ITS BUSINESS OPPORTUNITIES FORUM
Polytechnic University, Brooklyn, New York
Tuesday, March 8, 2005

AGENDA

9:30 a.m. Registration Check-In Desk Opens; Continental Breakfast

10:00 Welcome and Opening Remarks Robert Reiss, ITS-NY President
Raman Patel, Polytechnic University
“Setting the Stage,” Louis Neudorff, Siemens ITS, Forum Chair

10:20 “State and Regional ITS Opportunities”
Panel Moderator: Lou Neudorff, ITS Forum Chair
Rick Zabinski, New York State DOT
Michael DeGidio, The Port Authority of NY & NJ
Christopher D’Agosto, TRANSCOM
Art O’Connor, FHWA
Tom George, NITTEC

12:30 p.m. Lunch

1:15 “City and University ITS Opportunities”
Panel Moderator: Raman Patel, Polytechnic University
Earl Lee, Rensselaer Polytechnic Institute
Raman Patel, Polytechnic University
John Tipaldo, NYCDOT
Jim Kelly, MTA Bridges & Tunnels
Andy Bata, MTA New York City Transit

3:15 p.m. Concluding Remarks
New York State
Department of Transportation

ITS-NY
ITS Business Opportunities Forum

R. Zabinski
ITS Group-NYSDOT
March 8, 2005
Brooklyn
Topics

- NYS Transportation Federation
- NYSDOT Transformation
- Statewide Master Plan
- NYS 5-Year Capital Plan
- Upcoming ITS Initiatives
- Resources
New York State Transportation Federation

- **Created in November 2003 by Gov. Pataki to**
  - coordinate the activities of the state's transportation agencies and authorities
  - develop joint strategies for system improvements
  - create a seamless statewide transportation system

- **Comprises the Department of Transportation, Thruway Authority, and Bridge Authority**
  - to be expanded to include other state agencies, transportation operators, & service providers
NYSDOT Transformation

- NYSDOT now comprises four Divisions:
  - Operating
  - Program Support
  - Administrative Policy and Support
  - Integrating
NYSDOT Transformation (cont.)

- **Operating**
  - operate and manage transportation assets
  - work with others to operate a seamless transportation system
  - share services for increased efficiency and effectiveness
  - manage information to benefit system users

- **Program Support**
  - provide engineering services
  - create program support centers
  - deliver projects of statewide significance
NYSDOT Transformation (cont.)

- **Administrative Policy and Services**
  - administrative support to the other three Division
  - consolidate functions within the Federation
    - CIO
    - recruitment, training, payroll, etc.

- **Integrating**
  - identify issues and propose policy
  - measure system performance
  - work with others to ensure seamlessness
  - maintain relationships with customers and stakeholders
  - implement strategies in the Statewide Master Plan
Statewide Master Plan

- Transportation vision and policy blueprint
  - statewide in scope
  - all modes
  - 2025 horizon
- Articulate major transportation issues
  - identify strategies
- Input from:
  - MTA, NYSTA, NYSBA, and other agencies
  - Nine public hearings
Statewide Master Plan (cont.)

Among the Key Issues

- integrating transportation decision-making
- operating the system
- accommodating greater freight volumes
- providing security at border crossings/ports
- limiting sprawl/environmental challenges
- financing needed system expansions
Among the Findings:

- Travel time predictability a high priority
- Truck/rail freight imbalance likely to remain
- State demographic and economic challenges
  - Limited resources
- Global economy increasingly complex
Among the Recommendations:

- take a balanced approach to system expansion and operations
- safety thru “influencing driver behavior”
- freight movement a priority for investment
Statewide Master Plan (cont.)

- Draft Plan undergoing interagency review
- To be released to the public in the Spring
  - 30 day comment period
- To be revised to reflect public comments
- Final Plan will be transmitted to the Governor and the Legislature
5-Year Capital Plan

- 2006-2010 Capital Plan
- Executive Budget provides more than $36.6B
  - $17.4B for NYSDOT
  - $19.2B for MTA
5-Year Capital Plan (cont.)

$15.4 B Core Capital Program

<table>
<thead>
<tr>
<th>Program</th>
<th>Amount</th>
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<tbody>
<tr>
<td>$8.2 B Highway and Bridge Program</td>
<td>$155 M DOT Maintenance Facilities &amp; Equipment</td>
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<tr>
<td>$3.3 B Engineering and Management</td>
<td>$185 M Non-MTA Capital</td>
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<tr>
<td>$1.6 B Local Capital Program</td>
<td>$100 M Rail Program</td>
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<tr>
<td>$1.0 B DOT Preventive Maintenance</td>
<td>$45 M IAP</td>
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<tr>
<td>$400 M ROW</td>
<td>$40 M Aviation</td>
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<tr>
<td>$360 M Special Federal Programs</td>
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$2.0 B Enhanced Investment

$17.4 B Total Capital Program

14.9% Increase from the 2000-2005 Capital Program
5-Year Capital Plan (cont.)

