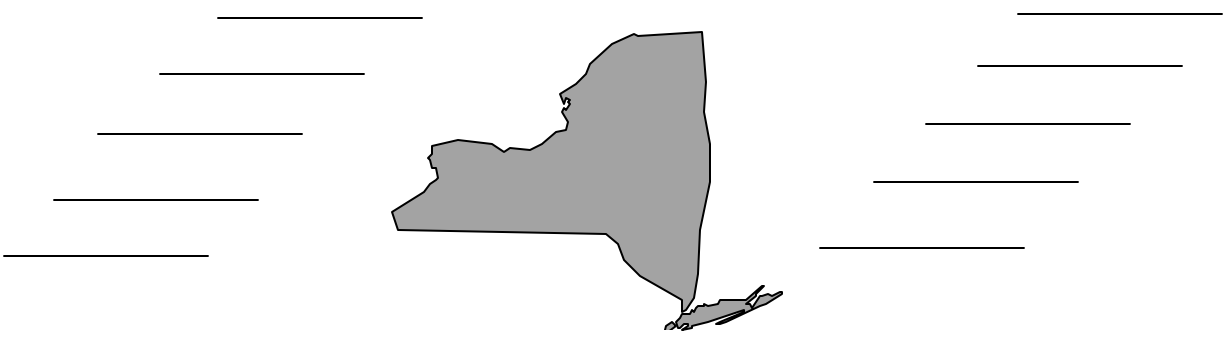

New York
MOVES

Through Intelligent Transportation Systems

Prepared for the
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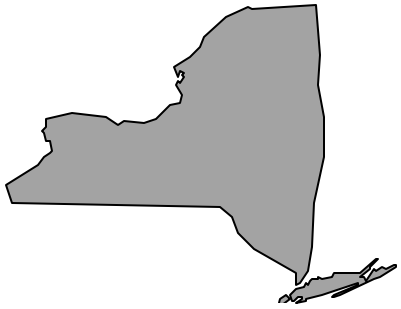
New York State Department of Transportation



New York State
Department of Transportation
(NYSDOT)

ITS PROGRAM STATUS REPORT

January 2001

Introduction

The NY MOVES program is the New York State Department of Transportation's (NYSDOT) Intelligent Transportation Systems (ITS) Program. This report is issued semi-annually for the purpose of informing the Transportation community of the latest status of the various projects NYSDOT has undertaken. If you would like further information or additional copies of this report, you can contact the NYSDOT ITS Group at (518) 457-1232, FAX (518) 457-1960, by e-mail at nbarr@gw.dot.state.ny.us or regular mail at Building 5 Room 319, 1220 Washington Ave., Albany NY 12232-0467.

ITS Strategic Plans

Metropolitan Areas

ITS strategic plans are currently underway or have been completed for Long Island, the Lower Hudson Valley, Albany, Buffalo, New York City and Rochester urban areas. An ITS strategic planning study for the Syracuse area is expected to begin in the Winter of 2000/2001. All of the plans were developed in a multi-modal context, steered by a multi-agency stakeholder group and included the development of a regional ITS architecture. Many of the plans were completed prior to the release of the National ITS Architecture.

Accordingly, those architectures are being revisited to bring them into conformance with the National ITS Architecture. The Buffalo and Rochester areas have already begun this process. Upon the completion of the Syracuse study, the Department will have achieved its objective of having developed ITS strategic plans for each of its Regions that have urban areas included in the top 75 major metropolitan areas of the country.

Rural / Small Urban Areas

A study to develop ITS Strategic Plans for the four rural Regions served by the Utica, Hornell, Watertown, and Binghamton Regional offices was completed in mid-1999. The study involved input from public and private sector stakeholders representing a number of key constituencies. It summarizes systems and technologies that are most appropriate to these four geographic areas and pays particular attention to safety, roadway information, public transportation, and travel / tourism information user needs. In addition, a Rural ITS "Toolbox" was developed. It identifies ITS solutions which can be used to address problems and needs common not only to these areas but also to other small urban and rural areas of the state. The “Toolbox” can be found on the Department’s web page under “Programs” “Traffic Engineering and Highway Safety Division” “Intelligent Transportation Systems.”

The rural portion of the Statewide ITS Strategic Plan will be underway in 2001, and will include the development of a high level statewide Rural ITS architecture. Design of a mobile, multi-function multi-purpose ITS trailer will also begin. The device, which is intended for use for planned and unplanned events and incidents, was identified as a stakeholder priority in the original Rural and Small Urban Areas Study. NYSDOT received an earmark in the Federal budget to advance the project.

Commercial Vehicle Operations (CVO)

The NYS Interagency Motor Carrier Task Force, comprised of the state Departments of Transportation, Motor Vehicles and Taxation and Finance, the Division of State Police and the Thruway Authority, developed a comprehensive ITS CVO Business Plan. This three year plan was approved by the Federal Highway Administration in September of 1998. It describes the major ITS CVO initiatives and projects that are either underway or planned by the State. This outstanding plan was recognized by Federal Highway Administrator Wykle, who presented the State with the Administrator’s Award for the Best Overall Commercial Vehicle Safety Program for its efforts in developing and implementing the plan. Implementation of many of the projects in the ITS CVO Business Plan is actively underway.

