

## Chicago Metropolitan Agency for Planning Advances Regional Vision through Strategic Guidance on Transportation

Since early 2008, the Volpe Center has been providing strategic advice to the [Chicago Metropolitan Agency for Planning \(CMAP\)](#) in its comprehensive planning campaign for metropolitan Chicago, [GO TO 2040](#). The GO TO 2040 campaign is intended to enhance regional decision making about quality-of-life issues, including transportation, jobs, and education, among others. Initially, Volpe's team assisted in designing scenarios

for stakeholders to use in evaluating alternative futures for the Chicago region. During the last twelve months, Volpe has delivered six "action strategy" papers based on best practices of peer organizations: climate change and energy, goods movement, security/energy management, public-private partnerships, alternative fuels and advanced vehicle technologies, and inter-regional transportation. The recommendations in the papers have served CMAP in refining the alternative future scenarios. The Volpe team has also advised CMAP about developing evaluation measures for major capital projects and summarized innovative applications for transportation performance indicators.

Four complementary strategic documents created for GO TO 2040 highlight the breadth and depth of this project:

*Continued on Page 2*



Aerial view of Chicago (Courtesy of Wikimedia Commons)

### IN THIS ISSUE

- 2 COI Spotlight (cont.)
- 2 Chicago Metropolitan Agency for Planning (cont.)
- 3 Small Business Innovation Research Web Portal
- 3 Volpe Employee in Mansfield Fellowship Program
- 4 St. Lawrence Seaway 50th Anniversary
- 4 Korea Railroad Research Institute Visit

## COI Spotlight - Advanced Vehicle and Information Network Systems

One of the primary functions of the Volpe Center is to apply advanced technologies to solve the nation's most pressing transportation problems. No Center of Innovation (COI) reflects this mission with greater clarity than does the COI for Advanced Vehicle and Information Network Systems. The COI is truly technology driven. Its portfolio covers a wide range of communications, information systems and electronics technologies that can enhance safety, improve transportation system performance, reduce both traffic congestion and harmful vehicle emissions, and provide drivers, passengers and systems operators with real-time traffic data and information to make more informed decisions. The COI includes systems engineering, operations research and transportation systems assessment expertise that can test, assess and determine the best means to apply these technologies in real-world transportation settings.

Among the COI's most significant sponsors are several U.S. Department of Transportation

### Centers of Innovation

- **Multimodal Systems Research and Analysis**
- **Safety Management Systems**
- **Environmental and Energy Systems**
- **Freight Logistics and Transportation Systems**
- **Physical Infrastructure Systems**
- **Communication, Navigation, Surveillance (CNS) and Traffic Management Systems**
- **Human Factors Research and System Applications**
- **Advanced Vehicle and Information Network Systems**

(DOT) organizations, including the Research and Innovative Technology Administration's Intelligent Transportation Systems Joint Program Office (ITS/JPO), the Federal Highway Administration (FHWA), the Federal Transit Administration (FTA), the National Highway Traffic Safety Administration (NHTSA), and the Federal Emergency Management Agency (FEMA). The COI's major projects can be categorized into three clusters:

#### Intelligent Transportation Systems

(ITS/JPO, FHWA, FTA) – The Volpe Center has been at the forefront of ITS for the past twenty years. SafeTrip-21 is the largest single Volpe effort that is supporting a series of operational tests for IntelliDrive<sup>SM</sup> applications. SafeTrip-21 uses vehicle-to-infrastructure and vehicle-to-vehicle services based on global positioning system (GPS) and cell phone technologies to collect real-world traffic data, analyze it to pinpoint congestion and other bottlenecks, and provide updates and alternative routes to

*Continued on Page 2*

## COI Spotlight *Continued*

drivers in real time. Among the field tests locations are the San Francisco Bay Area, the San Diego region, and the I-95 corridor from New Jersey to North Carolina. The Center of Innovation also provides strategic planning and institutional and policy analysis for both ITS as a whole and individual elements such as IntelliDrive<sup>SM</sup>, Safe Trip-21, and the transit ITS program. The Volpe Center also provides significant assistance to the professional capacity building programs, which educate and train state and local transportation personnel in ITS programs, technologies and deployment skills.

### **Emergency Management and Response**

(FEMA) – The Volpe Center is a major participant in the Federal emergency response and recovery planning community. Whether FEMA is responding to a natural disaster such as a flood, hurricane, or earthquake or a terrorist attack, Volpe Center personnel serve as DOT regional emergency transportation representatives and routinely travel to disaster sites to participate in and manage these recovery efforts.

