



Volpe
National
Transportation
Systems
Center

Volpe Center Highlights

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Director's Notes

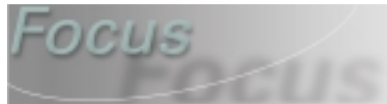


Dr. Richard R. John

Building the Future Volpe Workforce

The Volpe Center's continuing success in fostering innovation and bringing the latest technologies to bear on defining and solving the broad array of complex challenges facing the transportation community depends on the Center's ability to continue to attract and retain quality staff. The Center is not facing this challenge alone: the Washington press has been full of stories on the talent crisis facing the federal government after years of downsizing. Like every federal agency, we are keenly aware of the pressing human resource issues facing government, including an aging workforce and a tight labor market. Creating the Volpe workforce of the future demands the focused efforts of our entire management team working in partnership with our planning, human resource, and technical staffs to implement an innovative, integrated strategy to bring in and retain high-value staff and to transfer knowledge from those who are departing.

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Volpe Contributes to the TRB's 80th Annual Meeting



At the recent Transportation Research Board's annual meeting, the Volpe Center's exhibit, "Protecting and Enhancing the Human and Natural Environment," showcased the environmental capabilities of the Center. Dr. Judith Rochat (above) of the Safety and Environmental Technology Division was one of several members of the Division who staffed this year's exhibit. (Photo courtesy of Ms. Cynthia Lee)

This year, the Volpe Center continued its high level of participation in what may be the world's largest transportation forum – the Transportation Research Board's (TRB) annual meeting. From January 7 through 11, approximately 7000 transportation professionals from around the globe congregated in Washington, D.C. to exchange information on transportation research, policy, and practice. The Center was well represented in this diverse group of researchers, academics, administrators, and others from government and industry. Volpe staff presided over

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seven sessions or meetings, delivered 16 papers or presentations, and developed and staffed the Volpe Center exhibit, which showcased the Center's environmental capabilities, and the DOT's Small Business Innovation Research Program exhibit.

The meeting, like the TRB itself, once focused solely on highway research. Today, every mode of transportation is represented at this annual gathering, which makes it an ideal venue for the Volpe Center to share its knowledge and perspective. Volpe participants covered a broad range of topics, including intermodal ferry terminals, e-commerce applications to freight transportation, intelligent transportation systems for highway safety, railroad-highway grade crossings, traffic network analysis and modeling, passenger rail including maglev systems, sustainable transportation planning, human factors, transportation-related environmental issues, railroad track structure, and collision safety of light-rail vehicles.

Volpe Participants

- Mr. Robert Armstrong, formerly of the Economic Analysis Division, presented a paper, "Intermodal Ferry Terminals from a National Perspective," at the session "Seamless Coordination of Ferries with Land-Side Transportation, Part 1." The session was sponsored by the Committee on Intermodal Transfer Facilities and the Committee on Ferry Transportation.
- Dr. Bahar Barami of the Transportation Strategic Planning and Analysis Division presented a paper at the session "E-Commerce: Implications for Transportation: Part 2: Freight Transportation." The session was sponsored by the Committee on Urban Freight Transportation and the Committee on Freight Transportation Planning and Logistics. Dr. Barami's presentation, "E-Commerce: Implications for Supply Chain Productivity," reviewed the trends in market penetration of information technologies and electronic commerce for improving transactions involving freight.
- Mr. Lawrence Barr of the Accident Prevention Division presented a paper titled "Crash Problem Characteristics for the Intelligent Vehicle Initiative" in a session on Highway Safety and Intelligent Transportation Systems sponsored by the Committee on Safety Data, Analysis, and Evaluation. The paper presented the results of a comprehensive study performed for the Federal Highway Administration under DOT's Intelligent Vehicle Initiative program. The study provides information for defining the functional requirements of potential collision avoidance systems and for estimating countermeasure effectiveness and safety benefits.
- Ms. Anya Carroll of the High-Speed Ground Transportation Division served as Secretary for the meeting of the Committee on Railroad-Highway Grade Crossings.
- Dr. Robert Dial of the Service Assessment Division presented a paper titled "Equilibrium Logit Traffic Assignment: Elementary Theory and Algorithm" at the session "Traffic Network Analysis Methods." The session was sponsored by the Committee on Transportation Network Modeling.
- Mr. Bob Dorer, Chief of the High-Speed Ground Transportation Division, chaired a meeting of the Committee on Guided Intercity Passenger Transportation. Mr. Dorer also presided over a session titled "Intercity Passenger Rail and Maglev Systems," which was sponsored by the same committee.
- Dr. Haris Koutsopoulos of the Service Assessment Division presented a paper titled "DynaMIT: Modeling Approach and Applications," at the session "Dynamic Traffic Assignment: Modeling and Applications," which was sponsored by the Committee on Traffic Flow Theory and Characteristics. The paper was co-authored by Professor Moshe E. Ben-Akiva, Massachusetts Institute of Technology.
- Mr. William Lyons of the Service Assessment Division organized and chaired a session on future directions for the National Transit Database with sponsor Mr. Edward Fleischman, Director of the Federal Transit Administration's Office of Oversight, and a panel representing academia, state agencies, and transit general managers.

