



November 2011

Experts Focus on Real-Time Transportation Technologies

New and emerging technologies are being used in real-time throughout northern New Jersey and beyond to improve traffic flow, security, safety and the environmental impacts of transportation. A series of experts highlighted key examples of these technologies at the North Jersey Transportation Planning Authority's Oct. 28 symposium "Technology Update: Improving Real-Time Operations."

Hunterdon County Freeholder Director Matthew Holt, the NJTPA's Third Vice-Chairman, welcomed the roughly 100 attendees, noting how the agency's symposium

series continues to highlight key technological applications.

"Every symposium I've participated in here at the NJTPA has shown me that we are tackling these issues in new and exciting ways," said Holt, who also chairs the NJTPA's Planning and Economic Development Committee. "I continue to be amazed and impressed at how we are using technology to meet these challenges."

Featured presenters were:

- Jeremy Agulnek of NAVTEQ on innovations in pedestrian navigation technologies
- David Liebgold of the New Jersey Meadowlands Commission on the regional adaptive



Left, Mitchell Erickson, U.S. Department of Homeland Security. Right, Hunterdon County Freeholder Director Matthew Holt, NJTPA Third Vice-Chairman, delivers opening remarks.

traffic signal control system the commission is implementing

- James Kemp (NJ Transit), Tony Laidig (Metropolitan Transit Authority) and Brian ten Siethoff (Cambridge Sys-

tematics) on regional transit technology

- Jim Hadden (New Jersey Department of Transportation), Tom Batz (TRANSCOM)

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Map Makers Begin Targeting Pedestrians

Map makers have geared their work towards drivers for decades, but demographic trends are now causing them to think with their feet. Statistics show that global populations are shifting to urban environments at a high rate and the industry is beginning to respond with products created exclusively for pedestrians, according to Jeremy Agulnek, a director of product management for NAVTEQ, a supplier of digital map data to clients ranging from rental car companies to atlas makers.

Online services such as Mapquest or Google Maps often take factors like one-way



Jeremy Agulnek, NAVTEQ.

streets into account, which results in accurate directions for drivers but circuitous routes for walkers. Adding data about features like crosswalks or a trail through a park can help systems produce a more direct route for pedestrians, Agulnek said.

Some services are beginning to incorporate data about indoor settings, he noted. The halls of key public buildings such as transit hubs and private sites like shopping malls will eventually be mapped, with features like store and elevator locations marked.

Another pedestrian-focused map technology in its infancy is "augmented reality." These applications allow pedestrians looking through smartphone camera screens to see digital icons and text floating around the actual sites in their view to help guide their walks.

"We're really just starting to scratch the surface of what's available to people walking around," Agulnek said. ■

Event Videos and
Multimedia Available at
www.njtpa.org



Technologies Make Travel Faster, Cheaper

In the transportation world, technology must keep both people and information on the move. Intelligent transportation systems (ITS) innovators are driving that effort through a variety of projects including adaptive traffic signal control, real-time public transit monitoring and control, and open standards for data applications.

David Liebgold, Chief of Transportation for the New Jersey Meadowlands Commission, advocated the importance of real-time intelligence and discussed the implementation of the Meadowlands Adaptive Signal System for Traffic Reduction (MASSTR). The system is designed to reduce roadway congestion, travel time, fuel consumption and airborne emissions—all within an environmentally sensitive area and a limited budget. MASSTR uses software to adjust the timing of a network of traffic signals continuously throughout the day in response to real-time traffic conditions.

Liebgold said the benefits of the system are “astronomical.” The estimated \$20 million in annual cost savings for time workers would have lost stuck in traffic provides justification for the project’s \$12.5 million upfront cost, he said.



Above, James Kemp, NJ Transit. Left, David Liebgold, New Jersey Meadowlands Commission.

Construction is expected to begin by winter 2012 and be completed by winter 2013.

Another real-time ITS application, NJ Transit’s Smart Bus program, has improved on-time performance. Essentially, the Smart Bus enables

continuous communication between the vehicle, the depot and the computer-aided dispatch center. According to

James Kemp, Program Manager for Smart Bus Technology at NJ Transit, the technology allows fewer vehicles to provide more trips at a lower cost.

“Smart Bus touches everything and changes everything we do,” Kemp said. “From the way drivers log on to the bus, to how the servers dispatch and supervise, to

maintenance management, incident detection, incident response, terminal operations—Smart Bus changes it all.”

The Smart Bus System will be operational with real-time information by fall 2012 and dispatch will be operational a few months later, Kemp said. “It’s a brave new world and we’re looking forward to it.”

Yet the largest variety of real-time transportation applications is likely still to come, said Metropolitan Transportation Authority Technical Analyst Tony Laidig.

“The future is wide open and I encourage all of you, in making technological choices, to consider the data that you’re gathering and how can you open that up,” Laidig said. “How can you use your platform to enable future uses that you can’t imagine?” ■

Equipment will Enhance Infrastructure Security

Mitchell Erickson of the U.S. Department of Homeland Security’s Science and Technology Directorate outlined a variety of technologies that have the potential to make the nation’s transportation infrastructure more secure.