### **Crash Avoidance and Crashworthiness**

(NHTSA) – The Volpe Center has been supporting NHTSA's ITS activities since their inception in the early 1990s with an emphasis on both crash avoidance, which seeks to minimize the possibility of an accident, and crashworthiness, which seeks to minimize the personal injury and property damage that occurs when a crash actually happens. In achieving these goals, the COI applies such techniques as crash analyses of data from real-life incidents; developing test procedures and managing both field operational tests of vehicle safety equipment and vehicle crash tests to generate additional real-world data; and performing independent safety and technology assessments of advanced technology concepts and prototype systems and equipment. Many of these activities are performed under cooperative agreements between NHTSA, the Volpe Center and private sector vehicle, electronic and

component manufacturers who collaborate and share information and results. Among the major current projects in this category are developing, assessing and deploying Integrated Vehicle-Based Safety, Cooperative Intersection Collision Avoidance, Pre-Crash Sensing, Crash-Imminent Automatic Braking and Advanced Passenger Restraint Systems; and developing test procedures and metrics to assess the safety benefits of ITS systems such as IntelliDrive<sup>SM</sup>.



Instrumented Test Vehicle (Volpe Center Photo)

## CMAP Advances Regional Vision through Strategic Guidance *Continued*

**Development of Evaluation Measures for Major Capital Projects:** Volpe details evaluation measures that CMAP can employ to evaluate major capital projects, including consideration of eligibility for federal transportation funding. CMAP has incorporated Volpe's recommendations into its method for assessing potential capital projects. The agency will evaluate proposed capital projects in late 2010 as part of its current long-range, comprehensive planning cycle.

**Climate Change and Energy Strategy Paper:** As CMAP develops its approach to climate change and energy issues, it can build on the innovative approaches utilized by peer Metropolitan Planning Organizations, states, and multi-state regions. In this paper, Volpe staff compile and recommend a synthesis of other organizations' best practices to aid CMAP in designing effective climate- and energy-related initiatives.

**Innovative Applications for Transportation Performance Measures by Peer Agencies:** Volpe presents case studies that highlight translatable practices for employing data to track achievement of performance goals. As an example, CMAP might review "transportation expenditures as a percentage of household income" to evaluate competitiveness of multi-modal options, as does Metro, a peer agency in Portland, Oregon.

**Inter-Regional Transportation Planning Action Strategy Paper:** Volpe presents best practices that CMAP might adopt in order to strategically and effectively assume a key role in interregional transportation partnerships. Carefully designing CMAP's role will streamline cross-regional collaboration. This, in turn, will accelerate and improve the region's capacity to engage in interregional projects that improve interconnectivity while driving and sustaining economic growth.

**Mission-driven partnership**  
CMAP seeks innovative, multidisciplinary approaches to identify and implement transportation solutions that reflect the full range of factors affecting success, a directive well-aligned with the Volpe Center's expertise. Joint projects cover a broad range of topics, and the technical and organizational support Volpe provides advances the missions of CMAP and the U.S. Department of Transportation.

Key Volpe Center contributors to *GO TO 2040* strategic papers include a multidisciplinary team from the [Multimodal Systems Research and Analysis](#), [Environmental and Energy Systems](#), and [Advanced Vehicle and Information Network Systems](#) Centers of Innovation: David Damm-Luhr (Project Manager), William Lyons (Technical Lead), Anna Biton, Melissa Laube, Scott Lian, Theresa Perrone, Sean Peirce, Ben Rasmussen, and Susan Smichenko.

## Department of Transportation Initiates Web Portal for Small Business Innovation Research Program

The U.S. DOT Small Business Innovation Research (SBIR) Program Office at the Volpe Center has launched a customized market and technology research portal. The portal, called the Commercialization Assistance Program (CAP), features a variety of tools to assist SBIR contract awardees as they move through the research and development phase to reach market commercialization. Some portal resources can also be made available to those considering writing proposals to the SBIR program.

The first of two Phase I solicitations in 2009 occurred earlier this year, with DOT seeking to support feasibility-related or theoretical research into innovative tools or technology applications that improve safety, maintenance, and measurement in transportation system operations.

The SBIR Program Office is currently in the process of awarding eight Phase I contracts from the recent set of submissions.

Phase II contracts may be offered to support firms for two-year periods of research and development beyond Phase I. Phase III projects are funded outside of the SBIR Program and focus on continuation or commercialization of Phase II projects.

The SBIR Program Office will open the second Phase I solicitation to the small business community this year on October 1, with research topics originating from DOT modal agencies. Topics will likely call for innovative approaches that address energy and [livability](#) issues. Award announcements for the upcoming round will be made during the first quarter of 2010.