Selected Special Projects

UPSTATE

Capital District ITS Program

NYSDOT's Capital District Region opened a joint Transportation Management Center (TMC) with the NY State Police on July 1, 1999. The TMC, located in NY State Police Headquarters (Building 22 of the State Office Building Campus in Albany), controls detectors, television cameras, portable variable message signs and highway advisory radios. Another project that will be tied into the TMC is the Best Bus Project which will coordinate 72 traffic signals on NY Route 5, from downtown Albany to downtown Schenectady. Buses that are behind schedule will be given priority. A consultant is currently performing final design work, and construction is scheduled to start in early 2001. The Region also has plans for an ITS test bed in the Rensselaer Technology Park, Road Weather Information Systems (RWIS) and arterial traffic signal systems.

Syracuse ITS Program

Installation of an interconnected Traffic Signal System linking 145 traffic signals in the Central Business District and University Hill areas of the City of Syracuse has been completed**.** NYSDOT's Syracuse Regional office has completed fifteen closed loop traffic signal systems, totaling 91 signals. Three of these systems have been interconnected using radio communication, with plans to use this type of interconnect on several upcoming systems through the Highway Work Permit mitigation process. A Variable Message Sign (VMS) is currently deployed in the City of Syracuse by NYSDOT during special events at the ONCENTER Convention Center and the Carrier Dome. The City of Syracuse Police also have sign access to display traffic control messages during incidents on I-81.

Additional signs are utilized on I-81 north of Syracuse to warn motorists of white-out conditions caused by lake effect snow storms east of Lake Ontario. These signs are controlled by the Jefferson County Maintenance Residency (located in the NYSDOT Watertown Region) with input from the Syracuse Region, the NY State Police, weather reports and radar. A project is also proposed to install VMS at key locations on I-690 and NY Route 695 (the State Fair Interchange) to enable NY State Police to more efficiently control traffic during the State Fair. The possibility of linking Roadway Weather Information System (RWIS) data with these VMS to advise motorists of icy pavement conditions through the interchange will be explored.

The firm of Parsons Brinckerhoff, Quade & Douglas has been selected to perform a one year ITS Strategic Planning study for the Syracuse Metropolitan area. Contract negotiations are nearly complete, with expected start in January 2001.

Rochester ITS Program

Under the Areawide Advanced Traffic Management System (ATMS), the various Rochester local agencies, or stakeholders, are advancing a regional ITS Program called "IMAGE" (Improved Mobility Area wide Guidance Evaluation). One of the highest priority corridors identified for near term deployments is NY Route 104 from the Genesee River to the

Irondequoit Bay Bridge. Accordingly, NYSDOT is focusing an early action project on the Irondequoit Bay Bridge area where we will expand our existing Road Weather Information System (RWIS) by adding video technology for the dual purpose of further RWIS research and for incident detection and verification. Other ATMS elements will be installed in the corridor including Variable Message Signs (VMS) and Highway Advisory Radio (HAR). The project will serve to demonstrate new methods for integrating the current RWIS / highway maintenance functions with those of traffic management and traveler information.

In addition, NYSDOT, Monroe County DOT and the NY State Police have agreed on a shared Transportation Operations Center (A/TOC). Monroe County, the lead agency, is currently overseeing the construction of the building. The A/TOC will serve as the Traffic Control Center for the new County maintained Computerized Traffic Signal System, the central point for State signal maintenance and traffic management activities including dispatching, monitoring of the State's RWIS system and managing the early action activities in NYSDOT's ITS program. The relocation of the State Police Henrietta Headquarters to this site will bring together the operators of the highway network and one of the key responders to traffic incidents on the expressways. NYSDOT is also continuing efforts to improve traffic signal coordination for various corridors throughout the area as a very cost effective means for enhancing mobility on arterials.

Highway Reconstruction of the I-490 corridor from the Barge Canal to the Genesee River includes the next major expansion of the Region's ATMS. This expansion will include video surveillance, VMS and HAR and will precede the major reconstruction project. The system will serve to improve Maintenance and Protection of Traffic during construction. The system will also remain in place after project completion for the purpose of freeway incident management and traveler information. ITS project design activities are underway.

The Rochester Area stakeholders have taken an aggressive approach to bringing the area's Regional ITS Architecture into compliance with the National ITS Architecture by completing multi-agency workshops in May 2000. The outcome is a better stakeholder understanding of information exchanges necessary to implement an integrated and effective ATMS. The product of the workshop is a nearly complete Regional Architecture which will be the framework for ITS integration and will guide future project definition and design.

Buffalo ITS Program

Niagara International Transportation Technology Coalition (NITTEC) is a consortium of 14 regional transportation system owners from the US and Canada who have joined together in a cooperative effort to initiate a program to improve regional and international transportation mobility. Using a $5 million grant from the Federal Highway Administration as a base, NITTEC is establishing the Mobility Improvement for Transportation Revolving Loan Fund (RLF) which is designed to expedite the implementation of ITS elements in the region. The Niagara Frontier Transportation Authority (NFTA) will serve as host to the RLF. NITTEC is still looking for project proposals and all organizations are encouraged to apply.

