

U. S. Department of Transportation's Summary of

INTELLIGENT
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SYSTEMS (ITS)

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INTRODUCTION

INTRODUCTION

This document provides summarized information on Intelligent Transportation Systems (ITS) projects initiated as a result of the enactment of the ITS Integration Component of the ITS Deployment Program as defined in Section 5208 of the Transportation Equity Act for the 21st Century (TEA-21). The ITS Integration Component provides Federal funding for the integration of multimodal ITS components in a variety of settings, including large regional areas (for example, statewide, multistate, or multicity), metropolitan areas, and rural areas.

ITS integration projects should improve transportation efficiency; promote safety; enhance transit integration; provide for enhanced infrastructure security; improve paratransit/demand-responsive transit operations, including operations of health and human service providers; improve traffic flow, including the flow of intermodal freight at ports of entry; reduce emissions of air pollutants; improve traveler information; promote tourism; enhance alternative transportation modes; or support improved transportation systems operations, management and maintenance.

This document includes ongoing ITS integration projects that were initiated, and whose Federal funding was approved, through September 30, 2005. In some cases, project deployment/integration activity has terminated, but final evaluation reports are under development. The submission of a final evaluation report constitutes project completion.

Throughout this document, U.S. DOT administrations are identified as follows: FHWA - Federal Highway Administration, FTA - Federal Transit Administration, FMCSA - Federal Motor Carrier Safety Administration. Whether or not one or more of these organizations are explicitly identified as partners in projects, it is understood that at least one U.S. DOT administration is involved in each partnership for projects operating with partnership arrangements.

ALABAMA

DEVELOPMENT OF A HUNTSVILLE, ALABAMA REGIONAL ITS ARCHITECTURE AND STRATEGIC PLAN

Description: This project comprises the FY 2000 Huntsville, Alabama Earmark. The City of Huntsville, AL, experiencing the effects of rapid population growth and expanding commercial activity, is seeking to improve the efficiency of existing transportation systems. To achieve this objective, Huntsville authorities foresee the need to deploy and integrate ITS infrastructure to upgrade freeway management systems, arterial management systems, transit management systems, and incident management. To establish a framework enabling an effective decision-making process for implementation of ITS, the earmarked funding will be applied to the development of a Huntsville Regional ITS Architecture and Strategic Plan. This initiative will also include the detailed design of at least one high priority objective identified in the plan. Provisions of the Strategic Plan will include:

- A regional system inventory.
- Identification of the Huntsville area's transportation problems.
- Identification of potential applicable ITS user services.
- Development of the Regional ITS Architecture.
- Development of a Regional Communications Plan.
- A 1- 5-year concept of operations.
- A 20-year long-range vision.
- Implementation phasing and estimated cost.

Project Location: Huntsville, Alabama

Partner(s): FHWA; Alabama DOT; City of Huntsville; Urban Development Department; Public Transit Division; Police Department

Start Date: September 2000

End Date: March 2006

Estimated Total ITS Funds: \$393,211

Estimated Total Project Cost: \$491,514

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LAW ENFORCEMENT INTELLIGENT NETWORK SYSTEMS

Description:

The project objectives are to design and build a system that allows end-to-end data communication among Alliance members. The system consists of an Officer Assistant and Patrol Car Assistance connected by an Internet communications network. The proposed implementations will increase officer safety, improve mobile communications, enhance data sharing, and promote financial and life cycle efficiency of law enforcement communications technology. Both hardware and software will be designed in a modular fashion, using intelligent systems approaches and as far as possible, to use commercial off the shelf (COTS) components. The proposed units used by the officer in the field will be able to place relevant information near at hand to a variety of data sources. This is achieved by developing the units in an evolutionary manner through a series of levels starting with low bandwidth and at each phase increment, to increase bandwidth and graphical data transmission capability. This conforms with the ITS Guidelines in that the communications technology is separate from the architecture, allowing evolutionary advances as technology advances. ITS activities in Incident Management and Emergency Management will be high priority categories. As long as this path is standards based, not only will communication and cooperation among the Alliance members be enhanced, but a replicable model for other parts of the state and nation will be established and become the model for law enforcement technology overall.

Project Location: University of Alabama, Huntsville

Partner(s): University of Alabama in Huntsville, Huntsville-Madison County 9-1-1 Center, City of Huntsville

Start Date: September 1999

End Date: March 2005

**Estimated Total
ITS Funds:** \$791,469

**Estimated Total
Project Cost:** \$2,020,727

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MOBILE, ALABAMA ITS INTEGRATION

Description:

The goals of this FY 1999 ITS Integration Program project are the development of integrated, National ITS Architecture - conforming Freeway Management and Incident Management systems, and the planning for follow-on integration and deployment of Metropolitan ITS infrastructure.

The objectives of a freeway and incident management system which would apply to the Mobile area are to effectively perform such functions as surveillance and incident detection, information dissemination, and coordination with other traffic and freeway management systems and incident detection. Mobile has several building blocks of these components already in place but requires an integration approach in bringing these elements together to work in a unified manner. Two key components need to be implemented in Mobile: additional field and communication equipment. For example, the regional traffic management center in place does not have the necessary equipment for monitoring the appropriate arterials to aid in the dissemination of traveler information and provide surveillance and incident detection. Also, since the Mobile area has had only one ITS-funded project deployed, the Fog Detection Project, the purchase of additional equipment is critical to create a regional ITS architecture to support integrated ITS deployment.

The ITS integration plan will be developed as a long-range plan describing how the existing systems can come together, and by utilizing the National Architecture, to form a regional architecture through the use of market packages. The plan will be able to set both short-term and long-term goals and objectives. Market packages such as Network Surveillance, Incident Management, and Traffic Information Dissemination can provide useful information by linking agencies and informing the public through user services. User services can include identifying scheduled/planned incidents (e.g. construction activity), detect incidents, formulate response actions, support initialization of response actions (Mobile County Emergency Management Center), and predict hazardous conditions.

Project Location: Mobile, Alabama

Partner(s): FHWA, Alabama DOT, City of Mobile, County of Mobile, Metropolitan Transit Authority, South Alabama Regional Planning Commission

Start Date: September 1999

End Date: March 2007

**Estimated Total
ITS Funds:** \$1,979,000

**Estimated Total
Project Cost:** \$2,311,000

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MUSCLE SHOALS, ALABAMA

Description: This project is the FY 2001 ITS Integration Program earmark for Muscle Shoals, AL. The principal ITS integration activity to be conducted is the integration of 28 signalized intersections. These signalized intersections include state-of-the art traffic control cabinet assemblies, which will be modified to interface with an area-wide signal management system enabling AL DOT secure maintenance and operational access. The project will also deploy two dynamic message signs that will be integrated into the Shoals Metropolitan Area Incident Management System and Advanced Traffic Management System. In addition to extensive ATMS features, the proposed system will deliver Advanced Traveler Information Systems capabilities. These capabilities may include roadway information, traveling conditions, construction activities, and detours.

Project Location: Muscle Shoals, Alabama

Partner(s): FHWA, Alabama DOT, Shoals MPO, Cities of Muscle Shoals, Florence, Sheffield, Tuscumbia

Start Date: September 2001

End Date: April 2006

**Estimated Total
ITS Funds:** \$793,615

**Estimated Total
Project Cost:** \$1,716,933

Contacts:

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REGIONAL ARCHITECTURE DEVELOPMENT FOR THE BIRMINGHAM AREAWIDE TRANSPORTATION MANAGEMENT SYSTEM

Description: This project is a component of the FY 2000 State of Alabama Earmark. The project is an integral part of a major ITS initiative in the Birmingham, AL metropolitan area which has been largely funded by Congestion Mitigation and Air Quality funds. In response to air quality nonattainment status for ozone, ALDOT and project partners have initiated a comprehensive, phased areawide Transportation Management System with emphasis on freeway management and incident management systems. In order to establish a framework for the integration and interoperability of ITS systems, a Regional Architecture will build on the existing framework already established by the ALDOT and project partners by integrating the planned projects and adding user services such as Birmingham-Jefferson County Transit Authority (BJCTA), Commercial Vehicle Operations, and Advanced Vehicle Control and Safety Systems. The CVISN Business Plan will be developed in conjunction with the Regional Architecture to ensure consistency and integration between sub-system components. A Regional Architecture is a tool that the ALDOT will use when planning future projects and establishing protocols and links to project partners. It will define User Service considerations when developing links with the Transportation Management Center and local Traffic Control Centers.

Project Location: Birmingham, Alabama

Partner(s): FHWA; Alabama DOT; Birmingham-Jefferson County Transit Authority; Birmingham Regional Planning Commission; Jefferson County; Shelby County; City of Hoover

Start Date: September 2000

End Date: April 2006

Estimated Total ITS Funds: \$182,347

Estimated Total Project Cost: \$227,934

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ALASKA

ALASKA TRAVELER INFORMATION SYSTEM INCLUDING VESSEL TRACKING SUBSYSTEM AND HIGHWAY CONDITIONS SUBSYSTEM

Description:

This project is one component of the FY 2001 ITS Integration Program earmark for the State of Alaska. Federal funding for the project was obligated in May 2002. The focus of the project is a new Alaska Traveler Information System (ATIS) with two functional subsystems designed to provide near real-time transportation system information. The Vessel Tracking Subsystem for the Alaska Marine Highway System, and the Highway Conditions Subsystem will provide important and timely data about a diverse and complex intermodal transportation system spanning extreme terrain which is frequently subjected to adverse weather conditions.

The Vessel Tracking Subsystem will provide near real-time position reporting for the vessels in the Alaska Marine Highway System (AMHS). The system will also provide for limited e-mail communications between AMHS shore-based staff and all deployed vessels. The system will also transmit data from shipboard weather stations to the National Weather Service.

The Highway Conditions Subsystem will provide real-time reporting of highway conditions, road closures, and maintenance/construction activity. These subsystems will feed an ATIS depicting road conditions, roadway weather and ferry information generated into maps accessible on the Internet.

Project Location: State of Alaska

Partner(s): FHWA, Alaska Department of Transportation and Public Facilities (ADOT&PF)

Start Date: May 2002

End Date: April 2006

**Estimated Total
ITS Funds:** \$477,819

**Estimated Total
Project Cost:** \$955,638

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INTELLIGENT SPECIALTY VEHICLE SYSTEM

Description:

This project is a FY 2002 ITS Integration Program earmark for the State of Alaska. Project funding was approved in September 2003. The project responds to Alaska's severe winter weather conditions, and lengthy winter nights. This combination of weather and poor visibility produces extremely hazardous driving conditions degrading the efficiency and effectiveness of snow removal operations. The Intelligent Specialty Vehicle System (ISVS) is a combination of a precision Global Positioning System (GPS) technology known as Real Time Kinematics (RTK) and collision avoidance technology designed to provide a driver a means to maintain desired lane position and avoid collisions with obstacles during periods of low visibility. This project is being pursued by the fact that specialty vehicles often must operate under inclement weather conditions. Typically associated with these inclement weather conditions are low visibility situations. The driver assistive system improves safety for the specialty vehicle operator by providing the necessary cues for lane keeping and collision avoidance normally unavailable during poor visibility conditions. The driver assistive system, when placed in public safety vehicles, also improves safety conditions for the general public by facilitating all-weather emergency services, and in the case of snow blowers, opening roads and keeping them passable in severe weather for other emergency vehicles and the general motoring public.

Snow blowers are the primary recipient of the ISVS. The project will implement, operate and evaluate all necessary infrastructure, in-vehicle sensing technology, in-vehicle processing including algorithms, and driver-vehicle interfaces. Testing of these systems will take place on state highways using state vehicles under low visibility conditions such as snow, blowing snow, fog and night.

ADOT&PF will coordinate with the University of Minnesota (UofM), Intelligent Transportation Systems Institute on the project design, installation and field evaluation. The UofM is working directly with the Federal Highway Administration and the Minnesota Department of Transportation on the same technology. Project results will also be used to inform decision makers and the general public of the potential for these systems to improve the safety and productivity of the transportation system.

Project Location:

Valdez, Alaska

Partner(s):

FHWA, Alaska DOT&PF, City of Valdez, University of Minnesota-ITS Institute-Center for Transportation Studies

Start Date:

September 2003

End Date:

October 2006

Estimated Total ITS Funds:

\$68,000

Estimated Total Project Cost:

\$136,000

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LAND MOBILE RADIO SYSTEM, PHASE I

Description:

This project is the FY 2001 ITS Integration Program earmark for the Municipality of Anchorage, AK. Funding in the amount of \$1,047,000 was approved in September 2002. The principal function of the Land Mobile Radio System (LMRS) is to support maintenance and operations particularly snow and ice control. Data and information sharing between ADOT & PF and the Department of Public Safety will enhance response and efficiency for both departments. LMRS employed as a wireless mechanism for transmitting data from a handheld computer for emergency management of avalanche rescue and recovery in mountain passes to the state's maintenance management system is an example of the uses to which this technology may be applied.

Phase I of LMRS project will focus on deploying mobile and portable data link radios. The mobile radios will be installed in Department of Public Safety vehicles. Phase II of the project will replace existing base stations with data link radios. Phase I deployments of mobile and portable radios will provide approximately 55% coverage of the state, and will support sharing of intermodal transportation information related to:

- Road closures.
- Railroad closures.
- Traffic routing.
- The need for air space closures (coordination with the FAA to ensure air traffic safety in areas where explosives are in use).
- Avalanche mitigation coordination.
- Natural disaster response.
- Maintenance activity, and
- Road and weather conditions.

Project Location: Alaska

Partner(s): FHWA; Alaska Department of Transportation and Public Facilities (ADOT & PF); Alaska State Troopers; AK Emergency Medical Services

Start Date: September 2002

End Date: January 2006

Estimated Total ITS Funds: \$1,047,000

Estimated Total Project Cost: \$2,046,369

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LAND MOBILE RADIO SYSTEMS, PHASE II

Description:

This project is a FY 2002 ITS Integration Program earmark for the State of Alaska. Project funding was approved in September 2003. The project continues and builds on a FY 2001 ITS Integration Program earmark titled Land Mobile Radio System - Phase I whose focus was on the deployment of mobile and portable data link radios.

The primary function of the Land Mobile Radio System (LMRS) is to support maintenance and operations, particularly snow and ice control. As the system evolves, multiple stakeholders will develop their needs. Other functions of the LMRS include:

- The use of digital subscriber units to transmit assessment data from handheld computers for needs assessments and quality assurance in Maintenance Management operations.
- Data distribution through the Maintenance Management System to the Highway Analysis System, the Bridge Management Systems, the Alaska State Accounting System, and the Alaska Payroll System.

This project will deploy the LMRS and provides equipment at thirty-four Maintenance and Operations locations in Northern, Central and Southeast Alaska along the National and Alaska Highway System. LMRS is an enabling technology, and provides the means to move digital data concerning highway features to the Department's Highway Maintenance Management System.

Project Location: Alaska

Partner(s): Alaska Department of Transportation and Public Facilities (ADOT&PF); Alaska Department of Administration; Alaska Department of Public Safety; Motorola

Start Date: September 2003

End Date: June 2007

Estimated Total ITS Funds: \$1,000,000

Estimated Total Project Cost: \$2,000,000

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ROAD WEATHER INFORMATION SYSTEMS-PHASE 2 AND 2B

Description:

This project originated as a component of the FY 2001 ITS Integration Program earmark for the State of Alaska. Federal funding was obligated in June 2002. This project builds on what was originally a FY 1999 earmark which was deferred to FY 2001, and deployed eight roadway information weather information system (RWIS) sites in the Central Region of the State. This project deploys up to twenty-five additional RWIS sites strategically located throughout Alaska's Northern, Central, and Southeast regions.

The Alaska RWIS extends beyond roadway infrastructure and encompasses rail, marine and aviation requirements. The particular focus on the RWIS deployed in this activity will be to provide weather and pavement information in support of maintenance and operations, with priority on snow and ice control. RWIS technology to be deployed includes specialized equipment and computer programs that monitor air and pavement temperatures and related factors impacting on highways in winter conditions. The expectation is that the application of de-icing chemicals, use of road treatment materials, and the implementation of anti-icing techniques will be significantly improved as a result of deploying the RWIS sites.

The FY 2002 ITS Integration Program earmark for Alaska added to and expanded the project. \$348,975 in Federal funding, and with matching funds, a total of \$697,950 was added to project funding levels.

A time-phased depiction of Environmental Sensor Station (ESS) procurement and deployment is as follows:

FY 99 - Phase I: 8 ESS in central region of AK.

FY 00-01 - Phase II: Statewide deployment (Northern, Central and Southeast) of 24 RWIS sites.

FY 02 - Phase IIb: Additional 7 sites.

Project Location: Alaska Statewide

Partner(s): FHWA, Alaska Department of Transportation and Public Facilities

Start Date: June 2002

End Date: June 2006

**Estimated Total
ITS Funds:** \$1,286,544

**Estimated Total
Project Cost:** \$2,573,087

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STATE OF ALASKA METRO/RURAL DEPLOYMENT: CARS/511 ANCHORAGE INTEGRATION

Description:

This project is a FY 2001 ITS Integration Program earmark for the State of Alaska. Funding for this project was approved in September 2003. The Alaska Department of Transportation and Public Facilities (ADOT&PF) is in the process of initiating a statewide traveler information system which included joining the Condition Acquisition and Reporting System (CARS)/511 pooled fund project in 2001. CARS is an Internet-based map system used to collect transportation-related information such as road closures, pavement conditions, maintenance, construction project data, and major crashes. Information entered into CARS is disseminated via 511 Traveler Information and the ADOT&PF-hosted Web page.

This project expands and builds on a previous ITS Integration Program earmark which initiated the deployment of CARS throughout the State. This project will integrate the Anchorage area into CARS/511. The incorporation of Anchorage into the system will significantly increase the amount of transportation-related information entered into CARS with accompanying benefits for travelers in the metropolitan area. One of the beneficiaries of this integration package will be commercial carriers. The CARS-Commercial Vehicle Operations resource will be able to support the Permit Division to issue oversize/overweight permits in real-time. Additionally, the project will position the Anchorage area for future enhancements in traveler information.

Project Location: Alaska

Partner(s): FHWA, Alaska Department of Transportation & Public Facilities (ADOT&PF), National Weather Service, Alaska State Troopers, Municipality of Anchorage, Castle Rock Consultants

Start Date: September 2003

End Date: March 2006

**Estimated Total
ITS Funds:** \$99,073

**Estimated Total
Project Cost:** \$198,146

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STATEWIDE ROADWAY WEATHER INFORMATION SYSTEM

Description:

This project is the State of Alaska FY 1999 ITS Integration Program Earmark obligated in FY 2001. This is a phased project whose objective is to deploy a road weather information system (RWIS) with the capability to detect weather conditions to support operational decision-making on a regional basis. Environmental sensor stations (ESS) will be deployed in the Anchorage bowl area. A follow-on phase will expand ESS deployment beyond the Anchorage bowl. The stations will be capable of monitoring and displaying pavement surface, subsurface and atmospheric temperature and conditions. Real-time detection capabilities will include:

- Existing and changing weather conditions.
- Fog, wind speed and direction.
- Roadway surface temperatures/conditions including frost and ice formations.

Data compiled will be transmitted to a central server to support AKDOT operations and maintenance decision-making and traveler information.

Project Location: State of Alaska

Partner(s): FHWA, Alaska DOT and Public Facilities

Start Date: November 2000

End Date: April 2006

**Estimated Total
ITS Funds:** \$250,000

**Estimated Total
Project Cost:** \$500,000

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ARIZONA

ATLAS-ITS PHASE IV

Description:

This project is the FY 2001 ITS Integration Program earmark for the State of Arizona. Federal funding was approved and obligated in July 2002. The project lead is the University of Arizona's Center for Excellence in Advanced Traffic and Logistics Algorithms and Systems (ATLAS). This project will demonstrate integration of ITS technologies in five sub-projects at different locations throughout Arizona. The projects are defined as follows:

- Tucson's ITS Urban Interchange is an urban traffic management project which deploys and integrates self-adaptive real-time traffic signal control with freeway management systems using various detector and communications technologies. The adaptive signal control system SMART-RHODES will be deployed.

- Tempe's ITS Public Transit Project will deploy and integrate transit signal priority for a set of buses providing local commuter service between Arizona State University and adjacent neighborhoods. AVL and real-time transit management functionality will be integrated on the demonstration project buses.

- "Evaluation of an Arterial Travel Time Model." The approach will apply an innovative statistical analysis technique for travel time estimation.

- "Deployment of Digital Vehicle/Highway Technology for Safety Enhancement." The primary objective of this project is to develop, test and deploy a safety warning system using high precision digital road maps, and various vehicle status sensory techniques. The basic technological concept is that if a vehicle "knows" within centimeters its location and roadway geometry, drivers may be warned of impending hazardous situations using state of the art vehicle sensory and geo-location technology.

- "Real-Time Operations of Traffic Signals with Bursty Traffic." This project will implement a version of RHODES software that accounts for "bursty" vehicular, pedestrian and bicyclist traffic at an intersection on the Univ. of AZ campus that experiences short periods of high congestion. The project will deploy and integrate (a) an adaptive traffic signal control for "bursty" multimode traffic, (b) a camera and associated software for wide-area monitoring and management of traffic, and (c) an Internet-based system for providing remote monitoring by Univ. of AZ Police Dept. and Parking and Transportation Services.

Project Location:

Arizona

Partner(s):

FHWA; University of Arizona; Arizona DOT; Cities of Tucson and Tempe; Maricopa County DOT; Siemens-Gardner Transportation Systems; Intelligent Technologies International; PIMA Association of Governments

Start Date:

July 2002

End Date:

April 2006

Estimated Total ITS Funds:

\$793,615

Estimated Total Project Cost:

\$1,615,049



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ATLAS-ITS PHASE V

Description:

This project is the FY 2002 ITS Integration Program earmark for the University of Arizona. Funding for this project was approved in September 2003. Through the Center for Excellence in Advanced Traffic and Logistics Algorithms and Systems (ATLAS), the University has conducted several ITS projects involving adaptive signal control, research and development of innovative approaches to real-time traffic condition prediction.

Arizona metropolitan areas have developed extensive plans for ITS deployment and integration. As Arizona jurisdictions begin to integrate ITS technologies, the Center will apply its resources to support the process. This project constitutes Phase V of the ATLAS Program, and will conduct six integration subprojects summarized below:

- Subproject 5A - Integration of arterial travel times within traveler information systems. This activity will collect high frequency data detector readings, and predict arterial travel times for advanced traveler information systems.
- Subproject 5B - Integration of a real-time transit information system at intersections. This activity will use the central processing unit on a traffic controller in Tucson as a server for a transit information system. The ATLAS research team will obtain real-time information on current bus locations, and use travel time predictions to estimate next bus arrival times.
- Subproject 5C - Integration and deployment of an enhanced RHODES real-time adaptive traffic signal control in Seattle, Washington. This activity will deploy an updated version of RHODES in Seattle, and provide associated travel time predictions to Washington State DOT's traveler information system.
- Subproject 5D - On-line Wide-Area Dynamic Route Assignment. In this activity, ATLAS researchers, teaming with counterparts from PATH (California) will develop an on-line system that allows real-time data from detectors and traffic probes to monitor network travel patterns.
- Subproject 5E - Locational Design for Vehicle ID Readers. This activity is part of a large scale integrated deployment of wide-area traffic management led by TRANSTAR, the Harris County DOT. The focus of this initiative is to deploy vehicle identification transponders that broadcast an ID number to assist in estimating route travel times. ATLAS will develop decision models for determining the best location of the vehicle ID readers.
- Subproject 5F - Integrated Airborne Data Collection and Analysis. In this activity, ATLAS will integrate image acquisition and image processing technologies to measure traffic parameters such as speeds, and densities from airborne platforms.

Project Location: Arizona

Partner(s): FHWA; University of Arizona; Washington State DOT; Maricopa County DOT; Maricopa Association of Governments; City of Tucson; Harris County TRANSTAR

Start Date: September 2003

End Date: April 2006



**Estimated Total
ITS Funds:** \$413,659

**Estimated Total
Project Cost:** \$827,318

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EMERGENCY ROOM LINK - TUCSON, ARIZONA

Description:

This project originated as the FY 2001 ITS Integration Program earmark for Tucson, AZ. Emergency Room Link-Tucson (ER Link-Tucson) allows doctors to be virtually transported from a hospital emergency room into an ambulance. Emergency dispatchers are provided the capability to view incident sites to support assessment and assignment of emergency responders. Phase I of this project will enable video and voice teleconferencing between the University of Arizona Medical Center and Advanced Life Support (ALS) ambulances of the Tucson Fire Department. The system facilitates two-way audio and video communications between attending paramedics in ambulances and emergency room medical personnel at the hospital. This is accomplished using traffic control infrastructure. The use of video from a mobile platform is a new technology. This system's goals are to expedite ER medical assistance to victims, and clear crash sites as quickly as possible to reduce the potential for secondary incidents.

The FY 2002 earmark for Tucson, AZ built on the FY 2001 earmark. The FY 2002 funding supports providing video to regional E-911 Centers to facilitate dispatch and management of emergency resources. Homeland Security objectives are accommodated by expanding communication capabilities for emergency service providers and regional trauma centers.

The FY 2003 ITS Integration Program earmark for Tucson, whose funding was approved in early CY 2004, further expands the project's capabilities both in functionality and geography. Communications capacity is extended to the regional trauma center and to public health and emergency services to support rapid identification of crash victims' needs and most appropriate responses. Phase II will incorporate surrounding cities, fire districts, the Pima Association of Governments, and possibly Indian Nations in an effort to expand the basic infrastructure to rural unincorporated Pima County and Native American reservations. The expansion is envisioned through rural/suburban fire districts and possibly, reservation fire departments along interstate highway corridors. Funding depicted includes the FY 2003 allocation of \$519,964 in ITS funding and the total funding includes matching funds in the same amount.

Project Location: Tucson, Arizona

Partner(s): FHWA, Arizona DOT, City of Tucson, Pima Association of Governments, METRO Networks, Pima County, University of Arizona Medical Center

Start Date: September 2001

End Date: September 2008

Estimated Total ITS Funds: \$1,925,641

Estimated Total Project Cost: \$3,883,997



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Richard Nassi	City of Tucson DOT	(520) 791-4259	



TUCSON, ARIZONA INTEGRATION OF REAL-TIME TRAFFIC INFORMATION FOR ADAPTIVE SIGNAL CONTROL, TRAVELER INFORMATION AND MANAGEMENT OF TRANSIT AND EMERGENCY SERVICES

Description:

In the last few years the Systems and Industrial Engineering Department at the University of Arizona (UofA) has been involved with several ITS projects including operational testing of traffic adaptive signal control and research/development of innovative approaches to real-time prediction of traffic conditions and transit priority. This FY 1999 ITS Integration Program project will integrate many of the results and findings from these projects. In particular, the UofA and its partners/collaborators will integrate available real-time traffic information from loop detectors and other sources for real-time traffic-adaptive signal control, for real-time traffic prediction for traveler information, for adaptive signal priority for transit vehicles, and for pro-active coordination of signal phasing to provide preemptive pathways for emergency vehicles.

This project consists of five sub-projects: Development of a 21st Century ITS Strategic Deployment Plan and an Architecture for Integrating Real-time ITS Services; Deployment and Integration of a Real-time Traffic Prediction Method for Traveler Information Systems; Deployment and Integration of a Real-time Adaptive Signal System for a Grid of Intersections; Deployment and Integration of Transit Signal Priority for an Arterial; Real-time estimation of Arterial Travel Times; and Implementation of a Combined Travel Forecasting Model for the Tucson Region.

Project Location: Tucson, Arizona

Partner(s): FHWA, Arizona DOT, City of Tucson, Pima Association of Governments, Gardner Systems, Catalina Engineering, Inc.

Start Date: September 1999

End Date: April 2006

Estimated Total ITS Funds: \$791,469

Estimated Total Project Cost: \$2,043,361

Contacts:

Alan Hansen	FHWA Arizona Division, HPR1-AZ	(602) 379-3645	108
Pitu Mirchandani	University of Arizona	(520) 621-2990	



ARKANSAS

UNIVERSITY OF ARKANSAS AT LITTLE ROCK INTELLIGENT TRANSPORTATION SYSTEM

Description: This project is a FY 2003 ITS Integration Program earmark. The project will upgrade the facilities at the Systems Engineering Department of the University of Arkansas at Little Rock campus. The Systems Engineering Department envisions the development of an "ITS METALAB" designed to integrate transportation-related academic facilities to support varied research activities.

Project Location: Little Rock, Arkansas

Partner(s): FHWA; University of Arkansas at Little Rock (UALR); Arkansas State Highway and Transportation Department; Metroplan (MPO); City of Little Rock, AR

Start Date: September 2004

End Date: September 2008

**Estimated Total
ITS Funds:** \$207,986

**Estimated Total
Project Cost:** \$415,972

Contacts:

Gary Dalporto	FHWA, Arkansas Division	(501) 324-6423
Yupo Chan	UALR	(501) 569-3100



CALIFORNIA

ARDEN CORRIDOR INVESTMENT

Description: This project is one of two ITS Integration earmarks for the Sacramento City and County, CA area. A FY 2002 Integration Program earmark was subdivided into this project and the Watt Avenue Transit Priority and Mobility Enhancement Demonstration. As of March 2005, approved funding for this project (Arden Corridor Investment) consisted of \$225,000 (approved on FY2002) and \$13,500 (approved in FY2005).

The project objective is to provide direct data communication connectivity between the City and County of Sacramento along the Arden Way Corridor. The funding also provides for a regional Strategic Deployment Plan. The communication connectivity will provide for data sharing and the exercise of control between City and County assets. The project's intent is that ITS field devices planned for deployment as part of this project, as well as through other funding sources, will be accessible and controllable by both jurisdictions.

Project Location: City and County of Sacramento, CA

Partner(s): FHWA, CalTrans, Sacramento Area Council of Governments(SACOG), City of Sacramento, Sacramento Regional Transit District, County of Sacramento

Start Date: September 2002

End Date: April 2006

**Estimated Total
ITS Funds:** \$1,208,497

**Estimated Total
Project Cost:** \$2,417,794

Contacts:

Frank Cechini	FHWA California Division, HDA-CA	(916) 498-5005
Angie Louie Fong	City of Sacramento Public Works Dept.	(916) 264-7921



CENTRAL CONTROL FACILITY COMMUNICATIONS & SYSTEM MODIFICATIONS

Description: This project is the FY 2000 ITS Integration Program earmark for San Francisco, California. This project is a preliminary stage in the design and construction of a new Central Control facility for the San Francisco Municipal Railway. The Central Control Facility is the communications nerve center for all modes of transit operated by the City/County of San Francisco. The earmarked funds will be allocated to contract with a consulting firm to develop specifications for a Replacement Radio System.

The scope of the specification will include analyses of alternatives which meet the Municipal Railway's objective and requirements and phasing for the project. There are seven deliverables to satisfy project completion.

Project Location: West Portal, San Francisco, CA

Partner(s): FTA, Metropolitan Transit Agency, Department of Parking and Traffic, Police and Fire Department, Metropolitan Transportation Commission

Start Date: September 2001

End Date: December 2006

**Estimated Total
ITS Funds:** \$786,421

**Estimated Total
Project Cost:** \$1,572,842

Contacts:

Jeffrey Davis	FTA Region 9	(415) 744-2726
John Funghi	San Francisco Municipal Railway	(415) 554-1792



CITY OF ELK GROVE ITS MASTER PLAN

Description: This project is the FY 2003 ITS Integration Program earmark for Sacramento County, CA. The project is a planning initiative, sponsored by the Sacramento Region ITS Partnership that will produce a transportation system blueprint depicting the way the City of Elk Grove will interconnect with regional systems. This project will produce a Master Plan which constitutes Phase I of the community's implementation of integrated traffic management systems. It will be a component of the Sacramento Transportation Area Network, a regionally integrated transportation management system.

Project Location: Elk Grove, CA

Partner(s): FHWA, California DOT, Sacramento Area Council of Governments (SACOG), City of Elk Grove

Start Date: September 2003

End Date: April 2006

Estimated Total ITS Funds: \$50,000

Estimated Total Project Cost: \$100,000

Contacts:

Frank Cechini	FHWA California Division, HDA-CA	(916) 498-5005
Bob Lee	City of Elk River	(916) 478-2227
Mark Wessel	City of Elk River	(916) 478-2253



CITY OF ROSEVILLE, CA ITS MASTER PLAN

Description: This project is the FY 2003 ITS Integration Program earmark for Roseville, CA. The principal purpose of the project is to create a blueprint, laying the foundations for future systems integration within the City of Roseville, and between city systems and external jurisdictions and associated agencies. The Master Plan will identify systems to be integrated, and serve as the foundation for a high level design for the City of Roseville's ITS components. Finally the Master Plan will establish a strategy for the City of Roseville to establish reliable communications between centrally controlled systems and their associated field elements.

Project Location: Roseville, California

Partner(s): FHWA, Caltrans, Sacramento Area Council of Governments (SACOG), City of Roseville

Start Date: September 2003

End Date: April 2006

**Estimated Total
ITS Funds:** \$50,000

**Estimated Total
Project Cost:** \$100,000

Contacts:

Frank Cechini	FHWA California Division, HDA-CA	(916) 498-5005
Rick Tippett	City of Roseville	(916) 774-5379



ELK GROVE TRAFFIC OPERATIONS CENTER

Description:

This project is a FY 2004 ITS integration Program earmark for the City of Elk Grove, CA. The project begins the implementation of the City of Elk Grove ITS Master Plan that was developed with FY 2003 ITS Integration Program earmarked funding.

FY 2004 earmarked funds will support the development of a communications system designed to facilitate a transportation management system that addresses current and future congestion in the rapidly growing Elk Grove community located at the southern portion of the Sacramento Metropolitan area. The planned communications system will be integrated with the Sacramento Transportation Area Network (STARNET) that serves as the communications backbone for the area providing connectivity among the agencies in the Sacramento Region.

Major project components include:

- Procurement of a central system.
- Building a traffic management center.
- Integrating the central system on Elk Grove's two major corridors; and
- Installing the first closed circuit TV surveillance camera in Elk Grove.

Earmarked funding comprises about 2% of projected total project costs.

Project Location:

City of Elk Grove, Sacramento County, California

Partner(s):

FHWA; California DOT (CalTrans); City of Elk Grove; Sacramento Area Council of Governments (SACOG); City of Sacramento; County of Sacramento.

Start Date:

July 2005

End Date:

October 2007

Estimated Total ITS Funds:

\$827,118

Estimated Total Project Cost:

\$1,686,900

Contacts:

Frank Cechini	FHWA, California Division	(916) 498-5008
Bob Lee	City of Elk Grove, CA	(916) 478-2227



HARBOR BOULEVARD INTELLIGENT TRANSPORTATION PROJECT

Description:

This project is a FY 2004 ITS Integration Program earmark for the City of Garden Grove, CA. The City of Garden Grove has previously deployed ITS components to mitigate growing citywide traffic congestion. The primary existing ITS initiative was the implementation of the State Route 22 (SR-22) Smart Corridor Surveillance Project that deployed four closed circuit TV cameras at major interchanges on SR22 and three miles of fiber optic communication link between the cameras and the City's Transportation Management Center.

This project will build upon the infrastructure completed as part of the SR-22 Smart Corridor Surveillance project. It will implement and integrate a multi-functional communication system and an enhanced fiber optic communication inter-tie between the City and various regional Traffic Management and Information Centers including the link to the City of Anaheim as the first step in establishment of an Orange County Traffic Monitoring System. This proposed system being developed by the various Police and Traffic Centers will provide an additional tool for homeland security and major incident response. This project focuses on integrating several ITS infrastructure elements such as dynamic message signs, communication inter-ties with regional and state agencies such as Orange County Transportation Authority, California Department of Transportation - District 12, located in Orange County as well as the State Highway Patrol. The objective is to provide safe and reliable real-time traffic and traveler information for the safe and efficient transportation of goods and people. DMS deployment will also be part of the AMBER program that will be linked to the State Highway Patrol with the placement of two (2) dynamic message signs on two (2) of the busiest arterial streets within the City.

In addition, this project will serve as a gateway (information node) for the Southern California Priority Corridor project. The City of Garden Grove will share traffic and traveler information with other cities and agencies in the County through this regional corridor. Harbor Boulevard is a major regional corridor in Orange County, and this project will improve traffic along that major corridor within Garden Grove, even though the specific construction will not be directly on that roadway, except for the installation of the DMS, because greater corridor benefits can be realized by improving nearby roadways.

Project Location: City of Garden Grove, California

Partner(s): FHWA; California Dept. of Transportation (CalTrans); City of Garden Grove, CA; California Highway Patrol; City of Anaheim.

Start Date: July 2005

End Date: January 2007



**Estimated Total
ITS Funds:** \$689,266

**Estimated Total
Project Cost:** \$2,024,272

Contacts:

Jesse Glazer	FHWA, Los Angeles Metro Office	(213) 202-3955
George Allen	City of Garden Grove, CA	(714) 741-5190



HUNTINGTON BEACH, CA I-405 MULTI-JURISDICTIONAL SMART CORRIDOR AND CALTRANS DISTRICT 12 INTERTIE PROJECT

Description: This project is comprised of the design and deployment of several ITS elements in the cities of Huntington Beach, Fountain Valley and Westminster, California along the I-405 corridor. Key technology components include fibre optic communication to support traffic signals and closed circuit TV, vehicle detection stations and video image processing systems. The fibre optic backbone will support a high speed communications link between Caltrans District 12 and Huntington Beach along I-405. These features will be complemented by design and implementation of integrated workstations and graphical user interfaces to support improved operation of the three cities' traffic signal systems, CCTV cameras and shared information links between Huntington Beach, Westminster and Fountain Valley.

Project Location: I-405 Corridor, California

Partner(s): FHWA; Caltrans; City of Huntington Beach, CA; City of Westminster, CA; City of Fountain Valley, CA

Start Date: November 1999

End Date: April 2006

**Estimated Total
ITS Funds:** \$791,530

**Estimated Total
Project Cost:** \$1,600,000

Contacts:

Jesse Glazer	FHWA LA Metro Office	(213) 202-3955
Bob Stachelski	City of Huntington Beach, CA	(714) 536-5523
Venu Sarakki	Sarakki & Associates	(714) 851-3000



I-80 REAL-TIME TRAFFIC MANAGEMENT PLAN

Description: This project will develop a traffic management plan (TMP) to facilitate management of traffic during a major rehabilitation of a section of I-80 in California. The TMP will develop a comprehensive approach to coordinating individual TMPs for each individual project site. The project will provide real-time traffic volumes, speeds and occupancies during construction. Principal technology deployments to achieve project goals include microwave-based sensors, traditional inductive loop detectors and communications infrastructure supporting Cellular Distributed Packet Data and Leased Analog phone line service.

Project Location: Interstate 80 in California and Nevada

Partner(s): FHWA, CalTrans, Sacramento Area Council of Governments, Sacramento, Placer Counties, CA, Nevada, Sierra Counties, NV

Start Date: September 2001

End Date: April 2006

**Estimated Total
ITS Funds:** \$79,361

**Estimated Total
Project Cost:** \$158,722

Contacts:

Frank Cechini	FHWA California Division, HDA-CA	(916) 498-5005
Karl Dreher	California DOT	(916) 274-5973



INGLEWOOD, CALIFORNIA ATMS PROJECT

Description: The Inglewood, California, ATMS project builds upon existing transportation resources and encompasses the installation of a sophisticated traffic control center that controls traffic signals, conducts traffic surveillance using closed circuit TV, and provides up to the minute information on traffic to travelers through kiosks, changeable message signs, cable TV and the Internet. The project will reduce travel time in the area 20-30% before and after NBA basketball games, NHL hockey games, concerts, and other special events at the Forum, Hollywood Park Racetrack and Casino.

FY 99 funding enabled phase II objectives to include upgrading the city's existing Traffic Control Center to an advanced Traffic Management Center (TMC); installation of 30,000 plus feet of fibre optic cable for improved communication and closed circuit TV; installation of between 7 and 11 CCTV cameras; installation of a new traffic signal system in the TMC; installation of user interactive kiosks at major venues in the city. The project will integrate these components with other regional systems from agencies such as the City of Los Angeles and Caltrans District 7.

Project Location: Inglewood, California

Partner(s): California DOT; City of Inglewood, CA; Los Angeles County Metropolitan Transportation Authority

Start Date: September 1997

End Date: December 2006

Estimated Total ITS Funds: \$2,687,204

Estimated Total Project Cost: \$5,000,000

Contacts:

Jesse Glazer	FHWA LA Metro Office	(213) 202-3955
Charng Chen	City of Inglewood, CA	(310) 412-4316



INTELLIGENT TRANSPORTATION SYSTEMS INTEGRATION PROJECT FOR TRANSPORTATION OPERATORS IN SOLANO COUNTY

Description:

Seven public agencies in Solano County, California, combine resources to provide a diverse and complete transportation infrastructure for their citizens. Services include local, intercity and express commuter general public fixed route bus, water ferry, general public demand response bus, and senior and handicapped demand response bus. These services are provided through a combined fleet of approximately 120 vehicles. Although two of the agencies are providing local service primarily, the other five provide regional services which operate between Solano and one or more surrounding counties. This project is designed to coordinate the development and implementation of a single Y2K compliant intelligent transportation system (ITS), for the seven operators based in Solano.

Project approach will be oriented to the development of a flexible and expandable base architecture. The goal is to allow the system to be dynamic and grow in capability and complexity over time. The initial work will be oriented to developing the Global Positioning System (GPS) capacity, such as Automated Vehicle Location (AVL) and on-time performance analysis. Secondary and tertiary enhancements could include expanded transit applications, as well as general traffic engineering and vehicle safety applications. National ITS Architecture Standards shall be used to develop these ITS.

Project Location: Solano County, California

Partner(s): FHWA; Cities of Fairfield, Benicia, Dixon, Rio Vista, Suisun City, Vacaville

Start Date: September 1999

End Date: March 2006

**Estimated Total
ITS Funds:** \$792,470

**Estimated Total
Project Cost:** \$1,992,000

Contacts:

Frank Cechini	FHWA California Division, HTA-CA	(914) 498-5005
Kevin Daughton	City of Fairfield	(707) 428-7641



MONTEREY-SALINAS TRANSIT ITS AUGMENTATION

Description:

This project combines FY 2002 and FY 2003 ITS Integration Program earmarked funding to implement digital, voice, data vehicle positioning information through a Siemens Transitmaster radio and automatic vehicle location (AVL) and Global Positioning System (GPS). Funding for this project was approved in late FY 2003. The project will enable the Monterey-Salinas Transit ITS to integrate information displays at transit centers with existing advanced communications system components to provide real-time bus arrival and departure times to passengers. Transit management and planning software will be replaced so that schedule information can be integrated with AVL/GPS applications enabling more efficient utilization of MST equipment and personnel. Additionally, bus maintenance will be scheduled more efficiently as bus mechanical status will be sent automatically from the Transitmaster system. The advanced communications system will provide MST buses with the capability to integrate with existing traffic management systems in Monterey and Salinas allowing for passive control of traffic signals resulting in reduced congestion and improved on-time performance.

Part of this funding will be used to enable MST to implement fare collection technology supporting participation in Translink, a regional transit fare payment system using "smart card" technology in the San Francisco Bay area.

Project Location: Monterey, California

Partner(s): FHWA, FTA, Monterey-Salinas Transit (MST), Association of Monterey Bay Area Governments, Transportation Agency of Monterey County, City of Monterey

Start Date: September 2003

End Date: October 2007

**Estimated Total
ITS Funds:** \$1,244,446

**Estimated Total
Project Cost:** \$2,488,892

Contacts:

Frank Cechini	FHWA California Division, HDA-CA	(916) 498-5005
Carl Sedoryk	Monterey-Salinas Transit	(831) 393-8123



REMOTE TRAFFIC MANAGEMENT CENTER AND TRAVELER/PUBLIC INFORMATION ACCESS CENTER - MISSION VIEJO, CALIFORNIA

Description:

This project is the FY 1999 ITS Integration earmark for the City of Mission Viejo, CA. This project complements previous Mission Viejo investments in ITS infrastructure, and focuses on deployment and integration of Advanced Traveler Information Systems (ATIS) components with built-in redundancy for a remote Traffic Management Center (TMC) during emergencies and natural disasters such as earthquakes. Project implementation is comprised of three major initiatives:

- Design of a multi-purpose remote TMC and public and business information access center adjoining the City's public library, including space planning for remote workstations for traffic control and information access.
- Construction of a multi-purpose facility to provide training and to meet community travel and business information access needs.
- Implementation and integration of ITS workstations, hardware and software components and establishing communication intertie to Caltrans District 12.

Project benefits include additional operations capability and redundancy. The remote TMC will serve as a permanent TMC in the event the city hall is moved from its current location; provide redundancy in emergency and natural disaster situations; provide remote communication intertie access to Caltrans District 12, TravelTIP and adjacent jurisdictions; and will provide "one-stop shopping" to commuters and business communities in terms of traveler and public information access.

FY 2000 ITS Integration Program earmarked funding in the amount of \$786,420 was approved in September 2002, and is included in ITS cost shown below.

Project Location: Mission Viejo, California

Partner(s): City of Mission Viejo, Caltrans, Orange County Transportation Authority

Start Date: September 2000

End Date: April 2006

**Estimated Total
ITS Funds:** \$1,577,889

**Estimated Total
Project Cost:** \$8,455,780

Contacts:

Jesse Glazer	FHWA LA Metro Office	(213) 202-3955
Mrs. Shirley Land	City of Mission Viejo Dept. of Public Works	(949) 470-3069



RIVERSIDE COUNTY TRANSIT ITS DEMONSTRATION

Description: The Southern California Association of Governments (SCAG) in association with the Riverside County Transportation Commission (RCTC), the Riverside Transit Agency (RTA), and SunLine Transit Agency have developed a demonstration program which will test the application of ITS technologies for providers of public transportation. Specifically the goal of this demonstration will be to test ITS system applications on transit operations, establish the standards and criteria for open environment technology, assess transit operational productivity increases from such applications, evaluate cost effectiveness, and identify the means, methods and actions required to implement and integrate ITS technologies into traditional fixed route transit, demand responsive transit, and non-traditional transit services such as smart shuttles. The demonstration has three primary objectives: (1) Enhanced customer information (which integrates customer information with system dispatching through the use of real-time information); (2) Fare collection and operational performance (through the use of telemetric monitoring of on-route/time performance and ridership can be gathered in real-time); (3) Vehicle telemetry (automated monitoring of critical vehicle safety and maintenance systems). The FY 99 Integration Program funding will be used to fund the demonstration program which will test and quantify system-wide transit productivity improvements.

Project Location: Riverside County, California

Partner(s): Southern California Association of Governments (SCAG); Riverside County Transportation Commission (RCTC); Riverside Transit Agency (RTA); SunLine Transit Agency

Start Date: October 1999

End Date: February 2006

Estimated Total ITS Funds: \$791,496

Estimated Total Project Cost: \$3,000,000

Contacts:

Frank Cechini	FHWA, California Division, HDA-CA	(916) 498-5005	
Bob Huddy	SCAG	(909) 396-5757	223
Ric Kaczerowski	RTA	(909) 565-5102	



SACRAMENTO REGION STARNET COMMUNICATIONS SYSTEM ENGINEERING TECHNICAL ASSISTANCE

Description:

This project is a FY 2003 ITS Integration Program earmark for the Sacramento, CA region. Planning for interjurisdictional ITS implementation in the region has been ongoing for eight years. A byproduct of this planning was the formation of the Sacramento Region ITS Partnership comprised of local and state traffic management and transit agencies. The Partnership recognized the need for a regional ITS communications system, and has developed a concept for the Sacramento Transportation Area-wide Network (STARNET) as the proposed backbone for regional ITS integration of among jurisdictions. The Partnership has allocated earmarked funding for a detailed engineering and concept of operations study as a prerequisite to system implementation.

This project is focused on retaining the services of a consultant to serve as a Systems Engineering Technical Assistant who will establish a management plan, concept of operations, and systems and subsystems requirement for STARNET. The consultant will oversee the design and deployment of the hardware and software for STARNET, and conduct verification testing to ensure the system satisfies stakeholders' requirements. The consultant will also develop a plan for the first phase of 511 traveler information system implementation.

Project Location: Sacramento, CA

Partner(s): FHWA, Caltrans, Sacramento Area Council of Governments (SACOG), Sacramento Region ITS Partnership (Cities of Sacramento, Elk Grove, Citrus Heights, and Roseville; Sacramento County; Caltrans District 3; Sacramento Regional Transit District, and SACOG)

Start Date: March 2004

End Date: March 2007

**Estimated Total
ITS Funds:** \$500,000

**Estimated Total
Project Cost:** \$1,000,000

Contacts:

Frank Cechini	FHWA California Division, HDA-CA	(916) 498-5005
David Shabazian	SACOG	(916) 340-6231



SAN FRANCISCO, CALIFORNIA INTEGRATED TRANSPORTATION MANAGEMENT SYSTEM PROJECT

Description:

The San Francisco Integrated Transportation Management System (ITMS) is a city-wide real-time transportation management system which includes various ITS infrastructure components suited for traffic conditions unique to San Francisco. The system when completed will provide the following benefits:

- Improved traffic flow and safety;
- Reduced congestion;
- Availability of real-time traffic information to motorists;
- Improved responsiveness to planned events and incidents;
- Enhanced communications.

Several key concepts to be implemented through the ITMS project include:

- Development and implementation of an integrated network to exchange data and video feeds, and improvement of cross-jurisdictional response capabilities.
- Providing the foundation for inter-agency coordination and operation with Caltrans/CHP TMC and MTC TravInfo. The TMC and TravInfo play an important role in empowering the San Francisco Bay Area region with the most advanced transportation management tools to optimize use of transportation facilities in the region.
- Providing the necessary functional requirements for other local/regional jurisdictions to interface their ITS elements with those of San Francisco.

Project Location: San Francisco, California

Partner(s): California DOT (Caltrans), California Highway Patrol (CHP), Metropolitan Transportation Commission (MTC) TravInfo, MUNI (San Francisco Public Transportation Department), San Francisco 911 Emergency Center, City of Daly City, Golden Gate Transit, AC Transit

Start Date: September 1999

End Date: April 2006

**Estimated Total
ITS Funds:** \$1,187,000

**Estimated Total
Project Cost:** \$4,110,000

Contacts:

Frank Cechini	FHWA, California Division, HDA-CA	(916) 498-5005
Cheryl Liu	City & County of SF Dept. of Traffic & Parking	(415) 554-2312



SANTA ANITA (ARCADIA ITS/IEN INTEGRATION)

Description:

This project is a FY 2002 ITS Integration Program earmark for the City of Arcadia, California. Project funding was approved in June 2004. The project objective is to contribute to the reduction in congestion caused by a combination of the frequent events held at the Santa Anita Thoroughbred Racetrack and overflow traffic seeking to by-pass incidents on I-10, SR-60 and I-210, all of which border the City of Arcadia.

The City of Arcadia ITS/Los Angeles County Information Exchange Network (IEN) project focuses on improving traffic management on the shared transportation network corridors that cross multiple jurisdictions. By sharing information with other key transportation agencies, and taking appropriate and necessary actions in real-time, congestion will be mitigated, safety will be improved and roadway incident response will be enhanced. The project will pursue the following activities to achieve congestion relief goals:

- Develop an integrated workstation to serve as the central source of data gathering filters for information exchange.
- Implement the Amber Alert System to support participation in the regional effort that addresses this requirement.

Project Location: Santa Anita, CA

Partner(s): FHWA, California Department of Transportation (Caltrans), City of Arcadia, California Los Angeles County, California

Start Date: June 2004

End Date: April 2006

**Estimated Total
ITS Funds:** \$248,195

**Estimated Total
Project Cost:** \$595,668

Contacts:

Frank Cechini	FHWA, California Division, HDA-CA	(916) 498-5005
Philip Wray	City of Arcadia	(626) 574-5488



SILICON VALLEY TRANSPORTATION MANAGEMENT CENTER

Description: The project is the FY 2002 ITS Integration Program earmark for San Jose, CA. The project is one of a series of ITS projects in a 20-year strategic planning process being implemented by Santa Clara County which identified a sub-regional transportation management center (TMC) as a key requirement. This FY 2002 ITS project will integrate multiple video systems deployed in the Silicon Valley ITS network, and optimize the use of the Silicon Valley ITS Program Communications network to facilitate addition of new partner agencies, and integrate an existing incident management system with a planned Web Traveler project.

Project Location: San Jose, CA

Partner(s): FHWA, California DOT; Santa Clara County; Caltrans District 4; California Highway Patrol, Santa Clara Valley Transportation Authority; Cities of San Jose, Milpitas, Campbell, Santa Clara, Los Gatos; Metropolitan Transportation Commission

Start Date: September 2002

End Date: December 2008

Estimated Total ITS Funds: \$579,123

Estimated Total Project Cost: \$1,158,246

Contacts:

Frank Cechini	FHWA California Division, HDA-CA	(916) 498-5005
Lily Lim-Tsao	San Jose DOT	(408) 277-2549



TEMECULA, CALIFORNIA I-15 TRAFFIC SURVEILLANCE AND SIGNAL SYSTEM INTEGRATION PROJECT

Description: The primary goals of this FY 1999 Integration Program project are to support existing and future economic and community development without a major increase in traffic congestion and delay along the I-15 corridor and on the city's major arterials. The project will design and install four closed circuit TV cameras (CCTV); design and install a communications system between the CCTV and the city's Traffic Operations Center (TOC), and install the necessary integrated workstation/graphical user interface to integrate, control and monitor the traffic signal system, the surveillance system and freeway variable message signs. Also included is a communication intertie between the city's TOC and Caltrans District 8.

Project Location: Temucula, California

Partner(s): FHWA, Caltrans, City of Temecula, California

Start Date: September 1999

End Date: April 2006

Estimated Total ITS Funds: \$197,867

Estimated Total Project Cost: \$437,867

Contacts:

Jesse Glazer	FHWA LA Metro Office	(213) 202-3955
Jerry Gonzalez	City of Temecula	(909) 694-6411



WATT AVENUE TRANSIT PRIORITY AND MOBILITY ENHANCEMENT DEMONSTRATION

Description:

This project originated as the FY 2000 ITS Integration Program earmark for Sacramento County, California. The project has been phased in three consecutive increments corresponding to fiscal years 2000 through 2002.

The project is a multimodal, multi-jurisdictional operations activity which supports regional ITS deployment of several technologies. Project objectives include improved traffic and transit operations management, as well as enhanced regional institutional coordination between these functions and emergency service providers. The initial phase of this deployment funded a transit priority system which included remote positioning, passenger counting and signal priority providing buses priority at signalized intersections. Transit enhancements were complemented by multiple closed circuit TV camera installations along the Watt Avenue Corridor and a portion of a fiber optic trunkline. The second phase added dynamic message signs, additional CCTV cameras, and extended the fiber optic trunkline to meet an existing trunkline which provides center-to-center communication between the County Traffic Operations Center and the Caltrans Regional Transportation Management Center.

The FY 2002 earmark supports Light Rail Transit/bus dynamic signs enhancement, queue jumps, fiber optics extension, additional CCTV, Highway Advisory Radio, and Transportation Management Center upgrades and integration.

Funding figures reflect federal ITS funding for each FY in amounts as follows: FY 2000 - \$786,421; FY 2001 - \$1,091,220 and FY 2002 - \$1,505,000.

Project Location: Sacramento, California

Partner(s): FTA, FHWA, Caltrans, Sacramento Regional Transit District, American River Fire District, California Highway Patrol

Start Date: September 2000

End Date: March 2006

**Estimated Total
ITS Funds:** \$3,382,220

**Estimated Total
Project Cost:** \$6,764,440

Contacts:

Frank Cechini	FHWA California Division, HDA-CA	(916) 498-5005
Doug Maas	Sacramento Public Works Agency	(916) 875-5545



COLORADO

CDOT I-70 WEST INTEGRATION PROJECT

Description:

This project is the FY 2001 ITS Integration Program earmark for I-70 West of Denver, Colorado. The project is part of an ongoing deployment and integration program for ITS in Colorado. It builds on previous efforts and concurrent initiatives. The primary focus is the integration of various data collection, communications, information dissemination and traffic control systems along the I-70 mountain highway corridor West of Denver.

Three Colorado DOT (CODOT) control centers in the I-70 corridor currently manage traffic and disseminate traveler information along localized segments of the corridor, but lack communications capabilities among each other which detracts significantly from an integrated approach along the entire corridor. This project will partially enhance communications and data sharing between:

- The Colorado Transportation Management Center (CTMC) in Lakewood;
- The Eisenhower Tunnel Control facility near Dillon; and
- The Hanging Lake Tunnel (HLT) control facility in Glenwood Canyon.

The partial integration carried out by this project leverages separately-funded installation of the Shared Resources high-speed fiber optic line along the corridor in 2001. Other components of this project include implementation of the I-70 probe network, and a study to plan future interfaces with Denver International Airport.

Project Location: I-70 West of Denver, CO

Partner(s): FHWA, Colorado DOT, Denver International Airport, University of Colorado at Denver

Start Date: September 2001

End Date: March 2006

**Estimated Total
ITS Funds:** \$595,523

**Estimated Total
Project Cost:** \$1,191,734

Contacts:

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John Nelson	Colorado DOT	(303) 512-5838



COLORADO TRANSPORTATION MANAGEMENT CENTER (CTMC) INTEGRATION PROJECT

Description: This project is the FY 2001 ITS Integration Program earmark for Jefferson County, Colorado. The project will accelerate integration activities along the I-70 corridor west of Denver at the Colorado Transportation Management Center (CTMC). The focus of Federally-funded integration will be on software controlling both internal devices and providing a platform for linking to other control centers. A follow-on component of this project will identify, procure and implement statewide advanced traffic management and advanced traveler information software systems at the CTMC. These software applications will link disparate ITS subsystems through a common set of command, control and operating systems and user interfaces.

Project Location: Jefferson County, Colorado

Partner(s): FHWA, FTA, Colorado DOT, Cities of Colorado Springs and Lakewood

Start Date: September 2001

End Date: June 2006

**Estimated Total
ITS Funds:** \$3,372,862

**Estimated Total
Project Cost:** \$6,760,596

Contacts:

Richard Santos	FHWA Colorado Division, HFO-CO	(303) 969-6730	384
John Nelson	Colorado DOT	(303) 512-5838	



FORT COLLINS ADVANCED TRAFFIC MANAGEMENT SYSTEM

Description: This project is the FY 2001 ITS Integration Program earmark for the City of Fort Collins, CO. The project will deploy an Advanced Traffic Management System (ATMS) to replace the legacy traffic signal system. The primary features supporting the ATMS will be an underground fiber optics communications network and a Traffic Operations Center. The project's ultimate objective is to deploy an expandable and integratable ATMS. The earmarked funds will be committed to the fiber optics communications network which will support planned integration with multiple city agencies and Colorado DOT. Transit and traffic agencies will develop a transit priority strategy within the ATMS. Pedestrian and cycling technologies will also be reviewed so as to provide early opportunities for integration in the system.

Project Location: Fort Collins, Colorado

Partner(s): FHWA, FTA, City of Fort Collins Traffic Operations Department

Start Date: September 2001

End Date: May 2006

Estimated Total ITS Funds: \$992,018

Estimated Total Project Cost: \$1,988,410

Contacts:

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Ward Stanford	City of Fort Collins, Traffic Operations	(970) 221-6820	



I-25 SOUTHEAST CORRIDOR AND COLORADO TRANSPORTATION MANAGEMENT SYSTEM (CTMS) INTEGRATION ACTIVITIES

Description:

This project constitutes a combination of two FY 2000 Integration Earmarks. Arapahoe County, CO, funded at \$786,421, and Jefferson County, CO, funded at \$1,179,632. The Arapahoe County earmark will provide improvements to the I-25 corridor from south Denver through the Denver Technological Center (DTC) in the southern suburbs, the most heavily traveled segment of interstate highway in Colorado. ITS planning activities for that project are in progress as Colorado DOT (CDOT) realizes that active ITS measures will be required to operate and manage the corridor over the required eight to ten year construction period.

Integration activities undertaken herein will allow a jump-start of the Southeast Corridor ITS deployment plan, such that CDOT is better positioned to successfully operate, manage and maintain I-25 when construction starts in earnest. Early integration will allow corridor agencies to share information, manage incidents, pool surveillance data, and determine efficient methodologies to disseminate travel information to the public. Simply stated, the funding for this project will be used to help mitigate the impact of the Southeast Corridor work.

The Jefferson County component of the project will be addressed as follows. As part of the Colorado Traffic Management System (CTMS), CDOT is working toward a Center-to-Center (C2C) interface with the City of Lakewood. Additional CTMS activities include development of a low-speed ITS communications architecture intended for deployment activities; and enhancing or providing better internal integration for the following subsystems: weather; "central" CCTV; automated traffic recorder (ATR); highway advisory radio (HAR); variable message signs (VMS); and enhancing CDOT's kiosk and Internet information dissemination subsystems. As the CTMC and Lakewood are within Jefferson County, CDOT will use a second component of the project funding to accelerate the referenced integration activities (including the Lakewood interface) as well as develop initial planning for additional Jefferson County C2C interfaces.

The combined project will, therefore, provide integration between CDOT, cities and counties; and will primarily comprise the integration of traffic signal control, freeway management, and incident management functional areas. This effort is part of an ongoing implementation and integration program for ITS elements in the Denver area and the entire state of Colorado. This project will build upon previous efforts and parallel initiatives, and will move forward with the integration of additional systems. The primary focus of this project will be the integration of county and city traffic, emergency and transit management centers in the Denver area in advance of the Southeast Corridor project.

Project Location: Lakewood, Colorado

Partner(s): FHWA; Colorado DOT; Denver Regional Council of Governments; Denver International Airport; Counties of Arapahoe, Denver, Jefferson, Douglas; Cities of Aurora, Colorado Springs, Denver, Englewood, Greenwood Village, Littleton

Start Date: September 2000

End Date: June 2006



**Estimated Total
ITS Funds:** \$1,966,053

**Estimated Total
Project Cost:** \$3,940,688

Contacts:

Richard Santos	FHWA, Colorado Division, HFO-CO	(720) 963-3009
John Nelson	Colorado DOT	(303) 512-5838



I-70 INCIDENT MANAGEMENT PLAN IMPLEMENTATION

Description:

This project originated as a FY 2003 ITS Integration Program earmark for Colorado with a funding level of \$3,078,186. When submitted in FY 2003, it was titled: "I-70 West Corridor Management Project." Because it was significantly overmatched with State funding, when the FY 2004 earmark, in the amount of \$1,349,970, was appropriated for Colorado, FHWA concurred in applying this funding as an extension of the original (FY 2003) earmark, and the project was re-titled as reflected above. State matching funds result in the total funding depicted.

Colorado DOT (CO DOT), as of end FY 2003, had four ongoing projects considered part of the Colorado Traffic Management System (CTMS) Program. The purpose of this project is to accelerate integration efforts among ongoing projects along the I-70 mountain corridor west of Denver. The project will implement tasks which collectively will establish the foundations for integration between transportation control centers, and develop data exchange capabilities with incident management agencies along I-70. Project activity will be focused in five major areas:

- Integration of devices using high and low speed communication networks
- Deployment and integration of the communication networks
- Installation of communications capabilities which will ultimately link traffic and incident management agencies for data exchange
- Commercial vehicle operations
- Planning, design and deployment of new ITS subsystems

This project's impacts are visualized to be improved collection and dissemination of traveler information; improved incident management; improved security to critical infrastructure; improved commercial vehicle operations; and improved integration between public safety and transit operations.

Project Location: I-70 West Corridor, Colorado

Partner(s): FHWA, Colorado DOT, Colorado Dept. of Revenue; Colorado Motor Carriers Association; U.S. Forest Service; U.S. Bureau of Land Management; Summit County; Town of Glenwood Springs; Jefferson County; Clear Creek County

Start Date: September 2004

End Date: March 2006

Estimated Total ITS Funds: \$4,428,156

Estimated Total Project Cost: \$10,549,970

Contacts:

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Saeed Sobhi	Colorado DOT	(303) 512-5858



SOUTHEAST CORRIDOR TRANSPORTATION EXPANSION (T-REX) PROJECT

Description:

This project is the FY 2002 ITS Integration Program earmark for the Metropolitan ITS Integration Program earmark for the Metropolitan Denver, Colorado area. The project is centered on major infrastructure improvement along the I-25 and I-225 Corridors in the Denver Metropolitan area designated Transportation Expansion or T-Rex.

One component of this multi-faceted effort is the T-Rex Transit ITS Integration Project which will integrate light rail, bus, Park-N-Ride facilities, and highway components to provide real-time traveler information and improved transit operations. Major features include:

- Deployment of Transit Information Displays which integrate light rail transit and bus real-time vehicle location information into a single database which feeds dynamic message signs and public address systems to display/announce arrival times and other transportation to both bus and light rail patrons at Park-N-Ride lots and light rail stations.
- Deployment of transit signal priority at signalized intersections around Park-N-Ride lots and light rail transit stations.
- Integration of parking management system operations in the corridor to inform motorists arriving at Park-N-Ride lots of space availability through dynamic message signs and other real-time delivery devices.

Project Location: Metropolitan Denver, Colorado

Partner(s): FHWA; FTA; Colorado DOT; Regional Transportation District (RTD); Counties of Arapahoe, Denver, Douglas; Cities of Aurora, Denver, Greenwood Village

Start Date: September 2002

End Date: September 2006

**Estimated Total
ITS Funds:** \$5,791,228

**Estimated Total
Project Cost:** \$10,182,456

Contacts:

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Gary Gonzales	Transportation Expansion (T-REX) Project	(303) 357-8575



DELAWARE

DELAWARE STATEWIDE DELTRAC INTEGRATION

Description:

This project originated as the FY 2001 ITS Integration Program earmark for the State of Delaware. The project continued implementation of the Delaware Integrated Transportation Management Strategic Plan initiated in 1997. Building on previous deployment and integration activities including electronic detection systems and Police/Fire computer-aided dispatch, the FY 2001 phase initiated work on three sub-systems described below.

The DelTrac Information Exchange System will provide a multi-platform base to capture information from the control and monitoring systems, and provide that information in multiple formats to a variety of devices. Information will be posted on the Department Web Site, variable message signs, kiosks and PDAs.

The Incident and Event Management System will provide a mechanism to provide guidance to Travel Management Center (TMC) operators during incidents and accidents, log incidents, display incidents on the DelTrac GIS system, and consolidate management of records. This system will integrate and exchange information with the Police/Fire Computer-aided Dispatch System, the #77 Cellular Reporting System, and will accept direct operator input.

The GIS Update and Annotation System will provide a system level data and mapping update program that will enable TMC operators to update GIS database and mapping information for control and monitoring displays at the TMC.

The original funding levels depicted below have been increased twice by ITS Integration Program earmarks in fiscal years 2002 and 2004. FY 2002 funding added \$1,654,637, and FY 2004 funding added \$861,582. In both cases, matching funds doubled the total available funding.

FY 2002 earmarked funding provided for Technical and Implementation Support for a new Transportation Management Center (TMC) as well as planning, design and engineering services for the Incident and Event Management System and the Information Exchange System.

FY 2004 earmarked funding focuses on three initiatives: Integrating TMC communications into a single IP-based network; Implementing a redundant (back-up) TMC; and supporting Systems Integration for existing and legacy systems in the TMC.

Project Location: State of Delaware

Partner(s): FHWA, Delaware DOT

Start Date: September 2001

End Date: November 2007

**Estimated Total
ITS Funds:** \$3,309,834

**Estimated Total
Project Cost:** \$6,622,716



Contacts:

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Gene Donaldson	Delaware DOT	(302) 659-2401



DELAWARE STATEWIDE ITMS INTEGRATION

Description:

This project constitutes the FY 2000 Integration Program earmark for the State of Delaware. Delaware DOT has undertaken installation of the Integrated Transportation Management System (ITMS); a technology-based approach to integrating and improving highway, transit and emergency operations. The DEL DOT ITMS Integration Project will focus on integrating existing traffic signals, video monitoring sites, and detection sites statewide into one centrally controlled network.

The urbanized areas of the project include New Castle County (Wilmington) and the City of Dover. The remainder of the project will take place in a rural setting. In both the rural and metropolitan areas, the majority of the ITMS equipment to be integrated either currently exists, or will have been deployed by other projects prior to the start of this project. Where required, legacy controllers will be upgraded to allow integration into the new statewide system. This project will tie these systems into the statewide IP-based communications network, and connect them to the ITMS central control system and operations software. The project focus will be on integrating Traffic Signals, Video Monitoring Cameras, and Transportation Monitoring Sites into the ITMS. Separate and parallel efforts will integrate transit and emergency management operations into the system. In the spring of 2003, Delaware DOT opened a new Transportation Management Center to be colocated with the Delaware Emergency Management Center. When ITMS is completed, it will exercise real-time control and monitoring along a major segment of Delaware's so-called "Critical 250 miles" of highway network.

Project Location: Delaware Statewide

Partner(s): FHWA, FTA, Delaware DOT, Delaware Transit Corporation

Start Date: July 2000

End Date: April 2006

**Estimated Total
ITS Funds:** \$1,572,842

**Estimated Total
Project Cost:** \$3,145,684

Contacts:

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Gene Donaldson	Delaware DOT	(302) 760-2303



DELTRAC TRAVELER INFORMATION SYSTEM

Description: This project is the FY 2003 ITS Integration Program earmark for the State of Delaware. The project continues implementation of the Delaware Integrated Transportation Management Strategic Plan initiated in 1997. This project's objective is to implement a centralized, voice activated phone system providing real-time information on roadway conditions, incidents/events, accidents, transit routes, transit schedules and fares. The project plans to make the system accessible through a statewide 800 number. Project planners are exploring the use of 511 under a separate initiative, and if 511 is implemented during the period of performance of this project, it will be utilized as the single, statewide number to access traveler information.

The major components of the project are:

- Interactive Voice Response System - This component will enable users to dial into and retrieve traveler information by navigating a series of user-friendly menus. System operation will be via spoken command (i.e., voice response) or through selection of numbers on a keypad. This system is in the design phase at the start of this project.
- Transit Schedule and Fare Content Development and Input - This component will load the Interactive Voice Response system so that customers can access schedule and fare information 24 hours/day, seven days/week. The task involves design and implementation of transit information content and menu structure.
- Interface to the DelTrac Information Exchange System - In order to ensure seamless and accurate dissemination of information to the public, this project will also design and initiate development of an interface to the DelTrac Information Exchange System which is being developed under a separate TEA-21 Integration Program project. The Information Exchange System is the core component supporting data and information sharing within DelTrac, and the interface between the Telephone Information System and the Information Exchange System will be designed as part of this project.

Project Location: Delaware

Partner(s): FHWA, Delaware DOT

Start Date: September 2003

End Date: April 2006

**Estimated Total
ITS Funds:** \$831,942

**Estimated Total
Project Cost:** \$1,663,884

Contacts:

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Jody Sweeney	Delaware DOT	(302) 760-2603



DISTRICT OF COLUMBIA

SMARTTRIP REGIONAL CUSTOMER SERVICE CENTER

Description: This is a FY 2000 ITS Integration Program earmark for the Washington, D.C. Metropolitan Region. Funding for the project was approved in FY 2002, and the project was initiated in FY 2002. The purpose of this project is to establish a Regional Customer Service Center (RCSC) to perform multiple management, distribution and reconciliation tasks to support the SmarTrip card. Since its introduction in early 1999, the Washington Metropolitan Area Transit Authority's (WMATA) SmarTrip card has achieved significant market penetration in the Metrorail system and associated parking facilities. This initial success has established the foundation for implementation of a regional fare collection system. The first step will be the expansion to WMATA's bus system which, like the rail system, operates in DC and surrounding counties in Virginia and Maryland. The contract to accomplish this has been expanded to include commuter buses, light and heavy rail systems. With the deployment of this multi-agency use of the SmarTrip card comes an extensive requirement to manage the distribution, provide customer service and conduct transaction reconciliation for the participating agencies. The RCSC will link the various fare collection systems into a single reporting and management complex.

Project Location: Washington, D.C. Metropolitan Region

Partner(s): WMATA; MD Mass Transit Administration (MTA); VA Department of Rail and Public Transportation (VDRPT)

Start Date: September 2002

End Date: April 2006

**Estimated Total
ITS Funds:** \$2,332,105

**Estimated Total
Project Cost:** \$12,500,000

Contacts:

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Craig Maxey	WMATA	(202) 962-1791



WASHINGTON, D.C. REGION ITS INSTITUTIONAL INTEGRATION

Description:

This project is a FY 2001 ITS Integration Program earmark awarded to George Mason University. The University will conduct a research project designed to promote integration of ITS in the Washington, D.C. region at an institutional level. Three of the tasks are opinion surveys, one is the calibration of the "Integration" traffic forecasting model to two Northern Virginia corridors, and one is a study of how ITS can facilitate the improvement of regional logistical systems. A brief description of each task follows.

Task 1 will survey user attitudes towards transportation needs in the greater Washington area, with a focus on the uses of integrated intelligent transportation systems. The heart of the survey will be an assessment of what users expect from the management and operations of the region's surface transportation system, and, in particular, how ITS can contribute to a seamless movement of passengers throughout the region.

Task 2 will study attitudes of elected officials in Northern Virginia towards ITS evaluation. Most currently available evaluation information about ITS is not in a form useful to elected officials. This research will explore what kind of ITS evaluation information elected officials need in order to make informed decision about deployment of ITS.

Task 3 will calibrate the "Integration" traffic forecasting model to the route 1 and route 7 corridors in Northern Virginia. This model can provide the extremely detailed information about traffic flow that is needed to assess the usefulness of ITS technologies, but extensive work is needed to calibrate this model to local conditions.

Task 4 will assess motorist attitudes towards travel time information on I-66. VDOT is currently considering providing to the public travel time information for the stretch of I-66 between Manassas and the Capital Beltway. Before doing so, however, it wishes to assess whether motorists want quantitative travel time information; how they would expect to use this information; what ranges of travel time would be acceptable; under what driving conditions they would want travel time information; what travel distances they want travel time information for; and what levels of reliability would be demanded.

Task 5 will explore how ITS can be used to improve regional logistical systems. At present, little serious work has been done on how all available ITS tools can be brought together to help create urban-wide freight transport systems able to meet the challenges of the e-commerce era. The proposed research project will examine this issue. One concept, for example, is the so-called "main port", a metropolitan-area collection and distribution center, which receives inter-city shipments and then re-loads these for delivery within the metropolitan area.

Project Location: Washington, D.C. Metropolitan Area

Partner(s): FHWA, Virginia DOT (VDOT), George Mason University

Start Date: September 2002

End Date: April 2006



**Estimated Total
ITS Funds:** \$492,018

**Estimated Total
Project Cost:** \$984,036

Contacts:

Tom Jennings	FHWA Virginia Division, HDA-VA	(804) 775-3357
James Robinson	VDOT	(804) 786-6677
Roger Stough	George Mason University	(703) 993-3171



WASHINGTON, DC METROPOLITAN REGION ITS INTEGRATION

Description:

The purpose of the ten project activities described here is to improve transportation services and enhance the quality of life for residents and visitors to the National Capital Region. The multi-year program is being guided by the Metropolitan Washington Council of Governments' ITS Task Force, and adheres to regional strategic planning documents. The subprojects are grouped by responsible agencies having oversight responsibilities.

MARYLAND STATE HIGHWAY ADMINISTRATION

Subproject: ITS Training (\$250,000) - Funding will be provided to universities and technology transfer centers serving the region to provide high priority training for those responsible for planning, developing, operating and maintaining ITS. The training will follow five tracks:

- Information Technology
- ITS Systems Technology
- ITS in Transportation
- Management
- Public Policy

Subproject: Automate the Interface Between Montgomery County, Maryland ATMS and Partners in Motion/Smart Traveler (\$250,000) - In conjunction with modifications that are being made to the regional traveler information project called Partners in Motion, four public agencies will integrate their software with that project's software suite. Virginia Railway Express, Virginia DOT, and Maryland State Highway Administration will integrate software systems with Partners in Motion. Montgomery County will integrate its Advanced Transportation Management System database with Partners in Motion.

Subproject: Advanced Law Enforcement and Response Technology (ALERT) (\$500,000) - ALERT is an integrated in-vehicle platform for enforcement, fire, emergency medical services, and other specialty vehicles to provide enhanced public safety and improve incident response and management. ALERT is an on-going project sponsored by FHWA and other federal agencies; it is currently being deployed in the Washington, D.C. region in single vehicles owned by the City of Alexandria Police Department, U. S. Secret Service, and the U.S. Park Police. This project will expand use of these vehicles to Virginia and Maryland State Police agencies and several county police forces in Virginia and Maryland as well as the Washington, D.C. police.

Subproject: Washington, D.C. Regional ITS Architecture (\$200,000) - This activity developed a high-level regional ITS architecture for the Washington, D.C. Metropolitan area.

Subproject: Wireless Location Technology Demonstration (\$500,000) - This demonstration of the use of cellular location technology for traffic monitoring will take place on the Capital Beltway between the Springfield interchange in Virginia and Forrestville, Maryland. Initially traffic flow will be monitored only on the Beltway. Subject to results, monitoring activities on arterials may be undertaken.

DISTRICT OF COLUMBIA DEPARTMENT OF PUBLIC WORKS



Subproject: District of Columbia Incident Management Plan (\$400,000) - The District of Columbia is in the process of implementing an integrated transportation management plan. This initiative, integrated with regional systems in adjacent jurisdictions, will enable the District to activate incident and special event diversion/traffic management plans through the use of portable signs.

Subproject: Signal Preemption Operational Test (\$350,000) - The District of Columbia Department of Public Works recently completed a test of signal preemption for emergency vehicles near a major medical center. This activity will extend and expand this implementation to transit and other vehicles.

VIRGINIA DEPARTMENT OF TRANSPORTATION

Subproject: Signal Priority and Preemption Study and Virginia Operational Tests (\$507,348) - The objectives of this activity are to conduct a detailed study of signal preemption/priority issues, and the state of the practice for transit, enforcement, fire and emergency medical services. Based on findings, this initiative will develop requirements and broad policy guidelines for signal preemption/priority for the Washington, D.C. region.

Subproject: Enhance Partners in Motion (\$800,000) - The objectives of this activity are to implement Internet-based information technology applications to the Partners in Motion Agency Data Server. The current Agency Data Server will be updated with an Internet-based system to enhance participating agencies capabilities to transmit and receive traveler information. A six-month demonstration will be conducted to alert major employment centers of major transportation incidents impacting employees' ability to travel during business hours.

Subproject: Northern Virginia Regional Architecture (\$200,000) - This initiative will expand the Northern Virginia Regional ITS architecture to include agencies and jurisdictions in Northern Virginia which were not included in the previous undertaking to develop a regional framework.

Project Location: Washington, DC Metro Region

Partner(s): FHWA, Virginia DOT, Maryland State Highway Administration, DC Dept. of Public Works, Metro Washington Council of Governments

Start Date: September 1999

End Date: April 2006

**Estimated Total
ITS Funds:** \$3,957,348

**Estimated Total
Project Cost:** \$7,914,696



Contacts:

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Frank Mirack	FHWA District of Columbia Division, HDA-DC	(202) 219-3516	
Thomas Jennings	FHWA Virginia Division, HDA-VA	(804) 775-3357	
Mike Zezeski	Maryland State Highway Administration	(410) 787-5859	
James Robinson	Virginia DOT	(804) 786-6677	



FLORIDA

AVL & MOBILE DATA TERMINAL, PALM TRAN

Description: This project combines FY 2003 and FY 2004 ITS Integration Program earmarks for Palm Beach County, Florida. Congressionally-directed funding for FY 2003 is \$707,151 and for FY 2004 is \$861,582. The project objective is to install and integrate an Automatic Vehicle Location (AVL) system and Automatic Passenger Counters (APC) in the buses operated by Palm Beach County's public transportation system - Palm Tran.