- Construction program at $1.65B
  - despite uncertainty at the federal level
- CHIPS Capital at $277M
  - including funding for cities, towns, villages, and counties
  - including NYC
- $192M increase in Transit aid
  - including increases for all operators
- Continued support for rail, aviation, and Industrial Access programs
- Proposed Legislation to let NYS tap into innovative financing techniques used successfully elsewhere:
  - Design/Build (improve cost efficiency and construction time)
  - Public Private Partnerships (leverage private sector financial resources)
5-Year Capital Plan (cont.)

- TEA-21 expired on September 30, 2003
- The sixth extension of TEA-21
  - expires on May 31, 2005
- No agreement on revenues to fund an expanded federal program
  - increased pressure to balance the federal budget
- “Donor States” want a 95% rate of return
- New York State remains a target
  - more vulnerable than ever
Summary

- **Operate!**
  - Federation; Transformation; SWMP
  - balanced with system expansion

- **Closer agency cooperation & coordination**
  - Federation; sharing; strategizing & decision-making

- **Limited resources**
  - easier P/P partnerships; funding uncertainties; efficiencies

- **Statewide Master Plan**
  - multi-modal; freight; borders & corridors; travel-time predictability
Upcoming Initiatives

- **ITS becoming incorporated with standard projects**
  - hard to tease out the ITS elements

- **Enhanced travel information services**
  - Traffic Video and speed maps
    - CARS Web
  - 511 - travel information via telephone
  - Enhanced messaging via VMS and HAR / LPFM Radio
    - thru CARS
Upcoming Initiatives (cont.)

- **Data Warehouse**
  - Archiving operational data
  - Performance measurement and monitoring
  - Planning support
    - Data base design, access, and administration

- **Multi-modal coverage**
  - Public and private elements
Resources

- NYSDOT ITS Group
  - http://www.dot.state.ny.us/traffic/its/mov.html

- NYS Contract Reporter
  - http://www.nyscr.org/

- Intelligent Transportation Society of NY
  - http://www.its-ny.org/
ITS-NY
ITS BUSINESS OPPORTUNITIES
FORUM

“ITS IN THE POST – 9/11 WORLD”
TB&T Facilities

Tunnels:
- Holland Tunnel
- Lincoln Tunnel
TB&T Facilities

- **Bridges:**
  - *George Washington Bridge*
  - **Staten Island Bridges**
    - *Bayonne Bridge*
    - *Goethals Bridge*
    - *Outerbridge Crossing*
TB&T Facilities

Terminals:
- *Port Authority Bus Terminal*
- *George Washington Bridge Bus Station*
<table>
<thead>
<tr>
<th>Original ITS Master Plan</th>
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<tbody>
<tr>
<td>George Washington Bridge 1997 - 2000</td>
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<tr>
<td>Holland/Lincoln Tunnels 1999 – 2002</td>
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<tr>
<td>Staten Island Bridges 2001 - 2005</td>
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</table>
George Washington Bridge ITS - Elements

- CCTV Cameras
- Variable Message Signs
- Microwave Detectors
- Probe Vehicle Readers
- Emergency Phones
- Integrated Workstations
George Washington Bridge – Post Sept. 11th
Holland Tunnel/Lincoln Tunnel ITS

- **Agency Security Focus Forces “New Look” at ITS**
  - Cameras – “Enhanced Visual Surveillance”
  - Incident Detection – “Detect Stopped Vehicles”
  - Variable Message Signs – “Emergency Notification” and “Evacuation”

- **Phased Installation Approach at PA Tunnels**
  - Phase I – Implement Security Elements
  - Phase II – Implement Traffic Management Elements
Holland Tunnel/Lincoln Tunnel ITS – Phase I

Elements

- CCTV Cameras
- Probe Vehicle Readers
- Communications Desk
- Variable Message Signs
Staten Island Bridges - ITS

- Status - Conceptual and Preliminary Design Completed
- Construction

- Commercial Vehicle Screening/X-Ray Technologies
- Enhanced Use of EZPass Tags for CVO Operations
- Nuclear/Radiological Material Detectors at Toll Plazas
- CCTV with “Items Left” Detection Technology
- Radar Technologies for Water-Borne Threats
Issues

- Technologies are New – Public Agencies Like Low-Risk, “Proven” Technologies
- Response Planning – “What Do We Do When the Alarm Goes Off?”
- Financial Capacity Balancing – “How Much Should Go to Technology Investment vs. Physical Security Improvements?”
Summary

- Traffic Management Benefits of ITS Were Well-Understood Pre-September 11th

TRANS COM MEMBERS

Connecticut DOT
Metropolitan Transportation Authority
MTA Bridges & Tunnels
MTA New York City Transit
New Jersey DOT
New Jersey State Police
New Jersey Transit
New Jersey Turnpike Authority
New York City DOT
New York City Police Department
New York State Bridge Authority
New York State DOT
New York State Police
New York State Thruway Authority
Port Authority of NY&NJ
Port Authority Trans Hudson (PATH)