Mr. Lyons also presented an overview on innovative practices in sustainable transportation planning by states and localities in a session sponsored by the Task Force on Sustainable Transportation, and made another presentation on planning practices of metropolitan planning organizations at a session on developing transportation for healthy communities.

- Dr. Wassim Najm of the Accident Prevention Division, Dr. Paul Schimek of the Service Assessment Division, and Dr. David Smith of the National Highway Traffic Safety Administration's Office of Vehicle Safety Research submitted a paper titled "Definition of the Light Vehicle Off-Roadway Crash Problem for the Intelligent Vehicle Initiative." This paper, presented in the session titled Highway Safety and ITS (Intelligent Transportation Systems), analyzes off-roadway crashes involving light vehicles (passenger cars, sport utility vehicles, vans, and pickup trucks) in support of the roadway departure research area as part of the DOT's Intelligent Vehicle Initiative.
- Dr. Stephen Popkin of the Operator Performance and Safety Analysis Division presented "The Impact of Commute Time on Sleep and Work-Related Fatigue" at the session titled "Human Factors in Railroad Operations," which was sponsored by the Committee on Vehicle User Characteristics. Dr. Popkin also made a workshop presentation titled "A Systematic Approach to Evaluating the Safety of Engineer-Only Operations."
- Dr. Joyce Ranney of the Change Management Division and Dr. Mary Stearns of the Operator Performance and Safety Analysis Division presented "Assessing At-Risk Behavior in Railroad Operations" at the session titled "Human Factors in Railroad Operations" sponsored by the Committee on Vehicle User Characteristics. Dr. Ranney and Dr. Stearns are helping the Federal Railroad Administration's (FRA) Office of Research and Development study the effects of consolidating eight safety rulebooks on behavior-based safety at Amtrak. Mr. Michael Coplen of the FRA co-authored the presentation.
- Dr. Judith Rochat of the Safety and Environmental Technology Division presided over the panel session titled "Transportation-Related Noise Issues, Part 2," which was sponsored by the Committee on Transportation-Related Noise and Vibration.
- Mr. Andrew Sluz of the Structures and Dynamics Division presented a paper titled "Remote Monitoring of Longitudinal Rail Forces on Heavily-Used Revenue Service Track" at a session sponsored by the Committee on Railroad Track Structure System Design titled "Controlling Neutral Rail Temperature in Continuous Welded Rail." Mr. Dwight W. Clark of Union Pacific Railroad Company co-authored the paper.
- Dr. Donald Sussman, Chief of the Operator Performance and Safety Analysis Division, chaired the meeting of the Subcommittee on Railroad Operational Safety, presided over the panel session titled "Human Factors in Railroad Operations" sponsored by the Committee on Vehicle User Characteristics, and made a workshop presentation, co-authored with Dr. Mary Stearns, titled "Human-Centered Design Issues in Transportation Management Systems."
- Dr. Ted Sussmann of the Structures and Dynamics Division submitted a paper titled "Fundamental Non-Linear Track Load-Deflection Behavior for Condition Evaluation." The paper was submitted for a session titled "Advances in Technology for Track Condition Assessment" sponsored by the Committee on Railway Maintenance. Dr. Willem Ebersohn of Amtrak and Dr. E. T. Selig of Ernest T. Selig, Inc. co-authored the paper.
- Mr. David Tyrell presented a paper titled "Collision Safety of Light Rail Vehicles: A Preliminary Design Study" at a session titled "Diesel Multiple-Unit Implementation," which was sponsored by the Committee on Commuter Rail Transportation. Dr. Tom Tsai of the FRA co-authored the paper.
- Dr. Paul Valihura of the Environmental Engineering Division presented a paper titled "Maglev Deployment Program: Environmental Considerations" at the session "Intercity Passenger Rail and Maglev Systems," which was sponsored by the Committee on Guided Intercity Passenger Transportation. Mr. David Valenstein of the FRA co-authored the paper.