The AVL system will contribute to improving the efficiency, reliability and overall service in the 128 bus fleet serving 31 routes. Earmarked funding will contribute to the project through the purchase of software that will interface with the scheduling server and hardware for buses on Palm Tran's main north-south route. Integration of the remainder of the fleet will proceed as funding allows.

The project previously completed installation of the TRAPEZE software that is capable of interpreting data from AVL and APC systems. Integrating the APC system with TRAPEZE will complement data provided by the AVL system. The combination of AVL and APC systems will provide Palm Tran the capability to assess the status of fleet operations while simultaneously gathering historical passenger data to improve the maintenance of routes, schedules and timed transfer points.

Project Location: Palm Beach County, Florida

Partner(s): FTA; Palm Tran Palm Beach County Transportation Agency; Palm Beach County, FL.

Start Date: January 2006

End Date: April 2006

**Estimated Total
ITS Funds:** \$1,568,733

**Estimated Total
Project Cost:** \$3,137,466

Contacts:

Claudia Salazar

Palm Tran

(561) 841-4241



DADE COUNTY, FLORIDA ADVANCED TRAVELER INFORMATION SYSTEM

Description: This project seeks to implement multi-modal, real-time traveler information for the Miami-Dade, Broward, Palm Beach tri-county region within one year of contract award to an Independent Service Provider (ISP). The ISP will have wide latitude in selection of approaches for integrating public and private infrastructure and supporting resources to deliver timely and accurate regional traveler information.

Project Location: Miami-Dade, Broward and Palm Beach Counties

Partner(s): Florida DOT; Miami-Dade, Broward and Palm Beach Counties; City of Miami; TAI-RAIL; MDX

Start Date: March 2000

End Date: April 2006

**Estimated Total
ITS Funds:** \$791,470

**Estimated Total
Project Cost:** \$5,291,470

Contacts:

Hebbani Lokesh	FHWA Florida Division, HDA-FL	(850) 942-9650	3040
Jesus Martinez	Florida DOT	(305) 499-2446	
Arnie Fernandez, Jr.	Florida DOT	(305) 470-5238	



FLORIDA BAY COUNTY

Description:

This project originated as the FY 2000 ITS Integration Program earmark for Bay County, Florida. It initiated a multi-phased project to design and deploy a fiber optic communications backbone to serve as the basic integration means for follow-on deployments of ITS infrastructure. A regional ITS architecture was completed in April 2001, and established the framework for arterial management systems enhancement and integration with the incident management system during the Hathaway Bridge Replacement Project. The FY 2001 ITS Integration Program earmark built on the initial project by expanding the deployment of infrastructure integrated by the backbone. Expanded integration focused on incident management capabilities and an advanced traffic management system. A FY 2002 ITS Integration Program earmark continues to expand project activity initiated by FY 2000 and 2001 funding. The FY 2002 earmark consists of two phases:

- Design and installation of a fiber optic network in the Bay County area.
- Design and upgrade of the Hathaway Bridge Incident Management System in conjunction with the Hathaway Bridge Replacement Project.

The funding amounts listed below under "Estimated Total ITS Funds" include allocations for fiscal years 2000 through 2002. The completion date reflects schedule adjustments accommodating added FY 2002 funding.

Project Location: Panama City, Florida

Partner(s): FHWA, Florida DOT, Bay County Traffic Engineering, City of Panama City Traffic Emergency, Florida Highway Patrol, Bay County Emergency Services, Bay District Schools

Start Date: June 2000

End Date: April 2006

Estimated Total ITS Funds: \$2,390,502

Estimated Total Project Cost: \$5,749,831

Contacts:

Lokesh Hebbani	FHWA Florida Division, HDA-FL	(850) 942-9650	3040
Joe Poole	Florida DOT	(850) 638-0250	
Cliff Johnson	Florida DOT	(850) 638-1250	Ext. 694



ITS IMPROVEMENTS FOR THE CITY OF CLEARWATER

Description:

This project is the FY 2000 ITS Integration Program earmark for Clearwater, Florida. The project calls for integration of the traffic signals along State Route 60, within the City of Clearwater, with upgraded software and hardware to support an adaptive traffic control system. Additionally, Closed Circuit TV (CCTV) and Dynamic Message Sign (DMS) systems are planned to support a more efficient incident response mechanism and real-time dissemination of parking lot/garage occupancy information to the traveling public. Integration is planned between the City of Clearwater Traffic Operations Center (TOC) and Pinellas Suncoast Transit Authority (PSTA). Information from the TOC will be used by PSTA to update bus schedules at major transfer points along S.R. 60.

The City of Clearwater TOC currently operates an Urban Traffic Control System (UTCS) on state and local roadways with approximately 130 out of 145 intersections connected to the system. Some of the arterial signals have an existing capability to provide emergency vehicle preemption; however, this feature is not currently being widely used. The goal of this integration process is to link the upgraded traffic signal system and proposed CCTV and DMS systems with the County 911 center and the parking management system, particularly on Clearwater Beach. In addition, current traffic conditions along S.R. 60 will be available to information service providers. A pedestrian safety component is also planned for integration into the proposed City of Clearwater signal system.

Project Location: City of Clearwater, Florida

Partner(s): FHWA, Florida DOT, City of Clearwater

Start Date: September 2000

End Date: April 2006

**Estimated Total
ITS Funds:** \$2,752,000

**Estimated Total
Project Cost:** \$5,504,000

Contacts:

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Bijan Behzadi	Florida DOT	(813) 975-6733	



JACKSONVILLE TRANSPORTATION AUTHORITY, ITS INITIATIVE

Description: This project is a FY 2004 ITS Integration Program earmark for Jacksonville, Florida. The project objectives are:

- To develop a Regional ITS Master Plan building on the current Florida DOT architecture.
- To test local deployment of arterial transit based on a signal priority system.
- To develop specifications and implementation programs for enhanced transit communication systems.

These initiatives will establish the basis for a true regional ITS Coalition and program for integrated development of ITS solutions, as well as providing critical information to the local implementing agencies on how to budget for acquisition and maintenance/operations costs.

Project Location: Jacksonville, Florida

Partner(s): FTA; FHWA; Florida DOT; Jacksonville Transportation Authority (JTA); City of Jacksonville, First Coast Metropolitan Planning Organization

Start Date: August 2005

End Date: October 2006

Estimated Total ITS Funds: \$745,575

Estimated Total Project Cost: \$1,491,150

Contacts:

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Steve Arrington	Jacksonville Transportation Authority	(904) 630-3181	



PALATKA COMPUTERIZED SIGNAL SYSTEM

Description: This project is the FY 2000 ITS Integration Program earmark for the City of Palatka and Putnam County, Florida. Funding for the project was approved in September 2002. The project will provide a traffic signal closed loop system for twenty-eight existing traffic signals in the City of Palatka and surrounding areas of Putnam County. The focal point of the system will be a Traffic Control Center (TCC) to be connected to the signals by a fiber optic communication plant. When implemented this project will provide real-time information and control capabilities to improve traffic management in the Palatka area.

Project Location: City of Palatka and Putnam County, Florida

Partner(s): FHWA, Florida DOT, Putnam County, City of Palatka

Start Date: September 2002

End Date: April 2006

**Estimated Total
ITS Funds:** \$786,421

**Estimated Total
Project Cost:** \$1,305,719

Contacts:

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Peter Vega	Florida DOT	(904) 360-5463	



SR-836 EXPRESSWAY INTEGRATED ADVANCED TRAFFIC MANAGEMENT SYSTEM

Description:

This project constitutes the FY 2000 ITS Integration Program earmark for Miami, Florida. The State Road 836 (SR 836) in Miami-Dade County is one of the most heavily traveled and congested corridors in Southeast Florida. The SunGuide system, previously referred to as the Intelligent Corridor System (ICS), incorporates all Intelligent Transportation System (ITS) projects in Southeast Florida. The goal of the SunGuide system is to improve traveler safety and mobility for residents and visitors by applying advanced traffic management and traveler information strategies. The SunGuide Design Report identified the SR 836 corridor for ITS Deployment.

The SR 836 Expressway ITS Improvement Project proposes to implement an Advanced Traffic Management System (ATMS) along the SR 836 corridor in Miami-Dade County, Florida. The proposed Miami-Dade Expressway (MDX) ATMS components will be integrated with the existing SunGuide program, such that their operations will become seamless. The MDX ATMS components that are proposed for the project include non-intrusive system detectors, full coverage video surveillance, Highway Advisory Radio (HAR), and a communication system for integrating the MDX Field Components with the SunGuide Control Center.

The MDX ATMS components will be integrated with other regional ITS and incident management systems and initiatives including the SunGuide Control Center, SunGuide Service Patrols, Florida Highway Patrol, MDX SunPass Electronic Toll Collection System, and SunGuide Advanced Traveler Information System.

The FY 2002 ITS Integration Program earmark for Miami-Dade County, FL builds on and modifies the FY 2000 earmarked project by constructing the fiber optic communications backbone throughout the entire length of SR 836 from the Florida Turnpike to I-95. This modification includes the electronics required to integrate the FL Turnpike ITS, the FL DOT District 6 I-95 system, and the MDX SR 836 system. Estimated cost figures depicted below include FY 2002 earmarked funding of \$827,318. The end date reflects schedule adjustments required to accommodate the expanded project scope.

Project Location: Miami-Dade County, Florida

Partner(s): FHWA, Florida DOT, Miami-Dade Expressway Authority

Start Date: March 2000

End Date: April 2006

**Estimated Total
ITS Funds:** \$1,613,739

**Estimated Total
Project Cost:** \$5,932,000



Contacts:

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Sam Gonzales	Miami-Dade Expressway Authority	(305) 375-3232	



SR 924 ITS INTEGRATION PROJECT; SR 112 ITS INTEGRATION PROJECT

Description:

This project is a FY 2004 ITS integration Program earmark for Dade County, Florida. Florida DOT (FDOT) and the Miami-Dade Expressway Authority (MDX) have committed to integrate their intelligent transportation systems. Previous earmarks in FY 2000 and FY 2002 supported the integration of FDOT's SunGuide Transportation Management Center (TMC) and MDX TMC. This project's objective is to expand FDOT's and MDX's ability to monitor critical infrastructure by constructing fiber optic communications backbones throughout the entire length of State Routes (SR) 924 and SR 112. The SR 112 component will integrate the MDX TMC and FDOT's I-95 system. The SR 924 integration will link the I-75 system and FDOT's planned SR-826. A third project component to be fully funded by MDX will integrate SR 878 and SR 874. This element of the project will minimize risk and lower overall project cost.

The SR 112 portion of this project will provide a closed fiber optic loop system to improve security and dependability of operations, as well as enabling regional system management and information sharing between agencies.

The proposed SR 924 component of the project will install a fiber optic communications backbone system required for the integration of MDX and the future SR 826 and I-75 systems. The combined effect of these integration activities will enhance security and dependability of operations for all three systems.

Project Location: Miami-Dade County, Florida

Partner(s): FHWA; Florida DOT; Miami-Dade Expressway Authority (MDX).

Start Date: June 2005

End Date: December 2008

Estimated Total ITS Funds: \$1,120,057

Estimated Total Project Cost: \$2,240,114

Contacts:

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Ivan Del Camp	MDX	(305) 637-3277	



HILLSBOROUGH AREA REGIONAL BUS TRACKING, COMMUNICATION AND SECURITY PROJECT

Description:

This project originated as a FY 2003 ITS Integration Program earmark for Hillsborough County, Florida. The project objective is to deploy a fleet management system that will provide on and off-route, real-time management control of fleet assets to improve transit rider service, security and operational control. The Hillsborough Area Regional Transit (HART) will install tracking, communications and security equipment in all buses, trains and streetcars. The concept of operations includes continuous information flow to HART's Transit Management Center (HART TMC) on the safety of patrons and operators, fleet condition status, and on key data needed by maintenance and supervisory elements. The system includes signal preemption at selected traffic signals to facilitate improved schedule adherence and vehicle movement along specified express service corridors. The project will equip buses with global positioning system (GPS) devices to satisfy requirements for riders, dispatchers and transit managers. Mobile data units will be installed in vehicles to support instruction, trip assignments and mapping.

The project was expanded by a FY 2004 ITS Integration Program earmark that added \$646,186 to ITS funding and \$1,292,372 to total funding. The FY 2004 earmark is focused on improving the monitoring and securing of critical infrastructure through applications of ITS integration with public safety. Additional and upgraded security cameras will be deployed to develop a security management system integrating transportation surveillance data with public safety to support regional security initiatives. The added funding will support acquisition and installation of cameras at boarding locations and landings. These cameras will supplement the cameras for the interior of buses focused on the driver, rear door, and the aisle.

Project Location: Hillsborough County, Florida

Partner(s): FHWA, FTA, Florida Department of Transportation, Hillsborough Area Regional Transit Authority (HART), Hillsborough County Public Works Department, City of Tampa Transportation Division

Start Date: April 2005

End Date: December 2007

**Estimated Total
ITS Funds:** \$3,973,995

**Estimated Total
Project Cost:** \$6,622,372

Contacts:

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GEORGIA

ATLANTA SMART CORRIDOR

Description: This project is the FY 2002 ITS Integration Program earmark for Atlanta, GA. The project is the application of innovative and integrated technologies in a corridor setting. The Northwest Corridor in Atlanta and Cobb County is a congested arterial with limited available capacity for diversion on the parallel freeway - I-75. As of funding approval, the project is in the planning phase, and receiving recommendations from the corridor stakeholders. Anticipated applications include centralized traffic signal control and coordination, adaptive signal control strategies, transit (bus) priority systems, traveler information, incident management, and archived data management.

Project Location: Atlanta, Georgia

Partner(s): FHWA, Georgia DOT, Georgia Regional Transportation Authority; Cobb County Department of Transportation; Atlanta Regional Commission; Cities of Marietta, Smyrna, Atlanta

Start Date: September 2002

End Date: February 2006

Estimated Total ITS Funds: \$827,318

Estimated Total Project Cost: \$3,139,318

Contacts:

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Valentin Vulov	Georgia Regional Transportation Authority	(404) 463-2434



MARTA AUTOMATED FARE COLLECTION/SMART CARD SYSTEM

Description:

This project is a FY 2004 ITS Integration Program earmark for Atlanta, Georgia. The Metropolitan Atlanta Rapid Transit Authority (MARTA) is implementing an integrated, seamless fare collection system that will enable transit customers to travel on, and transfer between, the various public transportation providers throughout the greater Atlanta area.

Currently there are several public transit providers in the Atlanta region, each with its own fare collection mechanism and separate fare media. Transit customers making round trips across the area are required to maintain at least two separate payment media in order to transfer among systems. The bus service element of the system is designed as a feeder for the rail system.

MARTA has awarded a contract for a smartcard fare collection system that includes rail faregates, bus fareboxes, ticket vending machines, a networked information system, cash handling equipment and other features. The use of serialized smartcards, the computer network and information system database will provide highly accurate ridership and revenue data for reporting analysis, transit system planning and operations scheduling. The proximity smartcard will improve customer service and security by allowing travelers to secure fare media in purses/wallets. The rail faregates will offer more timely, passenger throughput and improved reliability by eliminating mechanical ticket transports.

The bus fareboxes will be smartcard-enabled. The units will include technology that will validate coins and currency, and that are capable of on-board fare sales. The ticket vending machines will be networked, and capable of accepting credit and debit transactions. Passengers will be able to add value, and check the status of cards in all MARTA rail stations.

Project Location: Atlanta, Georgia

Partner(s): FTA; Metropolitan Atlanta Rapid Transit Authority (MARTA); Georgia Regional Transportation Authority; Cobb County Transit; Atlanta Regional Commission; Clayton County Transit; Gwinnett County Transit.

Start Date: May 2005

End Date: December 2006

Estimated Total ITS Funds: \$603,107

Estimated Total Project Cost: \$1,206,214

Contacts:

Knox Callaghan

MARTA

(404) 848-5610



IDAHO

STATE OF IDAHO - INCIDENT RESPONSE COMPUTER-AIDED DISPATCH SYSTEM

Description: This project is a component of the FY 2000 State of Idaho Earmark. Idaho State Police completed implementing a Computer-Aided Dispatch (CAD) system. This project builds on ITS in the Treasure Valley (FY 1999 earmark) by developing and installing a CAD system accessible from three Regional Dispatch Centers. FY 2000 earmarked funds were applied to the purchase and installation of the CAD. System integration with Regional Idaho State Police Dispatch Centers is in progress. Four principal tasks are involved: Communications Dispatch Center Construction; CAD Bidding Process; CAD Project Planning; and CAD Implementation.

Project Location: Boise, Idaho

Partner(s): FHWA, Idaho DOT, Idaho State Police, Idaho State EMS, Ada County Highway District Traffic Management Center

Start Date: August 2000

End Date: March 2005

Estimated Total ITS Funds: \$393,210

Estimated Total Project Cost: \$786,420

Contacts:

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Stan Passey	Idaho State Police	(208) 884-7314	
Jim Larsen	Ada County Highway District	(208) 387-6196	



STATE OF IDAHO - TREASURE VALLEY ITS INTEGRATION PROGRAM

Description:

This project is a component of the FY 2000 State of Idaho Earmark. The project activity continues the FY 1999 earmark whose objective is to deploy and integrate a communications, surveillance, and traffic control system for Treasure Valley. The FY 2000 funding will continue FY 1999 earmarked investments which include:

- Development of CCTV and detection plans for arterials parallel to I-84 in Ada County.
- Deployment of ITS devices on arterials parallel to I-84 and freeway ramps in Ada County.
- Enhancement of incident management software and integration of other software systems.
- Development of a Controller Interface Device to assist Treasure Valley agencies with traffic signal timing strategies during incidents.
- Project evaluation.

Project Location:

Boise, Idaho

Partner(s):

FHWA, Idaho DOT, Ada County Highway District, Community Planning Association of Southwest Idaho, University of Idaho, Boise State University

Start Date:

September 2000

End Date:

April 2006

Estimated Total ITS Funds:

\$390,000

Estimated Total Project Cost:

\$780,000

Contacts:

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Jeff Miles	Idaho DOT	(208) 334-8302	
Jim Larsen	Ada County Highway District	(208) 387-6196	



TRAFFIC SIGNAL SYSTEMS INTEGRATION AND DEPLOYMENT

Description: This project was initiated as the FY 2001 ITS Integration Program earmark for Moscow, Idaho. FY 2001 project objectives included:

- Developing and implementing a plan to improve traffic flow and safety in the City of Moscow by upgrading and integrating the city's traffic signal control system.
- Developing and applying a protocol for the design, implementation, and testing of traffic signal timing plans using real-time hardware-in-the-loop simulation.
- Providing a list for the implementation of NTCIP Standards in a small town traffic control system.

FY 2001 funding will also deploy new traffic controller cabinets at ten intersections currently using outdated cabinets. Concurrently, controllers and conflict monitors in other cabinets will be upgraded. Coordination will be provided by a master controller system using emerging ITS standards for on-street masters.

This project has been expanded as a result of being earmarked in the FY 2002 ITS Integration Program. FY 2002 Congressionally designated funding is \$827,318. Matching funds, federal and non-federal, increased the total funding to \$1,654,636.

The additional tasks to be accomplished with FY 2002 funding include upgrading the University of Idaho's Traffic Controller Laboratory and the development of guidelines to be used by Idaho Transportation Department to implement closed loop and centralized traffic control systems in small towns. The major component of the upgrade will be development of a remote access capability for the laboratory. This remote access will enable distant users to develop and test traffic signal timing plans using real-time hardware in the loop simulation in conjunction with the University's controller interface device.

FY 2002 funding will also be used to deploy the supporting communications system required to connect the city's traffic controllers.

Project Location: Moscow, Idaho

Partner(s): FHWA, Idaho DOT, City of Moscow, University of Idaho-National Institute for Advanced Transportation Technology

Start Date: September 2001

End Date: April 2006

Estimated Total ITS Funds: \$1,654,636

Estimated Total Project Cost: \$3,214,096



Contacts:

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Michael Kyte	University of Idaho	(208) 885-6002	



ILLINOIS

ARMY TRAIL ROAD TRAFFIC SIGNAL COORDINATION AND INTEGRATION PROJECT

Description: This project is the FY 2002 ITS Integration program earmark for DuPage County, Illinois. Project funding was approved in June 2003. The project is a signal coordination and integration activity along a four-lane, major east-west arterial road in the Village of Glendale Heights. Project scope includes a fibre optic link to an adjacent closed loop system, and development of a conceptual plan, detailed design, and engineering analysis which will define specific tasks to complete system integration. The project comprises Phase I and Phase II engineering tasks to link and expand closed loop signal systems operated by DuPage County along Army Trail Road in Northern DuPage County.

Project Location: Glendale Heights, IL

Partner(s): FHWA, Illinois DOT, DuPage County Division of Transportation

Start Date: April 2003

End Date: June 2006

**Estimated Total
ITS Funds:** \$248,195

**Estimated Total
Project Cost:** \$496,290

Contacts:

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Morgan Cotten	DuPage County Division of Transportation	(630) 681-2253



ASHLAND AVENUE TRAFFIC SIGNAL INTEGRATION

Description: This is a discretionary project of the FY2000 ITS Deployment Program for Chicago, Illinois.

GOALS AND OBJECTIVES

The goals of this project are to improve safety and efficiency for a 1½ mile segment of the Ashland Avenue Corridor. This is to be accomplished with the installation of new underground fiber optic cable and updated traffic signal equipment. Integrated traffic signal systems with modernized controllers fulfill the City of Chicago's Traffic Signal Master Plan by incorporating a core infrastructure that can take advantage of emerging ITS technologies, including bus transit and emergency vehicle priority. The proposed transportation communications and traffic signal infrastructure will serve various functions in the planned integration of the City of Chicago's traffic signal communications system with other agencies. This project will further encourage inter-jurisdictional coordination and reduce institutional barriers. This is further detailed in the following Scope of Work.

SCOPE OF WORK

The signal equipment at Ashland Avenue and 91st Street will be replaced with a modernized signal. The signal controllers and signal cabling at 95th, 91st, 87th, 85th, and 83rd Streets will be replaced and a telephone connection will be made to the system to permit communication with computer work stations at the Chicago Department of Transportation Bureau of Traffic and the Department of Streets and Sanitation Bureau of Electricity. All upgraded signals for this project permit future integration with bus transit and emergency vehicle priority. Failure reports and alarms will automatically be sent to the Bureau of Electricity, alerting them of any malfunctions on this system, thus improving response to signal maintenance needs.

Project Location: Chicago, Illinois

Partner(s): FHWA, Illinois DOT, Chicago DOT, Chicago Department of Streets and Sanitation - Bureau of Electricity

Start Date: July 2001

End Date: April 2006

**Estimated Total
ITS Funds:** \$786,421

**Estimated Total
Project Cost:** \$1,572,842

Contacts:

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DUPAGE COUNTY MULTI-JURISDICTIONAL SIGNAL COORDINATION PROTOTYPE

Description:

This is a discretionary project of the FY2001 ITS Deployment Program for DuPage County, Illinois.

GOALS AND OBJECTIVES

The primary goal of this project is to improve mobility. This is to be accomplished with the planning, design, implementation, operation, maintenance, and monitoring of two coordinated traffic signal systems to facilitate traffic movement in DuPage County.

The DuPage Multi-jurisdictional Signal Coordination Prototype project will provide for deployment of signal system improvements, follow-up analysis and completion of guidelines for the monitoring, maintenance and operation of multi-jurisdictional signal systems.

The key objective of this project is to overcome institutional issues in order to facilitate widespread integration across jurisdictional boundaries, for the greater efficiency and interoperability of the signalized roadway system.

SCOPE OF WORK

This project will provide for deployment of a new closed loop signal system along St. Charles Road (from Illinois Route 83 to Fair Avenue) in the City of Elmhurst, a fiber optic communications link to an existing adjacent closed loop signal system operated by the Villages of Villa Park and Lombard on St. Charles Road (Westmore-Meyers to Villa Avenue), and integration of a closed-loop signal system for two intersections on Illinois Route 83 that crosses St. Charles Road.

The project also provides for deployment of a new fiber optics communications link between two existing but previously non-integrated closed-loop signal systems on 75th Street (Fort Hill Drive to Millbrook Road and Book Road to Wherli Road) in Naperville. One signal system (Fort Hill Drive to Millbrook Road) is comprised of four intersections and is currently operated by the City of Naperville. The adjacent signal system (Book Road to Wherli Road) is operated by the DuPage County Division of Transportation.

A Part II Prototype Study/Planning Analysis will be conducted as part of this project. Some of the important responsibilities in this task include development of final guidelines for multi-jurisdictional signal coordination operations and monitoring procedures, a benefits assessment of multi-jurisdictional signal coordination for the specific deployment sites, a benefits assessment of multi-jurisdictional signal coordination for County-wide implementation, studying the efficiency and cost-effectiveness of staffing options to perform on-going signal timing, operation and monitoring, and establishment of preferred traffic signal communications systems and hardware standards to enable the use and integration of detectors and related monitoring devices as a future data source for the proposed DuPage Traffic Management Center and the Gateway Traveler Information System.

Project Location: DuPage County, Illinois

Partner(s): FHWA, Illinois DOT, DuPage County Division of Transportation, Cities of Naperville and Elmhurst, Villages of Villa Park and Lombard; and DuPage Mayors and Managers Conference



Start Date: August 2001
End Date: April 2006

**Estimated Total
ITS Funds:** \$396,807
**Estimated Total
Project Cost:** \$1,424,864

Contacts:

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Morgan Cotten	DuPage County Division of Transportation	(630) 681-2253



EMERGENCY MANAGEMENT INTEGRATION AND SIGNAL PREEMPTION SYSTEM

Description: This is a discretionary project of the FY2001 ITS Deployment Program for Bloomingdale, Illinois.

GOALS AND OBJECTIVES

The primary goal of this project is to improve safety and mobility. This project will provide for the planning, implementation, operation, maintenance and monitoring of a coordinated emergency signal preemption system to increase transportation safety and efficiency. The project will enable more effective police, fire, and emergency operations throughout DuPage County.

SCOPE OF WORK

This project will provide for the deployment of preemption system improvements and development of a database map of signal preemption intersections.

The eventual goal of this program is to install and operate preemption at all signalized arterial/collector intersections within DuPage County. The other major objective of the program is to create a County-wide database map of all intersections with preemption systems. This database would then be used by all private call centers, Public Safety Access Points, and other emergency response agencies at the local, county and state level.

Project Location: Bloomingdale, Illinois

Partner(s): FHWA, Illinois DOT, DuPage County Division of Transportation

Start Date: August 2001

End Date: June 2006

**Estimated Total
ITS Funds:** \$317,446

**Estimated Total
Project Cost:** \$634,892

Contacts:

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Morgan Cotten	DuPage County Division of Transportation	(630) 681-2253



ILLINOIS STATEWIDE HEALTH MONITORING SYSTEM OF BRIDGES

Description: The project is the FY 2002 ITS Integration Program earmark for Jackson County, IL. The project objective is to develop and deploy a smart sensor and wireless data acquisition system integrated into a package to monitor the health condition of infrastructure such as bridges and buildings. The scope of this research activity includes:

- Incorporating sensors with innovative data measuring techniques and intelligent data management for monitoring machines and structures.
- Developing a wireless data acquisition that includes a miniature computer for data acquisition, a wireless data transmittal/receiving system with triggering control, a self-sustained solar power supply for remote use, a dedicated Website and software programs for data acquisition.
- Installing the wireless data acquisition system on a bridge recommended by Illinois DOT and the Carbondale community.

Project Location: Jackson County, Illinois

Partner(s): FHWA, Illinois DOT, City of Carbondale, Southern Illinois University-Carbondale

Start Date: November 2002

End Date: April 2006

Estimated Total ITS Funds: \$620,489

Estimated Total Project Cost: \$1,240,978

Contacts:

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INTEGRATED TRAFFIC AND INCIDENT MANAGEMENT SYSTEM I-74 RECONSTRUCTION PROJECT-ITS ELEMENT IMPLEMENTATION, INTEGRATION AND SUPPORT-PHASE I

Description:	<p>This is a discretionary project of the FY2001 ITS Deployment Program for the State of Illinois.</p> <p>GOALS AND OBJECTIVES The primary goal of this project is to improve safety and mobility. This is to be accomplished with deployment of several ITS elements during the reconstruction of I-74 and in the future, including those specifically related to traffic and incident management activities. The ITS elements are being deployed in accordance with the completed ITS Project System Architecture. The project architecture provides a common structure and framework for the planning, design, and deployment of the ITS elements.</p> <p>SCOPE OF WORK This is a multi-phase project that will begin with the installation of computer hardware and communications equipment, as well as, a majority of the direct wireless microwave communication links between the IDOT control room and key partner agencies' facilities. Phase 1 of this project will also include the integration of the IDOT's existing two surveillance cameras so that snapshot images from these cameras can be displayed on the web site and is available to the key partner agencies. An ITS consultant will be retained by the IDOT in Phase 1 to design the direct wireless microwave communications links between the IDOT control center and key partner agencies' facilities. The ITS consultant will also be responsible for beginning the development of the traveler information web site for this project in Phase 1.</p> <p>IDOT will utilize the existing control center to coordinate and enhance the operations and management of the ITS in the I-74 corridor through the sharing and integration of information and/or physical equipment with key partner agencies. Integration of systems between IDOT and key partner agencies is an integral feature and element of this project. Direct communications links between facilities will be required along with computer hardware, software and communications equipment that is unique to and supports the operations of these facilities.</p>
Project Location:	Peoria, IL
Partner(s):	FHWA, Illinois DOT, Cities of Peoria and East Peoria

Start Date:	February 2002
End Date:	April 2006

Estimated Total ITS Funds:	\$250,000
Estimated Total Project Cost:	\$500,000



Contacts:

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Randy Laninga	Illinois DOT, District 4	(309) 671-4477



INTEGRATED TRAFFIC AND INCIDENT MANAGEMENT SYSTEM I-74 RECONSTRUCTION PROJECT-ITS ELEMENT IMPLEMENTATION, INTEGRATION AND SUPPORT-PHASE II

Description:	<p>This is a discretionary project of the FY 2002 ITS Deployment Program for the State of Illinois.</p> <p>GOALS AND OBJECTIVES The primary goals of this project are to improve safety mobility, productivity and customer satisfaction. This is to be accomplished through deployment of several ITS components during the reconstruction of I-74. Project concept and planning call for deployment of several ITS elements on I-74 and selected arterials to include: surveillance cameras, vehicle detection, dynamic message signs, signal system upgrades, emergency vehicle preemption and communications. Additionally, the conceptual design has identified for deployment of incident management-related devices and infrastructure.</p> <p>SCOPE OF WORK IDOT will utilize the existing control center to coordinate and enhance the operations and management of the ITS in the I-74 corridor through the sharing and integration of information and/or physical equipment with key partner agencies. Integration of systems between IDOT and key partner agencies is an integral feature and element of this project. Direct communications links between facilities will be required along with computer hardware, software and communications equipment that is unique to and supports the operations of these facilities.</p> <p>The project will install two permanent dynamic message signs approaching each end of the Peoria area on I-74 in order to provide real-time information to travelers, and enable motorists to make informed route choices. The project will also include the required communications link and support equipment between these dynamic message signs and IDOT's control center. Part of this project is the procurement of 14 closed circuit television camera dome assemblies with remote pan-tilt-zoom capabilities to be installed during various stages of construction of the I-74 Reconstruction Project. These cameras will be used to monitor flow of traffic, and verify incidents in the corridor during and after construction. Some video images will be provided to motorists and the general public via television and a project Web site.</p>
Project Location:	Peoria, Illinois
Partner(s):	FHWA, Illinois DOT, Cities of Peoria and East Peoria

Start Date:	January 2003
End Date:	December 2006

Estimated Total ITS Funds:	\$620,489
Estimated Total Project Cost:	\$1,240,978



Contacts:

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Dave Zavattono	Illinois DOT	(847) 705-4800
Randall Laninga	Illinois DOT, District 4	(309) 671-4477



LAKE COUNTY TRAFFIC MANAGEMENT CENTER

Description: This is a discretionary project of the FY 2002 ITS Deployment Program for Lake County, Illinois.

GOALS AND OBJECTIVES

The primary goal of this project is to improve mobility. This is to be accomplished through implementation of recommendations made in the FY 2001 ITS Deployment Program project titled: Lake County Traffic Management Center Feasibility Study and Implementation Plan. The design and implementation plan identified corridors through Lake County in which fibre optic cable and conduit will be installed to interconnect signals to a central location. This project will help alleviate and manage the Lake County area by coordinating signal systems as well as providing for a single source control for traffic signals which are not components of closed loop traffic signal systems. The project will feed data to the Gateway Traveler Information System for roadway conditions and congestion on the major arterials in Lake County, IL.

SCOPE OF WORK

The project will initiate purchase of equipment, and the start of construction to provide a central source control point for signals under direct control of the Lake County Division of Transportation.

Project Location: Lake County, IL

Partner(s): FHWA, Illinois DOT, Lake County Division of Transportation, Lake County Sheriff's Department

Start Date: May 2003

End Date: April 2006

Estimated Total ITS Funds: \$628,762

Estimated Total Project Cost: \$1,257,524

Contacts:

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Anthony Khawaja	Lake County Division of Transportation	(847) 362-3950



LAKE COUNTY TRAFFIC MANAGEMENT CENTER; LAKE COUNTY CORRIDOR COMMUNICATIONS SYSTEMS PROJECT

Description: This project is a FY 2003 ITS Integration Program earmark for Lake County, Illinois. Lake County, IL situated in the Gary/Chicago/Milwaukee Corridor, is densely populated, and projected to grow significantly in the future. FY 2001 ITS Integration Program funding was used to conduct a feasibility study and develop an implementation plan for deploying ITS technologies to address current and future requirements. FY 2002 funding is allocated to support ITS field elements and communications improvements.

This project will use FY 2003 funds to continue upgrades of the existing regional communications network that is the foundation for an integrated advanced transportation management system (ATMS). This evolving ATMS is expected to provide real-time traffic monitoring, improved signal system coordination, more event management, and the generation of traveler information. FY 2003 funds, combined with matching funding, will support system communications upgrades and ITS elements required to implement the regional, integrated multi-jurisdictional ATMS.

Project Location: Lake County, Illinois

Partner(s): FHWA, Illinois Department of Transportation (ILDOT), Lake County Division of Transportation, Illinois State Toll Highway Authority, Lake County Sheriff's Department

Start Date: November 2004

End Date: April 2006

Estimated Total ITS Funds: \$1,663,884

Estimated Total Project Cost: \$3,327,768

Contacts:

Dean Mentjes	FHWA, Illinois Division, HDA	(217) 492-4631
Anthony Khawaja	Lake County Division of Transportation	(847) 362-3950



St. LOUIS METROPOLITAN AREA BI-STATE COMMUNICATIONS LINK

Description:

This project is a FY 2003 ITS Integration Program earmark for the St. Louis, Illinois metropolitan area. The project objectives are to improve safety and security of the area's transportation systems by installing a fiber optic communications link between the two major traffic information collection hubs in the St. Louis metropolitan area - MODOT's Transportation Information Center (TIC) in Town and Country, Missouri, and IDOT's Traffic Management Center (TMC) in Collinsville, Illinois. The important data and video transmission this critical link provides will improve the operation of the ITS components deployed in the St. Louis metropolitan area which is known as Gateway Guide.

This project will build on FY 2000 ITS funds designated to establish IDOT's TMC. Additional work stations and upgraded multiple displays that provide operators with easier access to traffic information are included in the TMC upgrade project. These enhancements will ensure that the new link to MODOT is utilized at full effectiveness. Electronic displays of road construction, road condition, incident information, and Road and Weather Information system data will be shared with MODOT. The establishment of a telecommunications link from IDOT's TMC to MODOT's TIC will ensure that data received from each agency is used to its maximum effectiveness for motorists. Currently, neither IDOT nor MODOT can access each other's CCTV surveillance cameras' live, streaming video. This link will provide the bandwidth required to transmit multiple, live video streams to and from each agency's facility.

Project Location: St. Louis, IL

Partner(s): FHWA, MODOT, East-West Gateway Coordinating Council (EWGCC), ILDOT, Metro.

Start Date: September 2005

End Date: September 2006

**Estimated Total
ITS Funds:** \$250,000

**Estimated Total
Project Cost:** \$500,000

Contacts:

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Brian Sneed	Illinois DOT	(618) 346-3118



SPRINGFIELD DMS PHASE I

Description: This project is a FY 2004 ITS Integration Program earmark for Springfield, Illinois. The project site is the Springfield, IL metropolitan area. Springfield is the Illinois State Capital whose road network includes two interstate highways, six primary arterials and numerous secondary routes. Due to significant tourist traffic and relatively high population density, the vehicle crash rate in the area is significant. The primary objective of this project is to communicate real-time roadway, traffic and special event-related information to travelers through two Dynamic Message Signs (DMS). These DMS will be complemented by three video cameras dedicated to traffic surveillance that will be deployed at key locations on the interstate highway. The DMS will be integrated into an established AMBER alert program.

Project Location: Springfield, Illinois Area Interstate Highways

Partner(s): FHWA, IL DOT.

Start Date: June 2005

End Date: March 2006

**Estimated Total
ITS Funds:** \$334,746

**Estimated Total
Project Cost:** \$669,492

Contacts:

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Cecil Downing	Illinois DOT	(217) 785-4036



STATE OF ILLINOIS; ADVANCED TRAFFIC MANAGEMENT SYSTEM (GATEWAY GUIDE)

Description:

This is a discretionary project of the FY2000 ITS Deployment Program for the State of Illinois.

GOALS AND OBJECTIVES

The goals of this project are ultimately to improve safety and mobility. This is to be accomplished by integrating ITS components and sharing data and video images between IDOT and the Missouri Department of Transportation (MoDOT), providing communication links between IDOT's communication center and its field devices, improving traveler information to the public, encouraging inter-jurisdictional coordination, and reducing institutional barriers. This is further detailed in the following Scope of Work.

SCOPE OF WORK

The IDOT District 8 in Collinsville, Illinois in conjunction with MoDOT District 6 in St. Louis, Missouri is currently deploying a regional Intelligent Transportation System (ITS) to serve the bi-state St. Louis metropolitan area. This regional system has been named Gateway Guide.

This project will allow IDOT to provide real-time traffic data that completes the regional system, to respond more efficiently to incidents on the interstate, and to manage the regional ITS more effectively. Ten color surveillance cameras with pan-tilt-zoom capabilities will be installed in the Illinois portion of the metropolitan area along Interstates 55/70, 64, and 270, the Martin Luther King Jr. Bridge, and Illinois Route 3. This project also includes installing all of the monitors, camera controls, and communication equipment at IDOT's communication office. The communication links between the surveillance cameras and the communication office and between IDOT and MoDOT will be established with this project.

A software consultant will be retained to develop and implement software at the IDOT communications office that will integrate all of the ITS field equipment operations and to automate the real-time responses to traffic conditions. This software will allow the information collected by the ITS equipment to be transmitted on the Gateway Guide web site and the regional traffic information hotline. The Gateway Guide web-site will display a regional map that provides a color-coded speed map, incident icons, construction icons, snap-shot images from the regional surveillance cameras, average speeds at each detector, and current messages on the regional dynamic message signs.

The consultant will also develop and implement modifications to the IDOT district communication office to accommodate the additional ITS equipment. The modification includes an electronic communication link between IDOT's communications office and MoDOT's TIC and the hardware required to maintain this link. This project will also provide the appropriate equipment that will allow data and video images to be transmitted between IDOT and MoDOT. This new equipment will allow for future data and image integration with the Illinois State Police, local police departments, emergency response agencies, St. Clair and Madison County Transit Districts, and other municipalities. The communications office will be remodeled to allow scanning tours to visit the facility without interrupting the daily operations and to accommodate the additional equipment.



Project Location: State of Illinois - Various Interstates and Martin Luther King Bridge

Partner(s): FHWA, Illinois DOT, Missouri DOT

Start Date: February 2001

End Date: April 2006

**Estimated Total
ITS Funds:** \$594,632

**Estimated Total
Project Cost:** \$1,189,264

Contacts:

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Brian Sneed	Illinois DOT, District 8	(618) 346-3118



STATE OF ILLINOIS; INCIDENT WARNING SYSTEM PILOT PROJECT FOR THE I-74 BRIDGE

Description: This is a discretionary project of the FY2000 ITS Deployment Program for the State of Illinois.

GOALS AND OBJECTIVES

The primary goal of this project is to improve mobility. This is to be accomplished with the implementation of an incident warning system that will alleviate delays associated with incidents on the Interstate 74 (I-74) Mississippi River Bridge.

SCOPE OF WORK

The focus of this phase of the project is to design an incident detection and warning system to notify travelers of nonrecurring incidents and subsequent delays on the I-74 Mississippi River Bridge.

The incident warning system design will consider the use of advanced technologies to support incident identification, verification, response, clearance, and traveler information and examine potential incident warning system locations. To create an effective warning system, information about incidents must be promptly communicated from the location of the incident to the traveler. This information will allow travelers to change their route or allow time for delays. The study will examine ways to detect problems, inform motorists of problems, assist emergency response agencies, and manage the traffic to access alternate routes. The need to create one or more traffic management centers to coordinate and manage activities will also be examined.

The project design includes development of a project architecture based on the National ITS Architecture and the Iowa statewide system architecture.

Project Location: I-74 Bridge in Iowa and Illinois

Partner(s): FHWA, Illinois DOT, Iowa DOT

Start Date: September 2001

End Date: April 2006

Estimated Total ITS Funds: \$70,000

Estimated Total Project Cost: \$182,508

Contacts:

Dean Mentjes	FHWA Illinois Division, HPP-IL	(217) 492-4631
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Harlan Knudson	Illinois DOT, District 2	(815) 284-5468



STATE OF ILLINOIS; PARKING MANAGEMENT SYSTEM DEPLOYMENT

Description: This is a discretionary project of the FY2000 ITS Deployment Program for the State of Illinois.

GOALS AND OBJECTIVES

The goals of this project are to improve transit mobility. Ultimately, ridership is expected to increase with improved customer satisfaction as a direct result of enhanced transit parking information. This is to be accomplished through the detailed design, deployment, testing, and evaluation of a prototype Parking Management System (PMS) in the northeastern Illinois metropolitan area. The PMS project is part of a larger effort to develop Advanced Traveler Information Systems (ATIS) in the Gary-Chicago-Milwaukee (GCM) Corridor.

SCOPE OF WORK

The Regional Transportation Authority (RTA) is investigating the initial procurement of a PMS to solve the complex problem of collecting information on parking availability at park 'n' ride lots, providing parking information on freeway and arterial routes along transit corridors by way of Dynamic Message Signs (DMS) in close proximity to park 'n' ride lots, and providing directional signage to guide motorists to facilities with available parking spaces. The PMS shall feature central data warehouses at each RTA Service Board (CTA, Metra, and Pace). These central data warehouses, known as Service Board Hubs, will provide storage of archival data (for planning use) as well as provide the conduit for information provision to the GCM Gateway Regional Traveler Information System. The Service Board Hubs shall be directly connected to an Illinois Transit Hub, the key intermediary between the PMS and the GCM Corridor. The Illinois Transit Hub connects with the GCM Gateway Traveler Information System via a direct connection to the Illinois Gateway Hub. This work order will fund at least one site of the PMS deployment.

The PMS will provide real-time parking availability information to the GCM Gateway via Service Board Hubs, the Illinois Transit Hub, and the Illinois Regional Hub. This technology-independent interface will provide information about full parking facilities to other ATIS in the GCM area.

Project Location: Gary-Chicago-Milwaukee Corridor

Partner(s): FHWA, FTA, Illinois DOT, Regional Transportation Authority of Illinois

Start Date: August 2001

End Date: June 2006

**Estimated Total
ITS Funds:** \$300,000

**Estimated Total
Project Cost:** \$600,000



Contacts:

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David Zattero	Illinois DOT, ITS Program Office	(847) 705-4800
Duana Love	Regional Transportation Authority of Illinois	(312) 917-1563



STATE OF ILLINOIS; ROADWAY AND WEATHER INFORMATION SYSTEM INTEGRATION

Description: This is a discretionary project of the FY2000 ITS Deployment Program for the State of Illinois.

GOALS AND OBJECTIVES

The primary goal of this project is to improve safety and mobility. This is accomplished by expanding the deployment of Roadway and Weather Information Systems (RWIS) to three additional sites in rural areas of southern Illinois (Jackson, Johnson, and Alexander counties). These three RWIS locations will provide, for the first time, RWIS data from the southern part of Illinois, and will be a vital part of the entire winter maintenance effort. It will also help in providing advance and more reliable warnings on the weather as it moves into IDOT Division of Highways District 9 and cover areas that are identified 'trouble locations'. All of these sites will have the capabilities to provide advanced snow and ice detection in light of its proximity to the prevailing storm track. Technologies previously developed and used for the 51 existing RWIS locations will be used for the three new sites to ensure system integration and operability.

SCOPE OF WORK

The location for the three new RWIS sites has changed from the August 7, 2000 project description. The new sites are to be constructed at the following locations:

- (1) Near the intersection of Illinois Route 3 and the Gorham Spur in Jackson County.
- (2) Near mile marker 3.0 on Interstate 24 in Johnson County.
- (3) Near the intersection of Illinois Route 146 and Illinois Route 3 in Alexander County.

The project also involves the development of a project architecture to consider the integration of the RWIS data with IDOT traveler information systems including the internet, intranet, potential rest area kiosks, as well as sharing weather and roadway information with other states. Applicable standards for environmental sensors will also be considered in the project architecture development.

Project Location: Various sites in Illinois

Partner(s): FHWA, Illinois DOT

Start Date: September 2001

End Date: April 2006

**Estimated Total
ITS Funds:** \$90,000

**Estimated Total
Project Cost:** \$199,982



Contacts:

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Harold Dameron	Illinois DOT, Bureau of Operations	(217) 782-7228



WILL COUNTY, ILLINOIS TRAFFIC MANAGEMENT CENTER FEASIBILITY STUDY AND CONCEPTUAL DESIGN

Description:	This project is a FY 2001 ITS Integration Program earmark for Will County, Illinois. Project funding was approved in September 2003. The objective of this project is to conduct a feasibility study and conceptual design for the development of a countywide Traffic Management Center (TMC) for Will County, Illinois. The feasibility study will identify the most appropriate alternative(s) in selecting and designing a TMC that addresses transportation needs in Will County. Will County includes some of the fastest growing areas in northeastern Illinois and also includes a mix of highway and transit facilities and services. The goal of this study is to determine the need, desirability, and applicability of consolidated, integrated countywide TMC as a component in the County's traffic, transit and emergency operations and management systems.
Project Location:	Will County, Illinois
Partner(s):	FHWA, Illinois Department of Transportation, Will County Department of Highways, Will County Emergency Management Agency

Start Date:	September 2003
End Date:	April 2006

Estimated Total ITS Funds:	\$50,000
Estimated Total Project Cost:	\$100,000

Contacts:

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Harold Damron	Will County Emergency Management Agency	(815) 740-8351



INDIANA

STATE OF INDIANA - PROJECT HOOSIER SAFE-T

Description: This project is the FY 2001 ITS Integration Program earmark for the State of Indiana. SAFE-T is a communications modernization project designed to provide interoperable and compatible statewide, multi-agency (Federal, State, local) public safety communications capabilities. When completed the communications system will enable law enforcement, firefighters and emergency medical service providers to communicate with all agencies committed to public safety operations.

Project Location: State of Indiana

Partner(s): FHWA, Indiana DOT, Indiana Public Safety Commission

Start Date: September 2001

End Date: April 2006

**Estimated Total
ITS Funds:** \$793,615

**Estimated Total
Project Cost:** \$1,587,230

Contacts:

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Mark Newland	Indiana DOT	(317) 232-5523
Jeanne Corder	Indiana Public Safety Commission	(317) 234-1541



IOWA

IOWA LAW ENFORCEMENT COMMUNICATIONS FOR SECURITY AND BIOMETRICS

Description:

This project is a FY 2003 ITS Integration Program earmark for the State of Iowa. The project need originates from the proliferation of mobile data computer users and Traffic and Criminal Software (TraCS) which have overtaxed the capacity of the Iowa Law Enforcement Communications System. Current levels of service to a wide variety of users in law enforcement and security fields are threatened by expanded use. The lack of adequate bandwidth and security for computer/telecommunications hardware are not supporting image transmission which is increasingly a law enforcement requirement. In response to these operational deficiencies in the "IOWA System," the computer network that provides access to a wide variety of information elements to police departments, sheriffs' offices, transportation enforcement offices and criminal justice agencies at the federal, state and local levels, this project will implement a state-of-the-art communications system capable of reaching remote geographic areas of Iowa, but also supporting interstate public safety communications among law enforcement agencies.

The integrated system will include satellite communication and a statewide fibre optics network. The system will enable in-field identity confirmation using biometrics as well as near-real-time information on recent activities such as vehicle stops and warrants. The system will include redundant communications links providing improved reliability for security and emergency applications.

The project is phased into the following sequence of tasks:

- Telecommunications equipment enhancement.
- Computer software to support image transfer.
- User authentication and system security.
- Network security, and
- Implementation of the Automated Finger Print Identification System.

Project Location: Des Moines, Iowa

Partner(s): FHWA, Iowa DOT, Iowa Department of Public Safety, Iowa Communications Network

Start Date: September 2003

End Date: September 2006

Estimated Total ITS Funds: \$2,121,453

Estimated Total Project Cost: \$4,242,906



Contacts:

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Larry Grund	Iowa Department of Public Safety	(515) 281-8419



IOWA STATEWIDE - HIGHWAY

Description:

This project is a FY 2003 ITS Integration Program earmark for the State of Iowa. This project will integrate features of other ongoing Statewide ITS initiatives. Iowa currently has six projects in progress. The projects related to this initiative are:

- Deployment of the Condition Acquisition and Reporting System (CARS) which incorporates FORETELL, a weather reporting system, and reports congestion, road conditions and construction-related delays.
- The Des Moines area Transportation Management System which is deploying surveillance cameras, traffic sensors, dynamic message signs (DMS), and a transportation management center in the Des Moines area.
- Statewide AMBER program based on integrating law enforcement and IaDOT through CARS.
- Statewide 511 Traveler Information System driven by CARS.

CARS will serve as the integrating platform for all ITS traveler information activities. This project will modify CARS to control DMS statewide. The DMS controllers will be modified to accept commands over the Internet, and a central installation for servers will be designated.

This project will be complemented by a related deployment which will integrate CARS, cameras, and traffic sensors in the Des Moines area.

Project Location: State of Iowa

Partner(s): FHWA, Iowa DOT, Castle Rock, Inc.

Start Date: September 2003

End Date: April 2006

**Estimated Total
ITS Funds:** \$480,845

**Estimated Total
Project Cost:** \$961,690

Contacts:

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Willy Sorenson	Iowa DOT	(515) 239-1212



STATE OF IOWA - TRAFFIC ENFORCEMENT

Description:

This project is one part (Enforcement) of the FY 2001 ITS Integration Program earmark for the State of Iowa. The project will provide funding for computer hardware and peripherals to support the development of a suite of software and technologies to speed the processing of crash data known as the National Model. This project seeks to enhance the current Iowa statewide crash data reporting system through the use of automated collection and data capture tools. The operational objective is to enable on-scene officers to enter crash-related data in on-vehicle computers connected to state crash databases. Dissemination of grants to local enforcement agencies will expand the use of the National Model throughout the state, and pursue the following goals:

- Improvement of highway safety data collection and management processes.
- Increase officer efficiency by enabling automated capture, transmission and sharing of crash scene data.
- Improve data quality, and
- Enhance officer safety.

Project Location: State of Iowa

Partner(s): FHWA, Iowa DOT

Start Date: September 2001

End Date: April 2006

**Estimated Total
ITS Funds:** \$275,000

**Estimated Total
Project Cost:** \$550,000

Contacts:

Jim Brachtel	FHWA Iowa Division, HDA-IA	(515) 233-7305
Shirley Andre	Iowa DOT	(515) 237-3202



STATE OF IOWA ITS DEPLOYMENT PROJECT

Description:

This statewide ITS transit project consists of two phases: 1) development of a statewide transit ITS deployment plan which includes a statewide transit ITS assessment and development of a regional architecture for transit; and 2) the deployment of transit ITS in selected areas. At the same time as the assessment and deployment plan are being developed, the Iowa DOT will be conducting a statewide communication plan study funded through the Iowa DOT ITS plan.

Phase I. Development of a Statewide Transit ITS Deployment Plan

The assessment and plan development for a statewide ITS transit plan is integral to supporting an integrated transit ITS system. The first project phase will include three parts: 1) assessment of Iowa's 35 transit systems needs and capabilities, what's available in the market, best practices and products used; 2) development of a statewide transit architecture; and 3) development of a statewide transit deployment plan including benefits and costs for implementing various modules for Iowa's transit agencies. The statewide deployment plan will develop a strategy for using ITS technologies as a means of improving integration of information and communications to provide better transit service across the state. Specific projects will be defined for each transit agency and prioritized, with a timeline for deployment developed.

Phase II. Transit ITS Deployment

Specific projects for deployment will be identified in Phase I of the project. It is anticipated that some type of communication infrastructure will be needed to help integration in urban and rural areas and to help ease deployment in the rural and urban areas.

ITS funding displayed below is the transit portion of the earmark.

Project Location:

State of Iowa

Partner(s):

FHWA, FTA, Iowa DOT, Iowa Public Transit Association

Start Date:

September 2001

End Date:

September 2006

Estimated Total ITS Funds:

\$1,907,440

Estimated Total Project Cost:

\$3,814,880

Contacts:

Jim Brachtel	FHWA Iowa Division, HDA-IA	(515) 233-7305
Bill Kalt	FTA Region 7	(816) 329-3920
Peggi Knight	Iowa DOT, Dir. Ofc. of Public Transit	(515) 239-1530



SURVEILLANCE CAMERAS AND TRANSPORTATION MANAGEMENT CENTER

Description:

This project is a FY 2003 ITS Integration Program earmark for the Des Moines, IA area. The project will contribute to the design and integration of ITS sub-systems required to create a transportation management system in the Des Moines area. Specific activities will deploy surveillance cameras and integrate them with a Transportation Management Center (TMC). This initiative is a component of an overall deployment and integration effort, that in addition to surveillance cameras and a TMC, includes a communications network, traffic sensors, dynamic message signs, the AMBER program, highway advisory radio and a 511 traveler information service. Specific integration tasks include:

- Modification of the Condition Acquisition and Reporting System (CARS) so that it will become the operational platform for the entire transportation management system. CARS will be modified to ingest data from traffic sensors, operate surveillance cameras, and receive camera images.
- Modification of camera controllers to interface with updated CARS.
- Integration of servers in the transportation management system.

The immediate need for this project results from the reconstruction of I-235 through the Des Moines urbanized area which requires implementation of measures to ensure safe and efficient travel during construction. On completion of reconstruction, the project will have contributed significantly to the accommodation of a predicted increase in traffic volumes.

Project Location: Des Moines, Iowa

Partner(s): FHWA, Iowa DOT

Start Date: September 2003

End Date: April 2006

**Estimated Total
ITS Funds:** \$332,777

**Estimated Total
Project Cost:** \$665,554

Contacts:

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Michael Jackson	Iowa DOT	(515) 239-1192



KANSAS

KANSAS CITY, KANSAS KC OPERATION GREEN LIGHT

Description:

This project originated as a FY2002 ITS Integration Program Earmark, and was approved and funded in FY 2004. The Mid-America Regional Council (MARC) is coordinating "Operation Green Light," a project to develop, implement and operate an advanced Traffic Management System to achieve improved inter-jurisdictional traffic signal coordination on regional arterial routes in the bi-state Kansas City metropolitan area. The project involves integrating traffic signal systems in 19 cities located in two counties in Kansas and three counties in Missouri, including traffic signals owned and operated by the Missouri Department of Transportation (MODOT).

MARC has programmed \$7.51 million in Congestion Mitigation Air Quality (CMAQ) and Surface Transportation funds on behalf of the participating communities. The primary objectives of this project are to improve regional traffic flow and to reduce emissions by:

This project's earmarked funds, in conjunction with CMAQ and local funds, will be applied to the costs of consultant services, and software acquisition needed to deploy a network of computer servers and work stations to manage the coordinated operation of traffic signals.

Project Location: Kansas City, Kansas

Partner(s): FHWA, Mid-America Regional Council; Kansas DOT; City of Kansas City, Missouri; Missouri DOT; Cities of Independence, Gladstone, Lee's Summit, Liberty, North Kansas City, Raytown, MO. Cities of Overland Park, Lenexa, Merriam, Olathe, Shawnee, Prairie Village, Leawood, Westwood, Mission, Fairway, and Unified Government of Wyandotte County, KS.

Start Date: September 2004

End Date: December 2007

Estimated Total ITS Funds: \$413,659

Estimated Total Project Cost: \$1,605,795

Contacts:

Bruce Baldwin	FHWA, Kansas Division Office	(758) 267-7299	339
Ronald Achelpohl	Mid-America Regional Council	(816) 474-4240	



WIRELESS NETWORK DEPLOYMENT

Description: This project is a FY 2004 ITS Integration Program Earmark for the City of Wichita, Sedgwick County, Kansas. The project objective is to develop and deploy a metropolitan wireless area network (MWAN). This wireless network will have the capability to provide point-to-point and mobile data services. The project team has released a request for proposal to contract a private telecommunications firm to design and develop the MWAN.

Project Location: City of Wichita, Sedgwick County, Kansas

Partner(s): FHWA; FTA; Kansas DOT; City of Wichita, Kansas.

Start Date: March 2006

End Date: March 2007

**Estimated Total
ITS Funds:** \$646,186

**Estimated Total
Project Cost:** \$1,446,186

Contacts:

Robert Alva	FHWA, Kansas Division	(785) 271-2448	209
Dennis McHugh	City of Wichita, Kansas	(316) 268-4592	
Bill Kalt	FTA, Kansas City	(816)-329-3927	



KENTUCKY

CUMBERLAND GAP TUNNEL AND REGIONAL DEPLOYMENT (MIDDLESBORO, KENTUCKY)

Description:

The ITS project for the Cumberland Gap Tunnel and surrounding regional area will deploy and integrate additional ITS technologies and systems to enhance the safety, mobility, and operations of the regional transportation system. The Cumberland Gap Tunnel is a critical link along the US 25E corridor which intersects with I-75 near Corbin, Kentucky and I-81 near Morristown, Tennessee. It has already benefited from several ITS applications begun in 1998. The 1998 deployment project began installation of an Advanced Traveler Information System to reroute traffic, especially truck traffic, around the Cumberland Gap tunnel during events denying tunnel access. The tunnel is located in a remote, mountainous part of the state accessible only by a single highway with no parallel routes.

The first step in this project is to develop a regional architecture. A long-term goal for the regional area will be to develop an infrastructure which has the capability to accommodate both temporary and permanent traffic management and traveler information systems.

Among the ITS applications proposed for the corridor are closed circuit television cameras, variable message signs, highway advisory radio, and road weather information systems. The project will provide an appropriate level of integration of system components to ensure operational efficiency and effectiveness.

Federal funding listed below includes 1998 funding and FY 99 earmarked funds. Total funding also includes matching funds allocated in both years.

A regional architecture was developed. Cameras and rebroadcast system have been installed as of April 2003. Remaining tasks are to install message signs and cameras along the corridor.

Project Location: Middlesboro, Kentucky

Partner(s): Kentucky Transportation Cabinet, Tennessee DOT, National Park Service, Kentucky Tourism Cabinet, Tennessee Tourism Department, Tunnel Management Inc.

Start Date: June 2001

End Date: June 2006

**Estimated Total
ITS Funds:** \$3,924,409

**Estimated Total
Project Cost:** \$6,780,000

Contacts:

Michael Loyselle	FHWA Kentucky Division, HDA-KY	(502) 223-6734
Charles Knowles	Kentucky Transportation Cabinet	(502) 564-4556



EASTERN KENTUCKY RURAL HIGHWAY INFORMATION PROJECT

Description:

This project is the FY 2002 ITS Integration Program earmark for Eastern Kentucky. The project will contribute to the implementation of a component of Kentucky's Statewide 511 Telephone Inform System which provides traffic, construction and weather-related information. The Kentucky Transportation Cabinet (Cabinet) is developing a partnership agreement with the Southern and Eastern Kentucky Tourism Development Association (SEKTDA). SEKTDA, which serves 52 Kentucky counties, will add 511 premium services to the Cabinet's system in the form of Tourist Information. A summary of primary tasks associated with implementation of Tourist Information in Southern and Eastern Kentucky as a 511 Premium Service include:

- Modification and acquisition of software needed to forward calls seeking tourist information to the SEKTDA call centers.
- Implementation of telephone service.
- Deployment of roadside signs alerting motorists about the 511 service.
- Independent evaluation by the University of Kentucky.
- Acquisition of Call Center equipment.
- Tourism marketing.

In March 2003, the Kentucky Transportation Cabinet revised the project scope to focus on establishment of a 511 Premium Service Package that will build on, and be integrated with, the existing infrastructure for Kentucky's 511 system.

Matching funds for this project will be provided in the form of Toll Road Credits in lieu of cash.

In July 2003 an additional \$1,456,505 was approved for this project as the FY 2003 ITS Integration Program earmark for Kentucky. The additional funding will build on, expand and continue the project originated as the FY 2002 earmark. The funding will support the design and installation of a Kentucky-based 511 Call Center. Federal ITS funds obligated in FY 2003 will be matched by \$169,943 of Capital Construction Funds and \$1,286,562 of Toll Road Credits.

Project Location: 42 Counties in Eastern and Southern Kentucky

Partner(s): FHWA, Kentucky Transportation Cabinet, Southern and Eastern Kentucky Tourism Development Association (SEKTDA), University of Kentucky Transportation Center

Start Date: December 2002

End Date: March 2006



**Estimated Total
ITS Funds:** \$3,111,142

**Estimated Total
Project Cost:** \$4,567,647

Contacts:

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Charles Knowles	Kentucky Transportation Cabinet	(502) 564-4556



STATEWIDE TRANSPORTATION OPERATIONS CENTER

Description: This project is the FY 2002 ITS Integration Program Kentucky Statewide earmark. The project objective is the construction and activation of a Statewide Transportation Operations Center (STOC). The STOC will serve as the Kentucky Transportation Cabinet's focal point for dispatching Kentucky Vehicle Enforcement Officers, coordinating snow/ice removal, disaster reaction, incident management, delivering traveler information, and serving as the Commonwealth's back-up Emergency Operations Center.

This project was augmented in July 2003 by \$1,135,602 which comprises the FY 2003 ITS Integration Program earmark for Kentucky. Funding allocated under this project will be used for procurement and installation of equipment in the Statewide Transportation Operations Center.

Project Location: Commonwealth of Kentucky

Partner(s): FHWA, Kentucky Transportation Cabinet

Start Date: September 2002

End Date: June 2007

**Estimated Total
ITS Funds:** \$2,790,239

**Estimated Total
Project Cost:** \$4,899,117

Contacts:

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Charles Knowles	Kentucky Transportation Cabinet	(502) 564-4556



LOUISIANA

HAMMOND, LOUISIANA

Description: This project is the FY 1999 ITS Integration Program earmark for Hammond, LA. Federal ITS funding was carried over to FY 2000 and was obligated in September 2000. This is a multi work order project which seeks to design and integrate a Roadway Weather Information System (RWIS) and an Incident Detection, Verification and Response System. The project is part of an ongoing endeavor to develop a fully integrated Advanced Traffic Management System and Advanced Traveler Information System for the Greater New Orleans Region. The ITS infrastructure will include components for Data Collections, Traveler Information, Video Surveillance and Interagency Communications. The infrastructure components to be integrated include Freeway Management, Incident Management, Emergency Services Management, and Regional Traveler Information Services.

Project Location: Hammond, Louisiana

Partner(s): FHWA, Louisiana Department of Transportation and Development, New Orleans Area Regional Planning Commission, Louisiana State Police, Greater New Orleans Expressway Commission, local metro area law enforcement agencies

Start Date: September 2000

End Date: December 2006

**Estimated Total
ITS Funds:** \$3,166,000

**Estimated Total
Project Cost:** \$6,331,756

Contacts:

John Broemmelsiek	FHWA Louisiana Division, HDA-LA	(225) 757-7614
Steve Glascock	Louisiana State DOT	(225) 935-0130



HOUMA URBANIZED AREA INTELLIGENT TRANSPORTATION/INCIDENT MANAGEMENT SYSTEM

Description: This project originated as the FY 2000 ITS Integration Program earmark for Houma, Louisiana. FY 2000 funding (\$786,421) was approved in FY 2002, and subsequent ITS Integration Program Congressionally-directed funding was specified in FY 2002 (\$827,318) and FY 2003 (\$1,039,928). Funding for these two fiscal years was approved in September 2003. Funding amounts displayed include matching funds for FYs 2000, 2002, and 2003. The project objective is the integration of infrastructure used by public agencies involved in transportation management and incident management in the Houma Urbanized region to improve safety through information exchange and the joint development of regional transportation systems.

Project phasing began with the development of a Regional ITS Architecture as part of a Regional Incident Management Strategic Implementation Plan. Following phases include development and implementation of a reliable communication network to connect incident management agencies and their existing systems to facilitate information exchange. This wide area network will utilize a fiber optic network to create the communications backbone required to integrate incident management agencies, and lay the basis for future ITS initiatives. Current funding will support the development of a project level architecture and specifications for construction of a fiber optic, wide-area network to be followed by construction of the backbone segment along State Route 24. This project will also partially fund training for network users.

Project Location: Houma, Louisiana

Partner(s): FHWA; FTA; Louisiana Department of Transportation and Development (LADOTD); Terrebonne Parish Consolidated Government; Louisiana State Police; Bayou Cane Volunteer Fire Department; Schriever Volunteer Fire Department

Start Date: September 2002

End Date: December 2006

**Estimated Total
ITS Funds:** \$2,653,657

**Estimated Total
Project Cost:** \$5,734,492

Contacts:

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Stephen Glascock	LADOT&D	(225) 389-2141



NEW ORLEANS, LOUISIANA

Description: This project is the FY 1999 ITS Integration Program earmark for New Orleans, Louisiana. Federal ITS funding was carried over to FY 2000 and obligated in September 2000. The project seeks to establish critical communications links to operational centers of key agencies in a planned ATMS/ATIS for New Orleans Region. Initial efforts are systems integration and design services for Interagency Communications, Command, and Control (IC3) System and the Integrated Data, Display, and Distribution (ID3) System. This will be followed by Installation and Integration of the IC3 System and Construction and Installation Services for the ID3 System. These installations will lay the foundation for integration of ITS infrastructure elements in future work orders.

Project Location: New Orleans, Louisiana

Partner(s): FHWA, Louisiana Department of Transportation and Development, New Orleans Metropolitan Area Regional Planning Commission, Louisiana State Police, Greater New Orleans Expressway Commission, local metro area law enforcement agencies

Start Date: September 2000

End Date: December 2006

**Estimated Total
ITS Funds:** \$1,187,204

**Estimated Total
Project Cost:** \$2,374,409

Contacts:

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Steve Glascock	Louisiana State DOT&D	(225) 389-2141



REGIONAL INTELLIGENT TRANSPORTATION SYSTEM/INCIDENT MANAGEMENT STRATEGIC IMPLEMENTATION PLAN FOR NORTHWEST LOUISIANA

Description: This project originated as the FY 2000 ITS Integration Program earmark for Shreveport, Louisiana. Partial funding in the amount of \$121,700 was approved in June 2001. The ultimate project goals are to satisfy traffic management, incident management, Commercial Vehicle Operations and Road Weather Information Systems needs in the Northwest Louisiana Region. Key objectives in support of these goals are development of a regional ITS architecture and a Northwest Louisiana Regional ITS/Incident Management Strategic Implementation Plan.

The ITS Integration Program in fiscal years 2001, 2002, and 2003 allocated additional funding for this project, and the funds for all three years were approved in September 2003. Allocations by year were: \$793,615 (FY 2001); \$620,489 (FY 2002); \$831,942 (FY 2003). Funding displayed includes matching funds (total) through FY 2003.

Project implementation is phased, by work order, and the activities to be implemented with this funding include deployment of ITS components capable of supporting traffic control and surveillance on key corridors, and integrating these systems with the regional traffic management center. The primary approach to integration will be installation of telecommunications infrastructure. These activities will be complemented by equipment testing and training of operations and maintenance staff.

Project Location: Shreveport/Bossier City Urbanized Area, Louisiana

Partner(s): FHWA, FTA, Louisiana Department of Transportation and Development (LA DOTD), City of Shreveport, Northwest Louisiana Council of Governments

Start Date: June 2001

End Date: April 2006

**Estimated Total
ITS Funds:** \$3,032,467

**Estimated Total
Project Cost:** \$6,064,934

Contacts:

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Steve Glascock	Louisiana DOT&D	(225) 389-2141



REGIONAL ITS/INCIDENT MANAGEMENT STRATEGIC IMPLEMENTATION PLAN FOR BATON ROUGE, LOUISIANA

Description:

This project is comprised of two ITS Integration Program earmarks for the Baton Rouge, Louisiana Urbanized Area. Funding for both earmarks was approved in September 2003. Shortly before the approval of this project's funding, the City of Baton Rouge City-Parish, in cooperation with FHWA and LADOTD, constructed and activated an Advanced Traffic Management and Emergency Operations Center (ATM-EOC). This facility is operated by multiple agencies, and incorporates state-of-the-art technologies to support traffic control, and coordination of emergency operations. An extensive telecommunications plant has been established at the facility providing high speed fiber optic linkages to other state and city-parish complexes and to ITS field devices dedicated to traffic data collection and monitoring of the transportation network. A principal objective of the state's ITS and telecommunications plan is to provide connectivity to the statewide fiber optics backbone, thus enabling the ATM-EOC to function as a statewide traffic operations center for LADOTD and other agencies under emergency conditions.

This project will implement measures to connect all agencies and field devices that will be managed from the ATM-EOC. Fiber optics will be expanded to support arterial management systems, ITS-based field devices and other facilities. This communications expansion will be complemented by an evaluation which will collect data, and document benefits resulting from the telecommunications deployment project.

Project Location: Baton Rouge, Louisiana

Partner(s): FHWA, Louisiana Department of Transportation and Development, Baton Rouge City-Parish

Start Date: September 2003

End Date: April 2006

Estimated Total ITS Funds: \$1,419,321

Estimated Total Project Cost: \$2,838,642

Contacts:

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Stephen Glascock	Louisiana DOT&D	(225) 389-2141



MAINE

MAINE STATEWIDE DEPLOYMENT AND INTEGRATION OF DYNAMIC MESSAGE SIGNS, VARIABLE SPEED LIMIT SIGNS AND ROAD WEATHER INFORMATION SYSTEMS

Description:

This project is a FY 2003 ITS Integration Program earmark for Maine. The project will deploy and integrate dynamic message signs, variable speed limit signs, and road weather information systems. The project is a component of TRIO - a collaborative effort among Maine, New Hampshire, and Vermont to provide a regional traveler information system. TRIO will provide travelers in the Tri-State area accurate and real-time information on road conditions, lodging and recreational activities.

Dynamic message signs and variable speed limit signs will be used to provide real-time traveler information using the Condition Acquisition and Reporting System (CARS) and FORETELL, a road and weather predicting system. CARS will provide most of the core information on road and traffic conditions while FORETELL will complement CARS with a predictive component to road condition reporting. Road Weather Information Stations will simultaneously supplement FORETELL, and provide maintenance agencies with real-time information to improve efficiency and safety.

The deployment and integration this project will implement is intended to alleviate congestion, reduce delays, and provide incident notification to motorists as well as alternative routing during periods of inclement weather.

Project Location: Statewide throughout Maine

Partner(s): FHWA, Maine DOT, Maine Turnpike Authority, Maine Public Safety, Downeast Transportation (Island Explorer)

Start Date: May 2004

End Date: December 2006

Estimated Total ITS Funds: \$831,942

Estimated Total Project Cost: \$1,663,884

Contacts:

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Russell Charette	Maine DOT, Bureau of Planning	(207) 624-3238



STATEWIDE DEPLOYMENT AND INTEGRATION OF DYNAMIC MESSAGE SIGNS (DMS), CONGESTION DETECTION SYSTEM, HIGHWAY ADVISORY RADIO (HAR), LOW POWER F.M. (LPFM)

Description:

This project is a FY 2004 ITS Integration Program earmark for Maine, New Hampshire and Vermont. The project is a component of a tri-state deployment integration program named TRIO whose objective is to provide travelers and tourists in the Tri-State area with accurate, real-time information on road conditions, lodging and recreational activities.

This area of New England (ME, NH and VT) experiences congestion along its corridors throughout the year and especially during peak travel demands during the summer tourism season. Snow and ice during winter months create hazardous conditions requiring the dissemination of traveler information to the public, as well as roadway condition information to maintenance crews.

Dynamic message signs will be used to provide real time traveler information using the CARS (Condition Acquisition Reporting System) and FORETELL models being deployed under TRIO. CARS will provide most of the core information on road and traffic conditions while the FORETELL Road and Weather Predicting System will complement CARS by adding a predictive component to road condition reporting. Road Weather Information Stations will enhance the FORETELL system while providing maintenance forces real time information to improve efficiency and safety.

The congestion detection systems will be deployed at key locations to feed delay information to CARS. CARS, in turn, will provide messages to DMS, LPFM, and HAR systems at appropriate locations. Overheight vehicle detection systems will be installed at bridges that are repeatedly struck by overheight commercial vehicles causing traffic congestion and costly infrastructure repairs.

All systems will be integrated with CARS and FORTELL.

Project Location:

Maine - Statewide I-95, I-295, US Rt.1, US Rt. 1A, US Rt. 3 & 9

Partner(s):

FHWA; Maine DOT; Maine Turnpike Authority; Downeast Transportation (Island Explorer)

Start Date:

August 2005

End Date:

March 2006

Estimated Total ITS Funds:

\$861,582

Estimated Total Project Cost:

\$1,723,164



Contacts:

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Dale Peabody	Maine DOT	(207) 624-3305	



MARYLAND

BALTIMORE REGIONAL ITS EMERGENCY RESPONSE AND COMMUNICATIONS PLAN

Description:

This project is the FY 2002 ITS Integration Program earmark for the Baltimore, MD Metropolitan Region. Funding for the project was approved and obligated in September 2003 and includes some residual funds from the FY 2000 ITS Integration Program earmark for the region. This project's objective is to develop a coordinated transportation emergency preparedness plan for the Baltimore metropolitan region. The Baltimore Regional Transportation Board (BRTB) is coordinating the project which will integrate the region's existing and planned ITS communications systems into a regional evacuation plan. The Transportation Emergency Preparedness Plan will provide a template for the coordinated transportation response necessary in the event of a major regional incident. The plan will establish a baseline and goals for regional transportation emergency preparedness; identify regional transportation and emergency stakeholders; provide response and contingency plans for large-scale incidents (natural and man-made disasters, aid possible attacks; and assess the potential impacts of such events and the appropriate ensuing response by the regional transportation system. The plan will develop an architecture and the linkages between existing ITS deployments in the Baltimore region to include the CHART System which supports statewide traffic management and traveler information, the MD Transportation Authority's traffic management systems, toll systems and regional arterial traffic signal coordination activities.

Project Location: Baltimore, Maryland

Partner(s): FHWA, Maryland DOT, Maryland State Highway Administration-Office of CHART, Maryland Emergency Numbers Systems Board, Maryland State Police, Maryland Emergency Management Agency, Baltimore Regional Transportation Board-Transportation Emergency Preparedness Task Force

Start Date: September 2003

End Date: March 2006

Estimated Total ITS Funds: \$112,000

Estimated Total Project Cost: \$226,320

Contacts:

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Hubert Clay	Baltimore Metropolitan Council	(410) 732-0500	1024



BALTIMORE REGIONAL MULTIMODAL TRAVELER INFORMATION SYSTEM (MMTIS)

Description:

This project is one component of the FY 2000 State of Maryland ITS Integration Program earmark. The project will be a public/private partnership that will fill the traveler information gap along the Baltimore portion of the I-95 corridor, integrate the various types of multi-modal information that is collected in the region, and integrate with traveler information systems in the nearby regions of Washington, DC and Philadelphia, PA. Currently, traveler information is not provided on a large scale in the Baltimore region. All Baltimore MMTIS will ultimately be integrated within the system. The public will also be able to access general information for free.

Data will be collected from the field equipment, consolidated in the MMTIS database, and disseminated via the MMTIS. Multi-modal information will be collected from public and private sources, fused, and disseminated to travelers. Disseminating technologies could include telephone, Internet, kiosks, pagers, and other applicable state-of-the-practice and emerging technologies. The project will develop interfaces between the infrastructure components and the MMTIS database and will also develop the user interfaces through which the information will be disseminated in a timely manner. With the participation of private partners, the Baltimore MMTIS will be implemented in a comparatively short time frame and will significantly improve operation of the region's transportation network. The project funds will promote timely transmission of valuable, free traveler information.

The FY 2001 ITS Integration earmark for this project added \$500,000 to support continuation activities. Funding amounts depicted below include FY 2001 earmarked funding.

Project Location: Baltimore, Maryland

Partner(s): FHWA; Maryland SHA; PennDOT; DEDOT; Baltimore Metropolitan Council; MD Transportation Authority; MD Aviation Administration, MD Port Administration; Mass Transit Administration; City of Annapolis; Departments of Public Works in Counties of: Ann Arundel, Baltimore, Carroll, Howard

Start Date: September 2000

End Date: December 2008

Estimated Total ITS Funds: \$1,000,000

Estimated Total Project Cost: \$4,800,000

Contacts:

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Mike Zezeski	Maryland SHA	(410) 787-5605	
Eileen Singleton	Baltimore Metropolitan Council	(410) 732-0500	Ext. 1033



BALTIMORE REGIONAL OPERATIONS COORDINATION PROJECT

Description:

This project is a component of the State of Maryland FY 2000 ITS Integration Program earmark. The purpose of this project is integration between operations - between transportation and public safety, between jurisdictions and the state, between transit and roadway, and between highway and arterial. The Regional Operations Coordination project will have two phases: Phase 1: Planning; and Phase 2: Deployment. Most of the funds requested by this project will be used for Phase 1 tasks. However, several Coordination Activities have been identified in the area of Incident Management, and these activities will be deployed concurrent with Phase 1 tasks.

Phase 1 generally involves developing a logical and physical architecture for regional operations and identifying Coordination Activities that would enhance regional coordination. Phase 1 tasks will include: defining goals, objectives, and operational requirements and concepts; defining system functional requirements; compiling existing systems and operations information; developing logical and physical architectures; and identifying Coordination Activities.

Phase 2 will involve deployment of selected Coordination Activities. In studies performed as part of the Baltimore Metropolitan ITS Early Deployment Plan, Incident Management arose as a high priority for the region. A primary activity identified to improve Incident Management is the establishment of a Multi-Disciplined Incident Management Team that meets regularly to discuss issues and improve coordination. A small portion of the funds requested through this application will be used to support this and other Coordination Activities identified through recent regional Incident Management activities.

Project Location: Baltimore, Maryland

Partner(s): FHWA; MD State Highway Administration; MD Transportation Authority; MD Aviation Administration; MD Port Administration; Mass Transit Administration; MD State Police; MD Emergency Management Administration; U.S. Park Police; Departments of Public Works and Police in Cities of Baltimore and Annapolis, and Counties of Ann Arundel, Carroll, Harford, Howard

Start Date: September 2000

End Date: December 2008

Estimated Total ITS Funds: \$160,000

Estimated Total Project Cost: \$320,000

Contacts:

Breck Jeffers	FHWA Maryland Division, HPT-MD	(410) 962-4342	129
Mike Zezeski	Maryland SHA	(410) 787-5605	
Eileen Singleton	Baltimore Metropolitan Council	(410) 732-0500	Ext. 1033



CAPITAL WIRELESS INTEGRATED NETWORK (CapWIN)

Description: This project will implement a wireless communications network that serves the core mobile communication functional needs of transportation, law enforcement, fire and EMS in the Washington Metropolitan Region. The network will support multiple in-vehicle platforms. In the second year of the project, transportation and public agency systems and databases will be integrated with a 30-vehicle fleet on the network using multiple mobile data platforms. Vehicles will include State and local police vehicles, service patrols, fire and EMS units.

