourism Database	Chicago Bureau of Convention and Tourism
Event Promoters	Great Lakes Training Center	US Navy
Event Promoters	Mayors Office of Special Events	City of Chicago
Event Promoters	Regional Event Facilities	Regional Event Organizations
Information Service Provider	CATS Dynamic Ridesharing	Chicago Area Transportation Study (CATS)
Information Service Provider	City of Chicago DOT TMC	City of Chicago Department of Transportation
Information Service Provider	City of Chicago DOT Transportation Website	City of Chicago Department of Transportation
Information Service Provider	Gateway Central	Illinois Dept of Transportation ITS Program Office
Information Service Provider	Gateway Website	Illinois Dept of Transportation ITS Program Office
Information Service Provider	IDOT Central Bureau of Operations Roadway and Weather Information System	Illinois Dept of Transportation Central Bureau of Operations
Information Service Provider	IDOT District 1 ComCenter	Illinois Dept of Transportation District 1 Bureau of Electrical Operations
Information Service Provider	IDOT District 1 Traffic Systems Center (TSC)	Illinois Dept of Transportation District 1 Bureau of Traffic
Information Service Provider	Illinois DOT Info	Illinois Dept of Transportation Operations
Information Service Provider	Illinois Gateway	Illinois Dept of Transportation District 1 Bureau of Traffic
Information Service Provider	Illinois Transit Hub	Regional Transportation Authority
Information Service Provider	Indiana Gateway	Indiana Dept of Transportation
Information Service Provider	ISTHA TMC (TIMS)	Illinois State Toll Highway Authority
Information Service Provider	Lake County Website*	Lake County Division of Transportation
Information Service Provider	Northeastern Illinois 511 System	Illinois Dept of Transportation Operations
Information Service Provider	Private ISPs - Travel Information Services	Private ISPs
Information Service Provider	Regional Transportation Authority Travel Information Center (TIC)	Regional Transportation Authority
Information Service	Satellite TMC OHare Airport	City of Chicago Department of

Entity	Element	Stakeholder
Provider		Aviation
Information Service Provider	Web Watch Internet Site*	Pace
Information Service Provider	Wisconsin Gateway	Wisconsin Dept of Transportation
Intermodal Freight Depot	Centerpoint Intermodal Facility	Centerpoint Development
Intermodal Freight Depot	OHare Air Cargo Terminal	City of Chicago Department of Aviation
Intermodal Freight Depot	Port of Chicago	Chicago Port Authority
Maintenance and Construction Management	City of Chicago Bureau of Street Operations Dispatch	City of Chicago Department of Streets and Sanitation Bureau of Street Operations
Maintenance and Construction Management	City of Chicago DOT BOS Roadway Maintenance	City of Chicago Department of Transportation
Maintenance and Construction Management	City of Chicago DSS BOE Signal Maintenance	City of Chicago Department of Streets and Sanitation
Maintenance and Construction Management	City of Chicago DSS Traffic Services Dispatch	City of Chicago Department of Streets and Sanitation
Maintenance and Construction Management	Cook County Highway Department Construction Bureau	Cook County Highway Department
Maintenance and Construction Management	Cook County Highway Department Maintenance Bureau	Cook County Highway Department
Maintenance and Construction Management	DuPage County Maintenance	DuPage County Division of Transportation
Maintenance and Construction Management	IDOT District 1 Bureau of Construction	Illinois Dept of Transportation District 1 Bureau of Construction
Maintenance and Construction Management	IDOT District 1 Bureau of Traffic-Expressway Operations Unit	Illinois Dept of Transportation District 1 Bureau of Traffic
Maintenance and Construction Management	IDOT District 1 ComCenter	Illinois Dept of Transportation District 1 Bureau of Electrical Operations
Maintenance and Construction Management	IDOT District 1 Maintenance Management	Illinois Dept of Transportation District 1 Bureau of Maintenance
Maintenance and Construction Management	ISTHA Maintenance and Construction	Illinois State Toll Highway Authority
Maintenance and Construction Management	Kane County Maintenance	Kane County Division of Transportation
Maintenance and Construction Management	Kenosha County Highway Maintenance	Kenosha County Department of Public Works
Maintenance and Construction	Lake County Highway Construction	Lake County Division of Transportation

Entity	Element	Stakeholder
Management		
Maintenance and Construction Management	Lake County Highway Maintenance	Lake County Division of Transportation
Maintenance and Construction Management	McHenry County Maintenance	McHenry County Highway
Maintenance and Construction Management	Municipal/ Township Maintenance	Municipalities
Maintenance and Construction Management	Private Sector Maintenance Contractor	Private Sector Maintenance Contractor
Maintenance and Construction Management	Utility Company Dispatch	Utility Companies
Maintenance and Construction Management	Will County Maintenance	Will County Department of Highways
Maintenance and Construction Vehicle	City of Chicago Bureau of Street Operations Vehicles	City of Chicago Department of Streets and Sanitation Bureau of Street Operations
Maintenance and Construction Vehicle	City of Chicago DOT BOS Vehicles	City of Chicago Department of Transportation
Maintenance and Construction Vehicle	Cook County Maintenance Vehicles	Cook County Highway Department
Maintenance and Construction Vehicle	IDOT Maintenance Vehicles	Illinois Dept of Transportation District 1 Bureau of Maintenance
Maintenance and Construction Vehicle	ISTHA Maintenance Vehicles*	Illinois State Toll Highway Authority
Maintenance and Construction Vehicle	Kane County Maintenance Vehicles*	Kane County Division of Transportation
Media	Media	Area Media Outlets
Multimodal Transportation Service Provider	AMTRAK Rail	AMTRAK
Multimodal Transportation Service Provider	Chicago Airports	City of Chicago Department of Aviation
Multimodal Transportation Service Provider	Neighboring Airports	Regional Airport Authority
Multimodal Transportation Service Provider	Water Taxi Service	Water Taxi Operators
Parking Management	Chicago Airport Parking Systems	City of Chicago Department of Aviation
Parking Management	Chicago Park District Parking Management System	Chicago Park District
Parking Management	Chicago Transit Authority Parking Management Guidance System	Chicago Transit Authority
Parking Management	Metra Parking Management	Metra

Entity	Element	Stakeholder
	Guidance System	
Parking Management	MPEA Parking Management	Metro Pier and Exposition Authority (MPEA)
Parking Management	Municipal Parking Management Guidance System	Municipalities
Parking Management	Private Parking Lots	Private Parking Operators
Parking Management	Satellite TMC OHare Airport	City of Chicago Department of Aviation
Rail Operations	AMTRAK Rail	AMTRAK
Rail Operations	Rail Freight Operations	Rail Freight Operators
Roadway Subsystem	City of Chicago DOT Roadside Equipment	City of Chicago Department of Transportation
Roadway Subsystem	City of Chicago DSS Roadside Equipment	City of Chicago Department of Streets and Sanitation
Roadway Subsystem	City of Chicago Skyway Roadside Equipment	City of Chicago Department of Streets and Sanitation
Roadway Subsystem	Cook County Highway Department Roadside Equipment	Cook County Highway Department
Roadway Subsystem	DuPage County Roadside Equipment	DuPage County Division of Transportation
Roadway Subsystem	IDOT Central Bureau of Operations Roadside Equipment	Illinois Dept of Transportation Central Bureau of Operations
Roadway Subsystem	IDOT District 1 Bureau of Traffic Signal Unit Roadside Equipment	Illinois Dept of Transportation District 1 Bureau of Traffic
Roadway Subsystem	IDOT District 1 ComCenter Roadside Equipment	Illinois Dept of Transportation District 1 Bureau of Electrical Operations
Roadway Subsystem	IDOT District 1 Traffic Systems Center Roadside Equipment	Illinois Dept of Transportation District 1 Bureau of Traffic
Roadway Subsystem	ISTHA TMC Roadside Equipment	Illinois State Toll Highway Authority
Roadway Subsystem	Kane County Roadside Equipment	Kane County Division of Transportation
Roadway Subsystem	Lake County Roadside Equipment	Lake County Division of Transportation
Roadway Subsystem	McHenry County Roadside Equipment	McHenry County Highway
Roadway Subsystem	Metra PMGS Signs	Metra
Roadway Subsystem	Metra Track and Signaling Equipment	Metra
Roadway Subsystem	Municipal Traffic Systems Roadside Equipment*	Municipalities
Roadway Subsystem	Will County Roadside Equipment	Will County Department of Highways
Security Monitoring Subsystem	CTA Security Equipment*	Chicago Transit Authority
Surface Transportation Weather Service	Weather Services	Private Weather Information Providers
Toll Administration	City of Chicago Skyway Operations	City of Chicago
Toll Administration	ISTHA Toll Administration Center	Illinois State Toll Highway Authority
Toll Collection	City of Chicago Skyway Roadside Equipment	City of Chicago Department of Streets and Sanitation
Toll Collection	City of Chicago Skyway Toll Plaza	City of Chicago

Entity	Element	Stakeholder
Toll Collection	ISTHA I-Pass Toll Plazas	Illinois State Toll Highway Authority
Traffic Management	Borman Traffic Management Center	Indiana Dept of Transportation-Laporte District
Traffic Management	City of Chicago DOT TMC	City of Chicago Department of Transportation
Traffic Management	City of Chicago Skyway Operations	City of Chicago
Traffic Management	Cook County TMC	Cook County Highway Department
Traffic Management	DuPage Area TMC	DuPage Mayors and Managers Conference
Traffic Management	DuPage County TMC	DuPage County Division of Transportation
Traffic Management	Gateway Central	Illinois Dept of Transportation ITS Program Office
Traffic Management	IDOT Central Bureau of Operations Roadway and Weather Information System	Illinois Dept of Transportation Central Bureau of Operations
Traffic Management	IDOT District 1 Bureau of Traffic Signal Unit	Illinois Dept of Transportation District 1 Bureau of Traffic
Traffic Management	IDOT District 1 ComCenter	Illinois Dept of Transportation District 1 Bureau of Electrical Operations
Traffic Management	IDOT District 1 Traffic Systems Center (TSC)	Illinois Dept of Transportation District 1 Bureau of Traffic
Traffic Management	Illinois Gateway	Illinois Dept of Transportation District 1 Bureau of Traffic
Traffic Management	Indiana DOT Arterial TMC	Indiana Dept of Transportation
Traffic Management	Indiana Gateway	Indiana Dept of Transportation
Traffic Management	Indiana Toll Road Operations Center	Indiana Dept of Transportation
Traffic Management	ISTHA TMC (TIMS)	Illinois State Toll Highway Authority
Traffic Management	Kane County TMC	Kane County Division of Transportation
Traffic Management	Lake County TMC	Lake County Division of Transportation
Traffic Management	McHenry County TMC	McHenry County Highway
Traffic Management	Municipal TMCs	Municipalities
Traffic Management	Satellite TMC Midway Airport	City of Chicago Department of Aviation
Traffic Management	Satellite TMC OHare Airport	City of Chicago Department of Aviation
Traffic Management	South Suburban Airport TMC	Regional Airport Authority
Traffic Management	Will County TMC	Will County Department of Highways
Traffic Management	Wisconsin Gateway	Wisconsin Dept of Transportation
Traffic Management	WsDOT District 2 Traffic Operations Center	Wisconsin Dept of Transportation
Transit Management	Chicago Transit Authority ATSS System	Chicago Transit Authority
Transit Management	Chicago Transit Authority BusInfo System	Chicago Transit Authority
Transit Management	Chicago Transit Authority Control Center	Chicago Transit Authority
Transit Management	Chicago Transit Authority	Chicago Transit Authority

Entity	Element	Stakeholder
	Paratransit Dispatch	
Transit Management	CTA Garages	Chicago Transit Authority
Transit Management	DuPage Centralized Paratransit Dispatch	DuPage County Division of Human Services
Transit Management	Illinois Transit Hub	Regional Transportation Authority
Transit Management	Independent School District Dispatch	Independent School Districts
Transit Management	Metra Passenger Information Display System	Metra
Transit Management	Metra Consolidated Control Facility	Metra
Transit Management	Metra Train Information Management System	Metra
Transit Management	Municipal Transit Operations	Municipalities
Transit Management	NICTD Dispatch	Northwestern Indiana Commuter Transportation District
Transit Management	Pace BusInfo System	Pace
Transit Management	Pace IBS	Pace
Transit Management	Pace Paratransit Dispatch	Pace
Transit Management	Private Bus Dispatch	Private Bus Agencies
Transit Management	Private Taxi Dispatch	Private Taxi Companies
Transit Management	Public/Non-Profit Paratransit Services	Public and Non-Profit Paratransit Agencies
Transit Management	Regional Transportation Authority Travel Information Center (TIC)	Regional Transportation Authority
Transit Management	RTA Itinerary Planning System	Regional Transportation Authority
Transit Vehicle Subsystem	Chicago Transit Authority Bus Vehicles	Chicago Transit Authority
Transit Vehicle Subsystem	Chicago Transit Authority Paratransit Vehicles	Chicago Transit Authority
Transit Vehicle Subsystem	Chicago Transit Authority Rapid Transit Vehicles	Chicago Transit Authority
Transit Vehicle Subsystem	DuPage Paratransit Vehicles	DuPage County Division of Human Services
Transit Vehicle Subsystem	Metra Trains	Metra
Transit Vehicle Subsystem	Pace Paratransit Vehicles	Pace
Transit Vehicle Subsystem	Pace Transit Bus Vehicles	Pace

The following subsections identify, for each market packages where "gaps" exist between the project list and the Regional ITS Architecture, the missing interface types or specific interfaces depending upon the market package. Appendix 6 provides a detailed listing of the missing interfaces, taken from the Regional ITS Architecture for each of the gap areas below. Together, these resources provide basic information that stakeholders and agencies can use to conceive and develop future projects.

8.3.1. AD2- ITS Data Warehouse

The ITS Data Warehouse market package collects transportation information from a variety of sources and shares this information between archives. The key interfaces for this service are shown in Figure 8-2.

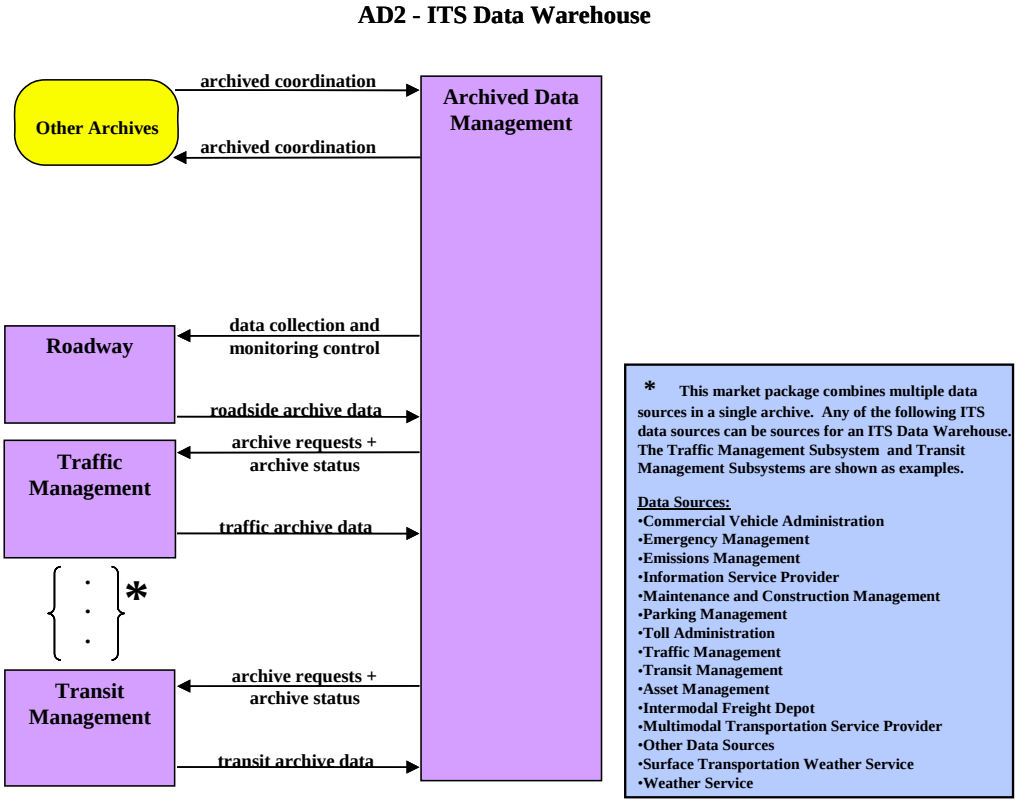

Figure 8-2 ITS Data Warehouse Key Interfaces

The current set of projects considers one of the archive elements from the Regional ITS Architecture, the GCM Data Archive, but the other two primary archive elements, the Northeastern Illinois Regional Data Archive and the Academic/Research Organizations Data Warehouse, are not considered in the list of projects. Therefore, interfaces to provide information into these archives (for example interfaces with the Illinois Gateway or Illinois Transit Hub which could provide a wide array of traffic, maintenance, or transit information for archiving) are not covered. In addition the archive to archive interfaces are not covered.

8.3.2. APTS5- Transit Security

The Transit Security market package provides for the physical security of transit passengers and transit vehicle operators through the deployment of emergency alarms, surveillance and sensor equipment on-board transit vehicles and at public or non-public transit facilities. Figure 8-3 shows the key interfaces for this market package. Metra and CTA have current deployments of this service and the current project list contains projects by CTA and PACE to address this service.