The NITTEC Traffic Operations Center (TOC) is located at 93 Oak Street, Buffalo, NY 14203 and is co-located with NFTA. The NFTA OCC currently houses the Metro Bus dispatch, Metro Rail Control System and Paratransit. The TOC is staffed 24 hours a day, 365 days a year and presently contains:

- The equipment for the Skyway Closing and Notification System
- Control of 20 Variable Message Signs in the region operated by both NYSDOT and the NYS Thruway Authority (NYSTA)
- The Road Weather Information System (RWIS) server
- NYSTA Closed Circuit TV (CCTV) along I-190 in downtown Buffalo
- Coordination of all regional construction and maintenance activities

NITTEC has completed its Regional ITS Architecture which is now located on the Erie County Web Page at www.erie.gov. All member agencies and consultants performing ITS work within Western New York State must consult the NITTEC Regional ITS Architecture during preliminary design.

The ITS Implementation Project Phase 2 will expand the existing TOC and construct a Freeway Traffic Management System (FTMS). The FTMS will be constructed along NY Route 33 from downtown Buffalo to I-90, NY Route 198 from Parkside Avenue to NY 33, I-290 from I-90 to beyond NY Route 5 (Main Street), I-190 from NY Route 5 (Skyway to Peace Bridge), and I-90 from the Williamsville Toll Plaza to NY Route 33. In addition, 8 TRANSMIT sites, which use electronic toll tags as traffic probes, will be installed around area expressways. Advanced Traffic Controllers developed by the Ministry of Transportation Ontario will be installed at permanent loop count stations along the fiber path. The new TOC will have a fully integrated ATMS using the METRO RESCU System from the City of Toronto. The new TOC will also serve as an Emergency Operations Center for all transportation agencies in Western New York. OMER Construction will construct this project and is expected to be completed by December 2001.

Renovations at the NITTEC TOC to renovate the existing space and prepare the space to facilitate a fully integrated Freeway Traffic Management System (FTMS) and to serve as an Emergency Operations Center (EOC) are nearly complete. These renovations are expected to be completed by March 2001.

The ITS Implementation Project Phase 3 will expand the FTMS along I-90 to the Lackawanna Toll Barrier, I-290 to US Route 62 (Niagara Falls Blvd.), complete NY Route 33 to Genesee Street and NY Route 5 from I-90 to Ridge Road. The project is scheduled for a Spring 2003 letting. The project is currently in the design phase with preliminary design beginning in the Spring 2001. The NYSTA will administer this project and has selected a consultant.

The Buffalo, NY metropolitan area was awarded $390,000 in ITS Program funds (1999 ITS Earmark) for the ITS System Integration Project. This project will integrate all NITTEC and Western New York Incident Management Team (WNYIMT) members electronically. In addition, safety improvements along I-190 in downtown Buffalo using ITS will be installed. A demonstration of the video incident detection using neural networks will be conducted and integration with the NFTA and local police Automated Vehicle Location (AVL) systems will be done. This project is expected to begin preliminary design in the Spring of 2001. The NYSTA will administer this project and has selected a consultant.

The Western New York Incident Management Team (WNYIMT) has been established through a NYSDOT initiative to facilitate planning and response to highway incidents in the area through the TOC. Transportation systems operators and providers, emergency

services, law enforcement agencies and others are working to formalize procedures and communications to be used when responding to incidents, with the ultimate goal being to reduce incident duration and resultant congestion. The WNYIMT produced a SEND HELP brochure to aid motorists when they become disabled or involved in an accident.

The Department is anticipating on developing a Highway Emergency Local Patrol (H.E.L.P.) Program for Western New York, similar to other programs around New York State. The Department is looking to operate the program using internal maintenance staff and resources.

Phases 4 and 5 of the ITS Implementation Project continue the expansion of our Freeway Traffic Management System along I-90, I-190, I-290, NY Routes 198 and 33. Phase 4 is expected to be begin Summer 2006 and Phase 5 is expected to begin Summer of 2007.

DOWNSTATE

Hudson Valley ITS Program

The Hudson Valley Intelligent Transportation Systems Business Plan and Development Concept, completed in March 2000, and the Early Deployment Plan (EDP), completed in November 1998, provide a base for the NYSDOT Hudson Valley Region's comprehensive ITS Program. Numerous ITS treatments were recommended in the EDP and further developed in the Business Plan to program deploy of equipment in conjunction with the Region's Capital Program. The recommended ITS treatments have been divided into (a) subareas of dense traffic movements for freeway and arterial traffic management in the Hudson Valley Region and (b) critical decision points for motorist information at intersections of major roads throughout the Region.

The Hudson Valley Transportation Management Center (HVTMC) is presently under final design, expected to be completed in April 2001, and is scheduled to begin operation in the Spring of 2003. Until then, an Interim Transportation Management Center (I-TMC) in White Plains will manage the ITS as deployment of equipment begins to allow network flow improvements, particularly during the I-287 (Cross Westchester Expressway) reconstruction project. It is expected that the I-TMC will operate 10 to 20 Variable Message Signs in that effort, as well as 20 or more closed circuit TV (CCTV) cameras, numerous flow detectors to supplement the TRANSMIT dynamic path and O-D information and the Highway Emergency Local Patrol (H.E.L.P.) Program.