Project Location: Washington, DC Metropolitan Area

Partner(s): FHWA, Maryland State Highway Administration, Virginia DOT, Maryland State Police, Virginia State Police, Washington Metro Police Department

Start Date: September 2000

End Date: July 2006

Estimated Total ITS Funds: \$1,600,000

Estimated Total Project Cost: \$3,932,105

Contacts:

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Mike Zezeski	Maryland SHA	(410) 787-5605	
Jim Robinson	Virginia DOT	(804) 786-6677	
Tom Jacobs	University of Maryland	(301) 403-4594	



CAPITAL WIRELESS INTEGRATED NETWORK-BALTIMORE EXPANSION STUDY

Description: This project uses FY 2001 Deployment Program funds to conduct a study examining the feasibility of expanding the Capital Wireless Integrated Network CapWIN project to Baltimore. The study will determine the technology modifications needed for expansion, and the data types available from Baltimore region agencies. Cost estimates and a deployment/integration schedule will be developed.

Project Location: Baltimore, Maryland

Partner(s): FHWA, Maryland DOT, Maryland State Highway Administration, Transportation Authority, Aviation Administration, Port Administration, Mass Transit Administration, Motor Vehicle Administration, and State Police; Baltimore Metropolitan Council; City of Annapolis and Baltimore City Public Works, Police and Fire Departments; Counties of Anne Arundel, Baltimore, Carroll, Harford, and Howard Public Works, Police, and Fire Departments

Start Date: September 2001

End Date: April 2006

**Estimated Total
ITS Funds:** \$50,000

**Estimated Total
Project Cost:** \$100,000

Contacts:

Breck Jeffers	FHWA Maryland Division, HPT-MD	(410) 962-4342	
Eileen Singleton	Baltimore Metropolitan Council	(410) 732-0500	1033



INTEGRATION OF THE MONTGOMERY COUNTY, MD TRANSPORTATION MANAGEMENT CENTER (TMC) INTO THE EMERGENCY COMMUNICATIONS CENTER (ECC) AND EMERGENCY OPERATIONS CENTER (EOC)

Description: This project is the FY 2002 ITS Integration Program earmark for Montgomery County, Maryland. The project objective is to relocate the Montgomery County Transportation Management Center (TMC) so as to collocate it with the County Emergency Communications Center (ECC) and the Emergency Operations Center (EOC). This consolidation will enable routine operational TMC data to be integrated with the ECC to facilitate incident management throughout the county, and integrated with the EOC to facilitate emergency management.

Project Location: Gaithersburg, Maryland

Partner(s): FHWA, Maryland State Highway Administration, Montgomery County DPWT, Montgomery County Police Department and Fire Department

Start Date: September 2002

End Date: April 2006

**Estimated Total
ITS Funds:** \$827,318

**Estimated Total
Project Cost:** \$1,300,000

Contacts:

Breck Jeffers	FHWA Maryland Division, HPT-MD	(410) 962-4342	129
Mike Kinney	Montgomery DPWT	(240) 777-8760	



PRINCE GEORGE'S COUNTY REAL TIME PASSENGER INFORMATION SYSTEM

Description: This project is a FY 2004 ITS Integration Program Earmark for Prince George's County, Maryland. Funding was approved on August 21, 2005. The project's objective is to increase the operational efficiency and capacity of the local transit system through improvements to mobility, transportation connectivity, and safety through implementation of a Global Positioning System (GPS)-based Real-Time Passenger Information System that will be integrated with currently deployed ITS infrastructure. The Prince George's County fixed-route local bus service is called The Bus. The county's demand responsive system is called Call-A-Bus. Both systems will benefit from project deployment activities.

Project Location: Forestville, Maryland

Partner(s): FTA; FHWA; MD State Highway Administration (MSHA); Prince George's County Department of Public Works and Transportation (DPW&T); Metropolitan Washington Council of Governments (MCOG); Washington Metropolitan Area Transit Authority (WMATA).

Start Date: September 2005

End Date: September 2006

Estimated Total ITS Funds: \$861,582

Estimated Total Project Cost: \$1,723,164

Contacts:

Breck Jeffers	FHWA, Maryland Division	(410) 962-4342	129
Rick Gordon	Prince George's County DPW&T	(301) 883-1224	



UNIFIED MOBILE COMMAND UNIT (SYSTEMS INTEGRATION & COMMUNICATIONS NETWORK PROJECT)

Description: This project combines FY 2002 and FY 2004 ITS Integration Program earmarked funding for the State of Maryland. FY 2002 earmarked funding (\$275,000) was not expended, and will be added to the FY2004 earmark amount of \$210,000. Maryland's application of ITS is known as Coordinated Highways Action Response Team (CHART). The CHART Program employs computer technology, electronics and communications, safety, and security systems to manage surface transportation facilities. This project will procure and deploy a mobile command and communications vehicle (Unified Mobile Command Unit) to support statewide incident response and management coordination among all responding agencies. This vehicle will be fully integrated with, and build on, current CHART operations by promoting inter-agency operational coordination and cooperation by providing a versatile platform from which responding agencies can operate during traffic emergencies and other roadway incidents.

Project Location: Maryland (Washington, DC and Baltimore Metropolitan Regions)

Partner(s): FHWA, Maryland State Highway Administration, Maryland State Police, Maryland Emergency Management Agency, Maryland Transportation Authority, Baltimore City Traffic Operations, District of Columbia Department of Public Works

Start Date: September 2002

End Date: September 2006

Estimated Total ITS Funds: \$485,000

Estimated Total Project Cost: \$1,150,000

Contacts:

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Michael Zezeski	Maryland State Highway Administration	(410) 582-5605	



MASSACHUSETTS

BOSTON INTELLIGENT TRANSPORTATION SYSTEM

Description:

This project is a FY 2003 ITS Integration Program earmark for Boston, MA. The project responds to a validated requirement to improve operations and security in the Boston Area Transportation Network. The concept for integration addresses acknowledged deficiencies in information sharing, operational coordination, and security systems among the transportation and public safety agencies in the Boston Metropolitan area.

The project's three primary objectives are focused on the critical need for consistently accurate and verifiable information during emergency situations or special events.

The objectives are:

- Creation of a secure, high speed communication network that will connect Operations Control Centers operated by the Massachusetts Highway Department, the Boston Transportation Department, and the Massachusetts Bay Transportation Authority. This network would support simultaneous, real-time sharing of data and closed circuit TV (CCTV) surveillance imagery.
- Establishment of a video distribution and management system for transmitting existing and future CCTV cameras deployed on arterial, freeways and transit corridors. This system will provide a secure, high-speed fibre optic communication link to all the participating transportation agencies, aid to emergency responders and public safety agencies via the Internet.
- Improvement and expansion of the Boston Transportation Department's traffic surveillance system by adding new CCTV cameras at strategic intersections adjacent to major transit corridors and evacuation routes.

Project Location: Boston, Massachusetts

Partner(s): FHWA, Massachusetts Highway Department, Massachusetts Bay Transportation Authority, Boston Transportation Department

Start Date: September 2003

End Date: April 2006

Estimated Total ITS Funds: \$831,942

Estimated Total Project Cost: \$1,663,884

Contacts:

Edward Silva	FHWA Massachusetts Division, HDA-MA	(617) 494-2253
Russ Bond	Massachusetts Highway Department	(617) 973-7358



PIONEER VALLEY, MA ADA ANNUNCIATION SYSTEM

Description:

This project is the FY 2002 ITS Integration Program earmark for Springfield, Massachusetts. Project funding was approved in September 2003. The project site is a service area which includes the urban centers of Springfield, Holyoke, Chicopee, Northampton and Amherst. The Pioneer Valley Transit Authority (PVTA) operates diverse and widely dispersed facilities to include three garages, five service operators, and eight dispatch locations all of which support fixed route and paratransit operations. PVTA is confronted with concurrent modernization and integration challenges. In response to these needs, the PVTA has developed an agency-wide ITS architecture to implement a consistent approach to ITS deployment and integration.

The PVTA architecture analysis reveals a critical need to replace the existing communications system. The objective of the communications and data system upgrade is to design and implement an improved communications data infrastructure capable of supporting ITS applications, and to provide greater capacity, reliability and flexibility to accommodate evolving technology needs. This project will implement a communications and data systems upgrade that will integrate PVTA's dispatch locations, transit garages and the administration center. Project funding is to be allocated for system integration components, communications equipment, computer networks and related supporting hardware.

Automatic Vehicle Location hardware and the ADA Annunciation System originally planned for this project will be funded with other PVTA resources.

Project Location: Springfield, Massachusetts

Partner(s): FHWA, FTA, Massachusetts Highway Department, Pioneer Valley Planning Commission, Pioneer Valley Transit Authority, University of Massachusetts

Start Date: September 2003

End Date: April 2006

**Estimated Total
ITS Funds:** \$1,240,977

**Estimated Total
Project Cost:** \$2,481,950

Contacts:

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Mary Beth Mello	FTA Region	(617) 494-2444
Sandra Sheehan	Pioneer Valley Transit Authority	(413) 732-6248



REGIONAL TRAVELER INFORMATION CENTER (RTIC)

Description:

This project constitutes the FY 1999 ITS Integration Program earmark for Amherst, MA. The Federal ITS funding was carried over to FY 2000 and obligated in September 2000. This project will design, build and operate a Regional Traveler Information Center (RTIC) located at the University of Massachusetts in Amherst that will collect and disseminate traffic, transit and tourist information for government and public use. The proposed RTIC will serve as the platform (using national ITS standards) to collect and consolidate static and real time information from public and private sources and coordinate its dissemination through an Internet-based portal using the latest computer and communications technology. The mission of the RTIC will be to enable transportation and public safety agencies to share information on traffic incidents, weather, construction, and special events in order to enhance their respective transportation or safety management functions, and to provide relevant information to the traveling public that would benefit from this information. The establishment of the RTIC at the University will lay the foundation for integrating ITS projects (both institutionally and technically) currently being deployed in western Massachusetts, and will serve as a live laboratory for transportation research and education using the combined resources of the University of Massachusetts Transit System and the University of Massachusetts Transportation Center (UMTC). The University of Massachusetts Transit Center currently acts as a service provider to the Pioneer Valley Transit Authority and has been in continuous operation since the early 1970's. The UMTC is responsible for coordinating all transportation-related outreach and research conducted by the University.

Project Location: Amherst, Massachusetts

Partner(s): FHWA, Massachusetts Highway Dept., UMass Transit System, Pioneer Valley Planning Commission, Franklin Regional Council of Governments, Pioneer Valley Transit Authority, Montachusett Regional Transit Authority

Start Date: September 2000

End Date: March 2006

**Estimated Total
ITS Funds:** \$791,463

**Estimated Total
Project Cost:** \$1,582,925

Contacts:

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Russ Bond	Massachusetts Highway Dept.	(617) 973-7358
Paul Shuldiner	Univ. of MA Transportation Center	(413) 545-2688



MICHIGAN

ALTARUM RESTRICTED USE TECHNOLOGY STUDY, MICHIGAN

Description:

This project is a FY 2004 ITS Integration Program Earmark for the State of Michigan. The project objective is to explore the integration of ITS management and operations with restricted use (i.e., classified) data to foster a more secure and efficient transportation system. The expectation is that this project could lead to a national model capable of enhancing homeland security, and creating a process for gathering information previously unavailable to ITS managers and operators.

This project will employ a model previously applied by Altarum in the application of restricted data to environmental monitoring. Altarum, formerly the Environmental Research Institute of Michigan, developed a method to apply restricted technology to environmental issues. This process begins with the identification and formation of stakeholder groups. Once formed, the individuals comprising the groups will begin the process of obtaining security clearances. While awaiting the security clearance process, the project team will conduct unclassified focus meetings. The areas to be addressed include the application of ITS in homeland security, asset management, border crossings, HAZMAT shipment, traffic safety, congestion and multimodal transportation. The groups will use simulated restricted data sets using commercially available satellite data and radar models. The expected results from these group activities will be requirement summaries.

Subsequent to the granting of security clearances, the cleared stakeholders will participate in a series of meetings in the national Capital Region that will match transportation requirements to classified capabilities. The final product will be a set of candidate pilot demonstrations from which a number of pilot programs will be selected subject to the availability of funding.

Project Location: Michigan

Partner(s): FHWA, Michigan DOT, Altarum Institute.

Start Date: July 2005

End Date: January 2007

**Estimated Total
ITS Funds:** \$1,507,768

**Estimated Total
Project Cost:** \$3,015,536

Contacts:

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William Tansil	Michigan DOT	(517) 373-2250



GREAT LAKES ITS (GLITS) PROGRAM - PHASE I

Description:

This project comprises three of four FY 2001 ITS Integration Program earmarks for the State of Michigan. Congressional designations for Oakland and Wayne County, Southeast Michigan, and Wayne County, Michigan are incorporated in this project. The project is situated in the Great Lakes International Economic Corridor which comprises all of southeast Michigan from Toledo, OH to Flint, MI. Long-term project goals include providing travelers throughout the corridor with information to improve commutes, and expedite just-in-time delivery. Commerce with Canada will be facilitated and traveler safety will be enhanced through ITS deployments. The Great Lakes ITS Program will achieve these goals through multi-phased deployment and integration of ITS projects. The Michigan Department of Transportation (MDOT) will lead development and management of this multi-phase, multi-jurisdictional program. The first phase includes the following tasks:

- Completion of the regional ITS architecture to support the integration plans of the region.
- The continued development of the Road Information Management System (RIMS) for Wayne County, Michigan.
- Integration of ITS and public transportation operations at the Detroit/Wayne County Metropolitan Airport with area-wide transportation operations.
- Development of an integration plan and deployment of an area-wide traffic and incident management system in the I-75 corridor.
- Development of an integration plan for intermodal operations on Woodward Avenue in Detroit.
- Development of plans for an ITS "testbed" in the corridor.

Project Location: Southeast Michigan

Partner(s): FHWA, Michigan DOT, Southeast Michigan COG, Wayne County, Detroit Metropolitan Wayne County Airport, Road Commission for Oakland County, Detroit DOT, Suburban Mobility Authority for Regional Transportation

Start Date: September 2001

End Date: March 2008

Estimated Total ITS Funds: \$5,555,302

Estimated Total Project Cost: \$11,110,604

Contacts:

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Greg Krueger	Michigan DOT	(313) 483-5120



GREAT LAKES ITS (GLITS) PROGRAM - PHASE II

Description:

This project is a FY 2002 ITS Integration Program earmark for the State of Michigan. Funding for this project was approved in September 2003. The project builds on and expands the FY 2001 ITS Integration Program earmark for Michigan which comprises Phase I of this multi-year, regional ITS deployment and integration initiative. Phase II of GLITS includes projects carried over from Phase I, and adds several new projects.

Projects carried over include:

- The Wayne County Road Information Management System (RIMS) highlighted by the continuing integration of ITS components and safety/security systems at Detroit Metropolitan airport.
- Continued deployment of the "Smart Corridor" concept along I-75 for incident management and emergency evacuation.

Phase II new starts include:

- Deployment of the "Smart Corridor" concept along I-96 for incident management and emergency evacuation.
- Development and integration of a centralized traffic signal system to serve Southwestern Macomb County.
- Incident Management response system integration.
- Development of systems to expedite commercial transactions, and to improve security at the international border crossings in Southeast Michigan.

In summary these projects are focused on the following objectives:

- RIMS will integrate information currently gathered and stored in existing databases by various divisions of the Wayne County Department of Public Services (DPS) into one seamless system. Information pertaining to road conditions, construction projects and locations of DPS maintenance crews will be fused, and made available to the public and DPS staff.
- Detroit Metropolitan Airport project objectives are to instrument approach roads with ITS components dedicated to safety, security and parking management.
- I-75 and I-96 "Smart Corridor" integration activity focuses on integration of arterial management and freeway management systems to provide corridor-wide traffic management across jurisdictional boundaries.
- Macomb County Signal System Integration is oriented on upgrading traffic signals in the vicinity of General Motors Technology Center. 38 signals will be integrated.
- Incident Management Response will improve communications among numerous organizations conducting incident and emergency management in the region.



- Border Crossing Security and ITS seeks to apply ITS in a variety of ways to provide security at border crossings while ensuring efficient and smooth passage of people, goods and services across one of the busiest international commercial zones in the nation.

Project Location: Southeast Michigan

Partner(s): FHWA; Michigan DOT; Southeast Michigan Council of Governments (SEMCOG); Road Commission for Oakland County (RCOC); Road Commission of Macomb County (RCMC); Wayne County DPS; Wayne County Airport Authority

Start Date: September 2003

End Date: March 2008

**Estimated Total
ITS Funds:** \$4,550,249

**Estimated Total
Project Cost:** \$9,100,498

Contacts:

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Jim Schultz	Michigan DOT	(313) 256-9800	301



TRAFFIC SIGNAL PRIORITY INTEGRATION PROJECT

Description:

This project is the FY 2002 ITS Integration Program earmark for Lansing, Michigan. The jurisdictions in the Lansing metropolitan area operate traffic signal priority systems for emergency vehicles. These existing systems are on the perimeter of the metropolitan area, and are not contiguous. This limitation precludes optimal use of the pre-emption system. Emergency responders from other jurisdictions do not have emitters, and thus cannot benefit from pre-emption systems when responding in a mutual support role to jurisdictions equipped with systems.

This project will enable equipped vehicles in the metropolitan area to respond to incidents without regard to jurisdictional boundaries or traffic signal maintaining agency. The project will integrate existing pre-emption systems, and install traffic signal pre-emption to intersections and/or apparatus from seven jurisdictions. The project baseline starts with 39 intersections and 46 pieces of apparatus equipped with emergency vehicle pre-emption capabilities. The project will add pre-emption capabilities to over 200 intersections and 35 EMS vehicles. Communications links will be added to 40 additional intersections enabling direct communications between the City of Lansing Advanced Traffic Management System facilities and the pre-emption equipped intersections in the city. Additionally, the project will analyze the potential for future transit priority on equipped buses.

Project Location: Lansing, Michigan

Partner(s): FHWA, Michigan DOT, Ingham County Road Commission, Eaton County Road Commission, City of Lansing, and Fire Departments of Lansing, Delta Township, Meridian Township, East Lansing, and Windsor Township

Start Date: February 2003

End Date: December 2006

**Estimated Total
ITS Funds:** \$620,489

**Estimated Total
Project Cost:** \$1,240,978

Contacts:

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MINNESOTA

MINNESOTA GUIDESTAR PROGRAM - FY 1999

Description:

This section describes the FY 1999 ITS Integration Program developed by Minnesota Guidestar. Minnesota's statewide, integrated ITS program is a multi-year activity guided by a Board of Directors providing strategic direction and oversight of ITS research, field operational tests, deployment support, deployment and integration projects throughout the state. In some cases, projects described are continuations of TEA-21 Deployment Program initiatives begun in earlier years.

ROCHESTER TRANSPORTATION OPERATIONS CENTER - The focus of this project is to improve safety and relieve congestion along the Highway 14/52 corridor in Rochester. One component of this project includes a six-month study which will be used to develop a comprehensive and detailed concept plan for ITS in the Highway 14/52 corridor. The concept plan will include an early deployment plan which will be designed and constructed in the next two and a half years. Some of the features of the early deployment plan could be variable message signs, a closed circuit television system, traffic management systems, and road weather and traveler information kiosks. This project will not only address safety and congestion concerns well into the future, it will also serve as part of the traffic control during the Highway 14/52 construction.

MANKATO TRANSPORTATION OPERATIONS CENTER - The project combines real-time traveler information and data collection with traffic management and operational features. The three primary goals of this project are to provide positive traffic control on Interstate 90 from Albert Lea to the South Dakota State Line during adverse weather conditions, manage the traffic signal systems in the Mankato area as well as provide traveler information for special events/incidents, and provide real-time traveler and operational information for the public transit systems. The I-90 road closure system is designed to improve safety and efficiency of I-90 between I-35 and South Dakota. By closing the roadway at the optimal time, fewer accidents and vehicle stalls will occur and snowplowing can occur with fewer delays to tend to stalls, abandoned vehicles and stranded travelers. All of these facts allow the road to be reopened to travel more quickly and restored to a better pavement surface condition because there has been less compaction of snow. Travelers benefit because they have been able to wait at locations with adequate facilities. The system has been coordinated with the South Dakota gate closure system to assure a relatively uniform presentation to travelers in both states.

MOORHEAD AREA INTEGRATED TRAIN DETECTION AND TRAFFIC CONTROL SYSTEM - The purpose of the Moorhead Area Integrated Train Detection and Traffic Control System Project is to develop an integrated system for detection of trains so that special timing plans can be selected when trains are approaching and when trains are present. It will also provide travelers and dispatchers with information on train movements. This system is needed in Moorhead because an average of 70 trains per day pass through the City of Moorhead on tracks that cross many local and arterial streets at-grade. The average passage time is four minutes at each intersection for a total of about 4 hours and 40 minutes per day. The current traffic signal system has only some intersections with localized railroad preemption. This project will address the following problem conditions: Safety concerns at high volume at-grade railroad crossings; Increased emergency vehicle response time when trains are present; Interruption of transit operations when trains are present; and Extensive vehicular delays when trains are present.

IVI SNOWPLOW DEMONSTRATION PROJECTS - Minnesota's heavy snow, blowing snow, and ice impact travel. These impacts include crashes, stalls and stranded travelers, abandoned vehicles, travel delays and increased time for emergency vehicles



to respond to incidents or to transport sick or injured persons. The societal costs, including deaths, injuries, property damage, lost productivity, etc., of these impacts are significant. Minnesota undertook an Intelligent Vehicle Initiative - Specialty Vehicle (Snowplow) Case Study to determine potential benefits of using technology packages which assist snow plow operators to "see" the road boundaries and/or lane lines and obstacles (such as other vehicles, roadside appurtenances and large snow drifts) in extreme low visibility conditions. The Case Study describes how these packages will increase snowplow operator productivity and confidence during the worst conditions and therefore reduce crashes, incidents, delays, etc. This is done by the use of sensors that detect the road surface and stalled vehicles, slow-moving vehicles, and persons walking on the road. The Case Study assesses the potential safety and operational benefits of various levels of penetration of these market packages. It defines two demonstration or operational tests of some set of technology packages in maintenance vehicles, a commercial vehicle fleet or both.

STATEWIDE ADVANCED TRAVELER INFORMATION SYSTEMS SUPPORT - The purpose of the Statewide Advanced Traveler Information Systems (ATIS) Support Project is to develop an overall strategy and design for the creation of a statewide advanced traveler information system. This will incorporate the individual ATIS efforts throughout the state into a cohesive system where they will cooperatively enhance the traveler information capabilities throughout the state. There is a need to furnish motorists with timely information as to road/weather conditions, events, alternate routes, provide swift incident response and have a central location for information on all modes of transportation. The goals of the Statewide ATIS are the following: to make travel safer through the State of Minnesota; to make travel in Minnesota more efficient; and to increase the user satisfaction for those persons traveling in Minnesota. The Statewide ATIS will include such components as Road Surface Conditions; Weather and Visibility Conditions; Construction and Maintenance Delays; Incident Delays; Tourism Information; Weight Restrictions; and Road Closures/Opening.

UNIVERSITY OF MINNESOTA ITS RESEARCH PROJECTS - Various research projects will be conducted at the University of Minnesota. Identification and selection of the research projects has resulted in the need to address the following areas: Traveler Services; Traffic Management; Maintenance Operations; Vehicle Technologies; Safety and Human Factors; Modal and Rural Issues; Infrastructure Systems; and Societal and Environmental Issues.

HIGHWAY/RAILROAD INTERSECTION OPERATIONAL TEST - This project will provide two separate tests of technology to build upon the successfully In-Vehicle Signing operational test. The first test will be to develop and operationally test, including a human factors evaluation, a prototype low cost active warning system designed to be used at low volume Highway/Railroad Intersections (HRIs). This test will provide active warning at a crossing currently only containing passive warning devices. The concept includes red flashing LEDs on the standard cross buck sign, and amber flashing LEDs on the advanced warning system. The system would be powered by a solar cell with 12-volt battery backup. Train detection would be by means of a Head-of-Train (HOT) signal detector. The system would have a flicker or other pattern when it is not performing properly, but otherwise would operate the same as an existing active warning system with only flashing lights. The second test will include an updated in-vehicle sign for use in additional school buses and other vehicles required to stop at HRIs. Train detection would either be built into the in-vehicle device or detected at the crossing via broadcast to approaching vehicles. The goal of this HRI project is safety, primarily focused at low volume HRI where traditional warning systems cannot be cost effectively deployed. Both of the HRI efforts will demonstrate and test technologies, information flows, and data flows that are not fully developed in the National ITS architecture and standards at this



time. These projects will continue to lead the way in the field of roadside-to-vehicle communications for HRI.

RURAL ITS CORRIDOR ITS TECHNOLOGY DEMONSTRATION CORRIDOR - There is a need to test ITS technologies that will improve safety and efficiency of travel on two-lane highways outside of urban areas. About 70% of all fatal crashes occur on two-lane roads passing through countrysides or small towns under 5,000 population. The traditional solution to safety and capacity problems on these roads is to add more lanes, close access openings, build frontage roads, etc. These solutions are becoming less and less viable due to limited construction resources and the need to preserve the natural environment. This project will seek to identify and test ITS market packages individually or as a group that can be used to address the safety and capacity on two-lane rural roads.

Project Location: Statewide throughout Minnesota

Partner(s): Minnesota DOT is lead and other partners include Federal, State and local agencies and private companies interested in the evaluation and deployment of ITS user services and technologies. Principal State agencies include University of Minnesota, Minnesota State University, Department of Public Safety and the Minnesota State Highway Patrol.

Start Date: September 1999

End Date: Ongoing

**Estimated Total
ITS Funds:** \$3,699,000

**Estimated Total
Project Cost:** \$10,038,000

Contacts:

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Daryl Taavola	Minnesota DOT	(651) 282-2115



MINNESOTA GUIDESTAR PROGRAM - FY 2000

Description:

This section describes the FY 2000 ITS Integration Program developed by Minnesota Guidestar. Minnesota's statewide, integrated ITS program is a multi-year activity guided by a Board of Directors providing strategic direction and oversight of ITS research, field operational tests, deployment support, deployment and integration projects throughout the state. In some cases, projects described are continuations of TEA-21 Deployment Program initiatives begun in earlier years.

TOCC INTEGRATION AND DEPLOYMENT - PHASE I. MN DOT and the Minnesota State Patrol have initiated a program to create nine colocated and shared Transportation Operations Communications Centers (TOCCs) throughout rural Minnesota. This program will, over a six-year period, bring together the resources of both agencies in order to provide comprehensive communications services. The TOCCs will be staffed by the State Patrol and supported by MNDOT on 7 day/week, 24-hour/day basis. The principal function of the TOCC is to control and coordinate communications related to travel on the State highway system. Statewide deployment will ensure consistency and interoperability of communications centers; provide standardization of systems, facilities and practices; and result in more efficient use of resources. ITS Funding: \$1,250,000; Total Funding: \$2,500,000

TH 51 MULTI-JURISDICTIONAL SIGNAL INTEGRATION - STAGE I. This deployment/integration project will deploy a multi-jurisdictional adaptively-controlled integrated signal system along a high volume trunk highway. When implemented, the system will allow safe operating agencies to manage traffic; incidents and traveler information along the corridor. ITS Funding: \$150,000; Total Funding: \$300,000

ITS INTEGRATION/OPERATIONS AND MAINTENANCE PLAN AND ARTERIAL COMMUNICATIONS PLAN FOR TWIN CITIES. The ITS Operations and Maintenance (O&M) and Arterial Communications Plan will examine the operations and maintenance strategies for several levels of government. It is a three-stage effort with products documenting the activities in each stage. The stage one product will be a report summarizing regional viewpoints, support requirements, and concerns. The stage two product will be a published plan that provides a framework for agencies to follow in pursuit of regional operations and maintenance. The stage three product will be a Regional Arterial Communications Plan which identifies the data flows necessary at specific geographic locations to support the regional operations and maintenance plan and the planned infrastructure. ITS Funding: \$25,000; Total Funding: \$50,000

AUSCI EXPANSION TO TH 55 - PHASE I. The purpose of this Deployment/Integration project is to reduce the anticipated degradation in peak traffic flows along a high volume arterial (Hiawatha Ave.) that will be caused by the introduction of light rail vehicle operation adjacent to the corridor. Metro Transit, the operating agency for the metropolitan bus transit system and future operator of the light rail system, will procure and install an Automatic Vehicle Location/Global Positioning System (AVL/GPS) on buses operating in the metropolitan area. AVL/GPS equipment will be added to the 26 light rail vehicles to be used in the Corridor. ITS Funding: \$150,000; Total Funding: \$300,000

I-90 REMOTELY ACTUATED GATE CLOSURE SYSTEM-PHASE I. This Operational Test will develop and test technology and communication for remote closure and opening of advanced traffic management remotely actuated Gate Closure System to be deployed on I-90 between I-35 and South Dakota. I-90 crosses the southern region of Minnesota on an east-west axis stretching from Wisconsin to South Dakota. Under blizzard



conditions, the interstate must be closed to ensure motorist safety. Remote actuation of gates at ramps and other strategic locations will reduce personnel requirements for gate operation, ensure uniform enforcement of interstate closures, reduce motorist risk, and improve snow removal operations. ITS Funding: \$125,000; Total Funding: \$250,000

ITS ARCHITECTURE AND STANDARDS MIGRATION PLAN. The activities to be conducted in this project will develop and define an approach for migrating Minnesota's ITS deployments toward large scale implementation of ITS Standards. The end product will include a plan or identifying/selecting standards for metropolitan and rural ITS infrastructure deployments. Upon completion of the migration and integration plan, the focus of effort and funding will be directed to execute high priority, near-term activities needed to implement the most promising candidate standards. The specific standards and associated equipment will be defined in the plan. ITS Funding: \$325,000; Total Funding: \$650,000

ITS ARCHITECTURE, STANDARDS AND INTEGRATION SUPPORT. The purpose of the project is to realign the documentation of the Minnesota ITS Architecture to achieve consistency with the National ITS Architecture. The existing statewide architecture (the Polaris architecture) was developed during the period in which the National ITS Architecture was under development. This project will bring the existing architecture documentation into conformance with the National ITS Architecture and provide continuing support to maintain Polaris, to include new ITS programs. ITS Funding: \$250,000; Total Funding: \$500,000

SYSTEMS INTEGRATION FOR SMART DARTS, PHASE III. The project will complete the installation of mobile display terminals, automatic vehicle location devices and system integration with currently installed computer-assisted dispatch and scheduling system. Upon completion, DARTS will have improved capability to share scheduling and dispatching information with other transit and paratransit organizations in the Twin Cities. ITS Funding: \$100,000; Total Funding: \$200,000

EXPANDED APPLICATION OF COMPUTER ASSISTED DISPATCHING TO RURAL TRANSIT SYSTEMS. This project is designed to improve existing conditions identified in the precursor scoping study. The scoping study determined that there are limited communications links among transit agencies. Constrained information sharing capabilities preclude transit riders from coordinating cross-boundary trips with other providers. Finally, there is no rapid reliable method for communicating trip changes to dispatched vehicles. The goal of the Computer-Aided Dispatch (CAD) for Rural Transit is to deploy a standardized computer-aided trip management and dispatching system. The new system will be used by transit agencies throughout the State. While continuing to operate independently, the various transit agencies will provide access to each other's systems in order to facilitate trip reservations and scheduling involving two or more providers for a single trip. ITS Funding: \$250,000; Total Funding: \$500,000

ADDITION OF ADVANCED VEHICLE LOCATING SYSTEMS TO TRANSIT SYSTEMS PARTNERING IN SOUTHWEST TRANSLINK. The Transit Link vehicle fleet represents a significant investment in providing transit services to southwest rural Minnesota. The purpose of this project is to expand the capabilities of the transit systems by providing real-time information to transit vehicle drivers. The integration of wireless radio, coupled with GPS-based AVL system and an integrated CAD will provide the communication, mapping and tracking elements to complete an advanced scheduling system. This system is visualized as providing valuable data to aid drivers, supervisors, and foremen. ITS Funding: \$100,000; Total Funding: \$200,000



EXPANSION OF IVI-LATERAL GUIDANCE AND WARNING SYSTEMS. This operational test is a component of the FY 2000 State of Minnesota earmark. Minnesota DOT, in cooperation with FHWA, the Intelligent Vehicle Initiative (IVI) Task Force of ITS America, and the IVI Specialty Vehicle Pooled Fund steering committee is conducting research and testing on vehicle-to-infrastructure communications to reduce crashes. Minnesota DOT's research and operational tests focus on the interaction of lateral guidance and obstacle detection with warning systems. This project will provide the additional infrastructure (such as magnetic tape and/or transmitters) along Trunk Highways 19 and 7 to ensure the results of these projects are based on adequate data collection and analysis. ITS Funding: \$250,000; Total Funding: \$500,000

IVI INTERREGIONAL CORRIDOR ITS PLAN. In 1998 MNDOT initiated the Interregional Corridor (IRC) Study to assess mobility between regional trade centers across the State. This IRC Study identified specific interregional and regional corridors that fall below target mobility levels currently and in future projections. The IRC corridors will be examined for possible ITS-based applications that can improve safety and mobility in these areas. The general approach used is to hold focus groups to set priorities for potential ITS demonstration projects capable of addressing safety and mobility. This is followed by detailed planning for, and implementation of ITS Technology Demonstration Projects. ITS Funding: \$100,000; Total Funding: \$200,000

DESIGN, PROCURE, INSTALL AND ACTIVATE MOBILE DATA COMPUTERS IN MAINTENANCE VEHICLES. This project will design, procure, install and activate Mobile Data Terminals (MDT) in maintenance vehicles. When fully deployed, the MDT system will provide MDT coverage for each of Minnesota's nine rural TOCCs throughout the State and the Regional Transportation Management Center (RTMC) in the Twin Cities Metro Area. The system will enable automatic incorporation of real-time data such as snowplow sand and salt spreader status into TOCC databases. ITS Funding: \$875,000; Total Funding: \$1,750,000

CONTINUATION AND EXPANSION OF COMPUTER ASSISTED DISPATCHING AND AUTOMATIC VEHICLE LOCATION FOR THE TWIN CITIES METRO AREA. The objective of this operational test project is to continue and expand a system test conducted from March 1999 to February 2000 in the Twin Cities Metropolitan area. This project integrated a CAD software system with AVL for a metropolitan system test. The test employed eight maintenance vehicles equipped with portable MDT. The CAD software was loaded on a dedicated host computer located at a MNDOT Dispatch Center. The project extension seeks to continue this project by upgrading the CAD/AVL system to employ ruggedized MDTs, improve user interfaces, and install the MDTs in an additional twenty-two maintenance vehicles. Other features of the upgrade include snowplow sand and salt spreader status in a database. ITS Funding: \$100,000; Total Funding: \$200,000

ACTIVATION OF LOW VOLUME HRIs USING PASSIVE TRAIN DETECTION. This operational test will build on the success of the In-Vehicle Signing Project. The original project evaluated an in-vehicle warning system installed on school buses in Glencoe, MN. The system was installed primarily at signalized railroad crossings, and subsequently at unsignalized (passive) crossings. The FY 2000 project will expand the system to provide both active roadside warning coverage at passive crossing areas and in-vehicle signing to regulated and emergency vehicles in rural areas. The system is designed for use at locations without an existing source of power. The goal of the project is to enhance safety at highway/rail intersections. The most significant improvements are expected at low volume intersections where cost considerations preclude deployment of traditional warning systems. ITS Funding: \$500,000; Total Funding:



\$1,000,000

ENHANCEMENT AND EVALUATION OF THE MOORHEAD ADVANCED TRAIN DETECTION PROJECT. The purpose of this operational test, Moorhead Area Integrated Train Detection and Traffic Control System Project, is to develop an integrated system for detection of trains so that special timing plans can be selected when trains are approaching and when trains are present. It will also provide travelers and dispatchers with information on the train movements. A train detection system is needed because an average of 70 trains per day pass through the City of Moorhead's Central Business District (CBD) on tracks that cross many local and arterial streets at-grade. This project will address the following problem conditions: Safety concerns at high-volume at-grade railroad crossings; increased emergency vehicle response time when trains are present; interruption of transit operations when trains are present; and extensive vehicular delays when trains are present. This project proposes the concept of an ITS type technology solution that provides many of the traffic-related benefits of the construction solutions, and at a much lower cost and significantly greater ease of implementation. The basic concept involves integrating advanced train detection with the signal system. Trains would be detected and that information would be conveyed to the traffic signal system. The traffic signal system would then employ a special timing plan that would be developed to serve the traffic movements that exist when trains are passing through the city. The following project goals have been developed:

- Reduced delay due to: Improved signal timing, specifically when trains are present; and providing real time information to motorists to enable them to select alternate grade crossings or divert to a grade separated crossing.
- Provide Train information to: Emergency vehicles and transit operators.
- Improved safety due to: Reduced exposure at at-grade crossings; reduced conflicts with emergency vehicles, for auto and train traffic.

ITS Funding: \$100,000; Total Funding: \$200,000

MINNESOTA RESEARCH PROGRAM. The Minnesota ITS Research Program is intended to support ITS deployment and integration by researching and developing tools to improve the various ITS user services. In some cases, the program initiates research in new areas that will expand knowledge which ultimately will improve a particular ITS initiative. A portion of the research funding supports the administrative structure which advances ITS research at the University of Minnesota.

ITS Funding: \$859,375; Total Funding: \$1,718,750

Project Location: Statewide throughout Minnesota

Partner(s): Minnesota DOT is lead and other partners include: Federal, State and local agencies and private companies interested in the evaluation and deployment of ITS user services and technologies. Principal State agencies include University of Minnesota, Minnesota State University; Department of Public Safety and the Minnesota State Highway Patrol

Start Date: September 2000

End Date: Ongoing



**Estimated Total
ITS Funds:** \$5,504,947

**Estimated Total
Project Cost:** \$11,018,750

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Sara Lenz	Smart DARTS: Minnesota DOT Office of Transit	(651) 296-3441
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Mike Sobolewski	Arch/Std: Minnesota DOT, Metro Division	(651) 582-1602



MINNESOTA GUIDESTAR PROGRAM - FY 2001

Description:

This section describes the FY 2001 ITS Integration Program developed by Minnesota Guidestar. Minnesota's statewide, integrated ITS program is a multi-year activity guided by a Board of Directors providing strategic direction and oversight of ITS research, field operational tests, deployment support, deployment and integration projects throughout the state. In some cases, projects are continuations of TEA-21 Deployment Program initiatives begun in earlier years. The point of contact for all of these FY 2001 projects, unless otherwise indicated, is Daryl Taavola MNDOT (651) 282-2115.

ITS INTEGRATION AND DEPLOYMENT SUPPORT-UNIVERSITY OF MINNESOTA, CENTER FOR TRANSPORTATION STUDIES - This project provides administrative support for the definition of ITS projects to be adopted as part of the Minnesota Guidestar Program. The University of Minnesota's Center for Transportation Studies (CTS) coordinates and manages the solicitation of proposals for ITS integration and deployment projects to be incorporated in the State's Statewide Transportation Investment Program. This project will facilitate inter-jurisdictional ITS deployment and integration activities by providing tools for addressing and coordination issues likely to emerge from proposed ITS projects. This project is centered on the management of Federal Work Orders approved by the FHWA Division Office and State Work Orders negotiated between MNDOT and the University of Minnesota. ITS Funding: \$807,792; Total Funding: \$1,615,584. Start Date: 9/30/01; End Date: 12/31/03

TOCC INTEGRATION AND DEPLOYMENT-PHASE II - This project continues and builds on a deployment project initiated in 1998 to improve joint agency communications, safety and efficiency. Evolving from an ISTEA-era field operational test, Advanced Rural Traveler Information Center (ARTIC) which demonstrated the value of centralized communications centers, this project will ultimately deploy nine collocated Transportation Operations Communications Centers throughout rural Minnesota. MNDOT and the Minnesota Department of Public Safety-State Patrol will combine their resources to improve emergency response, maintenance operations, and dispatching efficiency. ARTIC brought together MNDOT, State Patrol and rural transit agencies; tested automated vehicle location and mobile data terminals; explored ways of employing advanced communications systems, and tested advanced transit scheduling/dispatching capabilities. The primary function of the TOCC is to coordinate and control communications related to travel on the State highway system. This appropriation will be allocated to implementing various features of TOCC upgrades/integration at three locations. ITS Funding: \$1,000,000; Total Funding: \$2,000,000. Start Date: 6/30/01; End Date: 3/31/03.

TH 51 ITS INTEGRATION AND DEPLOYMENT PROJECT - STAGE 2. This project focuses on an arterial (Trunk Highway 51 - Snelling Avenue) which supports thousands of trips per day, but traverses three jurisdictions. The segment of TH 51 affected by this project extends from St. Paul through the cities of Roseville and Falcon Heights in Ramsey County. MNDOT operates nine traffic signals along this trunk highway while local agencies operate over twenty signals in close proximity. Phase I of this project conducted an evaluation of technologies suited to transmission of and control of CCTV video and data. This project - stage 2 - will deploy twisted pair technology throughout the corridor, and a control system for traffic signals, CCTV cameras, and dynamic message signs. ITS Funding: \$100,000; Total Funding: \$200,000. Start Date: 9/30/01; End Date: 1/31/03.

EXPANSION OF INTELLIGENT VEHICLE INITIATIVE INFRASTRUCTURE - This project is a cooperative endeavor involving FHWA, the Intelligent Vehicle Initiative (IVI)-



Specialty Vehicle Platform Steering Committee, the IVI Infrastructure Consortium, and the Cooperative Vehicle Automation System Pooled Fund Study. The project seeks to improve safety and mobility by focusing on vehicle and infrastructure components in anticipation of future communication between vehicles and infrastructure components. The project will deploy one or more of the following systems upon completion of an infrastructure requirements analysis: Pavement magnetic tape to assist vehicle guidance; differential GPS to assist vehicle guidance; intersection collision warning systems; variable speed limit systems. Priority locations include non-freeway designated interregional corridors throughout the State which experience severe low visibility conditions, dangerous curves and a high incidence of intersection crashes. POC: William Gardner, MNDOT (612) 282-2115. ITS Funding: \$300,000; Total Funding: \$600,000. Start Date: 9/30/01; End Date: TBD

INTERREGIONAL CORRIDOR ITS PLAN - This project evolves from an Interregional Corridor (IRC) Study to identify important economic corridors in the State. This IRC study identified performance standards for mobility and safety as well as defining improvement strategies to reduce congestion and manage incidents. A study finding recommended identification of IRC Technology Demonstration Projects to address corridor performance shortfalls. This project will examine regional and interregional corridors falling below target mobility levels, both currently and in the future. Once candidate corridors are identified, focus groups will be conducted to establish priorities for potential ITS demonstration projects. Once candidate corridors have been selected, detailed implementation plans will be developed. The final phase of this project will deploy ITS Demonstration projects. Two trunk highways have been identified as candidates along with potential ITS technology applications for each. ITS Funding: \$1,050,000; Total Funding: \$2,100,000. Start Date: 9/30/01; End Date: 12/31/03.

EXPANSION OF AND SUPPORT FOR HRI PROJECTS - This project is a continuation of FY 2000 ITS Integration Program Highway Rail Intersection (HRI) initiatives. The FY 2000 HRI projects evaluated an in-vehicle warning system installed on school buses in Glencoe; the activation of low volume HRIs using passive train detection, and enhancement of the Moorehead advanced train detection project. FY 2001 funding will expand on all three legacy HRI projects. MNDOT seeks to determine a means of delivering a low-volume HRI component to a national strategic plan for HRI deployment, while concurrently meeting local transportation needs. This project will conduct a long-term operational test of ITS technologies such as passive train detection, RF communications, and LED active warning systems at approximately 100 low-volume crossings. Operational test evaluation efforts will focus on long-term performance and maintenance requirements to ascertain feasibility of wide scale deployment. This project's primary outputs are providing support in three areas: management, outreach and evaluation. ITS Funding: \$250,000; Total Funding: \$500,172. Start Date: 9/30/01; End Date: TBD

MAYDAY - PHASE II - This project's objective is to expand the development and testing of an integrated emergency response infrastructure capable of processing data and voice messages from commercial Mayday systems. This infrastructure is to be deployed and tested throughout numerous counties in urban and rural areas of the State. The project will integrate global positioning system devices, in-vehicle sensors, satellite and cellular phone technology, emergency response systems, and traffic management centers to provide automatic notification of crash location and severity as well as required response management. The emergency detection and response infrastructure established by private sector entities which enables motorists to transmit distress signals to emergency responders (such as OnStar) will be integrated with public sector emergency facilities. The system design will enable public sector dispatch center personnel to activate appropriate response resources by accessing private sector



emergency distress signals transmitted in the event of a crash. ITS Funding: \$500,000; Total Funding: \$1,000,000. Start Date: 9/30/01; End Date: TBD

AUSCI EXPANSION TO TH 55-PHASE II - This project is a continuation of a FY 2000 initiative whose purpose is to expand Adaptive Urban Signal Control and Integration to Trunk Highway 55. TH 55 is a high volume arterial with multi-phase traffic signal systems. While this corridor currently operates in a coordinated mode, the introduction of a planned at-grade express transit system will degrade, during peak traffic flows, the coordinated signal system. The approach is to collect light rail vehicle location information using automatic vehicle location/Global Positioning System (AVL/GPS) technology integrated with appropriate transmitting/receiving equipment. Additionally, recently deployed SCOOT intersection control systems will be extended to intersections in the TH 55 corridor as a complementary enhancement, thus providing a corridor-wide response to light rail vehicle operation. Phase 1 of this project was dedicated to design and development of software modifications for Minneapolis' traffic control system. This project implements phase II which is dedicated to designing, procuring and installing detection for Scoot in the corridor. ITS Funding: \$50,000; Total Funding: \$100,000. Start Date: 9/30/01; End Date: 3/31/03.

ITS OPERATIONS AND MAINTENANCE WITH INTERAGENCY RESOURCE OPTIMIZATION - This project is a deployment support initiative whose purpose is to establish various regional maintenance support contracts to be used by local agencies to facilitate the repair of ITS components and other traffic control equipment. This activity is a continuation of a FY 2000 initiative which produced a report defining requirements for and challenges to establishing a comprehensive maintenance program. The regional maintenance contracts will be structured to support routine, preventive and emergency maintenance tasks. A portion of funding is to be allocated to purchase of critical system component spare parts, and to establish a pooled fund for emergency requirements. ITS Funding: \$200,000; Total Funding: \$400,000. Start Date: 9/30/01; End Date: 3/31/03.

TWIN CITIES METRO-AREA ITS INTEGRATION PROJECT - This project is a compilation of separate, small ITS integration activities to be implemented in the Twin Cities Metropolitan area. The completion date identified below is the end date of the initiative with the longest estimated duration. Where possible individual initiative completion dates are listed in the following summary of subprojects:

- I-494 CONGESTION MANAGEMENT - This subproject will provide real-time road congestion information and alternate routing information to operators of transit vehicles, freight carriers and shippers prior to their entry into the corridor. A combination of existing technologies (kiosks, terminals, Internet) and route planners will be used to deliver the information. December 2004.
- UPDATE OF ARTERIAL TRAFFIC STATUS SYSTEM - This subproject will expand and enhance the Arterial Traffic Status System (ATS). ATS provides signal system operators with current and historic information about traffic conditions.
- UPDATE OF DATA DISTRIBUTION NODES AND MAP APPLICATION - The Data Distribution Nodes and Map provides traffic system operators with current and historic information about traffic conditions. This tool supports traveler information providers. The enhancements will improve MNDOT's information sources. June 2003.
- INTEGRATION OF MNDOT AVL WITH MSPCAD - This subproject will improve the communication between the State Patrol and MNDOT. Operations of the two agencies will be integrated, and will establish a shared role in detecting, verifying, responding to



and clearing incidents from the roadway network. January 2003.

- MODIFICATION OF I-494 INTEGRATED CORRIDOR SYSTEM - This subproject will upgrade traffic control and communication within the 494 corridor. This initiative will address malfunctioning components and provide enhanced control equipment. January 2003.

ITS Funding: \$412,000; Total Funding: \$824,000. Start Date: 9/30/01; End Date: 12/31/04

ATIS/5-1-1 DEPLOYMENT - This project will implement Minnesota's 5-1-1 traveler information program. Existing traveler information systems will be integrated, user access will be converged into a single delivery point. Design and testing of Minnesota's 5-1-1 system will be pursued in several steps:

- Concept Definition.
- Analyses of existing databases.
- Preparation of an Implementation Strategy.
- Conduct of Market Research and Human Factors analyses to define user requirements.
- Coordination with Local Exchange Carriers.
- Operational testing.

ITS Funding: \$500,000; Total Funding: \$1,000,000. Start Date: 9/30/01; End Date: 1/31/03

Project Location: Statewide

Partner(s): FHWA, Minnesota DOT, University of Minnesota, Department of Public Safety, Minnesota State Highway Patrol

Start Date: September 2001

End Date: Ongoing

Estimated Total ITS Funds: \$5,158,000

Estimated Total Project Cost: \$10,339,756

Contacts:

Daryl Taavola

Minnesota DOT

(651) 282-2115



MINNESOTA GUIDESTAR PROGRAM - FY 2002

Description:

This project is comprised of the FY 2002 ITS Integration Program earmark for Minnesota. The individual subprojects described below are implemented under the umbrella of the Statewide Integrated ITS Program for Minnesota. Project POC: Daryl Taavola MNDOT (651) 282-2115.

Wireless Vehicle Probe System Evaluation - This project utilizes probe vehicles to collect a variety of real-time information on the road network. Focus is placed on collection of travel time and roadway surface conditions. This information, once processed, will provide traffic operations staff and motorists with improved, real-time information on travel times and roadway surface conditions. Benefits include improved motorist travel route decision-making, better traffic operations management, and improved maintenance staff capability. This project will supplement roadway infrastructure-based data collection techniques. Roadway surface data will be compiled from monitoring of traction levels on Antilock Braking Systems and measurements of air and pavement temperature sensors on the probe vehicles. Start Date: 3/1/2003 - End Date: 3/1/2004; ITS Funding: \$250,000 - Total Funding: \$500,000; Partners: FHWA, MNDOT

Vision Detection System - This project's objective is to deploy a system designed to reduce the safety hazards inherent with fog. The system is comprised of dynamic message signs (DMS) and variable speed limit system (VSL) technology integrated with Road Weather Information System (RWIS) sensors complemented by dedicated visibility measurement hardware components. The project concept is to measure particulate matter in the atmosphere in order to establish low visibility conditions. Poor visibility conditions will trigger alarms activating MN State Patrol and MNDOT to activate DMS and VSL system signage. Road/Weather Information Stations will provide visibility, and wind velocity/direction, temperature, barometric pressure, and humidity. These data elements will facilitate fog prediction. Start Date: 3/1/2003 - End Date: 9/1/2004; ITS Funding: \$182,000 - Total Funding: \$364,000; Partners: FHWA, MNDOT

Transit Status at Bus Shelters - This project's objective is to provide real-time bus arrival information at selected bus shelters in the Minneapolis/St. Paul metropolitan area. Transit rider customer satisfaction is heavily influenced by bus arrival time information. This influence is magnified during periods of inclement/harsh weather. This project leverages existing infrastructure such as automatic vehicle location and communications systems. Specially designed dynamic message signs will be deployed to display bus arrival status information. These message signs will be integrated with existing systems. Start Date: 4/1/2003 - End Date: 4/1/2004; ITS Funding: \$150,000 - Total Funding: \$300,000; Partners: FHWA, MNDOT, Metro Transit

Work Zone Variable Speed Limits/ATMS - The purpose of this project is to deploy a variable speed limit (VSL) system capable of providing readable, real-time information on appropriate speeds for existing conditions. The technology features wireless communication systems, electronic signage, solar power generation and low power computer systems. The project is structured as a field test to determine the extent to which VSL systems can lead to better compliance, improved credibility of speed limits, improved safety, and better traffic flow in work zones. System components include a VSL system, advanced dynamic message signs, sensors, detectors, wireless communications, and activated data collection systems. Start Date: 1/1/2003 - End Date: 9/1/2004; ITS Funding: \$350,000 - Total Funding: \$700,000; Partners: FHWA, MNDOT

Portable Diversion Management System Evaluation - This project provides real-time



traffic information to motorists through the use of off-the-shelf portable dynamic message signs and wireless communications. The project objective is to enable motorists to make travel route decisions based on existing conditions. The project will evaluate the system impact on motorist decision-making on using alternate routes. Volume data is to be collected from loop detectors to support "before" and "after" impact assessment of deployed technology. Start Date: 3/1/2003 - End Date: 3/1/2004; ITS Funding: \$60,000 - Total Funding: \$120,000; Partners: FHWA, MNDOT, City of St. Paul

ITS Scoping Studies - This project will define requirements and establish a concept for expanding deployment of Minnesota's Regional Transportation Operations and Communications Centers (TOCCs). TOCCs have been deployed to provide coverage for four of the state's eight MNDOT districts (Duluth, Rochester, St. Cloud, and Mankato). These studies will ensure that a comprehensive, integrated profile of current operations, local concerns, and requirements is obtained prior to development of an interagency operational plan for resource sharing. Start Date: 2/1/2003 - End Date: 10/1/2007; ITS Funding: \$220,000 - Total Funding: \$440,000; Partners: FHWA, MNDOT

ITS Mega Corridor - This project seeks to mitigate congestion and safety conditions resulting from rapid development and population growth along the 90-mile "Mega" corridor between the Twin Cities metropolitan region and the St. Cloud/Little Falls area. MNDOT will apply traffic management, and traveler information strategies, complemented by other ITS deployments, to address corridor issues. The project concept includes integration of transportation operations, management and information resources deployed throughout the region. The desired impact is to improve safety and efficiency, and enable MNDOT to provide seamless traffic management and traveler information along the corridor. While all initiatives are yet to be determined, early deployments include: Vehicle Probes, Delivery of Rural Travel Time Estimates, Mega Corridor Incident Management/Evacuation Planning/Event Management, Integration of Computer-aided Dispatch and Virtual Transportation Operations Center with the Condition Acquisition Reporting System. Start Date: TBD - End Date: TBD; ITS Funding: \$780,500 - Total Funding: \$1,561,000; Partners: FHWA, MNDOT

District 6 and 7 Integrated Traffic Management and Traveler Information - The objective of this project is to establish an integrated rural traffic management and traveler information system between MNDOT Districts 6 and 7. The project will focus on deployment of dynamic message signs at key locations along I-35 and I-90, and at the intersection of I-35 and I-90. The ITS implementations will be complemented by integration of the Virtual Transportation Operations Centers of each MNDOT District. The resulting impact will provide traveler information to motorists along the districts' corridor, and support inter-agency/inter-district incident response, operations and management. Start Date: 11/1/2002 - End Date: 12/1/2003; ITS Funding: \$415,000 - Total Funding: \$830,000; Partners: FHWA, MNDOT

Corridor Preemption System - The purpose of this project is to deploy and integrate a corridor priority traffic signal control system focused on evacuation contingencies. The system will provide the capability to implement a timing pattern that favors evacuation along arterials. Unlike conventional systems, this application will have the input to the timing plan originate from a central control facility rather than from emergency vehicles in the field. The project concept is to leverage the existing Emergency Vehicle Pre-emption (EVP) system which employs a phase selector at each intersection signal controller. Communications between each signal controller and the central system can be accomplished via fiber optic, copper cable, or wireless modems. Data transmitted to the central advanced traffic management system is used to track emergency vehicles through automated vehicle location equipment and mapping software. This implementation will improve emergency response time, and provide an improved



capacity for evacuation management during major crises. Start Date: 2/1/2003 - End Date: 2/1/2004; ITS Funding: \$84,225 - Total Funding: \$168,450; Partners: FHWA, MNDOT

District VTOC Integration and Management - The purpose of this project is to provide support for the Virtual Traffic Operations Center (VTOC) software currently owned and operated by MNDOT and the MN State Patrol. VTOC is a new advanced traffic management system operating software application that integrates multiple ITS devices. MNDOT staff lack experience and expertise in use and management of the software, with resulting operational vulnerabilities during system crashes or other software-related contingencies. This project will provide VTOC integration and management support on an as-needed basis for selected MNDOT districts for a two-year period. Start Date: 7/1/2003 - End Date: 7/1/2005; ITS Funding: \$100,000 - Total Funding: \$200,000; Partners: FHWA, MNDOT, MN State Patrol

Duluth/Superior Bridge Surveillance System - The purpose of this project is to improve safety, security and traffic management capabilities along two bridges (I-535 - Blatnik Bridge, and US-2 Bong Bridge) connecting Duluth, MN and Superior, WI. Rapidly changing weather conditions, and the absence of shoulders create hazardous conditions for disabled vehicles. The project will provide improved capabilities through the use of camera surveillance along the bridges. Closed Circuit TV camera coverage will be transmitted to the MNDOT and State Patrol Dispatch Center in Duluth, and shared with the Superior County/Douglas County Dispatch Center in Superior. Staff at the facilities will monitor camera views for incident detection and verification to improve incident response and security as well as interstate traffic management. Start Date: 3/1/2003 - End Date: 9/1/2004; ITS Funding: \$172,125 - Total Funding: \$344,250; Partners: FHWA, MNDOT, WISDOT

North/West Passage Corridor Program - The North/West Passage Corridor Program is a multi-state, cooperative initiative supporting ITS deployments along the I-90 and I-94 corridors from Wisconsin to Washington State. The coalition managing the program supports sharing of resources and data to benefit travelers and rural transportation managers. Coalition members include senior DOT representatives from Washington, Idaho, Montana, Wyoming, North Dakota, South Dakota, Minnesota and Wisconsin. MNDOT served as program manager and general administrator in 2002. In support of rapid deployment and integration of ITS technology along the I-90 and I-94 corridors, the coalition has identified major problems and requirements. The project goal is to implement multi-state demonstrations as funding allows. Candidate projects include: Traveler information to include 511 services; Corridor-wide collection and dissemination of weather/pavement condition status; Corridor-wide communications partnerships; Commercial vehicle operations traveler information; Dynamic message sign deployments across borders. Start Date: 1/1/2003 - End Date: 2/1/2004; ITS Funding: \$325,000 - Total Fund: \$650,000; Partners: FHWA, DOT: MN; WA; ID; MT; WY; ND; SD; WI

Advanced Traveler Information System - This project leverages the ITS Integration Program to upgrade MNDOT's traveler information program. MNDOT will integrate sources feeding Advanced Traveler Information Systems and expanding the means of dissemination to travelers. To integrate information from various jurisdictions, data entry interfaces will be developed for non-Minnesota entities to use in entering roadway condition, construction, and incident data. Non-MNDOT data elements will include public and private parking data in the Twin Cities Metro area, as well as construction data on county and local jurisdiction roadways. A variety of dissemination methods are under consideration. Final selection is to be determined. Start Date: 1/1/2003 - End Date: 2/1/2005; ITS Funding: \$500,000 - Total Funding: \$1,000,000; Partners: FHWA,



MNDOT

Airplane Surveillance - The objective of this project is to conduct an operational test of a low cost model airplane to provide aerial closed circuit television surveillance of rural areas along the I-90 (Mega) Corridor. The system to be evaluated consists of a small, unmanned aerial vehicle capable of being remotely controlled, and programmed to fly designated routes along a rural corridor. Technologies integrated into this system include a video camera, GPS system and wireless communications. The project will include a private sector partner capable of exercising leasing options for future surveillance services. Start Date: 4/1/2003 - End Date: 4/1/2004; ITS Funding: \$125,000 - Total Funding: \$250,000; Partners: FHWA, MNDOT

Flood Warning Systems - The objective of this project is to upgrade a high water warning light and signing system deployed on Minnesota Highway 60/59 near Worthington, MN. The project will install a state-of-the-art active sensing system that will automatically warn motorists of hazardous conditions through the use of dynamic message signs, and alerting transportation system/emergency response operators of a potential problem. Potential technologies to be considered include pressure transducers, ultrasonic devices, light beam sensors, in-pavement sensors and video camera detectors. The system will include remote monitoring capabilities enabling operators/dispatchers to view sensor output, dynamic message sign status and messages. Start Date: 2/1/2003 - End Date: 11/1/2003; ITS Funding: \$50,000 - Total Funding: \$100,000; Partners: FHWA, MNDOT

Overheight Detection and Warning System - This project's objective is to install an overheight vehicle detection and warning system at a below-standard height railroad bridge along State Highway 26 in rural Minnesota. The project will enable detection of overheight vehicles, and will provide warning to drivers. The system will use warning signs and bells to direct drivers to take appropriate action. In addition, the system will provide a secondary warning in the interests of public safety. Each roadway device will use both a pulsed visible red and an infrared emitter and detector. The system will also include an audible parabolic bell alarm and a warning sign with alternating flashers. Start Date: 2/1/2003 - End Date: 11/1/2003; ITS Funding: \$50,000 - Total Funding: \$100,000; Partners: FHWA, MNDOT

Research Program - University of Minnesota. This project is a component of an ongoing research effort conducted by the University of Minnesota whose objective is to support ITS deployment and/or integration throughout the state. MNDOT working in partnership with the University of Minnesota's Center for Transportation Studies have identified four research topics: Vehicle and Highway Infrastructure; Modeling, Managing and Operating Transportation Systems; Human Performance and Behavior; Social and Economic Policy Issues. MNDOT has provided the Center for Transportation Studies with goals that research efforts will support. These are: Improving safety and efficiency of travel on interregional corridors; Achieving improved compliance with red lights and other regulatory traffic control; Understanding the nature and impacts of driver distractions on travel safety and efficiency, and improving driver ability to perform safety in a distraction-filled environment. Start Date: 1/1/2003 - End Date: 12/30/2003; ITS Funding: \$1,024,978 - Total Funding: \$2,049,956; Partners: MNDOT; University of Minnesota (Center for Transportation Studies)

Standards Implementation Support. The purpose of this project is to provide standards implementation support for the entire set of ITS integration projects included in the FY 2002 ITS Integration Program for Minnesota Guidestar. This support will be comprised of funding to assist in system deployment and/or integration as required by projects, all of which will implement ITS standards. Start Date: 1/1/2003 - End Date: 1/1/2004; ITS



Funding: \$125,000 - Total Funding: \$250,000; Partners: FHWA, MNDOT

Project Location: Statewide throughout Minnesota

Partner(s): Minnesota DOT is lead and other partners include Federal, State and local agencies and private companies interested in the evaluation and deployment of ITS user services and technologies. Principal State agencies include University of Minnesota, Minnesota State University, Department of Public Safety and the Minnesota State Highway Patrol.

Start Date: March 2003

End Date: Ongoing

**Estimated Total
ITS Funds:** \$4,963,910

**Estimated Total
Project Cost:** \$9,927,820

Contacts:

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Daryl Taavola	Minnesota DOT	(651) 282-2115



MINNESOTA GUIDESTAR PROGRAM - FY 2003

Description:

This section describes the FY 2003 ITS Integration Program developed by Minnesota Guidestar. Minnesota's statewide, integrated ITS program is a multi-year activity guided by a Board of Directors providing strategic direction and oversight of ITS research, field operational tests, deployment support, deployment and integration projects throughout the state. In some cases, projects are continuations of TEA-21 Deployment Program initiatives begun in earlier years. The point of contact for all of these FY 2003 projects, unless otherwise indicated is Daryl Taavola, MNDOT (651) 282-2115.

UNIVERSITY OF MINNESOTA RESEARCH - Each year Mn/DOT, through the University's Center for Transportation Studies (CTS), solicits proposals for projects that will address ITS integration and deployment needs pertaining to currently deployed or planned ITS projects. This project will facilitate integration between traffic agencies (State, county and city) and between transit service providers serving similar trips, but different geographical or customer coverage. This project also provides a long-term perspective for eventual integration of highway, transit and enforcement ITS activities. Specific goals of this project are to develop tools that improve integratability and deployability of ITS projects focused on: (1) Vehicle and highway infrastructure; (2) Modeling, managing and operating transportation systems; (3) Human performance and behavior; (4) Social and economic policy issues, and (5) Transportation security. ITS Funding: \$1,892,500; Total: \$3,785,000. Start Date: 9/30/03; End Date: 12/31/04.

ITS MEGA CORRIDOR/TIGER PROGRAM - This project will be a continuation of the ITS Mega Corridor Project which is intended to address concerns about safety/security, traffic congestion and loss of mobility along the I-94 / TH 10 "Mega Corridor" between the Twin Cities and St. Cloud/Little Falls. This project will also include a Transportation Security element referred to as the "TIGER" (Travel Information Guidance and Evacuation Routing) system. The TIGER infrastructure improvements will consist of both fixed and mobile components and is intended to be resistant to threats posed by terrorist activity or other unforeseen emergencies, using redundant systems to ensure communications at all times. ITS Funding: \$1,500,000; Total Funding: 3,000,000. Start: 4/1/04; End Date: 1/30/07.

DISTRICTS 2, 3A, 4, AND 8 ITS DEPLOYMENT - This project includes the deployment and integration of ITS systems in each of four Mn/DOT districts: Brainerd, MN (Mn/DOT District 3A), Detroit Lakes, MN (Mn/DOT District 4), Marshall, MN (Mn/DOT District 8), Thief River Falls, MN (Mn/DOT District 2). The ITS systems implemented will be determined by the scoping studies underway in those districts. The studies will identify and prioritize each district's transportation needs and evaluate potential ITS solutions to address those needs. They will serve as the base for future ITS deployment activities in each district. The Transportation Operations and Communications Centers (TOCCs) will be the focal point for these efforts, as any deployment will be integrated directly into TOCCs. ITS Funding: \$1,500,000; Total Funding: \$3,000,000. Start Date: 4/1/04; End Date: 12/1/05.

ITS INNOVATIVE IDEAS PROGRAM - The ITS Innovative Ideas Program will provide funds for the Guidestar Board to continue to test new technologies with private partners to help the products benefit travelers. This project will help to test and promote technologies that provide significant benefits while being easily deployed, integrated and maintained. The Guidestar Board has selected two projects for evaluation in 2004. The Red Light Running Project will use video cameras on traffic signals to detect vehicles that run through red lights, and study ways to increase compliance and reduce crashes. The Rural Intersection Warning Project is designed to limit the number of crashes at rural



intersections by alerting drivers of upcoming traffic. ITS Funding: \$100,000; Total Funding: \$200,000. Start Date: 3/1/04; End Date 8/1/05.

WIRELESS VEHICLE PROBE SYSTEM EVALUATION - PHASE 2 - This project will test probe vehicles to collect a variety of real-time information on the roadway network. Of specific interest is the collection of travel time and roadway surface conditions. This information will be used to provide traffic operations staff and motorists with better real-time information on travel times and roadway surface conditions with the aim of improving motorist travel route decisions, of assisting traffic operations staff to better assess control strategies, and of improving maintenance staff response to low traction conditions. The envisioned system will augment roadway infrastructure-based data collection methods. The initial phase of this project will have tested vehicle probes in and around the Twin Cities metropolitan area. This project will test the data collection and wireless data transmissions along the I-94 Corridor. This second phase of the Wireless Vehicle Probe project will instrument a fleet of Minnesota State Patrol vehicles to collect data along the I-94 Corridor from the northwest portion of the I-494/694 ring of the Twin Cities metropolitan area and Saint Cloud. ITS Funding: \$250,000; Total Funding: \$500,000. Start Date: 9/30/2003; End Date: 8/30/2005.

ADVISORY VARIABLE SPEED LIMITS ON FREEWAYS - The goal of this project is to reduce crashes, and ease abrupt changes in traffic flow by using advisory variable speed limit signs (VSL). The speed limit signs will be integrated with existing Road Weather Information Stations (RWIS) units and loop detectors in the road, and post safer driving speeds adapted to prevailing traffic and weather conditions ahead of the driver. This project will place a series of variable speed limit signs at key locations in metropolitan areas with a high number of crashes caused by recurring congestion or weather. Potential sites would include areas with lane drops. This system will assist drivers in adapting to changing driving conditions. While many VSL systems tested in the United States are deployed specifically to deal with recurrent weather conditions, the primary focus of this project will be areas of recurrent congestion, while also collecting and responding to weather data. An algorithm that factors weather and traffic conditions will generate the advisory speeds. Loop detectors or radar detectors will provide the algorithm with traffic speed data, and RWIS stations will provide data on precipitation, visibility, pavement condition, and wind speed. Based on that data, the algorithm will generate an advisory speed for the upcoming length of freeway. The VSL system will also be controlled from the Regional Transportation Management Center, allowing for manual override in case of incidents downstream from the signs. ITS Funding: \$250,000; Total Funding: \$500,000. Start Date: 9/30/2003; End Date: 9/1/2005.

TRANSIT ITS APPLICATIONS - Metro Transit, which offers transit options to residents of the Twin Cities metropolitan area, has proposed three candidate projects for consideration and funding in FY 2004. Project selection is pending, with decision expected in early calendar year 2004. The three candidates include:

- Development of a test corridor for transit signal priority.
- Design and development of a single source of information for business analysis and decision making in support of transit operations. The development of a Data Warehouse would collect and fuse data about vehicle schedules, farebox equipment, global positioning system status, automatic vehicle location system status, and automatic passenger counts.
- Development of an automated police document management system.

ITS Funding: \$200,000; Total Funding: \$400,000. Start Date: 4/1/2004; End Date: 6/30/2005.

ROUTEBUILDER NT (RBNT) PHASE III - Minnesota's DOT's Office of Motor Carriers



has developed an Oversize/Overweight permitting and routing application process contributing to a uniform commercial vehicle management activity statewide. This project continues the development of an automated permit application and issuance process. The purpose of this project, Phase III, is to complete full automation of the permitting process. This enhancement includes total automation of the application, payment, and issuance processes. Automating these transactions will result in cost savings for both the State and motor carriers. RouteBuilder will also be integrated with the Condition Acquisition and Reporting System database and the Bridge Management database to allow for activated updating of bridge and roadway information. ITS Funding: \$200,000; Total Funding: \$400,000. Start Date: 1/2/2004; End Date: 12/31/2004.

ADVANCED TRAVELER INFORMATION SYSTEMS (ATIS) ENHANCEMENTS - This project is a component of a series of initiatives to continuously improve the quality of traveler information in Minnesota. Project activity will be focused on improving data sources by integrating the Minnesota State Patrol's computer-aided dispatch (CAD) system with the Condition Acquisition and Reporting System (CARS) database. The project will develop a system that will send some incident-related data to the CARS server, thus enabling the sharing of relevant traffic incident information with regional traffic management centers and the traveling public. An integral aspect of this project is an effort to increase the volume and quality of traveler information distribution points by supporting public/private partnership initiatives to create new and innovative channels for distributing traveler information. ITS Funding: \$150,000; Total Funding: \$300,000. Start Date: 3/1/2004; End Date: 3/1/2005.

VALUE PRICING DEMONSTRATION - Minnesota has been designated a Value Pricing Demonstration Project state through the Value Pricing Program at FHWA. The state legislature has authorized MNDOT to convert existing HOV lanes to express lanes, also known as high occupancy toll (HOT) lanes.

The purpose of this project is to use value pricing on Interstate 394 in the Twin Cities metropolitan area to reduce congestion and to improve transportation system efficiency by increasing vehicle carrying capabilities of high occupancy vehicle (HOV) lanes which are perceived to be underutilized. The project approach will be to integrate elements of the electronic toll system with the Metropolitan Regional Transportation Management Center, dynamic message signs, and the Bureau of Criminal Apprehension database. Features of the project include:

- Free access to express lanes by carpools and buses.
- Driver of single occupant vehicles will be eligible to access express lanes by paying a toll.
- Automatic toll collection with in-vehicle transponders and readers.
- Use of ITS technologies to support enforcement and traveler information.

ITS Funding: \$250,000; Total Funding: \$500,000. Start Date: 1/2/2004; End Date: 12/1/2005.

ITS HOMELAND SECURITY INITIATIVES - This project addresses Minnesota's transportation-related security endeavors, which to date, have not been placed in the context of a long-term strategy. The project objective is to enhance the safety and security of the surface transportation network in Minnesota by assessing current conditions, comparing state-of-the-practice approaches in other areas of the nation, and developing a road map for future enhancements. The project will strive to develop a coordinated strategy for safeguarding Minnesota's transportation system, and coordinating the activities of several agencies. ITS Funding: \$125,000; Total Funding: \$250,000. Start Date: 3/1/2004; End Date: 3/1/2005.



STANDARDS IMPLEMENTATION SUPPORT - This project establishes a contingency fund to provide funding for ITS Standards implementation on an as needed basis. ITS Integration Program earmarked projects initiated in FY 2002 are approaching phases where standards implementation issues are surfacing. ITS project management experience has demonstrated that funding projections for standards implementation are overly conservative. Projects initiated in FY 2002 will be able to submit requests for funding to ensure the deployment of systems and components are consistent with National ITS Standards. ITS Funding: \$125,000; Total Funding: \$250,000. Start Date: 1/2/2004; End Date: 1/31/2005.

Project Location: Statewide throughout Minnesota

Partner(s): Minnesota DOT is lead and other partners include Federal, State and local agencies and private companies interested in the evaluation and deployment of ITS user services and technologies. Principal State agencies include University of Minnesota, Minnesota State University, Department of Public Safety and the Minnesota State Highway Patrol.

Start Date: September 2003

End Date: Ongoing

**Estimated Total
ITS Funds:** \$6,770,000

**Estimated Total
Project Cost:** \$13,540,000

Contacts:

James McCarthy	FHWA Minnesota Division, HDA-MN	(651) 291-6112
Daryl Taavola	Minnesota DOT	(651) 282-2115



MISSISSIPPI

HARRISON COUNTY PUBLIC SAFETY AUTOMATED SYSTEM PROJECT (ASP)

Description:

This project is the FY 2002 ITS Integration Program earmark for Harrison County Mississippi. The project focuses on developing a reliable, multi-agency public safety communications network to facilitate regional information sharing. This phase of the project builds on previously initiated 800 MHz trunked radio system aimed at providing interoperable voice communications among law enforcement agencies in Harrison County. Expanded project activity will provide tri-county (Harrison, Hancock and Jackson Counties) data transmission infrastructure facilitating both fixed site and mobile information sharing. Congressionally-directed funding will be used to acquire public safety support software required to exchange information and data between systems and laptop computers. Funding for this project is also provided by a \$6 M U.S. Department of Justice federal appropriation.

Funding for this project was supplemented by a FY 2003 ITS Integration Program earmark in the amount of \$623,957 which was matched through several funding sources to include Department of Justice funds from the \$6M earmark specified for the project under FY 2002 funding. Added funding will significantly advance this project's goal of developing an integrated data information sharing system to enhance public safety within Harrison County and the Gulf Coast region.

Project Location: Harrison County, Mississippi

Partner(s): FHWA, Mississippi DOT; Harrison County; Harrison County, Jackson County and Hancock County Sheriffs' Departments, ASP Steering Committee

Start Date: October 2002

End Date: April 2006

Estimated Total ITS Funds: \$1,037,616

Estimated Total Project Cost: \$2,075,232

Contacts:

Michael Cribb	FHWA Mississippi Division, HDA-MS	(601) 965-4223
Major Julian Allen	Harrison County Sheriff Department	(228) 865-4595



HATTIESBURG, MISSISSIPPI ITS PROJECT

Description: This project is the FY 2001 ITS Integration Program earmark for the City of Hattiesburg, MS. Project objectives include integrating the City's Traffic Management Center with the Mississippi DOT control center and freeway management infrastructure elements. The project will be implemented in ten phases, with the first two phases being included in the FY 2001 increment. Phase 1 includes integration of seven signalized intersections, while phase 2 will incorporate signal upgrades to be accomplished by MS DOT. The project will integrate the improved Traffic Signal Control System with Incident Management and Emergency Services Management Systems by providing means to exchange information and manage traffic more efficiently. The upgraded Traffic Management Center is to be integrated with traffic signal locations, video detection devices, and emergency vehicle priority control systems.

Project Location: Hattiesburg, Mississippi

Partner(s): FHWA, Mississippi DOT, City of Hattiesburg

Start Date: November 2003

End Date: April 2006

**Estimated Total
ITS Funds:** \$396,807

**Estimated Total
Project Cost:** \$795,364

Contacts:

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Bob Mabry	Mississippi DOT	(601) 359-1454
Richard Thompson	City of Hattiesburg	(601) 545-4541



ITS DEPLOYMENT AND INTEGRATION PROJECT, OXFORD, MISSISSIPPI

Description:

This project was initiated as the FY 2000 ITS Integration program earmark for Oxford, Mississippi. The project is categorized as a rural area deployment project, and is being managed by the University of Mississippi's Center for Advanced Infrastructure. The project was extended and expanded by FY 2002 ITS Integration Program earmark funding for Oxford in the amount of \$413,659, which was matched from a variety of funding sources for a total FY 2002 allocation of \$827,318.

This project presents the City of Oxford's vision for deployment and integration of ITS technology in a small urban/rural area with varied transportation-related activities associated with the University of Mississippi, a federal court, and a regional hospital, all of which contribute to the City's status as a business, commercial and education center for a large geographical area. The project examines the increased traffic congestion, and safety challenges. The project seeks to integrate advanced digital mapping, Geographical Information System (GIS), database management, the Internet, emergency response services, transit, and public safety components with real-time advanced traffic management to benefit all users of the transportation system.

The backbone of the project is the development of a digital terrain mapping database for Oxford and surrounding communities using airborne laser and photo technology which are then incorporated into a comprehensive GIS. The database will be integrated with advanced traffic surveillance equipment, and used for incident management by law enforcement agencies, emergency response services as well as online information access by travelers. Additionally, the project will implement a plan for a pilot public transit service, leveraging automatic vehicle location technology.

FY 2002 funding will implement plans to alleviate traffic congestion, and parking problems. A central focus will be on event management centered on the University of Mississippi. Key elements include:

- Activating a Traffic Operations Control Center (TOCC) with video monitoring capability.
- Development of a transit plan.
- Implementation of traffic control systems integrated with the TOCC to support event management and emergency response.
- Implementation of a parking management plan.

Project Location: Oxford, Mississippi

Partner(s): FHWA; FTA; Mississippi DOT; University of Mississippi Center for Advanced Infrastructure Technology; City of Oxford, Mississippi

Start Date: October 2001

End Date: April 2006



**Estimated Total
ITS Funds:** \$1,593,291

**Estimated Total
Project Cost:** \$3,186,582

Contacts:

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Jeff Altman	Mississippi DOT	(601) 359-7675
Dr. Hugh Sloan	UM School of Business Administration	(662) 915-7414



JACKSON METROPOLITAN

Description: This project is the FY 2002 ITS Integration Program earmark for Jackson, Mississippi. The project seeks to address periodically extensive vehicle delays in Jackson's Central Business District at the convergence of several railroad tracks and their associated crossings. Expanding north-south and east-west rail traffic through central Jackson has caused extensive delays and potential safety hazards. This project will integrate dynamic message signs, planned for deployment on interstates and city streets, with the City of Jackson's Traffic Management Center (TMC) and the Mississippi Department of Transportation's TMC. The project will provide advanced warning messages to motorists and emergency services to facilitate rerouting around blocked arterials and freeway entrance/exit ramps. The project will leverage previously installed fiber optic-based connectivity between the two TMCs which allows sharing of data and video surveillance between the facilities.