Over 100 Affiliated Agencies
MISSION

- Created in 1986.
- **TRANS**COM’s mission is to improve the safety and mobility of the traveling public by supporting its member agencies through interagency communication and the enhanced utilization of their existing traffic and transportation systems.
- Largest and most densely populated region in the U.S.
- 18,000,000 people & approximately 150 different operational control centers.
- Agencies’ need to maintain its own infrastructure while coordinating with affected facilities/agencies.
- Dissemination of incident information, modification of construction schedules, coordination of special events.
TRIPS 123

- Regional database serves as a Individual source point for:
  - Event Information (Incidents, Construction, Special Events) – Multi-modal
  - Real time information (travel times)

- Available through TRANSCOM private partnership with NEC
TRANSMIT

• TRANSCOM System for Managing Incidents and Traffic

• Probe vehicle based transportation management system that provides current/historical travel time information

• Readers are installed along segments of roadways and travel time links are formed between reader pairs.
TRANSMIT Future Deployments

- NYSDOT Region 1 (Albany area)
- NYSDOT Region 10 (Nassau & Suffolk)
- NYSDOT Region 5 (Niagara)
- PA NY&NJ
- NJ Turnpike
- Garden State Parkway
**TRANSCOM TRANSMIT Services**

- Provide support during all phases of project
  - Design
  - Installation
  - Integration
  - Implementation
- Procure, configure & maintain TRANSMIT reader and communications equipment.
TRANSCOM Contact

Chris D’Agosto
TRANSMIT Project Manager
201-963-4033
dagosto@xcm.org
Summary

- Restructuring of the ITS Program
- Major Initiatives Updates
  - Ongoing
  - New
  - Measures of Effectiveness
- Other Key Activities
  - Crosscutting Programs
  - Earmark Projects
Restructuring of the ITS Program

- Program reoriented to focus on fewer, larger, higher-risk, high-payoff “major initiatives.”
- Nine new major initiatives were approved by the Management Council.
- Allow for completion of ongoing efforts and initiation of exploratory studies.
- Fund crosscutting efforts--architecture, standards, professional capacity building, assessment, outreach--that support the overall goals of the ITS Program.
Major Initiatives

- Problem-driven and results oriented.
- Directly support USDOT’s goals of safety, mobility, and global connectivity.
- Multimodal.
- Engage the private sector while also having a clear public sector role.
- Opportunities to push the envelope in application of ITS.
- Significant R&D component, as well as a testing and evaluation component.
Ongoing Major Initiatives

- **Mobility**
  - 511 Deployment

- **Safety**
  - Wireless E-911
  - CVI SN
  - Intelligent Vehicle Initiative

**Crosscutting:**
- Architecture Consistency
Update: Ongoing Initiatives

- Intelligent Vehicle Initiative
  - Completed Light Vehicle Rear End Collision Avoidance FOT; will publish results of independent evaluation in spring 2005.
  - IVI Final Report will be published for ITS World Congress in San Francisco, fall 2005. Demonstration to be held.

- 511
  - As of November 2004, 511 is available to 77 million Americans--26% of the U.S. population.
  - In 2005 the 511 Coalition activities to focus on targeted metropolitan areas.

- E911
  - Recent legislation created E-911 JPO (NHTSA) and Grant Program.

- Architecture Consistency
  - Final rule/policy fully effective April 2005.

- CVISN
  - Reauthorization language contains CVISN deployment grant funds.
New Major Initiatives

Safety
- Integrated Vehicle-Based Safety Systems
  - Cooperative Intersection Collision Avoidance Systems
  - Next Generation 911

Mobility
- Integrated Corridor Management Systems
- Mobility Services for All Americans
- Nationwide Surface Transportation Weather Observation System
- Emergency Transportation Operations

Global Connectivity
- Universal Electronic Freight Manifest

Crosscutting:
- Vehicle Infrastructure Integration VII
Integrated Vehicle Based Safety Systems

- **Vision**
  - To equip all new vehicles with integrated driver assistance systems that help drivers avoid the most common types of crashes (rear-end, run-off-road, and lane change crashes).

- **Approach**
  - Partner with private consortium of vehicle manufacturers.
  - Facilitate introduction and commercialization of integrated crash avoidance systems.
    - Develop tech-independent performance specifications.
    - Build and test prototype vehicles that meet these specifications.
    - Determine driver/operator acceptance of these specifications.
Cooperative Intersection Collision Avoidance Systems

- **Vision**
  - To develop cooperative intersection collision avoidance systems that can save lives and prevent injuries at the most hazardous intersections nationally.