The initial stage of the Cross Westchester Expressway rehabilitation project contract was begun in the spring of 2000. This initial stage will include deployment of approximately $4 Million in ITS equipment in Westchester County to allow the I-TMC to manage the maintenance and protection of traffic during the follow-on phases of this extensive, multi-year project. The latest and most Maintenance and Protection of Traffic (MPT) intensive phase of which is set to begin early in the winter of 2001.

The latest H.E.L.P. Program expansion in October 2000 brought the total number of trucks to 23 and the total center-line miles patrolled to 175, making the Lower Hudson Valley H.E.L.P. Program one of the largest in the country, assisting in incident management on the

Region's most heavily traveled roads. The program usually makes over 22,000 stops and provides services to approximately 17,000 motorists annually. This program will soon include an integrated Computer-Aided Dispatching system which will provide automated vehicle location, automated records management, vehicle dispatching and automated links to the I-TMC ITS network as well as to the TRANSCOM (a coalition of 16 transportation operating and enforcement agencies in NY, NJ and CT) Regional Architecture.

Other regional initiatives include:
1. An integrated, inter-operational Coordinated Signal System is planned for the I-TMC along with the City of White Plains and Westchester County that will improve signal timings on city, county, and state roads in the area. In future years, additional congested arterial corridors will be added to this system.

2. An Integrated Regional Transit Database is planned in conjunction with NYSDOT's Long Island and New York City Regions. Coordination of transit operators and transit information for travelers is expected to improve when the Model Deployment Initiative (MDI) goes on-line. Efforts to augment MDI improvements in conjunction with transit improvements are planned as well.

3. NYSDOT has developed an ITS partnership with the New York State Bridge Authority for an ITS system on the major Hudson River Bridge crossings and important highway interchanges. The project will allow both agencies to provide motorist information in a timely manner and limit travel delays caused by incidents on the structures. Construction at the first crossing, the Mid-Hudson Bridge in Poughkeepsie, is currently underway.

4. TRANSCOM's TRANSMIT project uses the EZ-Pass electronic toll collection tags as traffic probes and is currently in use on I-87 / I-287 in Rockland County and is under expansion to 24 strategically located sites in Westchester County, as well as other locations in New York City metropolitan area. TRANSMIT offers a new tool for ITS traffic monitoring. Presently, TRANSMIT data is used to identify incidents on I-87 / I-287 by monitoring link speeds between detectors. In the future, TRANSMIT will also collect dynamic link, path, and origin-destination data. It is planned to use this previously unattainable data with a computer simulation model developed at MIT (DYNAMIT), under a US Department of Transportation (USDOT) contract, to derive planning, design and operations insights into ITS applications. It is planned to employ DYNAMIT in the Cross Westchester Expressway reconstruction project for use with ITS elements deployed for maintenance and protection of traffic.

5. A National Science Foundation grant winner at MIT plans to apply, with mutual support from NYSDOT's Hudson Valley Region, new and very fast optimization procedures for real-time network flow control using variable message signs, highway advisory radio, and in-vehicle advisories to be used along with development of the MDI. This optimization technology will assist the TMC operators to balance traffic flows on the network of freeways and parkways in the Hudson Valley.

Long Island ITS Program

NYSDOT's Long Island Region utilizes state-of-the-art technology to operate its traffic management and information systems on Long Island. This system, known as INFORM (Information for Motorists), which has been operational for many years, is being expanded

and upgraded. Construction is nearing completion on the Southern State Parkway Corridor ITS System. The overall System actually involves a series of inter-related ITS projects that will be deployed in the corridor. The projects, when taken together, will involve over 45 miles of freeway and parallel / connecting arterials. Through these projects the Region will demonstrate and evaluate a variety of new ITS technologies, as well as new strategies and systems for improved area-wide transportation management and traveler information. Key elements of the project are summarized as follows:

- incorporation of survivable system design and field device technologies
- demonstration of new hardware concepts including use of the 2070 controller as a standard field platform
- system design and implementation based on open systems including National Transportation Communications for ITS Protocol (NTCIP) protocols, and compatibility with NYSDOT systems in NYC and the Lower Hudson Valley, as well as TRANSCOM and the I-95 Corridor Coalition
- improved real-time area-wide traveler information including establishment of an area-wide travel information network database and a state-of-the-art upgrade of NYSDOT's Visual Traffic Information Project (VTIP) system
- improvements in the TMC control functions including those aimed at improved operation and maintenance, and preliminary assessment of new congestion prediction techniques.

The Western half of the system is expected to be fully on-line by the Summer of 2001 and represents an investment of approximately $30 million.

INFORM is being expanded to include the Southern State Parkway (SSP) and sections of NY Routes 109, 24 (Hempstead Turnpike), 27 (Sunrise Highway), and 110 to improve mobility and safety. This expansion will add approximately 40 centerline miles to the existing system. The current INFORM system is operating on the Long Island Expressway (LIE) mainline and service roads, Northern State Parkway (NSP) and NY Routes 25 (Jericho Turnpike) and 454 (Veterans Highway) and covers approximately 150 centerline miles.