Project Location: Jackson, Mississippi

Partner(s): FHWA, Mississippi DOT, City of Jackson, Kansas City Southern Railroad, Canadian National/Illinois Central Railroad

Start Date: October 2002

End Date: April 2006

**Estimated Total
ITS Funds:** \$413,659

**Estimated Total
Project Cost:** \$827,318

Contacts:

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Dan Gaillet	City of Jackson	(601) 960-1651



JACKSON, MISSISSIPPI INTELLIGENT TRANSPORTATION SYSTEM IMPLEMENTATION

Description:

This project is the result of long range planning and inter-agency cooperation. The first elements of the Jackson Metropolitan ITS were deployed in 1994. City bond money and State planning funds have been used to expand the system over the past six years. The City has a Traffic Management Center (TMC) that controls 156 signalized intersections with video surveillance at ten intersections. The Mississippi Department of Transportation (MDOT) also has a TMC that will be integrated with the Jackson TMC. This integration with the MDOT TMC will add coverage to seven additional City-maintained traffic signals. The City will gain access to a video surveillance camera on the main approach to the Jackson Municipal Airport located outside of the city limits. MDOT will be able to monitor all of the traffic signals on the City system. All ten video cameras will be shared with MDOT giving them the ability to monitor a good portion of I-55 on the north side of Jackson. Additionally, the integration of the State and City centers will also allow the implementation of the early stages of incident management.

This project has been expanded in scope and funding by the allocation of funding appropriated by the FY 2001 ITS Integration Program earmark for Jackson, MS. FY 2001 funding builds on FY 99 integration activities. The project focus is the integration of a Traveler Information System with the City's Transit Management System. A fiber optic backbone is the principal vehicle for integrating the City's ITS infrastructure. An additional dimension of integration is a link to the County Emergency Operations Center. FY 2001 funding will contribute to implementation of and integrating:

- Traffic Management
- Emergency Services Management
- Transit Management; and
- Regional Multimodal Traveler Information Services.

Planning calls for integrating Amtrak rail information with Greyhound, and the regional transit provider with Jackson International Airport and the taxi system.

Funding amounts depicted below under "Current Project Cost Estimate" include FY 2001 funding.

Project Location: Jackson, Mississippi

Partner(s): Mississippi DOT; City of Jackson, MS; Jackson Municipal Airport Authority

Start Date: January 2000

End Date: April 2006

Estimated Total ITS Funds: \$1,585,085

Estimated Total Project Cost: \$3,173,667



Contacts:

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Daniel Gaillet	Manager, City of Jackson	(601) 960-1651



SOUTHAVEN, MISSISSIPPI ITS PROJECT

Description: This project is the FY 2001 ITS Integration Program earmark for Southaven, MS. The project is focused on deployment and integration of ITS technology to improve safety and efficiency for travelers in Southaven. Two priorities will guide the project: deployment of preemptive traffic signal control; and integration of this capability within 25 signalized intersections. Public safety agencies - Fire, Police, EMS - will be the principal system users, with accompanying major safety benefits to vehicle traffic by providing safe access for emergency vehicles through heavily congested intersections.

Project Location: Southaven, Mississippi

Partner(s): FHWA, Mississippi DOT, City of Southaven

Start Date: October 2001

End Date: April 2006

Estimated Total ITS Funds: \$119,042

Estimated Total Project Cost: \$238,610

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Jeff Altman	Mississippi DOT	(601) 359-7675
William Lancaster	Neel-Schaffer, Inc.	(662) 342-9921
Chris Wilson	City of Southaven	(662) 393-6939



SPILLWAY ROAD PROJECT

Description:

This project is the FY 2002 ITS Integration Program earmark for Rankin and Madison Counties, Mississippi. The project objective is to implement an incident management system servicing a corridor (Spillway Road) that traverses the Ross Barnett Reservoir which provides the water supply for much of the Jackson Metropolitan area. Frequent crashes on Spillway Road result in extensive traffic delays due to high traffic volumes and long response times. This project will deploy incident management system capabilities centered around video cameras installed along Spillway Road and monitoring devices in the Spillway Tower. Spillway Tower is staffed 24 hours per day providing continuous monitoring capability. Tower staff will dispatch reservoir patrol units with significantly improved response times and reduced motorist delays. This incident management capability will be integrated with Advanced Traffic Management Systems in the Cities of Jackson and Ridgeland as well as the Mississippi Department of Transportation which will upload CCTV video on its Web site.

A fiber-optic cable-based communications network will be accessible along the entire length of this project which will provide system interface and integration functionality.

Project Location: Rankin and Madison Counties, Mississippi

Partner(s): FHWA; Mississippi DOT; Pearl River Valley Water Supply District; City of Ridgeland, MS

Start Date: September 2002

End Date: February 2006

**Estimated Total
ITS Funds:** \$496,391

**Estimated Total
Project Cost:** \$992,782

Contacts:

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Robert Walker	Neel-Schaffer, Inc	(601) 608-2267



STATE OF MISSISSIPPI ITS INTEGRATION PROJECT

Description: The Mississippi Department of Transportation is currently working on two projects to be funded by ITS funds. These projects are as follows:

- The MDOT Office of Enforcement in collaboration with the Planning Division will fund 10 additional Weigh In Motion (WIM) sites. These new sites, in conjunction with the other 19 sites, will provide statewide vehicle data to all participating project partners.

- A Statewide feasibility study will be conducted to help determine traffic needs that can be enhanced with the implementation of an ITS. The study will look into all aspects of transportation and will consider benefits to the MDOT as well as the traveling public. These implementations to the traffic network will be shown using the National ITS Architecture. The consultant will also research means to make WIM available, via the Internet or through a database, to all partners.

Project Location: State of Mississippi

Partner(s): Mississippi DOT, Mississippi Public Service Commission, Mississippi Trucking Association

Start Date: January 2000

End Date: April 2006

**Estimated Total
ITS Funds:** \$441,470

**Estimated Total
Project Cost:** \$883,000

Contacts:

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MISSOURI

BRANSON TRIP/SPRINGFIELD DISCOVERY REGIONAL INTERCONNECT

Description: This FY 2000 earmarked project builds on a successful field operational test initiated in 1996. The Branson TRIP (Travel and Recreational Information Program) project deployed an advanced traveler information system which provided up-to-date traffic, weather and other travel-related information to visitors in the Branson, MO area. The primary means of information dissemination were variable message signs, Highway Advisory Radio, Kiosks, Websites and Interactive Voice Response Systems.

Concurrently with the development of Branson TRIP, Springfield and the Missouri Department of Transportation developed the traffic signal management system housed in the Springfield Discovery Center. This project has several state of the art cameras that monitor major intersections within the Springfield Metro area. Traffic engineers utilize the cameras to monitor traffic flows, thus determining timing for area signals to provide free flowing traffic with as little start/stop delays as possible, maximizing the efficiency of vehicle travel times within the City of Springfield.

The objective of this FY 2000 earmark is to connect the Branson and Springfield travel management infrastructure. This integration will enable enhanced traffic management and information sharing over an expanded geographic region, thus providing alternative route selection to drivers 40 to 50 miles before reaching their destinations.

Project Location: Branson/Springfield, Missouri Region

Partner(s): FHWA, Missouri DOT, City of Springfield, City of Branson

Start Date: September 2000

End Date: April 2006

**Estimated Total
ITS Funds:** \$786,421

**Estimated Total
Project Cost:** \$1,089,421

Contacts:

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Laurel McKean	Missouri DOT	(417) 895-7636



GATEWAY GUIDE ENHANCEMENT

Description: This FY 2000 earmarked project will install additional field devices to the freeway management and incident management infrastructure covering interchanges and major river crossings in the St. Louis area. Included among field components are detector stations, cameras, and ramp metering devices that would connect to an existing communications network. This added surveillance and information dissemination capability, supplemented by Automatic Vehicle Location system expansion on roadside assistance vehicles, will expand existing incident response capability. The project will develop and deploy software and roadside device components for automatic lane control signals along I-64/US Route 40 corridor at the Missouri River Bridge.

Project Location: St. Louis, Missouri Regional Area

Partner(s): FHWA, Missouri DOT, East-West Gateway Coordinating Council, Metro St. Louis, City of Chesterfield Police Dept., City of Town and Country Police Dept.

Start Date: September 2000

End Date: March 2006

**Estimated Total
ITS Funds:** \$786,421

**Estimated Total
Project Cost:** \$1,068,421

Contacts:

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Teresa Krenning	Missouri DOT	(314) 340-4317



KANSAS CITY REGION INTEGRATED AUTOMATION SYSTEM DEVICES

Description: The objective of this FY 1999 ITS Integration Program project is the deployment of Integrated Automation Management System Devices (computer hardware) for the new Traffic Operation Centers (TOC) in the Kansas City Region. These devices will serve as the central processing units for the Kansas City Region. The operations of Freeway, Incident and Corridor Management Subsystems will be controlled through these devices. Center-to-center communications between other region partners (emergency services, transit, information service providers, etc.) and other Midwest cities in Illinois, Kansas, Iowa, Nebraska, etc., will result as part of sharing regional transportation information. Completion of this project has been delayed by a requirement to integrate systems with a related project, the Kansas City Scout Freeway Management System, whose software has been delayed.

Project Location: Kansas City Region

Partner(s): Missouri DOT, Kansas DOT, Mid-America Regional Council, LightCore

Start Date: September 1999

End Date: April 2006

**Estimated Total
ITS Funds:** \$395,735

**Estimated Total
Project Cost:** \$795,735

Contacts:

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Ray Webb	Missouri DOT, District 4	(816) 622-0520	



KANSAS CITY SCOUT

Description: This project combines the FY 2000 earmarks for Kansas City and Clay County, Missouri. The project's objective is to improve Incident Management and Freeway Management systems in the bi-state Kansas City metropolitan area. Among existing systems to be integrated by Kansas City SCOUT are vehicle detection devices, closed circuit television cameras, and dynamic message signs. These components are deployed along the 50 most congested freeway miles and will be linked to a Traffic Operations Center (TOC) scheduled to be operational in late CY 2001. The FY 2000 earmarked funding is targeted for hardware procurement for the TOC, design and installation of ITS field devices covering the Missouri River bridge crossings in Clay County, the development of integrated software for transit, and the deployment of ramp metering in Phase 1 of the project.

Project Location: Kansas City Metropolitan Area (including Clay County)

Partner(s): FHWA; MODOT; Kansas City Area Transportation Authority; Mid-America Regional Council; Clay County Highway Dept.

Start Date: September 2000

End Date: April 2006

**Estimated Total
ITS Funds:** \$1,022,000

**Estimated Total
Project Cost:** \$2,044,000

Contacts:

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KANSAS CITY SMARTPORT

Description:

This project originated as a FY 2003 ITS Integration Program earmark for the bi-state Kansas City Metropolitan area. The SmartPort project was augmented by a FY 2004 ITS Integration Program earmark that advanced the project to a testing phase.

The Mid-America Regional Council (MARC) used FY 2003 earmarked funding to conduct planning studies, develop user and system requirements, a systems architecture and define the physical components for the Kansas City SmartPort. MARC coordinated the development of the project with regional deployment of I-35/I-29, ITS CVO Strategies, Kansas and Missouri CVISN programs, and the Kansas City Scout Advanced Traffic Management System. FY 2003-funded efforts also explored linkages to new federal agency border enforcement programs, as well as establishing a concept plan for providing on-site or virtual access to trade facilities and business services in the Kansas City and surrounding regions in support of the development of a one-stop shop for international trade and transportation services. FY 2003 earmarked funding was allocated in the amount \$415,971. Matching funds brought the FY 2003 total to \$831,942.

A FY 2004 ITS Integration Program earmark in the amount of \$200,000, supplemented with matching funds of \$280,000, is being applied to design and conduct an operational test of candidate systems identified in the planning phase that have the potential to improve the operational efficiency of the region's existing freight transportation infrastructure.

Project Location: Kansas City, Kansas, Missouri

Partner(s): FHWA; Mid-America Regional Council; Kansas Department of Transportation; Missouri Department of Transportation.

Start Date: April 2004

End Date: March 2006

Estimated Total ITS Funds: \$615,971

Estimated Total Project Cost: \$1,311,942

Contacts:

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KANSAS CITY, MISSOURI

Description:

This is the FY 2001 ITS Integration Program earmark for Kansas City, Missouri. The project will focus on integrating the Kansas City Scout freeway management system component with the Operation Green Light arterial management component through the deployment of roadside communications equipment and central control hardware and software for traffic signals at priority interchange ramps. These priority interchange ramps will provide an operational interface between the regional freeway and arterial management systems.

In addition to this work, the KC Scout will continue implementation of field device controllers and software that will enable the region to have state of the art equipment capable of operating many different applications, much like an advanced traffic controller. There will be a fully integrated ATMS workstation within the Traffic Operations Center that allows an operator, through a single software system, to move cameras, collect and read traffic data, contact outside agencies that are needed for incident management, and send real-time traveler information to the users of the transportation network.

Another element critical to the success of this system is the field controller. Up to this point in time all freeway ATMS have had to use traditional traffic signal controllers (170, 2070, etc.) because of their ability to collect loop data. KC Scout will develop and deploy a field-hardened, general-purpose computer for embedded applications, with the appropriate software and hardware to perform several specific applications for transportation management.

Another ITS deployment initiative underway in the Kansas City metropolitan area is the installation of an AVL system to the area's transit system. The transit improvement involves the replacement by the KCATA of its outdated signpost AVL system with GPS technology. This initiative will continue to develop and integrate interfaces needed to allow data collection from transit vehicles and to share data between stakeholders as identified in the regional architecture.

Project Location: Kansas City, Missouri

Partner(s): FHWA; FTA; Missouri DOT; Kansas DOT; Mid-America Regional Council (MARC); Kansas City Area Transportation Authority (KCATA); Kansas City, Missouri; Wyandotte County/Kansas City, Kansas.

Start Date: September 2001

End Date: April 2006

**Estimated Total
ITS Funds:** \$992,018

**Estimated Total
Project Cost:** \$1,984,036



Contacts:

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SPRINGFIELD-BRANSON REGIONAL INTELLIGENT TRANSPORTATION SYSTEM

Description:

This project is the FY 2001 ITS Integration Program earmark for Springfield-Branson, Missouri. The project builds on the FY 2000 earmark, Branson TRIP/Springfield Discovery Regional Interconnect.

The existing Springfield/Branson Regional system operates as several independent components. These include traffic signal management, Branson TRIP (traveler and information program), emergency response and emergency management proprietary systems, City of Springfield transit management system, and the multi-modal database developed by the regional airport. The Branson TRIP and traffic signal management components are currently being integrated as part of Phase II of the regional system.

Software deployed at the TMC and the associated communications system will enable the integration of these systems into a central location. A centralized system will enhance coordination efforts of traffic congestion management, incident response and traveler information dissemination in the region. Existing systems will be connected into the TMC to assure that notification of incidents and congestion can be easily verified and shared with all users. The system will be expandable and support future development and additional components into the future.

Once the software has been developed, the appropriate field equipment will be deployed. Expected equipment includes dynamic message signs located along major arterials, surveillance cameras for incident verification, highway advisory radio for traveler information, and traffic detectors to collect traffic data for congestion notification.

Project Location: Springfield-Branson, Missouri

Partner(s): FHWA, FTA, Missouri DOT, Cities of Springfield and Branson

Start Date: September 2001

End Date: April 2006

**Estimated Total
ITS Funds:** \$595,211

**Estimated Total
Project Cost:** \$1,190,422

Contacts:

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ST. LOUIS REGION SMART INTEGRATED METROPOLITAN AREA MAP

Description:

The objective of this FY 1999 ITS Integration Program project is the development of a Smart Integrated Metropolitan Area Map for the St. Louis region. The development of a common base automated map display that can be used to disseminate information to all local transportation service providers and partners is a critical step in the development of an integrated regional transportation network.

This project's development schedule has been extended due to delays in software development in a related project on which it is dependent.

Information from freeway, incident and corridor management subsystems will be displayed on this common base map. It will be a key part to this region's transportation integrated network. The St. Louis Metropolitan Planning Organization (East West Gateway Coordinating Council - EWGCC) region extends into two states and has over 100 local governmental entities. The following developmental components of this common base map are:

- Identification of User Needs - Data Collection.
- Establishment of Mapping Requirements.
- Development of Architecture and Design.
- Digitalization of Transportation Facilities.
- Testing and Evaluation.
- Deployment to Regional Partners.
- Maintenance of Map.

Many agencies presently need and use mapping information in the St. Louis Metropolitan Area. They have developed their own base maps to reflect the many different services they provide (water, sewer, transportation facilities, etc.). These activities will be expanded and enhanced to develop an integrated map.

With the Intelligent Transportation System about to become a reality in the area, a need for a base map that would match the maximum number of jurisdictions (with well over 100 local agencies) is highly desirable. The standard setting inherent in this map will both identify the current differences, confirm interfaces or modifications, and allow entry anywhere on the system. This would reduce or eliminate data re-entry to provide the regional information.

Project Location: St. Louis Region

Partner(s): Missouri DOT, Illinois DOT, The East West Gateway Coordinating Council, St. Louis Metropolitan Planning Organization

Start Date: September 1999

End Date: March 2006



Estimated Total ITS Funds:	\$593,602
Estimated Total Project Cost:	\$1,193,602

Contacts:

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ST. LOUIS, MISSOURI

Description:

This project is the FY 2001 ITS Integration Program earmark for St. Louis, MO. The objectives of this project are increasing public transportation ridership, and improving customer satisfaction among current transit riders. The strategies to be implemented to achieve project objectives include providing traveler information, improving reliability, and enhancing quality of service and accountability. Interagency sharing of real-time transit information among regional stakeholders is expected to provide secondary benefits in improved traffic flow, transit vehicle mobility, and improved safety.

Along with Metro St. Louis, Illinois Department of Transportation (IDOT), and East-West Gateway Coordinating Council (EWGCC), the Missouri Department of Transportation (MoDOT) has been developing and implementing various elements of an Intelligent Transportation System (ITS) in the St. Louis area. This includes the installation of roadway devices, such as detectors, cameras, and dynamic message signs, Automatic Passenger Counter systems on buses and lightrail trains, and incident response operations.

Included in the project is the broadening of a regional mapping system available for application by MoDOT, Metro St. Louis, IDOT, and EWGCC. This will allow all agencies to have access to a common base map and a multitude of informational layers. In addition, the project will develop and install an Automated Vehicle Location (AVL) real time passenger information system on transit express buses traveling across city, county, and state boundaries. This information will be utilized by Metro St. Louis to minimize passenger wait times and vehicle delays, increase ridership, and improve rider satisfaction. In addition, the project will integrate the traffic flow data into existing MoDOT and IDOT transportation management systems.

The freeway system has existing vehicle detectors, cameras, and dynamic message signs. Additional devices will be installed with other future projects. The data, such as travel times and speeds, available through the AVL system will strengthen the information from the existing traffic and transit systems. Transit schedules are dependent on estimated travel times for each bus route. The project will allow more dynamic scheduling along these routes. Travelers can be given estimated bus expectancy times at each stop by way of dynamic message signs and kiosks. This can have a large impact on the reliability aspect of the transit system and can encourage more ridership. The data from the traveling buses will be integrated into and used in the existing freeway management system. This project element will develop and install the necessary hardware and software for an AVL system, including specifications for equipment, testing and acceptance of the system.

The other element of the project integrates mapping systems already in place by each agency. The project includes the inventory of existing mapped features and technologies used to accomplish that, identifying a system map accessible and useable by all agencies, and developing and installing the necessary software and hardware interfaces to incorporate the informational layers needed by each agency. This commonality will ensure accurate exchanges of information as they relate to incidents, freeways, and transit.

Project Location: St. Louis, Missouri Regional Area

Partner(s): FHWA, FTA, Missouri DOT, Illinois DOT, Metro St. Louis, East-West Gateway Coordinating Council (EWGCC)



Start Date: September 2001

End Date: June 2007

**Estimated Total
ITS Funds:** \$396,807

**Estimated Total
Project Cost:** \$793,614

Contacts:

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MONTANA

BOZEMAN PASS WILDLIFE CHANNELIZATION

Description:

This project is the FY 2003 ITS Integration Program earmark for Bozeman, MT. The project goals are to protect and improve wildlife connectivity and motorist safety by reducing negative wildlife-vehicle interactions through the deployment of ITS devices. These goals will be pursued by implementing measures to reduce animal-vehicle collisions while concurrently improving opportunities for wildlife movements across the portions of the I-90 transportation corridor in the Bozeman Pass area between Bozeman and Livingston, MT. ITS technologies will be used to raise driver awareness of the presence and movements of wildlife in the Bozeman Pass area. ITS infrastructure to be deployed includes a standalone closed-circuit television camera with video recorder. The project will also leverage existing dynamic message signs and highway advisory radio systems. To complement ITS infrastructure, fencing will be erected to funnel wildlife through an existing I-90 underpass. The project will conduct an extensive evaluation of the impacts of the use of dynamic message signage and highway advisory radio. Evaluation focus will be on:

- Motorists' awareness of messages.
- Reduction in motorists' speeds.
- Reductions in animal-vehicle collisions.

Additional tasks incorporated in this project include:

- Collection and analysis of field data on wildlife traffic victims and property damage.
- Data analysis of road-kill and behavioral crossing data.
- Quantification of costs related to animal carcass removal and disposal.
- Quantification of costs associated with dynamic message signs.
- Quantification of the cost-effectiveness of dynamic message signs and highway advisory radio messages.

Project Location: Interstate 90, Bozeman, Montana

Partner(s): FHWA, U.S. Department of Energy, Montana DOT, National Park Service; Western Transportation Institute-Montana State University (WTI/MSU), Craigheads Environmental Research Institute, American Wildlands

Start Date: October 2003

End Date: January 2006

**Estimated Total
ITS Funds:** \$207,986

**Estimated Total
Project Cost:** \$643,333

Contacts:

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Amanda Hardy	WTI/MSU	(406) 994-2322	



LEWIS AND CLARK INTELLIGENT KIOSK PROJECT

Description:

This project is the FY 2001 ITS Integration Program earmark for the segment of the Lewis and Clark National Historical Trail in Montana. The project addresses the challenge of delivering accurate and up-to-date transportation and traveler information along the Lewis and Clark Trail. Project planners are concentrating on Internet dissemination systems, touch-screen kiosks and the delivery of content to hand-held devices.

This initial research and development project is intended to be the first phase of a five year concept designed to identify, develop and integrate existing ITS with other resources such as NOAA Weather information to disseminate transportation and traveler information to visitors along the Trail. The project will focus geographically on the portion of the Lewis and Clark trail in Montana.

The goal of Phase One is to identify the relevant technologies that will be necessary to build a "Trail wide" information delivery system that integrates a number of existing and evolving ITS systems with content that could assist travel planning and rural economic development through increased tourism activity. During the first phase, the project will explore a number of new technologies and delivery systems which aggregate traveler information from six different sources and distribute it to travelers via touch screen kiosks, hand held devices, Web sites and as public service announcements on local cable stations. The completion of the first phase will end in the installation and implementation of a series of state-of-the-art kiosk systems in Lewis & Clark (L&C) pilot sites in Montana. Touch screen monitors will be the primary means of disseminating information on road and weather conditions. As additional funds become available the intention is to extend the concepts proven here first on a regional basis and finally along the entire Trail.

Project Location: Montana

Partner(s): FHWA, Montana DOT, Information Technology Resource Center- University of Montana, Western Transportation Institute-Montana State University, VIAs, Montana Lewis and Clark Bicentennial Commission, Polar Bear Productions, NCR, ESRI

Start Date: September 2001

End Date: April 2006

**Estimated Total
ITS Funds:** \$496,009

**Estimated Total
Project Cost:** \$994,734

Contacts:

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Ross Tervo	Montana DOT	(406) 444-9248	
Lynn Churchill	Univ. of MT - Information Technology Resource Ctr.	(406) 243-5350	



ROADSIDE ANIMAL DETECTION SYSTEMS

Description:

This project is the FY 2002 ITS Integration Program earmark for Montana. The project will create the Roadside Animal Detection Systems Test-bed (RADS Test-bed). This system will: (1) provide accurate monitoring of animal presence through infrared cameras; (2) permit several animal detection vendors to contribute their systems into the test-bed; and (3) ultimately facilitate deployment of dynamic warning signs that will be activated when animals are detected on the roadside. Project objectives envision successful deployment of an animal detection/driver warning system, and provide baseline data on the accuracy/effectiveness of various detection systems.

The precursor to this project is an ongoing effort called the Animal Vehicle Crash Mitigation Using Advanced Technologies Pooled Fund Study. Initiated in January 2000 under the sponsorship of the Western Transportation Institute (WTI) and the Oregon Department of Transportation, the initiative seeks to quantify the effectiveness of potential solutions for animal-crash mitigation employing advanced technologies. The pooled fund study's goal is to demonstrate and evaluate animal detection systems that alert motorists with dynamic signing. This effort will deploy two roadside demonstration sites in Montana. Before the RADS test-bed effort is launched, an assessment of these two animal detection and sign activation sites on driver behavior will be completed. With this background, the purpose of the RADS Test-bed is to equip a typical roadside environment known to have high levels of animal movement with cameras, control modules and data collection equipment. Vendors with animal detection systems will be invited to set up their equipment on this test-bed for evaluation by WTI. WTI will synthesize results into a report for each detection technology to include development of a cost-benefit analysis for each system. This information will be provided to transportation professionals to support decision making for investments to protect drivers and animals against animal vehicle crashes.

Project Location: I-15 Montana

Partner(s): FHWA, Montana DOT, Western Transportation Institute-Montana State University, Humane Society, AAA Foundation

Start Date: September 2002

End Date: February 2009

**Estimated Total
ITS Funds:** \$415,659

**Estimated Total
Project Cost:** \$827,318

Contacts:

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Ross Tervo	Montana DOT	(406) 444-9248	



NEBRASKA

AUTOMATIC VEHICLE LOCATION (AVL) SYSTEM FOR STARTRAN

Description:

This project is a FY 2004 ITS Integration Program earmark for Lincoln, Nebraska. The project objectives are to improve bus fleet operations, passenger safety and security. These objectives will be pursued through the deployment of Automatic Vehicle Location (AVL) technology. The project is a stand-alone deployment that holds the potential for subsequent integration with other metropolitan transportation infrastructure.

The agency implementing AVL is StarTran, a division of the City of Lincoln, NE Public Works and Utilities. The AVL system project would leverage the existing AVL communications infrastructure at Metro Area Transit (MAT), the public transit provider in Omaha. The StarTran server will be used as a backup for the MAT server, which will reciprocate for the StarTran server in case of outages.

Servers located at each transit provider's site will have the capacity to accommodate the total vehicle fleet from both systems. Firewalls will be established between systems to secure individual agency priority data, but there will be agreements to share data in the event of national security contingencies.

Project Location: Lincoln, Nebraska

Partner(s): FHWA; StarTran/City of Lincoln; Metro Area Transit, Omaha, NE.

Start Date: May 2005

End Date: May 2007

Estimated Total ITS Funds: \$861,587

Estimated Total Project Cost: \$2,067,797

Contacts:

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Glenn Knust	StarTran	(402) 441-8317



FY 2000 BUFFALO COUNTY RURAL TRANSIT PROJECT

Description:

This project is a component of the FY 2000 ITS Integration Program State of Nebraska earmark. The Buffalo County, Nebraska ITS Project is designed to start the first phases of ITS technology in Buffalo County. The goal of the project is to place in Buffalo County the necessary technological framework that will allow for the following three events:

- Deploy the technology needed to accommodate additional growth in transit usage throughout the county.
- Provide interoperability with technology being deployed by other state, local and federal agencies.
- Establish a cooperative effort to enable future implementation of transportation technologies across agency lines.

Project Location: Buffalo County, Nebraska

Partner(s): FHWA, Nebraska Dept. of Roads

Start Date: April 2001

End Date: April 2006

**Estimated Total
ITS Funds:** \$40,000

**Estimated Total
Project Cost:** \$80,000

Contacts:

John Perry

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(402) 437-5974



FY 2000 DISTRICT 3 & SOUTH SIOUX CITY SIGNAL AND TRAFFIC CONTROL SYSTEM INTEGRATION STUDY

Description: This project is a component of the FY 2000 ITS Integration Program State of Nebraska earmark. The project will conduct a Signal Systems Integration Study to include a project architecture. The scope of the study includes an analysis of integration options for two existing traffic signal systems, and a local incident management system. The integration alternatives for the local communications infrastructure and existing signal preemption devices will be assessed, and folded into the study results which will provide a framework for improving traffic management capabilities in the Sioux City area.

Project Location: South Sioux City, Nebraska

Partner(s): FHWA, Nebraska Dept. of Roads, South Sioux City, SIMPCO

Start Date: May 2002

End Date: April 2006

**Estimated Total
ITS Funds:** \$14,000

**Estimated Total
Project Cost:** \$28,000

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FY 2000 JOINT OPERATIONS CENTER (JOC) CONCEPTUAL DESIGN AND SYSTEMS INTEGRATION

Description:

This project is a component of the FY 2000 ITS Integration Program State of Nebraska earmark. The project is designed to integrate existing ITS systems and legacy systems owned by project partners in the state to provide a coordinated and integrated system for emergency management, public safety services and transportation management. Existing ITS systems to be evaluated for inclusion include, but are not limited to, systems in the metropolitan areas of Omaha, Lincoln, the I-80 corridor and the Nebraska Department of Roads (NDOR) districts across the state. Existing communications systems (Emergency Management Systems, NDOR Maintenance, Rural Transit, three area airports, WIM, intercity transit, NSP, RWIS, Dynamic Message Signs, Commercial Vehicle Information System Networks, proprietary surveillance and Traveler Information Kiosks) will be examined by a qualified, interdisciplinary ITS consulting organization.

When implemented, the Nebraska Statewide JOC will provide three major state agencies serving Nebraska's urban and rural transportation, public safety and emergency management needs with a Joint Operations Center serving Nebraska 24 hours per day, seven days per week. The Statewide JOC will provide a platform for multi-jurisdictional operational support in areas of traffic management, public safety and emergency preparedness. Technical requirements for a statewide data intake, classification, and redistribution will be considered.

This project will initiate the study which will identify in detail the JOC/TMC functional requirements, system design, concept of operations, and integration requirements.

Project Location: Nebraska Interstate 80 Corridor

Partner(s): FHWA, Nebraska Dept. of Roads, Nebraska State Patrol, City of Omaha Public Works, City of Lincoln

Start Date: April 2000

End Date: April 2006

Estimated Total ITS Funds: \$250,000

Estimated Total Project Cost: \$500,000

Contacts:

John Perry	FHWA Nebraska Division, HDA-NE	(402) 437-5974
James Pearson	Nebraska Dept. of Roads	(402) 479-3812



FY 2000 NDOR ITS INTEGRATION INITIATIVE OUTREACH AND MARKETING PLAN

Description: This project is a component of the FY 2000 ITS Integration Program State of Nebraska earmark. The purpose of this project is to expand awareness of ITS-related activities and the potential impacts and benefits of ITS to stakeholders and consumers in the State of Nebraska. The project scope includes developing a series of tools that will inform and educate public and private stakeholders on existing and planned ITS deployment activities.

Project Location: Nebraska

Partner(s): FHWA, Nebraska Dept. of Roads

Start Date: May 2001

End Date: April 2006

**Estimated Total
ITS Funds:** \$41,711

**Estimated Total
Project Cost:** \$83,422

Contacts:

John Perry	FHWA Nebraska Division, HDA-NE	(402) 437-5974
James Pearson	Nebraska Dept. of Roads	(402) 479-3812



FY 2000 ESTABLISHMENT OF NEBRASKA 511 SYSTEM

Description:

This project is a component of the FY 2000 ITS Integration Program State of Nebraska earmark. The project objective is to implement an advanced traveler information system (ATIS) which integrates various existing sources of traveler information into one, easily accessible system. The system will incorporate locally derived weather information, as well as road closure and incident information. The system design will accommodate expansion to include additional elements such as tourist information and lodging availability.

The ATIS will emphasize route specific weather forecasts and road condition reports directly accessible by travelers. Nebraska plans to utilize the Meridian Environmental Technology model, which supports the #SAFE service, to deploy 511 service in the state.

Project Location: Nebraska

Partner(s): FHWA, Nebraska Dept. of Roads, Nebraska State Patrol

Start Date: May 2001

End Date: April 2006

**Estimated Total
ITS Funds:** \$40,000

**Estimated Total
Project Cost:** \$80,000

Contacts:

John Perry

FHWA Nebraska Division, HDA-NE

(402) 437-5974



FY 2001 CAMERA INTEGRATION WITH DMS, RWIS AND ANTI-ICING INSTALLATIONS

Description: This project is a component of the FY 2001 ITS Integration Program earmark for Nebraska. The project objective is to develop, test and deploy a wireless, Web-based video surveillance system integrated with dynamic message signs (DMS). The integration of video with DMS enables verification of desired DMS operation, and verification of traffic conditions surrounding the DMS. Subsequent to testing and resolution of any issues associated with Internet connection, video installation and integration will be relocated to support integration with a State anti-icing and Road Weather Information System network.

Project Location: Nebraska

Partner(s): FHWA, Nebraska Department of Roads (NDOR), University of Nebraska-Lincoln Peter Kiewit Institute, Nebraska State Patrol

Start Date: December 2001

End Date: April 2006

Estimated Total ITS Funds: \$105,000

Estimated Total Project Cost: \$210,000

Contacts:

John Perry	FHWA Nebraska Division, HDA-NE	(402) 437-5974
Jim McGee	NDOR	(402) 471-1811



FY 2001 EXTENSIBLE MARK-UP LANGUAGE (XML) SOFTWARE

Description: This project is a component of the FY 2001 ITS Integration Program earmark for Nebraska. The project objective is the development and implementation of an Extensible Mark-up Language (XML) application capable of automatic transmission of incident data. Project implementation will provide automated incident-related data exchange between Nebraska State Patrol and Nebraska Department of Roads (NDOR). Benefits resulting from this project include significantly decreased incident response times through increased transmission speed and improved quality control of message accuracy. Improved center-to-center communications resulting from this application offers significant potential for other ITS applications.

Project Location: Nebraska

Partner(s): FHWA, Nebraska Department of Roads (NDOR), Nebraska State Patrol, UNO-PKI

Start Date: December 2001

End Date: April 2006

**Estimated Total
ITS Funds:** \$55,000

**Estimated Total
Project Cost:** \$110,000

Contacts:

John Perry	FHWA Nebraska Division, HDA-NE	(402) 437-5974
Jim McGee	NDOR	(402) 471-1811



FY 2001 511 TRAVELER INFORMATION, PHASE II

Description: This project is a component of the FY 2001 ITS Integration Program earmark for the State of Nebraska. The project objective is to integrate traveler information services to provide route specific weather forecasts and road condition reports through multiple communications media to include: wireless, the Internet, land line telephones, and dynamic message signs. Projected benefits include enhanced safety and improved efficiency. The system's vision is to utilize weather forecasting and analysis, road condition monitoring, and effective report generation to provide short-term route specific forecasts for travelers across the state. It is anticipated that Nebraska's 511 system will accommodate rapid adaptation to new wireless technologies supporting expanded services such as lodging and tourist information.

Project Location: Nebraska

Partner(s): FHWA, Nebraska Department of Roads (NDOR), Nebraska State Patrol

Start Date: October 2001

End Date: April 2006

**Estimated Total
ITS Funds:** \$50,000

**Estimated Total
Project Cost:** \$100,000

Contacts:

John Perry	FHWA Nebraska Division, HDA-NE	(402) 437-5974
Jim McGee	NDOR	(402) 471-1811



FY 2001 NEBRASKA ITS INCIDENT MANAGEMENT COORDINATION AND INTEGRATION

Description: This project is a component of the FY 2001 ITS Integration Program State of Nebraska earmark. This project is designed to facilitate the integration and incorporation of operational changes into the Incident Management Manual resulting from ITS deployments in the Omaha Metropolitan area and the I-80 Corridor.

The need for the area Incident Management Manual is generated by the expanding deployment of both metropolitan and rural ITS infrastructure along the I-80 Corridor. The development of the manual will harmonize incident management practices in a setting where legacy systems and procedures require integration with newer ITS technologies. Emphasis will be placed on training and outreach to ensure smooth implementation of procedures outlined in the manual.

Project Location: Nebraska

Partner(s): FHWA, Nebraska Department of Roads (NDOR), Nebraska StatePatrol, Omaha, NE MPO

Start Date: December 2001

End Date: April 2006

**Estimated Total
ITS Funds:** \$26,250

**Estimated Total
Project Cost:** \$52,500

Contacts:

John Perry	FHWA Nebraska Division, HDA-NE	(402) 437-5977
Jim McGee	NDOR	(402) 471-1811



FY 2001 RURAL BRIDGE ANTI-ICING AND WEATHER INFORMATION INTEGRATION

Description: This project is a component of the FY 2001 ITS Integration Program earmark for Nebraska. The project addresses dangerous conditions caused by bridge icing on several bridges in the Scottsbluff area. A priority need is to assess the effectiveness of automated bridge anti-icing systems. This project will deploy bridge anti-icing equipment integrated with a road weather information system and a motorist warning beacon to improve safety and winter storm operations. A fixed anti-icing system will be deployed with variable activation modes (automated, remote, and manual) to facilitate application of surface treatment materials. Assessment of this system will impact statewide deployment planning.

Project Location: Nebraska

Partner(s): FHWA, Nebraska Department of Roads (NDOR), NDOR Districts 4, 5, 6

Start Date: December 2001

End Date: April 2006

**Estimated Total
ITS Funds:** \$60,000

**Estimated Total
Project Cost:** \$120,000

Contacts:

John Perry	FHWA Nebraska Division, HDA-NE	(402) 437-5974
Jim McGee	NDOR	(402) 471-1811



FY 2001 RURAL NEBRASKA INTEGRATED DYNAMIC MESSAGE SIGN ELEMENT

Description:

This project is a component of the FY 2001 ITS Integration program earmark for Nebraska. Project objectives include:

- Installation, operation and maintenance of 4 to 6 dynamic message signs (DMS) to enhance traveler safety and transportation system efficiency.
- Integration of the DMS with the associated District Office and the State Joint Operations Center.
- Integration of existing portable DMS Sign Operations into the control system for Permanent Rural DMS Sign Installations.

Achieving these objectives will significantly contribute to delivery of effective traveler information along the I-80 corridor across Nebraska. This corridor, occasionally prone to unplanned road closures has severely stressed facilities in towns bordering the interstate. The need for rapid provision of traveler information on road closures at distances allowing sufficient reaction time for route diversion is a high priority not only for the portion of I-80 in Nebraska, but also for adjacent stretches in Wyoming and Colorado.

Project Location: I-80 Corridor, Nebraska

Partner(s): FHWA, Nebraska Department of Roads (NDOR), Nebraska Districts 4, 5, and 6

Start Date: December 2001

End Date: April 2006

**Estimated Total
ITS Funds:** \$895,000

**Estimated Total
Project Cost:** \$1,790,000

Contacts:

John Perry	FHWA Nebraska Division, HDA-NE	(402) 437-5974
Jim McGee	NDOR	(402) 471-1811



FY 2001 STATEWIDE ITS SURVEY ELEMENT

Description: This project is a component of the FY 2001 ITS Integration Program State of Nebraska earmark. This project will conduct a statewide survey of transportation users. The survey will be of statewide scope. The respondent pool will be of sufficient size to generate a statistically sound image of transportation user perceptions regarding ITS in Nebraska. The survey will address user awareness of ITS and ITS-related activities since 1997, provide a snapshot of user acceptance of ITS technologies across the state, identify gaps in service of statewide services such as 511, traveler information and provide information regarding the degree of impact of current and planned ITS applications. The results of this survey will be used to set priorities and time frames for deployment and integration of statewide and regional transportation centers; and serve as a guideline for the development of functional requirements. Statewide deployment of DMS and cellular 511 traveler information deployment has been initiated and results of this survey will lead to accelerated deployment within 2 years.

Project Location: Nebraska

Partner(s): FHWA, Nebraska Department of Roads (NDOR)

Start Date: December 2001

End Date: April 2006

**Estimated Total
ITS Funds:** \$17,500

**Estimated Total
Project Cost:** \$35,000

Contacts:

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NEBRASKA STATEWIDE ITS - FY 2002

Description:

This project is a FY 2002 ITS Integration Program earmark for the State of Nebraska. Project funding was obligated in March 2004. The project follows up on, and supports the implementation of a State ITS Strategic Plan that identified a near-term need for a network of transportation operations centers. The implementation design features district centers, backed up by a statewide center serving as a central hub. This approach will enable data collection, processing, aggregation, monitoring, storage and dissemination of data and information necessary to achieve effective and coordinated statewide management of transportation facilities.

This project supports the strategic concept by developing a suite of software modules that will combine to support both a network of district operations centers throughout the State as well as an urban freeway management system. The project components contributing to these respective objectives include:

- Statewide/District Operations Center Software.
- Urban Freeway Management System.

Each of these activities is supported by the required sub-activities providing appropriate design, contract and implementation resources.

The major project activities will be complemented by partner projects conceived as demonstration projects to be used as case studies. These include:

- Statewide Traffic Incident Management Program.
- Omaha Area DMS Use and Signal Timing Coordination for Arterial Operations.
- Urban and Rural Mobile Operations Center Demonstration.
- RYDE Demand Responsive Transit Mobile Data Terminal Demonstration - Phase I.
- Smart Work Zone System Integration Demonstration.
- Rural Snowplow Management System Demonstration.
- South Sioux City Signal System Interconnect - Phase I.

The mix of component activities in this earmark will allow for establishment of a modularized operational system for both statewide transportation operations and urban freeway management which will result in the integration of these systems with existing ITS field elements as well as those to be deployed in the five year planning horizon established in the State's architecture. The expectation is that the establishment of these systems will enhance transportation operations throughout the State, and provide substantial improvements to Nebraska's 511 traveler information system.

Project Location: Nebraska

Partner(s): FHWA, Nebraska Department of Roads (NDOR), Nebraska State Patrol, Mid-Nebraska Community Action/Buffalo County, City of Omaha Public Works, Omaha and Lincoln Metropolitan Area Planning Agencies, City of Lincoln, City of South Sioux City

Start Date: March 2004

End Date: March 2006



**Estimated Total
ITS Funds:** \$3,309,273

**Estimated Total
Project Cost:** \$6,618,546

Contacts:

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Paul Cammack	Nebraska Department of Roads	(402) 471-1747



NEBRASKA STATEWIDE ITS - FY 2003

Description:

This project is a FY 2003 ITS Integration Program earmark for the State of Nebraska. The project follows up on, and begins the implementation of a State ITS Strategic Plan which identified a near-term need for a network of transportation operations centers. Nebraska's ITS strategy takes a hybrid approach in which eight district operations centers will communicate with roadside subsystems, other district operations centers, and will be coordinated by a statewide center serving as the central hub. This network will enable the collection, processing, storage, and dissemination of data and information required to implement a coordinated statewide approach to transportation facility management.

The roadside subsystems will include an array of intelligent transportation technologies, including sensors, programmable electronic message signs, cameras, anti-icing systems and road weather information collection devices. Each of the eight district operations centers will provide regional management, administrative and support functions for the state highway system. One focus will be on local needs with ITS devices providing managers with data and information at a level of detail sufficient for management of localized incidents and provision of information to travelers.

The Omaha District Operations Center will support the 100-mile Omaha freeway system and will be the most technically sophisticated of Nebraska's eight operations centers. The Omaha center will serve as the statewide hub for Nebraska's Intelligent Transportation System and have the ability to provide 24X7 operational support to the other centers.

This project focuses on the initial phases of ITS instrumentation in rural areas throughout the state. The project will deploy an integrated system of dynamic message signs (DMS) and video monitoring stations. DMS deployment will be concentrated on the I-80 corridor traversing the state. Video monitoring sites will be deployed in each of the eight districts, and a limited number of sensors will be deployed to assist in activating message sets. These video monitoring installations will be deployed at approximately 40-to-50 locations throughout the state. These installations will support a variety of monitoring functions to include:

- Weather verification.
- Equipment monitoring.
- Road conditions.
- Traffic counts of selected locations.

An additional partner project with Buffalo County RYDE will be integrated with this project. This project's funding plan will enable RYDE to procure Mobile Data Terminals for two-thirds of RYDE's Demand Responsive Fleet of eleven vehicles.

Project Location: Nebraska

Partner(s): FHWA, Nebraska Department of Roads (NDOR), Mid-Nebraska Community Action/Buffalo County, City of Omaha Public Works

Start Date: March 2004

End Date: March 2006



**Estimated Total
ITS Funds:** \$2,495,827

**Estimated Total
Project Cost:** \$4,991,654

Contacts:

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Paul Cammack	NDOR	(402) 471-1747



NEVADA

ARCHIVED DATA USER SERVICE (ADUS) INTEGRATION WITH THE LAS VEGAS AREA FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION (FAST)

Description:

This project is the FY 2000 ITS Integration Program earmark for Las Vegas, Nevada. FAST is a major regional transportation endeavor whose objectives include: improvement of surface transportation efficiency and mobility by providing travelers with an optimal mix of choices of mode, route, or time of travel; reduction of incident response and clearance times; improvement of agency staff productivity through better communications and computational tools with which to support transportation management in the region.

This project, which builds on the FY 1999 earmark dedicated to the design of data archiving capability, will focus on the following ITS infrastructure: Integration of the Arterial Management System component with the Freeway Management System component, Implementation of ADUS, Integration of ADUS with FAST, and Interagency integration to achieve information sharing.

ADUS implementation will enable storage of data at periodic intervals. Data will be accessible to all stakeholders and entities, public and private, managing tourist activities. The proposed ADUS implementation and integration with FAST will provide Las Vegas area stakeholders with a resource that can receive, collect and archive operational ITS-generated data for real-time and non real-time users. The primary Las Vegas area stakeholder requirements to be supported by ADUS will, at a minimum, include:

- short- and long-range planning;
- transportation system monitoring;
- transit management;
- air quality analysis;
- safety analysis;
- inter-modal planning;
- transportation research;
- emergency management planning.

This project covers the procurement, installation, integration and testing of vendor supplied system hardware and software, as well as the development, installation, integration and testing of the application software required for the above components. The project will be comprised of ADUS central system equipment and communication system components that link the central system component to the field components. The central component will consist of the central system software elements, central system network servers, databases, user workstations, archive storage devices, and associated support equipment located at the FAST Traffic Management Center (TMC). The communication system component will consist of the hardware devices and software located at the TMC and at remote agency sites that interface to the ADUS central system component. The integration of the arterial and freeway components of the FAST system involves:

- Interconnecting the central servers of each of the two systems in support of center-to-center communications;
- Integrating the implementation of diversion strategies in response to incidents using equipment and resources from both systems;



- Integrating the control of the CCTV cameras of the two systems; and
- Integrating the video display of the two systems.

Project Location: Las Vegas, Nevada

Partner(s): FHWA; Nevada DOT; Clark County; Regional Transportation Commission of Clark County; Cities of: Las Vegas, Henderson, North Las Vegas; Nevada Highway Patrol; Metro Police; McCarran International Airport

Start Date: September 2000

End Date: June 2006

**Estimated Total
ITS Funds:** \$2,200,000

**Estimated Total
Project Cost:** \$4,500,000

Contacts:

Jim Allen	FHWA Nevada Division, HDA-NV	(775) 687-1231
D. Keith Maki	Nevada DOT	(775) 888-7446



DEVELOP REGIONAL ITS ARCHITECTURE FOR SOUTHERN NEVADA

Description:

This project is a FY 2002 ITS Integration Program earmark for the State of Nevada. Funding for this project was approved in September 2003. The Nevada DOT in cooperation with the Clark County Regional Transportation Commission is developing a Regional ITS Architecture/Strategic Deployment Plan for southern Nevada.

The Plan will serve as a road map for implementing ITS strategies and technologies for both the rural and urban areas of the region to fully incorporate the transportation network for existing and planned ITS projects. In addition, the Regional Architecture project will update and incorporate the Freeway and Arterial System of Transportation (FAST) Project Level Architecture that was completed in 1996. The FAST Project Level Architecture was developed as a framework to identify institutional agreements and technical integration necessary to interface a major project with other ITS projects and systems. The update will need to address existing and planned ITS project implementation, new stakeholders, changes to the National ITS Architecture, or to add user services that were not addressed in the previous architecture such as Public Transportation Management, Commercial Vehicle Operations, Emergency Management, and Maintenance and Construction Management.

Because the region has multiple transportation agencies and jurisdictions with adjoining and overlapping geographies, a Regional ITS Architecture will ensure regional integration which allows the sharing of information and coordination of activities among regional transportation systems. The southern Nevada Regional ITS Architecture will include all freeways and arterials located within the Nevada Department of Transportation's District 1 boundary. The Clark County area includes roadways currently under the jurisdiction of the Cities of North Las Vegas, Las Vegas, Boulder City and Henderson.

Project Location: Southern Nevada

Partner(s): FHWA, Nevada DOT, Clark County Regional Transportation Commission (RTC)

Start Date: September 2003

End Date: April 2006

**Estimated Total
ITS Funds:** \$300,000

**Estimated Total
Project Cost:** \$600,000

Contacts:

Jim Allen	FHWA Nevada Division, HDA-NV	(775) 687-1231
Michael Quintero	Nevada DOT	(775) 888-7221



MULTIMODAL EVENT MANAGEMENT AND OPERATION SYSTEM (MEMOS)

Description:

This project is a FY 2001 ITS Integration Program earmark for the City of North Las Vegas, Nevada. Project funding was approved in September 2003. North Las Vegas is located within the Las Vegas metropolitan area; included in its many attractions is the Las Vegas Motor Speedway. The speedway is a venue for numerous weekly events and four major annual events attracting an average of 100,000 visitors resulting in significant congestion on a freeway and an arterial.

This project will contribute to reducing congestion by integrating the Multimodal Event Management and Operation System (MEMOS) with existing and proposed components of the Freeway and Arterial System of Transportation (FAST). FAST is a multimodal, multi-jurisdictional traffic management and traveler information system for the Las Vegas metropolitan area. The objectives of FAST are to integrate freeway and arterial management systems, incident and emergency management, traveler information, transit, and data management capabilities to reduce congestion, improve efficiency, and enhance safety on the area's surface streets and freeways.

This project will integrate the following infrastructure deployment initiatives with FAST:

- Installation of a transit priority system along a major arterial---Las Vegas Boulevard North. This component will install traffic signal equipment to allow for transit priority, and Integrate with the Arterial Management System module of FAST.

- Freeway and Arterial Management on I-15 and local arterials.

This element will provide a communication link to the FAST system, and integrate with the Freeway Management System module of FAST.

- Speedway Parking Management.

Deployment of a Speedway Parking Guidance System, and its integration with the Traveler Information module of FAST. This element will also install detection systems and parking guidance system at all Speedway facilities.

- Multimodal Traveler Information.

Installation of devices to guide traffic into existing or temporary "Park and Ride" facilities. Provide bus schedule information on Web pages, and disseminate information to travelers via Highway Advisory Radio, Kiosks and the Internet.

Project Location: North Las Vegas, Nevada

Partner(s): FHWA, Nevada Department of Transportation, Cities of Las Vegas, Henderson, and North Las Vegas, Regional Transportation Commission of Southern Nevada, Clark County Department of Public Works, Nevada Highway Patrol and Metro Police

Start Date: September 2003

End Date: June 2006



**Estimated Total
ITS Funds:** \$1,428,506

**Estimated Total
Project Cost:** \$2,857,012

Contacts:

Jim Allen	FHWA Nevada Division, HDA-NV	(775) 687-1231
Fredrick Drees	Nevada DOT	(775) 888-7524



SOUTH SHORE COORDINATED TRANSIT SYSTEM

Description:

This project is the FY 2000 ITS Integration Program earmark for Lake Tahoe, CA/Stateline, NV. The project will expand the deployment of kiosks from 20 to 45 locations to improve customer access to the South Shore Coordinated Transit System (CTS). The CTS project will deploy ITS transit infrastructure across jurisdictions of two states, two counties and a city. The system will incorporate the private transit resources of five casinos and one ski resort. The Coordinated Transit System will involve centralized operation of a fleet of 51 vehicles. Ultimate project objective is to achieve a dispatching and customer service system that receives customer trip requests, processes them and provides a real-time trip solution or dispatches a vehicle to satisfy the request through the use of Automated Vehicle Location, Computer-aided Dispatching and Advanced Traveler Information.

Utilizing satellite based technology, the 51-vehicle fleet will be monitored as to the real-time location of each vehicle. Variable rate polling strategies will be used to assist in determining the best available demand response vehicle for assignment to new ride requests. In addition, fixed route, flex route and deviated route vehicles will be monitored in order to facilitate timed transfers to and from the demand response element, and the reporting of "next bus" and schedule adherence information to customers traveling from standard "bus stop" locations.

The expanded network of kiosks, dedicated touch tone telephones and the public telephone network will enable customers to access the computer dispatching system and enter requests for transit service.

Computer-Aided Dispatching completes the technical approach by processing the vehicle location information and the passenger ride requests then, matching the most appropriate vehicle, based on its location and the destinations of passengers already on-board, with the service expectations of new passengers requesting rides.

Project Location: South Lake Tahoe, CA/Stateline, NV

Partner(s): FTA, City of South Lake Tahoe, Tahoe Transportation District, Tahoe Regional Planning Agency, South Shore Transportation Management Association, Coordinated Transit System Management Company

Start Date: September 2000

End Date: March 2006

Estimated Total ITS Funds: \$393,211

Estimated Total Project Cost: \$4,589,580



Contacts:

Jeffrey Davis	FTA Region 9	(415) 744-2726
Dick Powers	SS/TMA	(530) 542-6076



WASHOE COUNTY REGIONAL ITS ARCHITECTURE/INTEGRATION PLAN

Description:

This project is the FY 2001 ITS Integration Program earmark for Washoe County, Nevada. The Regional Transportation Commission (RTC) of Washoe County, NV is the Metropolitan Planning Organization for the Reno/Sparks Metropolitan Area, and will develop a Regional ITS Architecture/Integration Plan. This earmark will fund the development of a plan to deploy ITS technologies in the region, outline a regional ITS architecture, identify ITS standards, and integrate all existing and committed ITS projects throughout the region. The plan and architecture will link freeway system, transit services, arterial streets, traveler information, and regional traffic signal systems into a coherent framework to support the following objectives:

- Promote shared ITS goals in the region.
- Guide ITS regional ITS investment strategy.
- Generate coordination among stakeholders.
- Maintain focus on user services implementation.
- Smooth intermodal linkages, and ensure integration into a national transportation system.

Project Location: Washoe County, Nevada

Partner(s): FHWA, Nevada DOT, Regional Transportation of Washoe County, Washoe County, Cities of Reno and Sparks

Start Date: September 2001

End Date: April 2006

**Estimated Total
ITS Funds:** \$158,723

**Estimated Total
Project Cost:** \$317,446

Contacts:

Jim Allen	FHWA Nevada Division, HDA-NV	(775) 687-1231
Tina Wu	RTC of Washoe County	(775) 348-0480



NEW JERSEY

TRANSCOM

Description: This project constitutes the FY 2002 ITS Integration Program earmark for TRANSCOM - the coalition of 18 transportation and public safety agencies in the New York/New Jersey/Connecticut region that provides a cooperative, coordinated approach to regional transportation management. Funding for this project was approved in September 2003, and will continue the integration of additional ITS elements into the TRANSCOM Regional Architecture as well as expanding the Interagency Remote Video Network (IRVN) and TRANSMIT projects in the tri-state area. TRANSMIT uses E-Z Pass electronic toll collection tags as aggregate, anonymous traffic probes, allowing the systems to calculate link travel times, and detect incidents. The IRVN system allows public agencies to share video feeds throughout the region. Both systems enable TRANSCOM agencies to manage the transportation system more efficiently to support homeland security, and to provide travel information.

There are five components to TRANSCOM's FY 2002 integration activity:

- Integrate Additional Data Interfaces into the TRANSCOM Regional Architecture;
- Integrate Level of Service Enhancements into the TRANSCOM Regional Architecture;
- Integrate ITS Produced Weather Information into the TRANSCOM Regional Architecture;
- Integrate IRVN into the TRANSCOM Regional Architecture; and
- Enhance and Expand the TRANSMIT System in New York and New Jersey.

Project Location: New York, New Jersey, Connecticut

Partner(s): FHWA, TRANSCOM, ConnDOT, NJDOT, NYSDOT, NJ Highway Authority, NY Transit, NJ Turnpike Authority, NYS Thruway Authority, NYCDOT, Port Authority of NY & NJ

Start Date: September 2003

End Date: April 2006

**Estimated Total
ITS Funds:** \$2,086,296

**Estimated Total
Project Cost:** \$4,136,592

Contacts:

Michael Roberson	FHWA New Jersey Division, HTC-NJ	(609) 637-4231
Matthew Edelman	TRANSCOM	(201) 963-4033



NEW MEXICO

CARS/FORETELL ENHANCEMENTS AND DEPLOYMENT FOR ATIS

Description: This project is the FY 2001 ITS Integration Program earmark for the State of New Mexico. Project funding was approved in September 2002. The project will integrate existing road condition information into a common database, and establish an Advanced Traveler Information System (ATIS) Website for the dissemination of highway/road closure and restriction data statewide and in the Metropolitan Albuquerque area. The project will also integrate National Weather Service data. The Condition Acquisition and Reporting System (CARS) Pooled Fund Program established under the FHWA Report Pooled Fund will be the centerpiece of the system. The project's concept is to convert CARS to a true XML application to facilitate parsing of data among systems (telephony, Website, Dispatch and E-mail). A related objective is to integrate CARS/FORETELL with National Weather Service Data to automate weather-related inputs to county watches and warnings into CARS. A final objective is to integrate National Weather Service data with road condition modeling available through the CARS/FORETELL platform to facilitate statewide road weather condition monitoring and forecasting.

Project Location: New Mexico

Partner(s): FHWA; New Mexico Department of Transportation; City of Albuquerque; Bernalillo County; City of Rio Rancho

Start Date: September 2002

End Date: April 2006

Estimated Total ITS Funds: \$297,605

Estimated Total Project Cost: \$717,605

Contacts:

Wei Zhang	FHWA New Mexico Division, HDA-NM	(505) 820-2029
Tom Blaine	New Mexico Department of Transportation	(505) 841-9174



I-40/I-25 SYSTEM INTERCHANGE CONSTRUCTION

Description:

This project comprises the FY 2000 ITS Integration Program earmark for Albuquerque, New Mexico. The I-25/I-40 System Interchange reconstruction project will include installation of two, four inch, multi-duct backbone conduits and appurtenant roadside device conduit throughout the limits of construction. The conduit will be configured and installed to allow future installation of an ITS fiber optic communication backbone and connection of planned ITS roadside devices including Variable Message Signs, CCTV Cameras, speed/occupancy detection devices, etc.

The System Interchange reconstruction will also implement a construction ITS component as part of the project. This system will consist of 10 to 12 CCTV cameras, 4 speed/occupancy detection cameras, eight 3ft by 9ft permanent variable message signs, eight portable variable message signs, two smart work zone trailers (camera, detection, sign, trailer mounted), and a spread spectrum radio/cellular distributed packet data wireless communication infrastructure to operate the equipment from a central location. The system will also include 2 Traffic Management Center Operator Stations, a video wall, and will update the Highway Advisory Radio System to allow immediate updates and live broadcasts. The project provides two New Mexico State Highway and Transportation Department (NMSHTD) HELP Courtesy Vehicles to patrol the construction zone and assist in incident response. Further, the system will provide real time video images and traffic information on an Internet website, www.thebigi.com.

The conduit will facilitate integration of the proposed Albuquerque Advanced Metropolitan Travel Management System / Freeway Management System / Incident Management System (AMTMS), currently being designed by the NMSHTD. The conduit will ensure a metropolitan area communication backbone capable of supplying adequate communication bandwidth for the metropolitan area throughout the limits of the proposed construction. Installation of the conduit at this time will eliminate the need to disturb / reconstruct the new Interstate pavement following construction to install the fiber optic backbone being designed as part of the AMTMS project.

The AMTMS project intends to provide fiber optic backbone along significant portions of I-40 and I-25 in the Metropolitan Planning Area. The intent is to provide backbone communication bandwidth capable of sustaining future City, County and State ITS deployment projects as outlined in the Regional ITS Architecture. The I-25/I-40 Interchange Reconstruction is located in the core of the Metropolitan Planning Area (MPA) and at the center of the AMTMS project. The installation of conduit is a necessity to ensure future ITS integration capabilities throughout the MPA.

Project Location: Albuquerque, New Mexico

Partner(s): FHWA, New Mexico Department of Transportation, City of Albuquerque

Start Date: September 2000

End Date: April 2006



**Estimated Total
ITS Funds:** \$1,572,842

**Estimated Total
Project Cost:** \$3,145,684

Contacts:

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Tom Blaine	New Mexico Department of Transportation	(505) 841-9174



ITS DEPLOYMENT PROGRAM, SANTA TERESA, NEW MEXICO

Description:

This project is a multi-phased initiative to create the Border Technology Development Center (BTDC). Project funding is Congressionally-directed under the ITS Integration Program for FY 2000 and FY 2001. The purpose of the BTDC is to provide evaluation, testing, integration, verification and validation of border crossing technologies through deployment at an operational port of entry (POE). This deployment will facilitate movement of commerce across the border, and address a state and regional need resulting from saturation of capacity at adjacent POEs such as El Paso. This BTDC will serve as a test-bed where government agencies at the federal, state and local levels, as well as private sector entities can accomplish the following purposes:

- Test and evaluate new technologies.
- Refine technology applications and operational concepts.
- Train personnel under realistic conditions.

The first phase of this effort is a requirements definition or needs assessment that will result in a prioritization of ITS and other technology requirements for the region's international (Bi-State/Bi-National) border crossings. This requirements definition will serve as a template for future ITS design and development at the Santa Teresa POE. The second phase of this project, not included herein, will be support of deployment and testing of technologies at the Santa Teresa POE. A concurrent element of the project will be the creation of the FDA Agricultural Products Food Safety Laboratory, which will address a regional commercial vehicle operations border crossing program need.

Funding depicted below in Federal ITS Funds is a partial FY 2002 obligation. The earmarked amount is \$1,183,228. As of the end of FY 2002 the difference had not been disbursed. The total cost figure is predicated on approval of the full amounts of the FY 2000 and FY 2001 earmarked funds.

Project Location: Santa Teresa Port of Entry, New Mexico

Partner(s): FHWA, New Mexico State University, New Mexico Department of Transportation, El Paso MPO, Dept. of Agriculture, New Mexico Economic Development Dept., Texas DOT

Start Date: April 2002

End Date: April 2006

**Estimated Total
ITS Funds:** \$267,385

**Estimated Total
Project Cost:** \$2,355,456

Contacts:

Wei Zhang	FHWA New Mexico Division, HDA-NM	(505) 820-2029
Bob Silver	NM State University	(505) 521-9274



SR 68/RIVERSIDE DRIVE ITS, ESPANOLA, NM

Description: This project is the FY 2003 ITS Integration Program earmark for the City of Espanola, New Mexico. The project will deploy a traffic management system on NM Route 68 in Espanola, NM. The system to be deployed will consist of traffic signal controllers and cabinets, new video equipment, the installation of signal interconnect between intersections, traffic management system hardware and software, and system integration. The use of video detection at each intersection will provide information for emergency service providers in cases where crashes occur near intersections. The deployment of this arterial management system upgrade will be complemented by an Internet-based traveler information capability. System operation will be implemented through an intermediate traffic control center established in an existing facility.

Project Location: Espanola, New Mexico

Partner(s): FHWA, New Mexico DOT, City of Espanola

Start Date: September 2003

End Date: June 2006

**Estimated Total
ITS Funds:** \$415,971

**Estimated Total
Project Cost:** \$831,942

Contacts:

Wei Zhang	FHWA New Mexico Division, HDA-NM	(505) 820-2029
John McElroy	New Mexico DOT	(505) 827-9510



NEW YORK

ATIS IMPLEMENTATION AND INTEGRATION THROUGHOUT THE I-90 PHASE 2 CONNECTOR/ITS TEST BED LABORATORY TRANSPORTATION NETWORK

Description:

This project combines the FY 2000 and FY 2001 ITS Integration Program earmarks for Rensselaer County, New York. Funding for both fiscal years was obligated in mid CY 2001. The FY 2000 earmark objective is to implement an Advanced Traveler Information System (ATIS) and agency information exchange network throughout the I-90 Phase 2 Connector/ITS Test Bed Laboratory transportation network of Rensselaer County, NY. The system will be designed to satisfy information needs of highway travelers and transit users as well as transportation operating agencies. Project features include:

- Investigating wireless communications technologies to achieve cost-effective travel data collection from various modes.
- Instrumenting the transportation infrastructure and collecting travel data from commuters.
- Analyzing collected data and producing traveler information.
- Integrating the traveler information with transportation modes and transportation management centers.

The FY 2001 earmark builds on this base and focuses on use of wireless technologies as the basis for traveler information through the use of cellular telephones for traffic surveillance. E-911 cellular telephone emergency service notification is added as a source of ATIS. The coverage area is also expanded to include the majority of the transportation network serviced by the regional Transportation Management Center. Funding indicated below are totals for both fiscal years. The breakout is as follows:

ITS Funding (earmarks)
 FY 2000: \$786,421
 FY 2001: \$396,807

Total Funding
 FY 2000: \$986,421
 FY 2001: \$806,807

Project Location: Rensselaer County, New York

Partner(s): FHWA, New York DOT, Rensselaer Polytechnic Institute, Capital District Transportation Authority

Start Date: July 2001

End Date: December 2006

Estimated Total ITS Funds: \$1,183,228

Estimated Total Project Cost: \$1,793,228



Contacts:

Mike Schauer	FHWA New York Division, HTD-NY	(518) 431-4125	236
Brian Menyuk	New York DOT	(518) 388-0380	



INCIDENT MANAGEMENT FOR SAFE, SECURE AND PRODUCTIVE TRANSPORTATION SYSTEMS

Description: This project is the FY 2002 ITS Integration Program earmark for Albany, New York. The project focuses on incident management by integrating advanced traveler information (ATIS) with a regional Transportation Management Center (TMC). The ATIS projects currently being implemented were initiated with FY 2000 and FY 2001 earmarked funding. The TMC will monitor traffic data on area interstates (I-90/I-787) employing deployed monitors, cameras, cellular 911 and patrol vehicles. The project is to create an incident management "test bed" comprised of deployed traveler information systems and TMC capabilities. The test bed will extend along I-90/I-787, NY Route 378, and US Route 4 between East Greenbush and Troy, New York. The test bed facility will constitute an ITS laboratory equipped to permit real-time experimentation and training on the use of ITS devices under real-world traffic conditions.

Project Location: Albany, New York

Partner(s): FHWA, FTA, NYSDOT, New York State Police, Capital District Transportation Authority, Capital District Transportation Committee, Rensselaer Polytechnic Institute

Start Date: September 2002

End Date: March 2006

**Estimated Total
ITS Funds:** \$1,654,636

**Estimated Total
Project Cost:** \$3,309,272

Contacts:

Mike Schauer	FHWA New York Division, HTD-NY	(518) 431-4125	236
Brian Menyuk	New York State DOT	(518) 388-0380	



ITS IMPROVEMENT PROJECT FOR NIAGARA INTERNATIONAL TRANSPORTATION TECHNOLOGY COALITION (NITTEC) AND WESTERN NEW YORK INCIDENT MANAGEMENT

Description: The purpose of this project is to further the ITS Integration efforts started under previous projects. The project will continue the integration of member agencies of NITTEC, begin to integrate the Western New York Incident Management Team, demonstrate the effectiveness of Video Incident Detection based on neural network technology, integrate an Automated Collision Notification (ACN) System, integrate local police automated vehicle location (AVL) systems, integrate a queue-end warning system, and provide integrated emergency management.

Project Location: Buffalo, New York

Partner(s): Niagara International Transportation Technology Coalition including: New York State DOT; New York State Thruway Authority; Niagara Falls Transportation Authority; City of Buffalo; City of Niagara Falls, NY; City of Niagara Falls, Ontario; Erie County; Niagara County; Town of Fort Erie, Ontario; Regional Municipality of Niagara, Ontario; Niagara Parks Commission; New York State Police; Niagara County Sheriff; Erie County Sheriff; Ontario Provincial Police; Greater Buffalo Niagara Regional Transportation Council; AAA of Western NY; Metro Networks

Start Date: September 1999

End Date: April 2006

**Estimated Total
ITS Funds:** \$395,734

**Estimated Total
Project Cost:** \$823,079

Contacts:

Jerry Zell	FHWA New York Division, HTS-NY	(518) 431-4125	228
Tim Roach	NYSDOT Region 5, NITTEC TOC	(716) 847-2450	
Sam Morris	NYS Thruway Authority Headquarters	(518) 471-5096	



MONROE COUNTY, NEW YORK INTEGRATION PROJECT

Description: This project will develop and construct the Airport/Transportation Operations Center (A/TOC) in support of objectives identified in the regional strategic plan, known as the Improved Mobility Areawide Guidance Evaluation (IMAGE). The project, initiated with FY 1999 earmarked funding, has been expanded to accommodate FY 2000 earmarked appropriations. The A/TOC will enable the integration of transportation operations, to include freeway management, arterial management as well as enforcement activities, and will serve as the centerpiece of the Rochester Advanced Transportation Management System. NY State DOT, Monroe County DOT, the NY State Police and the Greater Rochester International Airport have agreed on a shared facility. Additional integrations will be accommodated as determined through the updating of the existing regional ITS architecture.

Project Location: Monroe County, New York

Partner(s): FHWA, Monroe County DOT; Monroe County Department of Public Safety; New York State Police; Rochester-Genesee Regional Transportation Authority; New York State DOT

Start Date: September 1999

End Date: December 2006

**Estimated Total
ITS Funds:** \$1,103,008

**Estimated Total
Project Cost:** \$10,750,000

Contacts:

Jerry Zell	FHWA New York Division, HTS-NY	(518) 431-4125	228
Jim Willer	NYSDOT, Region 4	(716) 272-3450	



MONROE COUNTY: CAMERA DEPLOYMENT AND SYSTEMS INTEGRATION

Description:

This project originated as the FY 2001 ITS Integration Program Congressionally-directed deployment for Rochester, New York. Federal funding for this project in the amount of \$550,000, matched for a total of \$1,100,000, was obligated in January 2002, and applied to the initial stages of a camera deployment and integration program on Monroe County's busiest arterial routes. A critical component of the overall deployment strategy includes developing a shared communications backbone to serve freeway, arterial and emergency services requirements. The infrastructure is being integrated into a new Regional Transportation Operations Center (TOC). FY 2001-funded efforts include deployment of closed circuit TV cameras, improvements to the communications infrastructure, and the initial stages of integration with NY State DOT and Monroe County systems.

The project received a FY 2004 ITS Integration Program earmark in the amount of \$689,266, matched for a total of \$1,378,532. These funds are being applied to the deployment and integration of 15 cameras, along with software licensing, duct communications, switching software, displays and controls. Incident management information generated by the cameras will be provided to NY State DOT and the NY State Police. These additional CCTV cameras are anticipated to improve Monroe County's management of arterial congestion with accompanying benefits to public safety, mobility and economic growth spurred by better movement of goods.

Project Location: Rochester, New York

Partner(s): FHWA, New York State DOT, Monroe County DOT

Start Date: January 2002

End Date: December 2006

Estimated Total ITS Funds: \$1,239,266

Estimated Total Project Cost: \$2,478,532

Contacts:

Jerry Zell	FHWA New York Division, HDT-NY	(518) 431-4125	228
James Pond	Monroe County DOT	(585) 760-7755	



NEW YORK CITY MULTI-OPERATING AGENCY INTEGRATED TRANSPORTATION MANAGEMENT SYSTEM (ITMS)

Description: This project is a component of the development, implementation and operation of an integrated multi-agency transportation system. The focus of the Integrated Transportation Management System (ITMS) will be integration of communications and operations. The project is phased into two tasks:

- Design and implementation of ITMS;

- Design and implementation of an ITS Archive/Planning Subsystem for New York City with a focus on developing an integrated repository for historical data generated by the ITMS.

Project Location: New York City, New York

Partner(s): FHWA, New York State DOT; New York City DOT; TRANSCOM; Metropolitan Transit Authority

Start Date: September 1999

End Date: September 2006

**Estimated Total
ITS Funds:** \$1,978,674

**Estimated Total
Project Cost:** \$2,573,000

Contacts:

Arthur O'Connor

FHWA New York Division NYC Metro Office

(212) 668-2206



NEW YORK CITY/LONG ISLAND TRANSPORTATION MANAGEMENT CENTER (TMC) INTEGRATION

Description: This FY 1999 ITS Integration Program project shall integrate two existing traffic management centers, the joint NYSDOT/NYCDOT Transportation Management Center in New York City and the NYSDOT's Long Island Transportation Management Center on Long Island.

Project Location: New York City and Long Island, New York

Partner(s): FHWA, New York State DOT, New York City DOT, Metropolitan Transit Authority, TRANSCOM

Start Date: September 1999

End Date: April 2006

**Estimated Total
ITS Funds:** \$1,300,380

**Estimated Total
Project Cost:** \$1,625,475

Contacts:

Arthur O'Connor

FHWA New York Division NYC Metro Office

(212) 668-2206



NEW YORK METROPOLITAN AREA ENHANCED OPERATIONS

Description:

This project is a FY 2004 ITS Integration Program earmark for the greater New York City Metropolitan area. The project is managed, and partially funded, by the New York State Thruway Authority (NYSTA). The project will deploy ten closed circuit TV cameras (CCTV), four variable message signs (VMS) and nine traffic monitoring stations along the New York State Thruway in two phases.

Phase I is to be funded by a FY 2003 Federal-aid allocation (\$544,922) and the FY 2004 earmark. NYSTA toll credits will be provided as a non-federal match for Phase I. Phase II will be totally funded by the NYSTA. The project is part of an overall plan to improve the integration of ITS components that will be operated by the Thruway Authority, and connected to the Hudson Valley Traffic Management Center (TMC), TRANSCOM and other regional agencies and associated TMCs.

The ITS elements deployed and integrated by this project are critical in improving mobility along densely congested corridors in the region that also fail to meet air quality standards. Phase I activity will deploy three VMS and two CCTVs. Phase II will be awarded in 2006.

Project Location:

New York State Thruway Authority I-89 & I-95

Partner(s):

FHWA, New York State Thruway Authority (NYSTA); New York State DOT

Start Date:

December 2004

End Date:

December 2006

Estimated Total ITS Funds:

\$1,444,011

Estimated Total Project Cost:

\$3,432,944

Contacts:

Michael Schauer	FHWA, New York Division Office	(518) 431-4125	236
Wai Cheung	NYSTA	(845) 918-2550	



NEW YORK STATEWIDE INFORMATION EXCHANGE NETWORK

Description: This project is the FY 2002 ITS Integration Program New York Statewide earmark. Funding for this project was approved in September 2003. The project objective is to deploy a system that provides for information consolidation among regions and agencies throughout New York State in support of delivery of statewide traveler information. New York State DOT, in the 2002 timeframe, is operating six traffic management centers (TMCs) in urban and urban/rural areas. Having been activated at different times, these TMCs operate with different software systems, and have not implemented ITS standards. The project will plan, design and deploy a statewide integrated ITS information system providing a comprehensive and compatible approach to the collection, storage and delivery of ITS information. The deployment will be consistent with regional and statewide ITS architectures. Information will be consolidated from New York State DOT's Road Weather System, Traffic Management System, and construction information in each region into a statewide traveler information database service. The system objective is to provide for information exchange among services, across modes, and deliver services to the public through Web pages and automated telephone systems.

Project Location: New York

Partner(s): FHWA, New York State DOT

Start Date: September 2003

End Date: March 2006

Estimated Total ITS Funds: \$413,659

Estimated Total Project Cost: \$830,000

Contacts:

Mike Schauer	FHWA New York Division, HTD-NY	(518) 431-4125	236
Edwin Roberts	New York State DOT	(518) 457-1232	



OPTICAL EMERGENCY VEHICLE PREEMPTION

Description: This project is the FY 2003 ITS Integration Program earmark for the Town of Islip, New York. In recent years, the Town of Islip has deployed micro-processor-based traffic responsive signal equipment at all signalized locations. An expansion of this deployment plan to be implemented by this project is the installation of optically-based Emergency Vehicle Traffic Signal Preemption. The resulting impact of this deployment will be improvements in emergency vehicle responsiveness and safety. The optical system ensures green light priority for emergency response vehicles while simultaneously moving queued vehicles to safety. The project is phased. Phase I includes engineering, design and installation of optically-based traffic signal preemption equipment at forty signalized intersections recommended by ambulance and fire emergency planners. Phase II will install emitter or light transmitter devices in authorized emergency vehicles.

Project Location: Islip, New York

Partner(s): FHWA, Town of Islip

Start Date: September 2003

End Date: October 2006

**Estimated Total
ITS Funds:** \$495,000

**Estimated Total
Project Cost:** \$990,000

Contacts:

Mike Schauer	FHWA New York Division, HTD-NY	(518) 431-4125	236
Don Caputo	Town of Islip, Dpty. Comm. of Public Works	(631) 224-5610	



ROCHESTER ITS EVALUATION AND INTEGRATION PLANNING

Description: This project is one of several FY 2001 ITS Integration Program earmarks for the Rochester, NY area. The project will conduct a study of benefits derived from ITS infrastructure deployments initiated in prior fiscal years. The evaluation will also include an integration planning component which will use findings as the basis for proposing system integration improvements, and clarifying agency responsibilities associated with the regional Airport/Transportation Operations Center.

Project Location: Rochester, New York

Partner(s): FHWA, New York State DOT, Monroe County DOT

Start Date: September 2001

End Date: April 2006

**Estimated Total
ITS Funds:** \$90,422

**Estimated Total
Project Cost:** \$305,000

Contacts:

Jerry Zell	FHWA New York Division, HDT-NY	(518) 431-4125	228
James Willer	New York State DOT	(585) 760-7779	



SULLIVAN COUNTY, NEW YORK EMERGENCY WEATHER SYSTEM

Description: This project will fund the installation of a weather station, Highway Advisory Radio and Variable Message Signing to warn drivers of changing conditions of the roadway in time for motorists to react safely. Detours will be established to aid drivers when incidents occur. The 14-mile segment of highway in the project area, constructed to 1950's standards, traverses mountainous terrain. High accident rates are experienced where roadway alignment is severe and climatic changes surprise drivers.

Project Location: Sullivan County, New York

Partner(s): FHWA, New York State DOT

Start Date: October 1998

End Date: April 2006

Estimated Total ITS Funds: \$1,000,000

Estimated Total Project Cost: \$1,250,000

Contacts:

Jerry Zell	FHWA New York Division, HTD-NY	(518) 431-4125	228
Bill Seaman	New York State DOT	(607) 721-8087	



TRAFFIC SIGNAL REPLACEMENT PROGRAM

Description:

This project is a FY 2004 ITS Integration Program earmark for the City of New Rochelle, New York. The downtown area of New Rochelle is experiencing increasing levels of congestion as the population and new development continue to expand.

Traffic signal controls are currently installed along one of the City's major arterials - North Avenue. Many of these signals are controlled by the New Rochelle Traffic Management Center (TMC). Some signals, however, are operating under local control without any synchronization with the other centrally controlled intersections along the arterial. As traffic volumes grow, the traffic management system will require upgrades to ensure congestion can be mitigated and safety improved. This project will accomplish the following tasks:

- Upgrade two intersections, currently operating under local control that will be transferred to TMC control.
- Expansion of the city's traffic signal communication network to integrate the newly upgraded intersections.
- Acquisition and installation of an advanced traffic management system in the TMC that will control all intersections integrated into the central system. The cost associated with this component of the project exceeds the total cost of the earmark, and is part of the New York Regional Architecture.

Collectively, these intersection upgrades and the central control of North Avenue signalized intersections are projected to reduce congestion, improve travel time reliability, and reduce pollution and fuel consumption.

Project Location: City of New Rochelle, New York State

Partner(s): FHWA; New York State DOT; City of New Rochelle, New York.

