The Norman Y. Mineta International Institute for Surface Transportation Policy Studies was established by Congress in the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA). The Institute’s Board of Trustees revised the name to Mineta Transportation Institute (MTI) in 1996. Reauthorized in 1998, MTI was selected by the U.S. Department of Transportation through a competitive process in 2002 as a national “Center of Excellence.” The Institute is funded by Congress through the United States Department of Transportation’s Research and Innovative Technology Administration, the California Legislature through the Department of Transportation (Caltrans), and by private grants and donations.

The Institute receives oversight from an internationally respected Board of Trustees whose members represent all major surface transportation modes. MTI’s focus on policy and management resulted from a Board assessment of the industry’s unmet needs and led directly to the choice of the San José State University College of Business as the Institute’s home. The Board provides policy direction, assists with needs assessment, and connects the Institute and its programs with the international transportation community.

MTI’s transportation policy work is centered on three primary responsibilities:

**Research**

MTI works to provide policy-oriented research for all levels of government and the private sector to foster the development of optimum surface transportation systems. Research areas include: transportation security; planning and policy development; interrelationships among transportation, land use, and the environment; transportation finance; and collaborative labor-management relations. Certified Research Associates conduct the research. Certification requires an advanced degree, generally a Ph.D., a record of academic publications, and professional references. Research projects culminate in a peer-reviewed publication, available both in hardcopy and on TransWeb, the MTI website (http://transweb.sjsu.edu).

**Education**

The educational goal of the Institute is to provide graduate-level education to students seeking a career in the development and operation of surface transportation programs. MTI, through San José State University, offers an AACSB-accredited Master of Science in Transportation Management and a graduate Certificate in Transportation Management that serve to prepare the nation’s transportation managers for the 21st century. The master’s degree is the highest conferred by the California State University system. With the active assistance of the California Department of Transportation, MTI delivers its classes over a state-of-the-art videoconference network throughout the state of California and via webcasting beyond, allowing working transportation professionals to pursue an advanced degree regardless of their location. To meet the needs of employers seeking a diverse workforce, MTI’s education program promotes enrollment to under-represented groups.

**Information and Technology Transfer**

MTI promotes the availability of completed research to professional organizations and journals and works to integrate the research findings into the graduate education program. In addition to publishing the studies, the Institute also sponsors symposia to disseminate research results to transportation professionals and encourages Research Associates to present their findings at conferences. The World in Motion, MTI’s quarterly newsletter, covers innovation in the Institute’s research and education programs. MTI’s extensive collection of transportation-related publications is integrated into San José State University’s world-class Martin Luther King, Jr. Library.

**DISCLAIMER**

This material is based upon work supported by the U.S. Department of Homeland Security under Grant Award Number 2008-ST-061-TS003. The views and conclusions contained in this document are those of the authors and should not be interpreted as necessarily representing the official policies, either expressed or implied, of the U.S. Department of Homeland Security.
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About the Mineta Transportation Institute

The Mineta Transportation Institute (MTI) was originally designated by Congress as a non-technical, policy research and education center in the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 and reaffirmed by the Institute’s Board of Trustees after reauthorization in the Transportation Equity Act for the 21st Century (TEA-21) in 1998. MTI undertakes research, education, and information/technology transfer programs relative to the policy control and management of all surface transportation modes. Within those parameters, MTI produces studies of the best examples of surface transportation policy and management activities in the world, accumulates those into peer-reviewed publications, and communicates best practices to MTI’s professors, students, and the nation’s transportation leaders.

During the 1991 ISTEA, 1998 TEA-21 and 2005 SAFETEA-LU debates, Congress strongly expressed the desire to assure the international competitiveness of the nation’s transportation systems. Because much larger motor vehicle fuel taxes are available in other industrialized countries, the US will not be able to outspend so it must outsmart the competition. Therefore, MTI’s objective is to identify through research, to teach through education, and to broadly disseminate through information/technology transfer programs the best transportation practices in use throughout the world. MTI’s work encompasses all modes of surface transportation, including the interface between those modes.

MTI is organized by function, with directors operating in each of three departments – Research (including the National Transportation Finance Center, the National Transportation Security Center of Excellence for both US DOT and DHS, and the National High-Speed Rail Policy Center), Education, and Communications and Technology Transfer.
NATIONAL TRANSPORTATION SECURITY CENTER
Brian Michael Jenkins was appointed in 2008 to lead MTI’s National Transportation Security Center of Excellence and its continuing research on protecting surface transportation against terrorist attacks. As a leading authority on terrorism and sophisticated crime, he works with government agencies, international organizations and multinational corporations. He is also a senior advisor to the president of RAND. Mr. Jenkins was deputy chairman of Kroll Associates, an international investigative and consulting firm, and he was chair of RAND’s political science department, where he directed research on political violence.

Mr. Jenkins has a BA in fine arts and a master’s degree in history, both from UCLA. He studied at the University of Guanajuato, Mexico and at the University of San Carlos, Guatemala where he was a Fulbright Fellow and received a fellowship from the Organization of American States.

Mr. Jenkins was a paratrooper and a captain in the Green Berets. He is a decorated combat veteran, serving in the Special Forces in the Dominican Republic and Vietnam. He returned to Vietnam as a member of the Long Range Planning Task Group, receiving the Department of the Army’s highest award for his service.

Since then, he has served on numerous US and international task forces investigating terrorist attacks. In 1996, President Clinton appointed Mr. Jenkins to the White House Commission on Aviation Safety and Security. He was an advisor to the National Commission on Terrorism and served on the US Comptroller General’s Advisory Board. Mr. Jenkins is the author of several articles, reports and books, including International Terrorism: A New Mode of Conflict and Will Terrorists Go Nuclear?
Dr. Frances L. Edwards is the Deputy Director of MTI’s National Transportation Security Center and a professor and director of the Master of Public Administration program at San Jose State University. She is a research associate of the Mineta Transportation Institute and an editorial board member of the Public Administration Review (PAR). Dr. Edwards is co-author with Friedrich Steinhausler of two books in the NATO Science Series on terrorism threats and response, and with Brian Jenkins on 9/11. She also authored numerous chapters for text and professional books.

She has written more than 30 professional journal articles, most recently on climate change for The Public Manager, cross border disaster response issues in Journal of Contingency and Crisis Management, and on federal homeland security grants in State and Local Government Review. She serves on the ASPA Hurricane Katrina Task Force, and was a member of the Executive Session on Domestic Preparedness at Harvard, the Bioterrorism Working Group at Stanford, three NATO expert workshop panels on terrorism, and the California Seismic Safety Commission. For 25 years Dr. Edwards was a practitioner, including 14 years as the Director of Emergency Preparedness for San Jose, California, the nation’s tenth largest city. She has a PhD and MUP from New York University, an MA from Drew University, and a Certificate in Hazardous Materials Management from the University of California, Irvine.

The New York Times, Washington Post and other national media have identified Dr. Edwards as one of the nation’s leading experts on disaster response and recovery planning and training.
NTSCOE Research Associates

There are four MTI NTSCOE Research Associates who are integral to the completion of all research projects and it is with pleasure that we present their biographies.

Bruce R. Butterworth  
*NTSCOE Research Associate*

Bruce Butterworth has had a distinguished government career working at congressional, senior policy and operational levels. Between 1975 and 1980, he was a professional staff member for the House Government Operations Committee, running investigations and hearings on many transportation safety issues, particularly in aviation. Between 1980 and 1991, he worked at the Department of Transportation, 8 of them in the Office of the Secretary. He managed negotiations on air and maritime services in the GATT (now WTO), chaired US delegations to United Nations Committees, and was part of the response to Pan Am 103. Between 1991 and 2000, he held two executive posts in aviation security, as the Director of Policy and Planning, and then as the Director of Operations. Among other things, He was responsible planning and rulemaking and for regulatory compliance, managing 900 field agents. He worked hard to improve security and the performance of security measures by US airlines and airports. He was also responsible for federal air marshals and ran the FAA’s aviation command center, successfully managing the resolution of hijackings and security emergencies. He launched a successful program of dangerous goods regulation and cargo security after the 1995 ValuJet crash, was a key player in the response to the ValuJet and TWA 800 accidents, and worked closely with the Congress, the National Security Council staff and the intelligence community and law enforcement community.

Between 2000 and 2003, he was an Associate Director at the U.S. Holocaust Memorial Museum (responsible for security and building operations). Finally, between January of 2003 and September of 2007, he was one of two Deputy Directors in a 1,300 person Engineering Directorate at NASA’s Goddard Space Flight Center, and instituted a successful laboratory safety program. He retired from Federal Service in 2007.

As an MTI/NTSCOE Research Associate, he has co-authored seven major publications along with Brian Michael Jenkins. He also co-authored a May 2007 study for the Center for American Progress on cargo Security entitled: *Keeping Bombs off Planes: Securing Air Cargo, Aviation’s Soft Underbelly*. In February of 2009 he published with Mr. Jenkins an opinion piece on information sharing entitled: “A campaign the Secretary must win” and on March 23, 2010 an opinion piece on intelligence and aviation security in the Washington Post entitled “What we can learn from the Christmas Day Bombing Attempt”.

Mr. Butterworth was awarded a Master of Science degree from the London School of Economics in 1974.
Daniel C. Goodrich  
*NTSCOE Research Associate*

Daniel C. Goodrich, MPA,CEM is a research associate with the Mineta Transportation Institute at the College of Business, San Jose State University. He is also the instructor for “Security for Transportation Professionals” in the Master of Science in Transportation Management program at MTI.

Dan was a 2006 Fellow of the Foundation for Defence of Democracies, studying terrorism at University of Tel Aviv. He has delivered ten professional papers, including Campus Emergency Management at the FEMA Higher Education Conference in 2010, employee emergency preparedness at the Natural Hazards Conference in 2009, police in disaster response at the 2nd Istanbul Conference on Democracy and Global Security in 2007, maritime security at the American Society for Public Administration in 2007, and “Fourth Generation Warfare” at the 2006 NATO STS-CNAD meeting in Portugal. In 2004 he chaired a session on “First Responders” at the NATO Advanced Research Workshop in Germany, and in 2003 he was a member of the NATO Expert Panel on Nuclear Security and Terrorism.


Dan has been an emergency management coordinator for Lockheed Martin Space Systems, and an analyst in the Santa Clara County Department of Public Health emergency management organization, working on hospital exercises, strategic national stockpile planning and Metropolitan Medical Response System planning, training and exercise development and implementation. He has been the director for eight exercises for the San Jose Metropolitan Medical Task Force, where he created facilitated exercises, from which Harvard University’s Kennedy School of Government created a case study. Dan served in the United States Marine Corps for ten years, including leadership positions in Security Forces; and in the Army Reserve as a small arms instructor, including service in Iraqi Freedom. He is a consultant to the California Department of Transportation, and has trained NASA/Ames Research Center staff in emergency management.