The goal of next generation airport security technologies now under development is to be able to non-intrusively scan passengers as they walk to their gates, without the need for them to stop or be subjected to controversial body searches used today, Erickson

said. The same technologies could one day be used to scan large crowds at sporting events, he said. Instant iris scans may be another means for speeding up the airport ID verification process for passengers, he said.

Equipment such as blast-absorbing liners, inflatable plugs and floodwalls are being designed to make tunnels more resistant to terror incidents or disasters. In the case of an underwater subway, such technologies could be used to contain the damage and prevent water from flooding connected tunnels in the system, he said.

Given that funding is always tight, Erickson said an effective way to get people behind new transportation infrastructure spending is to design the projects with dual uses in mind. For instance, an expensive new traffic signal system designed to relieve congestion might also give emergency responders the ability to override red lights and reach the scene faster, thereby improving public safety and security. “[Dual-use designs] speak to our world, they speak to the taxpayers and they speak to the customers,” Erickson said. ■

Issue Spotlight



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NJTPA’s host agency is the New Jersey Institute of Technology (NJIT). This publication is financed by the Federal Transit Administration and the Federal Highway Administration of the U.S. Department of Transportation. The NJTPA is solely responsible for its contents.

NJTPA Executive Director:
Mary K. Murphy

October 28, 2011

Technology Update: Improving Real-Time Operations



Clockwise from top center: The panel of nine experts who gave presentations at the symposium (l-r): David Liebgold, N.J. Meadowlands Commission; Brian ten Siethoff, Cambridge Systematics; Mitchell Erickson, U.S. Dept. of Homeland Security; Stan Platt, Delaware Valley Regional Planning Commission; Jim Hadden, N.J. Dept. of Transportation; Tom Batz, TRANSCOM; Jeremy Agulnek, NAVTEQ; James Kemp, NJ Transit; and Tony Laidig, Metropolitan Transportation Authority. NJTPA External Affairs Director Mary Ameen welcomes guests; members of a crowd of about 100 observe; Batz delivers his presentation; NJTPA Executive Director Mary K. Murphy joins the discussion; Platt speaks to the audience.

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and Stan Platt (Delaware Valley Regional Planning Commission) with regional status reports on travel information systems.

NJTPA Executive Director Mary K. Murphy told the attendees that the session is just an example of how the region is cooperating more

than ever to improve operations and other aspects of transportation through technology.

“This ongoing symposium series is one way we work to foster a better understanding of how current and emerging technologies can improve the metropolitan transportation planning process,” Murphy said.



A slide from presentation by NAVTEQ's Jeremy Agulnek concerning readers that allow passengers to purchase tickets with cell phones.

The event was the sixth in the NJTPA's ongoing Transportation and Technology Symposium Series. Video footage of the presentations and copies of the speakers' Power-Point files are available for viewing at www.njtpa.org. ■



Collaboration, Shared Information Improves Travel



As more jurisdictions and agencies embrace New Jersey's 511 system, what do to with its data, or how to get the most out of it, is becoming as important as the data itself.

Jim Hadden, the New Jersey Department of Transportation's 511 Program Manager, emphasized the importance of information sharing to customize the state's 511 system in step with what the public needs. The 511 hotline and website (511nj.org) offer free, real-time travel data on traffic conditions, crash updates, construction delays and more.

Hadden said that prior to Hurricane Irene in August, "We knew we needed to provide more information than just what roads were going to be closed, so we actually created a [Hurricane Irene] page inside the 511 website." During and immediately after Irene, 511 website visits and



Jim Hadden, 511 Program Manager, said call volumes and traffic to 511nj.org surged after Hurricane Irene as travelers sought info on road closures.

call volumes surged significantly. Hadden said 511 was ready with links to updated information about coastal evacuation routes and local storm shelters and press releases from various agencies. Over the next few weeks, 511 enhancements are planned that will allow users to further customize and filter information by county, he said.

Tom Batz, Deputy Director of TRANSCOM, a coal-

ition of transportation and public safety agencies, said a key to 511's success is its "Open Reach" system, which provides 511 data to traffic operations centers and officials. Batz said New York and Connecticut (and possibly also Washington, D.C., in the future) are preparing to join New Jersey and Pennsylvania in Open Reach. "So we're going to have this information...all in one system, in the same format," Batz said. "That's a big improvement."

Still, gaps in coverage need to be filled, Batz said, and what travelers want most is pinpointed travel-time information. "It's nice to know there's an overturned tractor trailer, but really what people want to know is [whether] this is going to cost me an hour getting to work this morning."

Stan Platt, Manager of the Delaware Valley Regional Planning Commission's (DVRPC) Office of Transportation Operations Management, highlighted law enforcement and public safety applications for 511 data in the DVRPC region. Platt said DVRPC works with the Pennsylvania Department of Transportation to provide police and fire departments with real-time travel data that can improve their response to incidents. ■

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