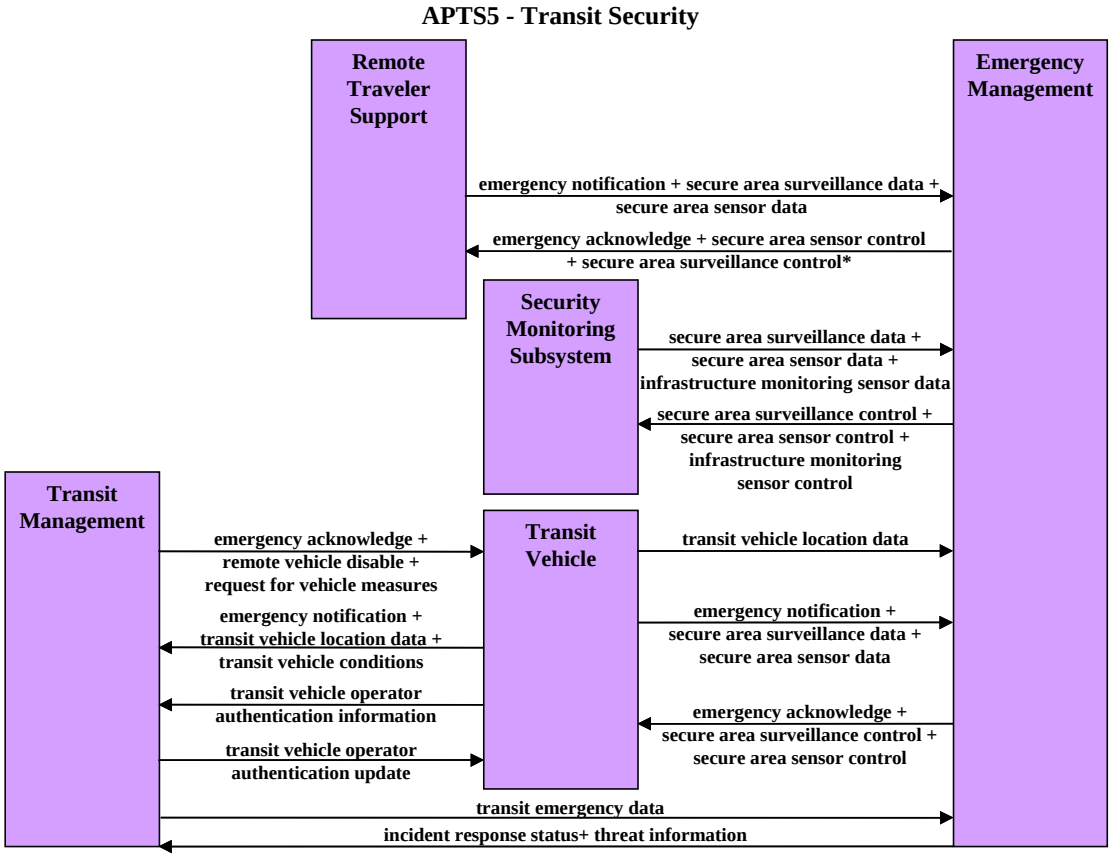

Figure 8-3 Transit Security Key Interfaces

Description of Gap

The following elements/ interfaces are planned in the Regional ITS Architecture but not covered by the current list of projects:

- Metra CCF interfaces to the Metra Trains and to Emergency Management elements (only the interface to the IDOT Com Center is currently addressed)
- CTA centers to Emergency Management elements.
- Dupage Centralized Paratransit Dispatch to Emergency Management Elements
- Independent School District Dispatch to Emergency Management Elements

These represent candidates for additional project definition.

8.3.3. APTS6- Transit Maintenance

The Transit Maintenance market package automates the collection of transit vehicle maintenance data and the scheduling of transit vehicle maintenance. The key interface in this market package, as shown in Figure 8-4 is the Transit Management to Transit Vehicle interface. The current set of projects consider how CTA buses and Metra trains might implement this service (and Pace has already implemented the service), but some of the remaining paratransit systems are not covered.

APTS6 - Transit Maintenance

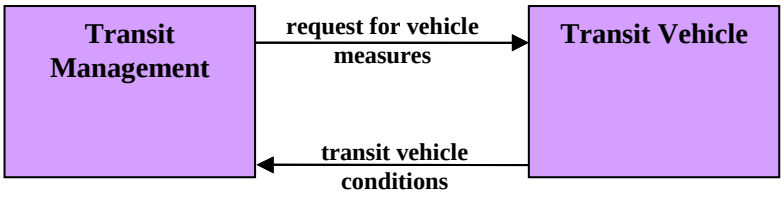

Figure 8-4 Transit Maintenance Key Interface

Description of Gap

The Regional ITS Architecture includes planned interfaces with the following transit vehicles:

- Chicago Transit Authority Paratransit Vehicles
- DuPage Paratransit Vehicles

These two interfaces are candidates for additional project definition.

8.3.4 ATIS8- Dynamic Ridesharing

The Dynamic Ridesharing market package describes automation of the ridematching process to allow "real time" application of the service. The key interfaces are shown in Figure 8-5. This service is not covered at all in the current set of projects. In the Regional ITS Architecture this service is focused around the element CATS Dynamic Ridesharing.

ATIS8 - Dynamic Ridesharing

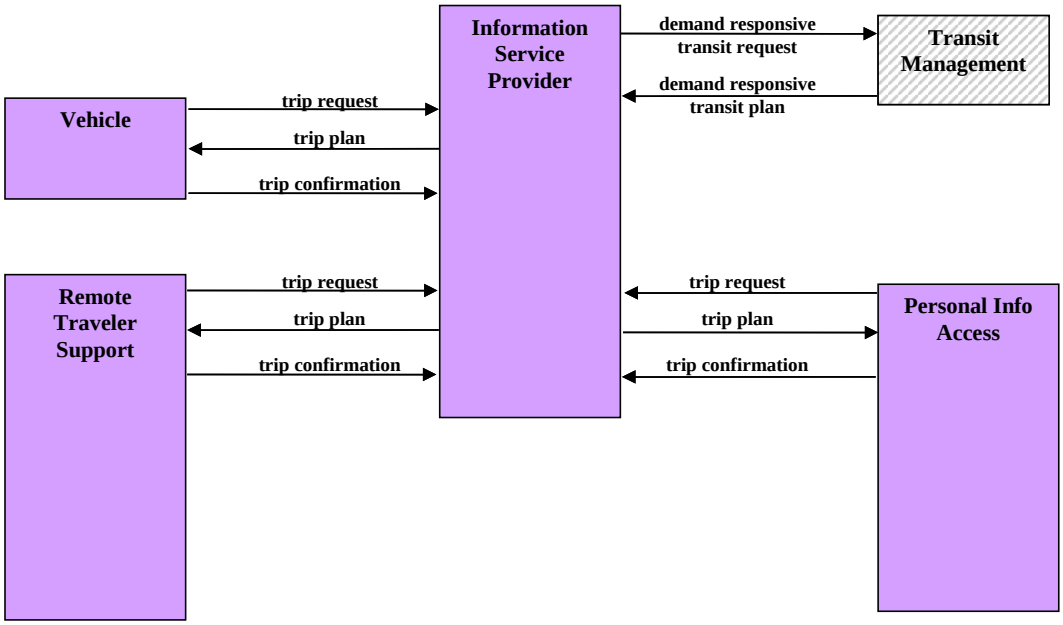

Figure 8-5 Dynamic Ridematching Key Interfaces

Description of Gap
The Regional ITS Architecture defines four interfaces to the CATS Dynamic Ridesharing system, including interfaces to Illinois Transit Hub. These represent a gap in the current set of projects that could be addressed via additional project definition.

8.3.5. ATMS05- HOV Lane Management

The HOV Lane Management market package automates the operation of high occupancy vehicle lanes, including using automated sensing of occupancy violations. The key interface in this market package is the Traffic Management to Roadway Interface as shown in Figure 8-6. In the Regional ITS Architecture this service is identified as planned for the IDOT District 1 Traffic Systems Center (TSC).

Definition of Gap
The implementation of HOV Lane Management for the IDOT District 1 Traffic Systems Center (TSC) is a gap in the current set of projects and could be addressed by definition of an additional project.

ATMS05 – HOV Lane Management

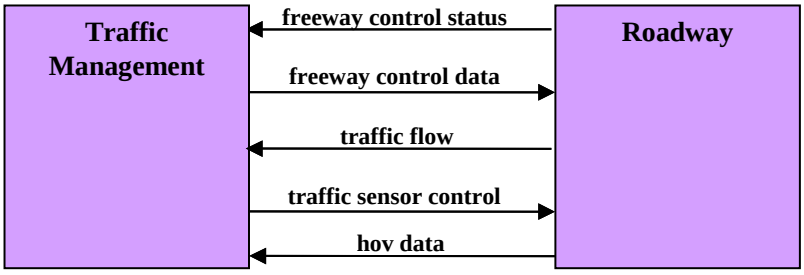

Figure 8-6 HOV Lane Management Key Interface

8.3.6. ATMS08- Traffic Incident Management

This market package covers a wide range of interfaces relating to incident management. Figure 8-7 shows the key interfaces for this market package. This is a case where there are many existing information flows in the Regional ITS Architecture relating to incident management (in fact there are 204 existing information flows relating to this service). The existing information flows cover primarily interfaces among some of the Traffic Management and Emergency Management elements. In addition, there are 24 projects in the current project list that address some aspect of this service. However these projects in general focus on the Traffic Management to Other Traffic Management and Traffic Management to Roadway interfaces. As shown in Figure 8-7, there are other key interfaces that are not covered by the current set of projects or by the existing information flows. These interfaces are identified with the ovals in the figure.

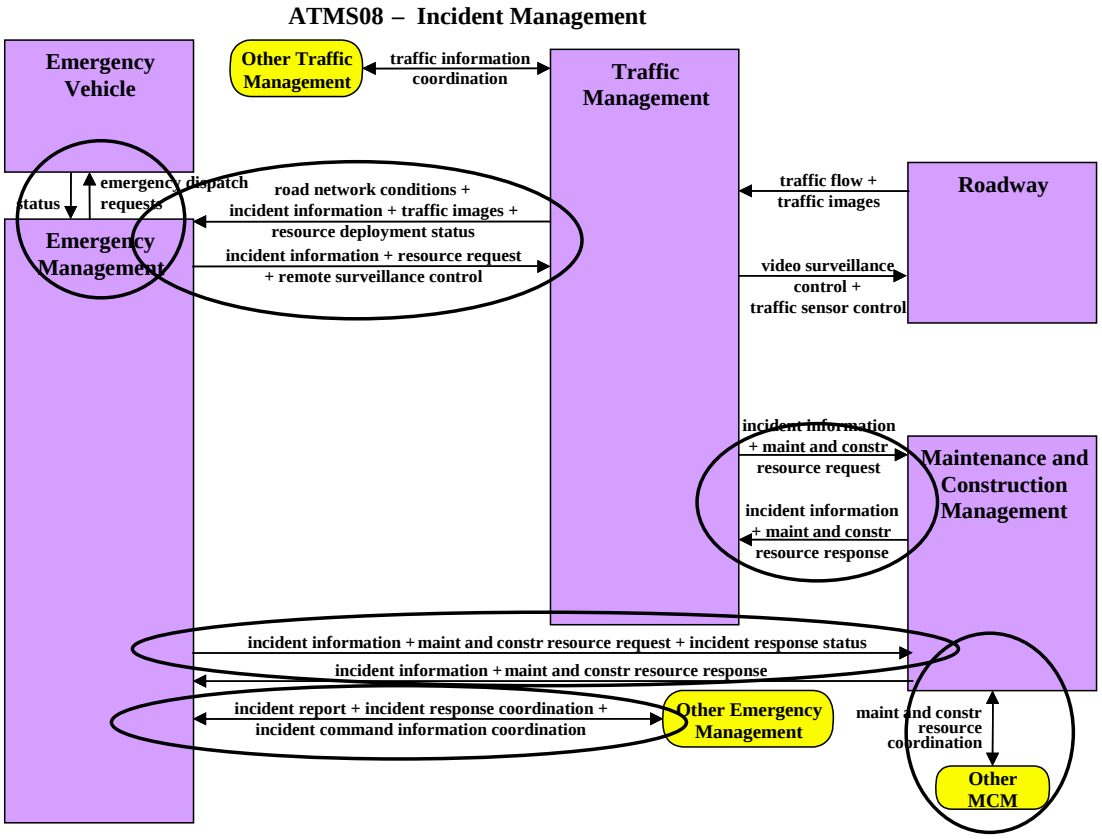

Figure 8-7 Incident Management Key Interfaces

As shown in Figure 8-7, the Regional ITS Architecture has a wide array of elements mapping to the key subsystems shown in the diagram: Emergency Management (EM), Traffic Management (TMS), and Maintenance and Construction Management (MCMS).

Definition of Gap

In general the interfaces identified in Figure 8-7 with ovals are not covered in the current set of projects (a few of the Traffic Management to Emergency Management interfaces and Emergency Management to Other Emergency Management interfaces are covered by existing flows or by the projects, but most are not). Therefore, additional projects of the following types should be considered to address these interfaces:

- TMS interfaces to EM and MCMS
- MCMS Interfaces to EM and other MCMS
- EM interfaces to Other EM.

8.3.7. EM1- Emergency Response

The Emergency Response market package provides basic public safety call-taking and dispatch of public safety vehicles. Figure 8-8 shows the key interfaces for this market package.

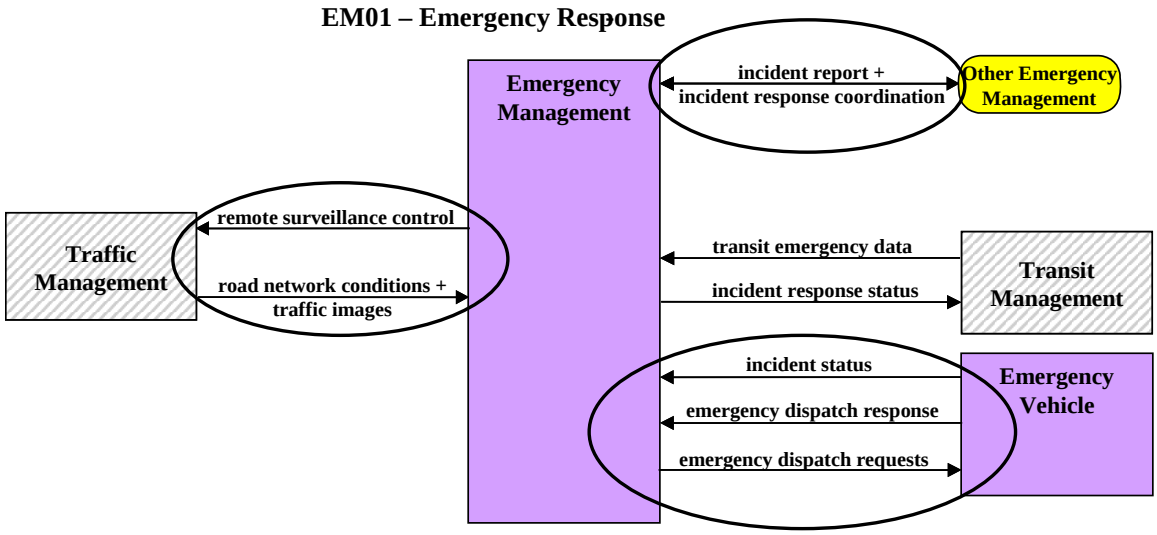

Figure 8-8 Emergency Response Key Interfaces

For this market package, similar to the Incident Management market package, there are many existing information flows defined in the Regional ITS Architecture (114 information flows), as well as many flows defined in the current list of projects (123 information flows). The existing flows cover some of the Emergency Management to Other Emergency Management interfaces as well as some of the Emergency Management to Transit Management interfaces. The new interfaces defined in the projects focus primarily on the Traffic Management to Emergency Management interface and additional Transit Management interfaces with Emergency Management.

Description of Gap

The existing and planned (as part of the current set of projects) information flows represent only 25% of the total number of flows defined in the Regional ITS Architecture. They do represent most of the Transit Management to Emergency Management flows, so that interface is well covered. The primary interfaces that are not covered (and are shown in the figure with the ovals) are Emergency Management interfaces to:

- Emergency Vehicles
- Additional Other Emergency Management
- Additional Traffic Management

These interfaces are candidates for additional project definition.

8.3.8. MC06- Winter Maintenance

The Winter Maintenance market package supports winter road maintenance including snow plow operations, roadway treatments (e.g., salt spraying and other anti-icing material applications), and other snow and ice control activities. The key interfaces for the market package are shown in Figure 8-9. A small number of the Traffic Management to Maintenance Management interfaces exist in the Regional ITS Architecture for IDOT elements, and a few interfaces relative to City of Chicago are added by the current set of projects, but by and large this market package is not well covered.

Definition of Gap

As Figure 8-9 shows, this market package is all about interfaces from the Maintenance and Construction Management subsystem to other entities. The gaps relate to all of the key interfaces shown in the figure. In particular the interfaces to Maintenance Vehicles, Other Maintenance, Traffic Management, and the Surface Transportation Weather Service are gaps and represent candidates for additional project definition.