Dan has a masters degree in public administration from San Jose State University, and is a Certified Emergency Manager.
Renee Haider
NTSCOE Research Associate

Renee Haider joined MTI as a Research Associate in May 2010. She brings to the MTI team over eighteen years of experience in training, education, and project management in the surface transportation sector. Prior to joining MTI she served as an Associate Director of the National Transit Institute (NTI) in the Edward J. Bloustein School of Planning and Public Policy at Rutgers, The State University of New Jersey. Ms. Haider had been with NTI since its formation in 1992. As the Associate Director she was involved in both development and delivery of NTI programs in all of its focus areas. Prior to this position, she served as an Assistant Director for Workplace Safety and Security Programs.

Ms. Haider has developed, directed, and managed a wide range of transportation training programs targeted at transit management, professional trainers and front-line employees. She has served as a project manager or key team member on an array of research and training projects for FTA, FMCSA, FHWA, TCRP, NCHRP and TSA and worked with several University Transportation Centers (UTCs) to jointly develop and deliver training programs. In addition, she has consulted with transit organizations across the U.S. and Canada to customize programs to meet their unique needs.

Ms. Haider continually works with transit associations, state departments of transportation, and public transit agencies to identify and respond to their safety and security training, research, and professional development needs. She served on the course development team for the joint FHWA/NHI/FTA/NTI course on Transportation Safety Planning; integrated discussions of intelligent transportation systems safety applications into NTI’s Implementing Rural Transit Technology and Transit ITS Regional Workshop offerings; and developed a wide variety of safety and security courses including Advanced Mobility Device Securement Skills Development Workshop, Building Diversity Skills in the Transit Workplace, Harassment Prevention for Transit Employees and Supervisors, Musculoskeletal Disorder Awareness and Prevention, Toolbox for Transit Operator Fatigue, Violence in the Transit Workplace, System Security Awareness, and Terrorist Recognition and Response.

At MTI, she continues to focus on safety and security in the surface transportation sector by conducting relevant research projects and concentrating on the application of results to practice. Current projects include a Bus Operator Behavior Awareness Research and Development Program, Security Best Practices for High-Speed Rail, and a project on public outreach efforts to underrepresented populations sponsored by TSA.
Christopher Kozub joined MTI’s growing team of internationally recognized transportation experts as a Research Associate in May 2010 and brings a unique background encompassing over 30 years of experience in the emergency services, transportation safety and security, and training fields.

Before coming to MTI, Mr. Kozub served for the past ten years as an Associate Director at Rutgers University where he worked with the National Transit Institute, the Voorhees Transportation Center, and the newly formed Center for Transportation Safety, Security, and Risk. During his time at Rutgers, he was the principle investigator on a number of federally sponsored surface transportation research, training, and outreach projects addressing system safety, emergency management, system security, and terrorism awareness and response.

Prior to joining Rutgers, Mr. Kozub served as the Director of Training for the Operation Respond Institute (ORI) in Washington, DC where he developed and delivered specialized emergency response training on behalf of the FRA and FHWA as well as Amtrak, VIA Rail, Conrail, and other railroads and transit systems. While at ORI he worked closely with Amtrak to develop and deliver security, safety and tactical training to emergency responders along the northeast corridor in connection with the infrastructure improvements, operational changes, and new equipment acquisitions associated with Acela high speed rail service implementation.

Mr. Kozub has also held senior management positions at emergency services training centers for New Jersey’s Hunterdon and Middlesex counties where he worked with the Association of American Railroads and Conrail to bring specialized hazardous materials training to the northeast part of the country. He also worked with the Port Authority of New York and New Jersey to develop and deliver fire, rescue, and hazardous materials training for their police and emergency services’ departments, including the development of a specialized WMD program following the 1995 Tokyo subway attacks.

Kozub works with key stakeholders in the federal agencies, surface transportation trade associations, and labor organizations to develop and implement safety and security training programs for front-line employees, supervisors and emergency responders in the public transit, highway, rail, and maritime modes. He has also testified before Congress, providing a broad industry perspective on current issues in public transit operational and infrastructure security.
Several MTI team members contribute to the successful completion of NTSCOE activities.

Honorable Rod Diridon, Sr.
Executive Director
Rod.Diridon@sjsu.edu

MTI Executive Director Rod Diridon is considered the father of modern transit in California’s Silicon Valley. His political career began in 1971 on the Saratoga City Council. He retired, because of term limits, in 1994 after five terms and six times as chair of both the Santa Clara County Board of Supervisors and Transit Agency Board. He is the only person to chair the nine-county, 119-city, 27-transit-district San Francisco Bay Area’s three regional governments: Metropolitan Transportation Commission, Bay Area Air Quality Management District, and Association of Bay Area Governments.

Mr. Diridon chaired more than 100 international, national, state, and local activities, most regarding transportation and the environment. He is chair emeritus and former governors’ (Davis and Schwarzenegger) appointee to the California High Speed Rail Authority Board and a founding chair of the American Public Transportation Association’s High Speed and Intercity Rail Committee. He chaired the American Public Transit Association in Washington DC in 1994, was vice chair of the International Transit Association in Brussels for a decade, and continues as a director of both. Mr. Diridon chaired the National Association of Counties’ Transit and Railroads Committee, advised the Federal Transit Administration, and chaired the Transportation Research Board’s Transit Cooperative Research Program.

In 2007-08 Mr. Diridon chaired the national Council of University Transportation Centers Board. He also serves on the corporate advisory board of Wells Fargo Bank and the corporate board of Empire Broadcasting Company. From 1969 to 1976, he served as founder and president of the Decision Research Institute, which developed a “shared survey” research procedure adopted by UNICEF. He frequently provides testimony to Congress and speaks throughout the world on sustainable transportation. Mr. Diridon earned an Accounting BS and an MSBA with a statistics emphasis at San José State University, served two combat tours as a US Navy officer in Vietnam, has been listed in Who’s Who in America since 1974, and was recently cited by International Metro Magazine as one of the 50 who most influenced mass transit in North America in the past century. He has received top awards from the American Public Transportation Association, the national High Speed Ground Transportation Association, and others. San Jose’s main railroad station was rededicated the San Jose Diridon Station upon his retirement from elected office.
Karen E. Philbrick, PhD  
*Deputy Executive Director and Director of Research*  
Karen.Philbrick@sjsu.edu

Dr. Philbrick was appointed the Director of Research for the Mineta Transportation Institute in May 2009. During her time with MTI, Dr. Philbrick has overseen the selection of 43 new research projects and the publication of 38 peer reviewed research reports. In June, MTI Executive Director Rod Diridon, at the direction of the MTI Board of Trustees, promoted her to the position of Deputy Executive Director.

Before joining MTI, Dr. Philbrick served as the Assistant Director of the National Center for Intermodal Transportation, a Title III University Transportation Center based at the University of Denver in Denver, Colorado. During her tenure at that Center, her work focused on the assessment, design, and development of planning methodologies and tools, technology, and human resources needed to improve intermodal connectivity. Dr. Philbrick has also been extensively involved in studies investigating Fatigue Management Planning and Best Practices in Responding to Critical Incidents in the Transportation Industry. As part of her research, she interviewed thousands of locomotive engineers and conductors as well as airline pilots, maritime industry representatives, and truck drivers. In addition, she interviewed New York City firefighters directly affected by the events of 9/11. This laid the groundwork for the successful completion of her dissertation, which examined a mathematical model for understanding Emotional Distress in Emergency Workers Following a Terrorist Attack.

On an international level, Dr. Philbrick has contributed to the development of educational and training materials for intermodal specialists. Her work has formed a key portion of an international training effort and seminar, Innovations and Challenges in Intermodal Transportation, which has been delivered in the Philippines, Indonesia, and most recently Vietnam. She has been a member of the US delegation to the Asian Pacific Economic Cooperation (APEC) Transportation Working Group since 2000.

With the highest honors, Dr. Philbrick earned a BA from California State University, Fresno, an MA from Columbia University, an EdM from Columbia University, and a PhD from the University of Denver.
Donna Maurillo

*Director of Communications and Tech Transfer*

Donna.Maurillo@sjsu.edu

Donna Maurillo joined MTI in 2007, managing communications and technology transfer, such as symposia, forums, and public meetings. She also manages MTI's communications vehicles such as the web site, annual report, media relations, social media, and other public outreach, and she manages special projects.

Ms. Maurillo managed corporate communications for Silicon Valley technology companies. She also managed venture capital and technology accounts for Hill & Knowlton and other PR agencies, and she was an instructor and consultant in corporate communications for many years.

She has published more than 50 articles on business, politics, and current issues, she co-authored two books on self-employment, and she writes a weekly newspaper column. Her Rotary Club named her Rotarian of the Year, she was twice listed in *Outstanding Young Women of America*, and she presided over several non-profit boards, primarily in the arts and social services. She served on staff for former California Secretary of State Bruce McPherson, and she earned an outstanding service award from UCSC after serving ten years as its alumni association president.

She earned her BA from the University of California and delivered the commencement address. Most recently, she earned her Master of Science in Transportation Management, with an emphasis in Transportation Security. She is a member of the Phi Kappa Phi academic honor society, and she achieved her 30 minutes of fame as a contestant on *Jeopardy*.

Jill Carter

*Executive Assistant*

Jill.Carter@sjsu.edu

Jill Carter applies her business skills to MTI office management, where she also oversees the student staff and financial records. Ms. Carter also is executive assistant to Rod Diridon. She and her husband own an automobile repair facility, where she managed office operations, accounting, staffing, sales and general administration. At the Campbell School District library, Ms. Carter purchased books and equipment, instructed library skills, and organized the book fair. At Bank of America, she was a bookkeeper and teller.

She is involved with the activities of her five children, including sports, fundraisers, PTA and classroom support. She attended San Jose State University, where she studied liberal arts.
Overview

In 2004, with the approval of its Trustees, MTI established the National Transportation Security Center funded jointly by US DOT and Caltrans grants. In 2007, MTI became part of the new Transportation Security Center of Excellence (a consortium of seven universities and research centers) created by the Department of Homeland Security. Funding was initiated in 2008. This designation provides more stable support for research overall and permits projects jointly funded by DHS and DOT, thereby ensuring that research will consider transportation and security needs.