Start Date: September 2005

End Date: October 2006

**Estimated Total
ITS Funds:** \$272,400

**Estimated Total
Project Cost:** \$663,360

Contacts:

Michael Schauer	FHWA, New York Division Office	(518) 431-4125	236
Jeffery Coleman	City of New Rochelle, NY	(914) 654-2136	



WESTCHESTER/PUTNAM COUNTIES, NEW YORK REGIONAL TRANSIT OPERATIONS INFORMATION INTEGRATION

Description: This project will develop and improve the multi-agency integration of information and communications systems to support effective use of Advanced Public Transportation Systems for multi-agency transit service coordination. Implementation of the Transit Communications Interface Profiles (TCIP) will establish the foundation for providing a schedule database maintenance system (SDMS), provide for multi-agency interoperability using SDMS and other legacy regional transit schedule maintenance software, create an AVL integration/coordination test-bed, and incorporate the exchange of TCIP compliant transit operations information.

Project Location: Westchester and Putnam Counties, New York

Partner(s): FHWA, New York State DOT, New York City DOT, Metropolitan Transit Authority, TRANSCOM

Start Date: September 1999

End Date: April 2006

**Estimated Total
ITS Funds:** \$915,734

**Estimated Total
Project Cost:** \$1,831,464

Contacts:

Arthur O'Connor

FHWA New York Division NYC Metro Office

(212) 668-2206



WHITE PLAINS-WESTCHESTER COUNTY, NEW YORK INTEROPERABLE COORDINATED SIGNAL SYSTEM

Description: This project will establish an interoperable coordinated signal system (ICSS) on adjoining New York State arterials and existing coordinated signal systems owned and operated by the City of White Plains and the County of Westchester in the White Plains urban area. This project aims to create a unified, interoperable coordinated signal system that integrates city, county, and state signal subsystems. Each subsystem will be autonomous, but will be interconnected for operations as a single system when required.

Project Location: White Plains, New York

Partner(s): New York State DOT; City of White Plains, New York; Westchester County, New York

Start Date: September 1999

End Date: March 2006

**Estimated Total
ITS Funds:** \$791,470

**Estimated Total
Project Cost:** \$1,580,000

Contacts:

Mike Schauer	FHWA New York Division, HTD-NY	(518) 431-4125	236
John Li Marzi	New York State DOT	(914) 949-2103	



NORTH CAROLINA

CHARLOTTE ITS INTEGRATION

Description: This project constitutes the FY 2000 ITS Integration Program earmark for Charlotte, North Carolina. This project's objective is to improve information sharing among key transportation management facilities in the Charlotte-Mecklenburg region. The NCDOT Metrolina Transportation Management Center, the Charlotte DOT (CDOT) Signal Traffic Operations Center, and the CDOT Transit Center will be interconnected. In addition, the US 74 High Occupancy Vehicle (HOV) System and the US 29 Reversible Lane System will be connected to the Metrolina TMC. The final portion of this project will interconnect the Tyvola Road Reversible Lane System to the CDOT Signal System Traffic Operations Center. This integration project will connect various systems to city and state traffic operations centers and lay the basis for increased cooperation between the NCDOT and the City of Charlotte.

Project Location: Charlotte, NC

Partner(s): FHWA, North Carolina DOT, Charlotte DOT

Start Date: May 2001

End Date: April 2006

**Estimated Total
ITS Funds:** \$786,421

**Estimated Total
Project Cost:** \$1,572,842

Contacts:

Max Tate	FHWA North Carolina Division, HDA-NC	(919) 856-4354	125
Ann Lorscheider	North Carolina DOT	(919) 250-4151	



CHARLOTTE, NORTH CAROLINA INTEGRATION PROJECT

Description: This project comprises the FY 2001 ITS Integration Program earmark for Charlotte, North Carolina. The project, while retaining its unique identity, builds on the FY 2000 earmark for the Charlotte, Mecklenburg County, North Carolina area. The principal project objective is to integrate the Charlotte DOT Traffic Operations Center (TOC) and the North Carolina DOT (NCDOT) Transportation Management Center (TMC). This project activity enables the NCDOT to operate the US 74 High Occupancy Vehicle system and CDOT to implement remote operation capability of the Freeway Management System on I-77. An added feature of this project is the further interconnection of, and associated information sharing between the NCDOT Metrolina TMC and the CDOT TOC. Additionally, connectivity with Public Safety agencies will enable improved incident response.

Project Location: Charlotte, North Carolina

Partner(s): FHWA, FTA, North Carolina DOT, Charlotte DOT, Charlotte Area Transit System

Start Date: September 2001

End Date: April 2006

**Estimated Total
ITS Funds:** \$496,009

**Estimated Total
Project Cost:** \$992,018

Contacts:

Max Tate	FHWA North Carolina Division, HDA-NC	(919) 856-4354	125
Ann Lorscheider	North Carolina DOT	(919) 250-4151	



DURHAM AND WAKE COUNTIES, NORTH CAROLINA

Description: This project is the FY 2002 ITS Integration Program earmark for Durham and Wake Counties, North Carolina. The project will install fiber optic communications, integration software and multiplexing equipment between the NCDOT Regional Transportation Management System and the Wake/Durham Counties Public Safety Systems. Building on a FY 2001 earmark which funded communications interconnects designed to enable data and information sharing between systems the project establishes the required communication links to implement an architecturally compliant system therefore eliminating the deployment of redundant communications systems.

Project Location: Durham and Wake Counties, NC

Partner(s): FHWA, North Carolina DOT

Start Date: September 2002

End Date: April 2006

**Estimated Total
ITS Funds:** \$413,659

**Estimated Total
Project Cost:** \$827,381

Contacts:

Max Tate	FHWA North Carolina Division, HDA-NC	(919) 856-4354	125
James Dunlop	North Carolina DOT	(919) 250-4151	



FOG DETECTION IMPROVEMENT & TRAFFIC MONITORING- RURAL MOUNTAIN REGION

Description: This project is a FY 2003 ITS Integration Program earmark for North Carolina. The project site is in the Western part of the state which is mountainous terrain heavily impacted by inclement weather. The project will deploy Road Weather Information System (RWIS) equipment especially for fog detection and transmission of traveler information. The project will provide real-time data from detector stations that measure visibility along I-40 on Old Fort Mountain in Buncombe and McDowell counties. Data collected through ITS devices will be warehoused in a database which feeds North Carolina's Advanced Traveler Information Systems Clearinghouse - NCSmartlink. Road condition data will be accessible to state agencies and travelers.

Project Location: Buncombe and McDowell Counties, North Carolina

Partner(s): FHWA, North Carolina DOT

Start Date: September 2003

End Date: April 2006

**Estimated Total
ITS Funds:** \$166,388

**Estimated Total
Project Cost:** \$332,776

Contacts:

Max Tate	FHWA North Carolina Division, HDA-NC	(919) 856-4354	125
James Dunlop	North Carolina DOT	(919) 250-4151	



FORSYTH/GUILFORD COUNTIES, NORTH CAROLINA

Description: This project is the FY 2002 ITS Integration Program earmark for Forsyth and Guilford Counties North Carolina. The project will combine two operational Transportation Management Centers (TMCs) in Greensboro and Winston-Salem into one TRIAD (Piedmont TRIAD region - Winston-Salem, Greensboro, High Point, and Burlington) Regional TMC. Independent systems in these TMCs will be integrated to provide significantly improved information sharing between the North Carolina DOT, the City of Greensboro's system, the City of Winston-Salem's Traffic Operations Center and the Winston-Salem situation room. Additionally, the integrated systems will enable Greensboro and Winston-Salem to monitor visually traffic flow on the interstate systems, and adjust signal systems to improve traffic operations when freeway traffic is diverted to these adjacent arterials.

Project Location: I-85/I-40 Corridor

Partner(s): FHWA, North Carolina DOT, City of Greensboro DOT, City of Winston-Salem DOT

Start Date: September 2002

End Date: April 2006

**Estimated Total
ITS Funds:** \$827,318

**Estimated Total
Project Cost:** \$3,627,318

Contacts:

Max Tate	FHWA North Carolina Division, HDA-NC	(919) 856-4354	125
James Dunlop	North Carolina DOT	(919) 250-4151	



INTERSTATE 95/40 TRAVEL INFORMATION IMPROVEMENTS, JOHNSTON CO., NORTH CAROLINA

Description:

This project is a FY 2003 ITS Integration Program earmark for the State of North Carolina. The setting for the project is the I-95/I-40 Corridor in Johnston County. The area encompasses the intersection of the primary North-South link (I-95) with the East-West interstate which traverses the state from the Atlantic to Tennessee (I-40). The area is critical in several aspects: hurricane evacuation; Department of Defense mobilization readiness, and interstate commerce/travel. North Carolina DOT is deploying a Traveler Information Improvement Program to support mobility and safety in this region. This project will contribute to this area improvement effort by installing closed circuit TV (CCTV), cameras, detector stations and dynamic message signs (DMS). These devices will be used in conjunction with other ITS deployments to assist in the implementation of predetermined detour routes, to provide data in support of statewide traffic management and traveler information, and to support the Amber Alert (missing children recovery) program.

The installation of these devices on the approaches to the I-95/I-40 interchange will be used to provide real-time traveler information to motorists and support emergency response agencies during hurricane evacuations and military contingencies. Information generated by this project will also feed the NC 511 system when it is implemented in the Spring 2004. Data collected by detector stations such as presence, speeds, occupancy and volumes will be warehoused in a database, and support the NC Advanced Traveler Information Systems clearinghouse - NCSmartlink.

Project Location: I-94/I-40 Corridor in Johnston County

Partner(s): FHWA, North Carolina DOT

Start Date: September 2003

End Date: April 2006

**Estimated Total
ITS Funds:** \$415,971

**Estimated Total
Project Cost:** \$831,940

Contacts:

Max Tate	FHWA North Carolina Division, HDA-NC	(919) 856-4354	125
James Dunlop	North Carolina DOT	(919) 250-4151	



METROLINA TRAFFIC MANAGEMENT CENTER COMMUNICATION

Description:

This project is a FY 2003 ITS Integration Program earmark for Charlotte-Mecklenburg County, North Carolina. The project will connect various systems to city and State transportation operations centers, and expand the basis for increased cooperation between North Carolina DOT and the City of Charlotte.

NCDOT will install fibre optic communications cable, closed circuit TV cameras, detector stations, and supporting equipment required to coordinate eleven traffic signals along a state route (NC 16). These ITS devices will be integrated with systems deployed in previous projects to assist in the expansion of existing traffic management and traveler information systems in North Carolina.

This project continues previously initiated work to provide comprehensive coordination between State and city operations centers. The resulting capability will be improved information sharing between the NCDOT Metrolina Regional Transportation Management Center and the Charlotte DOT signal system Traffic Operations Center.

Project Location: Charlotte, Mecklenburg County, North Carolina

Partner(s): FHWA, North Carolina DOT, Charlotte DOT

Start Date: September 2003

End Date: December 2006

**Estimated Total
ITS Funds:** \$1,663,884

**Estimated Total
Project Cost:** \$3,327,768

Contacts:

Max Tate	FHWA North Carolina Division, HDA-NC	(919) 856-4354	125
James Dunlop	North Carolina DOT	(919) 250-4151	



RALEIGH, WAKE CO., NORTH CAROLINA ITS INTEGRATION

Description: The principal purpose of this project is to integrate city and state traffic operations centers to facilitate information sharing. The project also incorporates planning for the integration of light rail and an automated vehicle location component to the city transit system. Major components to be developed with FY 1999 funding include:

- Transportation Management Center to North Carolina State Highway Patrol communication and interface;
- Crabtree-to-City of Raleigh communications and system integration;
- City of Raleigh to Regional Transportation Management Center communication and integration;
- Regional Transportation Management Center (communication hub).

Project Location: Raleigh, Wake Co., North Carolina

Partner(s): FHWA, North Carolina DOT; City of Raleigh; City of Durham; North Carolina State Highway Patrol

Start Date: September 1999

End Date: April 2006

Estimated Total ITS Funds: \$1,582,939

Estimated Total Project Cost: \$3,165,878

Contacts:

Max Tate	FHWA North Carolina Division, HDA-NC	(919) 856-4354	125
Ann Lorscheider	North Carolina DOT	(919) 250-4151	



NORTH DAKOTA

ADVANCED RURAL TRANSPORTATION INFORMATION SYSTEM

Description:

This project is the FY 2000 ITS Integration Program earmark for Grand Forks, North Dakota, funding for which was obligated in mid CY 2001. Project objectives include:

- Deployment of ITS components that support integration of systems outside of metropolitan areas.
- Design and integration of ITS components currently in operation in traveler information systems, and
- Integration of Highway Management Systems with Incident Management, Emergency Management, and Operations and Maintenance Systems.

The project builds on the Advanced Transportation Weather Information System (ATWIS) deployed in the Dakotas. ATWIS is focused on rural settings, and has merged technologies in weather analysis, weather forecasting, telecommunications, and road condition monitoring to produce short term, site-specific forecasts in conjunction with the development of rapid and timely means of dissemination to travelers. Fusion of large quantities of data has spurred the development of a Decision Support System (DSS) designed to manage data to support production and timely dissemination of short-term, site-specific nowcasts/forecasts. The DSS enables evaluation of complex information to support identification of specific travel corridors. In addition to weather prediction models, other weather data to be integrated into forecasting tools include road weather observations providing road surface condition profiles with regard to water and ice coverage. These capabilities are complemented by sub-surface and soil moisture characterization techniques. The project will fuse all data sources to broaden the scope of ATWIS to include Emergency Management, Freeway Management, Operations and Maintenance, and Highway Patrol Systems thus creating a statewide, real-time road condition and incident reporting system.

Project Location: Grand Forks, North Dakota

Partner(s): FHWA, North Dakota DOT, University of North Dakota

Start Date: September 2001

End Date: March 2006

**Estimated Total
ITS Funds:** \$393,211

**Estimated Total
Project Cost:** \$944,985

Contacts:

Steve Busek	FHWA North Dakota Division, HDA-ND	(701) 250-4343	112
Leon Osborne, Jr.	U of ND, Regional Weather Information Center	(701) 777-2479	



ADVANCED TRAFFIC ANALYSIS CENTER - FARGO, NORTH DAKOTA

Description:

This project is the FY 2000 ITS Integration Program Congressionally-directed deployment for Fargo, North Dakota. Federal funding for this project was obligated in February 2002. This project addresses statewide requirements for ITS integration. ITS integration planning and implementation will be conducted through a partnership between North Dakota DOT and the Advanced Traffic Analysis Center at North Dakota State University. Elements of statewide ITS integration include the following initiatives:

- Development of a plan for a Traffic Operations Center (TOC) at ND DOT's Fargo District. Planning for the proposed TOC envisions a statewide information center supporting all operational aspects of the state road system to include freeway monitoring, winter road maintenance, incident management, arterial management, and emergency management.
- Statewide Advanced Traveler Information System services designed to provide weather information through dynamic message signs, information kiosks and Internet access. These enhancements will complement currently available road weather information accessible through free cellular phone service arranged with cellular service providers in North Dakota and South Dakota.
- Winter Operational Maintenance Management improvements. GPS-based Automatic Vehicle Location deployments on snowplows will be assessed to facilitate fleet management.
- Arterial Management improvements to enable traffic signal control integration across agency and jurisdiction boundaries. Initially, the TOC will coordinate interconnected signal controllers.
- Incident Management/Emergency Response planning for implementation of a statewide communications infrastructure capable of coordinating incident management and emergency management operations.

Project Location: Fargo, North Dakota

Partner(s): FHWA; North Dakota DOT; North Dakota State University; Fargo-Moorhead Council of Governments

Start Date: February 2002

End Date: March 2007

Estimated Total ITS Funds: \$786,421

Estimated Total Project Cost: \$1,726,057



Contacts:

Steven Busek	FHWA North Dakota Division, HDA-ND	(701) 250-4343	112
Ed Ryen	ND DOT	(701) 328-4274	
Dr. Ayman Smadi	North Dakota State University	(701) 231-8101	



CONVERSION OF MEDORA GWEN TO NATIONWIDE DIFFERENTIAL GPS

Description: This project is the FY 2001 ITS Integration Program Congressionally-directed deployment for the State of North Dakota. The project will convert a decommissioned U.S. Air Force Ground Wave Emergency Network (GWEN) site into a Differential Global Positioning System (DGPS) site to provide complete coverage of North Dakota. Conversion of the Medora, ND site will provide North Dakota with an enabling technology to support navigation system applications requiring accuracies associated with route guidance, fleet management of specialty vehicles such as snowplows, emergency service vehicles, and maintenance equipment especially in poor visibility winter conditions. Converting the Medora, ND GWEN site to Nationwide DGPS will fill a coverage void in the western part of the state, and operate as an enabling technology required to allow other technologies to function at a higher level.

Project Location: Medora, North Dakota

Partner(s): FHWA, FRA, North Dakota DOT, U. S. Coast Guard, National Geodetic Survey

Start Date: February 2002

End Date: July 2006

**Estimated Total
ITS Funds:** \$146,807

**Estimated Total
Project Cost:** \$420,000

Contacts:

Steven Busek	FHWA North Dakota Division, HDA-ND	(701) 250-4343	112
Ed Ryen	North Dakota DOT	(701) 328-4274	



RURAL ADVANCED TRAVELER INFORMATION SYSTEM (RATIS)

Description:

This project builds on previous efforts to develop and demonstrate a Rural Advanced Traveler Information System (RATIS). Initial efforts were implemented as an operational test of an en-route traveler weather information system. This project leverages and extends this project with the objective of expanding the area coverage, augmenting the operational concept and extending the duration of the demonstration.

RATIS is the only system to date that has developed, tested, and produced an operational rural system for travel across vast open spaces, where road conditions and weather information are essential to the economy and personal safety. RATIS capitalizes on the existing wireless telecommunication infrastructure while designing a system that can easily expand and adapt to the rapidly changing telecommunication industry. RATIS has merged technologies from meteorology, computer science, wireless telecommunication, road weather monitoring and forecasting, and transportation into a single decision support system that can respond, adapt, and disseminate information on short notice, with a recurring cycle. RATIS has the ability to quickly adjust to changes in information standards, formats, and protocols as this industry matures.

Much of the technology required to operate this project presently exists within the current operational development and demonstration environment. This includes a decision support system, which combines the technology of weather analysis/forecasting with the computer representations of spatial and attribute information. Ongoing development continues on refining an infrastructure for collecting, processing, and disseminating information in a framework that permits concept validation.

Project Location: North Dakota

Partner(s): FHWA, NDDOT, SDDOT, University of ND, Meridian Environmental Technology Inc., various cellular telephone companies in ND and SD

Start Date: September 2000

End Date: March 2006

**Estimated Total
ITS Funds:** \$548,815

**Estimated Total
Project Cost:** \$1,097,626

Contacts:

Steven Busek	FHWA North Dakota Division, HDA-ND	(701) 250-4343	112
Leon Osborne	University of ND	(701) 777-2479	



SURFACE TRANSPORTATION WEATHER INSTITUTE

Description:

This project is a FY 2003 ITS Integration Program earmark for the University of North Dakota. The project will contribute to improved availability of weather-related pavement condition information. The project will be carried out by the Surface Transportation Weather Institute at the University of ND, and is to be a component of the Advanced Pavement Condition Analysis and Prediction System (APCAPS) which focuses on fine-scale analysis and prediction techniques associated with pavement frost, pavement precipitation accumulation, blowing/drifted snow and roadway visibility. The project will integrate with present 511 traveler information systems, new road reporting systems becoming available during the coming year, and with the Maintenance Decision Support System presently undergoing research in North and South Dakota.

The accurate analysis and prediction of roadway conditions by improved pavement condition models requires consideration not only of heat balance condition, but also mass balance that includes the impacts of road surface contaminants. An added factor to be considered is the impact of traffic on the distribution of snow and ice on the road surface. This project will integrate these various factors into a deployed distributed analysis and prediction system.

The output of this project will be incorporated into APCAPS which will provide 511 systems with improved road weather condition information. APCAPS will also be integrated with a Maintenance Decision Support System currently under development across five Midwestern states.

Project Location: North Dakota

Partner(s): FHWA, North Dakota DOT, South Dakota DOT, Meridian Environmental Technology, Inc.

Start Date: November 2003

End Date: June 2007

**Estimated Total
ITS Funds:** \$831,942

**Estimated Total
Project Cost:** \$1,663,884

Contacts:

Steven Busek	FHWA North Dakota Division, HDA-ND	(701) 250-4343	112
Prof. Leon Osborne, Jr.	UND-Regional Weather Information Center	(707) 777-2479	



OHIO

CENTRAL OHIO ITS DEVELOPMENT AND INTEGRATION

Description: This project is the FY 2000 ITS Integration Program earmark for Columbus, Ohio and the Central Ohio Transit Authority (COTA) funding for which was approved in July 2003. COTA has implemented an automated management system which provides the Transit Authority staff with a computer-aided dispatch/automatic vehicle location (CAD/AVL) system that presents geographical representations of the COTA fleet associated with the City of Columbus street maps. The system utilizes Global Positioning System (GPS) technology to track the location of every bus and service vehicle in the fleet. This project is comprised of multiple initiatives that will ensure maximum technology benefit is achieved in future ITS investments. The initiatives include procurement activities, an ITS Security Assessment, completion of TCIP XML Pilot Project, an Advanced Traveler Information Systems Pilot, and a Smart Card feasibility study.

Project Location: Columbus, Ohio

Partner(s): FHWA, Central Ohio Transit Authority, Mid Ohio Regional Planning Commission

Start Date: July 2003

End Date: April 2006

**Estimated Total
ITS Funds:** \$486,421

**Estimated Total
Project Cost:** \$972,000

Contacts:

Jim Buckson	FHWA Ohio Division, HDA-OH	(614) 280-6846
Mark Nawrath	COTA	(614) 308-4373



COLUMBUS, OHIO ITS INTEGRATION - PHASE I

Description: This project constitutes part of Phase I of a regional ITS infrastructure deployment and integration plan. Phase I includes deployment of a traffic signal prioritization system on a portion of the Central Ohio Transit Authority's main routes and assessing the effectiveness of the system. Real-time transit information will be provided in selected central business district bus stop locations. Inherent in this real-time component is the installation of an automated vehicle location (AVL) system on a portion of the Authority's fleet. The AVL system will be utilized for both the signal priority and the real-time transit information systems.

Project Location: Columbus, Ohio

Partner(s): Central Ohio Transit Authority, City of Columbus, Ohio DOT, Mid-Ohio Regional Planning Commission, Columbus Airport Authority

Start Date: May 1999

End Date: March 2006

**Estimated Total
ITS Funds:** \$791,470

**Estimated Total
Project Cost:** \$1,595,213

Contacts:

Jim Buckson	FHWA Ohio Division, HDA-OH	(614) 280-6846
Mark Nawrath	Central Ohio Transit Authority	(614) 308-4373



COMPUTERIZATION OF TRAFFIC SIGNALS IN ASHTABULA

Description: This project is a FY 2004 ITS Integration Program earmark for Ashtabula, Ohio. The project will install an emergency signal preemption system at a congested intersection. The emergency signal preemption system will enable all Fire, Emergency Medical Service and Police agencies to clear the intersection safely.

Project Location: Ashtabula, OH

Partner(s): FHWA, Ohio DOT, City of Ashtabula, OH

Start Date: December 2004

End Date: March 2006

**Estimated Total
ITS Funds:** \$12,062

**Estimated Total
Project Cost:** \$56,810

Contacts:

James Buckson	FHWA, Ohio Division	(614) 280-6846
Rick Balog	Ashtabula Fire Department	(440) 992-7190



TRANSIT COMMUNICATIONS SYSTEM INTEGRATION WITH FRANKLIN COUNTY PUBLIC SERVICE

Description:

This project is a component of the FY 2000 Central Ohio Earmark. The Central Ohio Transit Authority (COTA) has been an active participant in regional ITS-related initiatives. COTA initiatives include pursuing the implementation of transit ITS systems and the establishment of a regional transportation management system. In the course of replacing its radio system and upgrading its communications capabilities, COTA will integrate its communications system with the Franklin County Public Safety System. The County already possesses the infrastructure to accommodate communications needs between law enforcement and emergency services agencies, as well as with the cities of Columbus, Westerville, and Upper Arlington. With the added capability of direct communications between COTA bus operators with safety and emergency services providers, there will be a significant increase in fleet management, fleet safety and reduced incident response times.

Integration activities have been completed. An evaluation report is under development and anticipated by the end date depicted below.

Project Location: Columbus, Ohio

Partner(s): FHWA, Central Ohio Transit Authority, Franklin County Public Services

Start Date: September 2000

End Date: April 2006

Estimated Total ITS Funds: \$300,000

Estimated Total Project Cost: \$616,355

Contacts:

Jim Buckson	FHWA Ohio Division, HDA-OH	(614) 280-6846
Mark Nawrath	Central Ohio Transit Authority	(614) 308-4373



WIRELESS E9-1-1 DEPLOYMENT ASSISTANCE

Description:

USDOT is sponsoring a WE9-1-1 Initiative to accelerate the availability of wireless emergency location service across the United States, and thereby enhance transportation safety and security. One goal of the WE9-1-1 Initiative is to work with public safety associations and leaders to provide technical assistance, guidance, and training to accelerate state and local readiness for wireless E9-1-1.

The objectives of this project are to support the WE9-1-1 Initiative by developing the necessary tools, technical guidance, and training and outreach materials to facilitate implementation of the wireless E9-1-1 services throughout the 50 states. A related objective is to foster coordination among the many players in this field to ensure efficient approaches to the implementation process.

Project Location:

Columbus, Ohio

Contractor(s):

National Emergency Number Association (NENA), Association of Public-Safety Communications Officials

Start Date:

October 2001

End Date:

April 2006

Estimated Total ITS Funds:

\$849,877

Estimated Total Project Cost:

\$849,877

Contacts:

K. Craig Allred	FHWA ITS JPO, HOIT	(202) 366-8034
Jim Goerke	NENA	(800) 332-3911



OKLAHOMA

INTEGRATION AND EXPANSION PROJECTS FOR OKLAHOMA CITY METRO AREA

Description:

This project is one of five FY 2003 ITS Integration Program earmarks for the State of Oklahoma. The overall goal of the five projects is to integrate the operations of disparate agencies, and to improve the efficiency and operations of the individual agencies. This project will integrate various existing and newly developed ITS components into a common fiber optic communications network capable of supporting information sharing. Included among ITS components to be integrated into a shared network are closed circuit cameras (CCTV), Web cameras (Web Cams), dynamic message signs (DMS), traffic signals and interconnect controllers, road sensors and de-icing systems. The integration to be accomplished by this project will enable multi-user, multi-jurisdictional data sharing capable of supporting coordinated and effective response to congestion, incidents, security preparedness and disaster management. Levels of government accessing the network will include state and local operations centers, federal, (Department of Defense) and local agencies. Benefits will include integration of freeway and incident management, real-time traffic monitoring and the exchange of traffic and incident information among participating agencies in the Oklahoma City area.

Project Location: Oklahoma

Partner(s): FHWA, Oklahoma DOT, Oklahoma Dept of Public Safety, Oklahoma Transportation Authority, City of Oklahoma City, City of Tulsa, Fort Sill Army Post, Tinker Air Force Base, McAlester Ammunition Plant, University of Oklahoma-Norman

Start Date: September 2003

End Date: December 2006

**Estimated Total
ITS Funds:** \$570,000

**Estimated Total
Project Cost:** \$1,140,000

Contacts:

Richard Jurey	FHWA Oklahoma Division, HDA-OK	(405) 605-6040	323
Harold Smart	Oklahoma DOT	(405) 521-2861	
Alan Stevenson	Oklahoma DOT	(405) 521-2861	



INTEGRATION AND EXPANSION PROJECTS FOR THE TULSA METROPOLITAN AREA

Description:

This project is one of five FY 2003 ITS Integration Program earmarks for the State of Oklahoma. The project will integrate a variety of existing ITS components and new ITS devices being deployed concurrently, as separate projects with other funding sources, into a common fiber optic communications network. Among components to be deployed and integrated are closed circuit TV cameras, Web cameras, dynamic message signs, traffic signals and interconnect controllers, road sensors, and deicing systems. In some areas, the project will include completion and expansion of fiber optic communications backbone to transportation and emergency response-related agencies not yet connected. The integration to be accomplished by this project will enable multi-user, multi-jurisdictional data sharing, capable of supporting coordinated and effective response to congestion, incidents, security preparedness and disaster management. Levels of government accessing the network will include state and local operations centers, Federal (to include Department of Defense) and local agencies. Benefits will include integration of freeway and incident management, real-time traffic monitoring, and the exchange of traffic and incident information among participating agencies in the Tulsa area.

Project Location: Oklahoma

Partner(s): FHWA, Oklahoma DOT, Oklahoma Dept of Public Safety, Oklahoma Transportation Authority, City of Oklahoma City, City of Tulsa, Fort Sill Army Post, Tinker Air Force Base, McAlester Ammunition Plant, University of Oklahoma-Norman

Start Date: September 2003

End Date: December 2006

**Estimated Total
ITS Funds:** \$610,000

**Estimated Total
Project Cost:** \$1,220,000

Contacts:

Richard Jurey	FHWA Oklahoma Division, HDA-OK	(405) 605-6040
Harold Smart	Oklahoma DOT	(405) 521-2861
Alan Stevenson	Oklahoma Dot	(405) 521-2861



INTEGRATION PROJECT FOR OKLAHOMA CITY METROPOLITAN AREA

Description: This project is a component of the FY 2002 ITS Integration Program Oklahoma Statewide earmark. This project will integrate various existing ITS components, and newly deployed ones as they are activated, onto a common fiber optic communications backbone. A principal feature of the project is the I-44 Corridor integration activity which will integrate the Oklahoma City (OKC) Traffic Management Center with the OKC Traffic Maintenance Facility, OKDOT's Reno Traffic Operations Center, OKDOT's Central Office, OK State Highway Patrol and OK Transportation Authority.

Project Location: Oklahoma City, OK

Partner(s): FHWA, OKDOT, City of Oklahoma City, OK State Highway Patrol

Start Date: September 2002

End Date: April 2006

**Estimated Total
ITS Funds:** \$203,100

**Estimated Total
Project Cost:** \$406,200

Contacts:

Richard Jurey	FHWA Oklahoma Division, HDA-OK	(405) 605-6040	323
Harold Smart	Oklahoma DOT	(405) 521-2861	
Alan Stevenson	Oklahoma DOT	(405) 521-2861	



INTEGRATION PROJECT FOR OPERATIONS CENTER AT THE ODOT CENTRAL OFFICE

Description: This project is one of the FY 2003 ITS Integration Program earmarks for the State of Oklahoma. The project supports the development of a centralized Statewide Operations Center designed to coordinate Statewide ITS components. The Oklahoma DOT central office will house a statewide operations and monitoring center capable of providing an overview of the State's traffic and incident conditions. This project will fund the installation of operations center equipment to include communications components, computers, monitors, and data servers that will support Statewide ATIS, and ITS devices deployed the Oklahoma City and Tulsa regions.

Project Location: Oklahoma

Partner(s): FHWA, Oklahoma DOT, Oklahoma Dept of Public Safety, Oklahoma Transportation Authority, City of Oklahoma City, City of Tulsa

Start Date: September 2003

End Date: December 2006

**Estimated Total
ITS Funds:** \$100,000

**Estimated Total
Project Cost:** \$200,000

Contacts:

Richard Jurey	FHWA Oklahoma Division, HDA-OK	(405) 605-6040	323
Harold Smart	Oklahoma DOT	(405) 521-2861	
Alan Stevenson	Oklahoma DOT	(405) 521-2861	



INTEGRATION PROJECT FOR TULSA METROPOLITAN AREA

Description:

This project is a component of the FY 2002 ITS Integration Program Oklahoma Statewide earmark. This project will integrate various ITS components, both existing and being deployed concurrently with separate funding, onto a fiber optic communication backbone. The integration will enable multi-user participation among integrated agencies to ensure coordinated and effective response to incidents. Benefits of the integration include emergency management agencies in the Tulsa region which will be able to disseminate Emergency 911 traffic-related data and dispatch information to participating agencies.

The project will also facilitate traffic management center-to-traffic management center integration among the City of Tulsa, OKDOT, OK State Transportation Authority and the OK State Highway Patrol. As ITS elements are deployed, they will be integrated into the system. Current planning calls for Dynamic Message Signs, closed circuit TV camera, and Web cameras.

Project Location: Tulsa, Oklahoma

Partner(s): FHWA, OKDOT, City of Tulsa, OK Transportation Authority, OK State Highway Patrol

Start Date: September 2002

End Date: November 2006

**Estimated Total
ITS Funds:** \$408,700

**Estimated Total
Project Cost:** \$817,400

Contacts:

Richard Jurey	FHWA Oklahoma Division, HDA-OK	(405) 605-6040	323
Harold Smart	Oklahoma DOT	(405) 521-2861	
Alan Stevenson	Oklahoma DOT	(405) 521-2861	



INTEGRATION PROJECT OF MULTIPLE STATEWIDE FACILITIES

Description: This project is a component of the FY 2002 ITS Integration Program Oklahoma Statewide earmark. This project, and two similar ones focused on metropolitan areas, are intended to demonstrate the benefits of integrating multiple agencies across jurisdictional boundaries to enhance transportation operations and efficiency. This project is a multi-phased activity which includes the design and implementation of a fiber optic communication backbone to support improved security and preparedness of the state's transportation infrastructure, and the establishment of a network for information sharing among 14 state, 8 local, and 9 Federal and military agencies.

Project Location: Oklahoma Statewide

Partner(s): FHWA, FAA, ODOT, State Highway Patrol Offices, Oklahoma Emergency Management Center, Oklahoma Capital Patrol, Oklahoma University, Oklahoma Transportation Authority, Association of Central Oklahoma Governments (ACOG), Oklahoma City, Indian Nations Council of Government (INCOG)

Start Date: September 2002

End Date: April 2006

Estimated Total ITS Funds: \$1,095,155

Estimated Total Project Cost: \$2,190,310

Contacts:

Richard Jurey	FHWA Oklahoma Division, HDA-OK	(405) 605-6040	323
Harold Smart	Oklahoma DOT	(405) 521-2861	
Alan Stevenson	Oklahoma DOT	(405) 521-2865	



ITS STRATEGIC PLAN, BUSINESS PLAN, INTEGRATION DEMONSTRATION & INDIAN NATIONS COUNCIL OF GOVERNMENTS INITIAL DEPLOYMENT STUDY

Description: This project is one component of the FY 2001 ITS Integration Program earmark for the State of Oklahoma. The project will undertake three related subprojects as follows:

- Develop a Statewide ITS Architecture and Plan.
- Prepare an Initial Deployment Study for the Tulsa Metropolitan Area.
- Integrate components and systems of the Oklahoma City Area Regional Transportation Study (OCARTS) area, the Oklahoma Department of Public Safety (DPS) and the Oklahoma Department of Transportation (ODOT) for an ITS Demonstration Project.

The Demonstration Project will integrate arterial management systems and freeway management systems managed by ODOT and Oklahoma City through a fiber optic backbone which will fuse data in an interim ODOT Traffic Operations Center.

Project Location: State of Oklahoma

Partner(s): FHWA, Oklahoma DOT, Oklahoma Department of Safety/Oklahoma Highway Patrol, INCOG, ACOG

Start Date: September 2001

End Date: April 2006

Estimated Total ITS Funds: \$593,615

Estimated Total Project Cost: \$1,184,000

Contacts:

Richard Jurey	FHWA Oklahoma Division, HDA-OK	(405) 605-6040	323
David Streb	Oklahoma DOT	(405) 521-6916	



OKLAHOMA STATEWIDE ITS

Description:

This project is a FY 2004 ITS Integration Program earmark for the State of Oklahoma. The project is comprised of four subprojects whose collective purpose is to bring local, state and federal agencies onto a common, integrated system that will improve transportation operations across Oklahoma and the efficiency of the individual participating agencies. The four subprojects are summarized as follows:

I. Integration and Expansion Projects for the Oklahoma City Metropolitan Area

II. Integration and Expansion of Projects or the Tulsa Metropolitan Area

Both of these subprojects have identical objectives for their respective metropolitan areas: To integrate various existing ITS components, and other new ones, as they are deployed, onto a common fiber optic communications information-sharing network. These activities will link OK DOT, state, federal, military and local agencies on to a common communications backbone that will enable mutual information sharing in support of freeway and incident management, real-time traffic monitoring and traveler information. Oklahoma DOT will follow the ITS Statewide Strategic Plan and associated regional architectures to identify specific ITS components and their locations.

III. Rural ITS Deployment and Integration Project

This subproject's objective is to expand ITS deployments to rural areas of Oklahoma. This activity will include expanding the communications network and integrating new rural ITS components on a common network which can be shared by various state, federal and military agencies. The subproject will include the deployment and integration of new closed circuit web cameras, pavement sensors, and weather stations to monitor roadway conditions on major rural highways.

IV. Systems Engineering and Integration for Statewide ITS

This subproject will implement systems engineering and integration professional services required to continue the Statewide ITS control software, ITS component integration and testing, and expansion of the state traveler information system.

Project Location: State of Oklahoma

Partner(s): FHWA, Oklahoma DOT; Oklahoma Department of Public Safety/Oklahoma Highway Patrol.

Start Date: September 2005

End Date: December 2007

**Estimated Total
ITS Funds:** \$1,723,164

**Estimated Total
Project Cost:** \$3,723,164



Contacts:

Richard Jurey	FHWA, Oklahoma Division	(405) 605-6040	323
Harold Smart	Oklahoma DOT	(405) 521-2861	
Alan Stevenson	Oklahoma DOT	(405) 521-2861	



SYSTEMS ENGINEERING & INTEGRATION FOR THE STATEWIDE ITS CONTROL SOFTWARE & ATIS

Description: This project is one of five FY 2003 ITS Integration Program earmarks for the State of Oklahoma. The project is comprised of the systems engineering and integration-related professional services required to complete the Statewide Advanced Traveler Information Systems (ATIS) and associated control software. Project activity includes integrating ITS components such as closed circuit TV cameras, Web Cameras, dynamic message signs (DMS), and road sensor data into a single graphical user interface control software platform. The Statewide ATIS will provide camera imagery, speed data, DMS information, construction and incident information on an integrated Web site. Complementary integration activities include developing the ITS network which will integrate the ATIS with the Amber Alert Program (child abduction alert dissemination) with the Statewide system of ITS components.

Project Location: Oklahoma

Partner(s): FHWA, Oklahoma DOT, Oklahoma Dept of Public Safety, Oklahoma Transportation Authority, City of Oklahoma City, City of Tulsa

Start Date: September 2003

End Date: December 2006

**Estimated Total
ITS Funds:** \$100,000

**Estimated Total
Project Cost:** \$200,000

Contacts:

Richard Jurey	FHWA Oklahoma Division, HDA-OK	(405) 605-6040	323
Harold Smart	Oklahoma DOT	(405) 521-2861	
Alan Stevenson	Oklahoma DOT	(405) 521-2861	



OREGON

PORTLAND STATE UNIVERSITY, INTELLIGENT TRANSPORTATION RESEARCH INITIATIVE, OREGON

Description:

This project is a FY 2004 ITS Integration Program earmark for Portland State University. The project objective is to create a regional resource for housing archived ITS data; to serve as an emergency back-up transportation management operations center (TMOC); and to provide resources for regional transportation education, research and training. Earmarked funding and the required match comprise a portion of the approximately \$60 million total project cost.

This earmark contributes partial funding to design, outfit and interior "fit up" for the new regional Intelligent Transportation Systems (ITS) Laboratory suite to be located in the new \$60 million Northwest Center for Engineering, Science and Technology (NWCEST), a major engineering research facility located on the campus of Portland State University in downtown Portland, Oregon. Integration will be achieved through to several key strategies: designing and equipping the new ITS laboratory in the NWCEST, including the provision of cable raceways and cable troughs to enable the flexible cabling of the lab as technologies evolve; providing physical communications linkages; providing linkages to ITS data sources that will enable the establishment, testing, expansion and use of the regional ITS data archive; and the use of traffic management system software and hardware for training, simulation and educational purposes.

Project Location: Portland, Oregon

Partner(s): FHWA; Oregon DOT; Portland State University; City of Portland; TriMet

Start Date: August 2005

End Date: August 2006

**Estimated Total
ITS Funds:** \$344,633

**Estimated Total
Project Cost:** \$689,266

Contacts:

Nathaniel Price	FHWA, Oregon Division	(503) 587-4709
Galen McGill	Oregon DOT	(503) 986-4486
Robert Bertini	Portland State University	(503) 725-4249



OREGON REGIONAL ITS INTEGRATION

Description:

This project is comprised of the FY 2000 and FY 2001 ITS Integration earmark for the State of Oregon. The Portland metropolitan region has adopted an aggressive program of ITS projects including implementation of operational systems in accordance with a regional cooperation concept that guides integrated planning in support of a safe, efficient, accessible and sustainable transportation system. The regional transportation stakeholder committee, the Transport 2000 Partnership, has developed a consensus-based vision for a statewide and regional ITS program. The vision merges near-term expansion of ITS capabilities achieved by reusing existing infrastructure and using infrastructure under development with a needs-driven, incremental deployment of new infrastructure. The FY 2000 earmark is comprised of ten subprojects. The FY 2001 ITS Integration earmark adds to this foundation with increased funding for selected subprojects and by initiating a new project. These projects will contribute to: accelerating integration of regional ITS in multi-jurisdictional metropolitan and rural areas; improving safety and efficiency in regional movement of people, goods and services; improving safety and efficiency of regional traffic flow including inter-modal transfer of passengers and freight at international ports of entry; integrating and improving the scope, content and distribution of high quality intermodal traveler information; creating a sustainable business environment for private sector traveler information service and transportation system providers; efficiently building on both operational and concurrent deployment of regional ITS infrastructure. The project inventory is summarized as follows:

- Regional Intermodal Transit Traveler Information and Security System
- Transit Buses as Traffic Probes
- Regional ATIS Sustainable Business Model Deployment (FY 01 earmarked funding added)
- Regional Transportation Status Web Site (FY 01 earmarked funding added)
- I-5/Barbur Blvd. Demonstration Corridor for Traffic Monitoring, Incident Management, and Traveler Information
- Inter- and Multi-modal Traffic and Parking Management at Portland International Airport
- Oregon Transportation Network Statewide Transit Trip Planning (FY 01 earmarked funding added)
- TOC design & RFP development
- The Oregon Advanced Travel Information System (ATIS) improvement project
- US 199
- Transit Tracker (Real-Time Customer Information Displays (FY 01 earmark))

REGIONAL INTERMODAL TRANSIT TRAVELER INFORMATION AND SECURITY SYSTEM - This project will deploy the Phase I increment of an integrated and upgraded regional, multi-modal Traveler Information and Security System. This system will serve transit riders with enhanced or new capabilities for access to pre-trip planning, fare and bus schedule information, en-route rider information, and traveler information on intermodal choices and transfer points. This system will ultimately provide the service on rail platforms, transfer points and for intermodal ground transport options at Portland International Airport to facilitate the safe and efficient use of regional transit systems. Initial site deployments scheduled for 3/31/2001. ITS Funds - \$50,000; Total Funds - \$1,074,000.

TRANSIT BUSES AS TRAFFIC PROBES - This project will develop and deploy an integrated regional subsystem to collect and process real-time transit bus operational data, and effectively apply that data for use as traffic probe data in determination of regional arterial traffic network status. This enhanced information will then be disseminated to the public as added content for the Regional Transportation Status Web Site and as value-added arterial data for presentation at the ATIS Sustainable Business



Model - both of these projects are described below. The project also provides baseline near-term integration opportunities for information sharing between Tri-Met bus and City of Portland arterial traffic management operations. This integrated baseline then facilitates broader regional transit information sharing for both Tri-Met and (potentially) C-TRAN for enhanced wide-area arterial traffic probe surveillance-including the I-5 primary bi-state commuter corridor, and for enhanced and more complete regional transportation system status as traveler information disseminated by the public sector or ISPs. Completion scheduled for 11/2003. ITS Funds - \$50,000; Total Funds - \$125,000.

REGIONAL ATIS SUSTAINABLE BUSINESS MODEL DEPLOYMENT - This project conceptualized, designed, developed and deployed an initial regional public sector traffic and transit information interface that then enables one or more ISP-integrated regional traveler information subsystems to provide pre-trip travel information, en-route driver information, route guidance and traveler services information to subscribers and the general public. This project goal is to ultimately bring all regional public sector real-time and near real-time operational data, and static information to a common and well-defined regional interface. The content is derived from architecture flow interfaces to Traffic Information Dissemination from operations at ODOT, WSDOT and regional counties and municipalities, Transit Fixed-Route Operations at Tri-Met and C-TRAN, and Parking Facility Management at Portland International Airport. The project provides the ideal baseline near-term integration opportunities for information sharing public-private and public-public. This project includes the identification and initial regional integration of data from ODOT, City of Portland, Tri-Met and Port of Portland. This regional integrated baseline will then facilitate a sustainable information source for regional transportation system status for use by regional ISPs. Complete. ITS Funds - \$75,000; Total Funds - \$75,000.

REGIONAL TRANSPORTATION STATUS WEB SITE - This project effort will develop, integrate and deploy the infrastructure, content and presentation to implement an initial regional transportation systems web site that provides a full-spectrum of seamless, inter-modal traveler information to the general public. This site also provides a secure mechanism for public agencies and other authorized users to share operational information. The ODOT regions and several local jurisdictions have developed and deployed informative web sites with reasonably thorough content and presentation, and with cross-links to each other. This approach has been cost-effective, successful and beneficial in specific information markets but has yet to realize the full potential of an integrated, seamless regional and statewide transportation and traveler information source. This project proposes the integration and enhancement of these sites to provide a full-spectrum of seamless regional, statewide and multi-jurisdictional bi-state (OR-WA, ID and CA) transportation content and presentation. This full-spectrum of traveler and transportation status information will include: congestion on freeways, state highways and metropolitan arterials, incidents affecting traffic flows, special events, tourism, weather, video snapshots, construction both planned and in-progress, road closures and restrictions. Also proposed is that this integrated web site will have content appropriate for distribution to the general public as well as a separate secure controlled-access area for use by public agencies or authorized users to exchange non-mission critical or event related data (e.g., bulk or specific event data and traffic images for incident management and tracking, law enforcement, trauma centers, etc.). Concurrently with definition and the initial building of a sustainable data interface in the Regional ATIS Sustainable Business Model Deployment, this project provides immediate near-term integration opportunities for web-based dissemination of information already available but not yet collected and fused into a unified regional or statewide context and presentation. This integrated baseline Web site then forms the model for more cost-effective regional or statewide transportation information dissemination and public access. Completion 4/2003. ITS Funds - \$75,000; Total Funds - \$115,000.

I-5 SOUTH / BARBUR BLVD DEMONSTRATION CORRIDOR FOR TRAFFIC MONITORING, INCIDENT MANAGEMENT, AND TRAVELER INFORMATION - This project will complete a comprehensive implementation along SW Barbur Boulevard and



I-5 in this arterial-freeway corridor from the junction with I-405 on the north to the City of Portland/Tigard city limits on the south. The project will install dynamic message signs, CCTV cameras, traffic monitoring stations and fiber communications media. The project will integrate these roadside devices with the ODOT TMOc and the City of Portland's legacy Series 2000 central computer system, and will establish the architectural and NTCIP-based framework for future integration with the city's planned replacement system, and will facilitate the future integration of additional NTCIP-based roadside and center-to-center information sharing. The project is expected to deploy and integrate one DMS and one CCTV on I-5, six DMS/CMS and four CCTV on Barbur Blvd, and two additional detector loop stations on I-5. This project provides near-term integration opportunities for information sharing between ODOT Region 1 freeway operations and City of Portland arterial traffic management operations. This integrated baseline then facilitates broader regional corridor optimization through enhanced wide-area surveillance and corridor traffic management and control opportunities. Completion 9/2004. ITS Funds - \$100,000; Total Funds - \$465,000.

INTER- AND MULTI-MODAL TRAFFIC AND PARKING MANAGEMENT AT PORTLAND INTERNATIONAL AIRPORT - This project will deploy a Traffic, Parking Management and Traveler Information System at Portland International Airport with regional connectivity to provide traffic (public and commercial) management, remote traveler support and parking management functions. The integration of center-to-center connections will include ODOT Region 1 TMOc, City of Portland TOC, Tri-Met Central Operations & Dispatch and Port of Portland Marine and Planning facilities. This project will integrate the PDX parking management and access roadway status into the regional network system through shared Tri-Met communications to the ODOT TMOc. The project provides initial near-term integration opportunities for parking and access roadway status information sharing between Portland International Airport, ODOT Region 1 TMOc, City of Portland TOC and Tri-Met bus and rail operations. This integrated baseline then facilitates future regional integration of airport multi-modal traveler information sharing for seamless regional and statewide traveler information access. Completion of Regional Integration 4/2003. ITS Funds - \$75,000; Total Funds - \$219,000. In FY 2001 \$35,000 in matching funds was added.

TRANSIT TRACKER (REAL-TIME CUSTOMER INFORMATION DISPLAYS) - The objective of this project is to develop and deploy an integrated regional system to collect, process and disseminate real-time transit information to the transit mall, rail platforms, transit centers, bus shelters, and via the Internet and other external displays. The information will enable transit riders to choose buses capable of providing quickest service to destinations and schedule delay information. \$350,000.

OREGON TRANSPORTATION NETWORK STATEWIDE TRANSIT TRIP PLANNING - This project will develop a "one stop shopping" information system for public transportation users. The OR public transportation system is comprised of over 200 public and private transit providers. These services are varied, geographically dispersed and operate independently. This project seeks to integrate multiple transit providers and provide a central trip planning system with detailed statewide, inter-jurisdictional information. Total Funds FY 00: \$70,000; FY 01: \$350,000.

TOC DESIGN & RFP DEVELOPMENT - This project will scope, phase and define the requirements, hardware and software to be used at the regional Transportation Operations Centers (TOC) outside of Portland. This TOC operations system will provide the functionality needed in a primarily rural setting, integrate the operation of the various roadside systems deployed, and integrate with systems used by other agencies (e.g., cities, Oregon State Police, CalTrans, and the California Highway Patrol). ITS Funds - \$50,000; Total Funds - \$100,000.

THE OREGON ADVANCED TRAVEL INFORMATION SYSTEM (ATIS) IMPROVEMENT PROJECT - This project will make a number of enhancements to ODOT statewide and regional ATIS capabilities. ODOT has made a commitment to providing travelers with up to date road condition information. ODOT has deployed operational capabilities in ATIS



capabilities like Travel Advisor, Trip Check, 1-800 # phone systems, and supporting systems that collect roadway status information like the HTCRS and in Region 1, the TransPort 2000 ATMS. ODOT has a long-term commitment and dedication of significant staff time to continued collection and dissemination of this essential road condition information. Project underway in FY 2000. Planned operational date 10/2001. ITS Funds - \$30,926; Total Funds - \$98,852.

US 199 - This project, together with a complementary project in California, will provide better coordination among the agencies involved in managing this I-5-to-coastal corridor through providing more complete real-time status information to operations personnel. The project will also improve traffic and roadway status information dissemination to drivers experiencing adverse weather and road closures. Project underway in FY 2000. Planned operational date 4/2001. ITS Funds - \$125,495; Total Funds - \$125,495.

Project Location: Portland, Oregon and surrounding cities and counties-urban and metropolitan areas.

Partner(s): FHWA, Oregon DOT, TransPort 2000 Partnership; City of Portland; Port of Portland; Tri-Met Transit; Battelle TransPort 2000 Team

Start Date: September 2000

End Date: December 2007

**Estimated Total
ITS Funds:** \$1,382,944

**Estimated Total
Project Cost:** \$3,869,870

Contacts:

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PENNSYLVANIA

CENTRE COUNTY, PENNSYLVANIA ENHANCED 911 PROGRAM

Description:

This project is the FY 1999 Centre Valley, Pennsylvania Earmark. Funding was obligated in FY 2000. The goal of this project is to implement technologies using geolocation localization methods in an enhanced 911 operation, and to evaluate the benefits of such technologies in improving overall emergency response. The project objectives supporting this goal are to determine the improvement in overall emergency response through time saved and other measures through the use of enhanced 911 emergency calls and determine their usefulness in improving overall emergency response. The motivation for this project is due to the urgency of the Federal Communications Commission mandate that enhanced 911 capability is established beginning in 2001. Cellular location-determining equipment shall be installed at key locations in Centre County, PA, using available commercial cellular towers and Centre County emergency communications towers, in such an arrangement that will provide overlapping coverage for where cellular communication is available. The incoming cellular 911 call will be identified as such and be routed to the public service answering point (PSAP) for Centre County in the municipal building, Bellefonte, PA. The location of the caller is obtained by matching the information from the mobile phone (mobile identification number) with a calculated position estimate that is transmitted to the database accessible over a network by the 911 Communications Center via the automatic location information (ALI) database. The cellular caller location information will be displayed on a combined Computer Aided Dispatch (CAD)/Geographic Information System (GIS) in relation to geographic landmarks and roadways as well as closest or most available emergency service resources. Some of these resources are fixed base sites as well as roving resources such as police cruisers, state patrol cars and ambulances. This system essentially provides a capability equivalent to that rapidly becoming available for 911 calls from fixed locations over landlines. This project will result in the integration of an E911 capability for Centre County, PA.

It is planned that this capability will be left in place indefinitely following the field test and evaluation. A report will document such improvements in emergency response as well as describe a developmental model for such future systems to be reviewed by other agencies as they develop their own plans for such systems.

Project Location: Centre Valley, Pennsylvania

Partner(s): FHWA, NHTSA, Penn DOT, Centre Region Planning Agency, Centre Area Transit Authority, Centre County, Pennsylvania State University, Pennsylvania State Police

Start Date: September 2000

End Date: April 2006

Estimated Total ITS Funds: \$395,735

Estimated Total Project Cost: \$795,735



Contacts:

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COMMONWEALTH OF PENNSYLVANIA

Description:

The two projects described under this title comprise the Commonwealth of Pennsylvania FY 1999 Earmark which was carried over to FY 2000. The two projects are identified as Penn DOT-US Route 202 and Pennsylvania Turnpike. The funding amounts listed below are broken down as follows: Penn DOT (US Rt. 202); earmarked funds - \$2,021,243 and total estimated cost - \$10,500,000; Pennsylvania Turnpike, earmarked funds - \$3,169,044 and total estimated cost - \$6,338,088.

The Penn DOT (US Rt. 202) project is focused on providing ITS applications to the US Route 202 corridor under renovation near King of Prussia, PA. The project will deploy ITS infrastructure to improve incident management, traveler information and emergency services in a congested section of Philadelphia. The major components of metropolitan ITS infrastructure scheduled for deployment include:

- Variable Message Signs (12 permanent, 4 portable).
- Closed Circuit TV (46 cameras proposed).
- Automatic Incident Detection System, connected to a Traffic Control Center via fibre optic network.
- Integration of systems with a Traffic Control Center via a fibre optic network.

Project duration is estimated at 25 months.

The Pennsylvania Turnpike component of the earmark is dedicated to expand an advanced traveler information system. The project will expand existing capabilities by providing for Traffic Flow Monitoring using electronic toll tag systems, installation of Closed Circuit TV, and deployment of roadway weather information stations to enhance weather and surface monitoring capabilities.

Project duration is estimated at 12 months per subsystem (Traffic Flow Detection, Closed Circuit TV, and Roadway Weather Information).

Project Location:

Diverse locations in Pennsylvania

Partner(s):

FHWA, Penn DOT, PA Turnpike Commission, PA Emergency Management Agency, PA Dept. of Environmental Protection, PA Motor Truck Association

Start Date:

September 2000

End Date:

April 2006

Estimated Total ITS Funds:

\$5,190,287

Estimated Total Project Cost:

\$16,838,088

Contacts:

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COUNTY OF SCHUYLKILL/STS ITS INITIATIVE

Description: This project is the FY 2001 ITS Integration Program earmark Schuylkill County, Pennsylvania. Funding for this project was approved and obligated September 2003. This project's objective is to upgrade the Schuylkill County coordinated transportation system. The upgrade will offer flexibility of choice to rural riders and improve accessibility to public transportation by providing real time wireless communications with the Schuylkill Transportation System (STS) fixed route and demand response bus and van fleet. Additionally, the project will provide STS operations management with the tools necessary to monitor the location and status of the fleet with highest degree of efficiency possible.

These objectives will be accomplished by placing into operation a mobile data and automatic vehicle location system for fixed route and demand response service that provides mobile data communications between dispatchers and van operators for dispatching trips and reporting trip status. Complementing these objectives, the project will integrate automatic vehicle location capabilities into the fixed route and demand response service buses to permit desktop monitoring of van locations and an emergency alarm for locating vehicles in an emergency.

Project Location: County of Schuylkill, Pennsylvania

Partner(s): FHWA, Northeastern Pennsylvania Rural Transportation Planning Organization, Schuylkill Transportation System (STS), Schuylkill County Planning Department, Schuylkill County 911 Communications Center, Schuylkill County Real Estate/GIS Department

Start Date: September 2003

End Date: April 2006

Estimated Total ITS Funds: \$317,446

Estimated Total Project Cost: \$635,592

Contacts:

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DELAWARE RIVER, PENNSYLVANIA

Description:

This project is the Delaware River, PA FY 2000 Earmark. The project was also earmarked in FY 1999, but carried over to FY 2000. Earmarked funding obligated in FY 2000 includes the \$791,000 FY 1999 earmarked amount in addition to the FY 2000 earmark in the amount of \$786,421. The project is a component of the Delaware River Port Authority's (DRPA) SmartBridges Program. SmartBridges refers to a group of advanced technology applications intended to improve DRPA operations. The program includes electronic toll collection and the integration of several ITS infrastructure systems with a centralized Traffic Operations Center (TOC). This TOC will integrate police vehicle dispatch, in-vehicle computer systems, traffic and facility video surveillance, environmental monitoring and other advanced communications functions in one centralized facility. The goal is to leverage ITS technologies to streamline information flow through a centralized mode to reduce traffic congestion and increase throughput.

This TOC will integrate many of the SmartBridges applications into one system, and will provide integrated, real-time data to support operations management and real-time decision making. It is at the TOC where DRPA traffic and incidents will be appropriately monitored and controlled. In cases of traffic flow changes, accidents or other roadway incidents, DRPA Public Safety Department officers will be quickly informed and dispatched.

Major elements of the SmartBridges TOC include:

- Closed Circuit TV Cameras for Traffic Surveillance.
- Variable Message Signage.
- Lane Signal Control.
- Remote Computer Aided Dispatch.
- Facility Security.
- Enhanced Highway Advisory Radio.
- Regional Interface with the I-95 Corridor Coalition and Other Public Agencies.

Project Location:

Delaware River, Pennsylvania

Partner(s):

FHWA, Pennsylvania DOT, Delaware River Port Authority, Delaware Valley Regional Planning Commission

Start Date:

April 2000

End Date:

June 2006

Estimated Total ITS Funds:

\$1,577,421

Estimated Total Project Cost:

\$12,000,000

Contacts:

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EMERGENCY VEHICLE ACCESS PROGRAM - ANTRIM TOWNSHIP, FRANKLIN COUNTY, PENNSYLVANIA

Description:

This project originated as a FY 2003 ITS integration Program earmark. Due to limitations in achieving matching fund requirements, the project was deferred to FY 2004.

Antrim Township and the Borough of Greencastle are located in Franklin County, South-Central Pennsylvania. PA Route 16, which connects Interstate-81 with the Borough of Greencastle through Antrim Township, has developed into an arterial roadway. Congestion impedes emergency service response times in the area due to stoppages and queuing at signalized intersections.

There are three primary emergency service providers in the area:

- Rescue Hose Company No. 1
- Medic 203
- The Greencastle Police Department

The proposed project would include the installation of emergency preemption equipment at seven intersections in Antrim Township or the Borough of Greencastle, and would involve the installation of preemption devices on twenty or more designated vehicles belonging to the Rescue Hose Company, Medic 203, and the Greencastle Police.

The key benefits of the project will be to improve emergency response throughout the project area. Based on recent studies, it is anticipated that a reduction of emergency vehicle conflicts may be another benefit experienced. A reduction in response time of 14 to 23 percent is expected based on studies referenced.

The proposed project will integrate three elements:

- Traffic Signal
- Emergency Vehicle Preemption Field Equipment
- Emergency Vehicle Preemption Vehicle Equipment

Integration between signals and field equipment will be established through the direct integration of preemption devices into signal controllers. This process will include mounting of devices on signal supports and wiring devices to field controllers. Signal timing and phasing plans will be revised to reflect the preemption devices. Coordination of the signals will be maintained through the existing signal system. Maintenance of the existing signal system along with preemption devices will remain the responsibility of the local municipality. Integration between vehicle equipment and field equipment will be established through optical communication between vehicle devices and field equipment. The approaching vehicle will optically communicate with field equipment and initiate the preemption phase.

Project Location: Franklin County, Pennsylvania

Partner(s): FHWA; Pennsylvania DOT; Antrim Township, PA; Borough of Greencastle, PA.

Start Date: April 2004

End Date: April 2006



**Estimated Total
ITS Funds:** \$29,550

**Estimated Total
Project Cost:** \$59,100

Contacts:

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GETTYSBURG BOROUGH SIGNAL COORDINATION AND UPGRADE-ADAMS CO.

Description: This project is a FY 2003 ITS Integration Program earmark for the Borough of Gettysburg, PA. The project responds to high density traffic volumes resulting from a very active agricultural community and tourism associated with Civil War historical sites. The project will enhance traffic signal coordination, and place emphasis on pedestrian safety.

The project will integrate the existing Gettysburg closed loop signal system with the Straban Township U.S. Route 30 signal system into a traffic responsive, multi-jurisdictional closed-loop signal system. Technologies to be used include light emitting diodes, countdown pedestrian indicators, and lighted crosswalks to promote pedestrian safety. Emergency preemption/transit priority will be used to improve emergency response, and promote transit usage. Dynamic message signs and closed circuit TV (CCTV) will be used to monitor traffic and advise motorists on traffic conditions. The CCTV cameras offer the additional benefit of providing security benefits in the historic area through monitoring for indicators of possible threats.

Project Location: Gettysburg, Pennsylvania

Partner(s): FHWA; Pennsylvania DOT (PENNDOT); Borough of Gettysburg; Adams County Transportation Planning Organization; Gettysburg Fire Department; Townships of Straban, Cumberland, Mt. Joy

Start Date: October 2003

End Date: June 2006

Estimated Total ITS Funds: \$1,247,913

Estimated Total Project Cost: \$2,495,826

Contacts:

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I-76 SCHUYLKILL EXPRESSWAY CORRIDOR ITS PROJECT

Description:

This project is a combination of two FY 2001 ITS Program earmarks for Montgomery County and the City of Philadelphia. The project will develop a unified traffic management and signal coordination plan for the Schuylkill Corridor integrating operations across jurisdiction and agency boundaries. The project phasing has designated the first two phases as planning. These phases have been identified to develop a comprehensive, unified systems approach to the entire corridor, as well as means for forming early partnerships. Within established partnerships, each jurisdiction will develop a unified system plan. Based on the success of the first two phases, subsequent deployment initiatives will be programmed.

A transit component of this project managed by the Southeastern Pennsylvania Transportation Authority, will implement a computer-aided radio dispatch system, and install mobile radio equipment in all buses, light rail, and maintenance vehicles. This initiative will be complemented by a pilot Automatic Vehicle Locating System on approximately 80-100 buses.

Project Location:

Montgomery County, Pennsylvania, and Philadelphia, Pennsylvania

Partner(s):

FHWA; Penn DOT; Delaware Valley Regional Planning Commission; Greater Valley Forge Transportation Management Association; City of Philadelphia; Townships of: Lower Merion, Upper Merion, Whitemarsh, Plymouth; Boroughs of: Norristown, Bridgeport, Conshohocken, West Conshohocken, and Narberth

Start Date:

September 2002

End Date:

December 2007

Estimated Total ITS Funds:

\$1,984,036

Estimated Total Project Cost:

\$3,968,072

Contacts:

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N. Dyer	Montgomery County Planning Commission	(610) 278-3554



PENNSYLVANIA TURNPIKE COMMISSION ITS PHASE 6

Description: This project comprises the FY 2001 ITS Integration Program earmark for the Pennsylvania Turnpike Commission. Funding for the project was approved in September 2002. The project will serve to expand upon ITS applications deployed on the Pennsylvania Turnpike System. The Phase 6 project will include expansion of the traffic detection and verification system via the collection of information from electronic toll tag and/or radar detection system. This information can be disseminated through the Interchange Dynamic Messaging System to drivers prior to entry in the Turnpike System through highway advisory radio, dynamic message signs, and the Pennsylvania Turnpike Commission Website and/or e-mail system.

FY 2001-funded efforts identified and prioritized optimized locations for the traffic flow monitoring system employing toll tag and/or radar. Operational procedures, and system monitoring protocols were established in conjunction with equipment design and installation.

Project Location: Pennsylvania

Partner(s): FHWA, PennDOT, Pennsylvania Turnpike Commission

Start Date: September 2002

End Date: January 2006

Estimated Total ITS Funds: \$1,190,422

Estimated Total Project Cost: \$2,400,000

Contacts:

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REGIONAL GIS/ITS INITIATIVE

Description:

This project originated with the FY 2000 ITS Integration Program earmark for North Central Pennsylvania. The North Central Pennsylvania Regional Planning and Development Commission (NCPRPDC), partnering with the Area Transportation Authority (ATA), the emergency management agencies (EMAs) of Cameron, Clearfield, Elk and Jefferson counties and county planning and development offices, are coordinating a regional Geographical Information System (GIS)/Intelligent Transportation System (ITS) Initiative. The comprehensive regional technology plan has been underway since 1997 and is being conducted in four phases:

Phase I - Mapping, Rural Addressing and Intranet/Internet Availability

Phase II - Regional Wireless Data Network (FY 2000 ITS Funding)

Phase III - Mobile Voice/Data Radio Network

Phase IV - Automated Vehicle Location (AVL)

The FY 2000 earmark focused on Phase II, developing a reliable, multi-agency, communication network to facilitate sharing of regional information. The need for a backbone infrastructure component that will support real-time information sharing exists for regional public safety, incident management, emergency response, transportation planning and management, transit management, para-transit, and demand-responsive transit and traveler information. FY 2000 activities initiated the construction of a wide area network (WAN) using proven and cost-effective wireless (spread-spectrum) technology. The WAN will provide the infrastructure necessary to exchange data among multiple agencies and to serve as the backbone for Phase III and IV of the Regional GIS/ITS Initiative.

The FY 2001 ITS Integration Program earmark for Johnsonburg and North Central Pennsylvania is the continuation and completion of a comprehensive regional ITS initiative begun with FY2000 funding, and will incorporate the establishment of the Mobile Voice/Data (V/D) Radio communications network, associated mobile-data integrated systems and, ultimately, AVL capabilities (Phases III and IV). The Mobile V/D Radio will provide the link to integrate the data sharing WAN with the public service (transit) and public safety vehicles in the field. In addition to the Mobile V/D Radio, the project will provide the automated systems to schedule, manage and maintain the public service (transit) vehicles as well as provide the infrastructure for automated fare collection and reporting. A fully integrated AVL system will "close the loop" in the project, bringing location information back from public safety and transit vehicles in the field and providing the capability to track those vehicles during both routine operations and critical or emergency conditions.

Current Projected Estimated Cost figures include FY 2000 and FY 2001 allocations. FY 2001 ITS funding is \$1,789,569.

Project Location: North Central Pennsylvania

Partner(s): FHWA, Pennsylvania DOT, NCPRPDC, ATA, Counties of Cameron, Clearfield, Elk, Jefferson

Start Date: September 2000

End Date: September 2006



**Estimated Total
ITS Funds:** \$2,575,990

**Estimated Total
Project Cost:** \$4,633,994

Contacts:

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REGIONAL TRANSPORTATION INFORMATION MANAGEMENT CENTER

Description:

This project combines FY 1999 and 2001 ITS Integration Program earmarks for Scranton (FY 1999) and Carbondale (FY 2001) Pennsylvania. The project objective is the establishment of a Regional Transportation Information Management Center (RTIMC) identified in a comprehensive regional Strategic Deployment Plan as the critical component in developing a reliable, multi-agency communication network to facilitate regional information sharing employing the "clearinghouse" concept. The project planning calls for the RTIMC to offer an architecture capable of supporting real-time information sharing for regional public safety, incident management, emergency response, transportation planning/management, transit management, paratransit and demand-responsive transit, and traveler information.

Initially the RTIMC will serve as the key traffic management facility in the Lackawanna/Luzerne area including strategic rural corridors. Phased over time, additional functions will include:

- Freeway network performance monitoring to include incident/congestion events.
- Closed circuit TV-based incident verification and congestion analysis.
- Passing traffic-related information to PennDOT Maintenance and State Police.
- Operating Dynamic Message Signs and Highway Advisory Radios.
- Updating incident detection algorithms and testing new control strategies, and
- Routine record keeping, planning and coordination for system response to a variety of activities such as construction and maintenance.

Utilization of the clearinghouse concept will enable participating agencies to retain control while permitting data collection from multiple sources; facilitating maintenance of a single, integrated data source; centralizing regional information management and dissemination.

Funding levels depicted below include a partial obligation of FY 1999 Federal ITS funds and State match of \$952,879. The entire FY 1999 earmark is \$792,000 and the FY 2001 earmark is \$1,590,729.

Project Location:

Northeast Pennsylvania

Partner(s):

FHWA, PennDOT, Carbondale Technology Transfer Center (CTTC), Lackawanna County MPO, Luzerne County MPO, Northern Tier Regional Planning and Development Commission, Economic Development Council, Northeast Pennsylvania Transportation Committee

Start Date:

September 2001

End Date:

April 2006

Estimated Total ITS Funds:

\$304,000

Estimated Total Project Cost:

\$1,256,879



Contacts:

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SWATARA TOWNSHIP TRAFFIC SIGNALIZATION

Description:

This project is a FY 2004 ITS Integration Program earmark for Swatara Township, Dauphin County, Pennsylvania. The project site is an arterial roadway (Paxton Street) that extends from the City of Harrisburg to Swatara Township. This arterial services a wide array of land uses, and will shortly experience a significant redevelopment effort. Transportation planners expect increases in traffic volumes and shifts in traffic patterns.

This project will implement traffic signalization improvements at ten intersections on Paxton Street. The project objective is to integrate the following components:

- New traffic signal controllers.
- Light Emitting Diode traffic signal indications.
- Fiber optic interconnect.
- Emergency vehicle preemption field equipment.
- Emergency vehicle preemption vehicle-based equipment.

Project activities will result in a new interconnect system including existing and new traffic signals. Anticipated benefits include:

- Improved traffic flow along the arterial.
- Reduced congestion.
- Improved safety.
- Reduced traffic signal maintenance costs.
- Reduced emergency response times in the project area.

Project Location: Swatara Township, Pennsylvania

Partner(s): FHWA; Pennsylvania DOT (PENNDOT); Swatara Township, PA

Start Date: July 2005

End Date: September 2006

**Estimated Total
ITS Funds:** \$86,158

**Estimated Total
Project Cost:** \$200,000

Contacts:

James Hunt	FHWA, Pennsylvania Division	(717) 221-4422
Ron Jones	PENNDOT	(717) 783-3377



TOWAMENCIN, PENNSYLVANIA REGIONAL ITS CENTER

Description:	This project is a FY 2000 earmark. This ITS initiative led by Towamencin Township in partnership with Montgomery County, Penn DOT, the PA Turnpike Commission and private sector partners will construct a multi-modal Transportation Center at the PA Turnpike/I-426 Landsdale Interchange. The Regional ITS Center will constitute a major component of the Transportation Center. The Regional ITS Center will house the central computers and personnel which will initially operate the Township's closed-loop traffic signal system, incident management system, and emergency services management system. With full implementation of the multi-modal Transportation Center, the Regional ITS Center's functions will expand, to include electronic bus transit and parking fare collection; paratransit and demand-responsive dispatching of shuttle services between the Transportation Center and major area employers; traveler information services for Transportation Center users, and the provision of real-time information to other traveler information providers, such as the PA Turnpike Commission and Penn DOT.
Project Location:	Towamencin Township, Montgomery County, PA
Partner(s):	FHWA, Towamencin Township, Montgomery County Planning Commission, Southeastern PA Transportation Authority, Delaware River Regional Planning Commission, Pennsylvania Turnpike Commission

Start Date:	September 2000
End Date:	January 2007

Estimated Total ITS Funds:	\$471,853
Estimated Total Project Cost:	\$950,000

Contacts:

Carmine Fiscina	Philadelphia FHWA Metro Office, PMO-PA	(215) 656-7111
John Granger	Towamencin Township	(215) 368-7602



RHODE ISLAND

RHODE ISLAND PUBLIC TRANSIT AUTHORITY ITS NETWORK PROJECT

Description:

This project is a FY 2001 ITS Integration Program earmark for Rhode Island, funding for which was approved in July 2003. The project is a component of a larger project supporting development of Rhode Island's first statewide system for supporting data and voice communications. The statewide system will allow the integration of communications functions among the Rhode Island Public Transit Authority (RIPTA), the Rhode Island State Police, and the Rhode Island Department of Transportation (RIDOT) to include its transportation management center (TMC). The overall network project will require several wireless sites throughout the state in addition to a new central dispatch location in Providence. ITS applications to be supported by this project include automatic vehicle location, real-time passenger information, incident management, paratransit demand response and traffic signal control. Primary integration improvements will include enhanced interagency communication for joint operations and emergency response, as well as new data sharing capabilities for traffic management activities.

ITS Integration funds will be applied to the Portsmouth wireless site and will entail:

- Design and installation of a communications shelter.
- Electronics to support transmission of wireless voice and data.
- Microwave upgrades to support statewide communications.
- Development of infrastructure for incorporation of wireless voice and data for other agencies.

Funding depicted below does not include total FTA formula funding for the overall project.

Project Location: Rhode Island

Partner(s): FHWA, FTA, Rhode Island DOT, Rhode Island State Police, Rhode Island Public Transit Authority

Start Date: July 2003

End Date: April 2006

Estimated Total ITS Funds: \$396,807

Estimated Total Project Cost: \$793,614

Contacts:

Gabriel Brazao

FHWA Rhode Island Division, HDA-RI

(401) 528-4551



Andrew Motter	FTA Region 1	(617) 494-3560	
Mark Therrien	RIPTA	(401) 784-9500	Ext. 152



SOUTH CAROLINA

SOUTH CAROLINA DOT STATE TRAFFIC MANAGEMENT CENTER DEVELOPMENT

Description:

This project is the FY 2002 ITS Integration Program earmark for South Carolina. The project objective is to integrate a wide variety of ITS devices deployed throughout the State, and implement an expanded State Traffic Management Center (TMC). This TMC will function as a central clearing facility to receive and disseminate traffic information. The sources feeding the TMC include local DOT systems, video from city and county governments, and DOTs from adjoining states. The video will be made available to the South Carolina Highway Patrol, the State Emergency Management Center, local traffic control centers, and TMC in adjoining states.

The project will implement the communications network required to receive, integrate and disseminate data statewide. ITS infrastructure included in this endeavor consists of:

- 53 Dynamic Message Signs.
- 17 State Highway Emergency Program units.
- In excess of 100 Closed Circuit TV Cameras.
- 70 side-fire radar units.
- 12 portable, solar-powered Highway Advisory Radio units.
- Video Cameras positioned on paved median crossovers on Interstates which would carry hurricane evacuation traffic inland, and which have been designated as lane reversal highways.

Project Location: Columbia, South Carolina

Partner(s): FHWA, South Carolina DOT, Beaufort County Emergency Management Center

Start Date: September 2002

End Date: August 2006

**Estimated Total
ITS Funds:** \$2,481,955

**Estimated Total
Project Cost:** \$4,963,910

Contacts:

James Garling	FHWA South Carolina Division, HDA-SC	(803) 253-3883
Richard Werts	South Carolina DOT	(803) 737-1462



SOUTH CAROLINA STATEWIDE ITS CMS FOR AMBER PROGRAM

Description:

This project is a FY 2003 ITS Integration Program earmark for South Carolina. South Carolina operates and maintains an extensive (41,500 mile) highway system. In recent years, SCDOT has deployed ITS Devices to monitor traffic flow, and disseminate real-time traffic information to motorists. Recently, the State implemented an Amber Program to respond to child abduction alerts. This program is a cooperative effort among the South Carolina Law Enforcement Division, local law enforcement agencies, the news media, and SCDOT which will activate appropriate Amber Program messages on the changeable (or dynamic) message signs (DMS) throughout the State. During the development of the Amber Program, potential improvement opportunities were identified. Additional overhead DMS would provide more comprehensive alert coverage, some rural areas had no DMS available, and some urban areas were capable of deploying only portable signs.

This project will involve the design, construction and operation of 15 overhead, permanent message signs at various locations statewide. The new DMS sites have been selected for optimal dissemination of real-time traffic information to inform motorists, and manage traffic. These signs will be available for Amber alerts as needed. Six of the existing permanent, overhead signs are located in the Charleston, SC area on I-526 and associated approach ramps. These signs were deployed to provide fog warning messages and cannot be reprogrammed to display other messages. These signs will also be replaced with DMS.

Project Location: South Carolina Statewide

Partner(s): South Carolina DOT

Start Date: September 2003

End Date: April 2006

**Estimated Total
ITS Funds:** \$1,247,913

**Estimated Total
Project Cost:** \$2,495,826

Contacts:

Jim Garling	FHWA South Carolina Division, HDA-SC	(803) 253-3883
Richard Werts	South Carolina DOT	(803) 737-1462



SOUTH DAKOTA

SOUTH DAKOTA STATEWIDE TRAVEL NETWORK

Description:

This project originated as a FY 2002 ITS Integration Program earmarked project that was approved and funded in FY 2004. The purpose of this project is to integrate traveler information systems that have been deployed in South Dakota in recent years. On completion of the planned integration, state authorities expect substantially improved safety, mobility and customer satisfaction.

The project's concept is to develop a Road Condition Reporting System that will serve as the definitive repository for all forms of traveler information. Traveler information will be collected from the following systems as a minimum:

- Amber Alert, homeland security and related law enforcement sources.
- South Dakota DOT's Road and Weather Information Systems (RWIS) deployed Statewide 511 Travel Information System.
- Current road condition data, especially during periods of inclement weather, as reported by SDDOT maintenance personnel.
- South Dakota Department of Public Safety sources.
- SDDOT field staff overseeing capital construction and/or significant maintenance activities.

Information integrated in the Road Condition Reporting System will be available for dissemination through a variety of means, and destinations to include, but not limited to:

- Dynamic Message Signs Statewide.
- The Automated Commercial Vehicle Permitting System.
- Through Web pages to Interstate highway rest areas.
- SDDOT's Travel Information Web page.
- The Statewide 511 Travel Information Service, which is capable of generating location-specific messages in response to traveler enquiries.
- The Maintenance Decision Support System to support inclement weather seasonal maintenance activities.

Project Location: South Dakota Statewide

Partner(s): FHWA, South Dakota DOT; South Dakota Bureau of Information and Telecommunications; South Dakota Department of Public Safety

Start Date: August 2004

End Date: April 2006

Estimated Total ITS Funds: \$1,923,515

Estimated Total Project Cost: \$3,847,030

Contacts:

Bruce Hunt	FHWA, South Dakota Division	(605) 224-1766
David Huft	SD DOT	(605) 773-3358



TENNESSEE

GERMANTOWN PARKWAY ITS PROJECT

Description: This project is a FY 2004 ITS Integration Program earmark for Memphis, Tennessee. The project goal is to reduce traffic congestion and related emissions through the development and deployment of a unified traffic control system. This goal will be accomplished through the integration of signal systems with traffic control facilities in key corridors.

The primary integration will connect the City of Memphis Traffic Operations Center (TOC) with the Tennessee DOT Traffic Management Center (TMC) and with the City of Germantown TOC.

This integration approach supports the development of a system that will integrate existing and future ITS infrastructure components including traffic signal systems and arterial surveillance. The vision underlying this integration approach supports the creation of a process to use ITS components to archive operational transportation data.

