



MINETA
TRANSPORTATION INSTITUTE
MTI
Created by Congress in 1991

MNTRC
MINETA NATIONAL TRANSIT
RESEARCH CONSORTIUM



2013 Annual Report



MINETA TRANSPORTATION INSTITUTE

LEAD UNIVERSITY OF MNTRC

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

The contents of this report reflect the views of the authors, who are responsible for the facts and accuracy of the information presented herein. This document is disseminated under the sponsorship of the U.S. Department of Transportation, University Transportation Centers Program and the California Department of Transportation, in the interest of information exchange. This report does not necessarily reflect the official views or policies of the U.S. government, State of California, or the Mineta Transportation Institute, who assume no liability for the contents or use thereof. This report does not constitute a standard specification, design standard, or regulation.

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About the

Mineta Transportation Institute and Mineta National Transit Research Consortium

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 via national summits hosted by the world-class MTI trustees and through sophisticated, targeted media distributions. MTI won Tier I designations during the 2002 and 2006 competitions and was selected the lead institution for one of two transit consortia in the 2012 competition.

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 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. Prior to 2012, MTI's work encompassed all modes of surface transportation, including the interface among modes.

MTI is organized by function, with directors operating in each of three departments – Research (including the National Transportation Finance Center, the National Transportation Safety and Security Center, and the National High-Speed Rail Connectivity Center), Education, and Communications and Information/Technology Transfer.

In January 2012, MTI was selected as lead institution for a nine-university transit consortium funded by the Federal Transit Administration via the Research and Innovative Technology Administration of the US DOT and tasked with "Delivering Solutions that Improve Public Transportation." That new organization became the Mineta National Transit Research Consortium (MNTRC). The other eight partners include Bowling Green State University, Grand Valley State University, Howard University, Penn State University, Rutgers University, University of Detroit Mercy, University of Nevada Las Vegas, and University of Toledo.

MNTRC's goal is to expand and synergize each member university's unique abilities and expertise to respond as a group to national transit-related research needs. MNTRC conducts research to meet the US DOT strategic goals of safety, state of good repair, economic competitiveness, livable communities, and environmental sustainability.

Director's Summary

Executive Director Rod Diridon, Sr.

Background

The Mineta Transportation Institute (MTI), formerly known as the Norman Y. Mineta International Institute for Surface Transportation Policy Studies, has grown significantly since designation in the Intermodal Surface Transportation Efficiency Act of 1991 as a policy research center attached to the College of Business at San José State University (SJSU). At that time, MTI was the only university transportation center in the nation not affiliated with a college of engineering. At the 1998 end of ISTEA, MTI had a total annual budget of \$500,000 and four research projects in process. A newly accredited Master of Science in Transportation Management (MSTM) and a graduate Certificate in Transportation Management (CTM) were offered but had only a handful of students.

In 1998, MTI was reauthorized to receive a four-year Transportation Equity Act for the 21st Century (TEA-21) grant for \$750,000 per year through the US Department of Transportation's Research and Special Programs Administration (RSPA). The California Legislature provided a matching grant through the California Department of Transportation (Caltrans). TEA-21 required that the 17 Group B and C University Transportation Centers (UTCs) compete, with ten to be selected to continue at \$1 million each per year for the final years of the authorization. After a competitive application and interview process, in 2002 MTI was chosen one of the ten continuing Tier I Centers of Excellence. Caltrans matched the federal grant, confirming the state's long-standing commitment to MTI.

During this evolutionary period, MTI's 1991 ISTEA surface transportation policy and management legislative mandate was honored and became focused on three specialties: 1) safety, security and emergency response management, 2) finance, and 3) the interrelationships among transportation, land use, and the environment. These issues were emphasized after the Tier 1 program was reauthorized in 2005 and in MTI's 2006 SAFETEA-LU competition against 36 of the nation's top universities. MTI was proud to be chosen again as one of the country's ten Tier 1 UTCs, and then in 2012 as the lead institute in a nine-university consortium.

MTI has become a preeminent resource, with over 57 projects in process, to the national transportation community on the three priority topics. Other policy issues are studied when requested during the annual MTI research needs assessments conducted each autumn with the US DOT Western Resource Center (especially the Federal Transit Administration's research liaisons), Caltrans, and the MTI Trustees. MTI education programs have broadened beyond the MSTM to include professional Certificates in Transportation Management, in Transportation Security Management, and in High-Speed Rail Connectivity Management.

The current MTI structure is summarized in the organization diagram in Appendix B. Included are three departments, plus three more national research centers under the Research Department. The three basic departments are Research, Education, and Information/Technology Transfer. Besides general research under the Research Department, the following three national centers provide unique expertise: 1) MTI's National Transportation Safety and Security Center, 2) MTI's National Transportation Finance Center, and 3) MTI's National High-Speed Rail Connectivity Center. Each of those functions are summarized in the following paragraphs and described in detail in the body of the report. To be consistent with previous annual reports, performance trends are reported since MTI was fully funded in 1999 by TEA-21.

Consortium and Tiered Program Evolution

In 2011, the US DOT Research and Innovative Technology Administration (RITA) created a consortium concept and replaced the prior four-tier system with 22 equally-funded consortia. More than 200 universities competed in more than 50 consortia. MTI was chosen in early 2012 as the lead institute of a nine-university group designated as one of the two transit consortia among the 22 selected winners. The resulting Mineta National Transit Research Consortium (MNTRC) includes, from east to west, Rutgers, Howard, Penn State, Toledo, Bowling Green, Detroit Mercy, Grand Valley, Nevada Las Vegas, and MTI at San Jose State, home of the lead institute. Each will be highlighted in this second MNTRC annual report.

What This Report Covers

MNTRC has concluded the second year of consortium operation with a remarkable level of research, education, and information sharing programs in process among the nine universities. The last annual report by MNTRC covered the 18-month period ending on December 31, 2012. The calendar year January 1 through December 31, 2013 is the subject of this annual report.

Research Department

Deputy Executive Director and Research Director Karen Philbrick, PhD

Since 1999, MTI has published 171 expertly-conducted, peer-reviewed policy research projects. MNTRC has 57 more projects under contract and in process, of which 32 are being conducted by MTI research associates. During this reporting period, research supported by the SAFETEA-LU and Caltrans grants engaged 88 of MTI's 282 certified Research and Consulting Associates, most of whom are PhDs, as well as 55 student research assistants. Significant research and information transfer efforts (local and regional forums, national symposia or summits, etc.), often sponsored with the Board of Trustees using non-grant funds, have also been completed. Research topics are selected annually through a carefully structured needs assessment process involving designated US DOT and Caltrans committees, the internationally prominent MNTRC/MTI Board of Trustees, and other national transportation leaders. The projects and research teams are chosen after a structured bidding and selection process. Final project selection is made by the MTI Research Associate Policy Oversight Committee (RAPOC), which is made up of the seven chairs, or their designees, of the interdisciplinary academic departments at SJSU that are associated with MNTRC/MTI. The summary of activities for the three sub-centers in the Research Department follows.

MTI's National Transportation Safety and Security Center (NTSSC)

Director Brian Michael Jenkins and Deputy Director Frances Edwards, PhD

MTI's National Transportation Safety and Security Center (MTI NTSSC) analyzes threats to surface transportation safety and security and designs improved countermeasures. This includes 18 completed and ongoing detailed case studies of major terrorist attacks and tactics, along with updates to MTI's chronology of terrorist attacks and other serious crimes against surface transportation. Additionally, the Center conducts research into best practices in transportation emergency preparedness, training, and management. This includes natural disasters, operational emergencies, and accidents.

The Center's Director and Deputy Director have made several presentations to state and national transportation leaders and policy makers this year, including to the American Society for Public Administration, the Department of Homeland Security (DHS), the Transportation Hazards and Security Summit, and at Transportation Research Board meetings.

Mr. Jenkins has briefed Congressman Peter King, chairman of the House Homeland Security Committee, the staffs of the House and Senate Homeland Security Committees, the House Armed Services Committee, the Canadian Senate, the Senate Homeland Security and Governmental Affairs Committee, the NATO ambassadors, and many more. He also has met with numerous other government officials regarding transportation security, delivered presentations at many leading transportation-focused conferences, and is a security adviser to several heads of state around the globe.

Mr. Jenkins is a chief contributor to MTI's proprietary database on terrorist attacks on surface transportation, which goes back nearly a century to document specific details that can be leveraged for security planning, training, and response.

Dr. Frances Edwards, NTSSC Deputy Director, and Research Associate Dan Goodrich completed the *Exercise Handbook: What Transportation Security and Emergency Preparedness Leaders Need to Know to Improve Emergency Preparedness* for MTI, Report 12-08. The research entailed interviewing 14 transportation safety, security and emergency management experts from a variety of transportation and transit agencies across the United States, gathering best practices from their experiences, and information on unmet needs in exercise design and implementation that were then incorporated into the handbook.

Dr. Edwards and Mr. Goodrich were also asked to write *Introduction to Transportation Security*, a new textbook that was requested by CRC Press and published in the fall of 2012. As result of this publication, they were selected as University Scholars by the Provost of San Jose State University and gave a research presentation to their university colleagues.

During the reporting period Dr. Edwards was the invited keynote speaker for the University of New Orleans' Disaster Resistant University conference, and she delivered presentations and poster sessions at the American Society for Public Administration, the Natural Hazards Workshop, and the Transportation Research Board meetings. She also gave presentations to leadership program students from France and Shandong, China, and to the Chinese delegation that visited MTI. She was interviewed by media outlets on emergency management topics, including by the *New York Times* on the West TX disaster.

Dr. Edwards also wrote two case studies on transportation and emergency management for a graduate case book by Westview Press, using research on 9/11 that was developed through MTI; two chapters in an emergency management textbook by Taylor & Francis; and a third chapter co-authored with Mr. Goodrich for that book. Her article on seismic early warning systems in Southern California was published in the *PA Times*.

Dr. Edwards and Mr. Goodrich are currently researching seismic early warning systems in Japan and California, with a focus on the successful application to the JR East high-speed rail system during the March 2011 triple disaster in Japan. They represent MTI on the university's Cyber Security Committee, where they are helping to develop curriculum for a graduate level certificate program. Dr. Edwards is also a member of the Transportation Research Board Critical Infrastructure Protection Committee, and Mr. Goodrich is the alternate member. She is also a member of the editorial board for the *Journal of Transportation Security*, and a peer reviewer for a number of professional journals, including the *Natural Hazards Review* of the American Public Works Association.

Dr. Edwards is a member of the Transportation Research Board Critical Infrastructure Protection Committee ABE 40 and research project NCHRP 20-05/Topic 44-12 oversight committee.

MTI's National Transportation Finance Center (NTFC) **Director Asha Agrawal, PhD**

Transportation finance plays a significant role in transportation policy-making. Therefore, at the direction of the Board of Trustees, MTI established the NTFC in 2008. The objectives are to conduct and present surface transportation finance research to policy makers. The NTFC also educates decision makers, planners, and the public about current transportation finance debates and opportunities. MTI is especially interested in "smart" finance options, or ways to generate necessary transportation revenues while promoting environmentally sustainable transportation systems, congestion management, and social equity.

In the past year, MTI published one new finance report and the Center's researchers have made nine presentations of MTI finance studies. The Center's director, Dr. Asha Weinstein Agrawal, presented her MTI-sponsored finance research at five academic conferences, and four other researchers – Dr. Geoff Gosling, Dr. Hiro Iseki, Dr. Shishir Mathur, and Dr. Jae-Ho Pyeon – have also made public presentations of MTI finance studies.

In June, MTI's NTFC hosted a public forum entitled "Mineta National Policy Summit on Transportation Finance: Catching Up with the Rest of the World," co-sponsored by the Commonwealth Club of California in San Francisco. This event featured a keynote address by US DOT General Counsel Kathryn Thomson, who was introduced by Transportation Secretary (ret.) Norman Mineta. A panel discussion included Dr. Agrawal, Director of MTI's National Transportation Finance Center; Deputy Secretary of Transportation (ret.) Mortimer Downey; California Department of Transportation Director Malcolm Dougherty; California High-Speed Rail Authority CEO Jeff Morales; and APTA Chair and New Jersey Transit Board Member Flora Castillo. Dr. Agrawal presented the latest research results from a national survey polling Americans about transportation taxes and fees. These Commonwealth Club sessions were presented to more than 200 attendees and broadcast on the Commonwealth Club's 230 national radio station affiliates on NPR. During the panel discussions, Dr. Agrawal updated the trends obtained from prior MTI NTFC annual heavy-sample national surveys on what types of taxes or fees voters would support to fund transportation infrastructure.

MTI's National High-Speed Rail Connectivity Center (NHSRCC)

Director Stan Feinsod

In 2008, California voters approved \$9.95 billion in high-speed rail bonds in Proposition 1A. Then \$10.1 billion were appropriated in the national American Recovery and Reinvestment Act (ARRA), and more recent appropriations, and with more funding pending. Hence, the prospect for the US to join all the other industrialized nations with a high-speed rail network became real. President Obama's determination, and that of the past four California governors (two Republicans and two Democrats), to create high-speed rail networks reinforced that priority. MTI began studying high-speed rail, especially the needed station area connectivity systems, in 1996, completing 35 peer-reviewed studies that indirectly relate and 12 studies that directly relate. Most of those studies stress the need for seamless connectivity to local transit feeder systems.