Currently under construction, the INFORM system expansion will help more motorists make informed traveling decisions and benefit Long Island by reducing congestion and thereby providing travel time savings, reduction of emissions and reduced fuel consumption, and also by helping to reduce the accident rate. This INFORM project will enhance area-wide transportation management by enabling the NYSDOT to monitor traffic conditions and rapidly detect motor vehicle incidents on the SSP and thereby provide real-time traffic information to motorists, businesses, law enforcement personnel, and the media. The project will enable NYSDOT personnel to monitor the flow of traffic and react quickly to situations that may occur on the roadway. Information will be provided to the motorists via Variable Message Signs (VMS) and Highway Advisory Radio (HAR) through information processed by closed circuit television cameras (CCTV) and advanced technology video-based traffic sensors to detect traffic conditions and incidents, similar to the current INFORM system in operation.

Out of the total of 111 cameras being installed, almost 75 percent (81) are video-based traffic sensors that do not transmit images, only traffic information. These are next generation, high tech versions of the sensors and transmitters for the INFORM system that

are currently imbedded in the pavements on the LIE and NSP. There is virtually no traffic disruption during installation and maintenance of these roadside video detectors since they do not have to be installed in the roadbed pavement. The remaining 30 cameras being installed are CCTV's which the NYSDOT utilizes for incident verification and management of traffic during a motor vehicle incident. NYSDOT utilizes CCTVs for observation and traffic monitoring only. CCTV's enable the INFORM control center to be more pro-active in responding to incidents by notifying the police, redirecting traffic, clearing disabled vehicles from the roadways, and cleaning up roadway debris, if an incident is observed within a CCTV field of vision. NYSDOT personnel can monitor the incident as it unfolds and provide timely, appropriate responses.

NYC ITS Program

Advanced Traffic Management System: As part of the NYSDOT's Mobility Plan for the New York metropolitan area, NYSDOT's New York City (NYC) Region has started an ITS Program to implement an Advanced Traffic Management System (ATMS) on all of its limited access State highways in NYC. The ATMS will include an ITS configuration which would yield a system capable of full scale traffic and incident management. The ATMS will be controlled from a new State / City Transportation Management Center in Long Island City. The joint center is co-located with the NYC Traffic Management Center which controls the NYC Department of Transportation (NYCDOT)'s Vehicular Traffic Control System.

The Region is looking at implementing ATMS in core corridors over time to maximize the funding available. An Early Deployment Plan identified critical facilities on which ITS work would be very effective. ITS is currently working on the Prospect/Gowanus Expressway, and there are operational systems on the Cross Bronx and Van Wyck Expressways. ITS systems are aiding traffic flow on the Long Island Expressway reconstruction project and the Bruckner Interchange project. Also nearly operational is the system being done in conjunction with the Port Authority of New York and New Jersey's Light Rail System.

Additional systems and system expansions will be occurring shortly. Two projects to expand coverage of the Bronx-Northern Manhattan and Western Queens systems are slated for letting in March 2001. A system on NY Route 9A in lower Manhattan was let in November, 2000. The systems are controlled at the Joint Traffic Operations Center in Long Island City which is now fully staffed 24 hours a day. There are also H.E.L.P. (Highway Emergency Local Patrol) teams out assisting motorists, about 4,000 per month.

Integrated Incident Management System (IIMS): In late 1999 a contract was approved to start Phase 1 of this project, at a cost of $3 million. The goal is to improve incident management and emergency response by enhancing communication of incident data among incident management and emergency response personnel, both on-scene and at multi-modal communications and operations centers. Real time incident data including photographs and digital images will be collected, transmitted and stored for analysis. The first phase of the project's requirements has been prepared and is under review.

Additional Federal funding was made available from Federal Highway Administration (FHWA) Research and Development funds in the fall of 2000. This amount, $0.9 million in Federal funds plus a 20 percent state match, totaled $1.125.million. This additional funding will add more incident response agencies, police vehicles and dispatch facilities within the field test

area. It will also support USDOT's Standards Evaluation and Outreach efforts to : (1) deploy the current Common Incident Message Sets for use by Emergency Centers and design, develop and deploy new message sets for use by emergency response centers and vehicles; and (2) provide outreach to the public safety community including demonstrating the IIMS system at various workshops and conferences.

ITS Model Deployment

The Department is participating in a public/private team that was one of four selected by the USDOT for funding under the national ITS Metropolitan Model Deployment Initiative (MMDI) program. The project will build on efforts already underway by TRANSCOM (a coalition of 16 transportation operating and enforcement agencies in NY, NJ and CT) to establish a regional architecture that will link member agencies to share transportation information. The project has four main elements:

- establish a link to the TRANSCOM Regional Architecture as the source of consolidated, multi-modal traveler information
- Implement a dial-in telephone system that will provide basic traveler information to the public for free
- Implement a fee-based personalized traveler information service that will deliver personalized traveler information to the public at home, en-route and at work via a variety of mechanisms such as telephone, pagers, and personal computers
- implement a Transit Itinerary Planning System (TRIPS) that will provide the public access to a regional system to plan their most direct and convenient transit route.