- **Approach**
  - Partner with consortium of vehicle manufacturers and infrastructure owners.
  - Develop and demonstrate prototype systems, assess their value and user acceptance, develop and provide tools to support industry deployment.
Next Generation 9-1-1

- Vision
  - A modern nationwide 911 capability that provides for significantly improved access to public safety services and new capability for public safety officials responding to serious highway incidents and other public safety emergencies.

- Approach
  - Partner with public safety agencies and telecom industry.
  - Broadly seek innovative technical/institutional solutions.
  - Define a system architecture, develop a transition plan.
    - Consider responsibilities, costs, benefits, schedule for nationwide deployment.
Integrated Corridor Management Systems

Vision
- Improved mobility through integrated management of transportation assets--freeways, arterials, transit, managed lanes--in major transportation corridors in metropolitan areas.

Approach
- Address organizational, operational, and technical barriers to successful integrated corridor management.
- Demonstrate how mobility, safety, and productivity can be increased in major corridors by:
  - Efficient, effective, proactive use of ITS.
  - Improved use of real-time data sharing.
  - Implementing demand management strategies.
Why focus on Corridors?

- Currently surface transportation systems are made up of several independent networks
  - Freeways, including managed lanes
  - Arterials
  - Bus Routes
  - Rail Transit
- Efforts to date to “reduce congestion” have focused on optimization of individual networks
- These parallel network links overlay to form transportation corridors
  - Metropolitan areas contain several major corridors
- Corridors offer an opportunity to operate and optimize the entire system as opposed to the individual networks
Initial Definitions

- **Corridor**
  - A corridor is defined as a combination of discrete adjacent surface transportation networks (e.g., freeway, arterial, transit networks) that link the same major origins and destinations.

- **Integrated Corridor Management (ICM)**
  - Integrated corridor management is the coordination of individual network operations between adjacent facilities that creates an interconnected system capable of cross-network travel management.
Integrated Corridor Management
ICM Scenarios
ICM Scenarios

- Corridor Description
  - Networks
  - Organizations
  - Components and Strategies
Corridor Description

Organizations:
- State DOT
- Toll Authority
- Municipalities
- Regional Transit Authority
- Local Transit Agencies
- Private Parking Companies
- Public Safety Organizations
Corridor Description

Components & Strategies:

- Integration of Management Systems
- Ramp Metering & Signal Coordination
- Value Pricing
- Public Safety Coordination
- Incident Management Program
- AVL Systems with Advanced Service Restoration Capabilities
Corridor Description

- Components & Strategies (continued):
  - Transit Service Coordination and Connection Protection
  - Signal preemption for fire and rescue
  - Transit Signal Priority (TSP)
  - Advanced Parking Management System
  - Integrated Multimodal Electronic Payment System
  - Multimodal Traveler Information:
    - 511
    - Dynamic message signs (DMS)
    - Travel information over the internet, accessible by multiple media
    - Multimodal trip itinerary planning
The initiative will demonstrate that ITS technologies can be used to efficiently and proactively manage the movement of people and goods in major transportation corridors by facilitating integration of the management of all the networks in a corridor.
The goal of the Integrated Corridor Management Initiative is to provide the institutional guidance, operational capabilities, and ITS technical methods needed for effective Integrated Corridor Management Systems.
Phase 1 Major Activities

- **Program Plan and Roadmap**
  - Initial available for review – www.itsa.org/icm.html

- **Stakeholder Involvement**
  - Working group mtg. held 12-15-04
  - Working group mtgs.(3) and workshops (2) planned
    - March, May, and July

- **RFI to gather information on corridor operations strategies**
  - FedBiz Opps – Feb 16 2005

- **Generic ICM Concept of Operations**
  - Draft end of June

- **Early Development Feasibility assessment to be completed end of July**
Mobility Services for All Americans

Vision
- Increase mobility and accessibility for the transportation disadvantaged and the general public through transportation service coordination.

Approach
- Promote optimal allocation of resources and technology deployment through coalition building.
- Identify needs and gaps in current practice; barriers experienced by people, agencies, service providers.
- Conduct FOT’s for integration and addressing unmet needs.
- Create a replicable/scalable traveler management coordination center.
National Surface Transportation Weather Observation System

- **Vision**
  - Reduce the impact of adverse weather for all road users and operators by creating a nationwide integrated road weather observation network and forecasting and data management system.

- **Approach**
  - Cultivate partnership between weather and transportation communities--public and private.
  - Promote stakeholder ownership and consensus in an open system design that links existing RWIS and supports future expansion.
  - Establish basic data management functions and a system focused on stakeholder needs.
    - Multi-state regional demo to test system.
    - Model deployment.
Emergency Transportation Operations

Vision
- Faster and better prepared responses to major incidents, shorter incident duration, reduced impact, and more rapid restoration of normal travel conditions.