NHSRCC Director Feinsod guides a top team of MTI research associates accomplishing state-of-the-art studies on the policy and management aspects of high-speed rail connectivity. The objective is to identify and promote the station-area feeder programs that encourage the development, operation, and maintenance of the 13 national high-speed rail corridors designated by congress and the Secretary of Transportation.

As a foundation for that process, MTI conducted a detailed US High-Speed Rail Workforce Needs Assessment requested by the California High-Speed Rail Authority (CHSRA) Board and in cooperation with the Federal Railroad Administration. That data provided the 2011 California State University System-led multi-jurisdictional task force the foundation upon which to design the education and training programs to meet the workforce needs. The task force, supported by MTI, is led by the CSUS Chancellor's office and includes delegates from the University of California and California Community College systems, organized labor's apprenticeship training programs, and the K-12 programs via the State Superintendent of Schools. The program, in various forms, is under consideration by the CHSRA and has been presented at numerous statewide and national conferences. The *California High-Speed Rail Workforce Needs Assessment* has been presented at the annual TRB conference and was selected for publication by TRB.

Several additional high-speed rail connectivity studies are in process and will be elaborated upon in the related section of this report.

MTI's Education Department

Director Peter Haas, PhD

More than 180 California State University accredited Master of Science in Transportation Management (MSTM) degrees have been granted since 1999, and 10 were conferred in June 2013. Eleven professional Certificates in Transportation Management or in Transportation Security Management, requiring completion of 12 core units from the MSTM program, were conferred at the same time. For 2013, more than 122 active students are enrolled in the MTI MSTM and Certificate programs at SJSU. Those students receive instruction up to four nights a week via the 24-site Caltrans statewide videoconference network. In addition, Caltrans and MTI have provided satellite feeds to outside agencies such as Orange County Transit Authority (OCTA), Los Angeles County Metropolitan Transportation Authority (LA Metro), the Transportation Agency for Monterey County (TAMC), and the Contra Costa Transportation Authority (CCTA).

To support this unique instructional capacity, Caltrans installed a state-of-the-art videoconference origination site for MTI, which is periodically upgraded. Students and faculty complement synchronous learning with Canvas, an online courseware application, as well as video streaming of archived classes.

The MSTM and Certificate programs, specifically granted to MTI by the California State University Board of Trustees, are supplemented by the related traditional SJSU undergraduate and graduate programs relating to transportation policy and management in business, engineering, political science, public administration, and urban planning. A significant number of students from those programs pursue transportation careers, and many of the professors provide transportation policy research through MTI. Consequently, MTI provides recruitment and instructional assistance to selected aspects of those traditional programs.

The MTI Alumni Association, including current students as well as prior MSTM and Certificate recipients, sets the vision, values, and goals for the future of the Association annually at a meeting conducted before the annual graduation banquet. This association assists MTI in tracking graduates, and provides social networking applications to enhance opportunities for peer support and student recruitment.

Communications and Information/Technology Transfer Department

Director Donna Maurillo, MSTM

To promote information/technology transfer, MTI has conducted 110 national summits and regional or statewide forums since 1999. During the past 12 months, MNTRC/MTI Research Associates and staff have testified before legislative committees, given nearly 90 speeches and panel presentations on transportation issues throughout the world, and conducted scores of media interviews related to MNTRC/MTI research. Those outreach successes will be summarized in this report.

In addition, MNTRC/MTI newsletter, *World in Motion*, was published three times in the last 12 months. This newsletter is distributed electronically to nearly 3,000 national transportation leaders and other interested parties, and it is posted on the MNTRC and MTI web sites. The Institute embraced social media, with an active presence on Facebook and two sites on LinkedIn – one for MNTRC/MTI supporters, and another for MSTM alumni. MTI also has a Twitter account, @MinetaTrans, and a presence on Pinterest. The Institute continues to engage more sophisticated search engine optimization (SEO) techniques to guide users to the research reports on the MNTRC/MTI web sites and to continue to attract and educate a new generation of transportation leaders.

The proof of success is in the ever expanding use of the MTI web site. Prior to 2008, the web site averaged about 150,000 hits/uses and 5,000 downloaded documents per month. Following an upgrade, the site averaged 226,150 hits/uses and 36,438 downloaded documents per month during the 2009-10 fiscal year. With aggressive outreach, especially the expanded use of social media, the 2013 calendar year saw those average monthly numbers increase to 303,720 hits/uses and 93,491 downloaded documents. MNTRC also established a web site in March 2012, transweb.sjsu.edu/mntrc, which contains relevant consortium news and research documents.

Finally, MNTRC/MTI Executive Director and the department directors continue to attend national UTC-related meetings, assist in pursuing more UTC support for the US DOT modal administrations, and provide other related service as requested by the FTA research liaison, the Governor of California, and the MNTRC/MTI Board of Trustees. Over the years, the MNTRC/MTI Executive Director also served as a member or chair of several national transportation organizations, including president of the national Council of University Transportation Centers and Chair of APTA.

Support Staff

MNTRC/MTI has a creative, stable, and congenial staff. Eleven-year veterans Education Director Dr. Peter Haas and Education Program Manager Vivianne Ferea remain in their longtime positions – providing oversight for MTI's graduate and certificate programs. Donna Maurillo is in her seventh year as Director of Communications and Information/Technology Transfer, managing outreach and tech transfer activities.

Deputy Executive Director and Research Director Dr. Karen Philbrick began her fifth year, managing MTI's research projects and teams and managing the efforts of the eight other MNTRC centers. Internationally-noted counter-terrorism expert Brian Michael Jenkins, MTI's NTSSC Director since 1996, continues to work with Deputy Director Dr. Frances Edwards, providing expertise in transportation emergency management for over a decade. MTI's NTFC Director Dr. Asha Agrawal has managed an expanding transportation finance program for over six years. In her fifth year, Jill Carter is essential as MTI's Executive Administrative Assistant with QuickBooks, office administration, and logistical skills, supported until late 2013 by half-time Assistant Office Manager Lynda Ramirez Jones. Half-time Web Administrator Frances Cherman is in her fourth year improving the performance of the Institute's web site. An evolving team of talented part-time San Jose State University students provided essential support, including Donghoh Han, Chelsea Leppo, and Joseph Mercado.

Research Associate (RA) recruitment of only the finest PhD-level talent continues with certifications by MTI's SJSU RAPOC. That certification is required before RAs are allowed to propose MTI projects. Although some RAs are not located at SJSU, every MTI research team must have at least one SJSU RA and one student assistant to bring the research knowledge back to the university.

Conclusion

MTI and MNTRC are operating at a level beyond anything previously experienced or expected. That level of vigor will be retained for the remainder of the consortium contract period. The following detailed report shows that each of the MNTRC and MTI strategic performance measures are being exceeded.

The MNTRC/MTI staff enjoys this extraordinary opportunity to identify, teach, and share with the nation the world's best surface transportation policy and management practices. Indeed, the US transportation community, with the help of US DOT's University Transportation Centers' program, will succeed in promoting sustainable transportation while prevailing in the global geo-economic competition of the 21st century.

A handwritten signature in black ink, appearing to read "Rod Diridon". The signature is fluid and cursive, with a large initial "R" and "D".

Rod Diridon, Sr.
Executive Director

MNTRC Performance Metrics

MNTRC/MTI Research

Fiscal Year	2007-08	2008-09	2009-10	2010-11	7/1/11 - 12/31/12*	CY2013
Number of research projects selected for funding	6	16	21	18	35	33
Total budgeted costs for those projects	\$299,867	\$822,769	\$719,762	\$953,446	\$3,688,869	\$2,958,861
Number of reports issued that resulted from transportation research projects	5	12	35	37	41	25
Number of research papers presented at academic and professional meetings	17	33	66	71	80	72
Students participating in transportation research projects	28	42	39	40	137	76

Master of Science in Transportation Management

Fiscal Year	2007-08	2008-09	2009-10	2010-11	7/1/11 - 12/31/12*	CY2013
Enrollment	44	45	67	63	65	69
Graduates	15	19	14	14	17	10

MNTRC/MTI Web Sites

Fiscal Year	1998-2006	7/1/11 - 12/31/12*	CY2013
Average monthly uses	173,985	294,904	382,125
Average monthly downloads	~5,000	97,502	106,829

MNTRC/MTI Summits, Forums

Fiscal Year	2007-08	2008-09	2009-10	2010-11	7/1/11 - 12/31/12*	CY2013
Events	4	6	13	8	25	22
Attendance	301	353	1,325	1,472	2,477	2,525

* Includes MNTRC partner participation. Note that from July 1, 2011 until December 31, 2012, a transition was made from a Fiscal Year to a Calendar Year. Therefore, this period includes 18 months of performance.



ADMINISTRATION AND STAFF





Rod Diridon, Sr.

MNTRC/MTI Executive Director

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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 for the Americas of the International Transit Association (UITP) in Brussels for a decade, and continues as a director of both. Mr. Diridon chaired the National Association of Counties' Transit and Railroads Committee for 18 years, 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 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 received top awards from the American Public Transportation Association, US High-Speed Rail Association, National Association of Counties, and others. San Jose's main railroad station was rededicated the San Jose Diridon Station upon his 1994 retirement from elected office because of term limits. Most recently, he was given the Lifetime Achievement Award from the national Council of University Transportation Centers.

Directors



Asha Weinstein Agrawal, PhD

MTI Director, NTFC

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Dr. Agrawal is Director of the MTI National Transportation Finance Center (NTFC) at San Jose State University. She is also an Associate Professor and Chair of the Urban and Regional Planning Department at San Jose State University. Dr. Agrawal's PhD in Urban and Regional Planning is from UC Berkeley.



Frances Edwards, PhD

MTI Deputy Director, NTSSC

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Dr. Edwards is Deputy Director of MTI's National Transportation Safety and Security Center (NTSSC), and is a Research Associate. She is also a Professor and Director of the Master of Public Administration School at San Jose State University.



Stan Feinsod

MTI Director, HSRCC

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Mr. Feinsod is Director of MTI's High-Speed Rail Connectivity Center (HSRCC) and an Instructor for MTI's Master of Science in Transportation Management program. He contributes more than 25 years of experience in rail operations and project development, and he co-chairs the APTA High-Speed Rail/Commuter Rail Joint Legislative Committee.



Peter Haas, PhD

MNTRC/MTI Director of Education

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A Fulbright Scholar and member of the faculty in MTI's Graduate Transportation Management Program (GTMP) since 1999, Dr. Haas was appointed Education Director in 2001. He manages all facets of the Master of Science in Transportation Management and related certificates programs.



Brian Michael Jenkins

MTI Director, NTSSC

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Mr. Jenkins was appointed in 1996 to lead MTI's National Transportation Safety and Security Center (NTSSC), which was elevated to a Center of Excellence by DHS in 2008. Mr. Jenkins and NTSSC Deputy Director Frances Edwards, PhD, continue to guide NTSSC research on all aspects of safety and security, and on the planning for and recovery from major emergencies. As a leading authority on terrorism and sophisticated crime, he is a policy adviser to government agencies, international organizations and multinational corporations and frequently provides legislative testimony.



Donna Maurillo, MSTM

MNTRC/MTI Director of Communications and Technology Transfer

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Ms. Maurillo joined MTI in 2007, managing Information/Technology Transfer (ITT), such as summits/symposia, forums, and public meetings. She also directs all communications such as the MTI web site, social media, annual report, media relations, and other public outreach, and she manages Memoranda of Cooperation (MOC). She earned her California State University Master of Science in Transportation Management via MTI. Her undergraduate degree is from UC Santa Cruz.



Karen Philbrick, PhD

MNTRC/MTI Deputy Executive Director and Director of Research

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In 2011, Mr. Diridon, with the consent of the MTI Board of Trustees, promoted Dr. Philbrick to the position of Deputy Executive Director while she simultaneously serves as the Director of Research for both MTI and MNTRC. Prior to joining the MTI team in 2009, Dr. Philbrick was Assistant Director of the University of Denver's UTC and has over ten years of academic research administration experience. She had been extensively involved in studies investigating fatigue management planning and best practices in responding to critical incidents in the transportation industry.

Supporting Staff



Jill Carter

MNTRC/MTI Executive Administrative Assistant
Jill.Carter@sjsu.edu

Mrs. Carter applies her extensive business skills to MTI office management, where she also oversees the student staff and financial records. Mrs. Carter also provides logistical support to the Directors. Previously, Mrs. Carter provided bookkeeping and administrative support in a local business, the Campbell School District, and Bank of America. Mrs. Carter's collegiate studies were at San Jose State University.