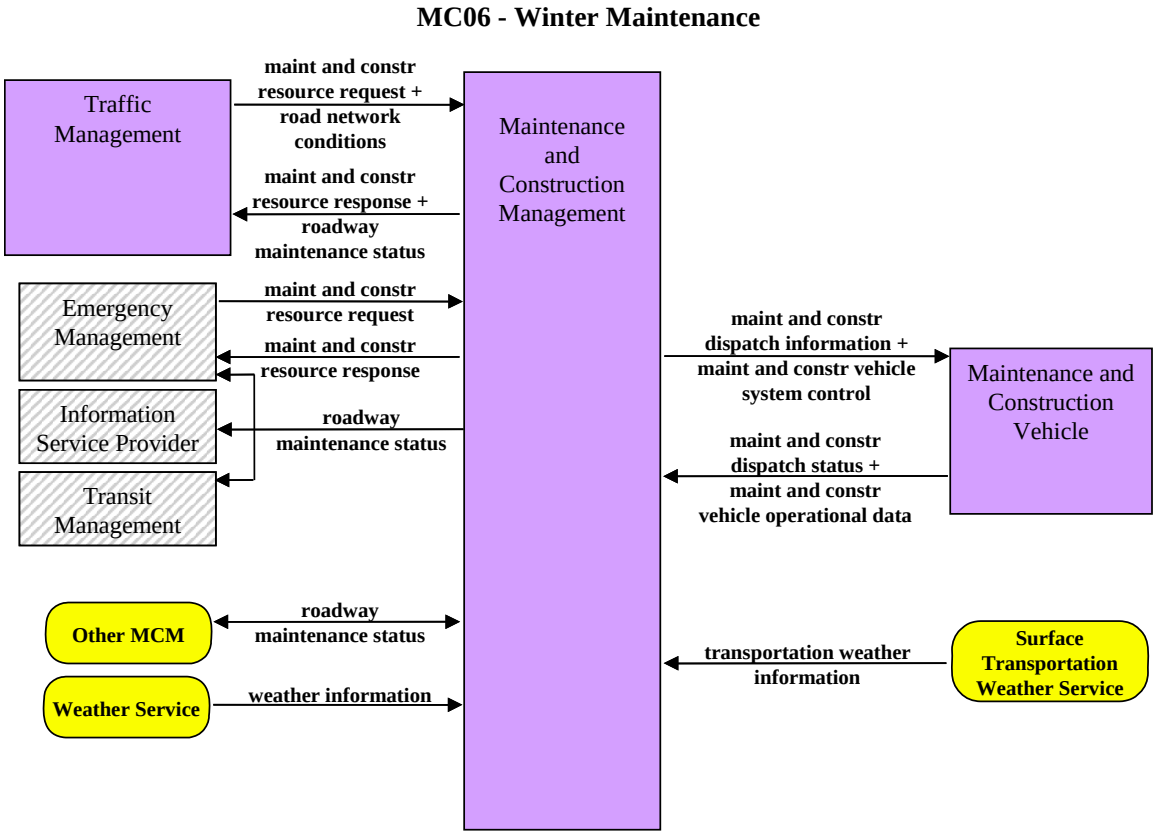

Figure 8-9 Winter Maintenance Key Interfaces

8.3.9. MC 07- Roadway Maintenance and Construction

The Roadway Maintenance and Construction market package supports numerous services for scheduled and unscheduled maintenance and construction on a roadway system or right-of-way. Maintenance services would include landscape maintenance, hazard removal (roadway debris, dead animals), routine maintenance activities (roadway cleaning, grass cutting), and repair and maintenance of both ITS and non-ITS equipment on the roadway (e.g., signs, traffic controllers, traffic detectors, dynamic message signs, traffic signals, CCTV, etc.). Figure 8-10 shows the key interfaces for this market package. A small number of the Traffic Management to Maintenance Management interfaces exist in the Regional ITS Architecture for IDOT elements. The current set of projects adds some additional interfaces including some City of Chicago, several ISTHA interfaces, and several Roadway interfaces for county elements.

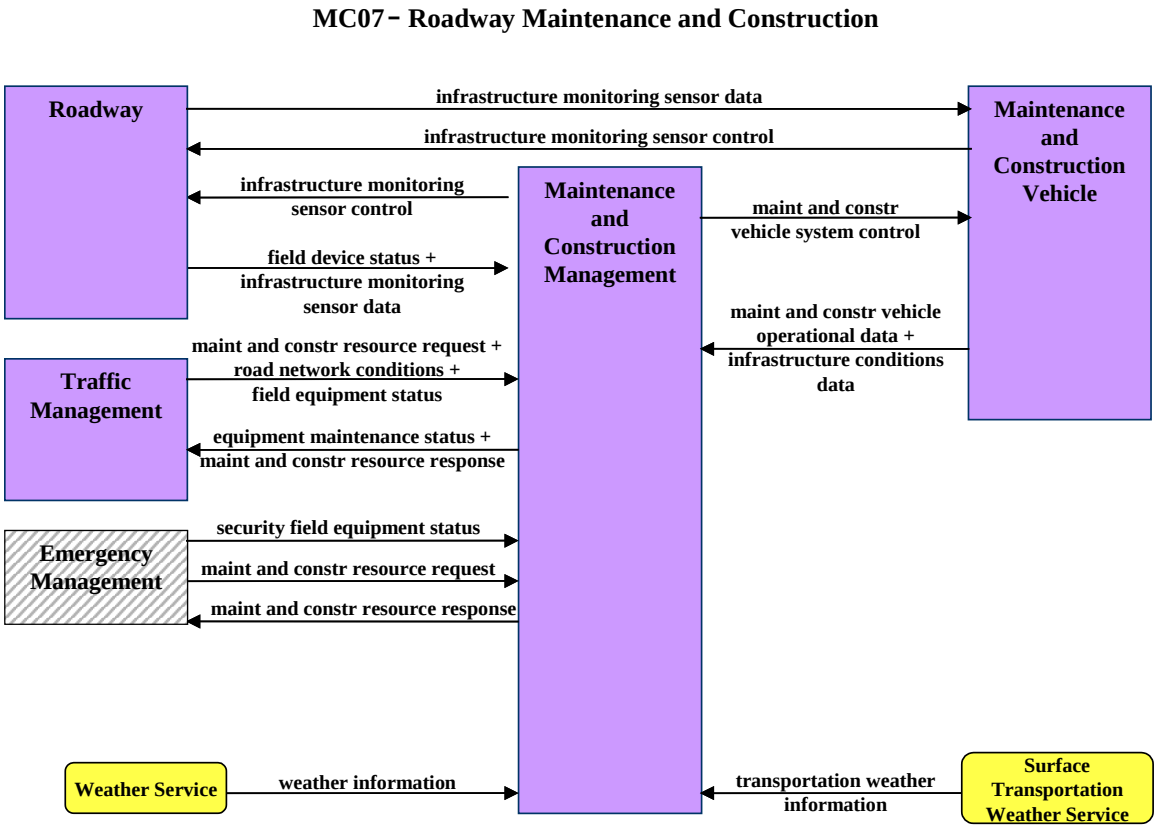

Figure 8-10 Roadway Maintenance and Construction Key Interfaces

Definition of Gap

As Figure 8-10 shows, this market package is all about interfaces from the Maintenance and Construction Management subsystem to other entities. The gaps relate to all of the key interfaces shown in the figure. In particular the interfaces to Maintenance Vehicles, Traffic Management, and the Surface Transportation Weather Service are gaps and represent candidates for additional project definition. In addition a number of Roadway to Maintenance Management interfaces are not covered.

8.3.10. MC10- Maintenance and Construction Activity Coordination

The Maintenance and Construction Activity Coordination market package supports the dissemination of maintenance and construction activity to other centers. This market package covers the dissemination of information about planned maintenance activities (as opposed to information about the current status of maintenance activities, e.g. workzone status).

Figure 8-11 shows the key interfaces for this market package. A small number of the Maintenance Management to Maintenance Management interfaces exist in the Regional ITS Architecture for IDOT elements, but this service is basically not covered by either the existing flows or the set of projects defined.

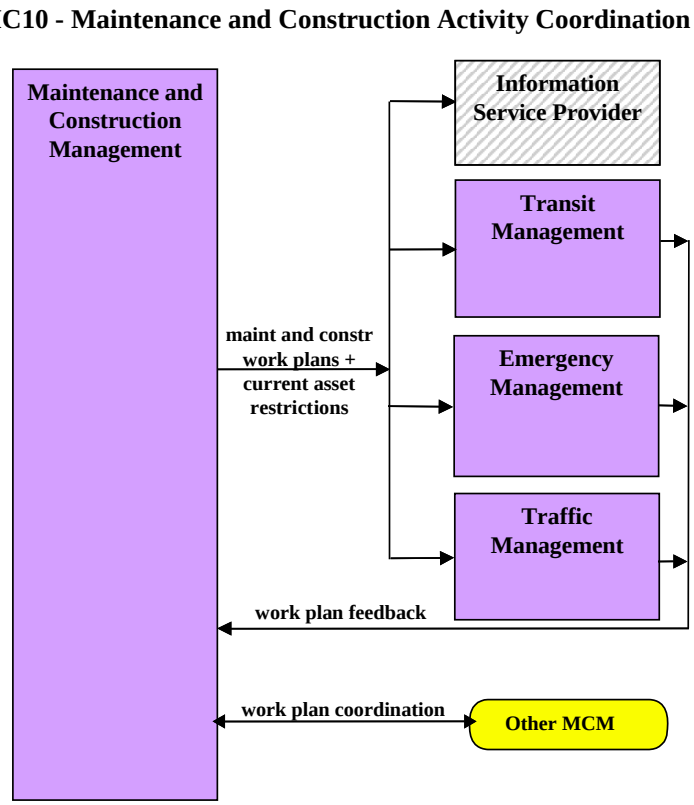

Figure 8-11 Maintenance and Construction Activity Coordination Key Interfaces

Definition of Gap

Gaps exist for all the interfaces shown in Figure 8-11. Additional projects could be defined to address the interfaces to the Maintenance and Construction Management elements which are listed in Table 8-3.

8.4 Schedule for Regional ITS Architecture Maintenance

A comprehensive architecture update should occur in the year prior to the formal update of the Transportation Improvement Program (TIP). This is a natural result of the Northeastern Illinois Regional ITS Architecture being a component of the regional transportation planning process. The most recent TIP was approved October 9, 2003. The next update of the TIP will occur in 2006, and will be the TIP for FY 2006-2010. With this in mind, an update to the Regional ITS Architecture is planned to begin in fall 2005. The FY2006 Unified Work Program allocates funding to retain a consultant for this work.

The draft scope of work is expected to contain four elements:

- Review of existing documentation - which will include this ITS Deployment Plan Update and the list of needed changes provided in Table 8-4.
- Stakeholder Outreach- this will be much more limited in scope than when the architecture was originally developed. Kendall County and part of Grundy County will need to be added to the Regional ITS Architecture if the CATS Policy Committee approves expansion of the Metropolitan Planning Area, as anticipated.
- Update Regional ITS Architecture – this is the core element of the contract and involves using the Turbo Architecture tool to update the Regional ITS Architecture and make it consistent with the latest version of the National ITS Architecture (Version 5.1), including adding new elements that exist in the region. The update should also take into account the recently completed statewide ITS architecture and any other architectures (regional or project) that have been developed since the original effort.
- Review of the architecture maintenance plan- the effort will recommend any changes to the maintenance plan (which is currently contained in the Regional ITS Architecture Document) which would be beneficial.

The update is necessary to ensure that the architecture continues to accurately represent the regional view of ITS Systems. The comprehensive update may include adding new stakeholders, reviewing transportation needs and services for the region, updating the status of projects, and reflecting new goals and strategies, as appropriate. Operational concepts, system functional requirements, project sequencing, ITS standards, and list of agency agreements may also be updated at this time.

Between major updates of the architecture, the following interim update actions will be performed:

- Accept comments as they come in and make ***minor updates every year if needed***. Defer any major changes to the yearly update.
- ***Actively solicit changes on an annual basis*** from each key stakeholder a set of needed updates. ***Perform minor or major updates as needed*** based upon the inputs and any other change requests received.

Part of the comprehensive update will include a review of the Maintenance Plan as well. Use of the Regional ITS Architecture and modifications to it may differ from what was anticipated during the initial development of the Maintenance Plan. Revising the Maintenance Plan may ensure that the change management process defined is effective.

As a part of this Strategic Plan Update, the mapping of projects to architecture has identified a number of changes that need to be made to the Regional ITS Architecture to reflect the projects planned or currently underway in the region. Table 8-4 below summarizes the changes that need to be made to the Regional ITS Architecture that have been identified during this effort. The recommendation is that these changes, along with an administrative upgrade of the architecture to the latest version of the National ITS Architecture (and Turbo Architecture) be performed prior to the next major update, at which time stakeholders can review the revisions at the same time that they consider additional services (e.g. the latest version of the National ITS Architecture added 10 additional market packages, most relating to transportation security issues, that could be considered for inclusion in the architecture).

Table 8-4 Suggested Changes to Regional ITS Architecture

Change Number	Suggested Change
1	Add an element "City of Chicago Department of Aviation Roadside Devices" (and interface to Satellite Ohare TMC) in order to describe the vehicle monitoring functions that will be performed by the TMC.
2	Add an element City of Chicago Traveler Information Kiosks along with interface to Chicago TMC for planned Cicero Ave Smart Corridor ATIS function
3	Change name of Chicago DOT TMC to Chicago TMC
4	Add an interface between the City of Chicago Roadside Equipment and the Chicago TMC for roadside archive data to support the project Chicago HTMS. The current Regional ITS Architecture has an operational data interface between these two elements, but not an archiving interface (which is appropriate for traffic count collection).
5	To support the CDOT Field Devices project add an "environmental conditions" data flow to cover RWIS type devices.
6	To Support the CDOT Fleet AVL need to add City of Chicago Bureau of Street Operations Vehicles and City of Chicago DOT BOS Vehicles and their interfaces to the respective dispatch elements.
7	To support the project Chicago Truck Route Advisory System project and the Chicago Special Event Advisory System project need to update the element City of Chicago DOT Transportation Website, or possibly add new elements for the new systems.
8	Need to add enhancements to the architecture to support the project CDOT Red-Light Camera Enforcement Program.

Change Number	Suggested Change
9	To support the Lake- Cook Travel Demonstration Project the data flow "vehicle probe data" needs to be added between the Cook County Roadside Equipment and the Cook County TMC.
10	To support Cook County Field Devices project (and several others that have emergency vehicle preemption) need to add Municipal Public Safety Vehicles element and preemption interface to roadside elements.
11	To support Cook County Fleet AVL need to add the element Cook County Maintenance Vehicles and the AVL interface to the appropriate center.
12	To support the project DuPage County Transportation Coordination Initiative need to adjust name and connectivity for the DuPage County TMC and DuPage Area TMC.
13	To support the project DuPage Emergency Management and Signal Preemption need to add Municipal Traffic Systems Roadside Equipment so that preemption can occur on municipal systems.
14	To support the Kane County Fleet AVL project need to add the element Kane County Maintenance Vehicles and AVL interface to appropriate center.
15	To support the Lake County Traffic Management Center project need to add the element Lake County Website and interfaces as described in the Strategic Plan Update section. Also interfaces between the Lake County TMC and Municipal TMCs, Muncipal Public Safety Dispatch, and Lake County EOC as well as the traffic control coordination flows to and from IDOT District 1 Bureau of Traffic Signal Unit and ISTHA TIMS need to be added.
16	To support the Lake County Field Devices project an RWIS interface between county roadside devices and TMC needs to be added.
17	To support the Will County Field Devices project need to add the element Will County Sheriff Vehicles and interfaces as shown in the Strategic Plan Update. Also need to add the interface between Will County Maintenance and the Roadside Equipment as shown there.
18	To support the project CCTV Surveillance Sharing, the architecture may need to be updated to properly reflect the idea of video sharing via the internet.
19	To support the project Automatic Crash Notification (ACN) to PSAPs an interface between a vehicle and various PSAPs will need to be added to the architecture.

Change Number	Suggested Change
20	To support the project Regionwide Emergency Traffic Operations Systems (ETOS) Upgrade a direct interface between ETP Vehicles and the IDOT District 1 ComCenter will need to be added per the section of the update.
21	To support the project IDOT HAR System Coordination, three interfaces need to be added: 1.ComCenter to or from Satellite TMC Midway Airport, 2. Lake County TMC to ComCenter (just this direction), and 3. Kane County TMC to ComCenter (just this direction).
22	To support the project Accident Database and Reporting System, a new element should be created representing this system with interfaces as shown in the Strategic Plan Update.
23	To support the project ITS Applications for Work Zones, need to add interface between IDOT Maintenance and roadside elements as well as market packages MCM08 and 09.
24	To support the project Mobile Technologies to Measure Travel Times Using Probe Vehicles, need to add an element that corresponds to cell providers and interface it to traffic management elements for probe vehicle information.
25	The interfaces to cover the projects ITS Planning Database and Traveler Information Archive will need to be expanded to give a more accurate representation of these projects.
26	The names of RTA elements RTA InfoTrans Signs and RTA Multimodal Information Kiosks need to be updated to more accurately reflect what these elements are being called.
27	As part of the Illinois Transit Hub projects an additional element and its interface(to the Illinois Transit Hub) should be added for the Regional Transit Asset Management System (RTAMS).
28	The road network probe information flows that are a part of RTA Projects- ATMS need to be added to the architecture.
29	To support the project RTA Projects: ATIS the interfaces between the RTA Itinerary Planning System and both the RTA TIC and the RTA Multimodal Information Kiosks need to be added.
30	To support the project 5.1 Transit Vehicle Safety the interfaces flows secure areas surveillance data (and control) to and from the transit vehicles need to be added.
31	To support the project CTA Rail Service Management System an element CTA Security Equipment and its interfaces need to be added

Change Number	Suggested Change
32	To support the project CTA AVM Initiative the element CTA Maintenance Garages and its interface to the transit vehicles needs to be added.
33	To support the project CTA Archive a new element CTA Data Archive needs to be added.
34	To support the project Metra Rail Dispatch & Signaling System Upgrade a new element Metra Track and Signaling Equipment needs to be added. Also an interface between Metra CCF and Rail Freight Operations.
35	To support the project Emergency Management Messaging new elements or interfaces may need to be added. A better definition of the scope of the project is needed to know for certain.
36	To support an interface in Project 6, Smart Corridors, RWIS system flows should be added between City of Chicago TMC and City od Chicago Roadside Equipment.
37	To support an interface in Project 11, City of Chicago Interconnects, an interface between City of Chicago TMC and Municipal TMCs should be added.
38	To support the Pace Queue Jump Lane project, the architecture should add user defined flows to describe the connectivity.
39	To support the InfoTrans project the interface between Chicago Airports element and the transit elements, as well as the interface between the CTA Control Center and the RTA InfoTrans Signs are not in the current Regional ITS Architecture should be added to the architecture.
40	Add video image flow on interfaces to the ISTHA TMC (TIMS) as described in the ISTHA project mappings. Also add an interface from ISTHA TMC (TIMS) to the Media for road network conditions as part of the ISTHA DMS project.
41	Revise architecture to reflect increase in geographic scope to cover parts of Kendall and Grundy Counties.

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Appendix 1
Support Documents to the NE Illinois ITS Vision and Goals

- Summary of ITS Vision from 1999 SEDP

- Regional Transportation Goals & Objectives In Relation To ITS

Summary of ITS Vision from 1999 SEDP

The 1999 SEDP vision identifies the need to serve the general traveling public, transportation service providers, transportation agencies, business organizations and other sectors of the community. The vision gives direction to the selection of ITS actions for deployment.

Identification of future outcomes (effectively, goals).

