The I-87 Multimodal Corridor Study ("the Study") was undertaken as a proactive effort by the New York State Department of Transportation (NYS DOT) with the key stakeholders along the corridor to determine the future transportation demand and mobility needs in the corridor, and to find the most effective way to meet them. These actions would allow the corridor and surrounding regions to realize their economic potential in a changing national and global environment through the provision of a seamless, efficient transportation system. The Study Team established the following overall Goals and Objectives to set the Study’s direction and provide a basis for selecting projects or programs on which to focus:

- **Goal 1**: Enhance person and goods movement and intermodal operations;
- **Goal 2**: Support corridor-wide and regional sustainable growth and economic development;
- **Goal 3**: Promote safety and security; and
- **Goal 4**: Protect and enhance the system’s environmental and quality of life conditions.

The Department is in the midst of a “Transformation” process to allow it to better meet the emerging transportation challenges of the 21st century, while developing a customer-oriented approach to maintaining the infrastructure and services. A key part of NYS DOT’s “Transformation” process is to understand the transportation markets that effectively define each corridor; i.e.:

- **Commuter Travel Market** – shorter daily work trips, usually by car, along routes to and from major job centers.

- **Intercity Travel Market** – longer distance personal and business trips with more modal options (air, rail, auto, bus).

- **Trade (Freight) Market** – long-distance freight movements serving intra-state, interstate and international markets, and shorter collector-distributor freight movements to shipments’ origin and destination points.

**Tourist Travel Market** – short- to long-distance trips to recreational, natural and historic sites (critical in a corridor passing through the Adirondacks, the Catskills, and other natural and recreational areas).

**Smart Freight** – reducing delays and enhancing safety and security for truck and rail freight (including pre-clearance of low-risk shippers at border crossings and safety inspection points); better integrating Federal and State inspection/safety checks and private shipment tracking to reduce delay; and better coordination among the numerous government agencies and the private sector to encourage use of intermodal freight systems.

**Smart Highways** – meeting highway capacity needs by managing who uses the facility, when and how it’s used, responding better to disruptive incidents, and supporting modes that move people or goods most efficiently and cost-effectively while minimizing environmental impacts.

**Smart Safes Travelers** – providing auto drivers, truckers and public transportation users with information before and during their trips about traffic problems or conditions and travel related activities (e.g., construction work zones, accidents, weather, etc.) that affect travel time, reliability, and safety, as well as available services.

**Smart Public Transportation** – encouraging use of public transportation for commuter and other trips by making available services known to travelers, using various media (computers, cellular phones, papers, information kiosks, etc.) to better communicate with customers; and helping air and rail services become a viable alternative to autos for the longer intercity trips.

The sections throughout this newsletter provide further details on these Smart Transportation concepts, and examples of their existing or planned implementation in the United States and other countries, as well as in New York State.

**Smart Highways**

Traffic volumes along I-87 and other key corridors in the State have risen steadily in recent decades, with daily volumes of 150,000 or more already reached or on the planning horizon. The number of congested segments on and off the highways will increase and congested periods will lengthen as drivers shift their travel times and routes. With increased congestion, roadway systems become even more sensitive to accidents, weather and other problems, with the system taking even longer to recover.

More Smart Transportation Information

To find out more information about NYS DOT’s Smart Transportation efforts, visit the I-87 Corridor Study’s web site at www.dot.state.ny.us/i87study, which also includes information about the Department’s on-going Transformation process, the New York State Transportation Federation, and the overall Strategic Plan for the development of I-87 as a Smart Corridor. The recently completed I-87 Multimodal Corridor Study can help guide future corridor planning efforts in the State. The final report for the study, the I-87 Corridor Strategic Plan, presented a “Smart Corridor” vision that fits into the near- and long-term goals being established by the Transformation process, looking toward a corridor-based planning and operational approach to providing transportation services. This newsletter focuses on some of these Smart Transportation Concepts.
The key consideration for Smart Highways is to avoid the traditional approach of simply adding general purpose lanes to meet capacity needs. Instead, capacity should be added first to alleviate specific bottlenecks, while existing and planned highway capacity should be managed to maximize its person- and vehicle-moving capacity.

Smart Public Transportation

In recent decades, growth in New York State and elsewhere has occurred mainly in areas that lack the densities needed to sustain public transit services. Likewise, efficient high-capacity intercity services face challenges in a corridor like I-87, with one significant urban center (Albany) and many rural areas. New York City area transit systems handle much of the suburban-to-city commuter market but have difficulty competing in the “many-to-many” travel markets in the outlying, fast-growing and auto-dominated areas.