Frances Cherman

MNTRC/MTI Webmaster (part time)
Frances.Cherman@sjsu.edu

Ms. Cherman joined MTI in 2010, taking responsibility for the Institute's web site performance. She has been a longtime business consultant specializing in copy-writing for direct marketing, sales collateral, and web site content. Her clients have included some of Silicon Valley's most successful companies, such as Apple, Intuit, Symantec, Netflix, HP, Wells Fargo, IDG Worldwide, Autodesk, and many others. Ms. Cherman earned her BA, with honors, in English from California State University Northridge.



Viviann Ferea

MTI Education Program Assistant
Viviann.Ferea@sjsu.edu

Ms. Ferea was appointed to the position of Education Program Assistant in 2000. She is the primary contact for the Graduate Transportation Management Program's marketing and administration. She holds many responsibilities, including recruitment and administration for the certificate and master's programs, maintenance and revision of the MTI web site's Education section, and planning and scheduling courses. Ms. Ferea received her BS in business marketing from the University of California Davis. Her studies in public relations and her experience in media sales help her promote the program's continued growth and success.



Lynda Ramirez Jones

MTI Assistant Office Manager (part time until late 2013)

Ms. Jones administered requisitions, contracts, and other operational documents. Previously, she was a Management Analyst and Executive Assistant with the Santa Clara Valley Water District board of directors, where she served for 17 years. She has also been a Job Training Supervisor, a Home/School Consultant with the Migrant Education Program in Medford OR, and a Legislative Aide to a California State Assembly Member. Her education includes paralegal and business management courses at Santa Clara University and West Valley College.



Joseph Mercado

MTI Research Support Manager

Joseph.Mercado@sjsu.edu

Starting at MTI as a student assistant, Mr. Mercado developed rapidly in the position and was promoted this year into management. He prepares research reports for design and publication, processes requisitions, and provides other logistical support. Mr. Mercado continues as a student majoring in psychology, with plans to earn a master's degree in industrial/organizational psychology.



Donghoh Han

MTI Graphic Designer

Donghoh.Han@sjsu.edu

Mr. Han is working toward his degree in graphic design at San Jose State University while providing design services for MTI. He prepares publications for print and online posting, and he edits photography and video. Mr. Han also designed this annual report.



Chelsea Leppo

MTI Events Assistant (part time until late 2013)

Ms. Leppo is majoring in events management at SJSU. This gave her the necessary skills and knowledge to assist with special events planning for MTI. She also provided support for alumni records and publications.

Management

Institute activities are overseen by a hands-on board (see inside back cover) that meets twice a year to provide policy guidance. The MNTRC/MTI Board of Trustees winter meeting was hosted on January 11, 2013 at the AASHTO offices in Washington DC. That evening, two MTI graduate students were honored by CUTC at the awards banquet, which the trustees attended.

The Board's summer meeting was held on June 22, 2013 at Wells Fargo Bank in San Jose CA. That evening featured the 21st Annual MTI Board of Trustees Scholarship Awards Banquet and the graduation of this year's Master of Science in Transportation Management (MSTM) class. Commencement addresses during the recent past were delivered by US Secretary of Transportation (ret.) Norman Mineta, former US Assistant Secretary of Transportation Polly Trottenberg, US Deputy Secretary of Transportation (ret.) Mortimer Downey, Caltrans Director Malcolm Dougherty, and others. The banquet raises scholarship funds for MTI's MSTM and professional certificate students.

Facilities

Mineta Transportation Institute facilities are provided by and are part of the San Jose State University Research Foundation, which supports San José State University (SJSU), the oldest and among the largest of the 23 California State University campuses. The downtown San Jose campus is at the heart of Silicon Valley. The three sub-center directors maintain offices outside of the MTI facilities. The other eight MNTRC partner centers maintain facilities at their respective universities.

Financial Controls

MNTRC/MTI uses the QuickBooks accounting system to provide real-time, project-based budget and expenditure information. MTI relies on this system to track expenditures in detail and to supplement the grant-based monthly accounting statements of the SJSU Research Foundation, which provides state and federal fiscal reports and annual audits.

Partnerships

Jointly Sponsored Symposia, Forums, and Projects

During the past several years, MTI (and more recently, MNTRC) has co-sponsored or is in the process of co-sponsoring projects with organizations including AAR, AASHTO, APTA, ARTBA, Bay Area Rapid Transit District, California Business Roundtable, California State Automobile Association, Caltrans, City of San Jose CA, Commonwealth Club of California, DHS/TSA, FHWA, FTA, FRA, INIST, San Francisco Bay Area MTC, Silicon Valley Leadership Group, Transit Cooperative Research Program of TRB, Transportation Trades Department of AFL/CIO, and others. These partnerships generate attendance and/or financial support for MNTRC/MTI programs, and deliver substantial outreach and media attention for MNTRC, MTI and the UTCs. More importantly, these events allow the transfer of research results to public users.

International Involvement

With the encouragement of the Secretary of the US DOT and the FTA Administrator, MTI has consummated formal Memoranda of Cooperation with the China Academy of Transportation Sciences, the Fundacion Caminos de Hierro in Cordoba, Spain, and the Maharashtra (Mumbai) Regional Transit Institute. Agreements are in negotiation with the Swedish Royal Academy of Sciences and Pisa University in Italy. Each relationship promotes the sharing of best practices. Currently, MTI is hosting Shintaro Terrabe, PhD, from the University of Tokyo. He is on a one-year sabbatical to study US high-speed rail planning. Expenses are covered by the institution sending the students or researchers to the other. No UTC funds are devoted to this endeavor. While MTI has arranged several Chinese, Indian, and Swedish experiential tours, the visitors covered their own expenses.

Community Involvement

Executive Director Diridon is a recognized transportation expert with extensive contacts on the local, national, and international levels. For example, Mr. Diridon is past vice chair of the International Transit Association (UITP) in Brussels, chair emeritus of the California High-Speed Rail Authority, current chair of the US High-Speed Rail Association, past president of the large San Jose Rotary Club and CUTC, and a member of several other boards and committees.

Deputy Executive Director/Research Director Dr. Philbrick is also engaged in community service through the San Jose Rotary Club. In addition, Dr. Philbrick is involved in several national committees including the US Department of Transportation's Transit Rail Advisory Committee for Safety (TRACS) for a two-year term. This committee advises the Federal Transit Administration on transit safety issues. She also continues to serve as a US delegate to the Asia Pacific Economic Cooperation (APEC) and is an elected member of the Council of University Transportation Centers Executive Committee.

Education Director Dr. Haas, a Fulbright Scholar, is frequently asked to provide expert testimony on both education and transportation topics. He also oversees the Summer Transportation Institute, a program to engage high school students with transportation careers. Dr. Haas co-chairs the CUTC Awards Committee.

ITT and Communications Director Maurillo is actively engaged in community service as a longtime Rotarian (including her club's Rotarian of the Year and president-elect), has served on or presided over a number of non-profit boards, and directed a \$6 million capital campaign for a new art and history museum. She also serves on the CUTC Workforce Development Committee.

These community activities, and many others, are encouraged by SJSU and the MTI Board of Trustees with the understanding that MTI responsibilities come first and that no MTI funding is used to discharge these duties. MTI and the national UTC programs are always mentioned during staff presentations. The benefit conferred to the community is obvious, but these efforts also promote a support network for MTI and the UTC program that is valuable for program effectiveness, development of jointly-sponsored projects, general outreach, and scholarship support for MTI's graduate students.

MNTRC Partner Directors

The Mineta National Transit Research Consortium (MNTRC) includes nine partner university transportation centers and their respective directors. Those directors are listed here in alphabetical order.



Leo Hanifin, ME, DE

Professor of Mechanical Engineering
College of Engineering and Science
University of Detroit Mercy
Leo.Hanifin@udmercy.edu

Dr. Hanifin is a Professor of Mechanical Engineering at the University of Detroit Mercy and the Chrysler Professor of Engineering. Throughout his career, he has been active in development of university, industry and government partnerships, including the Michigan Ohio University Transportation Center. Before joining UDM in 1991, Dr. Hanifin directed the launch and growth of the manufacturing center at Rensselaer Polytechnic Institute into a 300-person collaborative research/technology center. At the University of Detroit, he earned his BA in mechanical engineering, design option; a master of engineering in solid mechanics; and a doctorate in engineering. Dr. Hanifin was a Hughes Fellow at the University of California Los Angeles. Before joining academia, he held positions in the computer, aerospace and automotive industries. Dr. Hanifin is currently a member of the Detroit Regional Transit Authority's Citizens Advisory Committee and the M-1 Rail Board of Directors.



Donald F. Hayes, PhD, PE, DEE

Chair, Department of Civil and Environmental Engineering
Howard Hughes College of Engineering
University of Nevada Las Vegas
Donald.Hayes@unlv.edu

Before arriving at UNLV, Dr. Hayes was Director, Institute for Coastal Ecology and Engineering, and the M. Eloi Girard/BORSF Professor of Civil Engineering at the University of Louisiana at Lafayette; Associate Professor, Department of Civil & Environmental Engineering, at the University of Utah Salt Lake City; and Assistant Professor, Department of Civil Engineering, at the University of Nebraska Lincoln. Previous to that, he held several academic and professional engineering positions. He earned his BS in civil engineering (with honors) from Mississippi State University; his MS in civil engineering at Mississippi State University; and his PhD in civil engineering from Colorado State University. Dr. Hayes has won several academic and professional awards, and he is widely published.

**David Klinikowski, BSME**

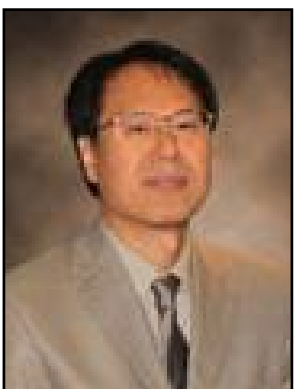
Director, Bus Research and Testing Center
Pennsylvania Transportation Institute
Penn State University
(814) 863-1898
Dklinikowski@engr.psu.edu

David Klinikowski directs the activities at Penn State's Bus Research and Testing Center. This federally mandated \$3 million/year program, funded by the Federal Transit Administration and industry, performs comprehensive vehicle testing on transit buses ranging from full-size heavy-duty buses, to modified mini-vans. He also managed the development of the Bus Testing Facility for the Federal Transit Administration, and he developed several test procedures, instruments, and mechanical designs for testing vehicles and roadway materials. He earned his BS in mechanical engineering from The Pennsylvania State University, and he co-authored several research reports.

**Ashok Kumar, PhD, PE, BCEE**

Professor and Chair
Department of Civil Engineering
University of Toledo
Akumar@utnet.utoledo.edu

In addition to his current position in the Department of Civil Engineering at the University of Toledo, Dr. Kumar has taught several upper division and graduate courses, including Introduction to Air Pollution, Indoor Air Quality, Industrial Ventilation, Dispersion and Risk Modeling. He also has edited professional publications, served on several professional boards, reviewed journals, and more. Dr. Kumar's work on air pollutants inside and outside transit vehicles is widely published. He earned his BS in mechanical engineering (with honors) from Aligarh University India; his Master of Applied Science in mechanical engineering from the University of Ottawa; and his PhD in environmental fluid mechanics from the University of Waterloo Ontario.

**Hokey Min, PhD**

James R. Good Chair in Global Supply Chain Strategy,
Department of Management, College of Business Administration
Bowling Green State University Ohio
Hmin@bgsu.edu

Dr. Hokey Min has held full and assistant professorships at the University of Louisville Kentucky; Auburn University Alabama; Northeastern University Massachusetts; and University of New Orleans Louisiana. His transit-relevant research includes several reports on para-transit service, routes, carriers, and other topics. He has won numerous research grants to investigate several issues such as developing an intelligent decision support system for routing long-haul common carriers and their drivers under the most recent hours of service regulations; conducting customer satisfaction surveys to improve the Toledo Area Regional Transit Authority's paratransit services; and more. He earned his MBA in production management from Yonsei University South Korea; his MSBA in operations management/economics from the University of South Carolina; and his PhD in management sciences/logistics from The Ohio State University Columbus.



Errol C. Noel, PhD, PE, FASCE, FITE

Director

Howard University Transportation Research Center

Howard University

Enoel@howard.edu

In addition to directing Howard University's Transportation Research Center, Dr. Errol Noel directs the university's Traffic Safety and Transportation Data Center, and he chairs the university's Civil Engineering Department. He specializes in highway traffic operation and safety, highway engineering, simulation of transit operating in mixed traffic, pavement ride quality, and analysis of safety data. Recently, his focus has been in applied research for solving urban transportation problems. He has more than 35 years of practical engineering experience, especially in highway engineering, traffic engineering, and transportation research, and he has an outstanding record of published articles. Dr. Noel earned his BS in civil engineering and his MS in transportation engineering, both at Howard University, and his PhD in transportation engineering at the University of Maryland College Park.