Approach
- **Build partnership** between transportation, public safety, and security communities.
- Develop tools, guidance, and standards.
  - Focus on three subtopics:
    - Heavy towing/recovery and hazmat response.
    - Improved evacuation methods and major incident traveler info.
    - Standards facilitating incident response and integration.
Universal-Electronic Freight Manifest

- **Vision**
  - Improved operational efficiency, productivity, and security of the transportation system through the use of a common electronic freight manifest and message portal that enables access to shipment information to all supply chain partners in real time.

- **Approach**
  - Focus on air freight supply chain.
    - Expand pre-existing stakeholder groups—shippers, carriers.
    - Standardize electronic messages and biometric identifiers.
    - Develop a message portal to carry an electronic manifest across the entire supply chain.
    - Develop a system architecture to define linkages to supply chain users.
    - Develop business case to define rules and procedures for supply chain partners.
Vehicle Infrastructure Integration (VII)

- Vision
  - To achieve nationwide deployment of an integrated communications infrastructure on the roadways and in all production vehicles to enable a broad range of safety and operational services that today are unattainable.

- Approach
  - Convene a “VII Coalition”--auto manufacturers, AASHTO, USDOT--to work through issues in the technical, policy, business models, and outreach areas.
  - Initiate a program to develop DSRC prototypes that will validate DSRC standards and provide equipment for testing elements of the VII concept.
  - Define a VII test concept and demonstrate value to all parties.
What Could VII Mean for Transportation?

- Prevention of intersection and run off the road crashes.
- Full knowledge of real-time operating conditions – traffic flow, weather, and incidents - on the nation’s highway system.
  - improved freeway operations, traffic signal operations, management of traffic through work zones, emergency response to incidents or evacuations and snow and ice management.
- Immediate detection of crashes, appropriate response, and the ability to communicate between the crash vehicle, the response vehicle and the emergency care facility.
- Complete information for travelers on current travel conditions on the system – travel time, weather conditions, incidents – which would enable travelers to make informed decisions regarding the mode, route, and time of travel.
Example VII Use Cases
(of over 70 identified)

**Safety Applications**
- Signalized intersection violation warning
- Curve warning
- Cooperative adaptive cruise control
- Rollover
- Road condition warning
- Stop sign violation warning
- Blind spot warning
- Lane change warning
- Emergency electronic brake lights
- Approaching emergency vehicle warning

**Mobility Applications**
- Vehicles as probes
- Enhanced route guidance and navigation
- Electronic payment
- Intelligent traffic flow
- Intelligent on-ramp metering
- Commercial vehicle electronic clearance
- Traffic information
- Map downloads and updates
- Public sector vehicle fleet management
Key Milestones

- Deployment Decision – 2008
- Field Operational Test – 2007
- Proof of Concept Testing – 2006
- System Architecture Complete – 2005

All work is building toward a 2008 deployment decision.
Measures of Effectiveness

- Established **four** broad criteria to facilitate a more formal decisionmaking process and keep Initiatives on track.
  - Measures track well with initiative roadmaps and milestones.
- Management Council will use these criteria to assess the direction of the initiatives and also whether to continue activities or terminate efforts.
- Criteria are:
  - Stakeholder Acceptance
  - Scope Refinement
  - Business and Technical Architecture
  - Assessment
Crosscutting Programs

- Efforts that provide the foundation for ITS deployment.

- ITS Standards
- National Architecture
- Professional Capacity Building
- Program Assessment
- Outreach
Statewide Earmark Projects

FY2004

- City of New Rochelle, NY Traffic Signal Replacement Program - $430,791 available
- I-87 Highway Speed E-ZPass at the Woodbury Toll Barrier, New York $1,507,768 available
- I-87 Smart Corridor, New York $861,582 available
- I-90 Phase 2 Connector ITS Testbed – Town of N. Greenbush-Rensselaer County, NY $172,316 available
- Monroe County ATMS ITS Deployment Project, New York $689,265 available
Downstate Earmarks in New York
FY2005

- Highway Speed E-ZPass, Outerbridge Crossing, New York
  $350,000 (subject to reduction)

- Nepperhan Traffic improvements, City of Yonkers, New York
  $300,000 (subject to reduction)

- Village of Tarrytown, New York
  $320,000 (subject to reduction)
Conclusion

- Level of activity is high; projects are moving forward rapidly.
- Major initiatives provide opportunities to push the envelope of ITS forward and break new ground.
- Exciting time to get involved.
  - Look for opportunities to participate, especially the private sector.
- Stakeholder communication, involvement, and feedback is absolutely critical.
- Focus is on solutions and products, not studies and reports, and the intent is to advance deployment of ITS.
Hello God. I’m a Red Sox Fan. Nice to Finally Meet You.
Niagara International Transportation Technology Coalition

ITS – NY
ITS Business Opportunities Forum

Opportunities within the Niagara Region
Introduction

- NITTEC Coalition
- Contracting Practices
- Study & Design Opportunities
- Capital Construction Opportunities
- Maintenance Opportunities
NITTEC