Brian Michael Jenkins, a former member of the White House Commission on Aviation Safety and Security and advisor to the National Commission on Terrorism, has led MTI’s research on terrorism and surface transportation since its inception in 1996. He continues to serve as the NTSCOE director. Mr. Jenkins is assisted by Dr. Frances Edwards, who serves as deputy director. Dr. Karen Philbrick administers the Center.

The primary NTSCOE staff includes Bruce Butterworth, whose career on Capitol Hill, in the US Department of Transportation (DOT), and as a former Director of Operations for Security at the Federal Aviation Administration (FAA) encompasses three decades of government experience. To meet its demands, the NTSCOE expanded its research staff last year. Renee Haider, a former Associate Director at the National Transit Institute, joined MTI in 2010, bringing to the NTSCOE more than 19 years of expertise in training, education, and project management focusing on transportation industry. Chris Kozub, a former Associate Director at the Rutgers University’s Center for Transportation Safety, Security and Risk, also joined MTI in 2010, bringing 30 years of expertise in emergency services and transportation safety and security. The primary team is assisted by specialist consultants recruited worldwide.

MTI NTSCOE focuses its research on five main areas: threat analysis; security policy and procedures; disaster planning and emergency management; safety policy and procedures; and developing training programs and materials for security, safety, and emergency-response activities.

The NTSCOE’s research focuses on examining actual events through detailed case studies and quantitative analysis of its unique and expanding computerized database to identify terrorist targeting, tactics, and methods; to distill lessons learned; and to identify best practices. Its research is empirical – that is, based on real data, quantitative where possible. Its findings are intended to be pragmatic and impactful – producing applicable results that can be used by stakeholders to evaluate and sometimes change their practices. The NTSCOE is international in outlook, learning lessons from worldwide experience, and it makes its research readily available to users through reports, summit meetings, briefings, training programs, and outreach materials.

The NTSCOE’s current priorities are to make its computerized database – a compendium of just under 3,100 attacks on surface transportation targets – more rapidly responsive and more powerful. This will enable even more detailed analyses to help stakeholders decide key policy and operational issues; to complete the NTSCOE’s blueprint for supporting a DHS-sponsored consortium project aimed at refining methods of threat and security analyses; to expand its work in safety analysis and training; and to support urban transit systems and new high-speed-rail projects in the United States with up-to-date research results. The NTSCOE places great emphasis on delivering usable reports, along with training products, as projects or phases of projects are completed.
Activities

In this past year, the NTSCOE team made several presentations to the Department of Homeland Security (DHS), the Federal Transit Administration (FTA), the Counter Improvised Explosive Device Working Group, and at Transportation Research Board meetings. It also provided the first in a series of briefings though the Public Transportation and Surface Transportation Information Sharing and Analysis Centers (PT/ST-ISACs) that will continue, funds allowing.

In March, Mr. Jenkins and Dr. Karen Philbrick represented MTI’s NTSCOE at the University Programs Summit, Washington DC. Mr. Jenkins made two presentations – “Refining Terrorist Threat Analysis” and “Empirical Data to Guide Risk Mitigation: Examples from MTI Database” – while Dr. Philbrick represented MTI’s NTSCOE at the COE directors’ meeting. At that summit, the MTI’s NTSCOE received the Science and Technology Directorate’s Impact Award “for analytical Support to TSA Explosives Training.” The award was accepted by MTI’s Director Jenkins, and Research Associates Bruce R. Butterworth – the lead on the MTI database – and Chris Kozub. The citation on the award read:

“MTI transitioned research and analytical findings into training for TSA Explosive Operators deployed in mass transit, passenger rail and freight rail environments. MTI’s analysts gave TSA officers an operational understanding of the unique threats, hazards and challenges of performing counter-IED operations in the surface transportation domain, including critical situational awareness of comparative lethality among attack vectors, adversary strategies in the use of multiple explosive device, and safe mitigation techniques.”

Dr. Edwards, Dan Goodrich, Bill Medigovich, and Waseem Iqbal continued to work with Caltrans Headquarters Emergency Management staff in the creation of a new Continuity of Operations/Continuity of Government (COOP/COG) Plan that conforms to new direction from federal and state guidance issued during 2010. This plan is in final review and will be the basis for the updated checklist being prepared for the CAiLEMA review this fall. They delivered ICS/SEMS/NIMS training by video-teleconference to all Caltrans districts and headquarters four times; delivered emergency operations center training in eleven of Caltrans’ twelve districts; and provided the training for Headquarters staff three times. Their research and development of this training and plan led to the creation of a set of emergency relocation group (ERG) job descriptions as well as an in-person COOP/COG training for the ERG members. Their work has led to the completion of a generic COOP/COG plan to be published by MTI in August 2011 that can be used by state-level transportation agencies nationwide. Their training materials and a handbook for state-level transportation agencies to use in developing a COOP/COG team is being completed for publication in autumn 2011.

Dr. Edwards and Mr. Goodrich were invited to present their research on the role of transportation in emergency management at several conferences this past year. These included the Natural Hazards Conference in Colorado; the TRB conference in Irvine, California; and the FEMA Higher Education Conference in Maryland. Their well received and widely publicized research concluded that the inclusion of a transportation unit inside the operations section would enhance emergency response capabilities across agencies. The publication of their research includes materials on developing an emergency management program in a state-level transportation agency, including handout materials for employees, all incorporated in the MTI Handbook of Emergency Management for State-Level Transportation Agencies.
They also researched available resources for the creation of DHS/FEMA-mandated exercises within transportation agencies, also published as an MTI report. Their earlier work on transportation and campus emergency planning led to a chapter, “Campus Emergency Planning,” for the PERI book Challenges of Emergency Management in Higher Education: Planning and Strategies. Their research at the FEMA Higher Education Conference led to the creation of a supplement for their earlier report on the Role of Transportation in Campus Emergency Planning, which was also published in 2010. Dr. Edwards worked with Nina Rohlich and Dr. Peter Haas on a report on the San Francisco Bay Area’s “See something, Say something” campaign, published as an MTI report. Dr. Edwards was interviewed on CNN Headline News about this publication and the program’s role in keeping the traveling public safe.

Dr. Edwards was also the guest editor for a forum on Climate Change in The Public Manager. Her articles, including one on transportation co-authored with Frances McCormick, included information on the role of transportation in lessening the emission of greenhouse gasses, thought to be related to climate change; and the role that cities can play in adapting to climate change. Dr. Edwards’ presentations on transportation-related topics included a talk on employee preparedness at the DHS Security Roundtable in Denver; and a panel presentation at WTS in San Francisco. Dr. Edwards and Mr. Goodrich participated in an international workshop on emergency management research in Vancouver BC, and a panel on critical infrastructure at the state and local level at the American Society for Public Administration in Baltimore MD. The CRC Press book Critical Infrastructure, which includes their work, is scheduled for publication in autumn 2011.
International Activities

Expanding MTI’s international partnerships and connections is a priority for MTI’s NTSCOE. In September 2009, the US DOT invited Brian Jenkins to participate in a series of meetings with transportation officials in Mumbai, India. These meetings were followed by briefings to Indian officials in San Jose CA in early 2010. Based on these interactions, a memorandum of understanding between the State of Maharastra, India and MTI was signed in June 2010. This allows MTI to collaborate on transportation security research and to help India develop secure transportation systems.

Following important DHS-arranged meetings with Israeli officials in January 2010, Mr. Butterworth negotiated a contract with an experienced Israeli researcher who worked with MTI on writing 16 detailed case studies of terrorist attacks against Israeli bus targets. The cases were chosen specifically to explore various lessons learned about what security procedures were successful and which attack techniques were most lethal. The material, which was written to ensure no public dissemination of useful information to terrorists, is being prepared by MTI for formal publication with an appropriate foreword and brief overview.

MTI NTSCOE Director Jenkins and Mr. Butterworth were invited by UK authorities to witness an explosive test of passenger train rolling stock in June 2010. This experience led to a partnership with a representative of the UK who participated in the June 2011 MTI-sponsored panel on high speed rail attacks at the APTA Rail Conference in Boston MA. That same representative also shared important UK explosives effects research results in a limited forum of US transportation operators and government officials. Participants lauded his presentations for providing some of the most worthwhile and interesting findings of the conference. This could prompt additional movement in important avenues.

At the US DOT’s request, MTI briefed visiting Ministry of Transportation officials from the People’s Republic of China and has agreed to an exchange of research data. MTI also briefed Japanese rail officials at the request of the American Public Transit Association (APTA).

Christopher Kozub worked closely with representatives of East Japan Railway Company to conduct research for the high speed rail safety and security analysis project. Through face-to-face meetings and other communication, representatives provided valuable insight and information regarding several measures the company has taken to increase safety, reduce accidents and their impacts, and increase security with a focus on deterring attempted suicides in the stations and along the rights-of-way.

Dr. Edwards provided a session on American emergency management and the role of critical infrastructure to a delegation from Qingdao, China. She served as the US chair for the European Union’s CAST Project, designed to create a common terrorism training curriculum across member states. Mr. Goodrich was the classified documents reviewer for the project.
Although terrorists remain obsessed with attacking commercial airliners, as evidenced by the attempt in December 2009 to sabotage a Northwest airliner and the November 2010 attempt to bomb a cargo aircraft flying to the United States, they view public surface transportation as a more accessible killing field. As of July 27, 2011, terrorists had carried out 157 attacks on airliners and airports (outside of the war zones in Iraq, Afghanistan and Somalia) since September 11, 2001. Only six attacks delivered any fatalities, yielding an average lethality per attack of just over 2.0 deaths. Taking the two most lethal attacks – twin suicide bombings of Russian airliners in 2004 – lethality per attack was 44 deaths.

During the same period, terrorists carried out 1,907 attacks against public surface transportation worldwide, resulting in 3,918 deaths and 13,869 injuries. The average lethality per attack was much higher than in aviation. For passenger trains, it was 5.0 deaths and for buses it was 3.4 deaths. Eleven attacks killed 50 or more people, and in three of these, nearly 200 were killed. This would equal seven airliners lost since 9/11.

Many attacks on surface transportation were carried out by those connected with the global jihadist terrorist campaign. However, other resistance and separatist groups have also carried out devastating attacks.

A recent analysis using the MTI database compared jihadist to non-jihadist attacks, and also to all attacks (jihadist or not) that occurred in Western or analogous cities. Seventy-one percent of non-jihadist attacks resulted in zero deaths and only 1.8% killed 25 people or more. In attacks on Western or analogous cities, 85% resulted in zero deaths and 2.7% killed 25 people or more, including jihadist attacks in Madrid, London and Moscow.