Robert B. Noland, PhD

Director

Voorhees Transportation Center

Rutgers University

Noland@rutgers.edu

Dr. Robert Noland earned his BA in chemistry at the University of California, and his MSc in energy management and policy, and his PhD in energy management and environmental policy at the University of Pennsylvania. Since then, he has been a post-graduate Researcher at the University of California Irvine; a Policy Analyst with the US Environmental Protection Agency; a Lecturer and a Reader in transportation and environmental policy at Imperial College London; and Professor at the Edward J. Bloustein School of Planning and Public Policy, Rutgers University. Dr. Noland's research has been published in a large variety of academic journals, and he sits on the editorial board of five journals. He also chairs the Strategic Task Force on Climate Change and Energy of the Transportation Research Board, among many other activities.



Charles Robert Standridge, PhD

Professor and Associate Dean

Seymour and Esther Padnos College of Engineering and Computing (PCEC)

Grand Valley State University

Standric@gvsu.edu

Dr. Charles Standridge earned his BS in applied mathematics and computer science at Washington University St. Louis; and his MS and PhD in industrial engineering at Purdue University. Before arriving at Grand Valley University, he was an Associate Professor of industrial engineering at the FAMU/FSU College of Engineering in Tallahassee Florida and at the University of Iowa, and a Consultant in private industry. He consulted on more than 20 projects, received research funding for nine projects, and has been published in nearly 60 journals and reports. His awards include Industrial Design Professor of the Year, and a Book of the Year. Dr. Standridge is active in scientific and professional societies. At Grand Valley, he is also responsible for advising and K-12 outreach within PCEC, chair of the Occupational Safety and Health Department, and a technical lead on the Lake Michigan Wind Assessment Project.



RESEARCH





Karen 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 and in June of 2011, MTI Executive Director Rod Diridon, at the direction of the MTI Board of Trustees, promoted her to the position of Deputy Executive Director. In 2012, she was appointed by former US Secretary of Transportation Ray LaHood to the US Department of Transportation's Transit Rail Advisory Committee for Safety (TRACS) and, in June 2013, she was elected to serve on the Council of University Transportation Centers Executive Committee (CUTC). During Dr. Philbrick's time with MTI, she has overseen the selection of 122 new research projects and the publication of 151 peer reviewed research reports.

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.

Research Program Overview and Goals

MTI actively recruits academic involvement from many departments at San José State University (SJSU). However, the program is different from most other transportation centers because research teams may also include faculty from other colleges and universities, as well as private sector consultants. The experience and knowledge of individuals from public and private organizations outside academia can bring a “real world” and very practical perspective to MTI research and to the classroom when research is shared with students. Each team includes at least one SJSU academic member and one SJSU student, in a substantive role, and projects are conducted in an academic format, including research methodology, report writing, and rigorous peer review of work prior to publication.

MTI requires that all research team members be certified Research Associates (RA) or Consulting Associates (CA) prior to their involvement in any project. Certification requires a completed application with references, a résumé, and a sample of published research. The Research Associates Policy Oversight Committee (RAPOC), composed of the department heads or representatives of the SJSU academic departments with which MTI works most often, reviews the applications and recommends certification where appropriate. Certification is approved by the executive director and must be renewed every five years.

MTI also offers a Seed Grant program for amounts up to \$5,000. The program’s dual purpose is to interest new faculty in the MTI research program and to facilitate the development of their first full-fledged research proposal. Seed grants require a white paper summarizing the research and findings and in most cases the work results in a proposal for funded research in the primary research program.

Transfer of Research Information

All research is professionally published and printed following successful peer review, author revisions, and editing. Additionally, every new report is available on MTI’s website, transweb.sjsu.edu and the MNTRC website at transweb.sjsu.edu/mntrc. MTI has developed a number of other approaches to information transfer, including sponsoring symposia, funding post-research travel for researchers to address professional conferences such as TRB, providing financial incentives for publishing in peer-reviewed journals, and developing cost-effective formats to present research summaries for distribution to practitioners. (See additional details in the Information Technology Transfer section of this report.)



Research Program Accomplishments

MTI Research Featured at TRB Annual Meeting

Sixteen MTI research papers were selected for presentation at the 2013 Transportation Research Board Annual Meeting. In several instances, the MTI RAs presided at a TRB session.

Presenting MTI Research:

- Dr. Asha Weinstein Agrawal: MTI Project 1128, *What Do Americans Think About Federal Transportation Tax Options? Results from Year Three of a National Survey*
- Dr. Jeff Brown: MTI Project 1003, *Understanding Transit Ridership Demand for a Multi-Destination, Multimodal Transit Network in an American Metropolitan Area*
- Dr. Jeff Brown: MTI Project 1102, *Analyzing the Effects of Transit Network Change in a Decentralized, Mid-sized US Metropolitan Area on Transit Agency Performance and Transit Riders: A Case Study of Tallahassee, Florida*
- Dr. Frances Edwards: MTI Project 1080, *Generic Continuity of Operations/Continuity of Government Plan for State-Level Transportation Agencies*
- Dr. Geoff Gosling: MTI Project 2503, *Collaborative Funding to Facilitate Airport Ground Access*
- Dr. Peter Haas: MTI Project 1027, *Estimating Workforce Needs for the California High-Speed Rail Network*
- Ms. Renee Haider: MTI Project 1078, *Engagement of Minority Communities in Public Awareness Programs*
- Mr. Brian Michael Jenkins: MTI Project 1026, *Formulating a Strategy for Securing High-Speed Rail in the United States*
- Dr. Anastasia Loukaitou-Sideris: MTI Project 2611, *How to Ease Women's Fear of Transportation Environments: Case Studies of Best Practices*
- Dr. Anastasia Loukaitou-Sideris: MTI Project 1030, *Planning for Complementarity: An Examination of the Roll and Opportunities of First-Tier and Second-Tier Cities Along the High-Speed Rail Network in California*
- Dr. Shishir Mathur: MTI Project 1004, *A Decision-Support Framework For Using Value Capture to Fund Public Transit: Lessons From Project-Specific Analyses*
- Dr. Jae-Ho Pyeon: MTI Project 1007, *Cost Estimate Modeling of Transportation Management Plans for Highway Projects*
- Dr. Charles Rivasplata: MTI Project 1001-1, *Residential On-Site Carsharing and Off-Street Parking Policy in the San Francisco Bay Area*
- Dr. Caroline Rodier: MTI Project 1008, *An Economic and Life Cycle Analysis of Regional Land Use and Transportation Plans*
- Dr. Susan Shaheen: MTI Project 1029, *Public Bikesharing in North America: Early Operator and Use Understanding*
- Dr. Wenbin Wei: MTI Project 2503, *Collaborative Funding to Facilitate Airport Ground Access*

Strong MTI Presence at Other Conferences

The MTI travel grant program enabled many researchers to present work at a variety of professional conferences during the year. In 2013 alone, 72 academic and professional presentations were based MTI research results. Presentations were made at conferences such as the American Public Transportation Association Rail Conference; the Association of Collegiate Schools of Planning Annual Conference; and the ITS America Annual Meeting.

Research in Action

Measuring the Performance of Livability Programs, a recent MTI research report, has received attention from transportation organizations across the nation. This report analyzes the performance measurement processes adopted by five large livability programs throughout the United States. It compares and contrasts these programs by examining existing research in performance measurement methods. Best practices of the examined performance measurement methods for each program are explored and analyzed with respect to their key characteristics. The report entails an appropriately comprehensive literature review of the current research on performance measurement methods from the perspective of various stakeholders, including the public and government agencies. Additionally, the results of this literature review are used to examine the actual performance measures of the target programs from the perspective of different stakeholders. The goal of the report was to determine what did and did not work in these programs and their measurement methods, while making recommendations based on the results of the analysis for potential future programs. MTI received word that the Los Angeles County Metropolitan Transportation Authority has added this report to the agency's library.

The San Diego Metropolitan Transit System is using the Bus Operator Awareness Research and Development Training Program developed by MTI. Through the intensive efforts of four universities and two federal agencies, the MTI-led team conducted extensive research nationally and abroad to identify appropriate countermeasures and related skill sets for bus operators relative to identifying suspicious and dangerous activity and reacting appropriately with a focus on life safety concerns. The research resulted in a 15-minute summary that is an auto-run PowerPoint presentation with an audio overlay of narration and music. This presentation and materials can be displayed in operator break rooms, at safety briefings, during annual refresher training sessions, or in other similar settings.

MTI received a request from the Transport Resource Knowledge Centre (KpVV) in the Netherlands for cooperation in helping them to develop a study on greenhouse gas emissions that replicates the methodology used in MTI's publication *Greenhouse Gas Emission Impacts of Carsharing in North America*. MTI was pleased to share background materials, including questionnaires.

Research in the Classroom

One special advantage of university-based research is that it connects students with the transportation field, sparking in some an enduring interest that leads to a career in the profession. Recognizing this value, all MTI research projects involve at least one San José State University student. Eight of MTI's current Research Associates initially served as Student Research Assistants on MTI-sponsored projects. Dr. Christopher Cherry, Dr. Michael Clay, Dr. Chris Ferrell, Dr. Shengyi Gao, Dr. Daniel Hess, Dr. Hiro Iseki, Dr. Elliot Martin, and Dr. Caroline Rodier are involved with MTI as a result of that student experience. In the role of PI, Drs. Ferrell, Hess, Iseki, and Rodier have been awarded MTI grants for their outstanding research efforts.

Completed Research Projects

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, regardless of which grant or authorization period they represent.

Impacts of the North American Free Trade Agreement on Transportation in the Border Areas of the United States: With Emphasis on the California Border with Mexico

Project 9700

Publication 99-2

Principal Investigator: George Gray

Analysis of Policy Issues Relating to Public Investment in Private Freight Infrastructure

Project 9701

Publication 99-3

Principal Investigator: Dan Evans, JD

Why Campaigns for Local Transportation Funding Initiatives Succeed or Fail: An Analysis of Four Communities and National Data

Project 9702

Publication 00-1

Principal Investigator: Peter Haas, PhD

NAFTA II: California Border Zone Land Transportation Issues

Project 9802

Publication 01-06

Principal Investigator: George Gray

Land Use and Transportation Alternatives: Constraint or Expansion of Household Choice?

Project 9803

Publication 01-19

Principal Investigator: Jonathan Levine, PhD

Applying an Integrated Urban Model to the Evaluation of Travel Demand Management Policies in the Sacramento Region

Project 9804

Publication 01-03

Principal Investigator: Robert Johnston

Protecting Public Surface Transportation Against Terrorism and Serious Crime: Continuing Research on Best Security Practices

Project 9805

Publication 01-07

Principal Investigator: Brian Michael Jenkins

Protecting Public Surface Transportation Against Terrorism and Serious Crime: An Executive Overview

Project 9805-2

Publication 01-14

Principal Investigator: Brian Michael Jenkins

GIS for Livable Communities: Using GIS to Improve Transportation Planning and Community Livability

Project 9806

Publication 01-09

Principal Investigator: Tom Horan, PhD

A New Planning Template for Transit-Oriented Development

Project 9807

Publication 01-12

Principal Investigator: Dick Nelson

The Travel Behavior and Needs of the Poor: A Study of Welfare Recipients in Fresno County, California

Project 9808

Publication 01-23

Principal Investigator: Evelyn Blumenberg, PhD

Implementation of Zurich's Transit Preferential Program

Project 9809

Publication 01-13

Principal Investigator: Andrew Nash

Envisioning Neighborhoods with Transit-Oriented Development Potential

Project 9810

Publication 01-15

Principal Investigator: Earl G. Bossard, PhD

Best Practices in Developing Regional Transportation Plans

Project 9811

Publication 01-10

Principal Investigator: Donald R. Rothblatt, PhD

Construction of Transit-Based Developments: New Policy Initiatives for Governments

Project 9901

Publication 01-05

Principal Investigator: Scott Lefaver, DPA, AICP

How to Best Serve Seniors on Existing Transit Services

Project 9902

Publication 01-04

Principal Investigator: David Koffman

Effects of Online Shopping on Vehicular Traffic Patterns

Project 9903

Publication 01-20

Principal Investigator: Joseph J. Giglierano, PhD

Factors Influencing Voting Results of Local Transportation Funding Initiatives with a Substantial Rail Transit Component: Case Studies of Ballot Measures in Eleven Communities

Project 9904

Publication 01-17

Principal Investigator: Richard A. Werbel, PhD

Developer-Planner Interaction in Transportation and Land Use Sustainability

Project 9905

Publication 01-21

Principal Investigator: Aseem Inam, PhD

Transit Labor Relations Guide

Project 9906

Publication 01-02

Principal Investigator: Herb Oestreich, PhD

Non-Pricing Methods to Optimize High Occupancy Vehicle Lane Usage

Project 9908

Publication 01-11

Principal Investigator: George Gray

A Statewide Study for Bicyclists and Pedestrians on Freeways, Expressways, Tunnels and Toll Bridges

Project 9909

Publication 01-01

Principal Investigator: Thomas C. Ferrara, PhD

Using the Internet to Envision Neighborhoods with TOD Potential

Project 2001

Publication 01-24

Principal Investigator: Earl G. Bossard, PhD

Applying an Integrated Urban Model in the Evaluation of Travel Demand Management Policies in the Sacramento Region: Year Two

Project 2002

Publication 01-08

Principal Investigator: Robert Johnston

The California General Plan Process and Sustainable Transportation Planning

Project 2003

Publication 01-18

Principal Investigator: Richard Lee, PhD, AICP

Trucks, Traffic, and Timely Transport: A Regional Freight Logistics Profile

Project 2004

Publication 02-04

Principal Investigator: John S. Niles

Increasing Transit Ridership: Lessons from the Most Successful Transit Systems in the 1990s

Project 2005

Publication 01-22

Principal Investigator: Brian D. Taylor, PhD

Using Fiber Networks to Stimulate Transit Oriented Development: Prospects, Barriers and Best Practices

Project 2007

Publication 01-16

Principal Investigator: Walter Siembab

Bridging the Gap: Planning Inter-Jurisdictional Transit Services

Project 2102

Project Cancelled

Principal Investigator: Patrick McGovern, PhD, JD

Toward Sustainable Transportation Indicators for California

Project 2106

Publication 02-05

Principal Investigator: Richard Lee, PhD

Modeling Long-Range Transportation and Land Use Scenarios for the Sacramento Region, Using Citizen-Generated Policies

Project 2107

Publication 04-02

Principal Investigator: Robert Johnston

Verifying the Accuracy of Regional Models Used in Transportation and Air Quality

Project 2108

Publication 02-03

Principal Investigator: Caroline Rodier, PhD

Impact of Ethnic Diversity on Transit: How Do Various Population Groups View and Utilize Various Transit Modes?