### Upcoming SBIR activities

#### September 30

Awards for 2009.1 Solicitation posted online

#### October 1

Solicitation opens for 2009.2

#### October 23 - 24

Outreach at Annual Meeting of American Association of State Highway and Transportation Officials  
Palm Desert, California

#### November 2 - 5

Participation in National SBIR Conference  
Reno, Nevada

## Volpe Employee in Mansfield Fellowship Program

Eli Machek, a Community Planner in the Volpe Center's Advanced Vehicle and Information Network Systems Center of Innovation, is currently participating in the Mike Mansfield Fellowship program.

The Mansfield Fellowship Program, named after Mike Mansfield, former U.S. Ambassador to Japan, Senate Majority Leader, U.S. Senator and U.S. Congressman from Montana, is a two-year fellowship that enables U.S. federal government employees to develop an in-depth understanding of Japan and learn how its government works. The fellowship also helps participants to establish relationships with their counterparts in the Japanese government as well as in the business, professional and academic communities.

Congress created the Mansfield Fellowships in 1994 to help interested U.S. federal government employees develop their Japanese language skills and experience working inside the government of Japan. They return to the U.S. at the end of their fellowship experience with a comprehensive understanding of Japan, including knowledge of Japanese government policies that will help them provide assistance to their agencies on Japanese decision-making systems and processes.

Up to 10 two-year fellowships are awarded annually to qualified U.S. government officials. The Fellows spend a year working full-time in Japanese government offices, after a year of language and area studies training in the United States.



Eli Machek just completed her year of training in the U.S. She is currently in Japan, studying Japanese intensively in Ishikawa Prefecture. In September, she will enter the Ministry of Land, Infrastructure, Transportation, and Tourism, where she will research the impacts of Japan's aging society on its transportation system. When she comes back to the U.S., she plans to apply what she learned during her fellowship at her job at Volpe.

From left to right: Ann Jacobson, Douglas Jacobson (a Mansfield Fellow, from Department of Commerce), Eli Machek, her husband James, and former Secretary of Commerce and Secretary of Transportation Norman Mineta at a reception for the Mansfield Fellows, given by the Japanese Embassy in Washington, D.C. (Photo courtesy of Eli Machek)

## Volpe Center's Twenty-Five Year Commitment Earns Distinction, "Guardian of the Seaway"

The Saint Lawrence Seaway held its 50th Anniversary Celebration on July 10 in Massena, New York. The Seaway is a U.S.-Canadian waterway that has carried over 2.5 billion tons of cargo, valued at over \$375 billion, since its 1959 opening by President Dwight D. Eisenhower and Queen Elizabeth II. The Volpe Center is honored to have supported the U.S. Department of Transportation's Saint Lawrence Seaway Development Corporation (SLSDC) for over 25 years in developing prototypes and deploying advanced systems to enhance navigational safety and operational efficiency along the Seaway. Thousands of ships from origins worldwide rely on Volpe technology to pass safely through the seaway each year; past accomplishments include the development of a differential buoy positioning system, an oil spill prediction model user interface, and more notably, North America's first vessel tracking and information system based on Automatic Identification System (AIS) technology.

Mr. Kam Chin of the Volpe Center's Freight Logistics and Transportation Systems Center of Innovation represented the Volpe Center at this historic event. During the 50th Anniversary Reception and Awards Dinner, Collister "Terry" Johnson, Jr.,



The Nanticoke, shown here passing through the Saint Lawrence Seaway, is a self-unloader bulk carrier owned and operated by Canadian Steamship Lines (CSL). The vessel trades on the Great Lakes – St. Lawrence Seaway system. (Volpe Center Photo)

SLSDC Administrator, presented the "Guardian of the Seaway" award to the Volpe Center for the deployment of the Saint Lawrence Seaway Automatic Identification System (AIS) Network. The award recognizes our role in contributing to the integrity of the Saint Lawrence Seaway, a critical gateway for regional commerce. The Volpe Center continues to provide technical assistance to the Seaway by maintaining the operational readiness of the deployed systems.



## KRRI Delegation Visits Volpe

On Wednesday July 19, the Volpe Center hosted a visit by Dr. Sung-kyou Choi, the President of the Korea Railroad Research Institute (KRRI) and Dr. Hee-seung Na, Director of the Institute's Trans-Korean and Trans-continental Research Division. The KRRI was established in 1996 to assist the Government of Korea and the Korean National Railroad to develop and maintain a modern nationwide passenger and freight rail system. Among the topics discussed was Volpe Center research on behalf of the Federal Railroad Administration into crash energy management in rail equipment.

Pictured from left to right are: Patricia Llana; Karina Jacobsen; David Tyrell; Dr. Sung-kyou Choi; Dr. Richard John, Director Emeritus and Acting Director, Volpe Center; Robert Dorer, Director of Center of Innovation for Physical Infrastructure Systems; and Dr. Hee-seung Na. (Volpe Center Photo)



## Volpe Center Highlights

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