By contrast, only 38.5% of jihadist attacks resulted in zero deaths, 8.3% killed 25 or more people, and 5.2% killed 50 or more. This lethality is high even when compared to attacks in Israel and Sri Lanka, the scenes of very deadly campaigns. Finally, compared to attacks in Sri Lanka, which are probably the most bloody in MTI’s database, jihadist attacks are even more lethal.

Terrorist plots abroad include a plot to spread ricin on London’s Heathrow Express in April 2005; a failed attempt in July 2005 to replicate the deadly July 7 bombings; an August 2005 plot to release toxic chemicals on London’s Tube; a November 2005 plot to bomb train stations in Melbourne or Sydney; an April 2006 plot to blow up a commuter train in Milan; a failed attempt to bomb German trains in August 2006; and a January 2008 plot to bomb the Barcelona Metro.

Since 9/11, several terrorist plots have targeted public surface transportation systems in the US, including a January 2003 plot to release cyanide on New York subways; an August 2004 plot to blow up a subway station in midtown Manhattan; a July 2006 plot to blow up subway tunnels under the Hudson River; a 2008 plot to attack the Long Island Railroad; and a September 2009 plot to blow up New York subways.

MTI was one of the first research centers to address this trend. Its research on transportation security issues began in 1996 with case studies, a chronology of terrorist attacks, and security summits that brought together operators and government authorities. That focus continued as MTI began to assemble its database, starting with its own seminal chronologies, and then further maturing with the continued help of NTSCOE funding.
Security Projects Completed in Fiscal Year 2009-10

The following projects were described in more detail in prior annual reports. They are listed here in chronological order to assure that all completed projects are acknowledged.

**Handbook of Emergency Management For State-Level Transportation Agencies**
Project #2850
Publication #09-10
Investigators: Frances Edwards, PhD and Daniel Goodrich

**Explosives and Incendiaries Used in Terrorist Attacks on Public Surface Transportation: A Preliminary Empirical Analysis**
Project #2875
Publication WP #09-02
Investigators: Brian Michael Jenkins and Bruce Butterworth

**Supplement to MTI Study on Selective Passenger Screening in the Mass Transit Rail Environment**
Project #2876
Publication #09-05
Investigators: Brian Michael Jenkins, Bruce Butterworth, and Larry Gerston, PhD

**The 1995 Attempted Derailing of the French TGV (High-Speed Train) and a Quantitative Analysis of 181 Rail Sabotage Attempts**
Project #2877/#2501-2
Publication #09-12
Investigators: Brian Michael Jenkins, Bruce Butterworth, and Jean-Francois Clair

**Emergency Management Training and Exercises for Transportation Agency Operations**
Project #2910
Publication # 09-17
Investigators: Frances Edwards, PhD and Daniel Goodrich

**Exploring the Effectiveness of Transit Security Awareness Campaigns in the San Francisco Bay Area**
Project #2914
Publication #09-19
Investigator: Nina Rohlich, Peter Haas, PhD, and Frances Edwards, PhD

**Potential Terrorist Uses of Highway-Borne Hazardous Materials**
Project #2981
Publication #09-03
Investigators: Brian Michael Jenkins and Bruce Butterworth

**Terrorist Attacks on Public Bus Transportation: A Preliminary Empirical Analysis**
Project #2982
Publication WP #09-01
Principal Investigator: Brian Michael Jenkins

**Implementation and Development of Vehicle Tracking and Immobilization Technologies**
Project 2983
Publication #09-04
Investigators: Brian Michael Jenkins, Bruce Butterworth, and Frances Edwards, PhD
Projects Completed in the Past Year

*Emergency Management Supplemental Report*

Project #2727-2
Publication WP #01-10

Investigators: Frances Edwards, PhD and Daniel Goodrich

This publication is a supplement to MTI Report #08-06, *The Role of Transportation in Campus Emergency Planning*, published in 2009. The contents were presented at the FEMA Higher Education Conference, which was held June 8, 2010 in Emmitsburg, MD. It contains a collection of best practices and innovative approaches to developing an emergency plan implementation plan for a college or university.

*Mass Transit Bus Operator Behavioral Awareness Training Program*

Project #2982

Principal Investigator: Brian Michael Jenkins

The Transportation Safety Administration (TSA) Bus Operator’s Project was renamed the Bus Operator Behavior Awareness Research and Development (BOARD) program. The goal of the project was to produce research and training that would enhance bus operators’ abilities to quickly and effective evaluate suspicious and dangerous behaviors, and to take actions to protect themselves and their passengers. This important program was managed by DHS’s Science and Technology Directorate, with funding, input, and direction from TSNM’s Mass Transit Division. The project was a NTSCOE collaboration involving MTI, the Center for Transportation Safety, Security & Risk, Rutgers University; Texas Southern University; and Tougaloo College.

MTI contributions to the project were organized to make the BOARD training program as effective as possible at reducing risk. MTI provided empirical data, analysis, and case studies that were leveraged to focus the training on areas where the greatest risk reduction can take place; create realistic training materials that illustrated the risks bus operators may face; and help identify and develop effective countermeasures.

The project was completed in December 2010 with the project team’s release of the BOARD Project Final Report. Major MTI accomplishments included:

*Ground-breaking Empirical Analyses*

Research Associate Bruce Butterworth presented data to bus operator focus groups in Houston TX in November and December 2009. MTI also generated an interim report published in January 2010, *Terrorist Attacks on Public Bus Transportation: A Preliminary Empirical Analysis* (MTI Report WP

**Case Studies of Terrorist Attacks against Bus Targets**

MTI contracted with Israeli explosives and security expert Shalom Dolev to collaborate on the development of ten detailed case studies. The case studies provided information never seen before and contributed to the BOARD course content development. Several were re-formatted and used as a basis for a key course learning activity.

**Course Review and Editing**

MTI was a reliable and conscientious team member on the project, providing assistance to improve the overall quality of the training course. It played a key role in generating useful results from the January 2010 trips to Israel and the United Kingdom as part of a DHS delegation and served as a primary course reviewer and editor. MTI actively participated in the comprehensive course review process. Its input was instrumental to ensure that the course material was realistic and accurately communicated the threat of global terrorism and its impact on public transit.

**BOARD Bus Security Training Deployment Strategy Plan**

MTI co-authored the BOARD Bus Security Training Deployment Strategy Plan that was presented to TSNM’s Mass Transit Division in October 2010.

**Ongoing Research Projects**

**Bus Operator Awareness Research and Development Project: Phase II**

**Project 2875**

Investigators: Brian Michael Jenkins and Chris Kozub

This phase of the BOARD project will create a 15-minute summary of the BOARD course material previously developed and distributed by DHS/TSA to transit systems and displayed in operator break rooms, at safety briefings, during annual refresher training sessions, or in other similar settings. Given budget constraints, the only feasible format will be an auto-run PowerPoint presentation with an audio overlay of narration and music.

Work on this project did not begin until May 2011. The relevant visual material and sources have been identified (Task 2), and the storyboard, as indicated in Task 1, will be completed by the end of the first week in September 2011. Upon approval of the storyboard, MTI will complete the rough cut of the
MTI NTSCOE: NIMS/COOP/COG Applications and Implementation for State Transportation Agencies: Best Practices
Project #2976
Principal Investigator: Frances Edwards, PhD

MTI and the California Department of Transportation (Caltrans) are partnering to develop a National Incident Management System (NIMS) compliant Continuity of Operations/Continuity of Government (COOP/COG) review. This will enable the revisions necessary to ensure NIMS compliance, facilitate the development of a meaningful vulnerability assessment leading to mitigations, and create a training and exercise program to ensure executive level capability to respond to transportation systems and infrastructure catastrophes.

The team – including MTI research associates Dan Goodrich, Waseem Iqbal, and Bill Medigovich – collaborated with Caltrans senior and executive staff to review the existing COOP/COG plan set for compliance with NIMS and the states' Standardized Emergency Management System (SEMS). A thorough review of the existing Caltrans COOP/COG materials included an evaluation of the existing threat and vulnerability assessment, and the inclusion of lessons from MTI’s ongoing research into terrorist attacks against transportation systems and their unique vulnerabilities. Plan revisions were developed in concert with Caltrans emergency management staff.

MTI research associates also reviewed the revised Caltrans plans for national applicability. The plan sets were turned into generic templates with additional guidance for use by state-level transportation agencies nationwide in evaluating their own NIMS-compliant COOP/COG plan to meet DHS requirements and directives. These planning templates and guidance documents will include a full generic plan template, a narrative, and a PowerPoint set delineating the relationship among NIMS, COOP/COG, and state-level transportation agency functions. A generic COOP/COG plan for state-level transportation organizations was developed and prepared as a separate publication due for publication in August 2011. The other materials are under development.

MTI research associates have customized a NIMS Basic class and COOP/COG class for ERG members for transportation agencies, including creating a PowerPoint with Notes page for self-study or to guide trainers in their presentations. MTI will create seminar outlines and a tabletop exercise based around scenarios adaptable to any state transportation agency. These documents are based on existing best practices and are nationally applicable. All elements of the project were piloted in California with Caltrans senior and executive staff members, including evaluations with suggestions for improvement. The final products will be peer reviewed.

Those final products will be a NIMS-compliant plan set for Caltrans, a training program, an exercise program, and a generic plan template that can be used nationwide by state transportation agencies to
Mineta Transportation Institute Database of Terrorists Attacks against Public Surface Transportation: Chronologies

Project #2978
Investigators: Brian Michael Jenkins and Bruce Butterworth

The Chronologies project significantly enhances MTI’s ability to provide insightful and timely trend analyses for legislators, makers of government policy and regulations, and transportation operators, indicating ways to mitigate the risks of terrorist and criminal attacks against public surface transportation. As DHS recognized in a prestigious award, this is a high-impact project that has yielded significant benefits with the promise of more in the future. The Chronologies project is one of the main engines feeding the MTI Trend Analysis project (2979, discussed below), among others. The Chronologies project’s primary task is to enhance the MTI Database on Terrorist and Serious Criminal Attacks against Public Surface Transportation. Mr. Jenkins is Principal Investigator, Research Associate Bruce Butterworth is research lead, and MTI independent contractors are involved.

The methodology was straightforward: Collect into a single database all information on attacks; ensure that the information is accurate; design a database that can cost-effectively generate analyses of how often certain kinds of attacks take place, but more important, which attacks are most lethal, at an increasingly detailed and useful level; and generate products for the use of DHS and other stakeholders.

The MTI database is unique for three related reasons.