Project 2109 (MTI Seed Grant)

There is no publication for this phase of the project.

Principal Investigator: Richard A. Werbel, PhD

Making Growth Work for California's Communities

Project 2111

Publication 02-01

Principal Investigator: Kenneth R. Schreiber, AICP

Best Practices in Shared Use of High-Speed Rail Systems

(Former Title: Shared Use of Rail Infrastructure by High-Speed Rail: Best Practices in Design and Operations)

Project 2113

Publication 02-02

Principal Investigator: Andrew Nash

Saving City Lifelines: Lessons Learned in the 9-11 Terrorist Attacks

Project 2114

Publication 02-06

Principal Investigator: Brian Michael Jenkins

The Future of Transportation Education: A Needs Assessment for the Transportation Management Program at San José State University

(Former Title: Needs Assessment: Transportation Management Program at San José State University)

Project 2201

Publication 03-01

Principal Investigator: Linda Valenty, PhD

Can Consumer Information Tighten the Transportation/Land Use Link? A Simulation Experiment

(Former Title: Decision Making Influences in Land Use and Transportation: An Experiment on the Impact of Transportation and Housing Information)

Project 2202

Publication 05-03

Principal Investigator: Daniel Rodriguez, PhD

Using Spatial Indicators for Pre- and Post-Development Analysis of TOD Areas: A Case Study of Portland and the Silicon Valley

(Former Title: A Pre- and Post-Construction Analysis of Transit-Oriented Developments Using Spatial Indicators: A Case Study of Portland and Silicon Valley)

Project 2203

Publication 03-03

Principal Investigator: Marc Schlossberg, PhD

Higher Density Plans: Tools for Community Engagement

(Former Title: Assessing the Effectiveness of Tools and Information that Respond to Community Fears and Resistance about the Densification of Communities)

Project 2204

Publication 03-02

Principal Investigator: Kenneth Schreiber, AICP

The Impact of Telecommuter Rail Cars on Modal Choice

Project 2205

Publication 04-01

Principal Investigator: James Hayton, PhD

A Consumer Logistics Framework for Understanding Preferences for High-Speed Rail Transportation

Project 2206

Publication 05-04

Principal Investigator: Kenneth C. Gehrt, PhD

Lessons Learned in Attempting to Survey Hard-to-Reach Ethnic Segments Along with the Presentation of a Comprehensive Questionnaire

(Former Title: Impact of Ethnic Diversity on Transit: How Do Various Population Groups View and Utilize Various Transit Modes? – Phase II)

Project 2207

Publication WP 10-02

Principal Investigator: Richard A. Werbel, PhD

Designing and Operating Safe and Secure Transit Systems: Assessing Current Practices in the U.S. and Abroad

(Former Title: System Design for Transit Security)

Project 2301

Publication 05-03

Principal Investigator: Brian D. Taylor, PhD

Verifying the Accuracy of Land Use Models Used in Transportation and Air Quality Planning: A Year-Two Validation Study

Project 2302

Publication 05-02

Principal Investigator: Caroline Rodier, PhD

Applying Smart Growth Principles and Strategies to Resolving Land Use Conflicts around Airports

Project 2303

Publication 06-05

Principal Investigator: Richard Lee, PhD

High-Speed Rail Projects in the United States: Identifying the Elements for Success

Project 2304

Publication 05-01

Principal Investigator: Allison de Cerreño, PhD

The Pasadena Gold Line: Development Strategies, Location Decisions, and Travel Characteristics Along a New Rail Line in the Los Angeles Region

Project 2305

Publication 04-03

Principal Investigator: Hollie Lund, PhD

High-Speed Rail Projects in the United States: Identifying the Elements for Success – Part 2

Project 2401

Publication 06-03

Principal Investigator: Allison de Cerreño, PhD

Barriers to Using Fixed-Route Transit for Older Adults

Project 2402

Publication 09-16

Principal Investigator: Michael Peck, PhD, MSW

Public versus Private Mobility for the Poor: Transit Improvements versus Increased Car Ownership in the Sacramento Region

(Former Title: Welfare to Work: A Simulation of Land Use and Transportation Policies)

Project 2403

Publication 08-02

Principal Investigator: Robert Johnston

Video Transit Training for Older Travelers: A Case Study of the Rossmoor Senior Adult Community, California

(Former Title: The Elderly and Public Transit: Minimizing Barriers and Maximizing Service)

Project 2404

Publication 06-04

Principal Investigator: Susan Shaheen, PhD

Neighborhood Crime and Travel Behavior: An Investigation of the Influence of Neighborhood Crime Rates on Mode Choice

(Former Title: Neighborhood Crime and Travel Behavior)

Project 2405

Publication 07-02

Principal Investigators: Christopher Ferrell, PhD and Wenbin Wei, PhD

How Far, by Which Route, and Why? A Spatial Analysis of Pedestrian Preference

Project 2406

Publication 06-06

Principal Investigator: Marc Schlossberg, PhD

Beyond Uncertainty: Urban Models in Transportation and Air Quality Planning

Project 2407

Publication 07-01

Principal Investigator: Caroline Rodier, PhD

Paving the Way: Recruiting Students into the Transportation Professions

Project 2408

Publication 08-03

Principal Investigator: Asha Weinstein Agrawal, PhD

Bus Rapid Transit: A Handbook for Partners

(Former Title: Bus Rapid Transit Guidebook)

Project 2426

Publication 06-02

Principal Investigators: Tom Larwin and George Gray

Selective Screening of Rail Passengers

Project 2501-1

Publication 06-07

Principal Investigator: Brian Michael Jenkins

NOTE: This is the first part of a two-part project.

The 1995 Attempted Derailing of the French TGV (High-Speed Train) and a Quantitative Analysis of 181 Rail Sabotage Attempts

(Former Title: The Evolving Nature of Terrorist Acts against Surface Transportation: Capturing Lessons Learned)

Project 2501-2

Publication 09-12

Principal Investigator: Brian Michael Jenkins

Caltrans Statewide Cultural Properties Information System

Project 2502

Publication 09-06

Principal Investigator: Eric Ingbar

Collaborative Funding to Facilitate Airport Ground Access

Project 2503

Publication 11-27

Principal Investigator: Geoffrey Gosling, PhD

Exploration of Data Sources for Air Cargo Studies

Project 2525 (MTI Seed Grant)

Publication WP 07-01

Principal Investigator: Wenbin Wei, PhD

Evaluating the Environmental Justice Effects of Land Use Scenarios in the Sacramento Region with the PECAS Activity Allocation Model

Project 2601-2705 (Phases I and II were combined in this report)

Publication 09-08

Principal Investigator: Caroline Rodier, PhD

Tribal Corridor Management Planning: Model, Case Study, and Guide for Caltrans District 1

(Former Title: Tribal Corridor Management Plan)

Project 2604

Publication 10-01

Principal Investigators: Mary Scoggin, PhD and Joy Adams, PhD

Feasibility of One-Dedicated-Lane Bus Rapid Transit/Light-Rail Systems and the Expansion to Two-Dedicated-Lane Systems:

A Focus on Geometric Configuration and Performance Planning

(Former Title: Bus Rapid Transit/Light Rail Implemented on One Dedicated Lane: Operational Feasibility, Practicality and Systems Analysis)

Project 2605

Publication 08-01

Principal Investigators: Wenbin Wei, PhD and Jacob Tsao, PhD

Shared-Use Bus Priority Lanes on City Streets: Case Studies in Design and Management

(Former Title: Improving Bus Priority Lane Effectiveness in Congested Urban Centers)

Project 2606

Publication 11-10

Principal Investigator: Asha Weinstein Agrawal, PhD

Connecting Transportation Decision Making with Responsible Land Use: State and Regional Policies, Programs, and Incentives

(Former Title: Strategies for Connecting Transportation Funding and Smart Growth: State and Regional Best Practices and Incentives)

Project 2607

Publication 07-03

Principal Investigator: Gary Binger, AICP

The Influence of Service Planning Decisions on Rail Transit Success or Failure

Project 2608

Publication 08-04

Principal Investigators: Jeffrey Brown, PhD and Gregory Thompson, PhD

Effects of Suburban Transit-Oriented Developments on Residential Property Values

Project 2609

Publication 08-07

Principal Investigator: Shishir Mathur, PhD

The Nature of Context-Sensitive Solutions, Stakeholder Involvement and Critical Issues in the Urban Context

(Former Title: Best Practices for Context Sensitive Solutions in Urban Areas)

Project 2610

Publication 11-03

Principal Investigator: Marta Pañero, PhD

How to Ease Women's Fear of Transportation Environments: Case Studies of Best Practices

Project 2611

Publication 09-01

Principal Investigator: Anastasia Loukaitou-Sideris, PhD

Carsharing and Public Parking Policies: Assessing Benefits, Costs and Best Practices

Project 2612

Publication 09-09

Principal Investigator: Susan Shaheen, PhD

An Ambit-Based Activity Model for Evaluation Green House Gas Emission Reduction Policies

(Former Title: Evaluation of Greenhouse Gas (GHG) Emission Reduction Policies in the Transportation Sector of California)

Project 2613 (MTI Seed Grant)

Publication WP 08-01

Principal Investigator: Asim Zia, PhD

Creating an Educational Network in California to Assess and Address its Future Transportation Education Challenges

(Former Title: Exploring the Future of California's Transport System)

Project 2614 (MTI Seed Grant)

Publication WP 07-03

Principal Investigator: Triant Flouris, PhD

"Green" Transportation Taxes and Fees: A Survey of Californians

(Former Title: Public Support for Environmental Transportation Taxes and Fees? A Survey of Californians)

Project 2701

Publication 08-05

Principal Investigator: Asha Weinstein Agrawal, PhD

Carsharing and Carbon Dioxide Emission Reduction Across Density and Transit Quality Gradients in the U.S.