Recent studies around the country and internationally confirm that highways alone cannot meet projected 20- and 30-year traffic demands, particularly in fast-growing outer suburban corridors. Transit systems operating along the side of congested highway lanes are needed, and investment in such systems is being incorporated into long-term highway corridor planning, along with consideration of land use policies to restrict auto-oriented sprawl and move toward more transit-oriented development. The required transit investments can be significant, although advanced bus rapid transit (BRT) systems in Australia, Canada, Europe and South America, as well as in the U.S. (e.g., Pittsburgh) have provided service similar to rail transit, but with lower costs and greater service flexibility. Further, programs to support existing bus transit operations — dedicated lanes, signal override systems, park-and-ride facilities, etc. — are also critical to boosting transit’s competitiveness and using existing streets and highways more efficiently.

Transit agencies need to better market their services, as potential customers often don’t know what services are available. Programs like the TRIPS 1-2-3 Transit Advisor web site in the New York City area and similar programs across the country are beginning to provide this information.

Low-cost airlines have significantly altered the airline industry, benefiting travelers and providing substantial local economic benefits. Similar benefits are provided by the Empire Corridor rail service between New York, Albany and Buffalo or Montreal. The $4 billion cost needed to match European and Asian countries in the development and expansion of true high-speed (150+ MPH) passenger rail service is not viable at this time. New York and other states are looking to improve intercity rail service primarily through focused infrastructure improvements to make existing services faster and more reliable. In the Adirondack Corridor, a $40 million package of improvements have been identified that would reduce travel time by two hours.
Travelers expect responsible agencies to be instantly aware of conditions in the systems they’re using, and to inform them about conditions that could cause delays (e.g., construction, accidents), pose safety problems (e.g., ice conditions, queued traffic ahead, etc.) or help make their trip easier (e.g., what parking areas have available spaces). Agencies want to automatically collect the necessary information on operations, seamlessly share data among themselves, and provide it to travelers in real time. The increasingly widespread use of transponder-based systems to collect tolls, electronically check trucks’ credentials, and monitor traffic flows, with VMS and other systems used to connect to travelers are beginning to provide this type of two-way, agency-traveler connection. Highways like the Autobahn network in Germany and others in Europe, Asia and elsewhere have advanced roadway monitoring systems that detect everything from traffic volumes to fog or icing and adjust speed limit and directional signs automatically.

Internet-based systems such as New York State’s Travel Information Gateway provide traveler information for major highways and transit services, helping travelers in their trip planning, while computer kiosks in rest areas can update this same information during their trips. Both NYSDOT and the NYS Thruway Authority use VMS and HAR-based systems to provide travelers in the corridor with real-time information about travel conditions, alternative routes around delay-causing incidents, and safety messages (“Buckle Up!”). As the ability of these systems are expanded to be able to have instantaneous access to travel information beyond the immediate metropolitan area or region, the effectiveness of VMS and HAR systems will increase tremendously. In the future, if a major delay occurs at the Canadian border, a driver entering the corridor in the New York City area or from New Jersey will be made aware of it in real time.

Looking to the future, various systems are already being offered to travelers to obtain travel information while in their vehicles – GPS-based travel directions, warnings via cell phones about problems along a traveler’s normal commuter route, etc. Expanded use of this type of real-time traveler-operator connection is the next major technology change, with less dependence on VMS, HAR messages or information hot lines to keep travelers informed.

Networks of modern rest areas are also a key element in enhancing convenience and safety for long-distance highway travelers. Nationwide, the goal is to provide traveler services and information and easy internet access at sufficient intervals to meet the needs of long-range travelers, including long-haul trucking. Although many rest areas are also used for truck safety inspections, New York and other states are looking to separate truck-related parking and inspection activities from such facilities.

The nation’s commercial vehicle sector is increasingly using ITS technologies to improve highway safety and freight transport efficiency. Federal and state agencies are responsible for ensuring that all freight shipments are moved safely, with licensed operators using properly maintained equipment with all fees paid. For international corridors like I-87, implementation of the North American Free Trade Agreement (NAFTA) and the more extensive border checks since the events of September 11th place additional burdens on agencies and shippers. With the use of emerging ITS technologies by both shippers and regulating agencies, the goals of safe and secure shipments and freight efficiency can both be met.

Trucking remains the freight mode of choice in major travel corridors across the country, with an increased dependence on containerized freight and tandem trucks, posing new challenges for private shippers, highways and rest area systems. A shift to more efficient rail freight and rail-truck intermodal operations is a key to Smart Freight operations. However, recent increases in rail freight and passenger volumes have already congested elements of the State’s rail system, which is turning to advanced technologies like GPS-based train tracking, sensors, and signal controls to better manage system capacity and safety. Traditional upgrades are needed (e.g., continuous welded rail, sidings), but advanced rail control systems are key to updating constrained rail corridors to meet modern standards and demand levels.

Double-stack container cars are being used to meet the exploding container freight demand (over 17,000 containers entering the country every day) while improving energy efficiency and maintaining rail freight’s competitiveness.