- In a TRB-related activity, Drs. David Damm-Luhr, Jeff Bryan, Joyce Ranney, and Rachel Winkeller of the Change Management Division and Ms. Cassandra Callaway of the Economic Analysis Division designed and facilitated a post-TRB session on the programmatic priorities of the Federal Motor Carrier Safety Administration's Office of Research and Technology (MC-RT). As part of a larger effort to develop a business plan for MC-RT, the Volpe team translated MC-RT's core messages for this first public session intended to solicit useful feedback from key partners.

Exhibits

- "Protecting and Enhancing the Human and Natural Environment," the Volpe Center exhibit, was designed to show TRB attendees the wide range of environmental capability resident at the Center. The exhibit focused on environmental assessment, noise measurement, environmental compliance, and remediation and restoration, and featured interactive monitoring equipment and computer simulation. Noise analysis equipment included that used by Volpe staff to assess the underwater impact of hovercraft noise on black fish in Alaska: a real-time spectral display of various transportation noise sources using a hydrophone and an underwater video camera/display. This portion of the exhibit also employed a fish tank with live fish to demonstrate the equipment. A 3-D model typically used on remediation projects provided a computer simulation of an underground pollutant plume that showed how concentrations within the plume change with depth and time.
- The DOT's Small Business Innovation Research (SBIR) Program helps the small business community to develop and commercialize innovative ideas. The SBIR exhibit enabled TRB attendees to learn how all members of the transportation research-and-development community can benefit from the SBIR Program. Hundreds of attendees, many representing small businesses, state DOTs, academia, and the international community, visited the SBIR booth.

Safety



Promote public health and safety by working toward the elimination of transportation-related deaths, injuries, and property damage.

Supporting the Intelligent Vehicle Initiative (NHTSA)

The Volpe Center's Accident Prevention Division provides technical support to the National Highway Traffic Safety Administration (NHTSA) under the Intelligent Vehicle Initiative Program (IVI). The primary goal of the IVI is to accelerate the development, introduction, and commercialization of driver-assistance products and services in order to improve the safety of the nation's ground transportation system by reducing the number and severity of motor vehicle collisions.

As part of this effort, the Volpe Center recently completed a major evaluation of the Intelligent Cruise Control (ICC) system. The ICC extends conventional cruise control by incorporating forward-looking sensors that automatically adjust to maintain a minimum distance from preceding vehicles. The Center's evaluation was based on a 15-month field opera-

tional test (FOT) of the ICC involving 108 drivers in Michigan, and included discerning the ICC system's safety effects as well as performance, user acceptance, and deployment impacts. A major part of the project was devoted to acquiring, enhancing, and archiving the voluminous FOT source data into a robust database to support timely, quality-assured analysis by the evaluation team. The database also was designed to serve a variety of research needs beyond those of the ICC evaluation. For example, it offers useful baselines of driving behavior on freeways and arterials, and driver reaction response times to visual stimuli (recorded on video).