Project 2702

Publication 09-11

Principal Investigator: Susan Shaheen, PhD

Linking Highway Improvements to Changes in Land Use with Quasi-Experimental Research Design: A Better Forecasting Tool for Transportation Decision Making

Project 2703

Publication 09-02

Principal Investigator: Hilary Nixon, PhD

Case Studies of Incremental Bus Rapid Transit Projects in North America

Project 2704

Publication 09-13

Principal Investigator: John S. Niles

Evaluating the Environmental Justice Effects of Land Use Scenarios in the Sacramento Region with the PECAS Activity Allocation Model

Project 2601-2705 (Phase I & II were combined in this report)

Publication 09-08

Principal Investigator: Caroline Rodier, PhD

The Role of Transportation in a Campus-Level Emergency

Project 2727

Publication 08-06

Principal Investigator: Frances Edwards, PhD, CEM

Improving Transportation Construction Project Performance: Development of a Model to Support Decision-Making Process for Incentive/Disincentive Construction Projects

Project 2801

Publication 09-07

Principal Investigator: Jae-Ho Pyeon, PhD

Neighborhood Crime and Travel Behavior: An Investigation of the Influence of Neighborhood Crime Rates on Mode Choice – Phase II

(Former Title: Effects of Neighborhood Crimes on Travel Behavior – Phase 2)

Project 2802

Publication 11-04

Principal Investigator: Christopher Ferrell, PhD

Facilitating Telecommuting as a Means of Congestion Reduction

Project 2803

Publication 09-14

Investigators: Nancy Da Silva, PhD and Meghna Virick, PhD

Development Challenges of Secondary and Small Airports in California

(Former Title: Best Practice Study of Secondary Airport Development)

Project 2804

Publication 11-21

Principal Investigator: Senanu Ashiabor, PhD

Model-Based Transportation Performance: A Comparative Framework and Literature Synthesis

(Former Title: Costs and Equity of Reducing Greenhouse Gas Emissions through Land Use and Transportation Measures: A Comprehensive Review of the Advanced Modeling Literature for Practical Application in California)

Project 2805

Publication 11-09

Principal Investigator: Caroline Rodier, PhD

Getting Around When You're Just Getting By: The Travel Behavior and Transportation Expenditures of Low-Income Adults

Project 2806

Publication 10-02

Principal Investigators: Asha Weinstein Agrawal, PhD and Evelyn Blumenberg, PhD

Policy Issues in U.S. Transportation Public-Private Partnerships: Lessons from Australia

Project 2807

Publication 09-15

Principal Investigator: Rick Geddes, PhD

Ecodriving and Carbon Footprinting: Understanding How Public Education Can Reduce Greenhouse Gas Emissions and Fuel Use

(Former Title: Carbon Footprinting & Ecodriving: Understanding How Public Education Can Result in Reduced Greenhouse Gas Emissions and Fuel Use)

Project 2808

Publication 11-11

Principal Investigator: Susan Shaheen, PhD

Understanding Household Preferences for Alternative Fuel Vehicle Technologies

Project 2809

Publication 10-11

Principal Investigator: Hilary Nixon, PhD

Bicycling Access and Egress to Transit: Informing the Possibilities

Project 2825

Publication 10-07

Principal Investigator: Kevin Krizek, PhD

A Framework for Developing and Integrating Effective Routing Strategies within the Emergency Management Decision Support System for Transit Centers

Project 2901

Publication 11-12

Principal Investigator: Anurag Pande, PhD

Potential Economic Consequences of Local Nonconformity to Regional Land Use and Transportation Plans Using a Spatial Economic Model

(Former Title: An Economic Assessment of Regional Planning, Local Rule, and Regional Housing Needs Assessment in Senate Bill 375: A Case Study in the Sacramento, California, Region)

Project 2902

Publication 10-10

Principal Investigator: Caroline Rodier, PhD

An Investigation into Constraints to Sustainable Vehicle Ownership and Use: A Focus Group Study

Project 2903

Publication 10-08

Principal Investigator: Bradley Flamm, PhD

Examination of Regional Transit Service Under Contracting: A Case Study in the Greater New Orleans Region

(Former Title: Examination of Regional Transit Service through Privatization: A Case Study of Public Transit Service Contracting in New Orleans)

Project 2904

Publication 10-09

Principal Investigator: Hiro Iseki, PhD

Advancing High-Speed Rail Policy in the United States

(Former Title: Comparative Study of the Development of High-Speed Rail Projects in the United States)

Project 2905

Publication 11-18

Principal Investigator: Senanu Ashiabor, PhD

Integration of Bicycling and Walking Facilities into the Infrastructure of Urban Communities

(Former Title: Lessons for Bike/Pedestrian Integration into the Infrastructure of Urban) Communities

Project 2906

Publication 11-05

Principal Investigator: Cornelius Nuworsoo, PhD

Measuring Walking and Cycling Using the PABS (Pedestrian and Bicycling Survey) Approach: A Low-Cost Survey Method for Local Communities

(Former Title: Non-motorized Transportation Intercept Survey: Development and Testing)

Project 2907

Publication 10-03

Principal Investigators: Kevin Krizek, PhD and Ann Forsyth, PhD

Systematic Procedures to Determine Incentive/Disincentive Dollar Amount for Highway Transportation Construction Projects

Project 2908

Publication 11-22

Principal Investigator: Jae-Ho Pyeon, PhD

The Intersection of Urban Form and Mileage Fees: Findings from the Oregon Road User Fee Pilot Program

Project 2909

Publication 10-04

Principal Investigator: Zhan Guo, PhD

Emergency Management Training and Exercises for Transportation Agency Operations

Project 2910

Publication 09-17

Principal Investigator: Frances Edwards, PhD

Revisiting Factors Influencing Voting Results of Local Transportation Funding Initiatives with a Substantial Rail Transit Component

Project 2911

Publication 10-13

Principal Investigator: Peter Haas, PhD

Reliability Centered Maintenance: A Case Study of Railway Transit Maintenance to Achieve Optimal Performance

Project 2913

Publication 10-06

Principal Investigator: Felix Marten, PhD

Exploring the Effectiveness of Transit Security Awareness Campaigns in the San Francisco Bay Area

Project 2914

Publication 09-19

Principal Investigator: Nina Rohlich

Suicides on Urban Commuter Rail Systems in California – Possible Patterns

Project 2926

Publication 10-05

Principal Investigator: Jan L. Botha, PhD

Promoting Bicycle Commuter Safety

Project 2927

Publication 11-08

Principal Investigator: Asbjorn Osland, PhD

What Do Americans Think About Federal Transportation Tax and Fee Options? Results from a National Survey

Project 2928

Publication 09-18

Principal Investigator: Asha Weinstein Agrawal, PhD

Continuity of Operations/Continuity of Government for State-Level Transportation Organizations

Project 2976

Publication 11-02

Principal Investigator: Frances Edwards, PhD

Security Awareness for Public Bus Transportation: Case Studies of Attacks Against the Israeli Public Bus System

Project 2978

Publication 11-07

Principal Investigator: Bruce Robert Butterworth

Carnage Interrupted: An Analysis of Fifteen Terrorist Plots against Public Surface Transportation

Project 2979

Publication 11-20

Principal Investigator: Brian Michael Jenkins

Residential On-Site Carsharing and Off-Street Parking Policy in the San Francisco Bay Area

(Former Title: Communities, Developers, and Residents: Rethinking Residential Parking Policies in Dense Cities in the US)

Project 1001-Part I

Publication 11-28

Principal Investigator: Charles Rivasplata, PhD

Amenity or Necessity? Street Standards as Parking Policy

(Former Title: Communities, Developers, and Residents: Rethinking Residential Parking Policies in Dense Cities in the US)

Project 1001-Part II

Publication 11-23

Principal Investigator: Zhan Guo, PhD

The Impact of Center City Economic and Cultural Vibrancy on Greenhouse Gas Emissions from Transportation

(Former Title: Greenhouse Gas Emissions Generated by Urban Transportation and Land Use Patterns)

Project 1002

Publication 11-13

Principal Investigator: Matthew Holian, PhD

Understanding Transit Ridership Demand for a Multi-Destination, Multimodal Transit Network in an American Metropolitan Area

(Former Title: Understanding Demand for a Multi-Destination, Multi-Modal Transit Network in a Mid-Sized American Metropolitan Area: Lessons for Increasing Choice Ridership While Maintaining Transit Dependent Ridership)

Project 1003

Publication 11-06

Principal Investigators: Greg Thompson, PhD, and Jeffrey Brown, PhD

A Decision Support Framework for Using Value Capture to Fund Public Transit: Lessons from Project-Specific Analysis

Project 1004

Publication 11-14

Principal Investigator: Shishir Mathur, PhD

Low-Stress Bicycling and Network Connectivity

(Former Title: A Tool to Evaluate Bicycle Networks)

Project 1005

Publication 11-19

Principal Investigator: Maaza Mekuria, PhD

Proactive Assessment of Accident Risk to Improve Safety on a System of Freeways

Project 1006

Publication 11-15

Principal Investigator: Anurag Pande, PhD

Cost Estimate Modeling of Transportation Management Plan for Highway Projects

Project 1007

Publication 11-24

Principal Investigator: Jae-Ho Pyeon, PhD

An Economic and Life Cycle Analysis of Regional Land Use and Transportation Plans

(Former Title: An Economic and Life-Cycle Emissions Assessment of Regional Land Use and Transportation Planning under Senate Bill 375: A Case Study in the Sacramento Region)

Project 1008

Publication 11-25

Principal Investigator: Caroline Rodier, PhD

User Evaluations of Intermodal Travel to Work: Exploratory Studies

Project 1025 (MTI Seed Grant)

Publication WP 10-03

Principal Investigator: Steven Silver, PhD

Formulating a Strategy for Securing High-Speed Rail in the United States

Project 1026

Publication 12-03

Principal Investigator: Brian Michael Jenkins

Estimating Workforce Development Needs for High-Speed Rail in California

Project 1027

Publication 11-16

Principal Investigator: Peter Haas, PhD

Wellness Lessons from Transportation Companies

(Former Title: Truck Driver Wellness)

Project 1028 (MTI Seed Grant)

Publication WP 11-01

Principal Investigator: Asbjorn Osland, PhD

Public Bikes sharing in North America: Early Operator and User Understanding (Former Title: Bikes sharing in North America: Understanding the Social and Environmental Impacts through A Case Study of BIXI)

Project 1029

Publication 11-26

Principal Investigator: Susan Shaheen, PhD

Planning for Complementarity: An Examination of the Role and Opportunities of First-tier and Second-tier Cities along the HSR Network in California

Project 1030

Publication 11-17

Principal Investigator: Anastasia Loukaitou-Sideris, PhD

What Do Americans Think About Federal Transportation Tax Options? Results From Year 2 of a National Survey

Project 1031

Publication 10-12

Principal Investigator: Asha Weinstein Agrawal, PhD

Assessing Importance and Satisfaction with Factors in Intermodal Work Commuting

Project 1033

Publication 11-02

Principal Investigator: Steven Silver, PhD

An Examination of Women's Representation and Participation in Bicycle Advisory Committees in California

(Former Title: Are Women Given Equal Opportunity to Influence Bicycle Planning Policy? An Examination of Women's Participation in Bicycle Advisory Committees in California)

Project 1034 (MTI Seed Grant)

Publication WP 11-03

Principal Investigator: Hilary Nixon, PhD

Generic Continuity of Operations/Continuity of Government Plan for State-Level Transportation Agencies

Project 1080

Publication 11-01

Principal Investigator: Frances L. Edwards, PhD

What Do Americans Think About Federal Tax Options to Support Public Transit, Highways, and Local Streets and Roads? Results from Year 3 of a National Survey

Project 1128

Publication 12-01

Principal Investigator: Asha Weinstein Agrawal, PhD

2012 Census of California Water Transit Services

Project 1133

Publication 12-02

Principal Investigator: Richard Kos, AICP

Projects Completed in the Last Calendar Year



Analyzing the Effects of Transit Network Change in a Decentralized, Mid-sized US Metropolitan Area on Transit Agency Performance and Transit Riders: A Case Study of Tallahassee, Florida

Project 1102

Publication 12-04

Principal Investigator: Jeffrey Brown, PhD

On July 11, 2011, StarMetro, the local public transit agency in Tallahassee, Florida, restructured its entire bus network from a downtown-focused radial system to a decentralized, grid-like system that local officials and agency leaders believed would better serve the dispersed local pattern of population and employment. The new, decentralized network is based on radial routes serving the major arterial roads and new crosstown routes linking the outer parts of the city, where population and employment is growing. Local officials and agency staff hoped the change would increase transit's attractiveness and usefulness to the community.

One year after the service restructuring, overall performance results are similar to those experienced in other cities that have implemented major service changes. Overall ridership and productivity are lower than before the service restructuring, due to the short time frame for rider adjustments and longer-than-anticipated headways, but new ridership has appeared in previously un-served or under-served corridors and neighborhoods. The service restructuring resulted in longer walks to bus stops, due to the removal of stops from many neighborhoods and their relocation to major roads, but overall transit travel times are shorter due to more direct routing. No particular neighborhoods or community groups disproportionately benefited from or were harmed by the change.



California Voting and Suburbanization Patterns: Implications for Transit Policy

Project 1105

Publication 12-05

Principal Investigator: Matthew Holian, PhD

Public transit is an environmentally friendly transportation mode that usually focuses on transporting people within and to the city center. However, over the last 60 years, population and employment has been suburbanizing. As the median voter lives further from the city center, and thus enjoys fewer benefits from accessing public transit, does this reduce such a voter's propensity to support public investment in public transit improvements? The research analyzed voting patterns on 20 transit-related ballot propositions from state-wide elections in California between 1990 and 2010. Controlling for demographic, socio-economic and political ideological factors, researchers focused on the role of suburbanization as a possible causal factor in determining public support for public transit investment. The results provide a rich picture of the attitudes towards transportation policy among California voters. It will help policy makers to better understand citizen preferences and to better predict how future trends will shift support towards or against transit. Finally, the report suggests ways policy makers can use urban land markets to increase support for transit.



Measuring the Performance of Livability Programs

Project 1126

Publication 12-06

Principal Investigator: Peter Haas, PhD

This report analyzes the performance measurement processes adopted by five large livability programs throughout the United States. It compares and contrasts these programs by examining existing research in performance measurement methods. Best practices of the examined performance measurement methods for each program are explored and analyzed with respect to their key characteristics. The report entails an appropriately comprehensive literature review of the current research on performance measurement methods from the perspective of various stakeholders including the public and government agencies. Additionally, the results of this literature review are used to examine the actual performance measures of the target programs from the perspective of different stakeholders. The goal of the report is to determine what did and did not work in these programs and their measurement methods, while making recommendations based on the results of the analysis for potential future programs.