Information to use – real-time multi-modal information to system users

Seamless agency coordination – system users will not notice interruptions in service quality or capacity as they change modes

Reliable transportation – uniform reliable service always delivering expectations

Personal Security – users will never feel in jeopardy or at risk

Accident free – reduce accidents through operator training and public awareness

Minimum travel time – meeting peak demand and providing alternate travel options

No surprise delays – if non-recurrent conditions travelers will be able to make alternate plans

User friendly – real people can access information easily

Low user cost – affordable and good value in transportation serivce

Equitable service – consistent availability to all users

Efficient system – system supply matches user demand

Positive image (for Transportation Providers) – understandable, secure and well-run system

Cost-effectiveness – ITS benefits greatly outweigh costs of deployment

Statement of Vision

Two parts. 1) ITS will be deployed to significantly enhance the quantity, quality, and accessibility of **information** about transportation conditions for individual travelers, public agencies and private organizations. 2) ITS will be deployed to facilitate the **management** of transportation facilities and services to optimize performance, capacity, productivity cost-effectiveness, safety, and security.

Family of Actions (6; roughly program areas)

1. Information Systems – It would be the responsibility of the public sector to collect information and distribution responsibility would be shared jointly public-private.
2. Roadway Management – Distribute management tools and technologies across the entire system including arterials.
3. Transit Management – Improve productivity, reliability, and efficiency of transit operations. Maximize movement of people in high demand corridors and optimize mobility of users by linking people with jobs and activities.
4. Emergency Management – Broaden to include arterial system, coordinate diversion routes and provide information to employers and business associations on incidents.
5. Institutional Perspective – Enhance institutional relationships and improve interagency coordination.
6. Long Term Perspective – As technologies advance integrate them into the system.

REGIONAL TRANSPORTATION GOALS & OBJECTIVES IN RELATION TO ITS

(per **CATS** *2030 Regional Transportation Plan, Shared Path 2030*, October 2003)

Goal/Objective		Supported by ITS
GOAL: MAINTAIN THE INTEGRITY OF THE EXISTING TRANSPORTATION SYSTEM *Objectives*		
1-Maintenance, Reconstruction & Replacement		
	Maximize performance of existing transportation facilities	X
	Improve performance existing transportation facilities	X
	Preserve the level of service offered by the existing transportaion system	X
	Improve connections between existing transportaion system	
	Improve accessibility to surrounding land uses	
	Mitigate conflicts between rail and highway systems	
2-Transportation Management and Operations		
	Improve transportation system information available to travelers	X
	Facilitate management and operations communications abilities	X
	Provide improved transportation management capabilities	X
	Maximize performance benefits through intensive management	X
	Improve coordination between and among different modes	X
	Provide for intensive facility management and operations capabilities	X
	Provide for coordinated management with other existing and planned transportation facilities	X
	Improve ability to manage freight	X
GOAL: IMPROVE TRANSPORTATION SYSTEM PERFORMANCE *Objectives*		
1-Transportation System Efficiency		
	Balance allocation of financial resources among transportation modes and improvement strategies	
	Address transportation solutions across a variety of travel needs	
	Reduce highway congestion	X
	Increase the availability of public transit	
	Encourage walking and bicycling for transportation	

REGIONAL TRANSPORTATION GOALS & OBJECTIVES IN RELATION TO ITS

(per **CATS** *2030 Regional Transportation Plan, Shared Path 2030*, October 2003)

Goal/Objective		Supported by ITS
	Enhance the facility's multimodal potential	X
	Maximize the operational effectiveness of capital improvements	X
2-Transportation and Land Use Interactions		
	Promote a local balance of jobs and housing	
	Facilitate efficient management of land resources	
	Support the goals and objectives of regional land use policies	
	Coordinate regional and local development plans	
	Support industrial/commercial development with appropriate multi-modal freight access	
	Facilitate preservation of historical, cultural and agricultural resources	
	Provide efficient access to existing and anticipated land uses	
	Support transit-oriented development	
3-Transportation Mobility and Accessibility		
	Offer travelers a choice of transportation modes	
	Foster affordable travel	
	Foster short travel times	X
	Increase access to job opportunities	
	Provide efficient modal alternatives for short trips	
	Reduce traffic congestion	X
	Coordinate transit access to job locations	
	Include multi-modal travel options	X
4-Commercial Goods Movement		
	Facilitate efficient movement of commercial goods	X
	Enhance the region's eminence in the national and global freight economy	X
	Stimulate commercial and industrial development that promotes local balance of housing and jobs	
	Support commercial land use in close proximity to existing major highway and rail facilities	

REGIONAL TRANSPORTATION GOALS & OBJECTIVES IN RELATION TO ITS

(per **CATS** *2030 Regional Transportation Plan, Shared Path 2030*, October 2003)

Goal/Objective		Supported by ITS
	Improve strategic freight conditions	
	Improve accessibility to freight terminals	
	Maintain and promote the value of existing public and private inverstments in freight trans.	X
	Promote safety at interfaces of the rail and highway system	X
	Mitigate the negative effects of freight facilities on neighboring residential communities	
	Minimize freight contributions to traffic congestion, air pollution, infrastructure maintenance and safety problems	X
	Foster efficient freight connections between rail, truck and port systems	X
	Facilitate safe and efficient truck operation	X
GOAL: EMPLOY TRANSPORTATION TO SUSTAIN THE REGION'S VISIONS AND VALUES *Objectives*		
1-Transportation and Natural Environment		
	Help improve air and water quality	
	Promote and protect biodiversity	
	Reduce air pollution from mobile sources	X
	Encourage reduced energy consumption	X
	Improve air quality in areas with high point soutce emissions	X
	Include elements that mitgate environmental problems	
	Provide opportunities to improve environmental quality	
	Employ context sensitive solutions with regard to natural environmental features	
	Protect natural groundwater recharge	
	Promote effective storm water management	
	Enhance greenways, trails and open space	
	Include natural landscaping	
	Help protect threatened and endangered species	

REGIONAL TRANSPORTATION GOALS & OBJECTIVES IN RELATION TO ITS

(per **CATS** *2030 Regional Transportation Plan, Shared Path 2030*, October 2003)

Goal/Objective		Supported by ITS
	Promote wetland protection	
	Be consistent with official environmental protection and preservation plans	
2-Transportation and Economic Development		
	Enhance the region's business environment	X
	Promote the region's position as a national transportation hub	
	Orient the benefits of commercial and industrial strength toward the long-term benefit of the region	
	Provide multimodal ground access to the region's major airports and rail terminals	
	Improve multimodal service to the Chicago CBD and other employment concentrations	X
	Provide multimodal access to industrial and commercial areas	
	Support the strategic needs of commercial goods shippers and carriers	X
	Accommodate forecast demand	
	Provide for improved level of transportation service for workers and businesses	X
3-Transportation and Social Equity		
	Provide travel benefits to persons of all ages, abilities, incomes, races and/or ethhnicity	
	Avoid placing disproportionate burdens on minority or low-income populations	
	Reduce dependence on personal transportation assets	
	Provide improved transportation choices to economically disadvantaged persons	
	Stimulate balanced and sustainable development in communities with concentrations of disadvantaged residents	
	Support programs providing financial incentives to low-income persons residing in communities that provide a wider variety of transportation choices	
	Balance project burdens among all who benefit	

REGIONAL TRANSPORTATION GOALS & OBJECTIVES IN RELATION TO ITS

(per **CATS** *2030 Regional Transportation Plan, Shared Path 2030*, October 2003)

Goal/Objective		Supported by ITS
4-Transportation and Community Development	Provide early, continuous and extended outreach effort appropriate to communicating trans. improvement opportunities to low-income, minority, senior and disabled communities	
	Promote balanced land use within and among local communities	
	Promote local community quality-of-life	
	Be consistent with community development goals	
	Maximize the local value of regional trans. improvements to support community residential, commercial and industrial development Be consistent with official historic, cultural or agricultural development plans	X
5-Transportation and Public Health and Safety		
	Provide safe and secure movement of all travelers	X
	Promote established public health objectives	X
	Promote healthy and active traveling habits	
	Enhance the safe operation of transportation facilities and services	X
	Employ context sensitive solutions with regard to promoting local community quality	
	Maximize the safety and security of all travelers	
	Minimize project related air, water and noise pollution	X
	Maximize the safety and security of adjacent populations	
	Provide opportunities to walk and bicycle for transportation	

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Appendix 2
Minutes of Stakeholder Meetings

MEETING MINUTES
DUPAGE AND KANE COUNTY COORDINATION MEETING FOR
NORTHEASTERN ILLINOIS ITS DEPLOYMENT PLAN
WEDNESDAY JULY 21, 2004
DUPAGE COUNTY GOVERNMENT CENTER

Attendees:

Name	**Affiliation**
John Loper	DuPage County TDP Group
Ruth Myers	DuPage County TDP Group
Andy Hynes	City of Naperville
Marcie Schatz	City of Naperville
Rick Curneal	DuPage Mayors/ Managers' Conf.
Morgan Cotten	DuPage Cnty DOT
Thomas Szabo	Kane Cnty DOT
Steve Pasinski	Kane Cnty DOT
Taqhi Mohammed	PACE
Mark Thomas	CATS
Jim Powell	Parsons Trans. Group
Bruce Eisenhart	ConSysTec

Attached: Agenda; electronic copies of Project List entries for the counties, Powerpoint slides on Regional ITS Architecture.

I. INTRODUCTION AND PURPOSE

The purpose of the meeting was to introduce and discuss the ITS Deployment Plan for Northeastern Illinois. The project is an update of the Strategic Early Deployment Plan for ITS in Northeastern Illinois and is being managed by the Advanced Technology Task Force. The goal of the meeting is to relate the plan to the Regional ITS Architecture and solicit input from attendees on ITS projects currently envisioned and future projects that could be developed in the next 15 years. Discussion tools included a Powerpoint presentation and a preliminary list of ITS projects assembled from various sources (original plan, Regional ITS Architecture, other programs and other agencies).

II. PRESENTATION AND DISCUSSION

Following a general introduction by M. Thomas with CATS, J. Powell, the consultant PM, provided a brief project overview, highlighting deliverables and the key focus on an updated ITS Project List and priorities along with an action plan for project development and implementation. A draft report is to be presented in late September, and additional coordination can be expected in the next few weeks.

B. Eisenhart then gave a summary of the Regional Architecture (completed in 2003), emphasizing that projects seeking federal dollars must be shown to be part of the architecture. One of the tasks of the update work is to identify needed updates to the

architecture. Projects in the ITS Deployment Plan are not to be as detailed as those in the Transportation Improvement Program (TIP).

B. Eisenhart identified those projects in the Project List that are in DuPage and Kane Counties, and provided some architecture interconnect diagrams associated with these. There were 4 projects in DuPage County and 3 projects in Kane County. He also highlighted projects implied by the current architecture, but not yet developed in any detail or as formal proposed projects. Bruce also identified "regionally significant" projects, to ask for input on how important they were to DuPage and Kane Counties. The presentation led to dialogue and input on ITS efforts and intent in the two counties, with key points as follows:

- The DuPage County Transportation Coordination Initiative (TCI) is to be issued as an RFP in the near future as a feasibility study. The objective of the initiative is to explore coordination of various ITS features such as signal coordination, signal preemption for transit vehicles, incident management, and traveler information systems such as dynamic message signs. The precise scope of the effort will be determined by the feasibility study; in the long-run future, there may be a freeway-tollway/suface street coordination aspect. In terms of elements in the regional ITS architecture, the project may include the DuPage Area TMC (as currently identified in the Architecture), Municipal TMCs, PACE vehicles, as well as connections to other region wide systems. Regarding transit signal priority development, which may be a part of the TCI, the counties have assisted in identifying candidate corridors.
- A new project that should be added to the list is DuPage Emergency Management Integration and Signal Preemption System. The objective of this project is to plan, implement, operate, maintain, and monitor a coordinated signal preemption system across the county for state, county, and local signal systems. Co-location of signal control/pre-emption at an emergency operations center (e.g., Glendale Heights) has been suggested. Nearly all traffic signals in DuPage County, regardless of ownership, have emergency vehicle preemption (EVP). About 80% of Kane County-owned signals have EVP.
- Interagency signal coordination between municipalities, as well as between municipalities and IDOT, may occur in the future so this project should stay as it is on the list.
- Kane County is instituting GPS tracking of maintenance vehicles, which will have some integration opportunities.
- Kane County is considering the additional of weather monitoring systems (RWIS) in the future.
- Aurora has an emergency vehicle preemption project underway.

J. Powell noted that signal interconnect systems are being addressed generically as either potential communications system infrastructure, or as including ITS field devices such as

CCTV cameras and dynamic message signs. Individual interconnect projects thus are not being placed in the Project List.

J. Powell reviewed intergovernmental agreements (IGAs) and their role in ITS work. Attendees indicated that for maintenance work or other activities that involve cost sharing, written agreements are the norm. For operational issues, unwritten, cooperative working agreements can be used, because of potential liability issues associated with written operational commitments or procedures that might require flexibility. New equipment installation aspects requiring operational agreements, e.g., dynamic message sign messaging are likely to need written agreements. The consultant team as a part of the update will suggest where IGAs or Memorandums of Understanding (MOUs) may be warranted.

III. FOLLOW-UP ACTIONS

- Attendees are requested to review the abbreviated Project List and provide input. The spreadsheet can be used for your response. If the project is beyond your current planning focus, please label it as "Future Consideration".

We are looking for information on:

- Scope/project description
- Cost (as available)
- Lead Agency/Funding Agency
- Status/% Complete (even completed projects are to be documented)
- We have added DuPage or Kane County Field Devices. Please provide anticipated devices such as, CCTV cameras, dynamic message signs, etc.
- Concepts for new ITS projects (considering the 15 year view)
- Comment, if any, on the "regionally significant" projects.

It is requested that this input be provided by ***the end of August*** if possible.

- Consultant team will add to Project List per:
  - DuPage Emergency Management Integration and Signal Preemption System
  - Kane County Maintenance vehicle tracking.
  - Kane County Field Devices: RWIS

- The consultant team will follow up with Mary Keating of DuPage County to discuss the county's paratransit program and issues, especially township boundary concerns.

- Consultant team will also contact Bob Green of Aurora to see if there are ITS projects in that city that need to be added to the list (e.g., emergency vehicle preemption, interconnect overview).

The above constitutes the author's understanding of the meeting discussion. Please provide corrections or additions within 5 days of receipt.

AGENDA

DuPage and Kane County Coordination Meeting for NORTHEASTERN ILLINOIS ITS DEPLOYMENT PLAN

I. INTRODUCTION — Mark Thomas, CATS

II. PROJECT OVERVIEW — Jim Powell, Parsons Project Manager
- o Project goals & deliverables
- o Quick showing of 1999 SEDP

III. REGIONAL ARCHITECTURE — Bruce Eisenhart, ConSysTec

IV. CURRENT AND PLANNED ITS PROJECTS
- o Projects identified in original ITS Plan & Other programmed projects
- o Mapping to Regional Architecture
- o Discussion, status, next steps

V. POTENTIAL FUTURE PROJECTS
- o County plans not previously discussed
- o Gaps in Regional Architecture
- o Integration into regional systems

VI. INTERAGENCY AGREEMENTS
- o Type: written, informal
- o Scope
- o Samples of other agreements county uses in other activity areas (e.g., water, land use)

VII. NEXT STEPS: OPPORTUNITIES FOR FURTHER COORDINATION

MEETING MINUTES
ISTHA COORDINATION MEETING FOR
NORTHEASTERN ILLINOIS ITS DEPLOYMENT PLAN
WEDNESDAY JULY 21, 2004
ISTHA ADMINISTRATION BLDNG, DOWNERS GROVE
Prepared by: Jim Powell/Bruce Eisenhart/Mark Thomas

Attendees:

Name	Address	Affiliation	Phone	e-mail
Mark Thomas	300 W. Adams, Chicago	CATS	312-793-3467	mthomas@catsmpo.com
Ken Glassman	2700 Ogden Downers Grove, IL 60515	ISTHA	630-241-6800, x3320	kglassman@tollway.state.il.us
Jim Powell	10 S. Riverside, Chicago	Parsons Trans. Group	312-930-5165	jim.powell@parsons.com
Bruce Eisenhart	15387 Twin Creeks Ct., Centreville, Va	CONSYS-TEC	703-802-4835	bruce.eisenhart@consystec.com

Attached: Agenda; electronic copy of Project List entries for ISTHA.

I. INTRODUCTION AND PURPOSE

The purpose of the meeting was to introduce and discuss the ITS Deployment Plan for Northeastern Illinois. The meeting was held in the TIMS (Traffic and Incident Management System) control room. The project is an update of the Strategic Early Deployment Plan for ITS in Northeastern Illinois and is being managed by the Advanced Technology Task Force. The specific goal was to solicit input from ISTHA on ITS projects currently in process and those envisioned within the next 15 years. K. Glassman was given a hard-copy of a preliminary Project List of ITS projects assembled from various sources (original plan, regional architecture, other programs and other agencies).

II. DISCUSSION

Following a general introduction by M. Thomas with CATS, J. Powell, the consultant PM, provided a brief project overview, highlighting deliverables and the key focus on an updated ITS Project List and priorities along with an action plan for project development and implementation. A draft report is to be presented in late September, and additional coordination can be expected in the next few weeks.