- ITS Operating Coalition Established in 1996
  - Fourteen Member Agencies
    - 7 US, 5 Canadian & 2 International
  - Not a legal entity - established by MOU between members
  - Only Coalition of its kind in U.S. / Canada
  - “hosted” by NFTA
  - Funding based on annual budget approved by members
    - 80% FHWA – included on MPO TIP
    - 20% NYSDOT SDF
  - Revolving Loan Fund
Contracting Practices

- NITTEC Projects
  - Approved by Coalition
  - Coalition based – global projects
  - Funding included in annual budget
  - Contracted through NFTA Procurement Process
  - Managed by NITTEC Staff and/or Subcommittees
  - Occasional “pilot” projects to demonstrate technology
  - Current initiatives include web page design and PVMS “pilot” project
Contracting Practices

- **Agency Projects**
  - Advanced by a coalition member agency
  - Agency based – specific project
  - Coalition considered stakeholder as the operator of the system
  - Funding included in agency program
  - Contracted through agency procurement process
  - Managed by agency with input from NITTEC Staff and/or Subcommittees
Study and Design Opportunities

- NITTEC
  - NITTEC Strategic Plan for Organization

- Coalition Members
  - Consultant Selection for ITS Phase 4 – TBD
  - Bus Dispatch Radio System Study - NFTA
Capital Construction Opportunities

- Coalition Members
  - ITS Phase 3 – NYSTA
  - Lewiston - Queenston Bridge Queue End Warning Deployment – NYSDOT
  - Border Information System Infrastructure Project – NYSTA
  - Signal System Upgrade / Central Control – Buffalo
ITS System Buildout

Figure 11-2
Region’s Phased ITS Deployment Plan

March 8, 2005
Maintenance Opportunities

- Operation Center Equipment (i.e. CCTV, Projection Wall, ATMS, etc.)
- NYSDOT Region 5 - ITS field element maintenance contract
Questions?
Polytechnic University
Current Activities

ITS NY Business Forum
March 8, 2005
Polytechnic University

Raman Patel
Urban ITS Center
Polytechnic University
Key Initiatives at Poly

I. Research Initiatives
   - Bio-sensor network
   - Cyber security
   - Decision support-Evacuation
   - Transportation security

II. Training/Education Initiatives
   - Urban Security Initiative
   - Urban Utility Center
   - Transportation Program

III. Urban ITS Center
ITS Laboratory

- Offers professional learning environment
- Traffic simulation modeling
- Training in:
  - Traffic Engineering
  - ITS Technology
  - Architecture & Standards
  - Incident Management
  - Tabletop exercises
New York City
Department of Transportation

ITS New York
March 8, 2005
NYCDOT ITS Capital Projects

- Design
  - to be completed via a soon to be awarded Engineering Services Agreement or through use of in-house design staff.
NYCDOT ITS Capital Projects

- ATMS Projects
  - Video Cameras
  - Vehicle Detection Hardware
    - Video Detection
    - Microwave/Acoustic
    - Tag Readers
  - Wireless Modems
  - Variable Message Signs
    - Span Mounted
    - Side Road mounted
    - Portable
NYCDOT ITS Capital Projects

- Installation of Fiber Optic Cable
  - FDR Drive
  - East River Bridges
  - Hubs for Wireless Traffic Signal Communications
  - Major Arterials
ITS Capital Upcoming Projects

- ASTC Controllers
  - Topics IV (over 3,000)
  - Eventual replacement of all electro-mechanical traffic signal controllers
- Wireless Communications
  - DOITT City Wide Project
Public Notices

- “City Record” Newspaper
- City’s web site www.nyc.gov

Capital Commitment Plan FY 06

- $47 Million
MTA Bridges and Tunnels which is also known as the Triborough Bridge and Tunnel Authority (TBTA)

- Operates seven bridges and two tunnels connecting the five boroughs of New York City.

- Last year, over 300 million vehicles crossed our facilities.

- Over 70% of that traffic used E-ZPass.

- Peak period market shares for E-ZPass are well over 80% for most of our facilities.
MTA B&T Mission

- **Improve safety for customers and employees**
  
  Safety is addressed through maintenance of capital assets and through specific projects which improve the characteristics of roadway surfaces and physical elements such as lane widths, median barriers and toll plazas configurations.

- **Improve and increase customer satisfaction**
  
  Capital construction projects are planned and designed to minimize the impact on motorists and the surrounding communities. They also build on the success of E-ZPass in an attempt to effectively promote customer satisfaction.

- **Improve cost-effectiveness**
  
  Prompt response and appropriate capital replacement of aging facility components is planned so that the need to perform much more costly and disruptive reconstruction projects in the future is precluded.
MTA B&T ITS Objectives

Use of ITS to

- Provide information to operate our facilities in a more safe and efficient way.
- Provide information to our customers to improve their travel.
- Provide information to our partners to better manage traffic and incidents in the region.