Assessing Importance and Satisfaction Judgments of Intermodal Work Commuters with Electronic Survey Methodology

Project 1127

Publication WP 12-01 (MTI Seed Grant)

Principal Investigator: Steven Silver, PhD

Recent advances in multivariate methodology provide an opportunity to further the assessment of service offerings in public transportation for commuting to work. The research offers methodologies that are alternative to direct rating scale and have advantages in the quality and precision of measurement. The alternative of methodology for adaptive conjoint analysis for measuring the importance of attributes in service offering is implemented. Rasch scaling methodology is used for measuring satisfaction with these attributes. Advantages that these methodologies introduce for assessment of the respective constructs and use of the assessment are discussed.

In a first study, the conjoint derived weights were shown to have predictive capabilities in applications to respondent distributions of a fixed total budget to improve overall service offerings. Results with the Rasch model indicate that the attribute measures are reliable and can adequately constitute a composite measure of satisfaction. The Rasch items were also shown to provide a basis to discriminate between privately owned vehicles (POVs) and public transport commuters. Dissatisfaction with uncertainty in travel time and the income levels of respondents were the best predictors of POV commuting.



Assessing the Comparative Efficiency of Urban Mass Transit Systems in Ohio: Longitudinal Analysis

Project 1135

Publication 12-13

Principal Investigator: Hokey Min, PhD

A mass transit system not only improves passenger mobility, it also affects the level of economic activities (e.g., working and shopping). Thus, changes wrought by mass transit service planning can heavily influence regional economic growth. This planning requires a careful consideration of conflicting goals (e.g., better utilization of fleets vs. transit services, improved passenger services vs. increased operating expenses, revenue increases vs. tax or fare hikes), which poses a number of problems for policy decision makers. In particular, given the public's growing concerns over government budget deficits, the continuous underutilization of a mass transit system can increase public scrutiny of additional investments in mass transit services. To find ways to better utilize mass transit systems across Ohio and thus make best use of state/federal/municipal government funds and taxpayers' monies, this paper evaluates the operational efficiency of the current mass transit system relative to benchmark standards and then identifies the leading causes of mass transit inefficiencies. To meet these goals, window data envelopment analysis (DEA) was conducted on the past three years of time-series data for 24 (out of 27) of Ohio's urban mass transit agencies.



Long Term Trends in Patron Satisfaction of DC Circulator

Project 1138

Publication 12-09

Principal Investigator: Errol C. Noel, PhD

The DC Circulator is a local transit system designed to facilitate travel to and within the central business area in the District of Columbia. Since its inception in 2005, the Downtown DC Business Improvement District (DCBID) and the District Department of Transportation (DDOT) have been conducting surveys to assess patron trends and feedback, including their satisfaction with the services provided. The Circulator routes provide access from fringe areas to Metro rail and bus services. The Circulator was formed as a public-private enterprise that involves the DDOT, the Washington Metropolitan Transit Authority (WMATA) and DC Surface Transit, Inc. As part of its performance management program, DCBID conducted surveys of patrons during summers over the seven-year period of 2005-2011. Although the data provided snapshots of consumer opinion and feedback, there was no analysis to examine how the observed variables changed over the years. In addition, the scope of the data collection was not intended to provide information for determining whether there were seasonal variations in patron perception of the quality of service. This study provides some of the trends in patron feedback and perception of the quality of service of DC Circulator using survey data compiled over the seven-year period, in addition to data collected by the research team in summer and fall of 2012. This report also presents seasonal variations (over summer and fall) in the perception of quality of service.



Evaluation of Bus Transit Reliability in the District of Columbia

Project 1139

Publication 12-14

Principal Investigator: Stephen Arhin, PhD

Several performance metrics can be used to assess the reliability of a transit system. These include on-time arrivals, travel-time adherence, run-time adherence, and customer satisfaction, among others. On-time arrival at bus stops is one of the performance metrics of the Washington Metropolitan Transit Authority (WMATA). A bus is considered to be on time by WMATA if it arrives at most two minutes earlier or seven minutes later than the scheduled arrival times, with a performance goal of 78 percent. Most regional transit agencies consider arrivals that fall within one minute earlier or five minutes later than the scheduled arrival times as being on time. The goal of this project was to determine the on-time performance and its statistical significance based on WMATA's advertised threshold and the industry standard for on-time arrivals. Fifteen bus routes in Washington DC with several stops were studied in this research. WMATA's published bus schedules provided expected arrival times. An on-board manual survey was conducted from June 2012 through June 2013 for peak morning and afternoon travel on those routes during which the actual arrival times at the bus stops were noted and compared with the scheduled arrival times. For WMATA's two-minutes-early and seven-minutes-late arrival threshold, the buses were found to be on time approximately 82 percent of the time, on average, during the morning. In the evening, for the same threshold, only 68 percent of the buses on average were considered to be on time. This results in an overall on-time performance of 75 percent, which is a modest improvement over the 2010 on-time performance of 74 percent. Based on the one-minute-early and five-minutes-late arrival threshold used by several regional transit agencies, the buses were found to be on time approximately 67 percent of the time during the morning and 55 percent in the evening, resulting in an overall performance of 61 percent.



What Do Americans Think About Federal Tax Options to Support Public Transit, Highways, and Local Streets and Roads? Results from Year Four of a National Survey

Project 1228

Publication 12-14

Principal Investigator: Asha Weinstein Agrawal, PhD

This report summarizes the results of year four of a national random-digit-dial public opinion poll asking 1,501 respondents if they would support various tax options for raising federal transportation revenues, with a special focus on understanding support for increasing revenues for public transit. Eleven specific tax options tested were variations on raising the federal gas tax rate, creating a new mileage tax, and creating a new federal sales tax. Other questions probed various perceptions related to public transit, including knowledge and opinions about federal taxes to support transit. In addition, the survey collected data on standard socio-demographic factors, travel behavior (public transit usage, annual miles driven, and vehicle fuel efficiency), and attitudinal data about how respondents view the quality of their local transportation systems and their priorities for government spending on transportation in their state. All of this information is used to assess support levels for the tax options among different population subgroups.

The survey results showed that a majority of Americans would support higher taxes for transportation—under certain conditions. For example, a gas tax increase of 10¢ per gallon to improve road maintenance was supported by 67 percent of respondents, whereas support levels dropped to just 23 percent if the revenues were to be used more generally to maintain and improve the transportation system. For tax options where the revenues were to be spent for undefined transportation purposes, support levels varied considerably by what kind of tax would be imposed, with a sales tax much more popular than either a gas tax increase or a new mileage tax.

Ongoing Research Projects



Analysis of Transit Travel Demand Change in U.S. Metropolitan Statistical Areas Between 2000 and 2010 Using Two-Stage Least Squares Regression

Project 1101

Principal Investigator: Alam Bhuiyan, PhD

Proper understanding of the exact nature of transit travel demand models is at the heart of transportation policy making and the success of transit systems. Unfortunately, most of the existing studies have focused on a single or few transit systems or metropolitan areas to analyze the determinants of transit travel demand change. The few studies that have focused on nationwide data have either failed to consider some important variables or are methodologically weak. It is difficult to generalize for the whole nation from such studies. This research investigates the big picture of transit travel demand functions at a national level using data from the National Transit Database (NTD), US Census Bureau, and the US Bureau of Labor Statistics.



Exercise Handbook: What Transportation Security and Emergency Preparedness Leaders Need to Know to Improve Emergency Preparedness

Project 1103

Principal Investigator: Frances Edwards, PhD

The transit and transportation sector is a key critical infrastructure. All other emergency response depends on the availability of functional roads and transportation assets. Police, fire and emergency medical services (EMS) vehicles can only reach disaster victims if passable and safe roads have been inspected and cleared of debris by the transportation agency personnel. Rescue and relief goods can be delivered to the disaster site only if roads, railroads and ports can recover functionality rapidly. This ability to respond to disasters effectively is based on training the transit and transportation agency personnel in advance, and practicing the knowledge and skills needed to ensure the rapid response to disaster events.

The research team of Edwards and Goodrich conducted extensive research through a Mineta Transportation Institute Seed Money Grant that led to a literature review, and a series of interviews with transit and transportation emergency exercise staff members and experts in emergency management exercises. This research was published in June 2010 as Emergency Management Training and Exercises for Transportation Agency Operations, MTI Report 09-16. This handbook builds on that research and creates a practical guide on training and exercises for transportation leaders.



Perceptions of Bicycle-Friendly Policy Impacts on Accessibility to Transit Services: The First and Last Mile Bridge

Project 1104

Principal Investigator: Bradley Flamm, PhD

The coordination of bicycle and transit modes has received close attention from public transit planners, researchers and advocates in recent years as US transit agencies have installed bicycle racks on buses and other transit vehicles, implemented bicycles-on-trains policies, and made other efforts to facilitate bicycle-transit integration. Some planners presume that the geographic range of access to transit stops and stations is enlarged by these efforts; however, such changes have not been effectively documented. This research project is designed to assess the extent to which geographic access to public transit services is greater as a result of such facilities and policies, using the results of interviews with planners and a survey of cyclist-transit users (CTUs) of two large American transit systems: the Southeast Pennsylvania Transportation Authority (SEPTA) and the San Francisco Municipal Transportation Authority (SF Muni). SEPTA and SF Muni are transit agencies with, respectively, low and high bicycle-transit use rates. The survey will address the motivations, practices, and challenges CTUs face in combining bicycle and transit modes. By contrasting CTU behavior in systems with low and high current utilization rates of bicycle-transit facilities and policies, this project will document contrasts in current policies and implementation practices, estimate service-area changes attributable to bicycle-transit integration, and suggest changes that can be made to improve the utilization and accessibility of transit services by cyclists.



Net Effects of Gas Price Changes on Transit Ridership in US Urban Areas

Project 1106

Principal Investigator: Hiroyuki Iseki, PhD

This study will examine how changes in gasoline prices affect transit ridership. In order to gauge the net effects of gasoline price changes on transit ridership, this study will apply advanced statistical methods on panel data of retail gasoline prices, transit ridership and operating data in US urban areas, obtained from the Energy Information Administration and the National Transit Database and supplemented by other variables that can influence transit ridership.



Neighborhood Crime and Transit Station Access Mode Choice

Project 1107

Principal Investigator: Christopher Ferrell, PhD

This project will estimate the effects of neighborhood crimes on transit station access mode choice and disentangle the effects of urban form (e.g., urban density) from crimes. This proposed project is a third phase of this research project, in which the researchers will seek to confirm and build upon results found in Phases 1 and 2 using a new source of travel behavior data, focusing on the potential for crime reduction as a means to encourage non-auto mode choice when accessing transit stations.



Changes in Transit Use Near a New Light Rail Transit Line: Applications of Market Research Methods to Understand Travel Behavior Change

Project 1108

Principal Investigator: Hilary Nixon, PhD

Los Angeles is pursuing possibly the most ambitious rail transit investment program in the nation. The Los Angeles Metropolitan Transportation Authority's (MTA) long-range plan commits funds to six new rail transit lines scheduled to open between now and 2019, of which the Expo Line (along Exposition Boulevard) will be the first. In total, those six lines will increase the Los Angeles MTA rail network from 73 to approximately 120 miles, making it larger than the current Washington Metro system. This impressive commitment to transit infrastructure will play out in the context of ambitious state-level greenhouse gas emission reduction targets, making it important to have reliable data on the impact of rail transit infrastructure on travel behavior. The research team has baseline data, collected Fall 2011, on trip-making and driving for 285 households in and near the Expo Line corridor, as well as data from after the line opened in April 2012. Commercial firms routinely use market research techniques to identify and target population segments that are likely to purchase their products. Using this data, researchers will conduct an analysis of the before-after survey data using similar "marketing" methods to identify individuals who are most likely to change their travel behavior in response to the provision of new light rail service. Researchers will build a model that characterizes the linkages between ridership changes to the combination of new service and individual attitudes and demographics. This will give much more detail on "marketing" relevant information on what kinds of persons/households will likely switch to rail transit.



Active Travel Co-Benefits of Travel Demand Management Policies that Reduce Greenhouse Gas Emissions

Project 1109

Principal Investigator: Caroline Rodier, PhD

There is increasing awareness of the potentially significant health co-benefits that may result from the implementation of regional land use and transportation plans under SB375 to meet Assembly Bill 32 (California's Global Warming Solutions Act, or AB32) greenhouse gas reduction (GHG) targets. A landmark study published in the Lancet (Woodcock et al., 2009) showed large health benefits from reduced vehicle use and increased transit, walking, and bicycling (i.e., active travel). These benefits were on the order of 10 to 25 percent reduction in years of life lost from heart disease alone, which results in significant reductions in health care costs. Not surprisingly, agencies and departments in California are calling for analyses of the health related benefits that may result from the implementation of their programs and plans. A greater understanding of these benefits may broaden constituent support for implementation of land use and transportation plans that reduce GHG emissions. However, very little research and guidance has been provided, to date, to advise on the range of health related performance measures that can be obtained from available data and tools. This is particularly true for the new generation of travel models that the State and the major regions of California are now poised to implement. There is a considerable gap in stakeholders' knowledge of the evaluative possibilities of these new models. This study will be one of the first research projects to capitalize on the data developed for the state-of-the-art activity- based California Statewide Travel Demand Model (CSTDM).