K. Glassman was asked about ISTHA ITS plans, and related the following:

- Of approx. 274-mi. tollway system, ~150 mi. are in northeast Illinois. There is fiber (48-strand) on the whole system, with 4 strands given to the Gateway (written IGA), 1 to Lake County. The nerve center of traffic monitoring and integrated operation with State Police (integrated ATMS-CAD) is the TIMS. The dispatch center for Il State Patrol Dist 15 (dedicated to tollway), maintenance vehicles and for HELP vehicles is on the floor below.
- ISTHA is in the process of adding I-Pass Only lanes to all toll plazas, with completion slated for mid-2005 (details provided).
- ISTHA is designing for demonstration "open-road" tolling in which the only vehicles required to stop are those *without* I-Pass.
- ISTHA has about 120 CCTV cameras for toll road coverage near toll plazas (5-6 per plaza, 20 plazas), plus about 280 for security. Ideally, ISTHA would like ~ full tollway coverage (~1 per mile), but there is no formal plan in place to do this. ~27 are soon to be added and 42 are to be relocated.
- By spring '05, ISTHA will have ~33 DMSs: 8 original, 4 under construction on south Tri-State, 9 under construction on I-88/I-355, and 12 just awarded for I-90/94 (4 of these on IDOT/WISDOT property). Location is based on decision points/diversion routes. A few more DMS may be added based on operational experience. All are controlled from the TIMS control room. There are1-2 CCTVs per DMS.
- Message control for 4 DMS on IDOT/WISDOT will be by ISTHA, with these 2 agencies having ability to request message postings; somewhat a comm. system issue, with e-mail used (not so reliable) or simple phone call. MOUs cover this.
- TIMS auto-generates incident response plans and sign messages, which must be approved by operators before posting.
- ISTHA has 17 portable CMS on order (5 truck-mounted, 12 trailer-mounted), with comm. By microwave, or cell phone.
- AVL is about to be added to all Dist.15 State Police vehicles (~175). In the future it will be added to HELP vehicles, and maint./snow plow vehicles (~170). AVL s/w may be integrated with TIMS in near future.
- As a Federal grant, Mobility Technologies ~ 2 years ago installed 105 RTMS sensors in 100 locations, spaced ¼ to 2 mi. apart (I-294, MP 0 to Lake-Cook; entire I-35; much of I-88). Mobility Tech. estimates travel times and sells those to private entities (media, etc), hence no travel time data provided to the Gateway. This is 5-year base commitment plus up to five 1-year extensions
- Tollway provides travel times by monitoring I-Pass transponders; good correspondence with Mobility Tech. times has been found, except when an incident occurs that alters one or both estimates. ISTHA uses both data sources to monitor performance and for incidents. Travel times will be posted on DMS.
- Incidents are usually detected first by cell phone/911 calls, secondly by speed-vol-occupancy changes seen in RTMS data.
- ISTHA has agreements in place with fire districts, ambulances and private to companies to cover the tollways. ISP has had incident command in past, though that is shared with ISTHA on traffic control aspects. In life-critical emergencies, extrications, etc., fire department takes over incident command.
- ISTHA is providing land for Lake County to install HAR towers. ISTHA has mild interest in investigating HAR.
- ISTHA has 14 RWIS stations used in winter time, with 11 in the 6-county NE Il.
- ISTHA long range plan will have kiosks.
- ISTHA has discussed regional comm. network with IDOT, but IDOT has not been that interested.

- o A Corridor Action Team for the south Tri-State/I-80 corridor has been formed involving ISTHA, INDOT, IDOT and the Chicago Skyway (J. Ligas facilitates).
- o ISTHA is working on draft IGAs with several agencies (Lake County HAR, fiber sharing); at some point they will be available by Freedom of Information Act.
- o ISTHA has 2 sites with queue detection to warn drivers by advance signs: NB exit to 6 Flags/Great Aamerica and on Edens spur.

III. FOLLOW-UP ACTIONS

- K. Glassman is requested to review the information above for errors and omissions, and including any long range (15 year) project concepts not addressed. Parsons will follow-up with any phone calls to clarify entries to Project List spread sheet (key info: scope/project description, cost [as available], lead agency [if not ISTHA], status/% complete [even completed initiatives projects are to be documented]).

- Consultant team to add existing/on-going project info to inventory/status of ITS in region per above.

- Project team to add new/upcoming projects to list on at least following (and others identified by K. Glassman in Project list update):
  - o ISTHA Filed Devices –DMS, and DMS Control
  - o AVL addition to ISP & maintenance/HELP vehicles
  - o ISTHA kiosks

It is requested that this input be provided by ***within 7 days of receipt***, if possible.

The above constitutes the author's understanding of the meeting discussion. Please provide corrections or additions within 5 days of receipt.

AGENDA

ISTHA Coordination Meeting for NORTHEASTERN ILLINOIS ITS DEPLOYMENT PLAN

I. INTRODUCTION — Mark Thomas, CATS

II. PROJECT OVERVIEW — Jim Powell, Parsons Project Manager
- o Project goals & deliverables
- o Quick showing of 1999 SEDP

III. CURRENT AND PLANNED ITS PROJECTS
- o Projects identified in original ITS Plan & Other programmed projects
- o Discussion, status, next steps

IV. POTENTIAL FUTURE PROJECTS
- o ISTHA plans not previously discussed
- o Integration into regional systems

V. INTERAGENCY AGREEMENTS
- o Type: written, informal
- o Scope

VI. NEXT STEPS: OPPORTUNITIES FOR FURTHER COORDINATION

MEETING MINUTES
WILL COUNTY COORDINATION MEETING FOR
NORTHEASTERN ILLINOIS ITS DEPLOYMENT PLAN
THURSDAY JULY 22, 2004
WILL COUNTY EMERGENCY OPERATIONS CENTER, JOLIET
SWARIM REGULAR MEETING
Prepared by: Jim Powell/Bruce Eisenhart/Mark Thomas

Attendees:

Name	Address	Affiliation	Phone	e-mail
Mark Thomas	300 W. Adams, Chicago	CATS	312-793-3467	mthomas@catsmpo.com
Jim Powell	10 S. Riverside, Chicago	Parsons Trans. Group	312-930-5165	jim.powell@parsons.com
Bruce Eisenhart	15387 Twin Creeks Ct., Centreville, Va	CONSYS-TEC	703-802-4835	bruce.eisenhart@consystec.com
LIST OF OTHER ATTENDEES PROVIDED IN SWARIM MINUTES.				

Attached: Agenda; electronic copies of Project List entries for the county.

I. INTRODUCTION AND PURPOSE

The purpose of the meeting was to introduce and discuss the ITS Deployment Plan for Northeastern Illinois. The project is an update of the Strategic Early Deployment Plan for ITS in Northeastern Illinois and is being managed by the Advanced Technology Task Force. The goal of the meeting is to relate the plan to the Regional ITS Architecture and solicit input from attendees on ITS projects currently envisioned and future projects that could be developed in the next 15 years. Discussion tools included a Powerpoint presentation and a preliminary list of ITS projects assembled from various sources (original plan, regional architecture, other programs and other agencies).

II. PRESENTATION AND DISCUSSION

Following a general introduction by M. Thomas with CATS, J. Powell, the consultant PM, provided a brief project overview, highlighting deliverables and the key focus on an updated ITS Project List and priorities along with an action plan for project development and implementation. A draft report is to be presented in late September, and additional coordination can be expected in the next few weeks.

B. Eisenhart then gave a summary of the Regional Architecture (completed in 2003), emphasizing that projects seeking federal dollars must be shown to be part of the architecture. One of the tasks of the update work is to identify needed updates to the architecture. Projects in the ITS Deployment Plan are not to be as detailed as those in the Transportation Improvement Program (TIP).

B. Eisenhart identified those projects in the Project List that are in Will County, and provided some architecture interconnect diagrams associated with these. There were 2 projects in Will County. He also highlighted projects implied by the current architecture, but not yet developed in any detail or as formal proposed projects. Bruce also identified "regionally significant" projects, to ask for input on how important they were to the county.

The presentation led to dialogue and input on ITS efforts and intent, with key points as follows:

- The Will County Transportation Management Center is to begin development in the near future as a feasibility study/conceptual design. It may be collocated with the Emergency Operations Center.
- Will County does no monitoring of closed loop signal systems, but may start doing so on an upcoming Weber Road project. Interagency coordination of signals is a topic for future discussion.
- More often than not, emergency vehicle pre-emption (EVP) is installed with new signals, paid for by the local fire department.
- There has been talk of installing other ITS field devices (CCTV, DMS), with emphasis on major freeway interchange locations: I-55/I-80, for example. Portable DMS/CMS also are desired. Attendees were interested in how such devices might be funded.
- Police attendees noted they sometimes video tape incident management from squad cars for use in training personnel.
- It was suggested that selected areas of Kendall Cnty be pulled into consideration for ITS planning.
- Regarding agreements, attendees expressed that they are usually written (maintenance, some operations), but do not have a prototype (the consultant team as a part of this ITS update will suggest where IGAs or Memorandums of Understanding may be warranted).

J. Powell noted that signal interconnect systems are being addressed generically as either potential communications system infrastructure, or as including ITS field devices such as CCTV cameras and dynamic message signs. Individual interconnect projects thus are not being placed in the Project List.

III. FOLLOW-UP ACTIONS

- Attendees are requested to review the Project List entries and provide input, directly to the attached spreadsheet if possible, on:
  - Scope/project description
  - Cost (as available)
  - Lead Agency/Funding Agency
  - Status/% Complete (even completed projects are to be documented)
  - Entry to the row titled " xxx County Field Devices" (for example, CCTV cameras, variable [dynamic] message signs, etc.), in whatever level of detail is available.
  - Concepts for new ITS projects (considering the 15 year view)
  - Comment, if any, on the "regionally significant" projects.

It is requested that this input be provided within ***7 days of receipt*** if possible.

- Consultant team to add existing/on-going project info to inventory/status of ITS in region per above.

- Consultant team will add to Project List per:
    - Will County Field Devices covering CCTV, DMS & Portable DMS/CMS particularly at freeway system interchanges

- Attendees are being added to a project e-mail list, so they can be informed of project progress, and included as reviewers of deliverables.

The above constitutes the author's understanding of the meeting discussion. Please provide corrections or additions within 5 days of receipt.

AGENDA

Will County Coordination Meeting for
NORTHEASTERN ILLINOIS ITS DEPLOYMENT PLAN
Thursday July 22, 2004

I. INTRODUCTION — Mark Thomas, CATS

II. PROJECT OVERVIEW — Jim Powell, Parsons Project Manager
- o Project goals & deliverables
- o Quick showing of 1999 SEDP

III. REGIONAL ARCHITECTURE — Bruce Eisenhart, ConSysTec

IV. CURRENT AND PLANNED ITS PROJECTS
- o Projects identified in original ITS Plan & Other programmed projects
- o Mapping to Regional Architecture
- o Discussion, status, next steps

V. POTENTIAL FUTURE PROJECTS
- o County plans not previously discussed
- o Gaps in Regional Architecture
- o Integration into regional systems

VI. INTERAGENCY AGREEMENTS
- o Type: written, informal
- o Scope
- o Samples of other agreements county uses in other activity areas (e.g., water, land use)

VII. NEXT STEPS: OPPORTUNITIES FOR FURTHER COORDINATION

MEETING MINUTES
COOK COUNTY & CDOT COORDINATION MEETING FOR
NORTHEASTERN ILLINOIS ITS DEPLOYMENT PLAN
THURSDAY JULY 22, 2004
CDOT, 30 N. LASALLE, 2ND FLR, CHICAGO

Attendees:

Name	**Affiliation**
Don Grabowski	CDOT Bureau of Traffic
John Sadler	CDOT Bureau of Traffic
David Seglin	CDOT Bureau of Administration & Planning
Chad Hammerl	Edwards & Kelcey, Representing Bureau of Traffic
Chris Krueger	EJM Engineering, Representing Bureau of Electricity
Yadollah Montazery	CDOT Bureau of Traffic
Chris Snyder	Cook County Highway Dept.
Rich Jezierny	Cook County Highway Dept.
Scott Van DerAa	Cook County Highway Dept.
David Zavattero	IDOT, ITS Office
Mark Thomas	CATS
Jim Powell	Parsons Trans. Group
Bruce Eisenhart	ConSysTec

Attached: Agenda; electronic copies of Project List entries for the city and county.

I. INTRODUCTION AND PURPOSE

The purpose of the meeting was to introduce and discuss the ITS Deployment Plan for Northeastern Illinois. The project is an update of the Strategic Early Deployment Plan for ITS in Northeastern Illinois and is being managed by the Advanced Technology Task Force. The goal of the meeting is to relate the plan to the Regional ITS Architecture and solicit input from attendees on ITS projects currently envisioned and future projects that could be developed in the next 15 years. Discussion tools included a PowerPoint presentation and a preliminary list of ITS projects assembled from various sources (original plan, regional architecture, other programs and other agencies).

II. PRESENTATION AND DISCUSSION

Following a general introduction by M. Thomas with CATS, J. Powell, the consultant PM, provided a brief project overview, highlighting deliverables and the key focus on an updated ITS Project List and priorities along with an action plan for project development and implementation. A draft report is to be presented in late September, and additional coordination can be expected in the next few weeks.

B. Eisenhart then gave a summary of the Regional Architecture (completed in 2003), emphasizing that projects seeking federal dollars must be shown to be part of the architecture. One of the tasks of the update work is to identify needed updates to the

architecture. Projects in the ITS Deployment Plan are not to be as detailed as those in the Transportation Improvement Program (TIP).

B. Eisenhart identified those projects in the Project List that are in Chicago and Cook County, and provided some architecture interconnect diagrams associated with these. There were 12 projects in Chicago and 5 in Cook County. He also highlighted projects implied by the current architecture, but not yet developed in any detail or as formal proposed projects. Bruce also identified "regionally significant" projects, to ask for input on how important they were to the county.

The presentation led to dialogue and input on ITS efforts and intent, with key points as follows:

- The CDOT Museum Campus Project consists of the use of portable VMS and CCTV for parking and special event management, from about McCormick Place north past the lakefront museums, and possibly Navy Pier. This area is also covered by the US 41 Lake Shore Drive – VMS and Traffic Monitoring project (LSD/23rd VMS letting is imminent).
- The CDOT Truck Route Advisory System Project is envisioned as an interactive web page in which truckers would enter an origin and destination plus characteristics of their truck (height, weight, length), and the web site would provide them with an advisory/regulatory route accounting for viaduct clearances, construction, truck route restrictions, weight limits and special permits where needed (e.g., Lake Shore Dr.). Eventually, more dynamic aspects such as street closures and special events would be added. The project would include a database and routing system.
- The closely related CDOT Detour Event Advisory System might similarly function/be integrated with the truck system, adding shuttle and parking information. At weekly Mayor's Traffic Management Task Force meetings, participants would enter the current route restriction, special event, construction, etc. information to the web site, for instant access/use by travelers accessing the city web site.
- The CDOT Arterial Congestion Advisory System would take this another step by providing real-time congestion/travel time information on the surface street system. D. Zavattero suggested CDOT participate in a demo project that IDOT is pursuing with a private sector partner using cell phones to extract travel speed (Federal dollars potentially involved). All three projects should be available from (linked to) the GCM Gateway web site.
- CDOT has about 100-200 intersections targeted for red-light running instrumentation (~5% of signals), with 20 to be installed by end of the year. Digital photos are provided in Phoenix over DSL lines, usable for ticketing violators. A potential tie to this is a product from Opti-Soft that monitors for loud noises (gun fire initially) that might work to detect major crashes that also make a loud noise.

- The Lake-Cook Travel Demonstration Project is spearheaded by Cook County and involves Northwestern University, may also use readers of I-Pass transponders as a way of doing arterial monitoring.
- Cook County provides emergency vehicle preemption (EVP) to new signals if requested and paid for by local agency. The county has used video image detection for some side street detection instead of traditional loops. They have not pushed CCTV cameras at intersections.
- On the Chicago Skyway, there is a CMAQ project to add automated travel times. A question is whether the Skyway may be privatized, thus removing incentives for some ITS actions that generally use Federal dollars when the road is public.
- D. Grabowski observed that a good deal of inter-jurisdictional control monitoring/sharing could be advanced by truly making controllers from different manufacturers talk to each other, i.e., provide a communications interface.
- It was mentioned that the IDOT-led demo project for inter-jurisdictional signal control in the Schaumburg area is apparently on hold.
- The CDOT emergency operations center functions out of the OEMC 911 center for special high traffic events and emergencies.
- Cook County has not begun development of its TMC capability. This function might be provided by a work station at the CDOT TMC, by collocation at an IDOT facility, or possibly by a stand alone capability.
- Asphalt paving/snow plow trucks in the city all have GPS tracking. Cook County would like to institute the same capability.
- For signal operations coordination with IDOT, the county uses a handshake agreement. Generally the agency whose road has the most traffic has the most control.
- CDOT and the county have a written agreement for Ashland Ave.
- In a few cases, CDOT has a written letter agreement with neighboring communities to install and run signals on the city limits.

J. Powell noted that signal interconnect systems are being addressed generically as either potential communications system infrastructure, or as including ITS field devices such as CCTV cameras and dynamic message signs. Individual interconnect projects thus are not being placed in the Project List.

III. FOLLOW-UP ACTIONS

- Attendees are requested to review the Project List entries and provide input, directly to the attached spreadsheet if possible, on:
  - Scope/project description
  - Cost (as available)
  - Lead Agency/Funding Agency

- Status/% Complete (even completed projects are to be documented)
- We have added Cook County and City of Chicago Field Devices. Please provide anticipated devices such as, CCTV cameras, dynamic message signs, etc.
- Concepts for new ITS projects (considering the 15 year view)
- Comment, if any, on the "regionally significant" projects.

- D. Zavattero and D. Grabowski to discuss the possibility of pursuing CDOT participation in the demo project of real-time monitoring of travel times using cell phones (with private sector partner).

- Attendees are also requested to provide sample copies of written agreements on maintenance or operations (initial pages only if these are long legal documents).

It is requested that this input be provided by ***the end of August*** if possible.

- Consultant team to add existing/on-going project info to inventory/status of ITS in region per above.

- Consultant team will add to Project List per:
  - Cook County Field Devices project to track paving/snow plow vehicles

The above constitutes the author's understanding of the meeting discussion. Please provide corrections or additions within 5 days of receipt.