First, no other database has incorporated attacks recorded by other more global databases that have been painstakingly dissected for transportation analysis, and also keeps its database current every week. This database incorporates not only the attack data MTI collected and documented before 9/11 in its Chronologies work, but also data from the RAND database through the end of 2009. It has also incorporated all attacks recorded by the National Counterterrorism Center’s Worldwide Incidents Tracking System (NCTC/WITS) through the first quarter of Calendar Year 2011; and the Global Terrorism Database (GTD) maintained by the National Consortium for the Study of Terrorism and Responses to Terrorism (START), another DHS Center of Excellence at the University of Maryland, through the end of 2010.

Second, no other database is specifically focused on transportation, and therefore no other source can provide the level of transportation-specific detail provided by MTI. For example, the MTI database has 56 transportation target subtypes; 52 attack subtypes, including 21 that involve different kinds of explosives or incendiaries; and, for attacks involving incendiaries or explosives, it has 25 delivery methods and seven outcomes for each device. These are used for the transportation-focused dissection of attacks found and recorded.
Third, and perhaps most important, the MTI database may well be the only one that automatically calculates lethality with the maximum possible precision. These calculations are expressed not only in terms of averages, but also as median values measured in terms of deaths and injuries per attack, per devices used, and per devices that exploded on target. MTI ensures that these calculations accurately reflect the core data in the database.

The MTI database fills an important public need. Decision making on public surface transportation must be based on risk, and risk analysis requires a clear understanding of where, how, and why attacks have been carried out, the targets of those attacks, and where and how they have been most lethal. The MTI database better enabled this analysis when it was converted in 2010 from an Excel® flat file to a server-based and secure Microsoft Access® platform using a specially designed module that calculates median lethality. As it does this, it has focused on specific questions from an increasing range of stakeholders.

The MTI database has produced many significant findings appropriate for public dissemination. Among them:

- Seventy-one percent of surface transportation attacks result in no casualties, but 56 attacks have yielded 25 or more deaths since 1970, 23 have yielded 50 or more, and five attacks have yielded 100 or more, with five attacks close to, and in one case more than, 200 fatalities. These are sufficiently high body counts to attract terrorists to targets which, by necessity, must remain more open than aviation and fixed and guarded fixed facilities.

- As noted above in more detail, the number and lethality of attacks against public surface transportation surpasses those attempted against commercial airliners and airports.

- Also noted above in more detail, Jihadist attacks are by far the most lethal attacks.

- Buses are attacked more often than trains, but trains are attacked with much more lethality, particularly when explosives are used. This is likely because trains provide enclosed spaces for more lethal blast effects.

- Suicide bombings are more common on buses, but they have been more lethal in train attacks.

- Single-bomb attacks are more common than multiple-bomb attacks and are often more lethal per device. Certain bomb sizes tend to be more lethal than others, and some multiple bombs are aimed at security personnel and first responders.

- Suicide delivery may be most frightening and is more difficult to defend against, but the data show that other ways to deliver a bomb – such as in leave-behind bags – are more frequently used and can be far more lethal.
• Bombs are used more often than any other method and are most deadly in enclosed environments, such as subway trains and underground subway stations, but non-explosive attacks can achieve even higher lethality.

• Fifteen percent of attacks are stopped by alert passengers, citizens, security guards, and others.

• These and other findings, especially those with greater detail, have significant implications for securing public surface transportation.

The Chronologies project has had many accomplishments in the past two years, including:

• The number of attacks in the database grew from 1,049, when it was first briefed to the FTA/TSA Safety and Security Roundtable in July 2009, to the current 3,096. Approximately 80 attacks were added each month through a painstaking review of data GTD and NCTC WITS database.

• After the database was transferred to a Microsoft Access® platform in June 2010, with the assistance of a NASA software vendor, a growing number of standard graph and chart sets were added. These are automatically updated, and data are kept fresh. Special reports have been generated in response to inquiries.

The MTI database has been used throughout this year to produce insightful reports and briefings to key stakeholders. For example:

• The database helped shape the TSA Bus Security Operator Awareness Training (BOARD) project.

• Results from the database were briefed to TSA's field Bomb Appraisal Officers in several US cities.

• Two briefings were conducted for members of the PT and ST ISACs in June (see additional information below).

• AMTRAK used the data in Congressional testimony.

• US Senators Lautenberg and Lieberman used the data during the Congressional discussion of public surface transportation following the revelation that Osama bin Laden had been contemplating attacks against passenger rail in the US.

• Brian Michael Jenkins and Bruce Butterworth used the data for a special paper on rail transportation security, which was written to inform Mr. Jenkins' testimony. Several Congress members reviewed and used the material.
In the coming year, MTI will expand the use of the database by enabling DHS analysts to directly access it to mine it for data, run queries, and develop reports. The existing Microsoft Access® 2010 data file will be migrated to a new SQL Server database and a user-friendly web interface will be developed and implemented. In addition, MTI will create a Users’ Guide that will summarize the data collection and coding decisions used to create and maintain the data and therefore interpret results, define the data fields, and explain how data is structured. These efforts will position the new database for further sophistication and expansion in the future.

**Terrorist Attack Annual Trends Analysis**  
**Project # 2979**  
Investigators: Brian Michael Jenkins and Bruce Butterworth

The objective of the Trend Analysis project is to deliver comprehensive and focused trend analyses of the terrorist threat against public surface transportation, as revealed through qualitative analyses of attacks and plots. These analyses will help government officials make better risk-based decisions on policy, regulation, and R&D and will enable transportation system managers to operate and invest in their systems, equipment, and personnel in a way that yields the greatest risk reduction. MTI seeks to increase the awareness of front-line government and transportation employees. Trend Analysis is a high-impact project yielding significant benefits now and promising more in the future. It uses information from the Chronologies project, and its products often support or are combined with those of the Case Studies project (Project #2977).

Mr. Jenkins is Principal Investigator, Bruce Butterworth is Research Lead, and MTI independent contractors contribute to the project.

The methodology is straightforward and effective: First, data from the MTI Database on Terrorist and Serious Criminal Attacks against Public Surface Transportation are analyzed to reveal valid statistical trends concerning where (e.g., region and country), against what (56 different targets), and how (52 methods) attacks have been conducted. The database analyses show which of 21 explosives or incendiary devices have been used and 25 ways they can be delivered or concealed, along with seven outcomes for each device. Eleven new fields have been added to the database, including whether multiple devices have been aimed at responders, the size of the explosives, the detonation and timing mechanisms used, whether devices were found before attacks, whether attacks take place in large or small locations, and whether they occur near iconic targets. The data are culled to determine trends not only in distribution, but also in lethality, measured in terms of average and median fatalities and injuries per attack, per device, and per device exploded on target. More recently, attacks by jihadist groups or individuals have been compared with those by non-jihadist groups, and also with all attacks conducted in Western cities and cities outside the West that are analogous to them.

The qualitative material for trend analysis comes from in-depth experience and knowledge resident in MTI’s senior staff, particularly Mr. Jenkins. The understanding of evolving worldviews, objectives, and tactics – in combination with the results of MTI’s Chronologies project – enables trend analysis
that offers qualitative information and quantitative wisdom. Finally, these factors are combined with 
information from the Attack Case Studies project to provide the most useful products to stakeholders.
For example, MTI participated in TSA’s Bomb Squad Response to Transportation Systems 
(BSRTS) program. Initiated by TSA’s Operation Division in conjunction with the Security Network Management Office, the Trend Analysis project includes a number of training seminars, ten of which 
have been given, and two more are scheduled through the end of FY2012. In each of the seminars, MTI researchers present current trends, focusing on explosives attacks, using updated data and case studies.
The seminars took place in Boston, Chicago, New Orleans, San Antonio, Miami, Seattle, Sanford (Orlando area), Philadelphia, Newark, and Denver. The remaining two sessions will be held in Fort Worth and Washington DC. MTI has received positive feedback, yielding other briefing requests. Its analyses are providing TSA Bomb Appraisal Officers a solid foundation on which to conduct surface transportation vulnerability assessments. The analyses may also assist in responses to bomb threats and explosives devices.

The work prompted DHS’s Science and Technology Directorate to award MTI on March 30, 2011, an S&T Impact Award to MTI’s NTSCOE, accepted by Director Jenkins and project lead Research Associate Bruce Butterworth and Research Associate Chris Kozub, who conducted the briefings. The award citation read:

“MTI transitioned research and analytical findings into training for TSA Explosive Operators deployed in mass transit, passenger rail and freight rail environments. MTI’s analysts gave TSA officers an operational understanding of the unique threats, hazards and challenges of performing counter-IED operations in the surface transportation domain, including critical situational awareness of comparative lethality among attack vectors, adversary strategies in the use of multiple explosive device, and safe mitigation techniques.”

In May 2011, MTI signed a memorandum of understanding with the DHS-sponsored ST and PT ISACs to enter into a partnership for communicating unclassified information to key transportation operators. MTI has posted two executive level briefings and conducted a webinar on June 22 for ISAC members. The first was an executive overview of key findings of the database, and the other was a special report on derailment attacks. Three other briefings are being prepared: A special report on subway attacks, a report on the explosives aspects of attacks, and a full database briefing providing a broad view of all attacks. This unique partnership is an ingenious method to deliver key analyses to those making operational risk-mitigation decisions

MTI’s database also provided a special analysis of attacks against high speed rail that compared these attacks against those against non-high speed rail targets. The analysis was included in MTI’s DHS-funded HSR research.

MTI trend analysis has been used in three published reports: *Explosives and Incendiaries Used in Terrorist Attacks on Public Surface Transportation: A Preliminary Empirical Analysis* (MTI Report WP-09-02); *Terrorist Attacks On Public Bus Transportation: A Preliminary Empirical Analysis* (MTI Report WP-11-01); and *Terrorist Attacks On High Speed Rail: A Preliminary Empirical Analysis* (MTI Report WP-11-02).
Report WP 09-01); and *The 1995 Attempted Derailing of the French TGV* (High-Speed Train) and a *Quantitative Analysis of 181 Rail Sabotage Attempts* (MTI Report 09-12). Each report combines qualitative and quantitative analyses. The report on train derailment attempts in France also presents case studies.

Continuing trend analysis – including analysis addressing specific stakeholder questions – has shaped the TSA Bus Security Operator Awareness Training (BOARD) project. Trend analysis continues to be provided to UK authorities.

In the coming year and funding permitting, MTI will increase the variety and the focus of its trend analyses and will publish additional reports for the general public, along with special, more detailed reports for key government and industry stakeholders.
MTI researchers worked with domestic and international high-speed rail professionals to analyze accidents and attacks involving high-speed rail systems and identify lessons learned and best practices for preventing and responding to these incidents.