In anticipation of reuse of the ICC data by the research community, Mr. Andy Lam and Mr. Neil Meltzer of the Accident Prevention Division delivered final copies of all data files and documentation from the ICC evaluation study. This extensive database will be publicly available for further analysis through the NHTSA data archives at the National Crash Analysis Center at George Washington University. This transaction completes the multiyear ICC evaluation project and provides an important basis for support of future IVI safety evaluations.

Volpe Hosts Meeting of Railway Safety Review Committee of India

On October 31, 2000, the Office of Safety and Security hosted a meeting at the Volpe Center with the Railway Safety Review Committee (RSRC) of India. The RSRC, which was formed two years ago after a series of serious railroad accidents in India, requested the meeting because of the Center's varied experience in railroad safety research.

Among the Indian delegation were Justice H.R. Khanna, former Chief Justice of the Indian Supreme Court and Chair of the RSRC; Shri Ananta Sethi, a member of the Indian Parliament; Shri Mathew John, Secretary of the RSRC; and several high officials of the Indian Railway Board (which runs Indian state and regional railways). Volpe attendees included Dr. Richard R. John, Director of the Volpe Center; Mr. Bob Ricci, Director of the Office of Safety and Security; Mr. Bob Dorer, Chief of the High-Speed Ground Transportation Division; Mr. Michael Coltman, Chief of the Structures and Dynamics Division; Ms. Anya Carroll of the High-Speed Ground Transportation Division; Dr. Donald Sussman, Chief of the Operator Performance and Safety Analysis Division; Dr. Ted Sussmann of the Structures and Dynamics Division; Mr. David Skinner of the Operator Performance and Safety Analysis Division; and other members of the Volpe technical staff.

Topics of discussion included activities of the RSRC, emergency preparedness, vehicle track dynamics, track inspection and vehicle qualifications, switching operations fatalities, and locomotive engineer stress and fatigue. The possibility of the Committee's enlisting the Center's help with its complex safety challenges was also discussed; this support could include a visit to India by Volpe experts for further information exchange.

During its two-week visit to North America, the committee also visited the Federal Railroad Administration, the Association of American Railroads, the National Transportation Safety Board, the Federal Emergency Management Agency, the Transportation Safety Board of Canada, and major U.S. and Canadian railroads.

Mobility



Ensure that the transportation system is accessible, integrated and efficient, and offers flexibility of choices.

Volpe Publishes Five-Year ITS Program Plan (DOT)

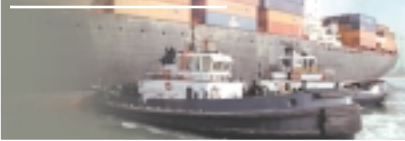
With passage of the Transportation Equity Act for the 21st Century (TEA-21) in 1998, the U.S. Congress reaffirmed DOT's role in advancing the development and integrated deployment of Intelligent Transportation Systems (ITS). Accordingly, DOT recently published a five-year plan for the ITS Program. The report, titled "National Intelligent Transportation System Program Plan: Five-Year Horizon," was sponsored by the ITS Joint Program Office. The plan was transmitted to Congress in September 2000 and released in print to a wide audience in November 2000. The five-year plan sets forth a detailed account of DOT's course of action under TEA-21, and updates the first National ITS Program Plan, which was published in 1995. It presents the goals, activities, and milestones for the National ITS Program from fiscal years 1999 through 2003,

specifying how certain programs and projects will achieve these goals, and identifying the necessary activities to promote and ensure interoperability and integrated deployment.

Ms. Cynthia Maloney of the Economic Analysis Division and Mr. Dan Berler, formerly of the ITS Joint Program Office, were the primary authors of the report. Additional writing support was provided by Mr. Peter Jones of the Transportation Strategic Planning and Analysis Division, Ms. Maureen Luna-Long of the Economic Analysis Division, and Mr. Alex Brown of Cambridge Systematics, Inc. (a Volpe Center contractor). Editorial support was provided by Mr. Eric Plosky of the Transportation Strategic Planning and Analysis Division, and Ms. Cassandra Oxley and Ms. Ann Walker both of EG&G Technical Services, Inc. (a Volpe Center contractor). Planners Collaborative, Inc. (a Volpe Center contractor) provided layout and printing support.