AGENDA

Cook County & CDOT Coordination Meeting for
NORTHEASTERN ILLINOIS ITS DEPLOYMENT PLAN
Thursday July 22, 2004

I. INTRODUCTION — Mark Thomas, CATS

II. PROJECT OVERVIEW — Jim Powell, Parsons Project Manager
- o Project goals & deliverables
- o Quick showing of 1999 SEDP

III. REGIONAL ARCHITECTURE — Bruce Eisenhart, ConSysTec

IV. CURRENT AND PLANNED ITS PROJECTS
- o Projects identified in original ITS Plan & Other programmed projects
- o Mapping to Regional Architecture
- o Discussion, status, next steps

V. POTENTIAL FUTURE PROJECTS
- o County plans not previously discussed
- o Gaps in Regional Architecture
- o Integration into regional systems

VI. INTERAGENCY AGREEMENTS
- o Type: written, informal
- o Scope
- o Samples of other agreements county uses in other activity areas (e.g., water, land use)

VII. NEXT STEPS: OPPORTUNITIES FOR FURTHER COORDINATION

MEETING MINUTES
CTA COORDINATION MEETING FOR
NORTHEASTERN ILLINOIS ITS DEPLOYMENT PLAN
WEDNESDAY JULY 28, 2004
CTA OFFICES – MERCHANDISE MART, CHICAGO

Attendees:

Name	**Affiliation**
Martin Smith	CTA.
Shiva Sadasivam	Catalyst Consulting Group - MIS Consultant to CTA.
Mark Thomas	CATS
Jim Powell	Parsons Trans. Group
Bruce Eisenhart	ConSysTec

Attached: Agenda and electronic copy of Project List entries for transit projects.

I. INTRODUCTION AND PURPOSE

The purpose of the meeting was to introduce and discuss the ITS Deployment Plan for Northeastern Illinois. The project is an update of the Strategic Early Deployment Plan for ITS in Northeastern Illinois and is being managed by the Advanced Technology Task Force. The goal of the meeting is to relate the plan to the Regional ITS Architecture and solicit input from attendees on ITS projects currently envisioned and future projects that could be developed in the next 15 years. Discussion tools included a PowerPoint presentation and a preliminary list of ITS projects assembled from various sources (original plan, regional architecture, other programs and other agencies).

II. PRESENTATION AND DISCUSSION

Following a general introduction by M. Thomas with CATS, J. Powell, the consultant PM, provided a brief project overview, highlighting deliverables and the key focus on an updated ITS Project List and priorities along with an action plan for project development and implementation. A draft report is to be presented in late September, and additional coordination can be expected in the next few weeks.

B. Eisenhart then gave a summary of the Regional Architecture (completed in 2003), emphasizing that projects seeking federal dollars must be shown to be part of the architecture. One of the tasks of the update work is to identify needed updates to the architecture. Projects in the ITS Deployment Plan are not to be as detailed as those in the Transportation Improvement Program (TIP).

B. Eisenhart identified those projects in the Project List that have CTA as the lead agency, and provided some architecture interconnect diagrams associated with these. There were 7 such projects.

The presentation led to dialogue and input on ITS efforts and intent, with key points as follows:

- The Rail Service Management System is an upgrade of the CAD system for CTA Rail Operations.
- CTA has a Management Information Management System (MIMS) initiative under way, about which more info is needed.
- AVI and APC (automatic Passenger Count; accurate to +/- 5-10% at trip level, not as accurate at stop level) should be on all buses in 3-4 years. APC is currently on about 20% of rubber-tired vehicles. The APC aspect of this is described in project 42.
- CTA is supporting RTA's BusInfo initiative. At present, the Orbital AVL/GPS system does not poll frequently enough (every 10-20 min.) to provide detailed bus location data, however. There should probably be a separate CTA project ("AVL Upgrade") covering more accurate tracking.
- CTA is considering putting wireless hot spots (802.11g) throughout the system as a way of communicating with buses. S. Sadasivam to provide details on this.
- Eventually there will be automated vehicle monitoring (AVM) of vehicle maintenance needs as well. More sophisticated fare boxes are also coming along.
- CTA's demonstration project of TSP (transit signal priority) is pending on Western Ave. As this develops, it is expected that both passenger counts and schedule adherence will become part of the TSP priority algorithm.
- Currently, run-info is downloaded anytime a bus pulls in a garage, which is typically 1-2 times a day.
- CTA is currently collecting lots of transit data and is working out how to best utilize this archived data.
- CTA has CCTV cameras on all buses and may add cameras to bridges and tunnels.
- CTA will provide requested input on project status and future ideas.
- It was noted that although FHWA and FTA have not required the use of NTCIP and TCIP standards yet, the Federal NPRM could require their use at some point. TCIP standards are being promoted through APTA.

III. FOLLOW-UP ACTIONS

- Attendees are requested to review the Project List entries and provide input, directly to the attached spreadsheet if possible, on:
  - Scope/project description
  - Cost (as available)
  - Lead Agency/Funding Agency
  - Status/% Complete (even completed projects are to be documented)

- Concepts for new ITS projects (considering the 15 year view)
- Comment, if any, on the "regionally significant" projects.

Note: All transit projects are included in Project List, since there may be CTA overlap with RTA and PACE.

- CTA is also requested to provide a copy of typical IGAs or MOUs they have used to coordinate with other agencies.

It is requested that this input be provided by ***the end of August*** if possible.

- Consultant team to add existing/on-going project info to inventory/status of ITS in region per above.

- Consultant team will add to Project List per:
  - A second project for upgrade of AVL capabilities on the rail system.
  - AVL upgrade on buses
  - Wireless hot spots (802.11g
  - AVM for buses
  - Transit archive data management.
  - CCTV coverage of bridge/tunnel Infrastructure

The above constitutes the author's understanding of the meeting discussion. Please provide corrections or additions within 5 days of receipt.

AGENDA

Chicago Transit Authority Coordination Meeting for
NORTHEASTERN ILLINOIS ITS DEPLOYMENT PLAN
2:30 PM July 28, 2004
Location: Merchandise Mart

I. INTRODUCTION — Mark Thomas, CATS

II. PROJECT OVERVIEW — Jim Powell, Parsons Project Manager
- o Project goals & deliverables
- o Quick showing of 1999 SEDP

III. REGIONAL ARCHITECTURE — Bruce Eisenhart, ConSysTec

IV. CURRENT AND PLANNED ITS PROJECTS
- o Projects identified in original ITS Plan & Other programmed projects
- o Mapping to Regional Architecture
- o Discussion, status, next steps

V. POTENTIAL FUTURE PROJECTS
- o Plans not previously discussed
- o Gaps in Regional Architecture
- o Integration into regional systems

VI. INTERAGENCY AGREEMENTS
- o Type: written, informal
- o Scope
- o Samples of other agreements Pace uses in other activity areas

VII. NEXT STEPS: OPPORTUNITIES FOR FURTHER COORDINATION

MEETING MINUTES
PACE COORDINATION MEETING FOR
NORTHEASTERN ILLINOIS ITS DEPLOYMENT PLAN
THURSDAY JULY 29, 2004
PACE OFFICES, ARLINGTON HEIGHTS

Attendees:

Name	**Affiliation**
David Tomzik	PACE
Tom Radak	PACE
Randy Heinemann	PACE
Jerry Kotwica	PACE
Tony Bowman	PACE
Taqhi Mohammed (by telecon)	PACE
Mark Thomas	CATS
Jim Powell	Parsons Trans. Group
Bruce Eisenhart	ConSysTec

Attached: Agenda and electronic copy of Project List entries for transit projects.

I. INTRODUCTION AND PURPOSE

The purpose of the meeting was to introduce and discuss the ITS Deployment Plan for Northeastern Illinois. The project is an update of the Strategic Early Deployment Plan for ITS in Northeastern Illinois and is being managed by the Advanced Technology Task Force. The goal of the meeting is to relate the plan to the Regional ITS Architecture and solicit input from attendees on ITS projects currently envisioned and future projects that could be developed in the next 15 years. Discussion tools included a Powerpoint presentation and a preliminary list of ITS projects assembled from various sources (original plan, regional architecture, other programs and other agencies).

II. PRESENTATION AND DISCUSSION

Following a general introduction by M. Thomas with CATS, J. Powell, the consultant PM, provided a brief project overview, highlighting deliverables and the key focus on an updated ITS Project List and priorities along with an action plan for project development and implementation. A draft report is to be presented in late September, and additional coordination can be expected in the next few weeks.

B. Eisenhart then gave a summary of the Regional Architecture (completed in 2003), emphasizing that projects seeking federal dollars must be shown to be part of the architecture. One of the tasks of the update work is to identify needed updates to the architecture. Projects in the ITS Deployment Plan are not to be as detailed as those in the Transportation Improvement Program (TIP).

B. Eisenhart identified those projects in the Project List that have PACE as the lead agency, and provided some architecture interconnect diagrams associated with these. There were 5 such projects. Bruce also identified "regionally significant" projects, to ask for input on how important they were to PACE.

The presentation led to dialogue and input on ITS efforts and intent, with key points as follows:

- PACE has 240 routes and 695 buses including 50 contractor owned non-IBS equipped buses**.** They utilize 9 garages, but all management/real-time bus data comes to the main office in Arlington Heights, effectively making it the PACE hub. This hub is feeding information to the RTA hub.
- Much of what PACE does keys off the IBS (Intelligent Bus System), since it employs a variety of technologies. Every PACE-owned bus (all except the contracted bus service routes) will eventually have IBS capabilities; about 180 routes. The IBE will include passenger annunciation (route number, next stop) and TSP equipment (to send schedule adherence and passenger load data). Though base installation is 90% done, continuing enhancements are expected. PACE provided written hand-out on IBS features and benefits.
- The WebWatch project, to be operational by September, will allow users to monitor when their bus will arrive to specific locations via the web. Bus location is polled every 1-2 minutes (polled by radio) and will update on the web page. In about a year, info from this will be available on the RTA kiosks that are about to be demonstrated. PACE info in general will feed into RTA BusInfo initiative.
- PACE provided maps and a listing of candidate TSP corridors.
- PACE has a proposal to FTA now for a Transit Operations Dispatch Support System that will quickly develop new bus routes when an incident impacts the existing route.

- Pace has installed the newest version of Trapeze Software Group's PASS software at its five largest paratransit contractor sites, including North Cook, West Cook, South Cook, DuPage County, and Lake County paratransit services. PASS is an automated scheduling and dispatch system for demand response services, designed to assist in the day-to-day operations of scheduling trips to demand response runs and monitoring dispatch operations on the street.

  Pace is currently beginning a project to purchase and install MDT/AVL equipment to interface with Trapeze PASS at all Pace paratransit projects where PASS is installed. The preliminary setup work on this project is planned for the last half of 2004 and beginning of 2005, with testing and installation to begin during the first half of 2005.

  The combined PASS and MDT/AVL technology is planned for utilization in a cooperative project with DuPage County to implement a central scheduling and dispatch center for all paratransit services provided in DuPage County, including

municipal government, social service agency, County government, and Pace sponsored paratransit services. The first paratransit services were incorporated into this project, called Ride DuPage, on July 1, 2004, with others to be subsequently phased in. It is Pace's intent to install and implement MDT/AVL equipment to assist in tracking provider vehicles and trips provided in this project and future similar coordination efforts. If this centralized dispatch concept is successful in DuPage Pace may make attempts to implement similar concepts in other counties in the region. (Proj #45).

- Projects 50 (PACE Paratransit Management System) and 52(Install and network connect PACE Paratransit AVL/MDT) should be combined into one project called PACE Paratransit MDT/AVL Project.
- Project #51 (PACE farebox) effectively has been back-burnered by the RTA Universal Fare Card initiative. PACE's current fareboxes are compatible with CTA's; automated fareboxes typically cost $6-10k.
- The RTA BusInfo project has about 10 "bus arrival time" signs at PACE bus stops.
- The concept of BRT (bus rapid transit) is under development, ranging from TSP to dedicated ROW in some segments. A queue-jumping study (outside lane bypass) is also pending.
- The PACE Garage (regardless of no.) should be added as an element to the Regional ITS Architecture.
- PACE plans to develop prototype IGA for TSP operation.

III. FOLLOW-UP ACTIONS

- Attendees are requested to review the Project List entries and provide input, directly to the attached spreadsheet if possible, on:
  - Scope/project description
  - Cost (as available)
  - Lead Agency/Funding Agency
  - Status/% Complete (even completed projects are to be documented)
  - Concepts for new ITS projects (considering the 15 year view)
  - Comment, if any, on the "regionally significant" projects.

  Note: Parsons will add IBS info per hand-outs, seeking clarification of details if needed. We will similarly summarize TSP corridor info.

- PACE is also requested to provide sample or prototype IGAs, including the one mentioned for TSP operation, when available.

It is requested that this input be provided by ***the end of August*** if possible.

- Consultant team to add existing/on-going project info to inventory/status of ITS in region per above.

- Consultant team will add to Project List per:
    - Transit Operations Dispatch Support System
    - Proj 50/52 combo

- The consultant team will have follow-up discussion with RTA (D. Love) to clarify RTA actions and initiatives related to the above.

The above constitutes the author's understanding of the meeting discussion. Please provide corrections or additions within 5 days of receipt.

AGENDA

Pace Suburban Bus Coordination Meeting for
NORTHEASTERN ILLINOIS ITS DEPLOYMENT PLAN
10:00 AM July 29, 2004
Location: Pace Office, Arlington Heights

I. INTRODUCTION — Mark Thomas, CATS

II. PROJECT OVERVIEW — Jim Powell, Parsons Project Manager
- o Project goals & deliverables
- o Quick showing of 1999 SEDP

III. REGIONAL ARCHITECTURE — Bruce Eisenhart, ConSysTec

IV. CURRENT AND PLANNED ITS PROJECTS
- o Projects identified in original ITS Plan & Other programmed projects
- o Mapping to Regional Architecture
- o Discussion, status, next steps

V. POTENTIAL FUTURE PROJECTS
- o Plans not previously discussed
- o Gaps in Regional Architecture
- o Integration into regional systems

VI. INTERAGENCY AGREEMENTS
- o Type: written, informal
- o Scope
- o Samples of other agreements Pace uses in other activity areas

VII. NEXT STEPS: OPPORTUNITIES FOR FURTHER COORDINATION

MEETING MINUTES
LAKE AND MCHENRY COUNTY COORDINATION MEETING FOR
NORTHEASTERN ILLINOIS ITS DEPLOYMENT PLAN
THURSDAY JULY 29, 2004
LAKE COUNTY TRANSPORTATION OFFICES, LIBERTYVILLE

Attendees:

Name	**Affiliation**
Tony Khawaja	Lake County Traffic
Marty Buehler	Lake County DOT
Garry Gorr	Lake County Radio
Kevin Kerrigan	Lake County Maintenance
Bradley Cousin	McHenry County Highway Dept.
Pat Schroeder	McHenry County
Mark Thomas	CATS
Jim Powell	Parsons Trans. Group
Bruce Eisenhart	ConSysTec
Joseph Brahm	NET

Attached: Agenda; electronic copy of Project List entries for the counties.

I. INTRODUCTION AND PURPOSE

The purpose of the meeting was to introduce and discuss the ITS Deployment Plan for Northeastern Illinois. The project is an update of the Strategic Early Deployment Plan for ITS in Northeastern Illinois and is being managed by the Advanced Technology Task Force. The goal of the meeting is to relate the plan to the Regional ITS Architecture and solicit input from attendees on ITS projects currently envisioned and future projects that could be developed in the next 15 years. Discussion tools included a PowerPoint presentation and a preliminary list of ITS projects assembled from various sources (original plan, regional architecture, other programs and other agencies).

II. PRESENTATION AND DISCUSSION

Following a general introduction by M. Thomas with CATS, J. Powell, the consultant PM, provided a brief project overview, highlighting deliverables and the key focus on an updated ITS Project List and priorities along with an action plan for project development and implementation. A draft report is to be presented in late September, and additional coordination can be expected in the next few weeks.

B. Eisenhart then gave a summary of the Regional Architecture (completed in 2003), emphasizing that projects seeking federal dollars must be shown to be part of the architecture. One of the tasks of the update work is to identify needed updates to the architecture. Projects in the ITS Deployment Plan are not to be as detailed as those in the Transportation Improvement Program (TIP).

B. Eisenhart identified those projects in the Project List that are in Lake and McHenry Counties, and provided some architecture interconnect diagrams associated with these. There were 4 projects in Lake County and 2 in McHenry County. He also highlighted projects implied by the current architecture, but not yet developed in any detail or as formal proposed projects. Bruce also identified "regionally significant" projects, to ask for input on how important they were to the county.

The presentation led to dialogue and input on ITS efforts and intent, with key points as follows:

- Most of the Lake County planning and vision is in a section of the report on the under-construction Lake County TMC. J. Brahm will work with T. Khawaja to provide the descriptive materials to the consultant team (includes comm. backbone, CCTV, HAR, permanent and portable DMS, RWIS).
- The Lake-Cook Road project is spearheaded by Cook County, with Lake County monitoring results on the corridor.
- Lake County and IDOT jointly monitor each others closed loop systems, without cross control.
- The TMC will automatically deal with diversion routing (e.g., arterial to arterial) by suggesting more green time to specific movements, but it will be up to operating agencies to implement these.
- The Lake County Sheriff's CAD system has ties to 12 municipal CAD systems, and the county TMC will tie to this CAD system in Phase 1 including video sharing. The county TMC will link to the GCM Gateway web site, with some interfaces to be worked out for arterial measures (e.g., volume, occupancy and speed). IDOT staff will be located in the TMC. The TMC may some day link to municipal signal systems.
- Lake County may use wireless interconnects for future outlying intersections.
- In general, at present there is not enough passenger demand to justify TSP use in Lake County.
- McHenry County has 23 signals under its control and 1 closed-loop system. Crystal Lake is the only municipality with a significant number of signals. At present, the county is focusing on road construction and ITS will be part of future consideration. It was suggested that the county attempt to put empty conduit in with new road construction, to serve future communications needs. Most signals have emergency vehicle pre-emption (EVP) capabilities.
- McHenry County may jointly control Randall Rd with Kane County.
- Regarding agreements, there are maintenance and operations agreements with IDOT. Lake County is working out written agreements for the TMC with IDOT and ISTHA, but they are not yet available for the Plan.

- The success of proceeding with the TMC is due to many factors:
  - Advancing technology
  - Strong lobbying for Federal funding
  - Proactive board members
  - IDOT Support
  - Strong leadership of county transportation staff

J. Powell noted that signal interconnect systems are being addressed generically as either potential communications system infrastructure, or as including ITS field devices such as CCTV cameras and dynamic message signs. Individual interconnect projects thus are not being placed in the Project List.