The project's public / private partnership vision includes the sharing of revenue in a manner that will build a self-sufficient traveler information business.

The public sector element of the team is organized around TRANSCOM. The private sector prime contractor for this project is Northeast Consultants (NEC). NYSDOT is the contracting agency for the project. This $20 million project includes $10.4 million in Federal MMDI funding and over $10 million in state, local and private sector match. The project has completed its design phase and is expected to be operational by the first quarter of calendar year 2001.

TRANSCOM

As a member of TRANSCOM, NYSDOT is participating in a number of regional ITS deployment projects in the NYC metropolitan area of NY, NJ and CT. These are in addition to the Model Deployment Initiative described previously and include:

- TRANSMIT, a system that uses the EZ-Pass electronic toll collection tags as probes for traffic planning, monitoring and management. A TRANSMIT Phase 2 expansion is being progressed which will add approximately 200 miles of coverage in NY and NJ. The expansion is under construction and expected to be completed in 2001. Phases 3 and 4 are in the planning stage.
- SATIN, a project that will install a network of inter-active traveler information kiosks at service areas, truck stops and transit centers. The first 16 kiosks are operational.
- IRVIN, a project that will establish a network through which member agencies will be able to share video feeds from their various traffic surveillance cameras to facilitate

regional traffic and transit management. The current system design will involve linking approximately 380 agency cameras and is expected to be operational in early calendar year 2001.

- Regional Architecture (RA), a project that builds upon existing TRANSCOM agency information connections and the I-95 Corridor Coalition Information Exchange Network to establish a robust, multi-modal inter-agency RA that will provide for automated information flow for regional coordination of traffic management, traveler information and other coalition functions. The RA will be the major source of traveler information data for the TRIPS123 Model Deployment project. It is anticipated that deployment of 50 network work station sites will be completed in 2001.

MISCELLANEOUS / STATEWIDE

Advanced Transit Information System

This $2.5 Million CMAQ-funded project will develop a publicly accessible, interactive, regional transit itinerary planning system called Transit Advisor (formerly called TRIPS). The project is being progressed by NYSDOT in partnership with TRANSCOM, the Metropolitan Transportation Authority (MTA) and other public and private transit operators in the NY / NJ / CT metropolitan area. The system will provide regional, customized information on the most direct and convenient scheduled transit routes to meet customer specified origin to destination preferences. Currently, this type of pre-trip planning is available only on an operator by operator basis from a limited number of operators. This project will allow the public single point access to a system that integrates information from multiple operators. The project is being progressed as an important element of TRIPS123 (formerly called iTravel), the Model Deployment Initiative for the NY / NJ / CT metropolitan area.

Regional Integration - Transportation Communications Interface Profiles

This project will implement Regional development and enhancement of multi-agency integration of information and communications systems to support effective use of Advanced Public Transportation Systems for interoperable and coordinated transit service and operational information among New York State transit operators via implementation of National ITS standards, particularly the Transit Communications Interface Profiles (TCIP) in the New York Metropolitan Area (Lower Hudson Valley, New York City & Long Island). This project will develop and facilitate the implementation of TCIP compliant systems among New York State transit operators permitting exchange of interoperable operational information. Currently, the TCIP dialog standards are being developed through an iterative process with participation from concerned industry members. This project will test the implementation of these standards through a similar inclusive process. This project has an earmark of $915,732 in Federal ITS funds and $237,439 in Federal STP Flexible funds. The total project has a budget of approximately $1.8 Million.

Intelligent Highway / Railroad Grade Crossing

NYSDOT is progressing a $7.625 million project with ALSTOM Signaling (formerly GRS) in Rochester to develop and test an Intelligent Highway / Railroad Grade Crossing. The purpose of the project is to develop and test a smart system capable of operating in an

electrified (third rail) environment which provides constant warning times, minimum gate down times, vehicle detection connected to the train control system to avoid trapped vehicles, emergency vehicle preemption, traffic management interfacing, and other ITS interfacing

capabilities. The project includes modifying an advanced technology radio communication-based train control system to create the integrated uniform time warning / ITS solution for use at rail / highway at-grade crossings. ALSTOM has contributed approximately $ 5 million

in private matching funds, and the Long Island Rail Road (LIRR) has committed additional resources to progress this effort.

Testing on the system is ongoing at New Hyde Park Road on the LIRR in the Villages of New Hyde Park and Garden City in Nassau County, NY and at ALSTOM's facility in Syracuse, NY. Activities include developing standard data communications and protocols for radio communications between the train and the grade crossing and transmission of stored and real-time information between the train and the crossing, including train speed and planned station stops, which allow the system to provide optimized gate operation.

The system has been fully migrated from the previous GRS hardware to the more mature Alstom hardware. A supplemental agreement with ALSTOM has been negotiated to provide "vitally secure Global Positioning System based location capability." The additional cost is $2.74 million.

Future activities include vital assessment and documentation, evaluation and safety validation. An initial field demonstration has been scheduled for late Winter 2001. So as not to interfere with the high volume of commuter train traffic on the LIRR, testing and demonstrations will be take place between midnight and 4:00 A.M.