Project Location: Memphis, Tennessee

Partner(s): FHWA; Tennessee DOT; Cities of Memphis and Germantown, TN

Start Date: July 2005

End Date: April 2010

**Estimated Total
ITS Funds:** \$2,584,746

**Estimated Total
Project Cost:** \$4,084,746

Contacts:

Donald Gedge	FHWA, Tennessee Division	(615) 781-5769
Merrill Richard	City of Memphis	(901) 576-6710



METRO ARTERIAL MANAGEMENT SYSTEM SOFTWARE UPGRADE AND MTOC/RTMC SYSTEM INTEGRATION

Description: This project is the FY 2001 ITS Integration Program earmark for Nashville, TN. The principal project objectives are to acquire the software/hardware components to support integration of Metropolitan Nashville's ITS-related projects into one comprehensive Arterial Management System. Once deployed, the second objective is to integrate the Arterial Management System with Tennessee DOT's Freeway Management System. The deployment of the Arterial Management System will result in achieving real-time traffic control capabilities through a centralized signal system, arterial surveillance, incident detection and management, and inter-agency communication.

Project Location: Nashville, Tennessee

Partner(s): FHWA, FTA, Tennessee DOT, Metropolitan Government of Nashville and Davidson County

Start Date: September 2001

End Date: March 2008

**Estimated Total
ITS Funds:** \$396,807

**Estimated Total
Project Cost:** \$793,614

Contacts:

Mark Doctor	FHWA Tennessee Division, HPR-TN	(615) 781-5788
Mark Macy	Dept. of Public Works	(615) 862-8764



NASHVILLE, TENNESSEE AREA INTELLIGENT TRANSPORTATION SYSTEM

Description: This FY 1999 ITS Integration Program project is part of the phased implementation of the Nashville Area Intelligent Transportation System Strategic Deployment Plan. The project will develop a Regional Traffic Operations Center and the communications system to integrate it with the cities of Murfreesboro, Franklin, and the backbone Tennessee DOT will install along the interstate highway system. Early capabilities include implementation of real-time accident reporting and a parking and traffic guidance system.

Project Location: Nashville, Tennessee

Partner(s): Tennessee DOT, Metropolitan Government of Nashville, Davidson County Department of Public Works

Start Date: September 1999

End Date: January 2008

**Estimated Total
ITS Funds:** \$395,735

**Estimated Total
Project Cost:** \$791,470

Contacts:

Mark Doctor	FHWA Tennessee Division, HPR-TN	(615) 781-5788
Devin Doyle	Nashville and Davidson Co. Dept. of Public Works	(615) 880-3262



PHASE II: ARTERIAL COMMUNICATIONS AND SURVEILLANCE DEPLOYMENT PROJECT

Description:

This project constitutes the FY 2000 ITS Integration Program earmark for Nashville, Tennessee. The objectives of this project support several long term ITS goals including enhanced arterial management, improved incident detection and management, real-time traffic control, and better inter-agency communication. The project focus is on design and installation of multiple fiber optic communications backbones along a number of congested arterial corridors within the Nashville metropolitan area.

These communication backbones will be designed with enough capacity to accommodate ITS needs required by currently funded and future ITS projects developed by Metro. The initial design will also include an evaluation of TDOT's current communications plan. This evaluation will identify opportunities to coordinate the efforts and strategies of both agencies. In addition to the communications element, this project will include the installation of CCTV video surveillance. This will provide the initial installation of the Metro surface street monitoring system. The video surveillance will be used in the verification of incidents and the implementation of improved signal control along these corridors.

The installation of a communications backbone will provide the necessary infrastructure required to integrate Metro's proposed incident detection system, arterial surveillance system, and traffic control system. It will also provide the initial stages for the required infrastructure to link each of the proposed traffic management centers in the region. In the future, it may be used for the installation of VMS devices or other ITS components located along the selected corridors.

Project Location: Nashville, Tennessee

Partner(s): FHWA, Tennessee DOT, Metropolitan Government of Nashville and Davidson County

Start Date: January 2001

End Date: January 2008

Estimated Total ITS Funds: \$786,421

Estimated Total Project Cost: \$1,572,842

Contacts:

Mark Doctor	FHWA Tennessee Division, HPR-TN	(615) 781-5788
Devin Doyle	Nashville and Davidson Co. Dept. of Public Works	(615) 862-8764



SMARTBUS

Description:

This project originated as the FY 2002 ITS Integration Program earmark for Chattanooga, Tennessee. The Chattanooga Area Regional Transportation Authority used FY 2002 funding to initiate a comprehensive transit systems integration effort to achieve the following objectives:

- Improved scheduling accuracy.
- Improved on-time performance.
- Improved passenger information on the Web, at stops and on-bus.
- Real-time engine monitoring, crash data systems, digital recording, voice monitoring, and an ignition/drive train locking system.

A FY 2003 ITS Integration Program earmark in the amount of \$1,559,892 is being applied to build on and expand this initiative. Included in the expanded integration to meet the above objectives are:

- Automatic Vehicle Location (AVL) system for transit, paratransit, and shuttles comprising 88 revenue vehicles.
- Mobile Data Terminals for vehicles cited above.
- Scheduling and dispatching software for general public paratransit routes.
- On-bus stop announcement (visual and voice) for transit and shuttle vehicles.
- Automatic passenger counters.
- Web-based traveler information.
- Integration with traffic signal priority.
- Digital recording system on all revenue vehicles showing steps, driver, and other important views.
- Bus monitoring systems such as coolant temperature, oil pressure, speed, interior temperature and related indicators.

Funding depicted below includes the FY 2003 earmark, matching funds in an equal amount in addition to the FY 2002 earmark.

Project Location: Chattanooga, Tennessee

Partner(s): FTA, FHWA, Tennessee DOT, Chattanooga Area Regional Transportation Authority (CARTA), Chattanooga MPO, City of Chattanooga

Start Date: September 2002

End Date: March 2009

Estimated Total ITS Funds: \$3,214,529

Estimated Total Project Cost: \$6,523,803



Contacts:

Mark Doctor	FHWA Tennessee Division, HPR-TN	(615) 781-5788
Robert Nugent	CARTA	(423) 629-1411



TEXAS

44H LUBBOCK ITS DEPLOYMENT PROGRAM

Description:

This project is a FY 2004 ITS Integration Program earmark for Lubbock, Texas. The project is comprised of three subprojects:

- Development of plans and specifications for the integration of the TxDOT Lubbock, District and the City of Lubbock communications centers. This will enable use of freeway and incident management cameras, signals and DMS for Amber Alerts by both agencies.
- Development of network that integrates TxDOT signalized intersections with the City of Lubbock's Traffic Management Center (TMC). This subproject will also connect TxDOT with Lubbock's TMC.
- Integration of the "Citibus" bus system with the City of Lubbock's computerized traffic signal system. This capability will be focused on selected arterials carrying bus routes around Texas Tech University that will provide extended green time to enable bus traffic to move unimpeded through signals moving on or off campus.

Project Location: Lubbock, Texas

Partner(s): FHWA; Texas DOT; City of Lubbock

Start Date: June 2005

End Date: September 2008

**Estimated Total
ITS Funds:** \$344,633

**Estimated Total
Project Cost:** \$1,410,000

Contacts:

Olson Mark	FHWA, Texas Division	(512) 536-5972
Hart, Jr Jeryl	City of Lubbock	(901) 576-6710



AUSTIN ITS DEPLOYMENT PROGRAM

Description:

This project is a FY 2003 ITS Integration Program earmark for the City of Austin (COA), Texas. The project objective is to integrate the operations of three local transportation agencies: the regional Texas DOT (TxDOT) Traffic Operations Center; the COA's advanced traffic signal system; and the transit agency's (CAPMETRO) bus priority system. This objective will be accomplished through implementation of four sub-projects:

Sub-project 1 will integrate TxDOT loop detector information with the City's traffic responsive signal system by developing and installing a software program designed to enable the COA's Traffic Management Center to use the TxDOT loop detector information. The software upgrade will support the activation of traffic signal timing plans designed to respond to incidents on I-35 which runs through the center of Austin. The ultimate objective is full integration of the TxDOT freeway management system with the COA traffic signal system.

Sub-project 2 will integrate TxDOT traffic signalized intersections along the I-35 corridor with the COA's computerized traffic signal system. The sub-project funding will install conduit, fiber optic cable and related infrastructure to establish control of the signals from the COA TMC. The software modification to be implemented in sub-project 1 will support the selection of traffic signal timing changes in the I-35 corridor.

Sub-project 3 will integrate CAPMETRO's bus operations with the city's traffic signal system. Infrared emitters will be mounted on top of buses. Complementary hardware will be installed at signalized intersections to receive signals transmitted by the emitters. This sequence of interactions will extend the green phase on approach to intersections and improve transit schedule performance.

Sub-project 4 will integrate travel information from all three agencies onto one COA Transportation Web page. The Web page will provide real-time video from both COA and TxDOT cameras, real-time traffic information to include volume, speed, and bus schedule performance.

Project Location: Austin, Texas

Partner(s): FHWA, Texas DOT, City of Austin, Capital Metro Transit Authority

Start Date: September 2003

End Date: June 2006

**Estimated Total
ITS Funds:** \$415,971

**Estimated Total
Project Cost:** \$831,940

Contacts:

Mark Olson	FHWA Texas Division, HPC-TX	(512) 536-5972
David Gerard	City of Austin	(512) 974-7022



AUSTIN, TEXAS

Description: This project is the FY 2002 ITS Integration Program earmark for Austin, Texas. The project will integrate motion video image information between the City of Austin's Computerized Traffic Signal System and the TXDOT Freeway Corridor Traffic Management System. Each agency independently operates a portion of a regional ITS which includes a significant number of closed circuit television camera/locations. Integration of these cameras will provide sharing of motion video between the agencies. This expanded coverage will improve traffic management and incident management in each agency's area of responsibility. Improved incident response times are expected to facilitate incident clearance, thereby enabling signal-timing adjustment in order to accommodate increased traffic on service roads.

The exchange of motion video and traffic flow data between the City of Austin and TxDOT builds on a FY 2000 ITS Integration Program project which developed a regional ITS architecture. The initial activity under this architecture was the integration of the City of Austin's emergency services computer-aided dispatch and signal system with TxDOT's Advanced Traffic Management System.

Project Location: Austin, Texas

Partner(s): FHWA, Texas DOT, City of Austin Department of Public Works

Start Date: September 2002

End Date: April 2006

**Estimated Total
ITS Funds:** \$103,415

**Estimated Total
Project Cost:** \$206,830

Contacts:

Mark Olson	FHWA Texas Division, HPC-TX	(512) 536-5972
David Gerard	Austin Dept. of Public Works	(512) 974-7022



AUTONOMOUS DIAL-A-RIDE TRANSPORTATION SYSTEM (ADART) INTEGRATION-PHASE IV

Description:

This project is a FY 2003 ITS Integration Program earmark for Nueces County, Corpus Christi, Texas. The project builds on previous ITS-funded phases of an overall project designed to integrate transit vehicle dispatching, operations, transit management, and transit administration through the application of Autonomous Dial-A-Ride Transportation (ADART) to improve the overall efficiency of transit on a daily basis. This project comprises Phase IV of the Corpus Christi Regional Transportation Authority (RTA) effort to place ADART on two revenue-generating vehicles initially, and then to expand installation on up to twelve vehicles. This phase will also add features to ADART such as an automatic fare collection system and an advanced passenger notification system.

The project will engage revenue vehicles in ADART, and connect them with Automatic Vehicle Location and Mobile Data Terminal (AVL/MDT) system that is installed on police, emergency and transit vehicles. When Phase IV of ADART is deployed, all call taking, reservation setting, and vehicle dispatching functions will be autonomously accomplished by ADART. This enhancement is anticipated to enable transit systems to eliminate some low-producing fixed routes, and replace them with more efficient ADART service.

Project Location: Nueces County, Corpus Christi, Texas

Partner(s): FTA, Regional Transportation Authority, City of Corpus Christi, Corpus Christi Metropolitan Planning Organization

Start Date: February 2004

End Date: April 2006

**Estimated Total
ITS Funds:** \$415,971

**Estimated Total
Project Cost:** \$831,942

Contacts:

Gail Lyssy	FTA Regional Office	(817) 978-0564
Linda Watson	Corpus Christi RTA	(361) 289-2712



CITY OF BROWNSVILLE-BUS ITS PROJECT

Description:

This project is the FY 2002 ITS Integration Program for Brownsville, Texas. This project seeks to address public transportation shortfalls in the City of Brownsville. Identified shortfalls include inefficient scheduling of passengers on paratransit service, inadequate coordination between fixed route transit operations and paratransit operations, lack of optimal routing on transit and paratransit services, lack of Web presence for the transit system, maintenance-related slow reaction times, and congestion caused by deficient routing patterns. The Brownsville Urban System (BUS) will integrate the operations centers of public transportation provided by fixed route transit and demand-response paratransit. Fixed route transit and paratransit systems will integrate into a wide area network connected to the Internet.

Primary project activities to address these limitations include:

- Deployment of Automatic Vehicle Location (AVL) systems and Mobile Data Terminals (MDT) on all revenue-generating vehicles in both the paratransit and transit fleets. The AVLs and MDTs will support real-time communication with the main operations center.
- Establishment of a computerized dispatching and management center to monitor and control the entire fleet. Dispatchers will have the capability to monitor fleet vehicles during both revenue-generating hours and deadhead hours, communicate directly with drivers, and monitor passenger parameters (such as movements and counts).
- Upon completion of the integration of the paratransit and fixed route transit fleets, BUS will link the transit operations center with the City servers/networks at the Brownsville Public Library. Through installation of T-1 lines and software acquisition, passengers will be able to view real-time transit information over any Internet access source, schedule trips on demand-responsive service, upload comments and suggestions, and track bus movements.

Project Location: Brownsville, Texas

Partner(s): FTA, City of Brownsville-Brownsville Urban System (BUS), Brownsville Public Library, Brownsville Police Department, Brownsville Public Utilities Board

Start Date: May 2003

End Date: April 2006

**Estimated Total
ITS Funds:** \$206,830

**Estimated Total
Project Cost:** \$413,660

Contacts:

Gail Lyssey	FTA Region 6	(817) 978-0564
Norma Zamora	City of Brownsville-BUS	(956) 541-4881



COLLEGE STATION, TEXAS

Description:

This project is the FY 2001 ITS Integration Program earmark for College Station, Texas. The purpose of this project is to expand and integrate the transportation management infrastructure in the College Station/Bryan area to enable agencies to improve traffic management during frequent special events. Texas A & M University with its numerous athletic and cultural events attracts frequent increases in traffic on the transportation network. An added factor is a major rail line running through the center of the various traffic generators. The project will accomplish four major components:

- Develop a Regional ITS Architecture and ITS Deployment Plan.
- Upgrade and integrate portions of the transportation communications network for the area.
- Integrate traffic signal information and video on several important special event travel routes in the area.
- Enhance the traffic management and information dissemination capabilities for special events through installation of two dynamic message signs on routes leading into the event generating area, and integrate their operations into Texas Transportation Institute's TransLink Laboratory.

Project Location: College Station, Texas

Partner(s): FHWA; Texas DOT; Texas Transportation Institute; Brazos County; Brazos Transit; College Station Urban Transportation Study Steering Committee; Cities of College Station and Bryan; Texas A&M University Parking, Traffic, and Transportation Services

Start Date: September 2002

End Date: April 2006

**Estimated Total
ITS Funds:** \$1,428,506

**Estimated Total
Project Cost:** \$2,857,012

Contacts:

Mark Olson	FHWA Texas Division, HPC-TX	(512) 536-5972
Kevin Balke	Texas Transportation Institute	(979) 845-9899



CORPUS CHRISTI, TEXAS AUTONOMOUS VEHICLE DISPATCHING

Description: This project is the FY 2001 ITS Integration Program earmark for the Corpus Christi, Texas region. Federal funding for the project was approved in June, 2002. The project expands on a FY 2000 earmark focused on integrating transit vehicle dispatching, operations, transit management, and transit administration through employment of Autonomous Dial-A-Ride Transportation (ADART). The project will increase the ADART service from two-to-twelve vehicles in service. Added capabilities to be deployed as components of this project are automatic transit fare collection and an advanced passenger notification system.

Project Location: Corpus Christi, Texas Region

Partner(s): FHWA, FTA, Texas DOT, Corpus Christi Regional Transportation Authority, City of Corpus Christi, Nueces County Department of Public Safety, Corpus Christi Metropolitan Planning Organization

Start Date: June 2002

End Date: April 2006

**Estimated Total
ITS Funds:** \$793,615

**Estimated Total
Project Cost:** \$1,587,230

Contacts:

Brian Cronin	FTA Headquarters, TRI-11	(202) 366-8841
Linda Watson	Corpus Christi Regional Transportation Authority	(361) 289-2712



FY 2002 STATE OF TEXAS REGIONAL ITS ARCHITECTURE DEVELOPMENT AND ITS DEPLOYMENT PLAN PROJECTS

Description:

The projects addressed here comprise the FY 2002 ITS Integration Program Texas Statewide earmark. Each of the regions identified below will develop a Regional ITS Architecture and ITS Deployment Plan tailored to address needs specific to each area.

The endeavor in each region will follow a sequence of steps which will focus on:

- Developing broad stakeholder participation.
- Identifying local needs which can be addressed through ITS applications.
- Including multi-modal, transit and highway considerations in all decisions.
- Developing a formal ITS Deployment Plan which identifies short term ITS deployment opportunities and long term ITS deployment goals and objectives.
- Defining a Regional ITS Architecture to the architecture flow level.
- Incorporating ITS in the applicable regional transportation plan.

Cost data are common to all projects with one exception: ITS Funding - \$115,000; Total Funding - \$230,000. The exception is the Waco Region where ITS Funding is \$125,000 and Total Funding is \$250,000.

Schedule and contact information by region are as follows: The first end date identifies completion of architecture development; the second date identifies Deployment Plan completion.

Abilene Region: Start Date: 9/30/02; End Date: 12/03, 8/04; POC: Roy Wright;
 Lubbock Region: Start Date: 9/30/02; End Date: 5/04, 6/05; POC: Ted Copeland;
 Odessa Region: Start Date: 9/30/02; End Date: 12/03, 12/04; POC: Mike McAnally;
 San Angelo Region: Start Date: 9/30/02; End Date: 12/03, 8/04; POC: Angie Ortegon;
 Waco Region: Start Date: 9/30/02; End Date: 12/03, 8/04; POC: Larry Colclasure;
 Wichita Falls Region: Start Date: 9/30/02; End Date: 12/03, 8/04; POC Davis L. Powell

Project Location: Texas Statewide

Partner(s):

FHWA, Texas DOT common to all regions. Abilene Region: Cities of Abilene, Clyde, Baird, Eastland, Cisco, Ranger, Sweetwater, Roscoe, Big Spring; Counties of Taylor, Callahan, Nolan, Mitchell, Howard. Lubbock Region: Cities of Lubbock and Plainview; Counties of Dawson, Lynn, Lubbock, Hale, Swisher, Hockley, Lamb, Bailey and Palmer; and Lubbock MPO. Odessa Region: Cities of Odessa, Midland, Fort Stockton, Andrews, Pecos, Monahans, Balmorhea; Counties of Ector, Midland, Reeves, Ward, Pecos, Terrell, Upton, Andrews, Martin and Crane; NM State Highway & Transportation Dept.; Permian Basin Regional Planning Commission. San Angelo Region: Counties of Crockett, Sutton, Sonora, and Kimble; Cities of Sonora and Junction. Waco Region: City of Hillsboro; Counties of Bell, Hill, and McLennan; Waco, Temple, and Belton MPOs. Wichita Falls Region: OKDOT; City of Wichita Falls; TX and OK Depts. of Public Safety

Start Date: September 2002

End Date: April 2006



Estimated Total ITS Funds:	\$700,000
Estimated Total Project Cost:	\$1,400,000

Contacts:

Mark Olson	FHWA Texas Division, HPC-TX	(512) 536-5972
Roy Wright	TxDOT - Abilene District	(915) 676-6805
Ted Copeland	TxDOT - Lubbock District	(806) 748-4429
Mike McAnally	TxDOT - Odessa District	(915) 498-4740
Angie Ortegon	TxDOT - San Angelo District	(915) 947-9211
Larry Colclasure	TxDOT - Waco District	(254) 867-2800
Davis Powell	TxDOT - Wichita Falls District	(940) 720-7717



INTEGRATION OF ALTERNATE DETECTION COMMUNICATIONS INTO DALTRANS' WIDE AREA COMMUNICATIONS NETWORK

Description: This project, which is a component of the FY 2000 State of Texas Earmark, seeks to coordinate transportation services among the multiple agencies in the greater Dallas, TX area. The primary objective is to integrate services and data sharing among diverse agencies in the 33 incorporated cities in Dallas County to enhance cooperative and coordinated operation of systems. The project will extend existing software and infrastructure development to address additional needs of the project partners. The TXDOT integration effort enables each participating agency to tailor the type, source and frequency of data exchanges to the agency's particular system requirements. In addition to this direct data integration, other agencies in the region will be able to access the DFW Internet Website to enter and obtain major incident information.

Project Location: Dallas, Dallas Co., TX

Partner(s): FHWA; Texas DOT; North Texas Tollway Authority; Dallas Area Rapid Transit; Dallas-Fort Worth International Airport; Shadow/Metro Traffic; Cities of: Dallas; Richardson; Plano; Carrollton; Farmers Branch; Garland; Mesquite; Grand Prairie; Irving; Lewisville

Start Date: September 2000

End Date: April 2006

**Estimated Total
ITS Funds:** \$1,966,053

**Estimated Total
Project Cost:** \$3,932,106

Contacts:

Mark Olson	FHWA Texas Division, HPC-TX	(512) 536-5972
Andy Oberlander	Texas DOT	(214) 320-4438



INTEGRATION OF ALTERNATE DETECTION COMMUNICATIONS INTO TRANSVISION'S WIDE AREA COMMUNICATIONS NETWORK

Description:

This project constitutes the FY 2000 ITS Integration Program earmark for Fort Worth, Texas. The project seeks to integrate multiple, existing and newly deployed infrastructure by providing stable and transparent connectivity between systems, thus enabling data and video from one system to appear inherent in other systems. The ultimate end product will be widespread data sharing. TXDOT-Fort Worth District ITS (TransVISION) and the TXDOT-Dallas ITS are developing integration software and infrastructure to enable the multiple participating agencies in the project to access roadway information. The project includes a non-intrusive vehicle detection system expanding the existing coverage area on Tarrant County freeways.

The private sector will be encouraged to participate in TransVISION; both Metro Traffic Networks and Shadow Traffic will be represented in TransVISION to link it with local television and radio stations. Transit management will benefit from integration with TransVISION by having the ability to view the network speed map, and reroute buses around congestion.

Finally, incident information will improve across the region through the link with Emergency Services Management. Traffic Management, Incident Management and Motorist Information systems will receive nearly instantaneous notification of potential problems over a wider geographic area and Emergency Services will receive positive CCTV confirmation of the problem and its exact nature/location, in near real-time.

Project Location: Tarrant County, Fort Worth, Texas

Partner(s): FHWA, Texas DOT, City of Fort Worth, Fort Worth Transportation-Big T, City of Arlington, City of Grand Prairie, Dallas-Fort Worth International Airport, The North Central Texas Council of Governments

Start Date: May 2000

End Date: December 2006

**Estimated Total
ITS Funds:** \$1,966,053

**Estimated Total
Project Cost:** \$3,932,106

Contacts:

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Steve Connell	Texas DOT	(817) 370-6784



INTERNET ENABLING OF MOTOR CARRIER REGISTRATION AND INSURANCE FILINGS AND INTERNET ENABLING OF APPORTIONED APPLICATIONS AND RENEWALS

Description: This project is the FY 2000 ITS Integration Program earmark for the Commercial Vehicle ITS Infrastructure Component of the ITS Deployment Program in Texas. In conjunction with the development of the State of Texas' ITS/CVO Business Plan, TxDOT intends to Internet enable motor carrier registration and insurance filings and apportioned International Registration Plan applications and renewals. Internet enabling these motor carrier credentialing processes are part of a larger strategy to develop a "Texas One Stop Shop" for obtaining Texas motor carrier credentials over the Internet.

Project Location: Texas

Partner(s): FHWA, FMCSA, Texas DOT

Start Date: October 2000

End Date: April 2006

**Estimated Total
ITS Funds:** \$200,000

**Estimated Total
Project Cost:** \$400,000

Contacts:

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Carol Davis	Texas DOT	(512) 465-3559
Roland Merz	Texas DOT	(512) 416-3305



MULTI-REGION ADVANCED TRAVELER INFORMATION SYSTEM (ATIS) FOR THE IH 20 CORRIDOR - PHASE I IN TEXAS

Description: This project is a FY 2004 ITS Integration Program earmark for the West Central Texas Region along Interstate 20. The project venue is the Interstate Highway 20 corridor covering about 190 miles through six counties in West Central Texas. This segment of roadway is characterized by a lack of frontage roads, and attracted national attention in December 2002 when an overturned truck caused complete lane blockage. The corridor is part of the Waste Isolation Pilot Plant route across the state, which adds to the compelling need for the capability to disseminate real-time traveler information.

This project seeks to provide the means to communicate critical information about roadway conditions to travelers. Technology applications to be deployed include six dynamic message signs linked to two traffic management centers (Abilene and Brownwood Districts) via spread spectrum radio and the existing phone system. This deployment will be complemented by three closed circuit television cameras and a road weather management station installed along the most dangerous stretch of highway in the corridor.

Project Location: IH 20 Corridor in Abilene and Brownwood Districts

Partner(s): FHWA; Texas DOT

Start Date: November 2005

End Date: January 2007

Estimated Total ITS Funds: \$473,870

Estimated Total Project Cost: \$1,018,000

Contacts:

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Roy Wright	Texas DOT	(325) 676-6805



RURAL DEPLOYMENT OF HIGHWAY ADVISORY RADIO

Description:

This project is the FY 2001 ITS Integration Program earmark for San Antonio, TX. TransGuide is the ITS for the San Antonio metropolitan area. It has provided real-time traffic information to transportation officials, emergency services, transit operators and the local media since 1995. TransGuide information is available to the public through the Internet. Heavy truck traffic along I-35 between San Antonio, Texas and Laredo, Texas has increased dramatically with the passage and implementation of the North American Free Trade Agreement. I-35 is the only interstate highway approaching Laredo, the busiest land port in the nation. The implementation of a Highway Advisory Radio (HAR) system in rural areas approaching the San Antonio metropolitan area will allow the increasingly heavy truck and other commercial traffic to take advantage of available real-time traffic information. The use of the real-time traffic information by commercial vehicle operators will reduce time delays for the operators, and will help alleviate congestion in the metropolitan area. San Antonio currently has real-time traffic available for approximately 150 miles of freeways and major arterials, however this information is primarily available through the Internet, or through local television or radio traffic information. Traffic information broadcast by the media is intended primarily for local commuters, and is not geared to through traffic of heavy trucks. Implementation of a HAR program could alert truck drivers to major incidents in the San Antonio area while drivers are still in a rural area and have the opportunity to select alternate routes.

Project Location: San Antonio, Texas

Partner(s): FHWA, Texas DOT, ITS Steering Committee

Start Date: September 2001

End Date: April 2006

**Estimated Total
ITS Funds:** \$79,361

**Estimated Total
Project Cost:** \$175,361

Contacts:

Mark Olson	FHWA Texas Division, HPC-TX	(512) 536-5972
Brian Fariello	Texas DOT	(210) 731-5247



SEABROOK, TEXAS

Description:

This project is the FY 2001 ITS Integration Program earmark for Seabrook, Texas. Funding approval for the project was deferred to September 2002. The goal of this project is to facilitate access to closed circuit TV images by traffic management and emergency management agencies in small communities. The Greater Houston Transportation Management and Emergency Center, Houston TranStar, provides CCTV images offering great potential value to agencies in smaller cities surrounding the greater Houston metropolitan area. Access to CCTV for these communities is dependent on their ability to fund a T1 and fiber optic connection to Houston TranStar. These costs frequently exceed budget constraints.

This project will make Houston TranStar video accessible to a large number of users through the Internet. This will allow small cities and government agencies to access video without large capital outlays.

The project's implementing concept is to establish a distribution system for the images from the 300 CCTV cameras deployed on Houston's freeway system. The principal system components are:

- An encoder - a PC with video capture board and equipped with software to convert data into data packets.
- Video Gateway for video channel selection.
- Web Server to communicate the user's Web browser and initiate a connection to the video channel via the gateway.
- Video Player.

Project Location: Harris County, Texas

Partner(s): FHWA, Texas DOT, Cities of Seabrook and Webster, Bay Area Transportation Partnership (BATP), City of Pearland, League City, Harris County, Houston Metro

Start Date: October 2003

End Date: June 2006

Estimated Total ITS Funds: \$952,337

Estimated Total Project Cost: \$1,904,674

Contacts:

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David Fink	Texas DOT	(713) 881-3063



STATE OF TEXAS STATEWIDE SOFTWARE AND SYSTEMS INTEGRATION CENTER-TO-CENTER COMMUNICATIONS PROJECT

Description:

This is a multi-phase project begun in February 1999 with Phase I funded solely through TxDOT. Phase I of the Center-to-Center Communications (C2C2) Project, when deployed will provide data on freeway conditions on a graphical map for a combined Dallas/Ft. Worth ITS Internet Web site. Phases II and III were awarded in FY 99 using the FY 99 "State of Texas" earmarked funding in the FY 99 ITS Integration Program appropriations. Phase II of the C2C2 pilot project will extend the data server capabilities beyond freeway conditions to support coordinated incident management, information sharing, and remote device monitoring and control. The final phase of the project is intended to deploy an effective, reusable and fully interoperable C2C2 system in other ITS regions throughout Texas. This final phase will include additional development and integration activities to extend the multi-modal, multi-center and interoperable capabilities of the data server and related subsystems.

FY 2002 ITS Integration Program funding earmarked for this project continued the multi-phased effort to deploy Center-to-Center (C2C) communications capabilities in I-35 Corridor from Dallas/Fort Worth to Laredo, and the I-10 Corridor from Houston-to-El Paso. C2C communications capabilities previously developed for Dallas and Fort Worth will be deployed in the seven Traffic Management Centers (TMCs) within these two corridors. This will enable the TMCs to achieve higher levels of effectiveness in delivering commercial vehicle operations and traveler information services along these corridors. An added benefit will be the development of a statewide Traveler Information System that will serve commercial vehicle operators and the traveling public outside of the designated corridors. Traveler information from all TMCs with C2C communications capabilities will be fed to a centralized statewide Website accessible to the public.

Project Location: Dallas/Fort Worth, Texas

Partner(s): FHWA, Texas DOT

Start Date: February 1999

End Date: April 2006

**Estimated Total
ITS Funds:** \$1,271,107

**Estimated Total
Project Cost:** \$2,542,213

Contacts:

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Charlie Farnham	Texas DOT	(512) 416-3248



TRAFFIC OPERATIONS CENTER-TO-EMERGENCY OPERATIONS CENTER CONNECTIVITY AND AUTONOMOUS DIAL-A-RIDE TRANSPORTATION SYSTEM IMPLEMENTATION WITH INTEGRATION

Description:

This project is the FY 2000 ITS Integration Program earmark for Corpus Christi, Texas, funding for which was obligated in 2d Qtr FY 2001. The objectives of this project are to implement an integrated ITS deployment that will increase the effectiveness of hurricane evacuation operations, improve overall mobility, reduce travel time delays and congestion on highways and arterials, foster the use of mass transit, and provide emergency service providers with real-time traffic information.

The events during a recent hurricane identified the need to coordinate emergency services and operations with real-time traffic information to improve effectiveness during evacuations and alternate traffic routing. Also identified was an opportunity to use a state-of-the-art transportation system, Autonomous Dial-A-Ride Transportation (ADART), to aid in hurricane evacuations while also improving the overall efficiency of daily transit operations.

The operations center integration component (OCIC) will provide communications and connectivity to enable the TXDOT Traffic Management Center (TMC) to supply real-time traffic video and data to the local emergency operations center. This joint effort integration will also link both the City of Corpus Christi's traffic operations center and the TXDOT TMC with jointly owned traffic signals on arterials.

Project Location: Corpus Chirsti, Texas

Partner(s): FHWA, FTA, Texas DOT, City of Corpus Christi, Regional Transportation Authority, Texas Department of Public Safety, Nueces County, Local Metropolitan Planning Organization, Local Emergency Planning Committee

Start Date: September 2000

End Date: March 2007

**Estimated Total
ITS Funds:** \$1,179,632

**Estimated Total
Project Cost:** \$2,359,264

Contacts:

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Ismael Soto	Texas DOT (Corpus Christi District)	(361) 808-2225
Linda Watson	Regional Transportation Authority	(361) 289-2712



TRANSPORTATION RESEARCH IMPLEMENTATION CENTER FOR OPERATIONS AND MANAGEMENT

Description: This project is the FY 2000 ITS Integration Program earmark for College Station, Texas. Federal funding was obligated July 2001. The Texas Transportation Institute in partnership with the Texas Department of Transportation is deploying a Transportation Implementation consortium for Operations and Maintenance to support improved transportation system operations and management. This center will seek to accelerate integration and interoperability of ITS across system, modal and jurisdictional boundaries in rural, metropolitan, regional and statewide settings. Areas of focus will be transportation system management, emergency response management, transit management and highway-rail intersection safety.

The technical approach is the operation of a facility and support staff needed to deliver ITS research products to practice in order to facilitate integration and interoperability. Approaches to be used include Web-based information, workshops, and on-site technology transfer.

Project Location: College Station, Texas

Partner(s): FHWA, Texas DOT, Texas Transportation Institute

Start Date: July 2001

End Date: April 2006

**Estimated Total
ITS Funds:** \$786,000

**Estimated Total
Project Cost:** \$1,586,000

Contacts:

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Carlos Lopez	Texas DOT-Traffic Operations Division	(512) 416-3200
Kevin Balke	Texas Transportation Institute	(979) 845-9899



TRUCK SAFETY AND MONITORING WITHIN HOUSTON

Description:

This project is the FY 2000 ITS Integration Program earmark for Houston, Texas. Truck safety and monitoring are major concerns in the Houston area. Truck crashes and incidents in the Houston area have increased significantly in recent years. This project results from requests from the trucking industry and the Truck Safety Task Force. The project seeks to deploy and integrate ITS technologies in the corridors leading to and from the Port of Houston and other major destination points in the region.

The primary causes of truck accidents in the area have been attributed to truck driver unfamiliarity with the area, construction projects, and weather conditions aggravated by speeding. The project's concept is to deploy Dynamic Message Signs (DMS) at major points of entry to the corridors leading into the Houston District. These DMS would be integrated with the regional transportation management center-Houston TranStar. These signs would provide inbound traffic with advance notice of congestion, construction, flooding and similar conditions.

Trucks traveling at unsafe speeds will be identified and alerted by rollover warning devices flashing an immediate order to reduce speeds prior to negotiating interchange ramp. Additional components visualized in this project include Highway Advisory Radio advertised by lighted signs integrated into TranStar to enable activation during periods of roadway system blockages, and the deployment of kiosks at key locations outside of the Houston area. These kiosks would provide truck operators with information on traffic conditions, incidents and construction notices complemented by rerouting directions.

Project Location:

Houston District (Brazoria, Fort Bend, Galveston, Harris, Montgomery and Waller Counties)

Partner(s):

FHWA, Texas DOT, Metropolitan Transit Authority of Harris County, Harris County Sheriff Department, Houston Police Department

Start Date:

June 2001

End Date:

July 2007

Estimated Total ITS Funds:

\$1,179,632

Estimated Total Project Cost:

\$2,359,264

Contacts:

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John Gaynor	Texas DOT	(713) 881-3060



WILLIAMSON COUNTY/ROUND ROCK, TEXAS INTEGRATION PROJECT

Description:

This project originated as the FY 2001 ITS Integration Program earmark for Williamson County/Round Rock. Williamson County and the City of Round Rock, Texas are linked by the I-35 and US 183 corridors. The Texas DOT has deployed a freeway corridor traffic management system along these corridors. Both jurisdictions employ computer-aided dispatch (CAD) systems to respond to incidents. Current integration between these systems is limited to telephone technology. In recognition of the compelling need for each jurisdiction to be aware of roadway incidents in the adjoining area, the FY 2001 earmark began the process of integrating the existing Williamson County and Round Rock CAD systems with the Texas DOT advanced traffic management system in order to provide County and City authorities with roadway incident information to support effective incident management and emergency responses.

The FY 2003 ITS Integration Program appropriated an additional \$415,971 to this project which supplemented with matching funds from various sources to provide a total of \$900,000. FY 2001 funds covered the software interface aspect of systems integration. FY 2003 funding will support completion of the integration necessary to realize the potential of activities started with FY 2001 funding by providing conduit and fiber optic cable, multiplexers/demultiplexers, transmitters and receivers needed to support the exchange of information among systems.

Project Location:

Williamson County and City of Round Rock, Texas

Partner(s):

FHWA, Texas DOT, Williamson County, City of Round Rock

Start Date:

September 2001

End Date:

April 2006

Estimated Total ITS Funds:

\$614,375

Estimated Total Project Cost:

\$1,298,404

Contacts:

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Brian Burk	Texas DOT	(512) 832-7014



UTAH

COMMUTERLINK

Description:

This project originated with the FY 2000 ITS Integration Program earmark for Salt Lake City, Utah. The project will consist of the deployment, and enhancement of a variety of subsystems to integrate traffic management, transit management, emergency management and traveler information systems. These initiatives continue the integration and enhancement of the CommuterLink system of ITS deployments whose original long-term goals were to improve traffic flow and reduce emissions on the State highway system in the Salt Lake Valley. CommuterLink enhancements were in place by the 2002 Winter Olympic Games. This project's activities focus on a wide range of system enhancements partially illustrated by the following examples:

- Systems Graphics Map providing real-time displays.
- Ramp Metering Subsystem on I-15.
- Website Enhancements for traveler information.
- Traveler Advisory Telephone providing recordings of real-time conditions.
- Integration of mobile systems on incident management vehicles.

There are a total of twenty discreet system upgrades planned for CommuterLink in this project. Each is designed to provide additional capabilities for managing Olympic-related traffic as well as establishing a basis for long-term, integrated transportation management in the Salt Lake Urbanized Area.

The FY 2001 ITS Integration Program earmark for the Salt Lake City Urbanized Area builds on the FY 2000 earmarked CommuterLink project. This earmark will develop the following system enhancements:

- Commercial Vehicle Information System and Networks (CVISN) development toward Level 1 capabilities will continue. Utah will join Washington, Oregon, and Idaho in building a regional CVIEW database. Fuel tax, vehicle registration and overweight/oversize permitting systems will be linked to a regional CVIEW capability and Port of Entry agents will be trained to provide enhanced service and increased efficiency to motor carriers.
- Field Deployment and Expansion of the CommuterLink advanced traffic management system will include addition of new field devices, increased integration of existing devices to include closed circuit TV, congestion detectors and highway advisory radio.
- Integration of newly deployed subsystems into CommuterLink and the Web site providing access to all capabilities.
- An evaluation activity will be conducted following deployment of various subsystems and components deployed during the timeframe of this earmark.

Project Location: Salt Lake Urbanized Area

Partner(s): FHWA; FTA; Utah DOT; Utah Transit Authority; Salt Lake County; Wasatch Front Regional Council; Mountainland Association of Governments, Salt Lake Organizing Committee; Cities of South Salt Lake, Draper, Taylorsville, Sandy City, Midvale, Murray City, West Jordan; University of Utah



Start Date: June 2000

End Date: April 2006

**Estimated Total
ITS Funds:** \$3,549,685

**Estimated Total
Project Cost:** \$19,709,263

Contacts:

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Martin Knopp	Utah DOT	(801) 965-4894	



EXPANSION OF UTAH'S COMMUTERLINK SYSTEM

Description:

The project originated as a FY 2003 ITS integration Program earmark for the State of Utah. For several years leading up to the 2000 Olympics, Utah had followed a comprehensive plan to ensure successful deployment and integration of ITS applications. The principal beneficiary of ITS deployments has been the Salt Lake City Metropolitan area. Through an extensive advanced traffic management system (ATMS) known as CommuterLink, the jurisdiction has attained improved traffic flows, reduced emissions, more accurate traveler information, and safety improvements, all of which contributed to successful transportation management during the Olympics. This project seeks to expand the benefits of integration beyond Salt Lake City Metropolitan Area into counties south and north of the City. Funding from this earmark will supplement other sources to expand the CommuterLink system into Davis County and Utah DOT's Regional Headquarters. With one exception, each of these entities operates individual Traffic Control Centers, but are seeking to operate as one system that shares information, and coordinates traffic management across boundaries.

This integration initiative will concentrate software enhancements and procurement/installation of new hardware enabling new users to incorporate their existing field and operational systems with the Statewide CommuterLink System. Areas of emphasis will include shared ATMS device access for remote monitoring with centralized access and control of both legacy and new devices.

A FY 2004 earmark of \$1,076,977 was appropriated for the continuation and expansion of this project.

The earmark will fund software enhancements and the procurement and installation of new hardware to enable the new users to integrate their existing field and operational systems with the CommuterLink system. The focus will be on completing the backbone fiber optic communications, and the activation of connections for arterial signal control, closed circuit TV, variable message signs, and transit passenger information displays.

The current project cost estimate includes the FY 2004 earmark of \$1,076,977 and the FY 2004 total of \$2,153,954. The current completion date incorporates a 24 month period of performance for the FY 2004 earmark activities.

Project Location: Davis County and Utah County, Utah

Partner(s): FHWA, Utah DOT; Department of Public Safety; Department of Air Quality; Utah Transit Authority; Counties of Salt Lake, Summit, Davis; Cities of Salt Lake City, Orem City, West Valley City, South Salt Lake, Provo City, Taylorsville, Murray City, Midvale, West Jordan, Draper, Sandy City, South Jordan, Ogden City; Wasatch Front Regional Council; Mountainland Association of Governments; Valley Emergency Communications Center; University of Utah

Start Date: September 2003

End Date: November 2006



**Estimated Total
ITS Funds:** \$1,908,919

**Estimated Total
Project Cost:** \$3,817,838

Contacts:

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Richard Manser	Utah DOT	(801) 887-3718	



ITS INITIAL IMPLEMENTATION

Description:

This project is a FY 2004 ITS Integration Program earmark for the State of Utah. For several years leading up to the 2002 Winter Olympic Games, Utah had followed a comprehensive plan to ensure successful deployment and integration of ITS applications. The principal beneficiary of ITS deployments has been the Salt Lake City Metropolitan Area.

Through an extensive advanced traffic management system known as CommuterLink, the Salt Lake City area has benefited from improved traffic flows, reduced emissions, more accurate traveler information and safety improvements, all of which contributed significantly to successful transportation management during the Olympics. As congestion increases, there is a validated need to expand CommuterLink beyond the Salt Lake City area into a statewide network of ITS applications.

This project's objective is to expand the CommuterLink system into the densely populated, and rural, Cache Valley area located in the northeastern portion of Utah. Funding provided by this FY 2004 earmark will provide Utah DOT with resources to improve congestion monitoring and response capabilities.

Major project activities include:

- Development of an ITS Strategic Policy and Operations Plan.
- Development of a regional ITS architecture for the Cache Valley area.
- Integration of communications capabilities, software applications, closed circuit TVs, variable message signs, traffic signal coordination, and traveler information.
- Expansion of system access to additional operating partners.

Project Location: Cache Valley, Utah

Partner(s): FHWA, Utah Department of Transportation, Salt Lake City, Orem City, Salt Lake County, Summit County, Wasatch Front Regional Council, Mountainland Association of Governments, Valley Emergency Communications Center.

Start Date: November 2004

End Date: February 2007

**Estimated Total
ITS Funds:** \$861,582

**Estimated Total
Project Cost:** \$1,723,164

Contacts:

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Richard Manser	Utah DOT	(801) 887-3718	



SALT LAKE OLYMPIC ITS

Description:

This project is one of the FY 2001 ITS Integration Program earmarks for the Salt Lake City, Utah urbanized area. This earmark builds on project elements originated in FY 2000 under the title, CommuterLink, and will enhance subsystems dedicated to integrating traffic management, transit management, emergency management and traveler information systems. The FY 2001 earmark will develop the following system enhancements:

- Department of Public Safety Dispatch Center Expansion to improve response times in surrounding counties.
- Traffic Operations Center Communication enhancements to satisfy operational requirements during the Olympics. Improvements entail installing wireless Internet connections, additional power outlets and installation of audio/visual equipment.
- Installation of Highway Advisory Radio in key rural areas along Olympic routes.
- Communication to Remote Traffic Signals to enable Traffic Operations Center managers to adjust signal timings to accommodate change in traffic patterns as Olympic events cause surges.
- Light Rail Transit (LRT) Platforms will have information systems deployed for real-time information dissemination regarding arriving LRT vehicles. System-wide information will also be relayed to platforms.
- Olympic Automatic Vehicle Location (AVL) installations on key Olympic vehicles to enhance security of athletes and officials during transit between events. After the Olympics, these AVL units will be redeployed to highway patrol, highway maintenance and fire department vehicles.

FY2001 earmarked funding approved in FY 2001 was \$793,615. Matching funds resulted in a total FY 2001 funding level of \$1,590,728. An additional \$119,540 of earmarked funding was approved in January 2005. This amount was matched for a total of \$238,478. This 2005 incremental funding was dedicated to the development of a strategic planning effort that will address technology, architecture, deployment, operations and maintenance. Funding levels depicted below include both funding increments. The estimated completion date for the FY 2001 integration component of this project is March 2005. The adjusted completion date including the planning activity is October 30, 2005.

Project Location: Salt Lake City, UT

Partner(s): FHWA; FTA; Utah DOT; Utah Transit Authority; Utah Department of Public Safety; Salt Lake County; Wasatch Front Regional Council; Mountainland Association of Governments; Salt Lake Organizing Committee; Salt Lake City; Cities of South Salt Lake, Draper, Taylorsville, Sandy City, Midvale, Murray City, West Jordan

Start Date: September 2001

End Date: April 2006



**Estimated Total
ITS Funds:** \$913,155

**Estimated Total
Project Cost:** \$1,829,206

Contacts:

Russell Robertson	FHWA Utah Division, HPM-UT	(801) 963-0078	229
Martin Knopp	UTAH DOT	(801) 965-4894	



UTAH ITS INTEGRATION

Description:

This project will continue the planning, design and deployment of ITS infrastructure in conformance with established regional priorities identified in ITS Early Deployment Planning as amended by the Salt Lake Olympic Committee. The following activities comprise the initiatives which will be pursued:

- Expansion of the Utah DOT Incident Management Program;
- Improvement of advanced traveler information systems;
- Expansion of the Regional Advanced Traffic Management System;
- Automatic Vehicle Locating for Olympic Athlete and Olympic Family Vehicles;
- Expand the functionality of University of Utah Research Traffic Operations Center to support Olympic operations, to support system testing, evaluation and research activities.

Project Location: Salt Lake City Area

Partner(s): FHWA, Utah DOT, Salt Lake Olympic Committee, Wasatch Front Regional Council, Salt Lake County Department of Public Works, Salt Lake City Transportation Division, Utah Transit Authority, Mountainlands Association of Governments, Utah Department of Public Safety Highway Patrol, Salt Lake City Airport

Start Date: September 1999

End Date: April 2006

**Estimated Total
ITS Funds:** \$2,849,290

**Estimated Total
Project Cost:** \$11,349,290

Contacts:

Russell Robertson	FHWA Utah Division, HPM-UT	(801) 963-0078	229
Martin Knopp	Utah DOT	(801) 965-4894	



UTAH STATEWIDE

Description:

This project is the FY 2002 ITS Integration Program Utah Statewide earmark. The project is an expansion of the Utah DOT's deployment of ITS technologies in the Salt Lake City Metropolitan area in recent years known as the CommuterLink system. FY 2002 funding will be focused on expanding the CommuterLink system on a broader geographical basis. Four priority initiatives comprise this project:

- Integration: Enhancing the CommuterLink Advanced Traffic Management System and Advanced Traveler Information Systems Web site. The Web site will be updated to reflect system-wide, recently deployed improvements. There is a priority on integrating communications with remote traffic signals and closed loop systems.
- CVISN: Electronic Credentialing will be a major focus needed to achieve Level 1 status in deployment of Commercial Vehicle Information Systems and Networks.
- Rural Deployments: Deployment of Highway Advisory Radio and Road Weather Information Systems will be emphasized at key rural locations. Concurrently, Utah's 511 traveler information system will be expanded in rural areas.
- Evaluation: Deployment and integration activities conducted during the period of execution in this project will be evaluated as part of the project.

Project Location: Utah

Partner(s): FHWA, Utah DOT

Start Date: September 2002

End Date: April 2006

**Estimated Total
ITS Funds:** \$463,298

**Estimated Total
Project Cost:** \$926,596

Contacts:

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Richard Manser	Utah DOT	(801) 887-3718	



VERMONT

BRANDON, VERMONT

Description:

Brandon is located in western Vermont along the US Route 7 corridor. Route 7 is part of the National Highway System (NHS) and is the main north-south travel corridor in western Vermont, connecting western Massachusetts to the south with Quebec to the north. It passes through Bennington, Rutland, and Middlebury, three of the largest communities in the state, as well as the Burlington metropolitan area, which is the major population center.

This corridor has significant amounts of truck traffic, as it is the principal connection for freight transportation between the major communities and the Albany, New York, area. In many areas, limited passing opportunities create long queues of vehicles behind slow-moving trucks. Since the right-of-way for Route 7 dates back to the very earliest days of county road building in the state, it passes directly through most of the town and village centers along the corridor, including Brandon. This condition is aggravated by heavy truck traffic through town transporting ore from a quarry to a processing plant on northern and southern sides of town. This project will pursue the following initiatives designed to address Brandon's problems:

- Brandon Route 7 WIM site. Adding a WIM site to the state WIM system will allow Vermont to gather considerable data regarding traffic flows, types, and weights. This in turn will help in further defining the existing problem and developing appropriate ITS solutions.

- Regional ATIS. The Rutland Regional Commission will implement a simple Web page with traveller information for the region which includes Brandon. This Web site will enhance intermodal connectivity by providing information regarding schedules and availability of air, rail, and transit services, as well as roadway construction. The Rutland area is served by scheduled air service, Amtrak, and several local transit operators, but there is no central source for information regarding the different modes.

Deployment activity was completed in October 2001. Final report closing out the project is anticipated by March 31, 2004.

Project Location: Brandon, Vermont

Partner(s): Vermont Agency of Transportation; Brandon, VT Selectboard; Rutland Regional Planning Commission; Vermont Division of Travel and Tourism

Start Date: September 1999

End Date: April 2006

**Estimated Total
ITS Funds:** \$296,801

**Estimated Total
Project Cost:** \$593,602



Contacts:

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Bruce Bender	Vermont Agency of Transportation	(802) 828-3984



MULTIMODAL PASSENGER INFORMATION, TRANSIT SIGNAL PRIORITY AND ITS SYSTEM PLANNING

Description:

This project is the FY 2003 ITS Integration Program earmark for Chittenden County, Vermont. The Chittenden County Transportation Authority (CCTA) plans to use ITS to improve the on-time performance and reliability of services, provide improved safety and security, increase the lifespan of capital equipment through monitoring, and provide improved passenger information systems. CCTA will use FY 2003 integration funding to:

- Implement an initial high priority project to provide enhanced multimodal passenger information at the County's new transit center.
- Conduct planning to enhance radio frequency infrastructure.
- Undertake a collaborative effort with the State Department of Transportation, the MPO and municipalities for transit signal priority on several corridors.
- Integrate software for the multimodal information displays and fixed route scheduling. The fixed route scheduling software will allow CCTA to share data with regional partners, and implement service changes more effectively.

The Multimodal Transit Center displays will provide enhanced multimodal passenger information at the new transit center, including integration with fixed route scheduling software and sources of schedule data from ferry and rail operators. The visible elements of this passenger information system will be large dynamic message signs (DMS) in several locations inside the center. These interior displays will indicate the departure times for the next bus at each bay, CCTA public service announcement and departures for ferry and rail operators. The monitoring and control software will allow State Police to input and activate AMBER alert messages.

Project Location: Chittenden County, Vermont

Partner(s): FHWA; Vermont Agency of Transportation (VTrans); State of Vermont, Department of Public Safety; Chittenden County Transportation Authority (CCTA); City of Burlington

Start Date: February 2004

End Date: April 2006

Estimated Total ITS Funds: \$415,972

Estimated Total Project Cost: \$831,944

Contacts:

Jim Bush	FHWA Vermont Division, HTD-VT	(802) 828-4423
Aaron Frank	CCTA	(802) 864-0211



STATE OF VERMONT

Description:

The focus of this project will be on taking the first steps toward the development and deployment of this Integrated Information System. The system will act as the primary point of coordination for managing transportation resources, and will be responsible for the collection, fusion, analysis and dissemination of information on the status of the transportation system and travel conditions. The system will receive its information from a number of sources, including roadway weather information systems (RWIS), links to emergency management centers, and motorists' reporting of unusual events (e.g. accidents). The system will also aid in the delivery of information on any scheduled road construction work that may impact travel in this region. All this information will be fused and analyzed, and will then be disseminated to the public and other appropriate agencies through a number of en-route information dissemination devices. The first phase of this project should be regarded as an encompassing project that includes the following five elements:

- Providing for limited network surveillance capability, including the deployment of two Weigh-In-Motion (WIM) stations.
- Deploying Four Variable Message Signs (VMS) and Highway Advisory Radio (HAR).
- Deploying two Road Weather Information Systems (RWIS) sites.
- Improving the Incident Management Process.
- Gathering information for, and identifying key components of and shareholders in, the development of a future, small-scale transportation management and information center (TMIC).

The FY 2002 ITS Integration Program earmark for Rutland, VT implements Phase II of this project. Funding in the amount of \$620,489 was obligated in September 2003. Matching funds brings the FY 2002 total funding level to \$1,240,978. The funding figures in the current estimated costs include FY 2001 and FY 2002 amounts. FY 2002 funding will support deployment of additional Weigh-In-Motion stations, permanent and portable Dynamic Message Signs, Road Weather Information Systems, and flood warning signs. These devices will be integrated with the Condition Acquisition and Reporting System which is being deployed throughout Vermont as part of the Tri-State Advanced Traveler Information System (the TRIO project undertaken by Maine, New Hampshire and Vermont).

Project Location:

Rutland County, Vermont

Partner(s):

FHWA; Vermont Agency of Transportation (VTrans); Vermont State Police; Vermont E-911 Board; Vermont Departments of Tourism and Marketing, and Buildings and General Services; Crossroads of Vermont Regional Marketing Organization, Rutland Regional Planning Commission, Tri-State Rural ATIS Partnership; Killington/Pico Resorts

Start Date:

September 2001

End Date:

November 2007

Estimated Total ITS Funds:

\$1,017,296

Estimated Total Project Cost:

\$2,036,342



Contacts:

Jim Bush	FHWA Vermont Division, HDA-VT	(802) 828-4423
Karen Songhurst	VTrans	(802) 828-1078



VERMONT STATEWIDE RURAL ADVANCED TRAVELER SYSTEM (ConnectVermont)

Description:

This project is a FY 2003 ITS Integration Program Earmark for the State of Vermont. The project intends to carry out Phase IV activities of the ConnectVermont project, which focuses on extending the reach of the applications developed by achieving new levels of integration. It follows the integration activities carried out by ConnectVermont under Phase I through Phase III utilizing earmark funds from FY 2000 through FY 2002, respectively. The overall goal of the ConnectVermont project is to deploy an Advanced Rural Traveler Information service that will serve the tourists and visitors to the state, while benefiting the key stakeholders such as local businesses, government agencies, etc. ConnectVermont envisions a comprehensive system that enables travelers to make informed travel decisions with pre-trip (primarily through internet) and en-route travel information (via 511, kiosks, etc). The intended method of integration and data sharing is through a Web services approach, ensuring connectivity not only among ConnectVermont stakeholders, but also with outside agencies such as TRIO partners. The core elements or service that will be integrated/applied as activities under the project are:

1. Electronic Touch Screen Kiosks - Tasks include identifying a Kiosk Project Manager and possible integration/enhancement of existing features. Key Integration could be with the Tri-state Regional Traveler Information (TRIO) currently underway in the states of VT, NH & ME.
2. Sustainability - Identifying robust methods of data collection, analysis, "scrubbing," and updating the information. This would also include identifying and securing the underlying infrastructure such as hardware, software, connectivity, etc. Development of new or enhanced software is anticipated as part of improving the usability of user interface to the Vermont Business Registry database.
3. Standardized Integration - Though far reaching in scope, this is where the core of the evaluation lies. It may possibly include integration of elements such as 511, Amber Alert, kiosks, etc. This activity will include on-going identification of new technologies for standardized information sharing, and also applying these technologies to specific projects (data sharing with TRIO).
4. Administration - Examples of anticipated activities include architecture updates, project management, reporting, troubleshooting, etc.
5. Outreach/Training - Tasks may include promotional activities such as advertising, events, etc., specifically targeted at improving the awareness and use of ConnectVermont products.

Project Location: Vermont Statewide

Partner(s): FHWA, Vermont Agency for Transportation, VT Department of Tourism and Marketing, VT Department of Economic Development, VT Dept of Buildings and Services, TRIO - The Northern New England Tri-State Coalition: NH, VT, ME.

Start Date: January 2004

End Date: December 2006



**Estimated Total
ITS Funds:** \$1,247,913

**Estimated Total
Project Cost:** \$2,495,826

Contacts:

James Bush	FHWA, VT Division, HDA-VT	802-828-4423
Robert White	VT Agency for Transportation	802-828-2781



VERMONT TECHNOLOGICAL ALLIANCE PROJECT: VERMONT RURAL ADVANCED TRAVELER INFORMATION SYSTEM (TRAV 2000)

Description:

This is a multi-year project which originated as the FY 2000 State of Vermont earmark. The project will develop and link database systems which will provide travelers and tourists in Vermont with accurate and real-time information about road conditions, way-finding, and destination information. The project fills the need for advanced traveler information to support the needs of an increasing number of travelers visiting the State. Through the development and linkage of a comprehensive database and the application of technology, travelers will be better able to make informed decisions before and during their trips using the Internet (home based, mobile lap-top or palm held), on-board digital appliances, signs, and a network of kiosks. The elements will consist of a technical infrastructure, a coordinated and sustainable relational traveler information database, a high quality visitor information center presentation at key sites, a web-based traveler information application linked to appropriate non-profit and regional travel information sites, a reservation booking system, and a teleservicing information and way-finding service. Once successfully implemented, the system will provide a basis for further efforts of Vermont, New Hampshire, and Maine to develop a Tri-State Rural Advanced Traveler Information System (RATIS). Vermont's advance work in this area holds the promise of providing a pilot for the tri-state project and it is Vermont's intention that any RATIS work product shall be made available to its tri-state neighbors for the benefit of the entire tri-state region. The first year of the project concentrated on data development, system design, and component procurement.

The FY 2001 ITS Integration Program earmark for Vermont is allocated to Phase II of this project. The core goals of Phase II of this project to be pursued by the FY 2001 earmark, are to ensure the system under development is complete, dynamic and sustainable. Additional elements include developing and documenting standards for integration with intra-state and interstate partners as well as future private sector applications. Phase II (FY 2001) highlights include:

- Statewide Database and Web Development
- Regional Application Standards and Policies Pilot
- Design and Integration of Mapping Applications
- Information System Integration with Tri-State Planning
- Web Site Presentation Integration
- Application Enhancement

Phase III (FY 2002)

The FY 2002 ITS Integration Program Vermont Statewide earmark provided an additional \$1,240,977 to this project. This funding level was matched from non-federal sources with a like amount. These funds are allocated to Phase III of this project which focuses on the following activities:

- Electronic Touch-Screen Kiosks
 - Expanding the content of kiosks to integrate road conditions, traffic/construction updates, and weather information.
 - Conducting usability testing to assess customer response to kiosks.
 - Developing an approach for connecting kiosks to the Internet, and implementing most cost-effective approach.
- En-Route Traveler Information (formerly "Wayfinding")
 - Developing a feasible approach for delivering information from the ConnectVermont



database to travelers en-route.

--Enhance information content to support en-route traveler needs, and integration 511 service.

- Content/Application Management

--Web site presentation and integration improvements.

- Software, Database, Program and Standards Development

--Program management functions.

--Exploring applicable standards.

--Ensuring consistency with ITS Standards and the National ITS Architecture.

- Outreach/Training

- Sustainability and Data Population

- TRIO (Tri-State Integration)

--Integrating Vermont systems into the TRIO Project undertaken jointly with New Hampshire and Maine.

Funding amounts depicted under "Estimated Total ITS Funds" reflect funding for FY 2000 through 2002.

Project Location: State of Vermont

Partner(s): FHWA, Vermont Agency of Transportation, Vermont Agency of Commerce-Department of Tourism and Marketing, Vermont Department of Buildings and General Services, Vermont Travel Information Council

Start Date: September 2000

End Date: April 2006

Estimated Total ITS Funds: \$3,217,820

Estimated Total Project Cost: \$7,397,357

Contacts:

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Bruce Bender	Vermont Agency of Transportation	(802) 828-3984
Andy Lowe	Vermont Agency of Commerce	(802) 828-0528



VERMONT VARIABLE MESSAGE SIGNS

Description: This project is a FY 2003 ITS integration Program earmark for the State of Vermont. The project, scheduled over an eight year period, will conduct a comprehensive requirements analysis for a statewide network of portable and permanent variable message signs (VMS) to be followed by procurement, deployment and integration phases. The lead agency for the project is the Vermont Agency of Transportation (VTrans).

Vermont, New Hampshire and Maine have undertaken a major regional ITS project - the Tri-State Advanced Traveler Information System - TRIO. These states have integrated the Conditions Acquisition and Reporting System (CARS) and a weather forecasting and roadway condition reporting system - FORETELL - into their transportation operations. To ensure the dissemination of timely and meaningful information to motorists, the Vermont VMS project will be integrated with CARS and FORETELL. Additionally, as VMS resources are activated, they will support the statewide AMBER alert program.

Project Location: Vermont Statewide

Partner(s): FHWA, Vermont Agency of Transportation, Vermont Department of Public Safety, Chittenden County Metropolitan Planning Organization

Start Date: September 2004

End Date: October 2011

Estimated Total ITS Funds: \$831,942

Estimated Total Project Cost: \$1,663,884

Contacts:

Daniel Grahovac

Vermont Agency of Transportation

(802) 828-5751



VIRGINIA

ARLINGTON, VIRGINIA TRANSIT PRIORITY AND EMERGENCY VEHICLE PREEMPTION

Description:

The principal goal of this project is to improve the capacity and increase operational efficiency of the Transit Priority and Emergency Vehicle Preemption system along Columbia Pike and elsewhere in the County as funding allows. In addition, the project will allow the expansion of SCOOT traffic control along major traffic corridors. By reducing congestion and providing reliable information for travelers to make better travel decisions, effective capacity and efficiency are enhanced and environmental impacts reduced.

A flexible and integrated system is the crucial element of this project. The objective of this project is to ensure the harmony of public transit system along jurisdictions. Columbia Pike corridor links Fairfax County with Arlington County. Public transport will benefit greatly from the integration of systems. Transit agencies can provide faster, convenient, safe and flexible services with this system. Based on a bus performance relative to schedule and the vehicle's planned route, plus the destinations and connection requirements of the passengers, traffic signal timing can accommodate the schedule needs. A special green wave to get the bus back on schedule can be implemented. Using a seamless transit system in the region enhances the mobility and safety of the operation.

Personal mobility and convenience will be enhanced and the new control system will increase transit automation and predictability. The ability to use energy more efficiently and reduce environmental costs through the use of advance technology will be achieved effectively. More efficient system reduces travel times and more efficient administration of the transportation system enables productivity gains across the system.

Project Location: Arlington, Virginia

Partner(s): Virginia DOT; Arlington County, VA; Virginia Polytechnic Institute; George Mason University

Start Date: September 1999

End Date: December 2006

Estimated Total ITS Funds: \$593,602

Estimated Total Project Cost: \$1,187,204

Contacts:

Tom Jennings	FHWA Virginia Division, HDA-VA	(804) 775-3357
Tom Bellamy	Arlington County Traffic Engineering Division	(703) 228-3722



INTEGRATED DRIVER INFORMATION, SAFETY AND COMMERCE (DISC) PROGRAM

Description:

This project is a FY 2002 ITS Integration Program earmark for Virginia. The goal of this project is to assist in the integration of driver information systems, safety systems and commerce systems on the I-81 corridor. The focus will be research activities needed to develop a prototype integrated system that will ultimately be regionally deployed.

Systems requiring integration include:

- 511Virginia: 511Virginia is a real-time traffic, traveler services, and tourism information service for Virginia's I-81 Corridor. It provides travelers, tourists, and local residents along Interstate 81 in Virginia with current road/traffic conditions as well as information about food and lodging, traveler services, and attractions/events.
- Northern Shenandoah Valley ITS-Public Safety System: This system collects data from Mayday and Automated Crash Notification (ACN) equipment, public sector traffic management systems, law enforcement agencies, wireless carriers and other sources. It then augments and routes this information to different emergency service providers.
- Capital Wireless Integrated Network: The Capital Wireless Integrated Network (CapWIN) project is a partnership between the States of Maryland and Virginia and the District of Columbia to develop an integrated transportation and criminal justice information wireless network.

The integration of these components will increase the number of users, increase the overall safety of the corridor, and increase the overall efficiency of the corridor.

The subprojects supporting the development of a prototype integrated system include:

- Computing and Communications Integration Project.
- Cross-Boundary Information Security Project.
- Software for Integrated Centers Project.
- Institutional and Market Issues Project.

James Madison University will be the lead organization for the conduct of these research efforts.

Project Location: Virginia

Contractor(s): Virginia DOT, James Madison University, ComCARE Alliance, Virginia 511, Commonwealth Information Security Center

Start Date: September 2002

End Date: April 2006



**Estimated Total
ITS Funds:** \$1,240,977

**Estimated Total
Project Cost:** \$2,485,463

Contacts:

Tom Jennings	FHWA Virginia Division, HDA-VA	(804) 775-3357
David Bernstein	James Madison University	(540) 568-1671



ITS INTEGRATION AMONG VDOT AND THE SHENANDOAH VALLEY

Description:

This project is the FY 2000 Integration Program earmark for the Shenandoah Valley, Virginia. The project is a compendium of disparate initiatives designed to improve mobility, traveler information and safety. Earmarked funding complemented by matching increments are to be applied to a series of initiatives, some of which build on the FY 1999 earmark for Warren County, Virginia. Highlights include further development of the Travel Shenandoah Commercial Information Demonstration Project (FY 1999 Warren County Earmark), and support to Virginia Tech and George Mason Universities, which are involved in project evaluation and System Integration of all ITS initiatives. Specific infrastructure enhancements will focus on Signal System Enhancement (e.g., video and closed loop coordination) in Staunton District, and corridor enhancements targeting specific intersections in Frederick County in the corridor used for rapid access to the Winchester Medical Center. Continued development of the FY 1999 earmark "Public Mobility Project" will feature installation of a coordinated-network computer aided dispatching system and vehicle location to enhance and augment the provision of human service transportation activities. Finally, resources will be applied to staffing ITS Project Manager and ITS Technician positions to ensure appropriate administration, planning, budgeting, design and maintenance of ITS system applications.

Project Location:

Staunton District of the Virginia Department of Transportation

Partner(s):

Virginia Dept. of Transportation, Travel Shenandoah Telecommunications Company, Lord Fairfax Planning District Commission

Start Date:

September 2000

End Date:

April 2006

Estimated Total ITS Funds:

\$1,966,053

Estimated Total Project Cost:

\$6,153,000

Contacts:

Tom Jennings	FHWA Virginia Division, HDA-VA	(804) 775-3357
Robert Slocum	Virginia DOT	(540) 332-7720



REGIONAL INTEGRATED TRANSPORTATION INFORMATION SYSTEM (RITIS)

Description:

This project is the FY 2002 ITS Integration Program earmark for the Washington, D.C. Metropolitan area. Working through the National Capital Transportation Planning Board at the Metropolitan Washington Council of Governments, the Washington Metropolitan region will integrate existing transportation information and management systems in Virginia, Maryland, and the District of Columbia into a Regional Integrated Transportation Information System (RITIS). The project will incrementally integrate data from existing Transportation Management Centers and their associated information systems over a three-year period with specific objectives and deliverable items in each year.

RITIS collects data of regional interest and fuses these data into regional information that can be used to enhance regional traveler information and transportation management functions performed by member agencies.

RITIS advances regional data fusion and the employment of real-time regional information in support of transportation management, traveler information, emergency preparedness, emergency response and other regional priorities. The project develops a regional ITS Data Archive, a Virtual Private Network using the Internet Protocol for sharing video images and transportation data of regional interest, and a Regional Data Management Center.

Project Location: Washington, D.C. Metropolitan Area

Partner(s): FHWA, Metropolitan Washington Council of Governments (COG); Virginia DOT; Maryland State Highway Administration; DC Department of Public Works; Washington Metropolitan Area Transit Agency; Montgomery County Department of Public Works

Start Date: March 2003

End Date: March 2006

Estimated Total ITS Funds: \$1,655,000

Estimated Total Project Cost: \$3,310,000

Contacts:

Tom Jennings	FHWA Virginia Division, HDA-VA	(804) 775-3357
Andrew Meese	MWCOG	(202) 962-3789



SPRINGFIELD, VIRGINIA INTERSTATE INTERCHANGE

Description: This integration project addresses one aspect of the integration of infrastructure in the Springfield Interstate improvement project. The ITS integration component to be addressed is the enhanced use of video imagery to include video transfer between agencies and organizations. The specific project focus is to provide video feeds between existing VDOT Smart Traffic Centers and others, such as the Fairfax County Public Safety Dispatch Center and the Springfield Interchange Office of the State Police.

A smaller, companion effort to this video sharing initiative is to ensure that the existing incident management plan and manual are current and up-to-date. A review of the existing regional plan and manual will be conducted to determine any needed revisions, especially as they may relate to the Springfield Interchange project and video sharing.

Project Location: Springfield, Virginia

Partner(s): Virginia DOT; Fairfax County

Start Date: September 1999

End Date: April 2006

**Estimated Total
ITS Funds:** \$395,735

**Estimated Total
Project Cost:** \$795,735

Contacts:

Tom Jennings	FHWA Virginia Division, HDA-VA	(804) 775-3357
James Robinson	Virginia DOT	(804) 786-6677



VIDEO SHARING BETWEEN THE CITY OF ALEXANDRIA AND THE VDOT SMART TRAFFIC CENTER

Description: This project is the FY 2002 ITS Integration Program earmark for the City of Alexandria, Virginia. The project objective is to integrate ITS components between the City of Alexandria and the Virginia Department of Transportation's Smart Traffic Center (VDOTSTC) through implementation of a fiber link. The pre-project condition is the absence of any inter-agency communication between the City of Alexandria, VDOT and other adjoining local jurisdictions. Alexandria's traffic management center (TMC) monitors only two intersections with video, and is not capable of sharing video with other agencies or jurisdictions.

The project will install all required hardware to enable communications between VDOTSTC and the city's TMC. The project will also install 2-to-3 additional video monitors at the city's TMC. A related benefit of the fiber optic deployment will be the linking of 70 signalized intersections to the city's TMC.

Project Location: City of Alexandria, Virginia

Partner(s): FHWA; Virginia DOT; City of Alexandria, VA

Start Date: September 2002

End Date: March 2006

Estimated Total ITS Funds: \$620,589

Estimated Total Project Cost: \$1,241,178

Contacts:

Tom Jennings	FHWA Virginia Division, HDA-VA	(804) 775-3357
Anil Rao	City of Alexandria, VA	(703) 838-4076



WASHINGTON

511 TRAVEL INFORMATION, PHASE 3

Description:

This project is a FY 2004 ITS Integration Program earmark for Washington State. The Washington State Department of Transportation (WSDOT) rolled-out a limited 511 travel information system in September 2002 (Phase 1). On July 10, 2003, a statewide 511 system was activated (Phase 2). Phases 1 and 2 were the first phases on the road to implementing the ultimate design of the 511 system. This project (Phase 3) will implement more steps on the path to the ultimate design.

Currently, the 511 system has 96 ports (incoming phone lines). This project will expand the total ports to the ultimate design of 144. This will allow the 511 system to handle all anticipated current and future caller demands for the next five years. The dissemination of travel information on the 511 system will also be improved.

To determine which improvements are most desired by 511 customers, some survey work before and during the planned improvements will be done to ensure the most useful and cost-effective improvements to the system will be implemented.

One possible improvement would be the inclusion of an AMBER alert capability in the 511 system. WSDOT has a committee looking at the statewide AMBER program, and an AMBER alert capability within the 511 system may or may not be recommended by the committee.

One planned improvement is the direct connection of the 511 system to the eight transit agencies located in King, Snohomish, and Pierce counties. Currently, the 511 system provides only a read-out of the various phone numbers of transit agencies throughout the state (except for an existing direct connection to Washington State Ferries). These transit direct connections will begin the expansion of the 511 system into the multi-modal arena.

Project Location: Washington State, Statewide

Partner(s): FHWA, Washington State Department of Transportation.

Start Date: November 2004

End Date: December 2007

**Estimated Total
ITS Funds:** \$215,396

**Estimated Total
Project Cost:** \$430,792

Contacts:

Michael Brower	FHWA, Washington State Division	(360) 753-9550
Eldon Jacobson	Washington State DOT	(206) 685-3187



ALPOWA SUMMIT WINTER TRAVEL INFORMATION SYSTEM

Description: This project is a component of the FY 2002 ITS Integration Program Washington Statewide earmark. This project's objective is to install a dynamic message sign (DMS) on either side of the Alpowa Summit Pass in rural Washington State. This pass is subject to frequent, severe winter weather conditions, and the DMS will provide travelers with road condition and travel restriction information. The signs will be operated by the Central Washington Traffic Management Center in Yakima.

Project Location: US 12 Alpowa Summit Washington

Partner(s): FHWA, Washington State DOT

Start Date: February 2003

End Date: June 2006

**Estimated Total
ITS Funds:** \$124,095

**Estimated Total
Project Cost:** \$348,190

Contacts:

Michael Brower	FHWA Washington Division, HMO-WA	(360) 753-9550
Rick Gifford	WSDOT	(509) 577-1985



AUBURN, AUBURN WAY SOUTH ITS, WASHINGTON

Description:

This project is a FY2004 ITS Integration Program earmark for the City of Auburn, Washington. The City of Auburn is located midway between Seattle and Tacoma, Washington. The city is a hub of commercial activity, and the site of an arterial system that supports significant regional traffic densities.

The purpose of this project is to update the current signal interconnect system from copper wire to a fully integrated, regionally interfaced, multimodal ITS traffic management system using a fiber optic cable network. Specific objectives include:

- Initiate a regional monitoring and data sharing system for all regional jurisdictions.
- Initiate development of coordinated freeway and arterial management systems.
- Deploy detection systems to improve incident management operations.

Project Location:

City of Auburn, Washington

Partner(s):

FHWA, Washington State DOT, City of Auburn, King County, City of Kent, Muckleshoot Indian Tribe

Start Date:

October 2004

End Date:

May 2006

Estimated Total ITS Funds:

\$1,378,531

Estimated Total Project Cost:

\$2,757,062

Contacts:

Michael Brower	FHWA, Washington State Division	(360) 753-9550
Dennis Dowdy	City of Auburn	(253) 931-3010



BELLINGHAM REGIONAL OPERATIONS CENTER

Description: This project is a component of the FY 2002 ITS Integration Program Washington Statewide earmark. The project will establish a Transportation Management Center (TMC) in Bellingham, WA to facilitate integration of closed circuit TV, highway advisory radio (HAR), dynamic message signs (DMS) either already deployed or in the process of being deployed. The integration of ITS elements in the Bellingham TMC will result in delivery of the following service enhancements:

- Collection of traffic data and presentation of flow conditions on the Internet.
- Posting of border crossing information.
- Presentation of full motion video clips for the existing cameras.
- Remote access to DMS and HAR to disseminate traffic information.
- Incident detection and management.

Project Location: Bellingham, Washington

Partner(s): FHWA, Washington State DOT; Washington State Patrol, City of Bellingham

Start Date: November 2002

End Date: June 2006

**Estimated Total
ITS Funds:** \$413,659

**Estimated Total
Project Cost:** \$827,300

Contacts:

Michael Brower	FHWA Washington Division, HMO-WA	(360) 753-9550
Vinh Dang	Washington State DOT	(206) 440-4462



CENTRAL PUGET SOUND REGIONAL FARE COORDINATION "SMART CARD" PROJECT

Description:

This FY 2000 earmarked project is a collaboration of seven Central Puget Sound transportation agencies whose objective is to create a seamless, multi-modal fare collection system using contactless smart card technology. When implemented, riders will be able to board buses, ferries, light rail or commuter trains on a cashless, ticketless basis. Seven agencies will link through the use of one fare card for all systems, a network of readers, back office systems and a centralized revenue and data clearinghouse. The project seeks to increase ridership and customer convenience; increase agency revenues; reduce operating costs or demonstrate added value for cost increases. Although the project is based on a contactless smart card, it is expected that a dual interface card (one that functions in contact and contactless modes) will emerge as the final choice. The key objectives that will measure success are: Increased ridership and customer convenience; increased agency revenues; and reduced operating costs, or delivery of added value for cost increases.

The FY 2001 ITS Integration Program earmark for the Greater Seattle Metropolitan Area provided an additional \$1,984,036 to project funding.

The "Estimated Project Cost" figures depicted below on the ITS line include FY 2001 funding, and additional local match funding is reflected in the "Total Estimate Costs." The project completion date reflects schedule adjustments required to accommodate added FY 2001 funding.

Project Location: Greater Seattle Metropolitan Area

Partner(s): FTA, WSDOT, Community Transit, Everett Transit, King County Metro, Pierce Transit, Sound Transit, Washington State Ferries, Kitsap Transit

Start Date: September 2000

End Date: January 2006

**Estimated Total
ITS Funds:** \$4,421,941

**Estimated Total
Project Cost:** \$25,586,279

Contacts:

Ken Feldman	FTA Region 10	(206) 220-7521
Candace Carlson	King County Metro	(206) 684-1562



CENTRAL WASHINGTON TRAVELER INFORMATION VMS

Description:

This project is a FY 2003 ITS Integration Program earmark for Washington State. The site for this project is a rural area in north central Washington. Travelers traversing the area encounter long distances with limited options for alternative routes. The highly varied terrain includes mountainous areas experiencing extreme weather conditions. The most compelling need experienced by travelers in this environment is accurate and reliable information. This project will provide traveler information at selected sites to advise travelers on weather conditions, road closures, delay times and local highway safety factors in sections of roadway such as long downhill grades.

The project will provide traveler information to address these needs. ITS devices to be deployed include dynamic message signs and highway advisory radio. All devices deployed through this project will be integrated with other ITS components in the region. A road weather information system and a truck/wind warning system at Vantage will be integrated with this project. Traffic management centers located in Union Gap and Wenatchee will be responsible for updating traveler information collected from existing roadway sensors and other resources.

Project Location: Chelan & Grant Counties, Washington

Partner(s): FHWA, Washington State DOT, Washington State Patrol

Start Date: September 2003

End Date: June 2006

**Estimated Total
ITS Funds:** \$332,800

**Estimated Total
Project Cost:** \$665,600

Contacts:

Michael Brower	FHWA Washington Division, HDA-WA	(360) 753-9550
Jennene Ring	Washington State DOT	(509) 667-3080



CLARK COUNTY C-TRAN VAST IMPLEMENTATION

Description: This project is the FY 2002 ITS Integration Program earmark for Clark County, Washington. This is a multi-phased project designed to introduce ITS technologies at the Clark County Transit Authority (C-TRAN) as a participant in Vancouver Area Smart Trek (VAST), the partnership of County-Public transportation agencies. Project funding will implement automated vehicle location (AVL) and automated passenger counting (APC). These are foundation modules upon which subsequent transit improvements can build. The Bus Locating System Project will install AVL equipment on all transit vehicles in the C-TRAN fleet. The AVL equipment will communicate via radio channels to the transit operations center where bus locations will be displayed on system-wide locator maps. A computer-aided dispatch (CAD) application will be used to track the movement of buses to analyze schedule adherence, transfer points and route inefficiencies.