III. FOLLOW-UP ACTIONS

- Lake County will provide vision and County wide ITS plan information for the TMC and other projects.

- Consultant team will update the inventory/status of ITS in region and the Project List based on this.

- To the extent not covered by the above, attendees are requested to review the Project List entries and provide input, directly to the attached spreadsheet if possible, on:
  - Scope/project description
  - Cost (as available)
  - Lead Agency/Funding Agency
  - Status/% Complete (even completed projects are to be documented)
  - We have added Lake County and McHenry County Field Devices. Please provide anticipated devices such as, CCTV cameras, dynamic message signs, etc.
  - Concepts for new ITS projects (considering the 15 year view)
  - Comment, if any, on the "regionally significant" projects.

- Attendees are also requested to provide sample copies of written agreements on maintenance or operations (initial pages only if these are long legal documents).

It is requested that this input be provided by ***the end of August*** if possible.

The above constitutes the author's understanding of the meeting discussion. Please provide corrections or additions within 5 days of receipt.

AGENDA

Lake & McHenry County Coordination Meeting for
NORTHEASTERN ILLINOIS ITS DEPLOYMENT PLAN
Thursday July 29, 2004
Lake County DOT, Libertyville

I. INTRODUCTION — Mark Thomas, CATS

II. PROJECT OVERVIEW — Jim Powell, Parsons Project Manager
- o Project goals & deliverables
- o Quick showing of 1999 SEDP

III. REGIONAL ARCHITECTURE — Bruce Eisenhart, ConSysTec

IV. CURRENT AND PLANNED ITS PROJECTS
- o Projects identified in original ITS Plan & Other programmed projects
- o Mapping to Regional Architecture
- o Discussion, status, next steps

V. POTENTIAL FUTURE PROJECTS
- o County plans not previously discussed
- o Gaps in Regional Architecture
- o Integration into regional systems

VI. INTERAGENCY AGREEMENTS
- o Type: written, informal
- o Scope
- o Samples of other agreements county uses in other activity areas (e.g., water, land use)

VII. NEXT STEPS: OPPORTUNITIES FOR FURTHER COORDINATION

MEETING MINUTES
RTA COORDINATION MEETING FOR
NORTHEASTERN ILLINOIS ITS DEPLOYMENT PLAN
MONDAY SEPTEMBER 27, 2004
RTA OFFICES, 175 W. JACKSON, CHICAGO

Attendees:

Name	Affiliation
Duana Love	*RTA*
Gerry Tumbali	*RTA*
Mark Thomas	*CATS*
Bruce Eisenhart	*ConSysTec*
Jim Powell	*Parsons*
Govind Vadakpat	*Parsons*

Attached: Agenda and electronic copy of Project List entries for transit projects as of 9/27/04.

I. INTRODUCTION AND PURPOSE

The purpose of the meeting was to discuss the ITS Deployment Plan for Northeastern Illinois. The project is an update of the Strategic Early Deployment Plan for ITS in Northeastern Illinois and is being managed by the Advanced Technology Task Force. The specific goal was to solicit input from RTA on ITS projects currently in process and those envisioned within the next 15 years. RTA was given a hand-out that included a hard-copy of a preliminary Project List of ITS transit projects assembled from various sources (original plan, regional architecture, other programs and other agencies).

II. DISCUSSION

Following a general introduction by M. Thomas with CATS, J. Powell, the consultant PM, provided a brief project overview, highlighting deliverables and the key focus on an updated ITS Project List and priorities along with an action plan for project development and implementation.

Project Lists – Duana Love wanted to find out what the sources of the project list were. J. Powell indicated that the project list is based on a variety of source documents including: Regional ITS Architecture document, Strategic Early Deployment Plan, TIP, CMAQ program and IDOT ITS program office literature.

Electronic Payment Systems category – D. Love suggested that there should be an additional category identifying Electronic Payment systems. This might span fare collection, parking, tolls, etc. The discussion following this suggestion led to the question if Project 43 (CTA Automated fare Control) and Project 58 (Regionwide Automatic Fare Control) should be listed individually. B. Eisenhart and G. Tumbali indicated that the project list should in fact individually list these projects because both are ongoing projects.

Project list purpose – D. Love questioned if the objective of the project list is to capture ongoing projects or to look in the future. M. Thomas indicated that the intent of the project is both capture ongoing projects and take a look at what is ahead.

RTA Transit Board project relationship – D. Love clarified that the RTA is not in the business of deploying technologies on Service Board facilities. The RTA provides a planning role for deployments through demonstration projects and manages funding for the Service Boards. ITS technologies for transit are deployed by the Service Boards.

Project list discussion – D. Love led the process of evaluating the project list and identifying the status of all the projects with RTA as the lead agency. A discussion ensued following which it was decided that there would be four (4) category groupings for RTA projects. The projects will be broken down to ATIS and ATMS projects, and further broken down into transit hub and demonstration projects.

Standard Agreements/MOUs – J. Powell asked D. Love if RTA has been involved with preparing Inter Governmental Agreements (IGA) or Memorandum of Understanding (MOU) for the projects which involve other agencies. D. Love remarked that they have specific IGA for projects with the Universities, only, that they do not have other standard IGAs or MOUs. Any work with IDOT will be handled through the Gateway Agreement (~'97). D. Love is developing a model IGA for transit signal priority projects.

Other information- RTA is leaving implementation of transit signal priority projects to CTA, PACE and traffic signal operators. A Regional Transit Asset Management program is in place and may be expanded. D. Love suggested using 1-p. project descriptions to document, at least, transit projects, as per the original SEDP. The consultant team is to prioritize projects on a technical basis only; institutional prioritization will be by others.

III. FOLLOW-UP ACTIONS

- The consultant team will reorganize RTA projects into the 4 project types, as per the above.

- M. Thomas to provide consultant team with information on the RTA Transit ITS Plan.

- RTA is requested to provide further project input as needed on:
    - Scope/project description
    - Cost (as available)
    - Lead Agency/Funding Agency
    - Status/% Complete (even completed projects are to be documented)
    - Concepts for new ITS projects (considering the 15 year view)

Please notify PTG of corrections or additions within 5 days of receipt.

RTA Coordination Meeting for NORTHEASTERN ILLINOIS ITS DEPLOYMENT PLAN 1:30 PM September 27, 2004 Location: RTA Offices, 175 W. Jackson

I. INTRODUCTION — Mark Thomas, CATS

II. PROJECT OVERVIEW — Jim Powell, Parsons Project Manager
- o Project goals & deliverables
- o Quick showing of 1999 SEDP

III. REGIONAL ARCHITECTURE — Bruce Eisenhart, ConSysTec

IV. CURRENT AND PLANNED ITS PROJECTS
- o Projects identified in original ITS Plan & Other programmed projects
- o Mapping to Regional Architecture
- o Discussion, status, next steps

V. POTENTIAL FUTURE PROJECTS
- o RTA plans not previously discussed
- o Gaps in Regional Architecture
- o Integration into regional systems

VI. INTERAGENCY AGREEMENTS
- o Type: written, informal
- o Scope
- o Samples of other agreements Pace uses in other activity areas

VII. NEXT STEPS: OPPORTUNITIES FOR FURTHER COORDINATION

MEETING MINUTES
IDOT COORDINATION MEETING FOR
NORTHEASTERN ILLINOIS ITS DEPLOYMENT PLAN
THURSDAY, OCTOBER 14, 2004
IDOT ITS PROGRAM OFFICE, 120 CENTER CT., SCHAUMBURG

Attendees:

Name	Affiliation	E-Mail
David Zavattero	*IDOT - ITS*	zavatteroda@dot.il.gov
Steve Travia	*IDOT – Traffic Signals*	traviasm@dot.il.gov
Ken Jonak	*IDOT - ITS*	jonakka@dot.il.gov
Justin Potts	*IDOT – D1 - IT*	pottsjb@dot.il.gov
Steve Peters	*IDOT – D1 –Comm Center*	peterssw@dot.il.gov
Rao Vaitla	*IDOT – Elec. Operations*	vaitlahr@dot.il.gov
Jeff Galas (by telecon)	*IDOT Traffic Systems Center*	galasJM@dot.il.gov
John Dillenburg	*University of Il at Chicago*	dillenbu@uic.edu
Mark Thomas	*CATS*	mthomas@catsmpo.com
Jim Powell	*Parsons*	jim.powell@parsons.com
Wei Wu	*Parsons*	wei.wu@parsons.com
Joseph Brahm	*NET*	jbrahm@nateng.com
Bruce Eisenhart (by telecon)	*ConSysTec*	bruce.eisenhart@consystec.com

Attached: Agenda and electronic copy of Project List entries for IDOT &GCM Projects as of October 21, 2004.

I. INTRODUCTION AND PURPOSE

The purpose of the meeting was to discuss the ITS Deployment Plan for Northeastern Illinois. The project is an update of the Strategic Early Deployment Plan for ITS in Northeastern Illinois and is being managed by the Advanced Technology Task Force. The specific goal was to solicit input from IDOT on ITS projects currently in process and those envisioned within the next 15 years. Attendees were given a Powerpoint hand-out and a hard-copy of a preliminary Project List of IDOT & GCM projects assembled from various sources (original plan, regional architecture, other programs and other agencies).

II. DISCUSSION

Regional Concept of Operations for IDOT - Following introductions, D. Zavattero handed out a "Vision/Goals Statement to Guide a Regional Concept of Operations for IDOT" (10/14 Draft), and led a discussion of the 18 points covered. The idea was to solicit input on the statement, which is to help IDOT formulate overall ITS planning, ultimately helping define specific projects. Attendees

were requested to provide further comment to Dave so he can update the statement and use it for further ITS planning.

Project Discussion – M. Thomas inquired into the status of efforts to introduce ITS projects on arterials. S. Travia stated the on-going Lake County TMC development could serve as a prototype of IDOT-county coordination for signal systems, particularly those crossing jurisdictional boundaries. He noted he is developing a comprehensive interagency agreement covering coordinated operations. IDOT will have access to the Lake County system (from IDOT Traffic Signals group) for monitoring and control, plus will likely have a person on-site at the Lake County TMC. J. Brahm noted that NET will soon begin developing an interface for the Lake County system to the Gateway, initially consisting of passing Tollway information for display on the County system. D. Zavattero stated there is a need for a project to define an Interface Definition Language (IDL) for general interfaces between such local systems and the GCM Gateway.

The 15 IDOT projects identified on pp 16-17 of the PowerPoint hand-out were each discussed, with comments as follow:

- IDOT District Fiber Backbone (ID 5): J. Galas noted that that the communications network basically follows the expressway system. Implementation is effectively piece-meal as a part of expressway construction work. J. Potts noted that the Illinois Century Network (old SBC network) may impact this project. Direction/desires of CMS in Springfield may also impact this project.
- Traffic Management Center Integration Including ATMS-CAD (ID 6): This is a CMAQ-funded project that should *not* be combined with ID 5. The project should be expanded and called "Integration of Centers" to include the ISP Dist. 15, Chicago 911 Center and other centers to be identified.
- Interagency Signal Coordination (ID 8): relates to discussion above by S. Travia about IDOT-local TMC coordination. WisDOT and Will County should be added to architecture diagram of this project. This project will be folded into project #7 Traffic Signal Interconnects Throughout NE Illinois.
- Public-Private CCTV Surveillance (ID 9): would involve password-protected access, potentially shared camera control; will need encoders, video switches, etc. Clear Channel has made a proposal for this. IDOT is also considering the development of a Regional Video Sharing Network as has been developed in the Washington DC area.
- IDOT CCTV Systems, Expressway (ID 22): Ultimately, IDOT would like about one camera per mile (sometimes closer depending on roadway geometry), or about 400 cameras systemwide. Today there are 40-50 (excluding REVLAC System). Each camera costs about $35k each (on 80' tower), including local communications equipment.
- Integrated Corridor Pilot Project – I-290/Eisenhower Expressway (ID 23): although not currently funded, would involve tie-in of Eisenhower to Chicago DOT signals by having ramp queue detectors, both for on-ramps and off-ramps. Ramp terminal signal control would then be modified to either hold entry to I-290 (on-ramp congestion) or clear the off-ramp (spillback onto I-290). Unclear whether CDOT signal will link to IDOT Traffic Systems Center, or whether link is local to ramp meters only.

- Emergency Traffic Operations System, Chicago Area (ID 31): eliminate, covered by ID 34.
- South Com Regional Dispatch Trauma Center (ID 32): involves Automatic Crash Notification (ACN), completed. Add new project for ACN with links to other PSAPs.
- Coordinated Incident Management Program – Incident Management Programs (ID 33): on-going effort of GCM Traffic & Incident Management Committee, keep as a GCM project.
- Regionwide Emergency Traffic Operations Systems (ETOS) Upgrade (ID 34): pilot project involving 6 ETP equipped vehicles (5 maintenance vehicles & 1 command vehicle) completed, awaiting final report from M. Anderson. Purpose is to get incident info to Gateway. Final report should define requirements for follow-on project involving both AVL and simplified MDT (keypad) to input basic incident info; would cost ~ $360k to cover ~65 ETP vehicles. May want to include 350-400 maintenance vehicles, D. Zavattero to estimate cost.
- CDOT-IDOT Highway Advisory Radio Coordination (ID 69): Suggested that this be changed to Coordinated Highway Advisory Radio (HAR) Operations, e.g., between IDOT & Lake County or other counties; possibly involve O'Hare & Midway HAR systems. May include text-to-voice conversion. Contact S. Peters for details. (CDOT HAR on Lake Shore Dr. is in operation.).
- IDOT-DMS (not VMS) Deployment (ID 71): Will have ~ 28 inbound signs by ~ end of year. Next phase is build-out of ~ 25 outbound signs, at $250k each installed, primarily on the expressways. New demo project suggested for placing DMS on arterial approach to expressways at 6-12 ramps, at $30-40k each installed, to divert traffic from expressway when incident/heavy congestion. Also suggested project for Statewide Coordination of DMS. The outbound signs could be funded through Department of Homeland Security for emergency Loop evacuation.
- IDOT HAR System Upgrade (ID 74): IDOT may go to an emerging digital technology (e.g., XM radio), contact S. Peters for details. Projects 69 and 74 will be combined into IDOT – HAR System.
- IDOT – Statewide (not Corridor-wide) 511 Hotline Strategies (ID 73): RFP for statewide system due out next spring for installation in summer '05, will have RTA link and Gateway link. Initial cost of ~$2 mil.
- CVHAS Project (ID 80): Feasibility study completed, will be expensive to build (report provided by D. Zavattero), covers Bus Rapid Transit and truck-only roadways. Continue as demo project in plan.

In the course of project discussion, D. Zavattero suggested adding a Project Group called "Safety & Homeland Security." A portion of the IDOT-DMS Deployment could fall under this category.

Due to time limitations, GCM projects were not discussed. One of the suggested projects during IDOT discussion is already included as a GCM project:

- Traveler Information Archive (ID 87; includes travel time info)

Agreements - The need for, and availability of, agreements were also discussed. In general, formal agreements go hand-in-hand with cost sharing for maintenance and operations. After the meeting, D. Zavattero and C. Sikaras provided samples of IDOT IGAs. There are many types of such agreements, generally starting from a standard form and bound by "contract generator" rules. Signed GCM IGAs are on the GCM Communicator.

III. FOLLOW-UP ACTIONS

- Attendees requested to provide further input directly to D. Zavattero on the "Vision/Goals Statement to Guide a Regional Concept of Operations for IDOT." Upon completion the ITS Plan Workgroup will develop a strategy to integrate the IDOT Vision/Goals statement into the ITS Plan.

- The consultant team has added the following projects to the Project List:
    - IDL Development for Local/Regional TMC Communications with the GCM Gateway (e.g., how to send and what arterial performance info to send to Gateway, how to display, whether or not control to be shared; see above)
    - Regional Video Sharing via Internet Browser
    - Automatic Crash Notification (ACN) to PSAPs
    - LED Back-Up of SRA Traffic Signals (approx. 1,800 intersections, @ $17k/intersection)
    - Mobile Technologies to Measure Travel Times Using Probe Vehicles (a public-private partnership using cell phones, e.g., Air Sage or ITIS Holdings; modification of ID 89)
    - Travel Time Prediction Project (using archived info & simulation to predict performance), a demonstration project
    - RTA Multi-Modal Trip Planner
    - 2nd Phase of ETOS (ID 34 above)
    - Arterial DMS for Expressway Traffic Diversion, a demonstration project (see ID 71 above)
    - Statewide Coordination of DMS (" ")

- Consultant team has edited projects per comments in text above.

- Consultant team to obtain copy of IDOT/Lake County IGA if/when available, from S. Travia.

- Attendees are requested to provide further project input as available on projects in attached Project List:
    - Scope/project description
    - Cost (as available)
    - Lead Agency/Funding Agency
    - Status/% Complete (even completed projects are to be documented)
    - Concepts for new ITS projects (considering the 15 year view)
- Project Workgroup to discuss adding a Safety & Homeland Security Project Group

Please notify PTG of corrections or additions within 5 days of receipt.

AGENDA

IDOT Coordination Meeting for
NORTHEASTERN ILLINOIS ITS DEPLOYMENT PLAN
October 14, 2004
1:30pm at the ITS Program Office
120 W Center Ct, Schaumburg

I. INTRODUCTION — Mark Thomas, CATS ,
David Zavattero, IDOT-ITS

II. PROJECT OVERVIEW — Jim Powell, Parsons Project Manager
- Project goals & deliverables
- Quick showing of 1999 SEDP

III. REGIONAL ARCHITECTURE — Bruce Eisenhart, ConSysTec

IV. CURRENT AND PLANNED ITS PROJECTS — All
- Projects identified in original ITS Plan & Other programmed projects
- Mapping to Regional Architecture
- Discussion, status, next steps

V. POTENTIAL FUTURE PROJECTS — All
- State plans not previously discussed
- Gaps in Regional Architecture
- Integration into regional systems

VI. INTERAGENCY AGREEMENTS
- Type: written, informal
- Scope

VII. NEXT STEPS: OPPORTUNITIES FOR FURTHER COORDINATION

MEETING MINUTES
METRA COORDINATION MEETING FOR
NORTHEASTERN ILLINOIS ITS DEPLOYMENT PLAN
FRIDAY OCTOBER 15, 2004 – SESSION 1
547 WEST JACKSON, CHICAGO

Attendees:

Name	Affiliation	Phone
Barry Resnick	*Metra*	312-322-8984
Sharon Austin	*Metra (TIMS)*	312-322-6513
Ron Rickerson	*Metra*	312-322-6503
Mark Thomas	*CATS*	312-793-3467
Jim Powell	*Parsons*	312-930-5165
Govind Vadakpat	*Parsons*	312-930-5234
Bruce Eisenhart	*ConSysTec*	Telecon

Attached: Agenda and electronic copy of Project List entries for Metra Projects as of October 29, 2004. Reference Session 2 minutes as well.