Truck and rail are not always competitors. Trucking companies are now among the railroads’ largest customers, contracting with railroads for the long-haul transport of trailers and containers, while trucks cover the links between rail terminals and the cargo’s origins or destinations more efficiently. Intermodal rail-truck freight is among the fastest growing of all freight modes, with the demand for efficient intermodal facilities greater than ever. New York, New Jersey and other states are also using internal waterways like the Hudson River to ship containers to interior ports like the Port of Albany, thereby reducing demands on coastal highways and rail networks. Air cargo demand has grown faster.
than any other freight mode, especially due to shippers like UPS and FedEx moving low weight, high value and time-sensitive goods.

The United States and Canada both want to expedite the movement of goods across their borders, while also increasing emphasis on border security. Critical to this are the various pre-clearance programs that process low-risk shipments faster and allow enforcement agents to concentrate on high-risk shipments. The Customs-Trade Partnership against Terrorism (C-TPAT) focuses on “supply chain” security to ensure the integrity of freight shipments at each step of the chain, from the manufacturer to the goods’ ultimate destination. The Free and Secure Trade (FAST) program is another critical US-Canada pre-clearance effort that uses public-private actions and coordination to expedite the flow of goods across borders. In terms of safety inspections and credentialing, the national Commercial Vehicle Information Systems and Networks (CVISN) program is coordinating the use of state, federal, and private sector information systems and networks to expedite commercial vehicle operations.

New York State is a leader in this area, and is looking to further the use of technology and public-private partnerships to create a Smart Freight environment statewide.

For more information on these and other ITS applications, go to www.its.dot.gov and www.dot.state.ny.us/traffic/its.

Smart Transportation Projects

The following are some examples of Smart Transportation projects that NYSDOT identified during the I-87 Multimodal Corridor study. These and many others are included in the I-87 Multimodal Corridor Study: Corridor Strategic Plan (December 2004):

- **Permanent Truck Inspection Facility at the US-Canadian Border** – applying the latest truck inspection and pre-clearance program technologies to expedite truck inspections at this critical location.

- **Safe and Secure Transportation Program Demonstration** – a demonstration program using existing and emerging technologies to meet shippers’ “supply chain” tracking needs, the shipment security needs of US and Canadian Customs, and the truck and driver inspection needs of NYSDOT and the NYS Police.

- **Expanded Queue Detection & Warning System at Border** – a modern system to identify and then warn travelers when vehicle queues form at the border, including the likely delay, in time for travelers to change their travel plans.

- **I-87/Route 9 Closed Loop Traffic Control System** – building on existing ITS systems in the Capital District to create a closed-loop traffic management system to provide travelers and agencies with real-time information about conditions along primary and secondary travel routes, allowing both agencies and travelers to make better decisions when addressing highway traffic incidents (e.g., accidents).

- **Champlain Port of Excellence Project** – a significant physical and operational expansion of this vital Canada-U.S. border crossing that will maximize the use of ITS systems to expedite pre-cleared freight and passenger traffic while allowing Customs and Homeland Security staff to focus on higher-risk shipments while improving safety and reducing delays.

- **Integrated Incident Management System (IIMS)** – wireless video, GPS and communication systems transmit detailed reports instantly from the incident scene, enabling supervisors at IIMS headquarters to quickly dispatch appropriate responders. New York City and the NYS Thruway have already implemented these types of systems.

- **FAST/NEXUS Programs** – the Free and Secure Trade (FAST) program (for freight shipments) and the NEXUS program (for travelers) using pre-clearance programs and electronic screening at key Canada-U.S. border crossings (with dedicated lanes for program participants to by-pass other vehicles) to dramatically reduce border delays.

**Transformation of New York State Department of Transportation (NYSDOT)**

NYSDOT’s ongoing “Transformation” process emphasizes the Department’s “customers” – i.e., those that move themselves or their products on transportation networks across the State. These customers expect their networks to provide certain “priority results:”

- **Mobility and Reliability** – reliable and predictable trips for people and goods;

- **Safety** – physical safety and safety of shipments;

- **Economic Sustainability** – accommodate anticipated economic activity; enhance connectivity and access to economic sites;

- **Security** – from external threats or abuse; and

- **Environmental Enhancement** – mitigate transportation-related impacts and enhance the natural environment.

NYSDOT is shifting its focus from the maintenance and preservation of highways and bridges to achieving these five “priority results” to address its customers’ needs on all travel modes. The key element of the Transformation, the **New York State Transportation Federation**, comprised initially of NYSDOT, the NYS Thruway Authority and the NYS Bridge Authority, was created to better coordinate the activities of the State’s transportation agencies and authorities. Many of the actions discussed in the Study’s Strategic Corridor Plan will be considerably easier to plan and implement under this new arrangement.