The passenger-counting project will install APC equipment on all transit vehicles in the fleet. APC equipment senses passengers as they board and depart vehicles, and either stores or communicates the data to the transit operations center. These data will be analyzed to identify route inefficiencies.

Project Location: Clark County, Washington

Partner(s): FTA, Washington State DOT; Oregon DOT; Clark County, WA; Clark County Public Transportation Benefit Area (C-TRAN); Southwest Washington Regional Transportation Council; City of Vancouver, WA; City of Camas, WA

Start Date: September 2002

End Date: April 2006

Estimated Total ITS Funds: \$827,318

Estimated Total Project Cost: \$1,654,636

Contacts:

Ken Feldman	FTA Region 10	(206) 220-7521	
Dale Miller	C-TRAN	(360) 696-4494	7457



CLARK COUNTY TRANSIT, VAST ITS, WASHINGTON

Description:

This project is a FY 2004 ITS Integration Program earmark for Clark County, Washington. The project is sponsored and managed by a partnership of public transportation agencies in Clark County, Washington called Vancouver Area Smart Trek (VAST). VAST is implementing a 20-year ITS vision to address rapid population growth and accompanying congestion.

This project, which constitutes phase II of a multiphased deployment/integration program will provide audio "next stop" ADA announcements and automated "next stop" signs in buses. In addition to these services designed to accommodate riders with disabilities, automated fleet maintenance will be implemented. Automated fleet maintenance will significantly improve tracking and reporting of fleet maintenance activities, and will contribute to safety and reliability.

Transit management ITS applications that were funded by other sources, but that will be integrated in this project include:

- Improvements in an 800 MHz communications backbone.
- Automated Vehicle Location
- Automated Passenger Counting.
- Paratransit and Fixed Route Dispatch Data Exchange System.

Project Location:

Clark County, Washington

Partner(s):

FHWA; Washington State DOT; Southwest Washington Regional Transportation Council; Clark County Public Transportation Benefit Area; Clark County, WA; Cities of Vancouver, Camas, Washington; Port of Vancouver.

Start Date:

June 2005

End Date:

July 2006

Estimated Total ITS Funds:

\$1,378,531

Estimated Total Project Cost:

\$2,240,000

Contacts:

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John Hoefs	C-TRAN	(360) 696-4494	7358



COLUMBIA RIVER BRIDGE TRAFFIC OPERATIONS AND TRAVELER INFORMATION SYSTEMS

Description:	This project is a FY 2003 ITS Integration Program earmark for Washington State. The project site is a segment of rural I-82 in a mountainous area - Horse Heaven Summit. High wind velocities caused the Washington State Patrol to implement restrictions on oversized loads, including mobile home carriers. This project's objective is to deploy ITS devices to improve safety in this area. The project will deploy a dynamic message sign, closed circuit TV camera, and a vehicle sensor. These devices will be integrated with, and operated by the Central Washington Transportation Management Center (CWTMC). The CWTMC is a continuously staffed and operational facility that will monitor conditions on Horse Heaven Summit, and activate customized messages to alert drivers about potentially dangerous conditions.
Project Location:	Washington
Partner(s):	FHWA, Washington State DOT, Washington State Patrol

Start Date:	September 2003
End Date:	June 2006

Estimated Total ITS Funds:	\$207,986
Estimated Total Project Cost:	\$415,972

Contacts:

Michael Brower	FHWA Washington Division, HDA-WA	(360) 753-9550
Rick Gifford	Washington State DOT	(509) 577-1985



COMMERCIAL VEHICLE BORDER DATA SYSTEM

Description: This project is a FY 2004 ITS Integration Program earmark for Washington State.

The western Washington/British Columbia border is the fourth-busiest commercial crossing on this country's northern border with over 30 million dollars of trade crossing each day. This commercial activity, combined with increased security concerns and border staffing limitations, has resulted in long queues of trucks, both north and south bound. While a number of efforts have collected data about queue lengths and truck processing times at these crossings, these studies have occurred only over discrete periods of time. Long-term, continuous data collection about the movement of trucks over the border is necessary to provide the historical and seasonal information that the periodic data collection efforts cannot provide. Such continuous truck data are used to guide engineering and planning decisions involving border infrastructure as well as to assist the border enforcement agencies in resource allocation and operational decisions.

This project will deploy field equipment to automatically capture commercial vehicle movement information on the roadways approaching the border. The field installations will include weigh-in-motion sensors to capture weight and vehicle classification information and roadside transponder readers to record the movement of individual vehicles for travel time calculations. This information will be aggregated to preserve individual truck movement privacy and to provide detailed, continuous information on commercial vehicle movements

While this project will install the equipment on the U.S. side of the border, it also will be linked to Canadian vehicle classification equipment so information on both north and southbound truck movements is captured. The equipment will be installed at all three western Washington commercial crossings in recognition that these border crossings operate as an interrelated system where truckers move between crossings depending on processing requirements and congestion. The project will develop an Internet-based data aggregation, integration, and archiving system so that the information from the devices will be readily accessible and usable.

Project Location: Whatcom County, Washington

Partner(s): FHWA, Washington State Department of Transportation

Start Date: January 2005

End Date: December 2007

**Estimated Total
ITS Funds:** \$215,396

**Estimated Total
Project Cost:** \$430,972



Contacts:

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Peter Briglia	Washington State DOT	(206) 543-3331



CRITICAL DATA COMMUNICATIONS ENHANCEMENT (CRITICOM)

Description:

This project is a FY 2003 ITS Integration Program earmark for Washington State. The Washington State Patrol (WSP) maintains a statewide analog microwave backbone network that supports emergency and operational communications for state agencies. This network, which provides local governments with critical law enforcement data, is limited by bandwidth capacity. Washington State DOT (WSDOT) in partnership with WSP, the Washington Military Department (WMD), and the Thurston County E-911 Center (CAPCOM) will execute a cooperative project to improve existing microwave systems, deploy additional microwave infrastructure, and integrate four disparate communications projects. The CRITICOM project will enable each agency to implement new technologies requiring additional bandwidth. Expected benefits include improving public safety and incident response capability to clear incidents, remote viewing of traffic flows, assessment of damaged critical infrastructure, movement of traffic and assessment of life threatening situations. The four deployment projects to be integrated by CRITICOM include:

- Deployment of a road weather, motorist and highway video monitoring system in the Mount St. Helen's region.
- Deployment of a road weather motorist information system, and highway video monitoring system in the Olympia and Tacoma areas.
- Deployment of a digital microwave backbone between Olympia and Seattle, and the expansion of bandwidth as funding allows.
- Deployment of high capacity digital microwave linkages in Thurston County.

CRITICOM will increase the capacity of these digital microwave backbones and improve the quality of transmission service to the public safety community.

An additional feature of this project is implementation of a statewide traffic operations center that will integrate all existing WSDOT traffic management centers across the state. This facility will function as a clearinghouse for all WSDOT data collected statewide; monitor statewide operations and provide traveler information; coordinate incident response and public/media activity during major events; and serve as a WSDOT emergency operations center.

Project Location: Washington State

Partner(s): FHWA, Washington State DOT, Washington State Patrol, Washington Military Department, Thurston County E-911 (CAPCOM)

Start Date: September 2003

End Date: June 2006



**Estimated Total
ITS Funds:** \$436,800

**Estimated Total
Project Cost:** \$1,073,600

Contacts:

Michael Brower	FHWA Washington Division, HDA-WA	(360) 753-9550
Alan Hull	Washington State DOT	(360) 705-7013



EMERGENCY ADVISORY RADIO COORDINATION

Description:

This project is a component of the FY 2002 ITS Integration Program Washington Statewide earmark. The project objective is to enhance the capabilities of Washington State DOT's system of highway advisory radio (HAR) sites. HAR sites transmit highway construction impact and mountain pass information. The system rarely provides traffic incident impacts, and does not support civil emergency/natural disaster requirements. The primary constraint precluding optimal use of HAR is the time and effort to perform individual updates from a single location - usually a traffic management center. Both technical and institutional issues must be resolved in order to coordinate and concatenate messages from multiple locations at a single HAR site.

The goals of this project include improving the timeliness and types of information disseminated through HAR systems in order to maximize the availability of travel choices and emergency information to the traveling public. The improvements will also allow the archiving of HAR messages, the posting of messages on the Internet, and enable the ability to interact with other systems.

To achieve these goals, this project proposes using a networked server system to update HAR messages. Once a message is composed, the process of sending it to a site, or multiple sites, can be automated. This will greatly reduce the time required to update HAR messages, and enable its use to provide information to the traveling public for much shorter term events, including incidents and congestions alerts.

Project Location: Washington State

Partner(s): FHWA, Washington State DOT, Washington State DOT Emergency Management Center, County EOCs

Start Date: January 2003

End Date: December 2006

**Estimated Total
ITS Funds:** \$289,555

**Estimated Total
Project Cost:** \$789,660

Contacts:

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Bill Legg	Washington State DOT	(206) 543-3332



EXPANSION OF THE WSDOT ROAD WEATHER INFORMATION SYSTEMS (RWIS)

Description:

Washington State DOT has been deploying an integrated Road Weather Information System (RWIS) and related systems since 1999. The resulting network consists of 66 Environmental Sensor Stations (ESS) owned and operated by WSDOT, and 10 additional sites owned and operated by other agencies.

The primary reason to deploy the RWIS was to provide WSDOT maintenance personnel with current weather conditions and trends to increase the efficiency of crew scheduling and the effectiveness of snow and ice control operations.

During the initial project, ESS data was also incorporated into the WSDOT Traffic and Weather Web pages to provide traveler information. The existing RWIS system has been used to provide data to the local National Weather Service through the University of Washington and the Northwest Modeling Consortium, a group of national and state agencies that have pooled resources to run numerical weather modeling on a daily basis.

This FY 2004 project will add approximately 9 new ESS sites to fill the most critical gaps in the current network. The sites will be selected based on a statewide priority to balance the installations across the state. The project plan is to ultimately build out to approximately 120 ESS in the system. In addition to improving information to WSDOT winter maintenance, consideration for the weather needs of traffic management centers and commercial freight haulers will be included.

The principal goals of this project are to improve the geographic coverage of the WSDOT RWIS, to upgrade the entire ESS network to comply with nationally supported protocols, and to improve the utility and usefulness of the RWIS information.

Project Location: Washington State - Statewide

Partner(s): FHWA, Washington State DOT

Start Date: January 2005

End Date: December 2007

Estimated Total ITS Funds: \$250,000

Estimated Total Project Cost: \$500,000

Contacts:

Michael Brower	FHWA, Washington State Division, HDA-WA	(360) 753-9550
Larry Senn	Washington State DOT	(206) 543-6741



FMSIB BENCHMARK PROJECT

Description:

This project is a component of the FY 2002 ITS Integration Program Washington Statewide earmark. The setting for the project is the highly congested Washington State I-5 and I-90 corridor region. Commercial vehicle activity in this area suffers from recurring and extensive, congestion-related delays in movement of cargo. The project objective is to collect measurable data relevant to freight movement and freight locations along specified, preplanned freight movement corridors. The project will employ the existing national Commercial Vehicle Information Systems and Networks (CVISN) architecture. Two data collection means will be used: video cameras mounted at key locations to capture commercial vehicle freight movements, and portable automatic vehicle identification (AVI) readers to capture interstate freight movement.

Data collected by video cameras and AVI readers will be analyzed to ensure freight movements are consistent with planned activity and within authorized routes. Live data will be shared in a real-time mode with law enforcement agencies in support of anti-terrorist activities. The integration approach will use existing systems to transfer video data captured by CVISN cameras via AVI readers from roadside to the xCVIEW database whose existing functionality is capable of tracking a transponder-equipped truck between AVI checkpoints. Collection and transmission of data will focus on traffic conditions/collisions, hazards, delays, and information on freight movement route changes.

Project Location: Washington State

Partner(s): FHWA, Washington State DOT, Freight Mobility Strategic Investment Board (FMSIB), Washington State Patrol

Start Date: November 2002

End Date: June 2006

**Estimated Total
ITS Funds:** \$206,825

**Estimated Total
Project Cost:** \$413,650

Contacts:

Michael Brower	FHWA Washington Division, HMO-WA	(360) 753-9550
Karen Schmidt	Freight Mobility Strategic Investment Board	(360) 586-9695



HIGHWAY PERFORMANCE MONITORING

Description: This project is a component of the FY 2002 ITS Integration Program Washington Statewide earmark. Washington State DOT (WSDOT) currently operates an active Archived Data User Service activity. The system collects freeway operations data, generates an archive, and then analyzes the archived data to produce a large number of key performance measures used by WSDOT and other transportation agencies. This project will expand the scope and capabilities of the data archiving activity in two areas. The system will be upgraded to fuse other roadway performance data sources in order to expand the geographic scope of the system and the types of performance measures the system can report. A complementary effort will make the archive Web accessible so that users outside the WSDOT staff can access performance reports through the Internet. The project objective is to develop a database supporting the collection of diverse data at a central location, converting these data into consistent, useful statistics, and providing a mechanism for analyzing and reporting performance statistics.

Project Location: Washington State

Partner(s): FHWA, Washington State DOT, Washington State Transportation Center (TRAC)

Start Date: November 2002

End Date: December 2006

**Estimated Total
ITS Funds:** \$206,825

**Estimated Total
Project Cost:** \$413,650

Contacts:

Michael Brower	FHWA Washington Division, HDA-WA	(360) 753-9550
Mark Hallenbeck	TRAC	(206) 543-6261



I-5 NISQUALLY VALLEY ICE WARNING SYSTEM

Description:

This project is a FY 2003 ITS Integration Program earmark for Washington State. The site for this project is the Nisqually Valley on the border of Thurston and Pierce Counties, Washington. The area is subject to severe winter weather creating hazardous driving conditions, especially icy road surfaces. The Washington State DOT (WSDOT) Olympic Region maintains and operates a limited number of dynamic message signs (DMS) and highway advisory radio (HAR) transmitters in the Tacoma/Olympia area. Transportation planners have determined that the Olympic Region can significantly improve traveler information in the Nisqually Valley through the deployment of a road weather information system (RWIS) station and the integration of information generated by this site with surveillance information collected from ITS devices along the roadway. The resulting integrated traveler information can then be transmitted through DMS, HAR and the 511 system.

This project will deploy an additional RWIS station on I-5 in the Nisqually Valley, and integrate it into the existing roadway information network. The RWIS station installation will be complemented by the deployment of two DMS on northbound and southbound I-5 approaching the valley. These additional ITS devices, and their integration, will provide the capability to alert motorists to changing weather conditions and potential roadway icing. The communication equipment required to transmit collected data and images to the regional traffic management center is a component of this project.

Project Location: Olympia, Washington

Partner(s): FHWA, Washington State DOT, Washington State Patrol, Thurston County Planning Council

Start Date: September 2003

End Date: December 2006

**Estimated Total
ITS Funds:** \$166,500

**Estimated Total
Project Cost:** \$332,800

Contacts:

Michael Brower	FHWA Washington Division, HDA-WA	(360) 753-9550
John Nisbet	Washington State DOT	(360) 357-2670



I-82 YAKIMA AREA TRAVELER INFORMATION SYSTEM

Description:

This project is a FY 2003 ITS Integration Program earmark for Washington State. The project site is the Yakima area in the center of the State where four major highways converge. The majority of the traffic crossing this area is destined for mountain passes which frequently experience travel restrictions. This project's objective is to deploy and integrate ITS devices in order to facilitate trip diversion through improved traveler information thus enabling motorists to make decisions on alternate routes before starting the ascent to the passes.

In pursuit of this objective, the project will install a highway radio advisory (HAR) station in the Yakima area. The HAR will be integrated into the Statewide HAR system. A complementary component of the project is the installation of an environmental sensor station (ESS) on a critically located ridge. These devices will be monitored by the Central Washington Traffic Management Center (CWTMC). An additional component of this project will be the installation of the infrastructure necessary to establish communication from the ESS and pass video to the CWTMC. The final device included in this deployment will be a closed circuit TV camera to be collocated with the HAR station.

Project Location: I-82, MP 24 - 38: Selah/Yakima, Washington

Partner(s): FHWA, Washington State DOT

Start Date: September 2003

End Date: December 2006

**Estimated Total
ITS Funds:** \$166,400

**Estimated Total
Project Cost:** \$332,800

Contacts:

Michael Brower	FHWA Washington Division, HDA-WA	(360) 753-9550
Rick Gifford	Washington State DOT	(509) 577-1985



I-90 SNOQUALMIE PASS VARIABLE SPEED LIMIT EXPANSION AND UPGRADE

Description:

This project is a FY 2004 ITS Integration Program earmark for Washington State. Interstate 90 is the primary east-west route across the State of Washington providing a connection between the Seattle Metropolitan area and the more eastern portions of the United States. The interstate passes through the Cascade Mountains approximately 50 miles east of downtown Seattle. This mountain pass - called Snoqualmie Pass - is notorious for bad weather and has been a focal point of rural ITS. This western portion of Snoqualmie pass has had one of the few variable speed limits (VSL) in the entire nation since 1997. The VSL has been very effective in creating a uniform traffic speed that increases the safety of the travelers going through the pass.

This project will accomplish two tasks:

- An upgrade and expansion of the central system that operates all of the existing variable message signs that are used for the VSL. This upgrade is required because the existing system operates on an obsolete platform.
- Installation of four small variable message signs (VMS) that have the ability to display current speed limits.

The existing VSL system covers a stretch from the western grade up into the pass and about half way through the higher elevations. This project will expand this system to include the eastern portion of the higher elevations and the grade back down to the lower elevations. The end result will be a VSL through the entire Snoqualmie Pass area.

Project Location: Washington State, I-90, Snoqualmie Pass, King and Kittitas Counties

Partner(s): FHWA; Washington State DOT.

Start Date: May 2005

End Date: December 2007

**Estimated Total
ITS Funds:** \$215,396

**Estimated Total
Project Cost:** \$430,972

Contacts:

Michael Brower	FHWA, Washington State Division, HDA-WA	(360) 753-9550
Rick Gifford	Washington State DOT	(509) 577-1985



I-90 TRUCK/WIND WARNING SYSTEM, COLUMBIA RIVER

Description:

This project is a FY 2003 ITS Integration Program earmark for the State of Washington. The site for this project is a section of I-90 located approximately in the center of the state at the Vantage Bridge. This area experiences exceptionally high daily average traffic counts 22 percent of which is comprised of commercial vehicles. The bridge is subjected to very high cross winds jeopardizing both large trucks and motor homes. Dangerous conditions on the bridge are compounded by a dangerous eastern approach characterized by a long downhill grade and a sweeping turn. High profile vehicles frequently overturn in this area with accompanying closings of the interstate in both directions for extended periods of time.

This project will install a safety system comprised of weigh-in-motion and speed detection complemented by a dynamic message sign to warn truckers traveling at excessive speeds. The project will also install a real-time high wind warning system. Some components will be funded through a companion ITS Integration Program earmark for Washington State. These measures are expected to reduce truck and motor home accidents on the bridge and the eastern approach.

Project Location: I-90 near Vantage Bridge, Washington

Partner(s): FHWA, Washington State DOT

Start Date: September 2003

End Date: June 2007

**Estimated Total
ITS Funds:** \$103,993

**Estimated Total
Project Cost:** \$207,986

Contacts:

Michael Brower	FHWA Washington Division, HDA-WA	(360) 753-9550
Jennene Ring	Washington State DOT	(509) 667-3080



KENT INTRACITY TRANSIT PROJECT

Description: This project was submitted as an application to the FY 2003 ITS Integration Program in accordance with the Emergency Wartime Supplemental Appropriations Act of 2003. The project consists of four components that contribute to improving transit service and improving management of the traffic signal system on the approaches to the Kent Transit Center.

The components of this project are:

- Improvements, such as minor street widening, at three intersections.
- Expansion of an Intracity Transit Circulator Service.
- Development of a Transit Plan that would seek to identify potential transit ridership, and consider new strategies to reduce disincentives to the use of transit.
- Improvements to railroad grade crossing signals at a major highway-rail crossing.

Project Location: Kent, Washington

Partner(s): FHWA; City of Kent, WA

Start Date: November 2003

End Date: October 2008

**Estimated Total
ITS Funds:** \$1,247,913

**Estimated Total
Project Cost:** \$2,495,826

Contacts:

Michael Brower	FHWA Washington Division, HDA-WA	(360) 753-9550
Steve Mullen	City of Kent	(253) 856-5585



KING COUNTY, COUNTYWIDE SIGNAL PROGRAM, WASHINGTON

Description: This project is a FY 2004 ITS Integration Program earmark for King County, Washington. King County, Washington has developed a regional signal program to support the identification of arterials throughout the County that would benefit from ITS implementation and/or signal synchronization to improve traffic flow. The program has assigned priority to corridors traversing multiple jurisdictions within the County, and the planning includes implementation of signal interconnect, closed circuit TV, data stations and some degree of transit signal priority.

This earmarked project will integrate Traffic Management Centers (TMS) in the cities of Kent, and Auburn; King County; and Washington State DOT.

This project will implement four subproject level activities whose objectives are to integrate Traffic Management Centers (TMC) in the cities of Kent, Auburn, and Redmond; and King County with Washington State DOT control facilities. Concurrently, with jurisdictional integration, the project will install fiber to interconnect signals and newly deployed video cameras along key arterials.

Project Location: King County, Washington

Partner(s): FHWA; Washington State DOT; King County; Cities of Redmond, Kent and Auburn, Washington.

Start Date: September 2004

End Date: September 2006

**Estimated Total
ITS Funds:** \$1,292,373

**Estimated Total
Project Cost:** \$2,584,746

Contacts:

Michael Brower	FHWA, Washington Division, HDA-WA	(360) 753-9550
Aileen McMannus	King County DOT	(206) 263-6135



KITTITAS COUNTY WORKZONE TRAFFIC SAFETY SYSTEM

Description:

This project is the FY 2002 ITS Integration Program earmark for Kittitas County, Washington. The project addresses requirements identified in anticipation of a major interstate renovation project coupled with recurring weather impacts. I-90 crossing Snoqualmie Pass in the Cascades Mountains is characterized by three major attributes:

- It is over 30 years old and in need of major reconstruction.
- It is the scene of major, recurring weather effects due to its location at the convergence of warm air flows from Puget Sound and cold Canadian air on the eastern slopes of the Cascades.
- It is the single interstate link between the populous Puget Sound region and Eastern Washington and destination points to the east.

The project will deliver traveler information to the public to mitigate construction and weather-related impacts. Traveler information will be transmitted via a mix of dynamic message signs, highway advisory radio and the Internet. The Web-based component will consist of a flow/volume map combined with visual images. The system will be portable to migrate with construction zones. Remote control will be exercised from the Central Washington Traffic Management Center in Yakima, Washington to ensure timeliness and accuracy.

Project Location: I-90 Kittitas County, Washington

Partner(s): FHWA, Washington State DOT

Start Date: February 2003

End Date: June 2006

**Estimated Total
ITS Funds:** \$372,293

**Estimated Total
Project Cost:** \$744,586

Contacts:

Michael Brower	FHWA Washington Division, HDA-WA	(360) 753-9550
Rick Gifford	Washington State DOT	(509) 577-1985



LYNNWOOD, WASHINGTON ITS

Description:

This project is a FY 2003 ITS Integration Program earmark for the City of Lynnwood, WA. The city experiences significant daily surges in traffic volumes due to business activity and the use of community facilities. The principal objective of the project is to upgrade and integrate several city and regional subsystems, and to provide a regional model for the implementation of arterial management systems.

Subsystems to be integrated include the central traffic management system, the video detection subsystem, transit signal priority, emergency vehicle operations, smart conflict corridors, fiber optic communications and operations at the Lynnwood Traffic Management Center.

The project will provide links to other regional operations centers and the Washington State DOT to support sharing of operational data, video, and to generate traveler information.

Project Location: Lynnwood, Washington

Partner(s): FHWA, Washington State DOT, City of Lynnwood, Lynnwood Fire and Safety, Community Transit, University of Washington

Start Date: September 2003

End Date: July 2006

**Estimated Total
ITS Funds:** \$1,663,884

**Estimated Total
Project Cost:** \$3,327,768

Contacts:

Michael Brower	FHWA Washington Division, HDA-WA	(360) 753-9550
William Franz	City of Lynnwood Public Works Dept.	(425) 670-6289



MOUNT ST. HELENS TRAVEL INFORMATION SYSTEMS

Description:

This project is a component of the FY 2002 ITS Integration Program Washington Statewide earmark. The setting in which this project will be developed is the Mount St. Helens National Volcanic Monument. Washington State Route 504 is a 52-mile long highway whose upper 30 miles were reconstructed in the area devastated in the May 1980 volcanic eruption. SR 504 services a high volume of tourist traffic over both the reconstructed portion, and the older section of roadway leading to the monument area. The remoteness of the area, coupled with heavy use result in traveler safety concerns.

The objectives of this project are to:

- Install a series of cameras with weather information at different locations and elevations along the route. These will be connected to the Traffic Management Center in Vancouver via a microwave network.
- Install Highway Advisory Radio (HAR) at the Junction of I-5 and SR 504, and the Junction of I-5 and SR 505. These are the two primary feeder routes to the Volcanic Monument from I-5. These will be located so that they can also provide traffic information about conditions on I-5 if necessary.
- Connect a RWIS site, which transmits data via cellular modem, to the new microwave network.
- Install a local microwave network, with the hub at the Signal Peak Radio Site, to connect the cameras and existing RWIS site to the WSDOT network.
- Install a high bandwidth microwave network from Signal Peak to the WSDOT Regional Office in Vancouver. This will provide enough bandwidth to effectively use ITS equipment such as traffic surveillance cameras in remote sites. This will also provide the first part of a network backbone to allow future development of ITS management along the I-5 corridor.

Project Location:

SR 504, Cowlitz and Skamania Counties, Washington

Partner(s):

FHWA, Washington State DOT

Start Date:

November 2002

End Date:

October 2006

Estimated Total ITS Funds:

\$248,190

Estimated Total Project Cost:

\$496,380

Contacts:

Michael Brower	FHWA Washington Division, HDA-WA	(360) 753-9550
Chad Hancock	Washington State DOT	(360) 905-2240



OLYMPIA, WASHINGTON ARTERIAL ATMS

Description:

This project is a FY 2003 ITS Integration Program earmark for the State of Washington. This project is a component part of an ongoing collaborative effort between Washington DOT (WSDOT) and the City of Olympia to plan and deploy an Advanced Traffic Management System (ATMS) for the Olympia area and Thurston County. Currently there are no integrated ITS components in the Olympia area. The objectives of this project are: (1) To begin the development and implementation of a regional monitoring and data sharing system that will enable all jurisdictions in the area to access real-time traffic information in the region; (2) To begin the development of coordinated arterial and freeway operations between the City of Olympia and WSDOT to improve transportation network efficiency; and (3) To provide the capability to improve detection, response time and system efficiency in incident management operations.

The project will deploy dynamic message signs, closed circuit TV cameras, and ramp metering infrastructure to establish the foundations for ATMS. Concurrently, the traffic signal interconnect in the City of Olympia will be upgraded. Infrastructure to be deployed and integrated includes three dynamic message signs, three CCTV cameras, and two ramp meters. When integrated into the City's traffic operations the added ITS devices will support dissemination of traveler information, and improved incident management.

Project Location: Olympia, Washington

Partner(s): FHWA, Washington State DOT, Washington State Patrol, Thurston County, City of Olympia

Start Date: September 2003

End Date: June 2007

**Estimated Total
ITS Funds:** \$332,700

**Estimated Total
Project Cost:** \$665,400

Contacts:

Michael Brower	FHWA Washington Division, HDA-WA	(360) 753-9550
John Nisbet	Washington State DOT	(360) 357-2670



PORT OF TACOMA TRUCKER CONGESTION

Description:

This project is the FY 2002 ITS Integration Program earmark for Tacoma, Washington. The project will fill a gap in surveillance camera and traffic flow detection coverage along the Interstate 5 Tacoma corridor. This otherwise well-instrumented corridor does not include coverage for Port of Tacoma truck traffic approaching from the north. Existing systems also do not cover any routes into the port other than I-5. Washington State DOT is developing a fiber optic communications cable system to link deployed ITS elements on I-5, and this project will expand the system to distribute traffic information impacting the Port of Tacoma to local agencies, motorists and WSDOT

This project will expand traffic surveillance coverage north of the Port of Tacoma/I-5 interchange by installing two new traffic detection sites at one-mile intervals from the currently deployed sites. This deployment will be augmented by installation of additional Closed Circuit TV sites. This CCTV deployment will provide complete coverage of the Port of Tacoma vicinity. An added feature of this project is an additional Highway Advisory Radio that will be integrated into the existing radio network. The final component of this project, implemented as the last phase, is an expansion of the Tacoma fiber optic cable network. An added link will provide WSDOT, the City of Tacoma Fire Department, and the Washington State Patrol to access new and existing CCTV sites.

Project Location: Tacoma, Washington

Partner(s): FHWA, Washington State DOT, Washington State Patrol, Port of Tacoma, City of Tacoma Fire Department

Start Date: November 2002

End Date: February 2006

Estimated Total ITS Funds: \$165,464

Estimated Total Project Cost: \$330,928

Contacts:

Michael Brower	FHWA Washington Division, HDA-WA	(360) 753-9550
John Nisbet	Washington State DOT	(360) 357-2670



REGIONAL TRAFFIC SIGNAL INTERCONNECT

Description: This project is a FY 2004 ITS integration Program earmark for Washington State.

The project addresses the challenge of integrating freeway and arterial management systems in the Greater Seattle Area. The project will install communications infrastructure connecting ramp meter signals to ramp terminal signals as well as connecting arterial signals. When connected to the freeway communications system, vehicle monitoring and detection on arterial signals will be used to fine tune ramp meter algorithms. All real-time freeway traffic information will be available at the ramp terminal signals to any local agency wanting to access it. Three locations have been identified for the integration of ramp terminal signals with the freeway management system. Four additional locations have been identified for integration as funding permits.

Project Location: Seattle, Washington

Partner(s): FHWA; Washington State Department of Transportation.

Start Date: June 2005

End Date: December 2007

**Estimated Total
ITS Funds:** \$215,396

**Estimated Total
Project Cost:** \$430,972

Contacts:

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Michael Forbis	Washington State DOT	(206) 440-4462
Vinh Dang	Washington State DOT	(206) 440-4462



REMOTE TOC FOR SECURITY AND EMERGENCY

Description:

This project is a FY 2003 ITS Integration Program earmark for Washington State. This project will provide contingency back up for a portion of the long haul communication network for the Washington State Northwest Region Transportation Management Center (TMC). The communication for this region is on a Synchronous Optical Network (SONET). All control and monitoring functions performed at the TMC are supported by a central computer (VAX). This central computer performs all switching and routing functions to connect an operator with field ITS devices, as well as processing traffic data for ramp metering algorithms. This project was conceived in recognition that a natural or man-made disaster could disable the TMC, and take all ITS devices out of operation. The project objective is to remotely replicate the current TMC functions.

The concept underlying this project is to distribute the processing power of the central VAX to individual computers residing at each communication Hub. Video switching, data processing, and control tasks will be handled locally for a specific zone instead of leaving the central server attempting to handle the entire region.

The use of an Ethernet connection and the distribution of daily tasks to field servers will enhance the operation of existing ITS devices. A lap top computer loaded with the region-wide ITS database and the Washington State DOT-developed Traffic Management Software Program will enable a Hub on the SONET ring to serve as a remote TMC.

Project Location: Seattle Metropolitan Area

Partner(s): FHWA, Washington State DOT

Start Date: September 2003

End Date: June 2006

**Estimated Total
ITS Funds:** \$166,400

**Estimated Total
Project Cost:** \$332,800

Contacts:

Michael Brower	FHWA Washington Division, HDA-WA	(360) 753-9550
Vinh Dang	Washington State DOT	(206) 440-4462



SEATTLE CITY CENTER ITS PROJECT, WA

Description:

This project is a FY 2004 ITS Integration Program earmark for the City of Seattle, Washington.

The City of Seattle's transportation systems serve a greater Puget Sound population of over 3.5 million. Traffic operations within the City of Seattle directly impact three major freeways including Interstate 5 - a critical international trade corridor. Because of the significance of the City's transportation systems, Seattle has invested in multiple ITS projects and strategies including: centralized traffic signal control software, transit signal priority, parking management systems, traffic surveillance, dynamic message signs, and a Traffic Management Center.

The purpose of the Seattle City Center ITS Project is to implement ITS projects identified in the City of Seattle ITS Master Plan (1998) and ITS Strategic Plan (2003). The Seattle City Center ITS Project will directly address the City's highest priorities by making best possible use of the existing transportation infrastructure. Specific priorities include: managing daily traffic, coordinating with regional partners, managing special event traffic, managing incident traffic, and supporting transit.

The Seattle City Center ITS Project is a citywide project effort that is comprised of the following four elements to expand and integrate the City's existing ITS Program:

1. SR 519 Freight Mobility Project ITS: This project includes improvements to traffic signal operations, traffic management, traveler information and communication systems. The project is a ten-year initiative to improve intermodal connections between I-90 and the ferries; to increase mobility from the freeways to the stadiums and waterfront; and to enhance safety by separating street traffic from railroad tracks. ITS deployments include 6 closed circuit TV cameras; 4 variable message signs; emerging vehicle detection devices; overhead and buried fiber optic cable and signal control equipment.
2. Duwamish ITS Project: Phase 3: The Duwamish area is the site of the Port of Seattle freight transport facilities, two professional sports stadiums, and multipurpose (commuter, heavy and freight) rail facilities. ITS integration activities will be implemented to resolve traffic/rail conflicts, and to facilitate movement of freight in the port area.
3. Traffic Signal Enhancement Program: This project will continue an ongoing program to replace outdated traffic controllers in the City.
4. ITS Strategic Plan Implementation: This effort will implement a group of subprojects to improve transportation management throughout the City. Two arterials (Rainier Avenue and 4th Avenue South) will install upgraded traffic signal control systems. The City of Seattle's Traffic Management Center will be enhanced by five modernization subprojects.

Project Location: Seattle, Washington

Partner(s): FHWA; Washington State DOT; City of Seattle.

Start Date: February 2005

End Date: December 2008



**Estimated Total
ITS Funds:** \$2,153,955

**Estimated Total
Project Cost:** \$4,307,910

Contacts:

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Brian Kemper	Seattle DOT	(206) 684-5096



SOUTH PUGET SOUND OPERATIONAL IMPROVEMENTS

Description: This project is a component of the FY 2002 ITS Integration Program Washington Statewide earmark. The setting for this project is I-5 in Thurston County, Washington. The area has experienced significant population growth in recent years. The combination of congestion and winter icing has heightened citizen concern over increased crash rates. This project will establish the basis for improved incident management and emergency management along the I-5 corridor in Thurston County. The initial phase of the project will install an ice warning system in I-5. This system will be comprised of a Road Weather Information System and Highway Advisory Radio. A follow-on phase will deploy three closed circuit TV devices with a digital microwave link to enable integration with the Regional WSDOT Traffic Management Center. The final phase of this project will deploy a Dynamic Message Sign that will inform motorists of traffic condition data collected with ITS elements deployed in phases I and II.

Project Location: Thurston County, Washington

Partner(s): FHWA, Washington State DOT, Washington State Patrol, Thurston County Planning Council, Thurston County Fire Dept., MIXX 96FM

Start Date: November 2002

End Date: April 2006

**Estimated Total
ITS Funds:** \$206,825

**Estimated Total
Project Cost:** \$413,650

Contacts:

Michael Brower	FHWA Washington Division, HDA-WA	(360) 753-9550
John Nisbet	Washington State DOT	(360) 357-2670



SPOKANE COUNTY, WASHINGTON

Description:

This project is the FY 2001 ITS Integration Program earmark for Spokane County, Washington. The project will implement several related travel management initiatives defined in the Regional ITS Architecture and mid-range plans. Elements include:

- Traveler Information System - A web-based subscription traveler information system that will disseminate route specific information by e-mail and pager. Traveler advisories will include incident, construction, and weather-related information as well as transit updates.
- Development of a Regional Data Warehouse - The FY 2001 Congressionally directed funding will be allocated to analyses of database design alternatives.
- Enhancement of the Road Weather Information System - This initiative would upgrade a server currently in use, and is anticipated to expand use of the system by maintenance personnel.
- Communication Trunk Lines - This activity will install communications trunk lines along two major corridors in the region, which will provide connectivity between light rail stations and transit management links.
- Coordinated Incident Response Application - This project element will improve coordinated regional responses to incidents.
- Regional Transportation, Weather and Construction Website - This project element will provide access to a real-time, regional source of transportation, weather and construction information from a single source.

Project Location: Spokane, Washington

Partner(s): FHWA, Washington State DOT, SRTC, Spokane County, City of Spokane, Spokane Transit Authority

Start Date: November 2001

End Date: September 2006

**Estimated Total
ITS Funds:** \$793,615

**Estimated Total
Project Cost:** \$2,218,251

Contacts:

Michael Brower	FHWA Washington Division, HDA-WA	(360) 753-9550
Kenneth Knutson	Washington State DOT	(509) 343-6383



SPOKANE REGIONAL DATA WAREHOUSE

Description:

This project is a component of the FY 2002 ITS Integration Program Washington Statewide earmark. Due to dependencies on other projects, activity on this project will begin in the Spring of 2004. The project is closely tied to projects being integrated through the Spokane Regional Traffic Management Center (SRTMC). This project will develop a Regional Data Warehouse to facilitate implementation of a Regional Traveler Information Website and/or a Regional Traffic Management System. Such regional ITS applications must be able to share traffic and transportation data continually collected and stored within individual agency systems. Using the SRTMC as an information and communications hub, individual jurisdictions can maintain their basic operational structures, but achieve interoperability through networking. Development of a regional traffic/weather data warehouse will support the following benefits:

- Provide single source access for all available regional transportation/weather data.
- Support a common format for data to normalize Internet service provider and agency data management.
- Define and support data sharing.

This project starts the Regional Data Warehouse development process by conducting an analysis of database architecture options, and developing a design.

Project Location: Spokane Metropolitan Area, Washington

Partner(s): FHWA, Washington State DOT, Spokane Regional Transportation Council (SRTC), Spokane County, City of Spokane, Spokane Transit Authority (STA)

Start Date: September 2002

End Date: March 2006

**Estimated Total
ITS Funds:** \$206,825

**Estimated Total
Project Cost:** \$413,650

Contacts:

Michael Brower	FHWA Washington Division, HDA-WA	(360) 753-9550
Kenneth Knutson	WSDOT	(509) 343-6383



SPOKANE REGIONAL TMC INTEGRATION

Description: This FY 2000 earmarked project seeks to enable the Spokane Regional Traffic Management Center (SRTMC) and associated agencies to share information thus ensuring the interoperability of all agencies' devices. A related objective is the funding of system integration efforts in accordance with Regional ITS Architecture planning.

The Spokane metropolitan area has experienced significant population growth in the last decade. The population growth has increased congestion as well as pollution levels. The Spokane area has been designated by EPA as a non-attainment area for air quality. In recognition of the need to manage traffic on key arterial corridors in the most efficient manner, the SRTMC is intended to provide wide area coverage and early incident detection and warning during peak travel periods. As the pivotal facility in a regional approach to traffic and incident management, the SRTMC requires an inter-agency communications infrastructure. This project seeks to create a regional transportation local area network (LAN) to facilitate interoperability among all transportation agency devices. The project will fund development of a regional Web page that will incorporate the different transportation-related Web pages from each participating agency into a regional site. Closed circuit TV images, traffic counts, dynamic message sign signage, construction project updates, highway advisory radio messages, and weather conditions are examples of the elements to be integrated.

Project Location: Spokane, Washington Metropolitan Area

Partner(s): FHWA; Spokane Regional Transportation Council; Spokane County; City of Spokane; Spokane Transit Authority; Washington State Police

Start Date: September 2000

End Date: June 2006

**Estimated Total
ITS Funds:** \$393,211

**Estimated Total
Project Cost:** \$1,452,211

Contacts:

Michael Brower	FHWA Washington Division, HDA-WA	(360) 753-9550
Kenneth Knutson	Washington State DOT	(509) 343-6383



SPOKANE REGIONAL TRANSPORTATION, CONSTRUCTION, AND WEATHER WEBSITE

Description: This project is a component of the FY 2002 ITS Integration Program Washington Statewide earmark. The project objective is to leverage a regional data warehouse to provide the functionality of a regional Website. Using the Spokane Regional Traffic Management Center as an information and communications hub, this project will network all participating jurisdictions to a regional transportation data warehouse so as to provide travelers with "one stop shopping" capabilities of a regional transportation Website. Due to dependencies on other projects, work on this project will begin in the Spring of 2004.

Project Location: Spokane, Washington

Partner(s): FHWA, Washington State DOT, Spokane Regional Transportation Council (SRTC), Spokane County, City of Spokane, Spokane Transit Authority (STA)

Start Date: September 2002

End Date: March 2006

**Estimated Total
ITS Funds:** \$124,095

**Estimated Total
Project Cost:** \$268,190

Contacts:

Michael Brower	FHWA Washington Division, HDA-WA	(360) 753-9550
Kenneth Knutson	Washington State DOT	(509) 343-6383



SPOKANE TRAFFIC OPERATIONS FOR ARTERIALS

Description:

This project is a component of the FY 2003 ITS Integration Program earmark for Washington State. The project expands and builds on a FY 2001 earmark whose objective was to create a regional, coordinated Transportation Management System. ITS devices will be deployed on arterials, and they will be integrated into the Spokane Regional Transportation Management Center (SRTMC). The SRTMC was created as a regional partnership to provide area-wide ITS coverage during peak travel periods, to monitor and respond to congestion inducing incidents, and to share data.

The SRTMC performs an incident management function through the use of ITS devices that deliver traveler information through dynamic message signs, Highway Advisory Radio, e-mail alerts to the media, and Web sites that support Washington State's 511 system. Continuing work initiated in previous year earmarks will improve SRTMC performance on managing traffic on congested arterial corridors.

Funding for this project was obligated in September 2003; proposed kickoff is scheduled at the end of May 2004.

Project Location: Spokane County, Washington

Partner(s): FHWA, Washington State DOT, Spokane County, Spokane Regional Transportation Council (SRTC), Cities of Spokane and Spokane Valley

Start Date: September 2003

End Date: June 2007

**Estimated Total
ITS Funds:** \$416,000

**Estimated Total
Project Cost:** \$832,000

Contacts:

Michael Brower	FHWA Washington Division, HDA-WA	(360) 753-9550
Kenneth Knutson	WSDOT	(509) 343-6383



SR 14 TRAVELER INFORMATION ENHANCEMENTS

Description:

This project is a FY 2003 ITS Integration Program earmark for Washington State. The project site is Washington State Route 14 in the Columbia River Gorge. The area's tourist and recreational attractions, and the accompanying commercial activity and traffic have prompted investments in ITS components during previous years. Two dynamic message signs (DMS), a road weather information system (RWIS) station, a road condition camera, and a highway advisory radio (HAR) station either have been installed, or are in final stages of deployment in the fall of 2003. This project will supplement these deployments by deploying additional roadway information systems. HAR is the most effective means of communication in the Gorge. The HAR system messages will inform travelers and maintenance crews of current weather conditions, as well as specific requirements to support effective decision making in selecting alternate routes or adjusting travel plans. Complementing HAR, additional RWIS will be deployed. HARs and RWIS stations provide a simple, yet effective means to reach travelers with updated road condition information on snow and ice-related closures in winter to high winds, traffic incidents and maintenance/construction activities in the summer months.

This project will deploy three HAR sites and one additional RWIS station. All newly deployed ITS components will be connected with the regional traffic management center.

Project Location: SR 14 Skamania & Klickitat Counties, Washington State

Partner(s): FHWA, Washington State DOT

Start Date: September 2003

End Date: December 2006

**Estimated Total
ITS Funds:** \$104,000

**Estimated Total
Project Cost:** \$208,000

Contacts:

Michael Brower	FHWA Washington Division, HDA-WA	(360) 753-9550
Chad Hancock	Washington State DOT	(360) 905-2240



STATE OF WASHINGTON ITS DEPLOYMENT AND INTEGRATION

Description:

The Washington State FY 99 ITS Integration effort is comprised of three projects: Ferry Terminal Traveler Information Improvements; State Routes 2 & 97 Traveler Information Project; and Columbia Gorge Traveler Information System Pilot Program, described separately below.

- Ferry Terminal Traveler Information Improvements (ITS Funding-\$548K). Washington State Ferries (WSF), as part of the Washington State Department of Transportation (WSDOT), operates the largest ferry system within the United States. The ferry system serves 10 routes within Puget Sound, which connect the Olympic Peninsula to the I-5 corridor as well as providing vital links to the San Juan and many other islands within the Puget Sound. The objective of this project is to install comprehensive traveler information systems that will inform ferry system users about delays and congestion on ferry routes. Infrastructure to be installed includes: CCTV; vehicle detectors; traveler information dissemination via web page; highway advisory radio and Variable Message Signs (VMS) controlled from WSDOT's Seattle Travel Management Center (TMC). Total Cost-\$1,236K

- The State Routes 2 & 97 Traveler Information Project (ITS Funding-\$275K). Seeks to enhance the traveler information system along State Routes 2 & 97 in Chelan County. To be accomplished by installation of a roadway information system to communicate weather, road surface condition and road closure information to the public and maintenance crews. Components to be deployed include: CMS, HAR; Roadway Weather Information System (RWIS); web page linked to WSDOT home page; completion of a communication and power link from Stevens Pass to Blewett Pass. Total Cost-\$555K

- Columbia Gorge Traveler Information System Pilot Program (ITS Funding-\$150K). This project, initiated in December 2000, is substituted for FY 1999 ITS Integration Program earmarked project titled "I-5 Corridor Multimodal Traveler Information System Design and Pilot Implementation" which was cancelled by Washington State DOT on December 6, 2000. The objective of this project is to install a roadway information system which will communicate to the public and road maintenance crews information concerning current weather conditions, road surface conditions, flooding, slides, and other data elements needed to support users in making informed travel decisions. The system will incorporate ITS technologies, and will be integrated into the regional ITS system. Major components include: CCTV, a road weather information system site, an Internet web page linked to OR DOT's web page, highway advisory radio installed at key locations, and variable message signs. Total Cost-\$330K

Project Location: State of Washington

Partner(s): Washington State DOT; Chelan County; Washington State Ferries

Start Date: February 2000

End Date: April 2006



Estimated Total ITS Funds:	\$973,000
Estimated Total Project Cost:	\$2,121,000

Contacts:

Michael Brower	FHWA Washington Division, HMO-WA	(360) 753-9550
Pete Briglia	Washington State DOT	(206) 543-3331
Vinh Dang	Washington State DOT	(206) 440-4462
Chad Hancock	Washington State DOT	(360) 905-2240



STATEWIDE ITS WIRELESS COMMUNICATIONS PLAN

Description: This project is a component of the FY 2002 ITS Integration Program Washington Statewide earmark. The project is a study whose purpose is to develop a comprehensive statewide Wireless Communications Plan designed to complement the current ITS Architecture and Statewide Communications (Wireline) Plan. A related objective is the development of a list of projects designed to integrate WSDOT's existing and planned wireline system with Washington's proposed next-generation wireless system.

Project Location: Washington State

Partner(s): FHWA, Washington State DOT, Washington State Patrol, Washington State Dept. of Licensing

Start Date: September 2002

End Date: March 2006

Estimated Total ITS Funds: \$82,812

Estimated Total Project Cost: \$240,624

Contacts:

Michael Brower	FHWA Washington Division, HDA-WA	(360) 753-9550
Ron Vessey	Washington State DOT	(206) 221-2687



STATEWIDE TRANSPORTATION EMERGENCY OPERATIONS CENTER

Description:

This project is a FY 2004 ITS Integration Program earmark for Washington State. The Washington State Department of Transportation (WSDOT) has developed plans for a Statewide Transportation Emergency Operations Center (STEOC). The purpose of the STEOC is to provide WSDOT with a single Emergency Operations Center (EOC) facility.

The EOC will exercise control during natural and man-made emergencies ranging from earthquakes, major adverse weather events, or terrorist incidents impacting the state's roadway system. A second intended use of the EOC is to improve WSDOT's capability for system condition reporting. This additional function will support and complement the six WSDOT Regions in their traffic management functions.

To achieve project goals, WSDOT must connect regional Traffic Management Centers (TMCs) with the STEOC. This project will connect the regional TMCs with the STEOC, provide for the facility's design, procure/install consoles for monitoring of selected areas of WSDOT's regions, and software development.

The proposed functions associated with STEOC operations include: serving as a clearinghouse for all WSDOT data collected statewide; monitoring statewide operations; coordinating traveler information, incident response and media operations.

Project Location: Washington State

Partner(s): FHWA; Washington State DOT; Washington State Patrol; Washington State Transportation Center, University of Washington.

Start Date: January 2005

End Date: December 2007

**Estimated Total
ITS Funds:** \$107,696

**Estimated Total
Project Cost:** \$215,392

Contacts:

Michael Brower	FHWA, Washington Division, HDA-WA	(360) 753-9550
Jim Shanafelt	Washington State DOT	(360) 705-7282



TACOMA AREA INTER-AGENCY COMMUNICATIONS COORDINATION

Description: This project is a component of the FY 2002 ITS Integration Program Washington Statewide earmark. The setting for this project is the I-5 Tacoma, WA corridor. While the area currently has a network of surveillance cameras and traffic flow detection devices, the communications system through which data and images are transmitted has shortcomings. This project will provide an improved communications link to ITS devices in the Tacoma area that will alleviate problems with the existing network. The first phase of this project is installation of fiber optic infrastructure to remove WSDOT's dependency on Tacoma's fiber optics. Follow on phases will install fiber optic cable to existing ITS devices along the corridor and transit and maintenance operations centers. The final component of the project will deploy a closed circuit TV camera on I-5, and expand traffic monitoring sites on I-5.

Project Location: Tacoma, Washington

Partner(s): FHWA, Washington State DOT, Washington State Patrol, Pierce Transit and Pierce County Public Works, City of Tacoma Fire Dept.

Start Date: November 2003

End Date: April 2006

**Estimated Total
ITS Funds:** \$413,650

**Estimated Total
Project Cost:** \$827,300

Contacts:

Michael Brower	FHWA Washington Division, HDA-WA	(360) 753-9550
John Nisbet	Washington State DOT	(360) 357-2670



TRAVELER INFORMATION SYSTEM EXPANSION

Description: This project is a component of the FY 2002 ITS Integration Program Washington Statewide earmark. This project will expand and enhance existing Traveler Information Services in the greater Seattle, WA area. Existing Traveler Information infrastructure includes an extensive network of cameras and vehicle detection loops that continually collect and processes traffic data into information. This information is disseminated to users via dynamic message signs (DMS) and highway advisory radio (HAR), multiple phone lines, and the Internet. Increased volume has placed this system under heavy load.

The Traveler Information System Expansion project will deploy additional DMS and HAR at locations without coverage, and at major interchanges. Integration with TMCs and local agencies in the greater Puget Sound area will further expand desired capabilities such as posting HOV travel times on DMS and additional camera coverage to support the area's Web Traffic Flow map.

Project Location: Puget Sound Area, Washington

Partner(s): FHWA, Washington State DOT, King County, City of Seattle

Start Date: November 2002

End Date: April 2006

**Estimated Total
ITS Funds:** \$579,110

**Estimated Total
Project Cost:** \$1,158,220

Contacts:

Michael Brower	FHWA Washington Division, HDA-WA	(360) 753-9550
Vinh Dang	Washington State DOT	(206) 440-4462



TRI-CITIES ATMS-WASHINGTON STATE

Description:

This project is a FY 2003 ITS Integration Program earmark for Washington State. The site for this project is the "Tri-Cities" area defined by Kennewick, Pasco and Richland. To the northwest of this area is the Hanford Nuclear Reservation. The configuration of arterial and freeway infrastructure in the region combined with traffic patterns and planned construction projects produces high levels of congestion during peak travel periods.

The objectives of this project are: (1) To begin the development and implementation of a regional monitoring and data sharing system that will enable all jurisdictions in the area to access real-time traffic information; (2) To begin development of coordinated arterial and freeway operations between jurisdictions to improve the operations of the transportation network; and (3) To provide the means to improve detection, response time and system efficiency during incident management operations.

The project will deploy a system to collect traffic data, and monitor a six lane signalized arterial that bypasses downtown Richland (Richland Bypass). The system will be comprised of stations to collect and transmit traffic data to the Central Washington Transportation Management Center (CWTMC). Video surveillance will also be incorporated into the project to monitor arterial and freeway operations, and improve incident response. Project planning allows for expanded ITS deployments, and for the installation of a communications backbone to allow the City of Richland and WSDOT to monitor full motion video, and to support a Web-based flow map and camera snapshots.

The integration of arterial and freeway data will enable traffic control agencies to adjust to different congestion levels while providing shared control of operations among all affected agencies.

Project Location: Kennewick, Pasco and Richland, Washington

Partner(s): FHWA, Washington State DOT, Washington State Patrol

Start Date: September 2003

End Date: December 2007

**Estimated Total
ITS Funds:** \$415,971

**Estimated Total
Project Cost:** \$831,942

Contacts:

Michael Brower	FHWA Washington Division, HDA-WA	(360) 753-9550
Rick Gifford	Washington State DOT	(509) 577-1985



TUKWILA SIGNAL INTERCONNECT AND ITS, WA

Description:

This project is a FY 2004 ITS Integration Program earmark for the City of Tukwila, Washington. Tukwila is located in the center of the Puget Sound region at the intersection of I-5 and I-405, near Seattle-Tacoma International Airport. The city has developed into an active urban center that is the home of several nationally and internationally known corporations.

The purpose of this project is to convert the existing signal system from independent signal operation to a fully integrated, regionally interfaced, multimodal ITS traffic management system. The integration will use a fiber optic cable network. This will enable the city to incorporate new technologies into the legacy signal system to support real-time signal adaptive control at multiple locations. Real-time video will be employed to implement adaptive signal control as conditions warrant. Four subprojects will guide project implementation:

- Initiating a regional monitoring and data sharing system to support multiple jurisdiction access to real-time traffic information.
- Initiation of coordinated arterial and freeway management operations among jurisdictions.
- Development of improved detection capabilities and response time in support of incident management.
- Implementation of emergency evacuation management through signal control.

Project Location: City of Tukwila, Washington

Partner(s): FHWA; Washington State DOT; King County; Cities of Kent and Renton.

Start Date: October 2004

End Date: June 2006

Estimated Total ITS Funds: \$1,206,215

Estimated Total Project Cost: \$2,412,430

Contacts:

Michael Brower	FHWA, Washington Division, HDA-WA	(360) 753-9550
Bob Giberson	City of Tukwila, WA	(206) 433-0179



US 195 RURAL TRAVELER INFORMATION SYSTEM

Description: This project is a component of the FY 2002 ITS Integration Program Washington Statewide earmark. The project expands coverage provided by a FY 2001 ITS Integration Program earmarked project (Spokane County, Washington) that initiated deployment of traveler information services in the region. This project will use the Spokane Regional Traffic Management Center as a communication hub to which additional software modules will be added for regional control of Highway Advisory Radio, data stations and center-to-center communications. This project will also establish the basis for Web-based traveler information complemented by a traffic, weather, and construction Web site.

Project Location: Spokane County, Washington

Partner(s): FHWA, Washington State DOT, Spokane Regional Transportation Council (SRTC), Spokane County, City of Spokane

Start Date: November 2003

End Date: March 2006

**Estimated Total
ITS Funds:** \$206,825

**Estimated Total
Project Cost:** \$413,650

Contacts:

Michael Brower	FHWA Washington Division, HDA-WA	(360) 753-9550
Kenneth Knutson	Washington State DOT	(509) 343-6383



VANCOUVER AREA SMART TREK EXPANSION

Description: This project is a component of the FY 2003 ITS Integration Program earmark for Washington State. The project is a component of the Vancouver Area Smart Trek Regional Transportation system which is experiencing growing mobility problems. The Southwest Region of the Washington State DOT (WSDOT) initiated deployment of ITS infrastructure in 1999 to alleviate area transportation system problems. An integral part of this ITS plan is a regional interconnection through an ITS communication backbone. The objective of this project is to fill important gaps in the data/communication system. Routing and interconnection of the fiber optic communication system will be accomplished in accordance with an approved regional plan. Key elements include routing fiber along a section of arterials that will connect the I-5 Corridor to the City of Vancouver/Clark County transportation office, and another section of city arterials in the east side of the county connecting the City of Vancouver and the City of Camas with the Region 3 Southwest Traffic Management Center (SWTMC). Major expected results of this project are improved and expanded traveler information to be disseminated via traffic condition cameras; freeway congestion/flow map data; dynamic message signs, and Highway Advisory Radio. A significant milestone will be the implementation of center-to-center communications between Oregon DOT's Transportation Management Operations Center and WSDOT's SWTMC.

Project Location: Clark County, Washington

Partner(s): FHWA, Washington State DOT, Oregon DOT

Start Date: September 2003

End Date: July 2006

Estimated Total ITS Funds: \$707,100

Estimated Total Project Cost: \$1,414,200

Contacts:

Michael Brower	FHWA Washington Division, HDA-WA	(360) 753-9550
Chad Hancock	Washington State DOT	(360) 905-2240



VANCOUVER ATMS

Description:

This is a FY 2004 ITS integration Program earmark for Washington State. The states of Washington and Oregon are separated by the Columbia River at their respective southern and northern borders. The I-5 and I-205 interstate transportation system corridor in the Portland, OR/Vancouver, WA metropolitan area services a large community that expects a seamless transportation system that operates in a unified, coherent manner unencumbered by differences in jurisdictional approaches to traffic management.

This project is a joint effort between Washington State's Department of Transportation (WSDOT) Southwest Region and the Oregon Department of Transportation (ODOT) to provide enhanced functionalities, communications, and control among different traffic management centers in Southwest Washington and Oregon. The project scope includes expanding the current Navigator "TransPort" Advanced Traffic Management Systems (ATMS) software to provide additional functional enhancements, such as integrated Computer Aided Dispatch (CAD); integrated communications and support with external emergency services partners; and improved traveler information through the deployment of dynamic message signs, highway advisory radio, and the Internet.

Currently, there are two Traffic Management Centers (TMCs) operated by the state DOTs (Washington & Oregon) in the Portland/Vancouver Metropolitan Area. There are, however, no coordinated incident response plans or integrated system controls and communication between the two TMCs or other TMC/Emergency Operations Centers (EOCs). This project will provide enhanced capabilities, functionalities, and communication between the two states' TMCs, as well as the EOCs.

Integrated system components for the proposed Transportation Operations Center System (TOCS) project include:

- Incident Management: provides consistent, coordinated response planning between TMCs located in SW Washington and the state of Oregon, as well as other emergency service providers such as the state police and 911 centers (the current systems employed by both states does not provide).
- Emergency Management: includes all of the functions and processes of Incident Management, with the extended requirement to implement emergency operations plans, as well as integration of operations with the two states' Emergency Operation Centers, along with agency partners.
- Traffic Management: new capabilities such as arterial traffic signal control as well as automated and interactive control of DMS message content as well as HAR messages within incident response plans. The incident response plans will include suggestions for alternate routes based on incident severity and location, as well as the monitoring of signal status and implementation of various timing plans on the alternate / detour corridors.
- Maintenance Operations: implementation of Automated Vehicle Locator (AVL) provides better resource management; automated notification of roadway sensor data to information service providers, maintenance operations and the media.
- Data Archival: the newly enhanced ATMS software will address information collection, analysis, dissemination and archival needs in the areas of maintenance operations,



traffic operations, incident and emergency management. Specific examples of this information include traffic surveillance, road and weather condition monitoring, incident detection and reporting, signal control, and emergency call-taking, data collection, dispatch and response management.

- Ultimately, with the enhanced integration and communication capabilities, the project will enable regional emergency operation centers to communicate and share vital information.

Project Location: Clark County, Washington State

Partner(s): FHWA; Washington State DOT, Oregon DOT.

Start Date: January 2005

End Date: June 2007

**Estimated Total
ITS Funds:** \$215,396

**Estimated Total
Project Cost:** \$430,792

Contacts:

Michael Brower	FHWA, Washington Division, HDA-WA	(360) 753-9550
Chad Hancock	Washington State DOT	(360) 905-2240



VARIABLE SPEED LIMIT SYSTEM, US 2

Description: This project is a FY 2003 ITS Integration Program earmark for the State of Washington. This project site is US Route 2 where it traverses Stevens Pass in North Central Washington. The pass provides a critical link from Central Washington to the urban areas and ports in the Western region of the state. The importance of this corridor is further highlighted by its designation as an alternate route when snowfall and avalanche closures impact other pass locations. The project addresses a significant winter accident problem. The state has designated a two-mile segment of the mountain pass corridor as a high accident corridor, primarily as a result of snow and ice conditions.

The project will achieve the safety improvement objective by deploying variable speed limit signs and dynamic message signs along the corridor. Variable Speed Limit Signs will be installed at selected locations to post regulatory speed limits based on local conditions. Dynamic message signs will be installed to provide motorists road condition information. Sensors and cameras will be deployed to support traffic management decision-making in establishing appropriate speed limits. All devices deployed by this project will be integrated into the existing Washington State DOT traffic management system.

Project Location: Stevens Pass, US 2, Washington

Partner(s): FHWA, Washington State DOT

Start Date: September 2003

End Date: November 2006

**Estimated Total
ITS Funds:** \$291,200

**Estimated Total
Project Cost:** \$582,400

Contacts:

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Jennene Ring	Washington State DOT	(509) 667-3080



WASHINGTON STATEWIDE ADVANCED SNOWPLOW SYSTEMS

Description: This project is a component of the FY 2002 ITS Integration Program Washington Statewide earmark. The purpose of the project is to integrate radio data transfer and processing into the storm management program in the North Central Region of Washington State. In order to optimize storm management operations, significant amounts of data, such as snowplow locations, requirements for sand, anti-icing and solid de-icing materials, must be integrated. The project will deploy communications equipment on mountain top radio repeaters and on vehicles. Equipment to be deployed includes GPS location equipment, and on-vehicle electronic sensors, pavement temperature sensors, pre-set communications transmitting devices enabling drivers to report automatically roadway surface conditions and weather parameters. Data from all of these collection sources will be communicated via radio to a centrally located server to support populating a database for storm managers.

Project Location: North Central Region, Washington

Partner(s): FHWA, Washington State DOT

Start Date: November 2002

End Date: June 2007

Estimated Total ITS Funds: \$413,650

Estimated Total Project Cost: \$827,300

Contacts:

Michael Brower	FHWA Washington Division, HDA-WA	(360) 753-9550
Dave Bierschbach	Washington State DOT	(509) 667-3066



WASHINGTON STATE RADIO COMMUNICATION EMERGENCY CALL BOXES

Description: This project will provide emergency call boxes using radio communications technology throughout the State Route 821 Corridor. State Route 821 follows the Yakima River through a canyon with no cellular phone coverage. There are few businesses or residences along the road so there is no place to stop for assistance. When roadway accidents or river rafting accidents occur, there is no timely way to alert emergency service providers. This project will remedy that condition. The Washington DOT will be able to incorporate the emergency call boxes into the Smart Trek Model Deployment Initiative.

Project Location: Washington State

Partner(s): FHWA, Washington State DOT, KITTCOM

Start Date: February 1999

End Date: April 2006

**Estimated Total
ITS Funds:** \$750,000

**Estimated Total
Project Cost:** \$1,087,500

Contacts:

Michael Brower	FHWA Washington Division, HDA-WA	(360) 753-9550
Rick Gifford	Washington State DOT	(509) 577-1985



WASHINGTON STATE ROADWAY WEATHER INFORMATION SYSTEM

Description: This project connects local road and weather information systems around the state into a single Web based application. Centralization of these types of databases allows WSDOT to provide an online statewide road condition report to motorists, thereby reducing the risks associated with variable weather conditions. The project included the installation of RWIS stations and rural CCTV cameras along several major tourist and commercial travel routes. The Washington State DOT will be able to incorporate this road and weather information system into future Maintenance and Traffic Decision Support Systems.

Project Location: Washington State

Partner(s): FHWA, Washington State DOT, University of Washington, Enterprise Pooled Fund Members

Start Date: February 1999

End Date: April 2006

Estimated Total ITS Funds: \$1,250,000

Estimated Total Project Cost: \$3,391,000

Contacts:

Michael Brower	FHWA Washington Division, HDA-WA	(360) 753-9550
Larry Senn	Washington State DOT	(206) 543-6741



WENATCHEE ADVANCED TRAFFIC MANAGEMENT SYSTEM - PHASE I

Description:

This project is a FY 2004 ITS Integration Program earmark for Washington State. This project's goal is to provide traveler information through the use of highway advisory radio (HAR), environmental sensor stations (ESS), and closed circuit television (CCTV) in North Central Washington.

The project area is characterized by long distances offering travelers few options for alternative routes. Terrain varies from plateaus with long distances between services, to large areas of farmland, to mountainous terrain with extreme weather conditions. Wenatchee is a transportation hub for North Central Washington, and is well suited to traveler information for the area. Traveler information will be disseminated through the following means:

- HAR: A permanent HAR will be installed at each end of Wenatchee to provide travelers with information to support route selection and the causes of potential delays.

- CCTV: Several cameras will be installed through North Central Washington for use by the WSDOT Region operations staff, maintenance supervisors, the TMC, and through WSDOT's Web site, the traveling public.

- ESS: The project will install an ESS in a remote area. ESS-based information will be used by WSDOT maintenance staff to support responses to changing road conditions. ESS output will also be fed into the Road and Weather Information Station server located in Wenatchee, and made accessible to travelers through the Internet.

- Traffic Management Center (TMC): Part of this project's funding will be expended on upgrades to the Wenatchee TMC in the form of facility expansion and equipment.

Project Location: Greater Wenatchee Area - Washington State

Partner(s): FHWA; Washington State DOT.

Start Date: January 2005

End Date: September 2007

**Estimated Total
ITS Funds:** \$215,396

**Estimated Total
Project Cost:** \$430,972

Contacts:

Michael Brower	FHWA, Washington Division, HDA-WA	(360) 753-9550
Jennene Ring	Washington State DOT	(509) 667-3080



WHATCOM REGIONAL ITS FIBER OPTIC INTEGRATION

Description: This project is the FY 2001 ITS Integration Program earmark for Bellingham, WA. The project objective is to complete critical fiber optic communication links between Bellingham's existing Traffic Management Center (TMC) and all currently deployed ITS components operated by adjacent agencies in the Whatcom region. The project scope includes acquisition of fiber optic equipment on ITS software required to integrate the various ITS subsystems enabling a unified medium for information exchange. Anticipated benefits of this integration range from enhancement of single agency systems to interoperability among operational systems in the greater metropolitan area. On a more regional scale, the integration of multi-agency resources will enable Bellingham's TMC to serve as an information hub to help facilitate transportation public safety programs such as airport and border crossing traveler information, state and local dynamic message signs, highway advisory radio, and roadway weather information systems, as well as multi-agency signal timing plans.

Project Location: Bellingham, Washington

Partner(s): FHWA, Washington State DOT, Whatcom County, WCOG, City of Bellingham, Bellingham Fire Department, Port of Bellingham

Start Date: September 2001

End Date: March 2006

**Estimated Total
ITS Funds:** \$277,765

**Estimated Total
Project Cost:** \$555,530

Contacts:

Michael Brower	FHWA Washington Division, HDA-WA	(360) 753-9550	
Clark Alan Williams	City of Bellingham	(360) 733-7169	105



YAKIMA COUNTY ADVERSE WEATHER MONITORING SYSTEM

Description:

This project is a FY 2004 ITS Integration Program earmark for Yakima County, Washington State. The project builds on and expands two previously earmarked projects titled Yakima County Adverse Weather Operations, which have assumed the status of a Washington State Program integrating multiple projects. The FY 2002 and 2003 projects conducted under the title Yakima County Adverse Weather Operations (Phase I of the Program) concentrated on:

- Providing traveler information to area residents and motorists.
- Providing real-time data and condition information for road maintenance, emergency and disaster response.
- Feeding collected data into Washington State's Road Weather Information System.

This FY 2004 earmark expands the Adverse Weather Operations Program into freight mobility information gathering and reporting. The project will deploy variable message signs, two bridge overload/weather stations, and three standard weather stations.

The project is developing an Overload Bridge Program (OBP) to gather data, analyze results, and ultimately enforce weight control efforts by area freight haulers. An element of Phase II will be the installation of embedded weight scales on two bridges as accessory components of selected weather station sites. This system will provide freight impact data, as well as weather and environment data.

Concurrently with the deployment of bridge overload sensors, the project will continue the installation of additional weather reporting stations, providing the Program added capabilities in terms of accuracy.

A final component of this project is the delivery of near real-time road and weather condition reports on a sub-regional level instead of regional-level, frequently outdated reporting.

Project Location: Yakima County, Washington

Partner(s): FHWA; Washington State DOT; Washington State Patrol; Cities of Yakima, Union Gap and Selah; Yakima County; People for People Paratransit Agency

Start Date: January 2005

End Date: June 2006

Estimated Total ITS Funds: \$107,696

Estimated Total Project Cost: \$215,392



Contacts:

Michael Brower	FHWA, Washington Division, HDA-WA	(360) 753-9550
Kent McHenry	Yakima County Public Works	(509) 574-2300



YAKIMA COUNTY ADVERSE WEATHER OPERATIONS

Description:

This project originated as the FY 2002 ITS Integration Program earmark for Yakima County, Washington. The project goal is to implement an Adverse Weather Operations Program using a multi-phased approach. Ultimate project objectives include:

- Providing traveler information to area residents and motorists.
- Providing real-time data and condition information for road maintenance, emergency and disaster response.
- Contributing collected data to Washington State's Road Weather Information System.

FY 2002 funding supports Phase I, which consists of planning, coordination and installation of seven weatherreporting stations throughout the county. These stations include pavement sensors capable of recording temperature, humidity, precipitation, atmospheric conditions, and selected traffic counts. These stations will collect data and streaming video imaging through pavement sensor equipment and remote camera technology. Data and imagery generated will be fed to a wireless communications transmitting system through on-site hard wire. Data will be acquired by receiving stations located along a county fiber optic Trunk Line, and will be transmitted to a Yakima County processing facility for formatting and subsequent distribution to WSDOT, Washington State University and the State's Traveler Information Web site.

The FY 2003 ITS Integration Program earmarked an additional \$166,411 to this project; with matching funds a total of \$332,822 was added to the FY 2002 funding level. FY 2003 funding will enable completion of work initiated in FY 2002 by adding four additional weather reporting stations.

Project Location: Yakima County, WA

Partner(s): FHWA, Washington State Department of Transportation, Yakima County, Cities of Yakima and Union Gap, Washington State University, University of Washington

Start Date: November 2002

End Date: June 2006

Estimated Total ITS Funds: \$559,387

Estimated Total Project Cost: \$1,400,798

Contacts:

Michael Brower	FHWA Washington Division, HDA-WA	(360) 753-9550
Kent McHenry	Yakima County Public Works	(509) 574-2300



WISCONSIN

CITY OF SUPERIOR AND DOUGLAS COUNTY, WISCONSIN

Description:

This project is the FY 2000 ITS Integration Program earmark for the City of Superior and Douglas County, WI. Funding for the project was approved in two increments. The first increment in the amount of \$230,000 (from \$786,421 available) was approved in September 2002. The project funded by the first increment was comprised of three separate activities summarized below as FY'02 subprojects 1 through 3. A second funding increment in the amount of \$250,000 was approved on March 5, 2005. It is described below as Barron County's Northwest Wisconsin Intelligent Transportation Systems (ITS) Upgrade.

Sub-project #1. City of Superior and Douglas County, WI Scoping Study - This project is a study whose objective is to identify the necessary ITS projects for the City of Superior and Douglas County. It will outline top level, general descriptions of projects in the City of Superior that will interconnect the Superior-Duluth, MN ITS elements in an integrated operating system. Emphasis will be on weather information and integrated traffic operations across the St. Louis Bay bridges between Superior and Duluth. This project's total estimated cost is \$100,000, \$50,000 of which is from the earmark.

Sub-project #2. Superior's Integration Software - This project will support software and communications connectivity between Superior and the Duluth, MN Traffic Management System. Wisconsin DOT will procure the software applications currently used by MNDOT in the Duluth Traffic Management System. This software integration initiative lays the basis for monitoring and coordinating several ITS elements to include: interstate traffic monitoring; WISDOT and MNDOT data exchange; weather information sharing; arterial traffic monitoring; and monitoring of arterial dynamic message signs. The total estimated cost for this project is \$262,000 of which \$131,000 consists of earmarked funding.

Sub-project #3. Evaluation of the Superior/Douglas County Earmark Implementation Projects - This activity will consist of a self-administered evaluation of the projects identified above. The evaluator will feature benefits assessments and cost effectiveness analyses. The total estimated cost of the evaluation is \$110,000 of which \$55,000 is from earmarked funding. This evaluation activity will be completed eighteen months after the deployment projects.

Barron County's Northwest Wisconsin ITS Upgrade: This project (whose funding was approved in March 2005) is a three-phased activity. The project objective is to connect or improve, the communications systems between the surrounding counties and their departments and their tribal entities with Barron County. The project phases include a comprehensive and regional two way radio system upgrade, a computer-aided dispatch upgrade, and the deployment of mobile data computers and portable changeable signs for highway and roadway safety management. The project will enable Barron County to comply with a Federal Communications Commission mandate requiring wide band radio users to convert to narrow band.

Project Location:

City of Superior and Douglas County, Wisconsin

Partner(s):

FHWA, Wisconsin DOT; Minnesota DOT; Wisconsin State Patrol; Douglas County, WI; City of Superior, WI; City of Duluth, MN

Start Date:

September 2002

End Date:

March 2006



**Estimated Total
ITS Funds:** \$486,000

**Estimated Total
Project Cost:** \$722,000

Contacts:

John Berg	FHWA Wisconsin Division, HDA-WI	(608) 829-7515
Phil DeCabooter	Wisconsin DOT	(608) 267-0452



GREAT LAKES IMPLEMENTATION

Description:

This project combines FY 1999, 2000 and 2001 TEA-21 earmarks, which have been titled Great Lakes Implementation and in FY 2001 was retitled Great Lakes Corridor, Wisconsin. The project is comprised of five components summarized as follows: (1) "MONITOR Upgrades" will develop, integrate and test the second generation of MONITOR software. MONITOR, Wisconsin's Freeway Traffic Operations System originating as part of the Gary-Chicago-Milwaukee priority corridor, is undergoing a comprehensive upgrade of freeway control, surveillance system and field devices. This upgrade will reconfigure MONITOR communication server components, modernize surveillance video management, and incorporate data exchanges with public safety and emergency service computer aided dispatch system in Southeastern Wisconsin. (2) "Wisconsin's Statewide Integrated Traffic Management System" will develop a comprehensive statewide traffic management system with an integrated communications network. The project will leverage traffic management software developed with funding from the FY 2000 earmark, and will satisfy user service requirements developed in a statewide and regional architecture. The system will connect all portable field devices and other deployed ITS equipment thus maximizing the effectiveness of remote control and coordination. System integration will be realized through employment of virtual traffic management centers comprised of desktop computers linked to servers in each WisDOT district. (3) "Rural Districts' Mini Weather Detection Systems" will deploy enhanced road weather information system (RWIS) stations configured with closed circuit TV cameras mounted on top enabling each station to project accurate visual images in identifying characteristics of precipitation. (4) "Statewide RWIS Extranet Site" will disseminate the RWIS network information statewide in a "one stop" clearinghouse via an Extranet website. (5) "Evaluations of Great Lakes Corridor Earmark Implementation Projects" will conduct an independent evaluation of the impacts of ITS deployments on the Great Lakes Corridor surface transportation system. The funding amounts depicted below include the sum of FY 1999, 2000 and 2001 earmarks and the total cost estimate includes matching funds for the three years.

Project Location:

State of Wisconsin

Partner(s):

Wisconsin DOT; Wisconsin Department of Motor Vehicles; Wisconsin State Patrol; Wisconsin Divisions of Business Management, Investment Management, Infrastructure Development

Start Date:

September 1999

End Date:

April 2006

Estimated Total ITS Funds:

\$4,743,010

Estimated Total Project Cost:

\$9,490,142

Contacts:

John Berg	FHWA Wisconsin Division, HDA-WI	(608) 829-7515
Phil DeCabooter	Wisconsin DOT	(608) 267-0452



I-90/I-94 FIBER OPTIC BACKBONE NETWORK AND SPURS BUILD-OUT (PHASE II)

Description:

This project is a FY 2004 ITS Integration Program earmark for the state of Wisconsin. The project is comprised of two subprojects: Fiber Backbone Engineering and Construction; and Highway Network Location Plan for Portable Changeable Message Signs (PCMS) or Dynamic Message Signs (DMS) and Highway Advisory Radio (HAR).

The objective of the Fiber Backbone Engineering and Construction subproject is to complete the detail engineering and construction required to provide a backbone ITS communications infrastructure along the I-94 corridor. The backbone will support the needs of Wisconsin's Traffic Management and Highway Operations; Public Safety Communications Systems, and Security and Roadway Monitoring. There are three primary components to this project:

- The extension of the existing Wisconsin DOT (WisDOT) fiber optics backbone from Tomah to the Minnesota border.
- The extension of WisDOT's existing fiber optics backbone from Waukesha to the Illinois border.
- The addition of five nodes to the existing WisDOT fiber optics backbone.

The second subproject is intended to complement the fiber backbone construction. It is, in essence, a Traffic Concept of Operations planning effort designed to identify key decision points along major corridors where travelers would need to make alternate routing choices.

These projects will provide a high capacity fiber optics communications backbone capable of satisfying the communication and integration requirements of Wisconsin's ITS program along the I-94 Corridor. This encompasses Traffic Management and Highway Operations, Public Safety Communications System, and Security and Roadway Monitoring.

Project Location: Wisconsin - I-94 Corridor

Partner(s): FHWA, Wisconsin Department of Transportation - Division of Business Management, Wisconsin State Patrol, Wisconsin Department of Military Affairs

Start Date: June 2004

End Date: March 2006

**Estimated Total
ITS Funds:** \$861,582

**Estimated Total
Project Cost:** \$1,723,164



Contacts:

John Berg	FHWA, Wisconsin Division, HDA-WI	(608) 829-7515
Larry Larson	Wisconsin DOT	(608) 266-9381



STATE OF WISCONSIN ITS INTEGRATION

Description:

This activity seeks to develop a Statewide programmatic project development and budgeting approach over six years for Wisconsin ITS projects.

The State shall work to accomplish the goals and objectives listed below (where goals represent high-level descriptions of what the project will accomplish and objectives define specific actions that can be used as metrics for determining progress towards the goals).

Wisconsin proposes to accomplish deployment planning and begin implementation of rural incident, traffic management and traveler information systems along expanded parts of the rural Interstate corridors and major arterial networks in the State. This effort will concentrate on funding projects in the 1999, 2000 and 2001 State fiscal years.

The agreement will outline the State's commitment relating to the following projects and their integration into an overall Statewide system.

- High speed weigh-in-motion
- Statewide traveler information deployment
- Statewide ITS architecture
- Portable changeable message signs
- Interconnected signal systems for medium sized cities adjacent to interstate corridors

Project Location: State of Wisconsin

Partner(s): Wisconsin DOT, Wisconsin State Highway Patrol, Department of Motor Vehicles

Start Date: September 1999

End Date: April 2006

**Estimated Total
ITS Funds:** \$837,204

**Estimated Total
Project Cost:** \$1,674,408

Contacts:

John Berg	FHWA Wisconsin Division, HDA-WI	(608) 829-7515
Philip DeCabooter	State of Wisconsin DOT	(608) 267-0452



SUPERIOR & I-39 CORRIDOR, WISCONSIN ITS EARMARK

Description:

This project is a FY 2002 ITS Integration Program earmark for Wisconsin. Funding was approved in March 2005. This earmark is comprised of ten (10) subprojects to be implemented in the greater Superior, greater Wausau, and Northwestern Wisconsin region.