MTI harnessed its resident security, safety, and rail expertise to conduct empirical research of 31 accidents that occurred on six specific HSR systems since 1964, and on 22 attacks that were carried out against HSR systems around the world since 1970. With the exception of Amtrak’s Acela service, the US is a novice in the area of high-speed passenger rail operations. Other countries in Europe and Asia have been operating high-speed rail systems for decades and have learned a great deal about security and safety through experience and research. This effort reviewed empirical data relating to preventing, mitigating, responding to, and recovering from accidents, and threats and attacks. As a result the start-up high-speed initiatives in the US can incorporate this research and lessons-learned into the design, construction, and operation of new systems. This will help avoid costly errors and retrofits operationally and technologically. In addition, the regions in which these corridors will be developed will be better prepared for the impacts and integration of enhanced security and safety measures on the infrastructure, operations, and emergency response plans and procedures.

The six systems that were studied in accident analysis represent some of the largest, oldest, newest, and most complex high-speed rail operations in the world. They include:

- **Shinkansen in Japan:** Also known as “the Bullet Train,” The Shinkansen is a network of high-speed railway lines in Japan operated by the Japan Railways Group. Started in 1964, the network has linked most major cities in the islands of Honshu and Kyushu at speeds up to 186 mph.

- **Eurostar in UK, France, and Belgium:** The newest system in Europe is the Eurostar, a high-speed rail service connecting London with Paris and Brussels, with all trains going through the Channel Tunnel. This tunnel is one of the most critical pieces of rail infrastructure on the European continent.

- **NEC / Acela in the US:** While not as technologically advanced or as operationally robust as many high-speed systems in Europe and Asia, the Acela does represent the only functioning high-speed rail operation in North America.

- **TGV in France:** Already the subject of an MTI report, this system is the oldest, most established system in Europe and has also experienced more threats and failed attack attempts than any other high-speed operation.
• ICE in Germany: The Intercity-Express (ICE) is a system of high-speed trains serving Germany and several neighboring countries – Switzerland, Belgium and the Netherlands. New lines are providing additional service to Germany and to Denmark.

• Nevsky Express in Russia: The Nevsky Express is operated by the Oktyabrskaya Railway subdivision of Russian Railways. It is the fastest train (125 mph) on the prominent Moscow-Saint Petersburg Railway.

MTI’s work will be provided to DOT (RITA and FRA) and DHS (specifically S&T and the NTSCOE team) through final reports that look separately at accidents and attacks. These reports will be published on MTI’s website and the relevant empirical data will be incorporated into MTI’s existing robust database on surface transportation security incidents.

The end products will be valuable resources for safety and security professionals as well as planners, designers, operators, labor representatives, and responders to high-speed rail systems by providing a comprehensive analysis of empirical data on incidents and threats and a thorough inventory and evaluation of best practices for addressing hazards.

The project also represents an effort to capitalize on financial economies-of-scale by merging separate funding resources from US DOT and US DHS, ultimately conducting research and producing final products that would not be achievable through smaller, less comprehensive projects.

**Understanding Terrorist Threat Analysis and the Unique Challenge of Terrorism to Security (U-CASS Study)**

Former Title: World Trade Center Commerce and Security Study (WTC-CAST)

Project #1076

Principal Investigator: Brian Michael Jenkins

Within a cost-benefit-analysis framework, the U-CASS Study project will conduct a risk-based analysis to assess varying combinations of security measures, policies, and procedures that can be put into place at the World Trade Center (WTC). Working with CCICADA at Rutgers University, the Department of Homeland Security Center of Excellence University of Southern California’s CREATE, and officials of the Port Authority of New York and New Jersey, MTI will examine (1) the terrorist threats to the WTC site, including the WTC acreage and surrounding properties that compose New York’s lower Manhattan financial district; (2) the major potential direct and indirect economic consequences of possible terrorist actions; (3) the portfolio of security measures that can be developed against the threats; and (4) the costs and benefits that can be derived from these security measures.

MTI’s NTSCOE will assume the lead in this consortium for threat analysis and attack-scenario generation and will also participate in identifying and evaluating possible security countermeasures. MTI will also assist DHS and other researchers in liaison with the New York Police Department.
NYPD) and other public and private sector officials who will be key factors to the project’s successful execution.

As an initial step, MTI prepared a white paper that outlined terrorist motives, reviewed current methodologies for assessing and ranking terrorist threats, identified and established contact with NYPD and other key public and private sector officials, and formed a plan of action for further threat analysis.

Specifically, MTI will:

- Examine possible terrorist motives that could drive their objectives, selection of targets, and choice of tactics.

- Review various approaches used to generate terrorist scenarios, elicit expert opinion, assess threats, identify key experts, and indicate how they might contribute to the research.

- Conduct an initial reconnaissance of the WTC and surrounding properties, review currently envisioned security measures (location of perimeters, deployment, procedures, etc.), and initiate discussions with NYPD and other key individuals who may assist in the effort.

- Participate in the consortium planning sessions.

- Lay out a more detailed plan of action for analyzing the terrorist threat, producing attack scenarios, and determining how these may interact with security.

MTI will complete and write reports on the risk management methodology (this will be a briefing), the analysis of what we have learned from terrorist plots against major urban transportation systems, which appear to be terrorists’ most common attack mode in major urban areas, and an analysis of major urban security initiatives in response to terrorism and their effects. The last study will examine the “Ring of Steel” in Belfast, the “Ring of Steel” in London, the measures adopted to protect Paris in the terrorist bombing campaigns in the mid-1980s and again in the mid-1990s, the efforts in Tel Aviv during the Second Intifada, the measures taken in Washington (including closing Pennsylvania Avenue), and New York’s Lower Manhattan Security Initiative.

**Engagement of Minority Communities in Public Awareness Programs (EMCAPS):**

**Phase I**

**Project #1078**

Investigators: Brian Michael Jenkins and Renee Haider

The Engagement of Minority Communities in Public Awareness Programs (EMCAPS) Phase I research project is a collaborative effort including three of the seven NTSCOE institutions: Tougaloo College; Rutgers; and MTI; plus the Transportation Security Administration, Transportation Sector Network
Management, Mass Transit and Passenger Rail Security Division; and the Metropolitan Atlanta Rapid Transit Authority.

The objectives of the EMCAPS research project are to:

- Determine whether the existing security awareness campaigns are reaching the African American community
- Evaluate the current engagement of African Americans in awareness campaigns
- Identify effective strategies for engaging the African American community in security awareness efforts

The Phase I research effort included an all-media review of the literature, transit agency interviews, and transit rider focus groups. The Metropolitan Atlanta Rapid Transit Authority (MARTA) served as the research team’s industry partner.

The research team completed an EMCAPS Phase I Final Report. It provides a detailed review of the key research tasks, outlines preliminary recommendations on strategies to increase African American participation in public awareness campaigns, and presents alternative approaches to a Phase II research effort.

The literature review found that strategies raising the awareness of issues or educating population segments (e.g., non-profit), and/or promoting products and services (e.g., for-profit businesses) could be applied to developing effective security awareness campaigns in mass transit systems specifically designed for various demographic groups. However, it stressed the importance of examining the similarities and/or differences between the target group’s perceptions of security and that of the general ridership to determine if a segmented approach is needed. Cited studies found that African Americans have less confidence in the government’s ability to provide security, and their perception of security is also dramatically less favorable in comparison to the Caucasian and Latino communities.

Following the literature review, interviews with key transit agency administrators and police personnel were conducted to establish a context for the research and to understand current transit agency efforts to promote public involvement in their security awareness campaigns. Detailed in-person interviews were conducted at MARTA individually with police, marketing, and research staff in January 2011. Subsequently, the research team conducted additional interviews at the Washington Metropolitan Area Transit Authority (WMATA) and the Chicago Transit Authority (CTA) to gain insight into the commonalities and differences across large urban transit agencies regarding the implementation of security awareness campaigns. African Americans compose a significant segment of transit ridership for these agencies ranging from a low of approximately one-quarter of total riders at WMATA and one-third of CTA riders, to a high of approximately three-quarters of total MARTA riders.
All three transit agencies have been conducting security awareness campaigns in one form or another since the events of September 11, 2001. The campaigns are viewed as a foundational component of the agencies’ overall counterterrorism efforts and are not evaluated separately. The campaigns employ a combination of locally developed and federally sponsored materials. Key components include vehicle and station posters, brochures, station announcements, and videos posted on the agencies’ website, or on a more limited basis, played on trains or buses. Over time, the agencies have integrated the security awareness message into their community outreach that addresses both personal and system safety/security concerns. The campaigns are generic, applying to bus and rail, and are focused on transit riders in general, not on any specific market segments.

Finally, focus groups were conducted with MARTA customers to gain insights into the opinions, perceptions, and behavior of frequent transit riders. A total of six focus group sessions were held over a two-day period (April 27-28, 2011). Four of the groups were composed of African American riders and two groups included Caucasians and any other ethnic group except African American. A total of 56 people (42 African Americans and 14 non-African Americans) participated in the groups.

Most focus group participants could recall past and present MARTA awareness campaign materials, but there was very low awareness of the phone number to make a report. Although most participants agreed that security awareness campaigns were a “good idea,” several factors impacted their willingness to make a report. They were hesitant to report the behaviors of other riders unless they were afraid for their own safety or the safety of others and felt police intervention would help. They also did not think it was worthwhile to make a report if the event was over by the time they would have an opportunity to do so, or making a report would be an inconvenience (i.e., delay them in their travels).

However, the primary factor influencing an individual’s willingness to make reports was his or her personal experiences. African American participants tended to have more negative encounters with system employees (e.g., bus operators, station attendants, police), which discouraged them from making reports. In addition, some African American group members felt that African Americans, men in particular, were more likely to try and handle a situation themselves rather than calling for help. Their perception, based on situational experiences, is that the call for help would not be answered, nothing would change, and it was better not to get involved in situations.

Overall, the focus group findings indicated that to enhance the engagement of African American and general market riders in public awareness campaigns, the campaign materials and support structure should address personal and organizational barriers that inhibit reporting. Some of these barriers are similar for both segments, but evidence suggests that additional barriers exist for African Americans. Therefore, a security awareness campaign designed for African American riders should be a fruitful avenue for motivating all riders to become more engaged in security awareness and reporting.

African Americans represent a significant segment of transit riders and, therefore, their engagement in security awareness campaigns is critical to overall mass transit security. Although the initial research effort suggests that existing campaigns are reaching African Americans, simple, effective, and
replicable strategies can be implemented to more effectively engage minority communities in security awareness campaigns.