Commercial Vehicle Operations (CVO)

The NYS Interagency Motor Carrier Credential and Safety Task Force received grants from the I-95 Corridor Coalition to advance projects related to CVO Roadside Safety, CVO Electronic Credentialing and CVO Safety Management. NYSDOT and NY State Police have automated the motor carrier roadside safety inspection program through the use of laptop computers and are participating with several other Northeastern states in pilot tests related to the use of wireless communications for roadside data links to the FHWA's SAFER MAILBOX System. At present, NYSDOT is involved in a major initiative to automate its oversize / overweight permitting system. In addition, NYSDOT is working closely with the

state Departments of Motor Vehicles, Tax and Finance and the NYS Thruway Authority to automate various motor carrier credential programs and to pilot the use of "one-stop shopping" for the key programs involved in this multi-year effort. Finally, NYSDOT and the State University of NY (SUNY)'s Institute for Traffic Safety Management and Research is participating in a joint project with agencies and universities from PA and CT, FHWA and the motor carrier industry to develop a prototype State Management System that can be used throughout the United States. Applications for several additional ITS CVO initiatives have been submitted to either FHWA or the I-95 Corridor Coalition, and funding decisions are currently pending.

H.E.L.P. - Incident Management Patrol Program

The Highway Emergency Local Patrol (H.E.L.P.) continues to be a cornerstone of the freeway incident management program of NYSDOT. Service trucks, in operation during morning and evening peak travel hours, offer disabled vehicles free emergency road service in this effort which significantly helps to minimize motorist delay and increase safety.

H.E.L.P. provides motorist assistance to vehicles traveling on over 380 miles of limited access interstate roadways, parkways, and expressways on Long Island, in New York City, the Lower Hudson Valley, and the Albany Capital District. Sixty (60) service vehicles, covering 16 distinct patrol areas, or beats, are utilized in this effort. These trucks are operated by NYSDOT employees or contracted to other services providers. The program is coordinated and monitored by the Department's local transportation management centers (TMCs).

H.E.L.P. vehicle operators are authorized to provide disabled motorists with a push off the traveled way, a flat tire change, jump starts, gasoline, coolant, and some minor repairs. Operators will spent up to ten minutes assisting the disabled vehicle, after which they will arrange for a tow truck or other assistance for the disabled vehicle. The H.E.L.P. operator will not call a tow company directly but will contact the H.E.L.P. Operations Center for this request.

The H.E.L.P. program made over 62,000 stops to assist disabled vehicles in the year 2000. By making 170 stops per day over the program's coverage area, H.E.L.P. saved the motoring public millions of hours of vehicle delay. Additional, but equally important, benefits include decreased vehicle emissions, reduced likelihood of accidents to all vehicles using the covered roadways, and an increased sense of security to the drivers and passengers of the disabled vehicles. The H.E.L.P. program also frees up law enforcement patrols for other roadway duties by handling 90% of peak period incidents.

NYSDOT contracted with Urbitran / Garmen to conduct a study of the H.E.L.P. program in the lower Hudson Valley. The purpose of the study was to identify, estimate and analyze the benefits provided by the H.E.L.P. program. The routes included in the study were the: Palisades Interstate Parkway, Saw Mill River Parkway, Taconic State Parkway, Hutchinson River Parkway and Cross County Parkway. The study showed an annual reduction of 685,000 vehicle hours of non-recurring congestion on these facilities, which translates into a 32 percent reduction in peak period non-recurring congestion with a benefit / cost ratio of 8.4. The consultant has finalized a H.E.L.P. Benefit Assessment Report and B/C Methodology Critique which summarize the results of the study.

Intelligent Transportation Systems Benefits and Costs

NYSDOT has engaged the Calspan-University at Buffalo Research Center (CUBRC) to develop a procedure for quantifying the benefits and costs associated with a range of basic ITS treatments. The objective of this work is to produce a new set of tools - a computer-based evaluation model - that will enhance the Department's ability to assess proposed ITS projects and select the most appropriate solutions to New York State's transportation needs.

The CUBRC research team has developed the ITS Options Analysis Model (ITSOAM) that quantifies the benefits to be expected from the use of variable message signs, highway advisory radio, information kiosks and other information sources, incident detection and system monitoring technologies, motorist assistance services, advanced traffic control systems, vehicle identification and location systems, ramp metering, weigh-in-motion equipment, and road weather information systems. Work will continue on model refinement and on the development of an ITSOAM User's Guide, a suite of New York State-based case studies using the ITSOAM, and a formal training program for New York State's community of public sector transportation professionals.

ITS Data for Planning

The Oak Ridge National Laboratory (ORNL) has undertaken research to determine if information collected by intelligent transportation systems can be used as an alternate source of data for transportation system planning, monitoring, and reporting purposes. NYSDOT is participating in this study by providing ITS data from its Long Island INFORM Traffic Management System, along with insights on the ways it currently collects, verifies, and uses traffic data.