Subproject 1: Highway 8 and Highway 40 Speed Reduction Project in the Village of Bruce, and Rusk County Sheriff's Office. The objective of this subproject is to reduce vehicle speeding violations on state Highway 40 and U.S. 8 in the Village of Bruce. A trial program employing a borrowed speed trailer proved very effective. The earmarked funding allocated to this subproject will acquire a data collection speed trailer, and schedule sheriff's deputies in the impacted area in accordance with data gathered by the computerized component of the trailer. Reduced vehicle speeds and enhanced highway safety are anticipated to result in the near-term post deployment period.

Earmarked Funding: \$11,500; Total Funding: \$23,000

Subproject 2: Countywide Wireless Data Network and Mobile Data Computers - Sawyer County Emergency Government. This subproject will link county, municipal and tribal agencies into an improved emergency services system for the County. Project planning visualizes acquisition and installation of three communication base stations and 30 mobile radios with hardened laptop computers. Upon implementation, participating agencies will have connectivity with Wisconsin State agencies and each other.

Earmarked Funding: \$225,000; Total Funding: \$450,000

Subproject 3: Implementation of Expanded Information Mobile Data Computers (MDC) - Superior, Wisconsin Police Department. This initiative will install 14 advanced Mobile Data Computer units into the police department's marked patrol cars. These MDCs will have upgraded software and expanded data capabilities to enable officers to accomplish improved traffic control, emergency response (to include HAZMAT), and criminal investigative functions.

Earmarked Funding: \$50,000; Total Funding: \$100,000

Subproject 4: Burnett County Portable Message Sign - Burnett County Emergency Management. Burnett County does not have a changeable message sign, and has experienced significant traffic management/traveler information shortfalls during emergency situations. This initiative will acquire a solar-powered portable changeable message sign to support transportation system operations during a variety of emergency conditions.

Earmarked Funding: \$12,500; Total Funding: \$25,000

Subproject 5: Polk County Total Station Crash Investigative Project - Polk County Sheriff's and Highway Departments. This subproject will acquire and place in service a Total Crash Investigation Station. This unit provides crash investigation capabilities supported by modern scientific tools and techniques. The Total Station will be capable of recording, documenting and archiving investigation data. Total Station capabilities will enable Polk County officers to investigate fatal crashes, secure evidence, and provide testimony. It will enable highway safety engineers to develop safety design modifications, and improve traveler safety, while concurrently enable emergency management authorities to improve planning for and delivery of emergency services.

Earmarked Funding: \$6,500; Total Funding: \$13,000



Subproject 6: Polk County Highway Safety Message System - Polk County Highway Department. This subproject will acquire a solar-powered message board, cell phone with remote software, and a speed radar unit with instant flash messaging. This combination of devices is designed to force drivers to reduce speeds, and provide motorists with up-to-date road conditions on high volume highways at peak traffic hours. Related objectives include providing commuters and travelers real time information on changing conditions, and to act as the lead source of traveler alerts for construction areas, crash sites, and highway maintenance activities.

Earmarked Funding: \$13,500; Total Funding: \$27,000

Subproject 7: Smart Trailer Speed-Cessation System for the City of Hayward and Sawyer County. This subproject will acquire a Smart Trailer Speed-Cessation System comprised of a Smart Low-Profile Trailer with Directional Radar Unit upgrade, Violator Alert upgrade, speed board, solar panel and low-profile traffic statistics package. The Speed-Cessation System will collect time-specific traffic volume and speed data. The anticipation is that this system will greatly improve traffic calming and reduce severe speed violations.

Earmarked Funding: \$6,500; Total Funding: \$13,000

Subproject 8: Grantsburg and Burnett County Inter-Agency Communications Repeater. This initiative will acquire and install a radio repeater in the Grantsburg area to improve emergency radio coverage. The installation of these devices is anticipated to significantly improve radio communications between the County Emergency Dispatch Center and law enforcement and emergency personnel.

Earmarked Funding: \$6,500; Total Funding: \$13,000

Subproject 9: Wisconsin DOT District 4 - Wisconsin Rapids Service Patrols/Incident Management and Mitigation 2005. This subproject is designed to address incident management requirements during an eight-year (2005 - 2012) reconstruction project in the I-39 State Highway 29 corridor in the Wausau area. The project will deploy incident management/service patrols along the corridor for the duration of the reconstruction project. Service patrol contracts will be developed annually as reconstruction plans evolve. Anticipated results include improved traffic management and traveler safety.

Earmarked Funding: \$1,000,000; Total Funding: \$2,000,000

Subproject 10: Wisconsin DOT District 4 - Wisconsin Rapids Message Signs 2005. This initiative addresses the same reconstruction project discussed in subproject 9 above. This subproject will acquire and deploy dynamic message signs (DMS) along the corridor undergoing reconstruction for the duration of the upgrade (2005 - 2012). A combination of portable and/or semi-permanent signs will be acquired to optimize flexibility as needs change during various stages of construction. Subprojects 9 and 10 constitute key elements in managing traffic and reducing congestion during the corridor reconstruction project.

Earmarked Funding: \$500,000; Total Funding: \$1,000,000

Project Location: Wisconsin Statewide

Partner(s): FHWA, Wisconsin DOT, Wisconsin State Patrol, Rusk, Sawyer, Burnett, Polk, and Marathon Counties.

Start Date: March 2005



End Date: April 2007

**Estimated Total
ITS Funds:** \$1,832,000

**Estimated Total
Project Cost:** \$3,664,000

Contacts:

John Berg	FHWA, Wisconsin Division	(608) 829-7515
Phil DeCabooter	Wisconsin DOT	(608) 267-0452



WAUSAU/STEVENS POINT, WISCONSIN

Description: To implement this FY 1999 ITS Integration Program project, Wisconsin will conduct a planning study, develop a regional architecture and deploy interoperable technologies in the I-39 Wausau/Stevens Point Corridor which will be integrated into an overall statewide system.

Specific projects selected for ITS deployment will fulfill I-39 Corridor needs in traveler information, incident management and commercial vehicle operations. The intent of this corridor-wide project programming effort is to develop an accepted, standardized approach to deployment in the corridor.

Project Location: I-39 Wausau/Stevens Point Corridor

Partner(s): Wisconsin DOT; Department of Motor Vehicles

Start Date: September 1999

End Date: December 2006

**Estimated Total
ITS Funds:** \$791,470

**Estimated Total
Project Cost:** \$1,582,940

Contacts:

John Berg

FHWA Wisconsin Division, HDA-WI

(608) 829-7515



WAUSAU-STEVENSON POINT - WISCONSIN RAPIDS, WISCONSIN

Description:

This project is the FY 2000 ITS Integration Program earmark for Wausau-Stevens Point - Wisconsin Rapids, Wisconsin. Earmarked funding in the amount of \$440,000 was approved in September 2002. The project is comprised of three separate sub-projects summarized below.

Sub-project #1. Statewide Traffic Management Software - This activity will develop a comprehensive, statewide traffic management system software package with an integrated communications network for the state. The software design will be modeled on the MONITOR Traffic Operations Center software currently operational in Milwaukee, WI. The software design will be flexible and expandable to accommodate the requirements of the eight transportation districts throughout the state. The software deployment will link WisDOT with the Wisconsin State Patrol, local agencies, emergency medical systems and maintenance organizations. The estimated cost of this sub-project is \$275,000.

Sub-project #2. Environmental Sensor Stations for the I-39 Corridor - This activity will deploy four additional road weather information system (RWIS) environmental sensor stations (ESS) along the rural I-39 corridor. These four additional RWIS ESS units will increase the amount of data currently available to county maintenance crews. The ESS will be located at the roadside with pavement condition sensors extending from the ESS to the road surface. Enhanced RWIS stations have cameras on top of the unit. The closed circuit TV cameras mounted on the RWIS stations enable accurate visual detection, and assist in identifying the type and intensity of precipitation. The total estimated cost of this sub-project is \$220,000 of which \$110,000 is comprised of earmarked funds.

Sub-project #3. Evaluation of the Wausau-Stevens Point-Wisconsin Rapids, WI I-39 Corridor Implementation Projects - This activity will consist of a self-administered evaluation of the implementation projects identified above. The evaluation will conduct impact assessments of the deployment/integration projects, and address cost-effectiveness. The estimated total cost of this effort is \$110,000 of which \$55,000 is comprised of earmarked funding.

Project Location:

Wausau-Stevens Point-Wisconsin Rapids, Wisconsin

Partner(s):

FHWA; Wisconsin DOT (WisDOT); Counties of Columbia, Lincoln, Marathon, Marquette, Portage, Vilas, Waupaca, Waushara, Wood, Dane; Wisconsin State Patrol; Cities of Merrill, Stevens Point, Wausau

Start Date:

September 2002

End Date:

April 2006

Estimated Total ITS Funds:

\$440,000

Estimated Total Project Cost:

\$880,000



Contacts:

John Berg	FHWA Wisconsin Division, HDA-WI	(608) 829-7515
Phil De Cabooter	Wisconsin DOT	(602) 267-0452



WISCONSIN COMMUNICATIONS NETWORK

Description:

This project is the FY 2002 ITS Integration Program earmark for the State of Wisconsin. The project objective is to expand the Wisconsin Statewide digital microwave backbone infrastructure used to carry voice and data communications information for 122 public safety agencies throughout the State. Expansion is necessary to provide coverage into some rural areas currently incapable of accessing public safety-related radio traffic. Most of the information transported on the backbone infrastructure is critical. Agencies not able to receive traffic pertinent to their activities are at risk as are those elements of the general public either directly or indirectly involved in incidents.

Particularly vulnerable are public safety personnel who frequently operate alone, and are entirely dependent on radio communications. The statewide microwave backbone infrastructure will enable public safety personnel to access mission critical information. Funding allocated for this project will be used to acquire radio communications equipment needed to create a microwave path to towers in areas lacking radio coverage. Equipment included is comprised of power backup generators, VHF base and repeater stations, microwave terminals and dishes, VHF antennae and security equipment.

Project Location: Wisconsin

Partner(s): FHWA, Wisconsin DOT, Wisconsin State Patrol

Start Date: September 2002

End Date: April 2006

**Estimated Total
ITS Funds:** \$256,469

**Estimated Total
Project Cost:** \$512,938

Contacts:

John Berg	FHWA Wisconsin Division, HDA-WI	(608) 829-7515
John Verhyen	Wisconsin State Patrol	(608) 267-3573



WISCONSIN STATE PATROL MOBILE DATA COMMUNICATIONS NETWORK

Description: This project is a FY 2003 ITS Integration Program earmark for the State of Wisconsin. The project objective is to upgrade the State's Mobile Data Communications Network. Accomplishing this objective will support a secondary objective of continuing the statewide backbone infrastructure expansion into some rural areas lacking adequate radio coverage. The equipment upgrade includes Internet Protocol (IP) base stations at tower sites and IP mobile radios in State agency automobiles. The State matching funds will be allocated to create microwave paths not in current radio coverage.

Project Location: Wisconsin Statewide

Partner(s): FHWA; Wisconsin DOT, Division of State Patrol, Bureau of Communications

Start Date: July 2003

End Date: April 2006

**Estimated Total
ITS Funds:** \$1,663,884

**Estimated Total
Project Cost:** \$3,327,768

Contacts:

John Berg	FHWA Wisconsin Division, HDA-WI	(608) 829-7515
John Verhyen	Wisconsin DOT	(608) 267-3573



WYOMING

DYNAMIC MESSAGE SIGNS, SOUTHERN WYOMING

Description:

This project is a FY 2003 ITS Integration Program earmark for the State of Wyoming. The project area encompasses I-80 across southern Wyoming from the Nebraska state line to the Utah border. I-80 is a major transportation corridor supporting major freight movements between the Midwest and the Pacific coast. Sections of this interstate in Wyoming are frequently closed due to weather-related crashes. The project objectives are to reduce the rate of vehicle crashes in critical locations that contribute to closures, and to deploy ITS components to support incident management operations. Improved incident response/management will reduce non-recurring congestion, thereby improving mobility.

The project concept is to deploy Dynamic Message Signs (DMS), Highway Advisory Radio (HAR), Environmental Sensor Stations (ESS), and Closed Circuit TV cameras at selected locations along I-80. These ITS devices will be integrated into existing Wyoming DOT (WYDOT) District dispatch centers in Laramie and Rock Springs. The project includes implementation of the communications infrastructure required to integrate the ITS components into the WYDOT Ethernet system. The project will be phased geographically, with deployments of ITS devices between Cheyenne and Laramie comprising Phase I. Phase II will deploy and integrate ITS in the western section of the state near Evanston and Rock Springs.

Project Location: I-80 Southern Wyoming

Partner(s): FHWA, Wyoming DOT, Wyoming Office of Homeland Security, Wyoming State Highway Patrol

Start Date: September 2003

End Date: December 2010

**Estimated Total
ITS Funds:** \$2,495,827

**Estimated Total
Project Cost:** \$5,191,654

Contacts:

Keith Trimels	FHWA Wyoming Division, HDA-WY	(307) 772-2004	143
Vince Garcia	Wyoming DOT	(307) 777-4231	



COMPLETED PROJECTS

AUTOMATED CRASH NOTIFICATION SYSTEM - UAB

Description:

This project originated as a FY 2002 ITS Integration Program earmark that was approved and funded in FY 2004. The project sought to expand on a FY 2001 earmarked pilot project to integrate automatic crash notification (ACN) technology with an organized trauma system in order to expedite the identification of injury vehicle crashes, and to provide appropriate response. The project focused on three tasks:

1. Remote collection and transmission of electronic data by emergency medicine personnel in the field;
2. The application and use of that information to direct critically injured victims to appropriate levels of care; and
3. An analysis of the role of real-time collision parameters to predict the likelihood of injury in a given crash.

When integrated, these tasks will facilitate the use of automatic crash notification as a public health tool.

To accomplish these project goals, public and private health entities with experience in the fields of trauma care, information technology and trauma research worked together in a coordinated effort.

Despite significant improvement in trauma care and computing technology in recent years, the ability to rapidly integrate a crash victim's needs with emergency medical services (EMS) resources, and facilitate transportation of the patient in real-time to the most appropriate trauma care center does not presently exist on a significant level. Such issues are all crucial to the expected outcome among persons sustaining major trauma. Recent research indicates that time and available resources at the receiving trauma center are the critical factors in successful care. This project focused on developing trauma systems capable of continually monitoring resource status at each trauma center in a region. Knowledge of the availability of specific patient care-related resources at trauma centers will facilitate pre-hospital EMS providers in the appropriate routing of patients.

The funding/cost amounts depicted below include the FY 2001 pilot project earmark of \$793,615 and total cost estimate of \$1,588,979.

Project Location: Alabama

Partner(s): FHWA, Alabama DOT, Alabama Department of Public Health, Birmingham Fire and Rescue Service, Birmingham Regional EMS System Trauma Communications Center, Birmingham Regional EMS System.

Start Date: March 2004

End Date: December 2005

**Estimated Total
ITS Funds:** \$2,861,911

**Estimated Total
Project Cost:** \$4,857,275



Contacts:

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Loring Rue, M.D.	University of Alabama, Birmingham	(205) 975-3030



ELECTRONIC PERMITTING FOR OVERSIZE AND OVERWEIGHT VEHICLES

Description:

This project was a component of the FY 2000 State of Alabama Earmark. The project was an integral part of a major ITS initiative in the Birmingham, AL metropolitan area which seeks to reduce congestion and air pollution. Electronic Permitting for Oversize and Overweight Vehicles is a FY 2000 project that will provide fast and accurate route and clearance checking and bridge analysis approval. ALDOT proposed to integrate an automated permitting function for commercial vehicles. This would enable commercial vehicle operators to obtain automated route information and permits for oversize and overweight loads throughout the highway system. The Birmingham area was specifically targeted. Construction zone work information was provided from the ALDOT Third Division Office to the permitting section in the ALDOT Maintenance Bureau. The Birmingham TCC provided real-time congestion information to allow the permitting process to ensure these problem loads avoided congested routes. When overweight or oversize loads are scheduled, timing of routes through Birmingham will be a factor in issuing permits. The Department of Public Safety (State Troopers) will be notified of any special loads requiring escort vehicles, special enforcement measures, or special coordination with ASAP service patrol units. The Birmingham TCC will, similarly, be notified of special loads as needed to manage the freeway system. The system will allow improved coordination of agencies involved in managing congestion and the routing of oversize and overweight vehicles. The digital roadway network model will provide a fast, reliable determination of all conditions and events along the vehicle trip path. These can be key in avoiding congested sites in Birmingham. The project would also improve the efficiency of the process by automating the bridge rating process and clearance restrictions for overweight and oversize vehicles. It would provide better customer service to motor carriers by streamlining credential application, taxation, and payment procedures, and weight and safety enforcement to permit compliant operators to avoid costly delays.

Project Location: Birmingham, Alabama

Partner(s): FHWA, Alabama DOT, Birmingham-Jefferson County Transit Authority, Birmingham Regional Planning Commission, Jefferson County, Shelby County, City of Hoover

Start Date: September 2000

End Date: February 2004

Estimated Total ITS Funds: \$800,000

Estimated Total Project Cost: \$1,000,000

Contacts:

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Lewis Harden	FHWA Alabama Division, HDA-AL	(334) 223-7390 230
Bob Kratzer	Alabama DOT	(334) 242-6253



MONTGOMERY, ALABAMA INTELLIGENT TRANSPORTATION SYSTEM

Description:

The principal objective of this FY 1999 ITS Integration Program project was the creation of a communications infrastructure to help integrate the highway, emergency services, and transit agencies in the Montgomery area. The project intended to intergate CCTV cameras, vehicle detection system capabilities, dynamic message sign control software, advanced traffic signal control, incident/congestion tracking and management and GPS for transit on demand vehicles.

This project laid the foundation for the phased development of the Montgomery area ITS system, whose key components are:

1. Providing communications links to all stakeholders via a fiber optic network.
2. Providing real time information on congestion and incidents to stakeholders. This will require software to "flag" incidents and provide a graphic illustration of congestion levels throughout the Montgomery system.
3. Managing incidents through improved response times and efficiencies. An incident response/diversion plan will be developed with input from all primary stakeholders.
4. More efficiently managing the demand responsive transit system in place in Montgomery. Use of the incident/congestion information and GPS for transit vehicle location is proposed.

Project Location: Montgomery, Alabama

Partner(s): FHWA, Alabama DOT, City of Montgomery

Start Date: September 1999

End Date: March 2005

Estimated Total ITS Funds: \$989,337

Estimated Total Project Cost: \$2,780,700

Contacts:

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INTEGRATED GIS TRANSPORTATION NETWORK

Description:

This project was the FY 2002 ITS Integration program earmark for the Municipality of Anchorage (MOA). Funding for this project was approved in September 2003. This software integration project created a Geographic Information System (GIS)-based Transportation network called "Roadnet." The project is the roads component for MOA's Land Information System which will ultimately provide multiple layers of surface transportation system data in a single source database accessible to transportation system managers, emergency service providers, law enforcement agencies, emergency management authorities, maintenance operators and traveler information service providers.

The project provides a data model and an accurate road network geodatabase that can be used by ADOT, made available to other jurisdictions and the private sector as a tool supporting ITS deployment and integration. Among the agencies whose GIS needs are addressed by this project are:

- Public Transportation Department.
- Traffic Department.
- Fire and Police Departments.
- MOA street maintenance.
- The Alaska Railroad Corporation, and
- The Information Technology Department.

Project Location: Anchorage, Alaska

Partner(s): FHWA, Alaska DOT&PF, Municipality of Anchorage, Alaska Railroad Corporation

Start Date: September 2003

End Date: September 2005

**Estimated Total
ITS Funds:** \$158,000

**Estimated Total
Project Cost:** \$316,000

Contacts:

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Jill Sullivan	Alaska DOT	(907) 465-8592
Vivian Underwood	Municipality of Anchorage Traffic Department	(907) 343-7995
Charles Barnwell	Municipality of Anchorage Information Technology Dept.	(907) 343-6813



MUNICIPALITY OF ANCHORAGE ITS ARCHITECTURE

Description: This project is the Municipality of Anchorage (MOA) FY 2001 ITS Integration Program earmark. The MOA regional ITS architecture includes: Support Services, Outreach, Needs Assessment, Long Range Vision and a Concept of Operations. The regional ITS architecture associates systems and information flows; makes communications recommendations; and defines an institutional information-sharing plan.

Project Location: Anchorage, Alaska

Partner(s): FHWA, FTA, Alaska DOT&PF, Municipality of Anchorage

Start Date: May 2002

End Date: August 2005

**Estimated Total
ITS Funds:** \$50,000

**Estimated Total
Project Cost:** \$100,000

Contacts:

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Jeff Ottesen	ADOT&PF	(907) 465-6971



OAKLAND ITS AND PUBLIC SAFETY INTEGRATION PROGRAM

Description: This project was the FY 2000 ITS Integration Program earmark for Oakland, CA, funding for which was obligated in September 2001. The project objective was to integrate the transportation management capabilities of the San Pablo Avenue Smart Corridor project with the City of Oakland's Emergency Management Center functions.

The San Pablo Avenue Smart Corridor Project includes implementation of advanced transportation management functions for participating agencies to improve management of traffic conditions along the San Pablo Avenue and Highway 80 Corridor. The San Pablo Corridor received federal funding for deployment of field sensors to monitor traffic and to provide real-time traveler information. These devices were complemented with the implementation of a data and video exchange system. The project integrated the transportation management and field devices of the San Pablo Corridor with the City of Oakland's Signal Control System and Emergency Management Center. In addition to integrating transportation management and traveler information systems with the public safety system, the project also integrated the regional Advanced Traveler Information System (TravInfo) to disseminate traveler information through kiosks and the Internet.

Project Location: Oakland, California

Partner(s): FHWA, City of Oakland

Start Date: September 2001

End Date: December 2004

Estimated Total ITS Funds: \$393,000

Estimated Total Project Cost: \$790,000

Contacts:

Frank Cechini	FHWA California Division, HTA-CA	(914) 498-5005
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I-880/SR 17 SMART CORRIDOR IMPROVEMENTS-SILICON VALLEY, CALIFORNIA

Description:

A Concept of Operations has been developed for the I-880/SR 17 corridor for Santa Clara County through the Silicon Valley Smart Corridor project effort. The I-880/SR 17 corridor extends from the City of Milpitas in the north to the Town of Los Gatos in the south, a corridor having an end-to-end length of about 15 miles. The I-880/SR 17 Smart Corridor Improvements project consists of elements that support integration and information sharing among and across ITS subsystems. One component of this project was to provide an upgrade of the existing data exchange network (DEN) to comply with the National Transportation Communications for ITS Protocol (NTCIP) center-to-center (C2C) communications protocol. This upgrade and others are consistent with the national ITS architecture and standards. It is expected that these improvements will facilitate future integrations with transit, future efforts to provide more travel information to the public and portability of the system to system communications software to other jurisdictions both in the County and elsewhere.

The FY 99 Integration Program funding was used to integrate advanced technologies and real-time system management techniques, including closed circuit television, message signs and coordinated signal timings. These technologies improve the traffic management capabilities on freeways, arterials and transit operations within the corridor.

Project Location: Santa Clara County, California

Partner(s): Cities of Campbell, San Jose, Milpitas, Santa Clara, Fremont; Santa Clara County; Town of Los Gatos; Santa Clara Valley Transportation Authority (VTA); Caltrans, California Highway Patrol; Alameda County Congestion Management Agency

Start Date: September 1999

End Date: March 2005

Estimated Total ITS Funds: \$1,187,204

Estimated Total Project Cost: \$4,166,755

Contacts:

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Casey Emoto	Santa Clara Valley Transportation Authority	(408) 321-5564



PUEBLO GATEWAY INTERCHANGE FREEWAY MANAGEMENT SYSTEM

Description:

This project constitutes the FY 2000 Earmark for Pueblo, CO. Historically, construction activities, weather conditions, daily commutes, and traffic accidents cause congestion and hinder the movement of traffic at and around the Gateway Interchange. The heavy congestion has also contributed to an accident and injury rate that is double the national average for traffic areas of this type. ITS applications have been shown to be effective in reducing congestion and enhancing safety like those experienced around Pueblo's Gateway Interchange, which is located at the intersections of I-25, US 50, and SH47.

This is a multi-phased project that sought to implement Freeway and Incident Management enhancements along the I-25 State Highway 47 interchange (Gateway Interchange) in Pueblo. Goals of the Freeway Management System were to:

- Improve traffic safety and operations.
- Facilitate incident management and traveler mobility.
- Enhance economic growth.
- Facilitate future ITS applications.
- Coordinate existing information systems such as RWIS, traffic counting systems, etc.
- Collect and process traffic and system data to support operations and planning.

These goals were pursued through achievement of objectives enabled by ITS applications. Deployment and/or integration of ITS applications are summarized as follows:

- Dynamic message signing to improve driver information for both incident management and route guidance to special events.
- Traffic signal coordination to reduce delay times.
- Loop detectors, video image detection and closed circuit television to provide information to assist in incident detection and response.
- Information sharing across regional boundaries and statewide ITS sections to assist in traffic management and planning.
- Information sharing among agencies (police, fire, and ambulance services) to reduce response times.

This project implements phase two, which includes incident detection and closed circuit TV sites along I-25, an additional dynamic message sign for eastbound traffic along highway 50 and a communications and control system to enable full time monitoring, control and surveillance of the corridor.

Project Location: Pueblo, Colorado

Partner(s): FHWA; Colorado DOT; Colorado State Patrol; City of Pueblo, CO

Start Date: September 2000

End Date: July 2005



**Estimated Total
ITS Funds:** \$786,421

**Estimated Total
Project Cost:** \$1,179,631

Contacts:

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Terry Shippy	Colorado DOT	(719) 546-5734
Greg Severance	City of Pueblo, CO	(719) 545-5480



INTEGRATE ITS IN VOLUSIA

Description:

This project was the FY 1999 ITS Integration Program earmark for Volusia County, Florida. The project consisted of six unique subprojects planned for completion over a two-year period. The component subprojects were known as: Volusia County ITS Architecture; Integration of FDOT, Volusia County and Daytona Beach Video Systems; Dissemination of Video to Other Entities; Internet Web Site; Highway Advisory Radio, and Evaluation. The results of these unique, yet integrated projects were: reduced congestion at special/tourist events, improved vehicle routing/diversion, improved access to tourist areas and tourist information, and enhanced regional traveler information.

The architecture allocated transportation system information collection and dissemination resources and agency responsibilities. Integration of FDOT, Volusia and Daytona Beach Video Systems allowed each of the agencies to view the others' cameras. Dissemination of Video to Other Entities provided video feeds from existing CCTV cameras to federal, state and local entities thereby enhancing dissemination of traffic information. The Internet Web site created a database in a single location with traffic, weather and incident information easily accessible by entities at all levels of government. The Highway Advisory Radio subproject provided significant enhancement of radio coverage to inform visitors about congestion at special events and recommend diversions. The Evaluation subproject measured public acceptance and utilization of the integrated ITS services. The final evaluation report is titled "An Evaluation of Shared Video Integration in Volusia County."

Project Location: Volusia County, Florida

Partner(s): FHWA, Florida DOT, City of Daytona Beach, Volusia County, Volusia County Transit, Traveler Information Radio Network (TIRN), Daytona Beach Visitors Bureau

Start Date: September 2000

End Date: January 2003

**Estimated Total
ITS Funds:** \$791,470

**Estimated Total
Project Cost:** \$5,628,740

Contacts:

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Jennifer Heller	Florida DOT	(386) 943-5309	



ATLANTA, GEORGIA ITS COMPONENT INTEGRATION - PHASE I

Description:

This project integrated transit and public safety components with other transportation management or real-time, multi-modal traveler information systems through an implementation of center-to-center communications protocol. The project evaluated Common Object Request Broker Architecture (CORBA) as the preferred interface between centers.

In metropolitan areas, TEA-21 states that ITS Integration funding shall be used primarily for activities necessary to integrate intelligent transportation infrastructure elements that are either already deployed, or will be deployed with other sources of funds. The project was an extension of the significant investment that all involved agencies have made in ITS deployment. Funded as a FY 99 earmark, initial stages of project activity began in January 2000.

Project Location: Atlanta, Georgia

Partner(s): Georgia DOT; City of Atlanta; Metropolitan Atlanta Rapid Transit Authority

Start Date: September 1999

End Date: September 2003

**Estimated Total
ITS Funds:** \$1,582,939

**Estimated Total
Project Cost:** \$3,172,878

Contacts:

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Carla Holmes	Georgia DOT	(404) 635-8038



STATE OF IDAHO ITS INTEGRATION

Description: This FY 1999 ITS Integration Program project sought to implement Stage 2 of a Regional (Treasure Valley) ITS Plan with the following objectives:

- Development of a design for a real-time data collection, integration, and communications system that includes sensors strategically placed on the Treasure Valley freeway and arterial systems.
- Development of a decision support system and database that integrates real-time traffic data.
- Development of a virtual traffic management center to be used to monitor traffic flow in Treasure Valley and that can be used to train new engineers and technicians who will operate 21st century transportation systems.

Project Location: Treasure Valley, Idaho

Partner(s): Idaho DOT, Ada County Highway District, Ada Planning Association, University of Idaho, Boise State University

Start Date: September 1999

End Date: March 2005

Estimated Total ITS Funds: \$441,000

Estimated Total Project Cost: \$1,082,970

Contacts:

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Jim Larsen	Ada County Highway District	(208) 387-6196	



STATEWIDE RWIS IMPLEMENTATION AND INTEGRATION PROJECT

Description: This project is a component of the FY 2000 State of Idaho Earmark. The project will install roadway weather information systems (RWIS) at key locations around Idaho. A related objective is to design a plan to integrate Idaho Transportation Department RWIS sites with other weather sites owned by the National Weather Service, the Idaho National Engineering and Environmental Laboratory and with adjoining states' RWIS.

Project Location: State of Idaho

Partner(s): FHWA, Idaho Transportation Department, Montana DOT, Idaho State Police

Start Date: September 2000

End Date: March 2005

Estimated Total ITS Funds: \$396,421

Estimated Total Project Cost: \$792,842

Contacts:

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Byron Breen	Idaho Transportation Department	(208) 334-8417	



LAKE COUNTY TRAFFIC MANAGEMENT CENTER FEASIBILITY STUDY AND IMPLEMENTATION PLAN

Description:

This was a discretionary project of the FY2001 ITS Deployment Program for Lake County, Illinois.

GOALS AND OBJECTIVES

The primary goal of this project was to improve mobility. This was accomplished with the completion of a systems engineering analysis and implementation plan for the development of a countywide Traffic Management Center (TMC) for Lake County. The systems engineering analysis identified the major items necessary to determine the most appropriate alternative(s) in selecting a traffic management system/subsystems that address both short and long term transportation needs in Lake County. This systems engineering process enabled the design of the entire Lake County traffic management system, individual components of the system, and/or individual elements within each of the components.

SCOPE OF WORK

This project included a feasibility study that contains several stages:

(1) A traffic signal inventory of all signals in Lake County, both existing and proposed for all jurisdictions.

(2) Examining the various ways to integrate the traffic signal operations, expanding the existing closed loop signal systems located in Lake County, identifying possible smart corridors within the county, integrating the various systems located within the county together, transit priority, emergency services preemption, and rail grade crossing improvements. Priority will be given to traffic signals under Lake County jurisdiction.

(3) Evaluating Market Packages and technologies to determine the best alternatives to provide traffic signal control and to determine the most suitable alternatives for Lake County Division of Transportation.

(4) Integrating various Lake County Division of Transportation databases.

(5) Identifying for future integration, the capabilities of the Division of Transportation, Lake County Sheriff's Police and the Lake County Emergency Management Agency to implement a countywide incident management detection and response center.

(6) Examining the integration capabilities into the proposed Gateway Traveler Information System, which is being implemented by the Illinois Department of Transportation.

The second part of the project was an implementation plan of the Lake County Division of Transportation Traffic Management Center. This included the timetable for implementation, site design and equipment purchases.

Project Location: Lake County, Illinois

Partner(s): FHWA, Illinois DOT, Lake County Division of Transportation



Start Date: August 2001
End Date: February 2004

**Estimated Total
ITS Funds:** \$357,127
**Estimated Total
Project Cost:** \$714,254

Contacts:

Dean Mentjes	FHWA Illinois Division, HPP-IL	(217) 492-4631
David Zavatiero	Illinois DOT	(847) 705-4800
Anthony Khawaja	Lake County Division of Transportation	(847) 362-3950



NORTH CENTRAL ILLINOIS INTEGRATED TRAFFIC MANAGEMENT SYSTEMS

Description: This is a discretionary project of the FY2001 ITS Integration Program for the State of Illinois.

GOALS AND OBJECTIVES

The primary goal of this project was to improve mobility. This was accomplished with installation of two (2) dynamic message signs (DMS) and integration of the sign operations with multiple systems already in place or currently in preliminary or final engineering stages. This project built on the regional ITS architecture currently under development in the Rockford, Beloit, and Janesville area. A project level ITS architecture may not be necessary, however, this project is consistent with the regional architecture that is currently being developed through a partnership between IDOT and the Wisconsin Department of Transportation.

SCOPE OF WORK

This project includes the deployment and integration of dynamic message signs in North Central Illinois as an initial component of the regional integrated traffic management system. The project is the first in a series of DMS in North Central Illinois. One of the DMS will be deployed in the area of I-39/I-88 interchange. The second DMS was deployed in the Rockford metropolitan area.

In addition to funding infrastructure expenses associated with the DMS, this work order funds sign software, workstations, and hardware/software to support project integration. The work order also funds system design and development and communication costs as part of the integration effort.

Project Location: Winnebago County (I-39), Illinois

Partner(s): FHWA, Illinois DOT, Illinois State Toll Authority, Wisconsin DOT

Start Date: March 2002

End Date: April 2005

**Estimated Total
ITS Funds:** \$260,000

**Estimated Total
Project Cost:** \$520,000

Contacts:

Dean Mentjes	FHWA Illinois Division, HPP-IL	(217) 492-4631
Dave Zavattero	Illinois DOT	(847) 705-4800
Kevin Marchek	Illinois DOT, District 2	(815) 284-5395



FITCHBURG, MASSACHUSETTS-MONTACHUSETT REGIONAL TRANSIT AUTHORITY ITS INTEGRATION

Description:

The principal objective of the Montachusett Regional Transit Authority (MART) ITS Integration Program was to enhance and expand transportation and transit mobility throughout the MART service area and beyond. In order to achieve this objective, MART used existing services offered by MART in urban and rural areas to provide enhancements to existing transit services, traveler information systems and newly developed ITS projects.

The main focus of the project was the use of computerized systems to enhance management and deployment of demand responsive and fixed route services. This project used the existing vehicle fleet and transit management system for fixed route, paratransit and demand responsive dispatching. The new initiatives pursued include design and implementation of a Global Positioning System-based Automated Vehicle Locating System complemented by Geographic Information System mapping for real-time dispatching and management.

A second feature of the project was the implementation of a traveler information system using transit vehicles as probes. Through establishment of information exchange mechanisms between local and state government agencies and the media, MART served as a public information center supported by Web sites and toll free telephone services.

Project Location:

Fitchburg, Massachusetts-Montachusett Area

Partner(s):

Massachusetts Highway Department, Montachusett Regional Transit Authority (MART), Montachusett Regional Planning Agency, Massachusetts Bay Transit Authority

Start Date:

September 1999

End Date:

October 2003

Estimated Total ITS Funds:

\$395,735

Estimated Total Project Cost:

\$791,470

Contacts:

William Wiggins	FTA Headquarters, TRI-11	(202) 366-0255	
Mohammed Khan	MART	(978) 345-7711	2223



SMALL BUSINESS INNOVATIVE RESEARCH (SBIR) INTEGRATED DISPLAY SUPPORT

Description: The purpose of this project was to coordinate the Federal Transit Administration Small Business Innovative Research Integrated Forward and Side Collision Warning Display project with Intelligent Vehicle Initiative program's transit integrated forward and side collision warning project.

Project Location: Waltham, Massachusetts

Contractor(s): Foster Miller

Start Date: June 2002

End Date: March 2003

**Estimated Total
ITS Funds:** \$40,000

**Estimated Total
Project Cost:** \$40,000

Contacts:

Brian Cronin

FTA Headquarters, TRI-11

(202) 366-8841



CALHOUN COUNTY I-69 AND I-94 INTERCHANGE SIGNING PROJECT

Description:

This project was the FY 2001 ITS Integration Program earmark for Calhoun County, Michigan. Project funding was approved in September 2002. The project was ultimately designed to provide traveler information to users of rural segments of highways I-69 and I-94 which support heavy volumes of traffic with destinations in Toronto, Montreal and Atlantic Ocean harbors. When implemented, this project's traveler information system was intended to provide drivers information about existing and potential delays at the Detroit/Windsor and Port Huron/Sarnia crossing points. The system was designed to process urban traffic status information and communicate it to drivers in a rural area. Thus, this project would have link metropolitan and rural areas through the application of ITS technology which facilitates route selections designed to minimize travel time delay. Phase I of this project was a study to determine infrastructure components to be deployed.

Project planning was terminated in early calendar year 2003, and Federal funding was de-allocated in April 2004. The FY 2001 funds designed for the project have been reallocated to a project titled "The Michigan Department of Transportation Southwest Regional Architecture and Deployment Plan for Intelligent transportation Systems" that is scheduled to begin in the first half of CY 2006.

Project Location: Calhoun County, Michigan

Partner(s): FHWA, Michigan DOT, Calhoun County Community Development

Start Date: September 2002

End Date: April 2004

**Estimated Total
ITS Funds:** \$595,211

**Estimated Total
Project Cost:** \$1,190,422

Contacts:

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David Van Stensel	MDOT-Southwest Region	(269)-337-3967



OAKLAND COUNTY, MICHIGAN - SOUTHEAST MICHIGAN SNOW AND ICE MANAGEMENT (SEMSIM)

Description:

The Southeastern Michigan Snow and Ice Management (SEMSIM) project is a collaboration between the Road Commission for Oakland County, Wayne County, The Road Commission for Macomb County, and the City of Detroit. Additionally, the Suburban Mobility Authority for Regional Transportation (SMART) is a partner in the project, and the University of Michigan Intelligent Transportation Systems Research Center of Excellence is the project facilitator. SEMSIM enhances the management of winter road maintenance in Southeast Michigan through cross-jurisdictional cooperation and the application of state-of-the-art technology. The SEMSIM project was a unique integration of automated vehicle location (AVL) using the global positioning system (GPS), geographic information systems (GIS), and communications technologies designed specifically to enhance the efficiency and effectiveness of winter maintenance operations in urban, suburban, and rural areas. The ultimate result is minimizing the amount of time which roads are hazardous thereby improving roadway safety. Improved mobility and reduced congestion are results of roadways which return to maximum capacity quicker by including software displaying road network status, vehicle status, and meteorological data in real time.

The project integrated existing, or soon to be deployed, ITS infrastructure components. The backbone of this project is the communications between the maintenance vehicles and the central computers. Maintenance trucks were equipped with sensors that integrate data such as: plow position; salt on/off with spreading rate; pavement and air temperature; vehicle location and speed.

This project is phased. Phase I was begun in October 1998 and was completed in July 2001. Phase I was evaluated and a report issued in June 2000. Before beginning the next phase, the contractor met with the subcommittees established by the partner agencies to define future direction. After negotiations, a combined Phase II and III contract was signed in June 2001. In this phase, an additional 290 vehicles were outfitted by June 2002. A significant facet of the next phase is that vehicle data will be distributed to the partner agencies over the Internet, through a browser-based system. In-vehicle hardware and sensors will be improved, as well as the software. Currently the communications network is being upgraded, with the vehicle hardware installation scheduled to start in December of 2002.

Project Location: Oakland Co., Wayne Co., Macomb Co., City of Detroit, Michigan

Partner(s): FHWA, Michigan DOT; Road Commission for Oakland County (RCOC); Wayne County, MI; Road Commission for Macomb County, MI; City of Detroit, MI; Suburban Mobility Authority for Regional Transportation; Univ. of Michigan ITS Research Center of Excellence

Start Date: September 1998

End Date: July 2004



**Estimated Total
ITS Funds:** \$4,300,733

**Estimated Total
Project Cost:** \$8,187,829

Contacts:

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Mark Bush	Michigan DOT	(517) 335-2224
Dennis Kolar	Road Commission for Oakland County	(248) 858-4718



SPRINGFIELD, MISSOURI REGION ITS PLANNING DOCUMENT

Description:

The objective of this project was the development of a comprehensive Springfield Region ITS Planning Document. Though the rural ITS effort embraced the traffic challenges in the entire region, the emphasis of this planning document was to address the challenges in the Springfield urban area. Being the regional focal point for services for this region, the Springfield urban area experiences a heavy influx of traffic from rapidly growing surrounding communities. This document contains the following elements:

- The identification of current ITS initiatives in the region;
- The identification of transportation stakeholders' needs through local focus group workshops - Transit, Emergency Services (Police, Fire and Ambulance), Commercial Vehicle Operations, Major Event Facilities (University/Colleges, Fairground, Bass Pro, etc.) and Intermodal Activities (Rail - Freight - Airport);
- The development of a Planning Guide that bridges current ITS activities (legacy system) to a future regional system that follows the National ITS Architecture and standards and meets regional transportation needs; and
- The identification of benefits that will support local, state and federal funding appropriations to enhance the regional transportation system.

The phase of this project funded by the earmark was completed on 6/30/2000. Remaining phases were completed with other funding.

Project Location: Springfield, Missouri

Partner(s): Missouri DOT, City of Springfield

Start Date: September 1999

End Date: June 2003

**Estimated Total
ITS Funds:** \$45,735

**Estimated Total
Project Cost:** \$150,000

Contacts:

Mary Ridgeway	FHWA Missouri Division, HDA-MO	(573) 638-2616
Matt Seiler	Missouri DOT	(417) 895-7627



GREATER YELLOWSTONE REGIONAL TRAVELER AND WEATHER INFORMATION SYSTEM

Description:

This project was the FY 2000 ITS Integration Program earmark for Yellowstone Park, MT. The Greater Yellowstone Regional Traveler and Weather Information System project sought to expand, coordinate and integrate two existing technologies to create a five-state in-vehicle advanced traveler information system. This project integrated the #SAFE system which provides weather forecasts and road condition reports to in-vehicle devices using wireless communications with the SAFE-PASSAGE pavement temperature model. SAFE-PASSAGE is capable of predicting pavement temperatures thus predicting water freezing, melting and refreezing points.

The #SAFE project was initiated in 1995 to develop and demonstrate the utility of an en-route traveler weather information system in an effort to create safer transportation in the states of North Dakota, South Dakota, and Minnesota. The #SAFE project is currently the nation's only rural operational in-vehicle road/weather condition system. The system was designed to provide travelers with in-vehicle road conditions and weather forecasts for site-specific decision making during a multi-region trip.

This #SAFE system gives weather conditions for traveling roadway. However it does not predict pavement conditions. Beyond visibility, pavement conditions are of utmost importance to the driver. Consequently, the SAFE-PASSAGE computer pavement model is needed. In 1997, the Western Transportation Institute (WTI), in conjunction with the Montana Department of Transportation, began the SAFE-PASSAGE project. This project used ITS technologies to improve the safety of the Bozeman Pass. The Pass is located on Interstate-90 between Bozeman and Livingston, Montana. The geometry of the road and the harsh weather of the area led to a high number of accidents.

As part of this project, researchers at WTI developed a computer pavement temperature model. This model can predict the temperature of the pavement, independent of any in-pavement monitoring sites. Knowing the temperature, it can interpolate when water on the road will freeze, melt, and re-freeze, and at what rate. The resulting information is precise to the lane and mile-marker. This model relies on three programs that independently calculate pavement temperatures based on the three following variables.

1. Temperature: based on a calculated solar and terrain radiation as well as specified initial temperatures and variations in wind velocity, humidity, and cloud cover.
2. Wind: based on initial conditions taken from RWIS and regional wind models.
3. Snow-Ice metamorphism: based on surface temperatures resulting from specified changes in heat flux.

This model was originally designed for DOT maintenance personnel. A computer in the district office alerts maintenance dispatchers of ice ahead of time. It also dictates specifically where anti-icing measures should be employed. This predictive capability leads to increased safety of the road and efficient use of DOT resources.

This integration project fused the two road-weather information systems. Each system provides one aspect of what the traveler wants to know. The #SAFE project describes the weather conditions over a section of road. The SAFE-PASSAGE model depicts and forecasts the conditions of the pavement itself. The two systems complement each other, and thus should be integrated to provide more accurate and more complete information for the traveler. A 511 capability for travelers seeking road and weather information was



incorporated. A final evaluation report was submitted to FHWA in December 2003.

Project Location: Montana, Idaho, Wyoming, Yellowstone National Park, Grand Teton National Park

Partner(s): FHWA, Western Transportation Institute-MT State University; MTDOT; ID Transportation Dept.; WYDOT; University of ND; Swiss Avalanche Institute; Meridian Environmental Technology Inc.; Thermo Analytics

Start Date: September 2000

End Date: December 2003

Estimated Total ITS Funds: \$786,421

Estimated Total Project Cost: \$2,764,421

Contacts:

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Mike Bousliman	Montana DOT	(406) 444-6159	
Steve Albert	Western Transportation Institute-MT State Univ.	(406) 994-6114	



STATE OF MONTANA

Description: This project is the FY 2001 ITS Integration Program earmark for the State of Montana. The project's purpose was to develop a shared public roads transportation information systems framework capable of ultimately supporting a wide variety of transportation-related applications. The project advances user access to digital, geographic ground transportation databases. The project will use the Global Positioning System to collect information about the location of all public roads. Upon completion of this activity, a statewide, geographic information systems for transportation (GIS-T) was established. A pilot project demonstrated an automatic vehicle location (AVL) capability that utilizes a subset of the GIS-T framework.

Project Location: Montana

Partner(s): FHWA, Montana DOT, Montana Association of Counties, Montana Interagency Technical Working Group, Subcommittee on Transportation

Start Date: April 2002

End Date: August 2005

Estimated Total ITS Funds: \$596,000

Estimated Total Project Cost: \$1,191,000

Contacts:

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Mike Randall	Montana DOT	(406) 444-6319	



NEVADA ARCHIVED DATA SUBSYSTEM COMPONENT OF LAS VEGAS AREA FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION

Description: This project conducted a detailed design of an archived data subsystem to be integrated with the Las Vegas Area Freeway and Arterial System of Transportation (FAST). The archived data design provided the capability to receive, collect, retain and distribute data generated by ITS for use in other transportation activities by all stakeholders in the region. FAST is a multimodal, multi-jurisdictional integrated traffic management and traveler information system. Initially, the FAST system will include the following user services: Traffic Control; Incident Management; En-route Driver Information; Pre-trip Traveler Information and the Archived Data User Service (ADUS) to be implemented in this project. Major components of the ADUS include: data processing, data storage, data retrieval, and implementation of privacy procedures.

Project Location: Las Vegas Area

Partner(s): Nevada DOT; Regional Transportation Commission; Clark County; Cities of North Las Vegas, Las Vegas, and Henderson

Start Date: September 1999

End Date: October 2000

Estimated Total ITS Funds: \$105,095

Estimated Total Project Cost: \$225,000

Contacts:

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D. Keith Maki	Nevada DOT	(775) 888-7446



STATE OF NEW MEXICO STATEWIDE ITS ARCHITECTURE

Description:

The purpose of this project was to develop a Statewide ITS Architecture which will integrate metropolitan, multimodal and rural ITS components. Statewide and metropolitan planning activities considered an array of actions and investments that improve the networks' overall capabilities; consider regional operations and management strategies; include ITS services and development of a regional ITS architecture; engage a wide array of stakeholders to ensure a broad range of integration opportunities; and incorporate ITS into the Statewide transportation planning process.

The development of a Statewide Architecture is intended to achieve the following goals and objectives:

1. Identification of a broad range of stakeholders by addressing individual and common needs to achieve integration and information sharing;
2. Identification of transportation needs addressed by ITS through operational and management strategies to meet the goals and needs while minimizing risks and costs of integration;
3. Description of existing and planned ITS enhancements to aid in adding value to legacy systems and support interoperability with planned systems, thereby improving the operations and management of the transportation system;
4. Definition of operating requirements to develop operational agreements across state, physical and institutional boundaries;
5. Identification of planned capital projects to determine which ITS project can be implemented into the construction;
6. Development of a phasing schedule to enable deployment of integrated components over time;
7. Development of regional technology agreements and partnership arrangements among state and local agencies and entities and encouraging public/private partnerships;
8. Identification of planned improvements for inclusion of ITS projects into the Statewide Transportation Improvement Program (STIP), Transportation Improvement Programs (TIPS) and/or Commercial Vehicle Safety Plan.

Project Location: State of New Mexico

Partner(s): New Mexico State Highway and Transportation Dept.; City of Albuquerque Transit; Public Works and Environmental Health Dept.; Bernalillo County Dept. of Public Works; City of Rio Rancho Public Works Dept.; Sandoval County; Middle Rio Grande Council of Governments; University of New Mexico

Start Date: September 1999

End Date: October 2000



**Estimated Total
ITS Funds:** \$50,000

**Estimated Total
Project Cost:** \$100,000

Contacts:

Joe Maestas

FHWA New Mexico Division, HDA-NM

(505) 820-2026



CARGO*MATE LOGISTICS INFORMATION MANAGEMENT SYSTEM (LIMS) ITS DEPLOYMENT PROGRAM

Description:

This project is a component of the States of New Jersey and New York FY 2000 Earmark. The objective of this project was to migrate and deploy an enhanced Cargo*Mate Logistics Information Management System which tracks intermodal assets at tenant facilities and port terminals in the Port of New York and New Jersey. The system interfaces directly with infrastructure elements managing freight, providing traveler information and emergency information. The project was extended and accelerated by the FY 2001 ITS Integration Program earmark for the Port Authority of New York and New Jersey. Activities initiated under the first earmark resulted in deployment of 250 Cargo*Mate Chassis Tracking Systems, 200 on over-the-road chassis and 50 on rail chassis. The system obtains location and status data from sensors affixed to intermodal chassis, fuses the data at Cargo*Mate Operations Center and translates these data into useful business information provided to customers over the Internet. The FY 01 earmark extended the operational concept by providing interfaces between Cargo*Mate and the PA NY/NJ's Freight Information Real-time System for Transport and the Operation Respond Emergency Information System to ensure ITS program benefits in both the private and public sector.

The project has been subsequently expanded and extended by FY 2002 ITS Integration Program earmarked funding. FY 2002 funding supported enhancement of Cargo*Mate to provide container and cargo security through the addition of RF energy ID tags, and readers/signposts that will provide container identification and seal security, as well as highly accurate position information for Hazmat cargo and high value cargo. The enhanced Cargo*Mate will have the capability of providing accurate location data enabling first responders to improve incident management. The enhanced Cargo*Mate has the capability of providing accurate location data enabling first responders to improve incident management. The enhanced Cargo*Mate system functions as an off-the-shelf communications platform to track intermodal chassis, and enables real-time communications with and reading of in-transit containers that will be deployed and demonstrated from port terminals and facilities in and around the Port of New York and New Jersey; Oakland, CA; Houston, TX; New Orleans, LA; Long Beach, CA; Seattle, WA; Memphis, TN; and Chicago, IL.

Project Location: Port of New York and New Jersey

Partner(s): TRANSCOM, Port Authority of New York and New Jersey, PAR Logistics Management Systems, Operation Respond Institute

Start Date: September 2000

End Date: February 2005

Estimated Total ITS Funds: \$3,202,692

Estimated Total Project Cost: \$6,438,994



Contacts:

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John Mohler	PAR Logistics Mgmt. Sys.	(703) 567-5103	
Greg Talomie	PAR Logistics Mgmt. Sys.	(315) 738-0600	Ext. 269



ONONDAGA COUNTY, NEW YORK

Description: This project was the FY 1999 ITS Integration Program earmark for Onondaga County, New York. Federal funding was obligated at the end of FY 2001. Phase I of this project enables 911 location data to be received at the Onondaga County 911 center.

This project produced a final report titled "New York State - Wireless Enhanced 911 Project: Lessons Learned."

Project Location: Onondaga County, New York

Partner(s): New York State DOT, Onondaga County Department of Emergency Communications, Upstate Medical University

Start Date: September 2001

End Date: February 2004

**Estimated Total
ITS Funds:** \$316,580

**Estimated Total
Project Cost:** \$2,100,000

Contacts:

Jerry Zell	FHWA New York Division, HTS-NY	(518) 431-4125	228
Jay Scott	Upstate Medical University	(315) 464-4365	
Kathy McMahon-Ruscitto	Onondaga County 911	(315) 435-8628	



RURAL ITS SWISS ARMY KNIFE TRAILER

Description:

Many rural locations lack a core set of permanently installed transportation management equipment components. Variable message signs, highway advisory radio, traffic control devices, communications media and speed detection devices are examples of components needed under circumstances, but not permanently deployed, in rural areas. This project will develop a set of compatible Swiss Army Knife (SAK) trailers as multi-purpose devices capable of supporting a broad range of applications as required. The intent of the SAK trailer is to provide a full complement of core equipment components in a single package to support: work zone management; special event management; incident management; natural disaster management; and traffic data collection.

Components visualized on the self-contained trailer include: a variable message sign; highway advisory radio; a portable traffic signal; weather sensor; radar speed detection; video surveillance; wireless communications; flood lights; and a power source.

As of February 10, 2005 this project has been withdrawn from the ITS Deployment Program. HQ, FHWA has de-allocated ITS funding, and all project activity has been terminated. This project will not produce any self-evaluation products.

Project Location:

New York State-Variou Rural and Small Urban Areas

Partner(s):

New York State DOT, Local Government and Public Safety Agencies in various communities

Start Date:

September 1999

End Date:

March 2005

Estimated Total ITS Funds:

\$248,823

Estimated Total Project Cost:

\$500,000

Contacts:

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CLEVELAND, OHIO TRANSPORTATION MANAGEMENT AND INTEGRATED COMMUNICATIONS CENTER

Description:

This project was the FY 1999 ITS Integration Program earmark for Cleveland, OH. Funding was obligated in January 2001. The Greater Cleveland Regional Transit Authority (GCRTA) planned to implement a passenger counter system. The system which integrates a communications system with a computer network would have enabled real-time monitoring of ridership trends from a central location as well as gathering information, on a regular basis, to support more efficient use of resources without incurring added labor costs. The system was intended to enable data gathering on stop-by-stop level of detail.

The following capabilities were anticipated from this system integration effort include:

- The ability to provide real-time ridership monitoring on at least 20% of GCRTA service at all times.
- Passenger overloads in schedule service and for special events can be monitored, and managed with rapid response strategies.
- Special event management will be streamlined through "instant replay" of events as they occur.
- Improved scheduling of resources, and elimination of the maintenance of unnecessary service levels.

This project was not approved for state matching funds, and has been terminated with no further activity planned as of December 2005

Project Location: Cleveland, Ohio

Partner(s): FTA, Ohio DOT, Greater Cleveland Regional Transit Authority (GCRTA), Cuyahoga County

Start Date: January 2001

End Date: December 2005

Estimated Total ITS Funds: \$791,470

Estimated Total Project Cost: \$1,581,024

Contacts:

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Henning Eichler	Greater Cleveland Regional Transit Authority	(216) 566-5038



9-1-1 RDMT PROJECT INTEGRATION

Description:

This project originated as a component of the FY 2000 ITS Integration Program earmark for the State of Texas. The project was extended and augmented by a FY 2001 ITS Integration Program earmark. Funding figures and schedule data depicted reflect the addition of FY 2001 funds and revised scheduling. Several public safety and service agencies in the Austin/Travis County region are actively implementing the upgrade, replacement, and integration of crucial systems, facilities, and operations. These activities present a unique window of opportunity to integrate systems as changes are being made. The electronic exchange of information between systems will enhance existing public safety and service. This project is intended to supplement these existing ongoing efforts.

The FY 2000 project concentrates efforts on the integration, sharing of electronic voice, data, and video, of existing freeway corridor traffic management system, local traffic signal system, and local emergency services management systems. Local emergency management systems involved in this proposal include computer aided dispatch (CAD), mobile data computer (MDC), geographic information system (GIS), and automatic vehicle location (AVL). The technological systems presently involved in the 9-1-1 RDMT Project include 9-1-1 call handling, radio trunking, computer aided dispatch (CAD), mobile data computer (MDC) including Automatic Vehicle Location (AVL), and transportation and transit services (9-1-1 RDMT). Collectively, these 9-1-1 RDMT systems, including an integrated facility into which they can be installed, are essential to the delivery of emergency and transportation services in the Austin and Travis County region. As part of the 9-1-1 RDMT Project, each of these critical systems is in the process of being implemented in various stages and phases as part of a comprehensive planned review, design, specification, and upgrade process. The replacement of these critical systems and their ultimate incorporation into a shared regional emergency communications center capable of supporting these systems has substantially improved emergency service and transportation. The City of Austin and Travis County have established a multi-agency Incident Command System (ICS). The ICS is a management structure designed to optimize use of resources. The FY 2001 component of the project updated the ICS Operations Plan to integrate law enforcement, fire, emergency response, emergency medical services, and emergency management resources. By constructing a single, integrated facility that could potentially be shared with other public safety agencies in the Austin and Travis County region, agencies are able to maximize the efficiency and minimize the costs of integrated emergency and transportation services delivery for the citizens of the community.

The FY 2000 project completed a regional ITS architecture, and integrated the Austin/Travis County CAD system, and the City's traffic signal system with TxDOT's Advanced Traffic Management System (ATMS). Information generated by the ATMS is not currently disseminated adequately. The project agencies have designed a regional emergency communications and transportation management center. The FY 2001 project supported establishment of a traveler information service provider to operate in the center.

Project Location:

Travis County, Austin, Texas

Partner(s):

FHWA, Texas DOT, City of Austin Department of Public Works and Transportation

Start Date:

September 2000

End Date:

March 2004



**Estimated Total
ITS Funds:** \$578,035

**Estimated Total
Project Cost:** \$1,196,808

Contacts:

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Brian Burk	Texas DOT	(512) 832-7014



CORPUS CHRISTI, TEXAS, INTEGRATION OF INTELLIGENT TRANSPORTATION SYSTEMS

Description:

This project developed a Corpus Christi Regional ITS Architecture and Deployment Plan. It also established the base for an Intelligent Transportation System in the Corpus Christi Metropolitan Area. The project expanded/implemented traffic signal, freeway, emergency, transit, and special event management capabilities. The system implemented a mesh network topology with decentralized operations. All agencies involved in transportation and/or incident management participated.

Specific areas of focus for the project once the Regional ITS Architecture is developed, are the establishment of a fibre-based communication backbone and the expansion of the existing fibre network integrating other key operating agencies such as the Regional Transportation Authority; City of Corpus Christi Police Department; Fire Department, Street Department; Department of Public Safety and the Regional Terminal Fire Company; and establishment of a Traveler Information System on regional freeways. Major elements will be dynamic message signs, highway advisory radios and surveillance cameras.

Project Location: Corpus Christi, Texas

Partner(s): Texas DOT, Corpus Christi District; Texas Department of Safety; Texas DOT Traffic Operations Division; Nueces County, County of Nueces Emergency Management; City of Corpus Christi; City of Corpus Christi Emergency Mgt., MPO, Police Dept; Local Emergency Planning Committee; Regional Transportation Authority

Start Date: November 1999

End Date: June 2003

Estimated Total ITS Funds: \$712,323

Estimated Total Project Cost: \$1,425,000

Contacts:

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Ismael Soto	Texas DOT (Corpus Christi District)	(361) 808-2225
Janie Light	Texas DOT, TRF-TM	(512) 416-3258



DEL RIO, TEXAS INTEGRATION OF INTELLIGENT TRANSPORTATION SYSTEMS

Description:

This project developed an ITS Regional Architecture and ITS Deployment Plan for the Del Rio area to maximize integration of ITS infrastructure. The plan provided the outline of the phasing of tasks including, but not limited to the following:

- Establishment of a local point of ITS data centralization and two-way communication capabilities between the City of Laredo transportation management center (TMC) and the South Texas Regional Advisory Transportation Information System (STRATIS) TMC in Laredo, Texas.
- Strategic upgrades to STRATIS to facilitate regional integration between Del Rio and STRATIS.
- Implementation of integration strategies focused on incident management-particularly remote flood-sensing and signal preemption applications, and commercial vehicle operations.

Project Location: Del Rio, Texas

Partner(s): Texas DOT; Dept. of Treasury; U.S. Border Patrol; Val Verde County; Del Rio Chamber of Commerce Transportation; City of Del Rio

Start Date: December 1999

End Date: December 2004

Estimated Total ITS Funds: \$791,470

Estimated Total Project Cost: \$1,580,000

Contacts:

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Robert Rodriguez	TxDOT (Laredo District) Transportation Operations	(956) 712-7485
Alesin Gamboa	Traffic Operations - TM	(512) 416-2780



LAREDO, TEXAS, INTEGRATION OF INTELLIGENT TRANSPORTATION SYSTEMS

Description:

The City of Laredo, Texas is experiencing rapid population growth and increases in vehicle traffic. It is projected that in the year 2000, the Port of Laredo will handle approximately 21 million vehicles. This project sought to integrate a variety of ITS infrastructure components deployed in the Laredo area. The primary goal of the project was to accomplish as much integration and achieve as much system level functionality as possible within funding levels. Major project components included:

- Development of an ITS regional deployment plan and ITS regional architecture.
- Establishment of a fibre-based communications network connecting key operating agencies.
- Strategic upgrades to the South Texas Regional Advisory Transportation Information System enabling the area Transportation Management Center to function as a central repository and distribution point for transportation-related data, as well as to communicate with the Del Rio system.
- Development and installation of an automated traffic management system that provides single operator interface to video management and control systems, traffic monitoring and alarm systems, and motorist information systems such as dynamic message signs, lane control sign, highway advisory radios and communication management system.
- Development of systems monitoring and diagnostic routines to alert operators to actual or pending component failures and to allow operator remote diagnostic and troubleshooting capabilities--takes limited manpower resources into account.
- Design and implementation of a system that provides for sharing information between agencies with minimum of manual interface. Use of automated analysis and alarms to notify operators, develop scenario-based incident responses, and use outside local agency on evening and weekend operations.

Project Location:

Laredo, Texas

Partner(s):

Texas DOT, City of Laredo, Laredo Truckers Association, U.S. Border Patrol, Webb County

Start Date:

December 1999

End Date:

June 2004

Estimated Total ITS Funds:

\$791,470

Estimated Total Project Cost:

\$1,582,940

Contacts:

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Roberto Rodriguez	Texas DOT (Laredo District Office)	(956) 712-7485
Bernie Walker	Texas DOT, TRF-TM	(512) 416-3437



REGIONAL ITS ARCHITECTURE AND ITS DEPLOYMENT PLAN FOR THE BEAUMONT, TEXAS REGION

Description:

This project was the FY 2001 ITS Integration Program earmark for Beaumont, Texas. The project developed a Regional ITS Architecture and ITS Deployment Plan for the Beaumont region that borders Louisiana.

Traffic densities have increased substantially as a consequence of the development of recreational areas, the petrochemical industry, Gulf Coast ports, retail complexes and centers of education. Implementation of a regional architecture is expected to establish the foundation for deployment and integration of ITS technologies to alleviate congestion, increase throughput and enhance commercial vehicle safety. Related benefits envisioned include enhanced incident management and emergency management, including hurricane evacuation.

A broadly-based ITS Steering Committee was formed. The architecture development process considered transit, identified short-term ITS deployment opportunities, and provided long-term objectives and goals.

Project Location: Beaumont Region, Texas

Partner(s): FHWA; Texas DOT; Texas Dept. of Public Safety; Louisiana DOT; Cities of Beaumont, Bridge City, China, Nome, Orange, Pinehurst, Port Arthur, Port Neches, Silsbee, Sour Lake, Vidor, West Orange; Counties of Chambers, Hardin, Jefferson, Liberty, Orange; SE Texas Regional Planning Commission; SE Texas Regional Airport; Lamar University; Lamar State College

Start Date: September 2001

End Date: January 2004

**Estimated Total
ITS Funds:** \$119,042

**Estimated Total
Project Cost:** \$238,804

Contacts:

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Janet Manley	Texas DOT	(409) 898-5768



REGIONAL ITS ARCHITECTURE AND ITS DEPLOYMENT PLAN WITH INTEGRATION FOR THE LOWER RIO GRANDE VALLEY

Description: This project was part of the FY 1999 Integration Program earmark for the State of Texas. The Lower Rio Grande Valley Region of Texas has experienced unprecedented growth for over a decade. Increased trade with Mexico is a major contributor to the amount of traffic in the region as reflected in approximately 70,000 border crossings per day at the Gateway, Los Indios, Pharr and Hidalgo Bridges. Implementation of ITS technologies in an integrated approach results in improved emergency management during hurricanes and hazardous cargo incident response at the Ports of Entry. The architecture for the lower Rio Grand Valley was completed in August 2003.

Project Location: Lower Rio Grande Valley Region, Texas

Partner(s): FHWA; Texas DOT; Cities of Brownsville, Edinburg, Harlingen, McAllen, Mission, Pharr, San Benito; Counties of Cameron, Hidalgo; Texas Department of Public Safety; U.S. Customs Service; U.S. Immigration & Naturalization Service; U.S. Border Patrol; U.S. Department of Agriculture; Brownsville, Harlingen-San Benito, McAllen, Pharr and Edinburg MPOs

Start Date: November 1999

End Date: August 2003

Estimated Total ITS Funds: \$150,000

Estimated Total Project Cost: \$300,000

Contacts:

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Jesse Leal	Texas DOT (Pharr District)	(956) 702-6127
Bernie Walker	Texas DOT Traffic Operations-TM	(512) 416-3437



HAMPTON ROADS ADVANCED TRAVELER INFORMATION SYSTEM AND ITS OUTREACH PROGRAM

Description:

This project constitutes the FY 2000 ITS Integration Program Commonwealth of Virginia earmark. The project is a public-private partnership designed to take advantage of private sector capital, technology and its ability to react quickly to the market to deliver information to travelers in and around the Hampton Roads metropolitan area. This service collects data from multiple sources (both public and private), fuses the appropriate data elements, and distributes the information through various media outlets.

The system was developed during the first twelve months of the integration project, and will be operated by the Virginia Department of Transportation's (VDOT) private partners for a minimum of five years. Under this partnership, the traveling public receives traveler information at no cost. The Department receives significant benefits and services including:

- A real-time map for traffic management and traffic operations that includes sensor data for surface streets and freeway sections not yet covered by VDOT sensors.
- An automated telephone call-in system to disseminate information to the traveling public.
- Four years of operational support to the telephone system where Iteris (a private sector provider) provides data supporting the dissemination of traveler information via the telephone system.
- An NTCIP-compliant interface to the Roadway Information System (RIS) so that the RIS (regional incident information sharing system) can be discarded as an interim solution.
- \$1 million in cable television advertising.

The private partners distribute traveler information through a combination of different media outlets including Internet, cable television, commercial radio, kiosks, highway advisory telephone, broadcast television, and personal digital assistants.

ITS OUTREACH PROGRAM

VDOT also proposes to develop a comprehensive ITS Outreach Program as part of the ITS Integration Component of the ITS Deployment Program. This project is truly an integration project, focused on educating, training and informing key constituencies and bringing new participants to the table.

VDOT utilizes and tailors existing FHWA/USDOT materials to communicate with key constituencies such as:

- local governments;
- Planning District Commissions;
- regional civic organizations; and
- the general public.

The project's goal was to increase awareness of VDOT's Smart Travel transportation technology program and to educate and inform the various constituencies regarding the Department's statewide ITS strategic plan, system architecture and concept of operations.



Earmarked funding for the Hampton Roads ATIS project was \$600,000 and ITS Outreach is \$120,684. Total matching funds for the ATIS project were \$6,586,684 and for the Outreach component \$120,684.

Project Location: Hampton Roads Metropolitan Area, Virginia and Statewide

Partner(s): FHWA, VA Department of Transportation; Iteris, Inc. Team

Start Date: June 2000

End Date: March 2004

**Estimated Total
ITS Funds:** \$721,000

**Estimated Total
Project Cost:** \$7,428,052

Contacts:

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James Robinson	Virginia DOT	(804) 786-6667



I-81 CORRIDOR ITS PROGRAM

Description:

Interstate Highway 81 is the longest section of Interstate in the Commonwealth of Virginia. I-81 in Virginia is scheduled for major reconfiguration and extensive re-construction over the next 20 years creating a unique opportunity to deploy Intelligent Transportation Systems (ITS) along the length of a crucial Interstate. To address ITS in the I-81 corridor, VDOT has created a formal organizational framework capable of achieving successful ITS integration in the short term, during the multiyear reconstruction of I-81 and in the post construction period. The I-81 ITS Program is designed to improve the planning and implementation of ITS in the I-81 Corridor through the integration of ITS applications in the short term and during the planned re-construction and post-construction Corridor operations. The Program framework consists of two levels. At the project/technical level there is a Technical Committee and ten Technical Working Groups, each covering a specific emphasis area. These Working Groups assess the needs in their particular emphasis area, and develop proposals to address the identified needs. This project was designed to support the first year of the I-81 ITS integration program.

This project constitutes the FY 2001 ITS Integration Program earmark for the Commonwealth of Virginia. The initial program of projects consisted of twenty project initiatives summarized as follows:

- Continuation of program management.
- Develop/refine a draft concept of operations for the corridor.
- Retain the services of a system integrator.
- Establish a set of decision criteria applicable to the use of dynamic message signs and a set of approved alerts.
- Develop a training program for incident response and clearance.
- Development of ITS Design Guidelines.
- Design and implementation of a Database Management System.
- Development of a I-81 ITS Communications Program.
- Four subprojects designed to expand "Travel Shenandoah," a Shenandoah Valley Traveler Information program.
- Implementation, testing and evaluation of a pilot "Truck Fleet Alert & CVO Travel Service" for the I-81 corridor.
- Two public safety initiatives: a public safety strategic plan, and deployment of remote real-time audio and video connections enabling communications between medical helicopters and on-scene EMS providers.

Project Location: Commonwealth of Virginia

Partner(s): FHWA, Virginia DOT, Virginia Tech Transportation Institute, SHENTEL, Lord Fairfax Planning District Commission, Valley Health Systems, ComCARE Alliance, University of Virginia, James Madison, George Mason Universities

Start Date: September 2001

End Date: December 2004



**Estimated Total
ITS Funds:** \$3,164,880

**Estimated Total
Project Cost:** \$14,382,500

Contacts:

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James Robinson	Virginia DOT	(804) 786-6677



WARREN COUNTY, VIRGINIA

Description:

The three component projects in the Warren County, Virginia Northern Shenandoah Valley Rural Deployment Initiative result from the Lord Fairfax Planning District Commission's ITS Deployment Planning Study.

- The "Travel Shenandoah Commercial Information Demonstration Project" (\$75K) evaluated the market feasibility of providing real-time travel advisories and related information/assistance to motor freight dispatchers. Information will be provided via media requested by participating clients; e.g., e-mail, telephone, pager, fax.

- The "University of Virginia's Department of Emergency Medicine Pegasus EMS Video Project" (\$40K) provides portable video conferencing between local rescue squads and the Pegasus emergency medical helicopter. The project enhances rural/interstate emergency medical service by upgrading the level/quality of patient information and medical consulting through real-time video conferencing from the incident scene/within the rescue squad transport vehicle and the Pegasus emergency medical transport helicopter.

- The "Northern Shenandoah Valley Public Mobility Project" developed a ridesharing, vehicle sharing demand responsive agency-based central dispatching system to enhance the efficient use of human service transportation resources in the Northern Shenandoah Valley.

Project Location:

Warren County, Virginia

Partner(s):

Virginia DOT; Frederick County, VA; University of Virginia; ShenTel

Start Date:

September 1999

End Date:

March 2004

Estimated Total ITS Funds:

\$197,867

Estimated Total Project Cost:

\$336,000

Contacts:

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Gregory Cross	No. Shenandoah Valley Deploy. Initiative	(540) 459-9761



PORT ANGELES, WASHINGTON

Description: This project installed a comprehensive traveler information system along the Washington State Route 101 corridor on the northern Olympic Peninsula. The system is comprised of several technology components, each of which has been proved in other locations in the State. The overall value of the project is realized through integration of these components into a sum providing more value than the sum of its parts. This project has become a natural extension of the Smart Trek traveler information effort underway in the greater Seattle and Tacoma areas. Key components include video imagery, highway advisory radio sites, and a roadway weather information system.

Project Location: Port Angeles, Washington

Partner(s): Washington State DOT, City of Port Angeles, North Olympic Peninsula Visitors and Convention Bureau, Olympic National Park, Greater Victoria Visitors and Convention Bureau

Start Date: February 2000

End Date: June 2005

Estimated Total ITS Funds: \$395,735

Estimated Total Project Cost: \$495,000

Contacts:

Michael Brower	FHWA Washington Division, HDA-WA	(360) 753-9550
John Nisbet	Washington State DOT	(360) 357-2670



SPOKANE, WASHINGTON STATE ROUTE 395 TRAVELER INFORMATION PROJECT

Description: The objective of this project is to install a roadway information system that will communicate to the public and road maintenance crews information concerning current weather conditions, road surface conditions, border crossings, flooding, slides and any other items necessary to assist roadway users in making informed travel decisions. The system includes ITS technology and was integrated into a regional ITS system. The project plan approach includes: installing video cameras at locations on SR 395, SR 20, SR 21 and SR 25; installing Roadway Weather Information System at key locations on SR 395 or its associated highways; installing highway advisory radios at key locations to provide information to travelers en-route to their destinations; and providing traveler information data and images to the public via an internet web page. Roadway Weather Information Systems were integrated with traveler information and infrastructure operation and maintenance.

Project Location: Spokane, Washington

Partner(s): FHWA, Washington State DOT, City of Spokane, Spokane Regional Transportation Center

Start Date: February 2000

End Date: June 2005

Estimated Total ITS Funds: \$356,161

Estimated Total Project Cost: \$712,322

Contacts:

Michael Brower	FHWA Washington Division, HDA-WA	(360) 753-9550
Kenneth Knutson	Washington State DOT	(509) 323-6383



THURSTON COUNTY ITS

Description: This FY 2000 earmarked project is a systems integration initiative that developed a Transit Architecture Plan, defined a Regional ITS Architecture, and identified the operation requirements for ITS subsystems and the identification of information flows that connect them. The project was implemented in three phases:

- Development of a Transit Architecture and Plan.
- Participation in the development of an overall Regional ITS Architecture.
- Integration and Deployment requirements definition.

Project Location: Thurston County, Washington

Partner(s): FTA, Washington State DOT, Intercity Transit, Thurston Regional Planning Council, Thurston County, City of Olympia, City of Lacey, City of Tumwater

Start Date: September 2000

End Date: March 2005

**Estimated Total
ITS Funds:** \$786,421

**Estimated Total
Project Cost:** \$1,572,842

Contacts:

Ken Feldman	FTA Region 10	(206) 220-7521
Roger Dean	Intercity Transit	(360) 705-5837



TRAFFIC MANAGEMENT CENTER ENHANCEMENT

Description: This project is the FY 2000 Tacoma, Washington ITS Integration Program earmark. The Olympic Region presently has a network of surveillance cameras and traffic flow detection devices along the Interstate 5 Tacoma corridor. The images and data from these devices reach the Tacoma Traffic Management Center via analog microwave and voice graded phone line. While these methods of data transmission work, they have inherent problems. The analog microwave is subjected to distortion due to inclement weather and vegetation obstructing the microwave path. In addition, the limitations of the microwave system allow for the transmission of only three of the nine camera images at one time. The disadvantage with the phone service is the monthly service fees and dependency upon an external agency. The phone service also limits the expansion capability of the detection system.

The Olympic Region proposed that the FHWA ITS Integration funds be used to construct fiber optic links from the Tacoma TMC to WSDOT fiber on I-5 and a fiber optic link from WSDOT fiber on I-5 to City of Tacoma Fiber in the SR16 Interchange vicinity. These funds would also be used for fiber optic equipment to be used at the existing WSDOT ITS locations and software revisions at the Tacoma TMC to integrate VMS sign control with CCTV control. The use of the FHWA funds and WSDOT matching funds were divided into the following projects:

Phase 1: Fiber optic equipment for existing ITS sites. This project is required to convert the existing microwave signals from these elements to fiber.

Phase 2: Fiber optic cable link from WSDOT fiber on I-5 to the Tacoma Traffic Management Center. This project is necessary to better utilize existing ITS elements as well as to transmit this information to other agencies.

Phase 3: Video end equipment for the City of Tacoma Fire Station and fiber optic link to the existing City of Tacoma fiber network. This project will allow the City of Tacoma direct access to the Olympic Region ITS information.

Phase 4: Variable Message Sign control software. This project will enable the operators at the Tacoma TMC to control existing VMS signs and CCTV sites from one terminal.

Project Location: Tacoma/Puyallup, Washington

Partner(s): FHWA, Washington State DOT, City of Tacoma Fire Dept, Washington State Police

Start Date: August 2002

End Date: June 2005

**Estimated Total
ITS Funds:** \$393,211

**Estimated Total
Project Cost:** \$1,260,211



Contacts:

Michael Brower	FHWA Washington Division, HDA-WA	(360) 753-9550
John Nisbet	Washington State DOT	(360) 357-2670



BARBOURSVILLE-ONA, WEST VIRGINIA TRAFFIC MANAGEMENT

Description: This project consisted of improving access to and from the Huntington Mall and other properties located along US Route 60 and Mail Road (Cabell Co. 60/89). The Huntington Mall Road is a heavily traveled road with 1995 Average Daily Traffic of 23,600 vehicles weekdays and 40,000 vehicles per weekend. The Huntington Mall Road begins at US Route 60 as a three-lane roadway and proceeds north under the I-64 bridge where it becomes a five-lane roadway section with four lanes northbound and one lane southbound. Immediately north of the westbound entrance ramp and the westbound exit ramp intersections, the road consists of seven lanes with five lanes northbound and two lanes southbound.

Project Location: Barboursville-ONA, West Virginia

Partner(s): West Virginia DOT

Start Date: October 1998

End Date: November 1999

**Estimated Total
ITS Funds:** \$8,000,000

**Estimated Total
Project Cost:** \$11,210,842

Contacts:

Greg Morris	FHWA West Virginia Division	(304) 347-5473
Dave Bodnar	West Virginia Department of Highways	(304) 558-2885



MOBILE DATA COMMUNICATION NETWORK (MDCN) PHASE II

Description:

This project was a FY 2004 ITS Integration Program earmark for the State of Wisconsin. The Wisconsin Department of Transportation (WisDOT) has implemented a statewide digital microwave backbone infrastructure used to transmit voice and/or data communications for 156 public safety agencies statewide. Information elements transmitted on the backbone include, but are not limited to: routine voice communications; incident related voice communications and mobile data information, such as driver license, license plate, criminal history, and road sensor status; and Commercial Vehicle Information Systems and Networks (CVISN) information. These information elements are accessible to Transportation Operation Centers, dispatch centers, public safety vehicles and emergency management centers.

The objectives of this project were to upgrade the Mobile Data Communications Network (MDCN) equipment and expand the network's deployment into rural areas not currently served. Earmarked funding was dedicated to acquisition of radio communications equipment required to upgrade components of the MDCN. Matching funds were expended to expand microwave paths to areas lacking coverage.

These improvements will enhance mobile data operations in Wisconsin's rural and metropolitan areas.

Project Location: Wisconsin - Statewide

Partner(s): FHWA; Wisconsin DOT, Division of State Patrol, Bureau of Communications.

Start Date: June 2004

End Date: December 2005

**Estimated Total
ITS Funds:** \$1,895,481

**Estimated Total
Project Cost:** \$3,790,962

Contacts:

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John Verhyen	Wisconsin State Patrol, Bureau of Communications	(608) 267-3573



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