Economic Growth and Trade



Advance America's economic growth and competitiveness domestically and internationally through efficient and flexible transportation.

Volpe Participates in Inauguration Ceremony for the Installation of Differential Global Positioning System in Honduras (RSPA)

In November 1998, the navigational capabilities of ports in Honduras and Nicaragua were ravaged by Hurricane Mitch. In response, DOT initiated a humanitarian program to install advanced navigation systems at the three maritime ports that suffered the most damage. There were two goals for the undertaking. The first goal was rapid installation of reliable navigation systems at the ports to permit the resumption of maritime commerce and, in particular, the delivery of sizable quantities of relief goods. The second was to "build back better" the navigational capabilities of the afflicted ports. This approach is called sustainable restoration. The U.S. Agency for International Development (USAID), through the Research and Special Programs Administration (RSPA), funded the project for the restoration of maritime navigation systems in Central America.

The sustainable restoration project capitalized on experience the Volpe Center staff acquired during the development of advanced navigation systems for the Saint Lawrence Seaway and the Panama Canal. The plan was to equip ports in Honduras and Nicaragua with systems that employ signals from the Global Positioning System (GPS). Once signals are acquired from GPS satellites, they are further refined by a technique called differential GPS (DGPS). This type of system provides users with very accurate position reports. The DGPS system has transmitters that use a radio beacon to broadcast special GPS correction signals to vessels transiting the ports. Mobile navigation units were developed for maritime pilots. Each mobile unit has a GPS receiver, a radio-beacon antenna, and a laptop computer. The onboard systems allow harbor pilots to accurately determine the position and progress of their own ships as they navigate narrow inland waterways.

Messrs. David Phinney, Henry Wychorski, and Hector Masmela of the Center for Navigation traveled to Honduras to participate in the official inauguration ceremony for the first DGPS station. The historic ribbon-cutting ceremony at the Port of San Lorenzo on December 5, 2000, marked the official transfer of the fully operational system from the U.S. Government to the Honduran Government. The event included speeches by Honduran officials including Antonio Hepburn, Manager of Ports; Claros Enamorado, Vice Minister of Transportation; and Oscar Kafati, Minister of Commerce. Mr. Masmela, representing RSPA and the Volpe Center, also spoke at the ceremony. The audience included Mr. Raymond Lynch, the Environment & Disaster Mitigation Manager for USAID, and members of the USAID mission in Honduras.

In addition to participating in the official proceedings, the Center for Navigation team trained San Lorenzo pilots in the use



Following the formal speeches and ribbon cutting, Mr. Hector Masmela and Mr. David Phinney of the Center for Navigation (second and third from left, foreground) gave guests a tour of the DGPS transmitter station.

(Photo courtesy of Mr. David Phinney)

of the mobile navigation units. The pilots were very enthusiastic about the new technology because it facilitates their negotiation of the 16-mile-long, narrow, twisting port approach. Previously, approaches to and departures from San Lorenzo were attempted only during daylight hours and at high tide. Now, because of the DGPS system the port can operate for 24 hours each day in all weather conditions with a very high degree of safety and efficiency. During the trip, the Volpe team also visited the Port of Corinto in Nicaragua to inspect the installation of a DGPS transmitter station that is targeted for completion in April 2001.



Each onboard navigation system consists of a laptop computer, radio-beacon antenna, and GPS receiver.