Use of technology to achieve these objectives in a cost-effective manner
Advanced Traffic Management Systems

- Contract awarded to Transdyn after competitive bid for ATMS at all facilities.
- Project currently being implemented
- Equipment installed at Randall’s Island Operations Control Center
- Initial facility installation this month
- Project completed mid-2006
Incident Detection Systems

- Multi-facetted approach utilizing a range of technologies
- Awarded on-call design contracts last year for incident detection system design
- Will award on-call construction contracts this year
- Installing Video Incident Detection System at QMT and BBT
- Slow traffic warning system designed and will be installed this year
- Transmit at TB and VN and additional sites are under design
Fiber Optics / CCTV

- Design completed for most facilities in 2004
- Construction contract awarded in December 2004 based on RFP
- Completion within three years
Video Surveillance System

- System in implementation phase with initial installation at three facilities
- Analog system with plan to phase into digital
Weather Recording System

- New system installed at three facilities
- Upgrade of older system at other facilities to improve timeliness of information and reliability of system
E-ZPass System

- Upgrade of major components of system

- Replacement of Toll Plaza Power and Communications Infrastructure
Other Areas

- Disaster Recovery – Business Resumption
- Data Warehouse – Business Intelligence
Intelligent Transportation Systems

at

MTA New York City Transit

Andrew Bata
Senior Director, Strategic Business Planning Technology and Information Services

ITS New York, Polytechnic University March 8, 2005
Overview

- ITS Program
- Operating Environment
- Key ITS Projects
- Deployment Challenges
- Conclusions
ITS Program

- On-going partnership between TIS and Operating Divisions, supported by Capital Program Management, Procurement, Operations Planning
- Leadership by MTA Headquarters (Policy & Planning, Capital Programs)
- Multi-faceted, multi-modal, inter-organizational activity
- Small but growing investment in infrastructure, software and management
- Guided by recent FTA policy compliance and regional cooperative programs (TRANSCOM, NYMTC, Sub-Regional Architecture, etc.)
Operating Environment

• *Size, complexity and uniqueness of system*
  – 7m riders/day, 468 stations, 4,500 buses, 6000 railcars, 14,000 bus stops, complex system, “canyon” effect

• *Dynamic service environment*
  – 24-hour operation and maintenance, heavy congestion and ridership, frequent route diversions (at least 200 per day), etc.

• *Large, powerful labor unions*
  – Affect work rules and decision making

• *Aging infrastructure, legacy systems, threat of vandalism, “need to keep it going”*
Operating Environment (continued)

• ITS investment
  – Small, but subjected to more scrutiny and higher expectations
  – ITS as an area of specialization is not fully understood

• Project coordination
  – Large and complex

• Strong institutional structures
  – Decision making diffused and compartmentalized

• Balancing operation, maintenance, and customer service needs
  – Not easy

• Demanding riding public and press
  – You bet!
Key ITS Projects

- Service Management and Customer Information System (*SMCIS and PA/CIS*)
- Enhanced On-Line Traveler Information System (*Trips123*)
- Subway Car Automatic Announcement System (*AAS*)
- Automatic Train Supervision (*ATS*)
- Communication-Based Train Control System (*CBTC*)
- Automatic Fare Collection (*AFC*)
Key ITS Projects

SMCIS

Operational objective:
• Manage bus fleet with real-time data
Key ITS Projects

SMCIS (continued)

Customer objectives:

• Real-time information to customers at bus stops, transfer and tourist sites

Status:

• Field demo completed
Key ITS Projects

PA/CIS (Public Address/ Customer Information Screen)

Objectives

• Real-time information to customers in stations
• Centralized service management
Key ITS Projects

PA/CIS (Public Address/ Customer Information Screen)

- **Core System**
  - **PA/CIS Phase II** 2003-2006
  - Division A (IRT)

- **PA/CIS**
  - **PA/CIS Phase III** 2008-2012
  - Division B (BMT / IND)

- **HPI**

- **CCTV**

- **SDM**

- **SIMS Advanced Application Rollout TBD**

- **System Expansion**

No. of Stations:

- 0-10
- 152
- 468 +

Division A (IRT) & Division B (BMT / IND)
Key ITS Projects
Trips 123

Objectives
- Agents give travel directions via telephone to customers
- Tri-state regional travel itinerary
Key ITS Projects
Trips 123

Objective
• Customer friendly on-line access to travel advisory service
Key ITS Projects
Subway Automatic Announcement System

Audio Announcement
“Please do not block the doorway”