Based on the research, the team identified four key elements that should be incorporated into the design of public awareness campaigns:

1. A strong feedback loop that provides a timely response to people who do make reports. This will clearly demonstrate that their input is important and valued by the agency.

2. An overall approach that reinforces a culture of customer service. Public confidence in a system is directly related to how users feel they are treated by agency employees.

3. Campaign messages and organizational priorities that address riders’ reluctance to make reports:
   - Perceptual factors
     - Level of perceived threat
     - Anticipated inconvenience
     - Past interactions with agency personnel (i.e., response to complaints or other inquiries)
   - Logistical Factors
     - Accessibility of police or other agency personnel

4. Reliable communication mechanisms and continuous reinforcement of who to contact and how (i.e. the number to call).

In addition, the focus groups provided input into crafting messages and effectively using graphics in campaign materials to reach the intended audience:

- Keep it visually appealing with limited text

- Provide examples of what to look for

- Specify one simple number to call

- Offer riders an option to discreetly make a report via a text message

Relative to the campaign components, creative measures to reinforce key pieces of the information found on the “anchor” pieces (i.e. vehicle posters) should be explored.

Project #1079

Investigators: Chris Kozub and Renee Haider

Between 2003 and 2008, the nation’s heavy rail transit systems experienced eight accidents that killed ten right-of-way workers, including track inspectors, track workers, and signal technicians, representing a 300% increase in the fatality and injury rate from the historic averages in the heavy rail industry. In 2010, two more rail transit right-of-way workers lost their lives when they were struck by a high-rail vehicle.

Of the 19 worker fatalities reported to the National Transit Database (2003-2008) for rail transit, 17 were reported for heavy rail service and two for light rail service. More than half those reported fatalities occurred on the right-of-way. This is in addition to the track worker injuries and close calls that occurred on the right-of-way during the period.

In 2010, MTI was selected to conduct Transit Cooperative Research Program (TCRP) synthesis study J-07/Topic SF-15 on Practices for Wayside Rail Transit Track Worker Protection. The objective of this study is to report the state of knowledge and practice regarding wayside worker protection programs at selected transit agencies and to document the state of the practice, including lessons learned and information gaps.

Transit agency personnel interviewed by MTI researchers indicated that in the wake of incidents involving track worker fatalities or near misses, their systems took aggressive actions. For example, as a result of two track worker fatalities on the New York City Transit (NYCT) system, the agency formed a Track Safety Task Force to evaluate the safety culture, identify deficiencies and strengths, and develop recommendations for improvements. After a near miss incident, the Toronto Transit Commission (TTC) established a Track Level Safety Team. This committee, composed of senior management from all the rail operations disciplines and worker representatives, was charged with developing recommendations on how to improve the safety of employees working at track level. Other systems formed or reconstituted “Rules Committees” to revisit their right-of-way (ROW) rules and procedures and make necessary improvements. The Massachusetts Bay Transportation Authority (MBTA) essentially re-wrote its complete rule book from scratch, in a collaboration with labor and management representatives from several departments.

Five systems including the NYCT and MBTA participated in the study by providing materials and/or taking part in extensive interviews and site visits. The other three were: Maryland Transportation Administration (MTA), the Toronto Transit Commission (TTC), and the New Jersey Transit River LINE operation. These five systems afforded the research team a range of modal, operational, demographic, size, and historical characteristics from which to look at practices and processes.
The study methodology included a literature review, interviews, a review of rail transit documents including rule books, bulletins, training documents, and trend analyses, and selected site visits. During the site visits, the research team also witnessed flagging and worksite procedures in practice. Three key findings were identified as a result of this effort:

- The high-level standard developed by the American Public Transportation Association (APTA) Standard for Work Zone Safety authorized by the APTA Rail Transit Standards Executive Committee on June 8, 2003 is the only national resource addressing transit track worker safety.

- Each of the five systems included in the research continually strive to improve the safety and level of protection for their ROW workers.

- Deviations existed in each system’s program depth and complexity. These deviations varied from those that reflected the environmental and operational hazards and characteristics of the systems to those that were more influenced by organizational cultural characteristics and/or historical practices.

Specifically, transit systems are taking steps to:

- Improve their procedures to enhance safety and clarify rules so they are more easily understood

- Augment their initial and recertification training programs for track workers and flaggers

- Identify specific pieces of equipment essential to keeping workers safe

- Implement audit or inspection processes for rules compliance

The practices, reported by the agencies interviewed to have a positive impact, ranged from minor changes to major initiatives. A sample of these practices includes: the implementation of a joint labor/management pre-job safety inspection in NYCT, new procedures that require a Transportation Official (supervisor) to be part to setting up certain flagging sites and the deployment of “Emergency Personal Protective Equipment Boxes” throughout rail system at MBTA, the implementation of computer-based training for recertification training at MTA, and the use of unique-colored vests for the watchman or flagman on the River LINE.

While these practices and several others continue to improve track worker safety, they represent pieces of programs that lack industry consistency and an evaluation mechanism. Overall program effectiveness is very difficult to measure given the lack of an industry standard for specific components and practices and for evaluating program strengths and areas in need of improvement. Within the five systems included in the study, there were four distinct processes for determining, establishing, and carrying out track worker protection levels and measures, with significant differences in staffing levels, risk tolerances, training requirements, and audit processes.
TSA Recommendation 6 Interagency Leadership Group Participation

Research Associate Christopher Kozub was invited to serve as the only non-federal surface transportation sector representative on an Interagency Leadership group, which included representation from five TSA modal offices and the National Protection and Program Directorate, Infrastructure Protection office in DHS; six US DOT modal administrations; and the US Merchant Marine Academy.

On May 26, 2009, President Obama announced the establishment of the Trans-Border Security Interagency Policy Committee (TBS IPC) to work under the authority of the National Security Council (NSC). The TBS IPC includes several sub-committees with distinct focuses, including the Surface Transportation sub-IPC, which evaluated of surface transportation security, focusing on ten primary issues, from June through August 2009. In March 2010, the sub-IPC published the Surface Transportation Security Priority Assessment, which included 20 recommendations to minimize risk, maximize efficiency, correct industry weaknesses, and strengthen the surface transportation network.

On April 14, 2010, Josh Brennan, Assistant to the President and Deputy National Security Adviser for Homeland Security and Counterterrorism, released a memo to the lead agencies, requesting an actionable implementation plan and timeline for their assigned Recommendation.

TSA was, therefore, tasked through the Department of Homeland Security (DHS) to create a detailed implementation plan to meet the White House-mandated requirements of the Recommendation 6 of the Surface Transportation Security Priority Assessment (STPSA). Recommendation 6 requires:

- Establish an interagency process to inventory education and training (E&T) requirements and programs, identify gaps and redundancies in surface transportation owner/operator E&T, and ensure that Federal training requirements support counterterrorism and infrastructure protection.

TSA designated I-STEP as the program to lead an initiative to achieve the first requirement of Recommendation 6 (establish an interagency process to inventory education and training requirements and programs, identify gaps and redundancies in surface transportation owner/operator E&T). TSA would focus on the second requirement (ensure that Federal training requirements support counterterrorism and infrastructure protection) by publishing a Notice of Proposed Rulemaking and by issuing the Final Rule.

Mr. Kozub actively participated in this group by attending meetings and conference calls; conducting technical reviews; providing content and strategic comments; and supplying information, contacts, empirical data, and insights based on experience. The yearlong effort developed five milestones:
1) Initiate stakeholder engagement to refine security training catalog

2) Expand modal division engagement of industry stakeholders and interagency partners

3) Publish Notice of Proposed Rulemaking (NPRM)

4) Provide final results of initiative to external stakeholders and interagency partners

5) Issue Final Rule

TSA designated the Intermodal Security Training and Exercise Program (I-STEP) to lead the effort in meeting milestones. To implement milestones 1, 2, and 4, a five-phase implementation plan was designed, which included the following phases of action:

- Phase I: Data Collection
- Phase II: Inventory
- Phase III: Modal Security Partners Evaluation and Gap Analysis
- Phase IV: Needs Assessments
- Phase V: Blueprint for Course Development

I-STEP completed Phases I and II through the creation of an exhaustive training matrix, which included more than 1200 transportation courses. To initiate stakeholder engagement to refine the security training catalog, I-STEP called on the Interagency Leadership Group (ILG) to engage in the Gap Analysis (Phase III), the Needs Assessment (Phase IV), and the Blueprint for Course Development (Phase V). Working closely with the ILG members, in December 2010, I-STEP developed a Milestone Report, which captured efforts taken to meet the outlined milestones through the implementation of Phases III, and IV. In April 2011, I-STEP developed an Update Briefing to share Phase IV findings and the steps that would be taken to carry out Phase V. The Final Report, issued in July 2011, provides the final results of the initiative to external stakeholders and interagency partners, and meets the fourth milestone.

The participation and consistent feedback of the ILG representatives allowed I-STEP to compile E&T data, analyze it, and report key findings as well as a way forward to further develop E&T. The Recommendation 6 effort brought together a diverse group of experts and stakeholders from the sector’s training community to build relationships, discuss strengths and weakness of transportation security training, and to continue to grow training capabilities over time.
COMMUNICATIONS AND TECHNOLOGY TRANSFER
Overview

Communications and Technology Transfer at MTI has become a valuable resource for transportation researchers, policy makers, and professionals around the world, providing:

- Symposia and other events to collaborate with transportation leaders about key topics such as transportation security, workforce development, transportation finance, sustainable vehicles, high-speed rail, and other issues. These are typically organized as stand-alone events sponsored by MTI or in cooperation with other transportation organizations, or they are incorporated as part of larger transportation conferences and professional gatherings.

- Summaries and reports from those meetings, along with promotions for MTI research reports, which are published as hard copy, PDF and HTML documents. These may be downloaded at no cost from the MTI web site.

- Information resources for a broad variety of transportation topics – available on MTI’s web site, at libraries, or through our network of other transportation sites. These resources include periodicals, news articles, video clips, databases, research reports, and other materials.

- Educational resources to help students consider the math and science courses that may lead to careers in transportation, or to help future transportation leaders learn about MTI’s accredited Master of Science in Transportation Management program. These include classroom materials and workbooks, registration materials for MTI’s Summer Transportation Institute, the Garrett Morgan Sustainable Transportation Competition for middle-school students, and more.

- The latest news about MTI’s research, information about national transportation issues, opinion polls, insights about mobility trends, transportation funding forecasts, and other timely issues.

- Special research or other special projects funded outside of MTI’s usual grants. These may come by way of non-grant contracts with government agencies, non-profit organizations, and others.