(Photo courtesy of Mr. David Phinney)

Volpe Staff Receive Prestigious Hammer Award

On November 15, 2000, the Federal Aviation Administration's (FAA) Collaborative Decision Making (CDM) Working Group received the "Hammer Award" from former Vice President Al Gore's National Partnership for Reinventing Government. This award, which was presented by then-DOT Secretary Rodney E. Slater, rewards teams for carrying out innovations that put customers first, empower employees, cut red tape, go back to basics, and achieve results that Americans care about. The 26 team members honored include three from the Volpe Center: Mr. Rick Oiesen of the Automation Applications Division, and Mr. Ken Howard and Ms. Melia Stefanescu of Computer Sciences Corporation (a Volpe Center contractor). Other organizations represented in the award include the FAA, the nine U.S. airlines participating in the CDM program, the Air Transport Association, and Metron, Inc.

The CDM Program is one aspect of the Volpe Center's work on the FAA's Enhanced Traffic Management System, the real-time, operational computer system developed by the Center that the FAA uses to predict, detect, and handle airspace congestion problems. The CDM Program emphasizes improving the level of cooperation between FAA and the airlines by providing simultaneous, real-time access to information about current and projected air traffic volume, aviation system constraints and restrictions, weather, equipment problems, and delays.

Human and Natural Environment



Protect and enhance communities and the natural environment affected by transportation.

Supporting Aircraft Noise Analysis (FAA)

The Volpe Center is supporting the Federal Aviation Administration's Office of Environment and Energy by performing comprehensive measurements and analysis studies related to aircraft noise. As part of this effort, from November 14 to 16, 2000, Mr. Gregg Fleming of the Safety and Environmental Technology Division hosted a Joint Meeting of Committee A-21 "Airport Noise" of the Society of Automotive Engineers and Working Group "Model-1" of the International Civil Aviation Organization. The meeting addressed recent advances related to the measurement, modeling, and analysis of aircraft noise, with the goal of developing standard guidelines. The 35 participants included representatives from Australia, Brazil, Canada, Denmark, Germany, France, Japan, Norway, Sweden, Switzerland, and the United Kingdom as well as the United States. Volpe participants included Mr. Gregg Fleming, Mr. Chris Roof, Ms. Cynthia Lee, and Ms. Amanda Rapoza of the Safety and Environmental Technology Division.

Items addressed at the meeting included the Helicopter Noise Model, which was developed and is maintained by the Center; noise abatement operation procedures; and a number of technical papers written by participants.

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PAPERS AND PRESENTATIONS

- On December 1, 2000, Dr. Richard R. John, Director of the Volpe Center, gave a presentation on “Challenges to Innovations in Transportation” at the Workshop on Innovative Transportation Technologies and Concepts held in Memphis, Tennessee. In addition, the approximately 80 attendees heard presentations on the role that technologies such as alternate fuels, information technology, and nanotechnology could play in enhancing the future transportation enterprise, as well as overviews of the transportation operations of such large organizations as Federal Express and the U.S. Department of Defense.
- On November 15, 2000, Ms. Anya Carroll of the High-Speed Ground Transportation Division gave a presentation titled “U.S. Directions in Research and the Expectations: An Update” at the Second Annual Rail-Highway Grade Crossing Safety Research Workshop sponsored by Transport Canada in Montreal, Canada. The presentation reviewed the current Federal Railroad Administration/Volpe Center grade crossing research program and focused on two specific projects related to innovative technologies for grade crossing applications.
- Ms. Alexandra Kuchar of the Vehicle Crashworthiness Division presented a paper titled “A Systems Modeling Methodology for Estimation of Harm in the Automotive Accident Environment” at the American Society of Mechanical Engineers’ International Mechanical Engineering Congress and Exposition held in Orlando, Florida, from November 6 to 9, 2000. The paper describes a computational approach for evaluation of changes in the vehicle fleet, such as restraint use or increased sport-utility sales, in terms of resulting overall passenger safety within the automotive crash environment.
- On November 5, 2000, Dr. David Jeong of the Vehicle Crashworthiness Division presented a technical paper titled “Characterization of Deformable Materials in the THOR Dummy,” at the 28th Annual International Workshop on Human Subjects for Biomechanical Research Workshop held in Atlanta, Georgia. The paper describes a methodology to determine material properties of urethane, rubber, and foam materials that are used to construct an advanced crash test dummy called THOR (Test device for Human Occupant Restraint). Co-authors of the paper were Mr. Peter Kwok also of the Vehicle Crashworthiness Division and Mr. Joseph Canha, formerly of the Center.
- On November 7, 2000, Mr. James Lamond of the High-Speed Ground Transportation Division presented a paper at the American Society of Mechanical Engineers’ International Mechanical Engineering Congress and Exposition held in Orlando, Florida. The paper, titled “Railroad Vehicle Glazing Standard Development,” presented the results of a Volpe Center project to develop new railroad vehicle glazing standard recommendations for consideration by the Federal Railroad Administration and the American Public Transportation Association.
- In early November 2000, Mr. Michael Dyer of the Technology Applications and Deployment Division completed a Final Report, titled “Regulatory Assessment: Salvage and Marine Firefighting Requirements of 33 CFR Part 155,” in support of rulemaking under the Oil Pollution Act of 1990. The report, which was prepared for the U.S. Coast Guard’s Office of Safety, Security, and Environmental Protection, provides data and analyses of estimated costs (dollars) and benefits (barrels of oil not spilled) for salvage and marine firefighting resource requirements.