I. INTRODUCTION AND PURPOSE

The purpose of the meeting was to discuss the ITS Deployment Plan for Northeastern Illinois. The project is an update of the Strategic Early Deployment Plan for ITS in Northeastern Illinois and is being managed by the Advanced Technology Task Force. The specific goal was to solicit input from Metra on ITS projects currently in process and those envisioned within the next 15 years. Attendees were given a Powerpoint hand-out and a hard-copy of a preliminary Project List of transit projects assembled from various sources (original plan, regional architecture, other programs and other agencies).

II. DISCUSSION

Project Lists – J. Powell presented the scope of the plan update and the activities to accomplish the goals. The importance of the complete Project List was highlighted. B. Resnick stated that in general, Metra reserves the right to limit information passed to other agencies/centers, citing security as a key concern.

Schedule **–** B. Resnick enquired what was the timeline for completion of the plan update. Mark said that CATS would be presenting the report to the Executive Committee in spring 2005. The updated ITS Deployment Plan will become part of the Regional Transportation Plan. Projects also need to fit into the Regional ITS Architecture.

Project List Discussion **–** J. Powell presented the Metra projects from the Project List in detail to elicit more information from Metra officials. Sharon indicated that officers from

Metra's Engineering Department should be included in the discussion. It was decided that the consultant team would meet with Metra's Engineering Department at a later date.

Project 47- Metra Rail Centralized Control – Sharon indicated that the project is almost complete. Engineering Department will provide more information on the status.

Project 48 – Barry mentioned that this project has not been a part of Metra's implementation plan.

Project 48A – See Session 2 discussion.

Project 76 - Correct name is Train Information Management System (TIMS), which uses GPS to monitor all commuter trains from 14th Flr. center of 547 W. Jackson. The system then auto-generates appropriate audio and some visual messages, mainly for service disruptions.Metra will define desired enhancements.

Project 77, in Project 77A group **–** B. Resnick indicated that this pilot project will be completed in January 2005 at the Tinley Park and 80th Avenue stations on the Rock Island District line (8 signs around the stations). This pilot project has been targeted for two sites. After evaluation there is a possibility that this pilot project will be implemented at additional locations, in sets of 2-3 stations. He provided updated cost information for this project.

MOU/IGA **–** J. Powell enquired if Metra has written agreements for projects with other agencies. Barry indicated that Metra has several types of agreements (e.g., MOUs, IGAs, Purchase of Service to coordinate rail/freight service, each customized to the application). B. Resnick will prepare a list of agreement types.

III. FOLLOW-UP ACTIONS

- B. Resnick will set up a meeting with personnel from other Metra departments to solicit additional information on existing and new projects.

- B. Resnick to identify types of Metra agreements and typical uses.

Please notify PTG of corrections or additions within 5 days of receipt.

Metra Coordination Meeting for NORTHEASTERN ILLINOIS ITS DEPLOYMENT PLAN 10:00 am, Friday, October 15, 2004 Location: Metra Offices, 547 W. Jackson

I. INTRODUCTION — Mark Thomas, CATS

II. PROJECT OVERVIEW — Jim Powell, Parsons Project Manager
- Project goals & deliverables
- Quick showing of 1999 SEDP

III. REGIONAL ARCHITECTURE — Bruce Eisenhart, ConSysTec

IV. CURRENT AND PLANNED ITS PROJECTS
- Projects identified in original ITS Plan & Other programmed projects
- Discussion, status, next steps

V. POTENTIAL FUTURE PROJECTS
- Metra projects not previously discussed
- Gaps in Regional Architecture
- Integration into regional systems

VI. INTERAGENCY AGREEMENTS
- Type: written, informal
- Scope

VII. NEXT STEPS: OPPORTUNITIES FOR FURTHER COORDINATION

MEETING MINUTES
METRA COORDINATION MEETING FOR
NORTHEASTERN ILLINOIS ITS DEPLOYMENT PLAN
THURSDAY OCTOBER 28, 2004 – SESSION 2
547 WEST JACKSON, CHICAGO

Attendees:

Name	**Affiliation**	
Barry Resnick	*Metra*	312-322-8994
Chris Wilson	*Metra (planning)*	312-322-8024
Bruce Marcheschi	*Metra (comm. systems)*	312-322-6949
George Hardwidge	*Metra (engineering)*	312-322-8999
Mark Thomas	*CATS*	312-793-3467
Jim Powell	*Parsons*	312-930-5165
Govind Vadakpat	*Parsons*	312-930-5234
Bruce Eisenhart	*ConSysTec*	Telecon

Attached: Agenda and electronic copy of Project List entries for Metra Projects as of October 29, 2004. Reference Session 1 minutes as well.

I. INTRODUCTION AND PURPOSE

The purpose of the meeting was to discuss the ITS Deployment Plan for Northeastern Illinois. The project is an update of the Strategic Early Deployment Plan for ITS in Northeastern Illinois and is being managed by the Advanced Technology Task Force. The specific goal was to solicit input from Metra on ITS projects currently in process and those envisioned within the next 15 years. Attendees were given a Powerpoint hand-out and a hard-copy of a preliminary Project List of transit projects assembled from various sources (original plan, regional architecture, other programs and other agencies).

II. DISCUSSION

Introductory Comments – M. Thomas presented a brief overview of the ITS Deployment Plan update, highlighting how this project fits into the Regional Transportation Plan and Transportation Improvement Plan.

Project Overview – J. Powell presented the scope of the plan update and the activities to accomplish the goals. The importance of the complete Project List was highlighted. B. Eisenhart talked about the Regional ITS Architecture for the NE Illinois and how projects need to fit into it.

Metra personnel noted that when train service disruptions occur today, Metra has limited interaction with CTA and Pace (by phone), but does call school bus companies.

Project List Discussion **–** J. Powell presented the project list in detail to elicit more information from Metra officials.

Project 47- Metra Rail Centralized Control – The Consolidated Control Facility (CCF) at 14th & Canal manages all freight and commuter operations in the Chicago area. A part of this is the CTCO (Chicago Transportation Coordination Office) that provides strategic management to appropriate freight carriers. CTCO is not involved with dispatching. A project should remain in the plan update for potential CCF upgrades.

Project 48 – This project is to be removed from Project list - not a part of Metra's implementation plan.

Project 48A – Per B. Marcheschi, PIDS is the passenger information display system at the 5 downtown commuter stations that shows train schedules on big screen TV monitors, and individual run information on smaller displays at each track entrance. PIDS is outdated and needs improvement. Project 48A is a project to update and modernize the system, for estimated $10 Mil capital cost. Metra has another project to provide emergency management and messaging. About 8 signs per station are about to be deployed separate from the PIDS, at cost of ~$850k. Under the auspices of US Department of Homeland Security, the exact types of messages to be displayed have yet to be determined.

Project 76 **–** The project description will be changed to indicate the upgrade of Metra Train Information Management System. B. Resnick will confer with Sharon Austin to provide updated information.

Project 77, in Project 77A Group **–** Barry Resnick provided detailed cost information for this project and also indicated, based on evaluation of this demo project, Metra may pursue signs at 3 additional station groups (2-3 stations each), at $3.5 Mil capital cost, $300k design and $100k/year to operate all 4 station groups. Make this a Metra project.

III. FOLLOW-UP ACTIONS

- Based on comments at Sessions 1 & 2, consultant team has updated Project List.

- B. Resnick will provide further clarification/input on at least Projects 47 & 76.

- Barry Resnick will supply information on at least the following new projects:
    - Constant Time Warning Devices at Grade Crossings
    - Detection Horns at Grade Crossings

Please notify PTG of corrections or additions within 5 days of receipt.

Metra Coordination Meeting for NORTHEASTERN ILLINOIS ITS DEPLOYMENT PLAN 10:00 am, Thursday, October 28, 2004 Location: Metra Offices, 547 W. Jackson

I. INTRODUCTION — Mark Thomas, CATS

II. PROJECT OVERVIEW — Jim Powell, Parsons Project Manager
- Project goals & deliverables
- Quick showing of 1999 SEDP

III. REGIONAL ARCHITECTURE — Bruce Eisenhart, ConSysTec

IV. CURRENT AND PLANNED ITS PROJECTS
- Projects identified in original ITS Plan & Other programmed projects
- Discussion, status, next steps

V. POTENTIAL FUTURE PROJECTS
- Metra projects not previously discussed
- Gaps in Regional Architecture
- Integration into regional systems

VI. INTERAGENCY AGREEMENTS
- Type: written, informal
- Scope

VII. NEXT STEPS: OPPORTUNITIES FOR FURTHER COORDINATION

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Appendix 3

Mappings of Projects to Regional ITS Architecture

See standalone *Addendum* document.

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Appendix 4
National ITS Architecture Market Packages

Service Area	Market Package	Market Package Name
ARCHIVED DATA MANAGEMENT	AD1	ITS Data Mart
	AD2	ITS Data Warehouse
	AD3	ITS Virtual Data Warehouse
ADVANCED PUBLIC TRANSPORTATION SYSTEMS	APTS1	Transit Vehicle Tracking
	APTS2	Transit Fixed-Route Operations
	APTS3	Demand Response Transit Operations
	APTS4	Transit Passenger and Fare Management
	APTS5	Transit Security
	APTS6	Transit Maintenance
	APTS7	Multi-modal Coordination
	APTS8	Transit Traveler Information
ADVANCED TRAVELER INFORMATION SYSTEMS	ATIS1	Broadcast Traveler Information
	ATIS2	Interactive Traveler Information
	ATIS3	Autonomous Route Guidance
	ATIS4	Dynamic Route Guidance
	ATIS5	ISP Based Route Guidance
	ATIS6	Integrated Transportation Management/ Route Guidance
	ATIS7	Yellow Pages and Reservation
	ATIS8	Dynamic Ridesharing
	ATIS9	In Vehicle Signing
ADVANCED TRAFFIC MANAGEMENT SYSTEMS	ATMS01	Network Surveillance
	ATMS02	Probe Surveillance
	ATMS03	Surface Street Control
	ATMS04	Freeway Control
	ATMS05	HOV Lane Management
	ATMS06	Traffic Information Dissemination
	ATMS07	Regional Traffic Control
	ATMS08	Traffic Incident Management System
	ATMS09	Traffic Forecast and Demand Management
	ATMS10	Electronic Toll Collection
	ATMS11	Emissions Monitoring and Management
	ATMS12	Virtual TMC and Smart Probe Data
	ATMS13	Standard Railroad Grade Crossing
	ATMS14	Advanced Railroad Grade Crossing
	ATMS15	Railroad Operations Coordination
	ATMS16	Parking Facility Management
	ATMS17	Regional Parking Management
	ATMS18	Reversible Lane Management
	ATMS19	Speed Monitoring
	ATMS20	Drawbridge Management
	ATMS21	Roadway Closure Management

Service Area	Market Package	Market Package Name
ADVANCED VEHICLE SAFETY SYSTEMS	AVSS01	Vehicle Safety Monitoring
	AVSS02	Driver Safety Monitoring
	AVSS03	Longitudinal Safety Warning
	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
COMMERCIAL VEHICLE OPERATIONS	CVO01	Fleet Administration
	CVO02	Freight Administration
	CVO03	Electronic Clearance
	CVO04	CV Administrative Processes
	CVO05	International Border Electronic Clearance
	CVO06	Weigh-In-Motion
	CVO07	Roadside CVO Safety
	CVO08	On-board CVO and Freight Safety & Security
	CVO09	CVO Fleet Maintenance
	CVO10	HAZMAT Management
	CVO11	Roadside Hazmat Security Detection and Mitigation
	CVO12	CV Driver Security Authentication
	CVO13	Freight Assignment Tracking
EMERGENCY MANAGEMENT	EM01	Emergency Call-Taking and Dispatch
	EM02	Emergency Routing
	EM03	Mayday Support
	EM04	Roadway Service Patrols
	EM05	Transportation Infrastructure Protection
	EM06	Wide-Area Alert
	EM07	Early Warning System
	EM08	Disaster Response and Recovery
	EM09	Evacuation and Reentry Management
	EM10	Disaster Traveler Information
MAINTENANCE & CONSTRUCTION MANAGEMENT	MCO1	Maintenance and Construction Vehicle and Equipment Tracking
	MCO2	Maintenance and Construction Vehicle Maintenance
	MCO3	Road Weather Data Collection
	MCO4	Weather Information Processing and Distribution
	MCO5	Roadway Automated Treatment
MAINTENANCE &	MCO6	Winter Maintenance

Service Area	Market Package	Market Package Name
CONSTRUCTION MANAGEMENT (cont.)	MCO7	Roadway Maintenance and Construction
	MCO8	Work Zone Management
	MCO9	Work Zone Safety Monitoring
	MC10	Maintenance and Construction Activity Coordination

Appendix 5

Traffic Management Center Staffing Information

For the TMCs in the region, expected staff needs at build-out have been identified. These are broadly broken into Operators and Professional staff (e.g., managers, communications engineers, traffic engineers). For budgetary purposes, one Full Time Equivalent Professional is considered equivalent to three Operators. The table on the next page lists the detailed staffing levels by facility, the associated annual cost and the information source.

TRAFFIC MANAGEMENT CENTERS (TMC) AT BUILD-OUT: FULL TIME STAFF EQUIVALENTS: OPERATORS AND PROFESSIONAL [1,2]

	OPERATORS	PROFESSIONAL	STAFFING COSTS	SOURCE AND COMMENTS
CDOT-TMC	4	11	$1,850,000	CTMC Feasibility study. Includes satellite TMCs at O'Hare and Midway.
Cook County TMC	2	1	$250,000	Estimate per discussion with Mark Thomas, CATS
DuPage County TCI[3]	2	1	$250,000	Estimate per discussion with Mark Thomas, CATS
Lake County TMC	5	6	$1,150,000	Anthony Khawaja, Lake County
Kane County TMC	2	1	$250,000	Estimate per discussion with Mark Thomas, CATS
McHenry County TMC	2	1	$250,000	Estimate per discussion with Mark Thomas, CATS
Will County TMC	2	1	$250,000	Estimate per discussion with Mark Thomas, CATS
ISTHA TIMS[4]	7	5	$1,100,000	Ken Glassman, ISTHA
GCM Gateway	0	0.5	$75,000	Estimate per discussion with David Zavattero, IDOT
PACE Hub	12	7	$965,000	Jerry Kotwica, PACE; 45k for Operators
				64k for Professionals
Metra TIMS[5]	18	6	$1,860,000	Barry Resnick, Metra; 75k for Operators
				85k for Professionals
Illinois Transit Hub/TIC[6]	25	2	$1,550,000	Duana Love, RTA; could go up or down from current.
				Estimate assumes one half (1/2) current staffing.
CTA Control Center/Hub	12	4	$1,200,000	Estimate per site characteristics
IDOT Comm. Center	20	10	$2,500,000	Steve Peters, IDOT; Future figures per discussion
				at 2/05 ATTF meeting
IDOT TSC[7]	13	5	$1,400,000	Jeff Galas, IDOT
TOTAL	**126**	**61.5**	**$14,900,000**	

[1] 1 operator costs $50,00/year, fully loaded. 1 Professional staff costs $150,000/year, fully loaded.

[2] Professional Staff includes the following:
- Manager
- Communication System Engineer
- IT Personnel
- Traffic Engineer
- Administrative Staff

[3] Transportation Coordination Initiative, which may or may not lead to a TMC

[4] Traffic and Incident Management System

[5] Train Information Management System

[6] RTA Travel Information Center

[7] Traffic Systems Center

Appendix 6

Missing Interfaces per Gap Analysis

See standalone *Addendum* document.

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CATS WORK PROGRAM COMMITTEE

THOMAS B. RICKERT, Chairman
Assistant Director
Kane County Division of Transportation

JACK GRONER, Vice Chairman
Department Head
Commuter Rail Board-Metra

MICHAEL D. ROGERS
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LUANN HAMILTON
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PAUL LOSOS
Sunrise Transportation Inc.
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Metropolitan Planning Engineer
Federal Highway Administration

VANESSA ADAMS
Community Planner
Federal Transit Administration

PATRICIA BERRY, Secretary
Acting Deputy for Programming
Chicago Area Transportation Study

This report was prepared
under the direction of the
Advanced Technology Task Force:

Chair Persons:
David Zavattero, IDOT
Duana Love, RTA

Participants included:

City of Chicago
David Seglin
(Chad Hammerl
Edwards & Kelcey)

Cook County
Christopher Snyder

Council of Mayors
Executive Committee
John Kravcik

CTA
Carl Jackson
Martin Smith

DuPage County
Ruth Myers

FHWA
Dean Mentjes

IDOT
Marty Anderson
Jeff Galas
Steve Peters

ISTHA
Ken Glassman

Kane County
Tom Szabo

Lake County
Anthony Khawaja

Metra
Barry Resnick

City of Naperville
Andy Hynes
Marcie Schatz

Pace
David Tomzik
Jerry Kotwica
Taqhi Mohammed

Regional Councils
Robert Dean

RTA
Gerry Tumbali

UIC
Vonu Thakuriah

Will County
Bruce Gould

CATS
Mark Thomas
Craig Heither
Parry Frank

The Work Program Committee reviews and makes recommendations to the Policy Committee on transportation matters presented to CATS and carries out any other duties the Policy Committee shall assign to it. It coordinates the activities of the committees, subcommittees and task forces reporting to the Work Program Committee.

The Advanced Technology Task Force identifies, assesses, promotes and assists with the implementation of advanced technologies as part of the transportation system.

6/05