- Graphics and technical support for MTI outreach, including web design, event planning, PowerPoints, photography, illustrations, charts, marketing materials, handbooks, and other products and services.

- Promotion of MTI and its products and services by way of social media such as the MTI Facebook page, the MSTM Alumni LinkedIn page, the MTI LinkedIn page, and the @MinetaTrans news dissemination by way of Twitter.
Forums and Summits

Each year MTI presents regional forums and state or national summits, either as stand-alone events or as part of larger gatherings of transportation professionals. These events accomplish multiple purposes, such as sharing recent research with practicing professionals, policy makers, other academics, and the larger community; exploring issues that may require further research (part of needs assessment); providing opportunities for networking and collaboration; and creating a record of proceedings that can be shared with a wider audience online and/or in print. To continue its progress toward establishing the National High-Speed Rail Policy Center, MTI again presented or co-presented at a number of events focusing on high-speed rail.

2011 APTA Rail Conference
June 12-15, 2011 – Boston MA
Project 1062
Project Manager: Donna R. Maurillo

Brian Michael Jenkins, director of MTI’s National Transportation Security Center of Excellence, led a panel discussion on “Rail Security: What Progress Have We Made?” The session was part of the annual APTA Rail Conference. Panelists discussed the achievements that have been made in US and international public rail transportation. They also gave perspectives on the challenges that remain, along with the vulnerabilities and threats the world continues to face. Panelists also offered their perspectives on measures that could be adapted for higher-speed rail operations.

Besides Mr. Jenkins, presenters included John O’Connor, Chief of Police, Amtrak, New York NY; Doyle Raines, General Manager, Mass Transit and Passenger Rail Security, Transportation Security Administration, Washington DC; Christopher Trucillo, Chief of Police, New Jersey Transit Corporation, Newark NJ; and Christopher Smith, Security Adviser, Government of the United Kingdom, London UK.

This session was rated second-best of the 53 presented at APTA Rail, earning a participant score of 4.75 out of a possible 5.0. The only session to rate higher was the Executive Roundtable. Continuing MTI’s success at this event, MTI Research Associate Chris Kozub served as a panelist on Trackworker Safety which was ranked 4th of 53 sessions.

MTI also participated in two Committee on Public Safety (COPS) Roundtables, each chaired by Paul MacMillan, Chief of Police, Massachusetts Bay Transportation Authority, Boston MA. These informal discussions focused on exchanging ideas and experience among transportation security professionals regarding technology, best practices, challenges, and more.

MTI was represented at the COPS sessions by Brian Michael Jenkins, Bruce Butterworth, and Christopher Kozub.
MTI has a number of forums and summits already in the planning and organizing phases. These include, in chronological order:

**Disaster Assistance Working Group: China & USA**

**November 29-30, December 1-2, 2011 – San Jose CA**

*Project 1161*

In September, MTI will host government representatives from the United States and the People’s Republic of China, who will meet for four days to work cooperatively on disaster planning as it relates to transportation infrastructure. The first two days will include classroom lessons in English and Mandarin (with UN-style interpretation), along with a welcoming banquet and evening presentation. The second two days will include field trips to the California State Department of Transportation, the San Francisco/Oakland Bay Bridge, the Golden Gate Bridge, the Devil’s Slide Tunnel, and other transportation infrastructure sites. Presentations will be given at each site.

**2012 Transportation Research Board Annual Meeting**

**January 22-26, 2012 – Washington DC**

*Project 1162*

The Transportation Research Board has invited MTI to present a half-day workshop, “Rail Security: Critical Insights and Applications,” at its annual meeting. This workshop will provide a valuable forum for researchers and practitioners who are engaged in this field. It also will explore current research and identify promising directions for future research. Following the workshop, a rapporteur-authored report will be prepared, including a summary of workshop presentations and discussions.

**MTI Web Site**

Information and Technology Transfer also manages MTI’s web site, TransWeb (www.transweb.sjsu.edu), a transportation information site widely used by people and organizations outside of the Institute. The site provides information about MTI’s purpose, research reports (including downloadable publications in PDF and HTML formats), education programs from middle-school to graduate level, symposia and forums, news coverage, and links to national and international sites related to surface transportation security and policy.

The MTI website has become increasingly popular as a resource for cutting edge transportation research. On average there were 259,065 visits per month to the website, with over 67,392 reports downloaded.


The MTI brochure on its Master of Science in Transportation Management and Certificate in Transportation Security also proved popular, typically showing in the top downloads each month.

Graduate Transportation Management Program (GTMP) students benefit from additional TransWeb content and functions. The GTMP pages are designed especially for current students, who can view upcoming class schedules, register for classes on an interactive form, and request information about the program. The new web design has helped MTI to streamline the process. Video recordings of all classes are also maintained. It allows students to keep up with any missed lessons, review important sessions, and take advantage of guest speakers from past sessions.
Media Coverage

By way of active media pitching, MTI has established a growing reputation as a resource for expert opinions about surface transportation safety and security issues. During this last fiscal year, MTI was an important part of many news stories in print, online, and broadcast media. NTSCOE Director Brian Michael Jenkins was often solicited for opinions on selective screening of rail passengers, terrorist threat, and designing and operating safe and secure transit systems among many other compelling issues. The media also picked up stories about the Institute’s symposia and other events.

Based only on actual interview placements, direct story placements, and media inquiries, MTI improved its media coverage over the last fiscal year by averaging five broadcast placements (radio and TV) and 20 print placements per month. It is impossible to calculate actual metrics for every placement because news stories are customarily picked up by several other media, including blogs and local news services, and repeated into their own markets. Therefore, when all multiplying factors are taken into account, actual news coverage is reasonably assumed to be significantly higher.

Social Media

During the just-completed fiscal year, MTI expanded its social media presence. The Institute’s Facebook fan page, “Mineta Transportation Institute,” has grown to more than 250 followers. Every weekday, MTI posts transportation news, copies of its news releases, commentary, photos, and other items relevant to its mission, including links to sister sites on Facebook, such as the Transportation Research Board, RITA, Secretary Ray LaHood’s page, and other sites.

MTI also established its presence on LinkedIn with two separate pages. One of those pages, “Mineta Transportation Institute,” is dedicated to users who have an interest in transportation news and issues. The other page, “MTI MSTM Alumni,” is focused on those who have graduated from the Master of Science in Transportation Management program. Essentially, it serves as an alumni association site. Postings to both pages include active links back to the MTI web site wherever appropriate, or to transportation-related news stories.

In the last week of the fiscal year, MTI established a Twitter account, @MinetaTrans. This is being leveraged to post news and announcements that link back to the MTI web site, or to distribute news items in which MTI and its followers have an interest.

MTI eliminated its blog this year because user interest was not evident. Blogs have lost a large market share to other media, and the wise decision was to follow the critical mass.
Other Successes

Scholarship and Awards Banquet

On the last Saturday in June, MTI holds a banquet to raise scholarship funds, to award the Garrett Morgan Symposium winners, and to hood the graduates from the MSTM program. This year, the banquet attracted more than 350 transportation leaders, corporate donors, and friends and families of the graduates. The keynote address was delivered by Assistant Secretary of Transportation Polly Trottenberg, who lauded the graduates for their dedication to American mobility. Other notable speakers included Transportation Secretary (ret.) Norman Mineta, US Congressman Mike Honda, former Deputy Secretary of Transportation and MTI Board Chair Mortimer Downey, and others. International guests included the Consuls General from Japan and Germany.

Corporate sponsors included Wells Fargo Bank, AAA, Parsons Brinckerhoff, Central Japan Railway Company, Sumitomo Corporation, HNTB, CH2M Hill, IBM Corporation, Granite Construction, Gilbert Tweed, and many more. The event typically raises more than $40,000 per year for scholarships.

Other Outreach

NTSCOE Director Brian Michael Jenkins has appeared in person and in broadcast interviews discussing counter-terrorism measures. He also has testified before Congress and has written articles for industry publications. NTSCOE Deputy Director Frances Edwards’ interview with CNN Headline News on the MTI See Something/Say Something research report was broadcast numerous times during June. She also spoke at several conferences, including the American Society for Public Administration National Conference in Baltimore, DHS Transportation Security Roundtable in Denver, and the FEMA Higher Education Conference in Emmitsburg, MD.
The Graduate Transportation Management Program was created to develop and administer a multidisciplinary, state-of-the-art program by way of videoconferencing and Internet technologies. It consists of coursework and experiential learning that provides students the skills and knowledge to manage and lead transportation systems.
Overview

**Summer Transportation Institute**

During July 2009, the Education Program again offered the “Summer Transportation Institute” (STI). The program, which is funded by the FHWA via the California Department of Transportation (Caltrans), is a national effort to provide career orientation and educational experiences to motivate secondary school students toward professions in the field of transportation. The transportation industry will continue to need individuals who are prepared to provide the leadership to build the nation’s transportation system for the next century. The primary aim of STI is to encourage high school students – particularly from traditionally underrepresented backgrounds – to seek professional careers in transportation through obtaining a college education. Participants were engaged in a variety of activities including emergency preparedness, a college-level environmental science class with an emphasis on transportation issues, field trips to a variety of area transportation centers, guest speakers from the industry, hands-on projects, and related enrichment activities.

**Education Program Accomplishments**

**MTI’s Graduate and Certificate Programs**

The College of Business at San José State University, with support from the Mineta Transportation Institute, offers a Master of Science degree and three graduate Certificate programs.

The Certificate in Transportation Security (CTS) includes two required courses – Emergency Management for Transportation Professionals and Security Issues for Transportation Professionals – along with two core courses from the MSTM curriculum. Students may apply six credits earned from the Certificate program toward the MSTM, should they later wish to continue. The emergency management course is taught by MTI Research Associate Dr. Frances L. Edwards, a renowned disaster response expert. Dan Goodrich, a specialist in planning, training, and exercises for weapons of mass destruction, teaches the security class. The Certificate includes an option for SEMS certification.

**MTM 226A: Emergency Management Issues for Transportation Professionals**

This course emphasizes the role of emergency management within transportation agencies and the role of transportation and resources in the larger community-wide response to emergencies and disasters.

**MTM 226B: Security Issues for Transportation Professionals**

The purpose of this course is to enable the participant to critically analyze surface transportation security plans. Course reading is taken from a variety of sources to introduce concepts ranging from opposing force and theft to public confidence. DHS courses Incident Response to Terrorist Bombing, and Prevention and Response to Suicide Bombing Incidents will be presented as part of the curriculum.

For details about MTI’s education program, please contact Dr. Peter Haas, MTI Education Director at 408-924-5691 or Peter.Haas@sjsu.edu.
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