Our major challenge is - and will continue to be - recruiting, training and retaining quality federal staff. Recent research and interviews with young people entering the workforce cite four factors that new workers seek: an opportunity to do good, a family friendly environment, opportunities for training, and the availability of mentors. A recent "Brookings Report" states that new graduates who wish to work in public service are looking for flexibility and meaningful work. Young Americans are not saying, "show me the money" so much as "show me the work."

We are making progress in the critical human resource arena.

- In 2000, we made nearly 50 permanent hires; currently, we employ more than 30 undergraduate, masters, and doctoral candidates as co-ops representing a wide range of schools both locally and nationally; nearly one-half of our 550-strong federal workforce joined the Volpe Center in the past five years;
- Last year, we invested nearly one million dollars to provide training and offer tuition assistance to our staff;
- Our new employee orientation, mentoring, and individual development planning programs have been revitalized and reinvented; we have established these practices to nurture our existing staff and to integrate our new employees into the workforce quickly by providing them with the information resources and supporting tools to help them be successful;
- We have established dual tracks for our staff - one track primarily technical, the other toward management - in order to allow for career flexibility;
- We have awarded the first annual John A. Volpe Transportation Internship, and will continue to use this developmental program to gain access to the best pool of new leadership in the field of transportation;
- We have established the innovative Volpe Emeritus Program to take advantage of the accumulated knowledge of our more senior federal staff and to pay tribute to their long and distinguished careers in public service;
- We have brought and will continue to bring professors to Volpe on assignments both to contribute their knowledge and to mentor our newer staff;
- We have expanded the number of participants in our Volpe Fellows Program (full reimbursement of tuition, fees, and book expenses for graduate degree studies) to enhance staff technical expertise;
- Our recruitment efforts are utilizing recently available compensation tools, such as advanced step hiring and recruitment and relocation bonuses, to attract top candidates. As soon as other flexibilities, such as student loan repayment, become available, we will add them to our recruitment "tool kit."

While I am proud of what we have accomplished, we have much more to do. We have an incredible depth of talent at the Center - people who have tremendous energy, enthusiasm, and commitment. It is up to our veterans to take new people under their wings and give them the mentoring and on-the-job training they need to be successful. I am sure that working together, merging the vitality and vigor of our next generation with the experience and resilience of those who are more seasoned, we can respond to new opportunities, meet future challenges, and, most important, make a difference and the world a better place.

In a fee-for-service organization, where we cover all costs, our typical hiring model has been replacement hiring, which, in the current labor market, will not enable us to keep pace with increased attrition. Therefore, we are seeking to make a fundamental shift in how we hire by bringing in quality recruits as we find them, thus creating a pipeline of talent ready to solve new transportation problems.

We will continue to use all of these tactics and strategies, as well as create new, innovative ones in order to ensure that the Volpe Center has the right staff in the right place at the right time to meet the transportation challenges of the 21st century.



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