Electronic Strip Map

Service Pattern Data
Transfer Data
S-to-S Distances
Prerecorded Messages

Door Opening
Wheel Revolutions

End Route Sign

LAN

Interior Message Display
Next stop 125 St

Side Destination Sign
6 to Pelham Bay Park

B/W diagram by Damiko G. Morris/The New York Times
Key ITS Projects

ATS

Objectives

• Centralized Service Management
• Real-Time Customer Information

A train arriving every 4 minutes

P.A. System

Customer Information Screen
Key ITS Projects

CBTC

Objectives

• Maintain speed limits automatically
• Ability to improve train frequency
• Enhance customer safety
Key ITS Projects

Automatic Fare Collection

Moving from yesterday

...into today

with tomorrow in sight
Key ITS Projects
Paratransit AVLM

Program highlights:

• Will cover 1329 vehicles with +428 as option
• NYC 5 boro coverage including “urban canyons”
• Vendor to provide wireless data communications network
• Built in interface with scheduling software
Key ITS Projects
Paratransit AVLM

Procurement status:
• Proceeding with implementation of program
• RFP was issued late 2004
• Negotiations with selected vendor to commence this week
• Award expected 2\textsuperscript{nd} Quarter 2005
Some new initiatives

• Help Point Intercoms
• Handheld wireless devices
• Expanded GIS mapping of subway assets for security and emergency information
• Redesigned employee intranet and internet
• HR kiosks at off-site locations for employee assistance and information
New Initiatives
Help Point Intercom

- Customer focus groups tested design
- Prototype in development
- 10 station pilot in conjunction with PA/CIS
Deployment Challenges

- Legal
- Technical
- Operational
- Institutional
Deployment Challenges

Legal

• Scope/Contract issues
  – Scope changes, overhead rate changes, etc.

• Software development rights
  – Source code availability, warranty, etc.

• Partnership vs. contract requirements
  – Cost/revenue/benefit sharing
Deployment Challenges

Technical

• Maintaining interfaces with legacy systems
• Addressing system obsolescence, replacement and expandability requirements
• Building large databases and ensuring security
• Incorporating untested, evolving open standards
Deployment Challenges

Operational

• Data development and quality issues
  – Ensuring accurate, reliable and timely data; translation

• Dynamic service/operational changes
  – Frequent bus stop changes, incorporating new user needs, etc.

• Site development/system installation
  – Contract labor issues, communication issues
Deployment Challenges

Institutional

• Evaluating values and benefits of ITS
• Maintaining consistent management commitment
• Implementation risks of new technology and common goals of information sharing
• Adopting uniform open standards
• Budget constraints
Conclusions & Opportunities

- Best practices of safety and security of passengers, infrastructure, and personnel
- Providing reliable underground communication and evacuation procedures for passenger safety
- Ensuring instant, reliable and accurate information to customers
- Service disruption and restoration tools for service managers
Conclusions & Opportunities (continued)

- Meeting federal ITS Architecture compliance requirements - data mapping and standards usage
- Training in software applications and maintenance systems engineering and project management
- What do we need?
  - Workable tools, integrated systems solutions, reliable software, secure infrastructure, efficient service, and satisfied customers!
In the media

**THE COMING SUBWAY CRISIS**

And how to avert it. By Clive Thompson & Peter Keating

**A WORLD-CLASS RIDE**

What New York City could learn from transit systems around the globe. By Alex Marshall

**SLIDING GLASS WALLS**

That stand between the sunny-open tracks and the people waiting on the platform. Almost every year, people die by being pushed, jumping, or falling in front of approaching trains. These glass walls would prevent that and make the rest of us a lot more comfortable. They are also stunningly cool. When a train comes into the station, the doors on the train align with the seams on the glass wall—and both open up. Paris’s new Metro line has them.

**DIGITAL HIGH-RESOLUTION VIDEO CAMERAS**

That record what goes on at all stations. Anti-government types might not like their every train-boarding being observed, but it would arguably reduce any lingering crime in stations, as well as the threat of terrorism. London has them.

**ELECTRONIC SCREENS**

That announce how long you have to wait until the next train comes. This may sound like an unnecessary luxury—it wouldn’t, after all, speed up the trains—but psychologists tell us that you can wait comfortably two or three times as long for something if you know how long you have to wait. San Francisco has them.

**COMPUTERIZED SIGNALING**

Most of the improvements described here would be feasible only if the subway’s system of switches and signals were to rely on computer chips rather than ancient transformers. “That’s the thing that will allow all the other things to happen,” says Robert Freeman, of the University Transportation Research Center at City College. As the recent fire on the C line showed, the subway’s present electrical system is similar to that of a 1963 Chevy, or maybe a 1923 Studebaker, rather than that of a 2003 Lexus.

The MTA is converting its electrical systems—slowly. Completing the job is scheduled to take up to 40 years.

**Dedicated Revenue Source**

That would reliably pump money into the system year after year. This is the holy grail for transit lovers. Forget most of the goodies described here: the transit system needs a bigger funding stream outside the general state and city budgets. Already there are all kinds of little taxes and fees, including a tiny portion of your cell phone bill. But larger measures are necessary, such as a regional commuter tax, like Paris’s.