This research project will look at the data required by NYSDOT's planning functions, and examine the characteristics of the current sources of these data. The project will identify the types and properties of the data coming from the INFORM system, identify those administrative, institutional and technical hurdles to incorporating these data into the Department's planning and reporting processes, and demonstrate computer and communications systems necessary to assemble, prepare, format and deliver ITS data for use by planners in New York State. Study results - including findings, methodologies, and computer products - will be shared with the broader transportation community.

The Florida Department of Transportation also is participating in the study; it is providing its perspective and traffic data from ITS installations in the Orlando and Jacksonville areas. ORNL is carrying out this study under a grant from the Federal Highway Administration.

Road Weather Information System

NYSDOT has been evaluating Road Weather Information System (RWIS) technology since 1987 at NYSDOT's research center at Webster. This has been done in conjunction with the Strategic Highway Research Program (SHRP), the Federal Highway Administration (FHWA), other states and manufacturers of RWIS products. This technology was first installed during 1988 on the Irondequoit Bay Bridge in Rochester. Since that time, the Department has deployed systems at 40 other locations including Albany, Binghamton, Buffalo, Corning, Rochester, Utica, Syracuse, Watertown and Long Island. The RWIS

network is designed to measure, communicate and report data that deals with specific weather conditions. Pavement data items include surface temperature, subgrade temperature, surface condition (wet, dry or frozen), the amount of de-icing chemical on the pavement and the freezing point of a wet surface.

Utilization of RWIS technology by NYSDOT will become an important element in the management of resources prior to and during a weather event. RWIS provides real-time pavement and weather information and pavement temperature and precipitation forecasts (typically 24 hours). This real-time information and prediction capability assists decision-making by managers and supervisors allowing cost-effective use of materials, equipment and labor during all weather conditions.

In the Spring of 2000 NYSDOT awarded a contract to expand the statewide RWIS network. Surface Systems, Inc. (of St. Louis MO) has begun upgrading some existing sites and evaluating new site locations. The statewide system is based on a three year deployment of up to 200 road weather information points along state highways. Coordination with deployments planned by the NYS Thruway Authority and a number of municipalities has also begun.

ITS Section 1118/1119 Borders and Corridors projects.

In the first three years of the TEA-21 Corridors and Borders Programs (Sections 1118 and 1119), we received funds for various ITS projects. For Federal Fiscal Year (FFY) 99, we received funding or partial funding for two ITS projects:

- Intelligent Transportation Border Crossing System - Scale up Operational Test at the Peace Bridge for $1.8 million and
- For a Commercial Processing Center & Electronic Data Exchange operations also at the Peace Bridge for $0.96 million.

For FFY 00, we received funding for four ITS type projects:

- Champlain / I-87 ITS/CVO Safety Inspection Facility - $0.5 million
- Coordinated ITS/CVO Statewide Plan / Architecture for International Border Crossings and priority Corridors - $0.2 million
- Automated License Plate Identification / Reader Systems for Niagara Falls Bridge Commission Bridges - $0.4 million. Just prior to us receiving this grant, the General Service Administration installed the auto license readers at the three Niagara Falls Bridge Commission bridges. We are currently reviewing other ITS options for these funds at these crossings.
- Integrated ITS/CVO Intermodal Trade Program for the Niagara Frontier - Pilot - Lewiston- Queenston Bridge - $1.0 million. We have deferred the start of this project until we have completed our ITS/CVO Statewide Plan/Architecture scope and strategy.

In this year's Corridors and Borders Grants, we received funding for one ITS type project:

- Improvements to the US Customs Primary Commercial Inspection Booths and a weigh in motion scales at the international bridge at Ogdensburg for $0.3 million

Also, in FFY 99 and FFY 00, we received a total of $2.0 million in multi-state (NY, MI, MN and ND) grant funds to develop a rail electronic border crossing clearance software with Customs that will expedite the clearance of rail freight through the borders. These efforts will be undertaken by US Customs with matching funds being provided by the Canadian

Pacific and Canadian National Railroads.

ITS Scoping Procedures Development

NYSDOT is progressing a study for the development of project scoping guidance for Intelligent Transportation Systems / Advanced Traffic Management Systems (ITS/ATMS). The guidance will facilitate the consideration and application of ITS and ATMS strategies as appropriate and feasible solutions for solving identified congestion and safety problems on a project, corridor, or system-wide basis. Consistent with the process for alternative development, application of intelligent transportation technology requires logical consideration and analysis of what the technology can do to address identified transportation problems, where / when ITS/ATMS strategies may apply, and the kind of feasible strategy(ies) that fit a particular situation. Project development procedures and methodologies that will facilitate a reasonable and progressive approach to analyzing and applying available intelligent transportation technology to determine what best fits a given condition / situation will be developed.

Consultant services will be utilized to assist NYSDOT in assessing its current methods and procedures related to transportation problem identification, assessment, and alternative development. The consultant will determine their applicability to ITS/ATMS, identify potential opportunities to address ITS/ATMS, and develop revised / new project development procedures and methodologies to incorporate the consideration of ITS/ATMS into NYSDOT's project development process as appropriate.

Dunn Engineering Associates was selected to conduct the study. Scope of work development and contract negotiations have been completed. The contract was recently approved and the consultant will begin work in January 2001.

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