Safety Aspects of the Design of Bicycle Transportation Infrastructure

Project 1125

Principal Investigator: Jan Botha, PhD

The goals of this project are to investigate the causes of bicycle crashes, as well as the impacts in terms of death and injury, review current policy regarding bicycling and the justification for providing bicycle-dedicated infrastructure, assess the impact on the other elements of the transportation system, project the outcomes of different strategies and policies that can be considered for bicycling, and assess the role that the planning and design of bicycle infrastructure can and cannot play in the safety of bicycling. An important aspect of this project will be to articulate the appropriate questions that should be addressed to formulate policies and strategies for bicycling as well as the design and planning for bicycle facilities. It should be noted that safety is only one of the motivations for providing bicycle-dedicated infrastructure and cannot be evaluated in a vacuum. Other considerations must be considered in tandem. Creating a bicycle design manual is not the objective of the project, but rather the formulation of the issues that should dictate the planning and design of bicycle facilities.



Remedial Actions to Prevent Suicides and Accidental Deaths on Commuter and Metro Rail Systems

Project 1129

Principal Investigator: Patrick Sherry, PhD

The goal of this project is to further investigate ways of effectively preventing transit rail as the method to attempt suicide. Recent reports suggest some promising methods for reducing the occurrence of suicides using rail. The purpose of this study is to evaluate the effects of: 1) training programs for key personnel; 2) posted signs addressing concerns of people considering suicide, and 3) where possible, depending upon the agency, the use of barriers to prevent access to locations that attract people likely to attempt suicide. Data will be gathered from several regions across the US to permit statistical comparisons of suicide attempts and completions.



Transit and Passenger Rail Security: A Critical Assessment of What Works

Project 1130

Principal Investigator: Brian Michael Jenkins

It is difficult to assess the effectiveness of security against terrorism. Unlike ordinary crime, terrorist attacks are statistically rare events, although a successful terrorist attack can have enormous consequences. Strict cost-benefit analysis, therefore, is not easily applied. Yet we now have several decades of security experience documented in detailed case studies of terrorist attacks and campaigns – enough to discern trends, analyses of terrorist plots and failed attempts (including in some cases what terrorists themselves have said), and a detailed database recording thousands of terrorist attacks coded in detail – enough for statistical confidence. This empirical data can be analyzed to provide evidence-based insights into what works and how it works, directly and indirectly. Any assessment must be realistic. A preliminary review suggests that security measures may not prevent determined terrorists from carrying out attacks, but that they can complicate terrorist planning, increase the terrorists' operational difficulties, and sometimes deflect them from the most lucrative targets, thereby saving lives.



Public Bikesharing in North America: Understanding Impacts, Business Models, and Equity Effects of Bikesharing Systems During Rapid Industry Expansion

Project 1131

Principal Investigator: Susan Shaheen, PhD

This study builds on an earlier MTI public bikesharing evaluation (MTI 1029) by implementing an expanded survey of members of current programs operating in Canada, the United States, and Mexico, as well as expert interviews. The number of public bikesharing programs has more than tripled since the initial MTI study launched in 2010. Today, there are over 20 operating programs; the researchers will invite each to participate in this study (operator survey and user survey).

This project will evaluate the change in travel behavior exhibited by members of different programs in the context of their business models and operational environments. The results will provide a robust understanding of where and how public bikesharing impacts travel behavior, emissions, and public health. In addition to the survey data, researchers will also explore the possibility of obtaining bicycle operational data from selected programs for a more granular look at the diurnal/seasonal patterns and geospatial distribution of travel to gain a better understanding of use and bicycle redistribution challenges that occur under different operating conditions.



What Do Americans Think About Public Transit? A Review of the U.S. Survey Literature

Project 1132 (MTI Seed Grant)

Principal Investigator: Asha Weinstein Agrawal, PhD

This project will compile and analyze a wide set of U.S. survey data related to public transit, to ascertain themes such as support for transit funding, priorities in terms of service quality, variations in support by transit mode, and geographic variations in support. The research team will collect survey data by searching newspaper archives and the Internet to find reference to surveys completed by government agencies and interest groups, as well as by searching traditional library databases for published literature. Once a large group of surveys has been completed, the team will assess the data to look at patterns on a wide variety of factors and prepare a report summarizing the findings. The study results will provide insight into public priorities related to improving public transit service.



Detroit Regional Transit Study: A Study of Factors that Enable and Inhibit Effective Regional Transit

Project 1136

Principal Investigator: Leo Hanifin, PhD

This project will analyze the factors that have in the past, and continue today, to inhibit and enable the effective planning, development, and operation of regional transit systems in Southeastern Michigan. A team of ten researchers from the University of Detroit Mercy will engage leaders from all related public and private organizations. Methods will include analysis of legal structures, public opinion surveys, and ad hoc interviews with key leaders involved; review of previous national and local studies and reports, including examining the various methods, processes and structures employed in benchmark urban areas that have developed effective regional transit systems; and an assessment of how they apply to Detroit. The phases of the study will include an examination of the history of transit in Detroit and the nation, selection of comparable cities, analysis of the current state of transit in Detroit, and development of recommendations. Each phase of the study will examine ten broad areas of factors that potentially inhibit and enable effective transit development.



Remanufacturing, Repurposing, and Recycling of After Vehicle Life Lithium Ion Batteries for Transit Vehicles

Project 1137

Principal Investigator: Charles R. Standridge, PhD

The basis for this project is an industrial-academic partnership to address issues regarding the remanufacturing, repurposing, recycling, and disposing of lithium-ion batteries used in public transit vehicles. The goal is the development and commercial implementation of manufacturing processes and assessment protocols that successfully provide for the economic remanufacturing, repurposing, recycling, and disposing of lithium-ion batteries used in public transit vehicles. Processes for remanufacturing will be developed, tested, and commercially implemented. Repurposing opportunities must be identified, and processes for taking advantage of them must be developed. Decision criteria as to when to remanufacture versus repurpose versus recycle versus dispose will be created. A partnership with Sybesma's Electronics has been formed to ensure the commercial viability and future of the processes and protocols developed.



Understanding & Modeling Bus Transit Driver Availability

Project 1140

Principal Investigator: Kaan Ozbay, PhD

Transit agencies must employ enough operators of transit vehicles to meet scheduled service and to account for unplanned absences due to illness, vacation, absenteeism, etc. As such, they employ "extraboard" operators (on-call backups) to meet these situations and ensure service is not interrupted. Overestimation of the number of extraboard operators comes at a cost. Thus, effective extraboard management is important for regular operations. During evacuations, such as due to an impending natural disaster like a hurricane, or a perceived threat, extraboard management is even more critical than during regular conditions. In these cases, it is important to account for problems due to the cause of evacuation, such as inability of personnel to arrive at their needed locations due to closures or other disruptions to the transportation system. The major goal of this project is to develop and validate models to determine optimal extraboard size for bus transit (driver availability and deployment) while incorporating reliability and risk measures in the decision making process.



Using GPS Data from Taxis to Understand Public Transit Demand and Mode Choice

Project 1141

Principal Investigator: Eric J. Gonzales, PhD

As cities around the United States and the world become increasingly congested, the need to provide effective and competitive transit service is also increasing. Although travel demand data has typically been collected using household surveys or passenger counts, the widespread use of GPS-enabled devices presents a new data source with rich potential for studying travel demand and transit use. Specifically, this research project will make use of GPS data from taxi fleets in cities in order to characterize taxi trips, and integrate taxi data with other data sources to gather information about travel demand and the factors affecting mode choice. Taxi data is useful because it provides information about realized trips that potentially could be served by public transit systems. By analyzing the spatial and temporal distribution of trips that use taxis, the goal is to understand the factors that affect transit mode choice. When integrated with other data sources, such as neighborhood socio-economic characteristics, crime, weather, and levels of transit service, this data provides additional information about urban travelers and how they choose to get around. The results will be useful for agencies that want to plan improved transit service and for academics who study transportation demand.



Measuring the Benefits of Transit-Oriented Development

Project 1142

Principal Investigator: Robert B. Noland, PhD

Transit-oriented development (TOD) is the development of compact, mixed-use, pedestrian-friendly land uses within walking distance of transit stations/stops. A major goal of TOD is to direct land development to locations where public transit and infrastructure already exist. The expectation is that transit ridership will increase and auto use will decrease as the convenience of transit leads it to become the mode of choice for residents, employees, and visitors. Increased transit ridership and decreased auto use are generally accepted as public benefits—resulting in reduced air pollution, greenhouse gas emissions, traffic congestion and crashes, as well as increased physical activity if walking trips increase. Additionally, there may be other benefits from TOD, including the creation of a more stable economic base, support for healthier behaviors, and promotion of community.

The primary objective of this study is to assess the myriad impacts of transit-oriented development on residents in or near the developments. These impacts fall into five impact categories: transportation, economic, health, community, and environmental. The methodology employed in this study is a survey of residents living in or near TODs. The survey consists of questions for each of the five categories outlined above. It will be administered to two populations of residents: those living in TODs and those living near TODs. The objective is to use the latter as a control group to understand some of the reported differences between the groups.



Evaluation of the Impacts of Rail Investments and Engineering Improvements on Transit

Project 1143

Principal Investigator: Hani Nassif, PhD

Transit agencies own and operate thousands of bridge structures subjected to repetitive train loading. The majority of these bridges were built at the turn of the 20th century, and many have exceeded their theoretical fatigue lifespans. Moreover, recent increase of freight railcar weight limits from 263,000 lbs to 286,000 lbs raised additional concerns for the transit passenger rail systems because the bridges in the passenger rail systems were not designed based on this increased weight. There is a need to establish procedures to estimate the remaining life and damage accumulation of bridges. This will allow for prioritization and scheduling of repairs and rehabilitation events. A simplified screening tool is necessary to direct attention to the most fatigue-critical bridges.

The objective of this study is to introduce a tiered approach to determine the remaining fatigue analysis. The proposed methodology is a combination of analytical and field testing approach. The simplest analysis involves a review of regional passenger and freight train load data with regard to weights, volumes, and number of cycles. The next level involves simulation whereby bridge girder and/or components stresses are determined using simple structural analysis methods. Results from field tests are utilized to verify and validate these computer models. For the considered components and details, stress range and estimated number of load cycles will be simulated using Monte Carlo simulation and structural analysis. This approach offers the simplicity needed to cover thousands of bridge structures.



Exploring Transportation, Employment, Housing, and Location Issues for New Jersey Veterans with Disability

Project 1144

Principal Investigators: Stephanie DiPetrillo and Andrea Lubin

New Jersey is home to more than 400,000 military veterans, many recently returning from Afghanistan and Iraq (Operation Enduring Freedom/Operation Iraqi Freedom - OEF/OIF). Upon reintegration into civilian life, returning veterans often face myriad challenges due to physical, mental and/or emotional injuries sustained during service. Reintegration challenges can also relate to meeting housing, employment, and/or transportation needs. Case in point: according to 2011 Bureau of Labor Statistics data, male veterans age 18-24 had a 29.1 percent unemployment rate. Both national and state governmental and non-profit entities, including the New Jersey Department of Military and Veterans' Affairs, work to improve the community reintegration outcomes of veterans. However, factors such as continued unemployment contribute to persistent problems for veterans and for society, including the number of homeless veterans, estimated at approximately 7,000-8,000 people in the state.



It is within this context that the study team seeks to better understand and document the housing, employment, and transportation needs of the working age New Jersey veteran community who have a disability(s), with a specific emphasis on determining if and how access to transit and transit-oriented development (TOD) housing and employment opportunities could improve community reintegration outcomes. The prime work tasks to be undertaken in this study will include: 1) an analysis of the academic and professional literature on the transportation, employment, and housing needs and issues as experienced by the US veteran population with disability(s); 2) a series of informant listening sessions with government and private non-profit organizations representing the interests of New Jersey veterans; and 3) up to three focus group sessions with New Jersey working age veterans with disability(s). A critical component of this study involves more

fully understanding the transportation, employment, and housing related needs, experiences, issues, and obstacles as directly experienced by the New Jersey veteran community. The study team will facilitate a discussion with each group that seeks to address if and how TODs can help to satisfy veteran needs, and how TODs can be better marketed to this specific population.



Transit Access and the Agglomeration of New Firms: A Case Study of Portland and Dallas

Project 1145

Principal Investigator: Robert B. Noland, PhD

Transit investments can affect the clustering of economic activity within a region due to the changes in accessibility that transit can provide, either by increasing firm-based access to the central business district or increasing effective labor market size. This clustering can lead to what are known as agglomeration benefits that increase overall economic productivity and are external to the decisions taken by individual firms. Cost-benefit analysis of transit investments rarely account for such external benefits. Agglomeration benefits work through several mechanisms. The two mechanisms most likely relevant to transit are knowledge spillovers enabled by firm clustering near rail stops and better labor matching due to higher labor market access caused by expansions of transit networks. The actual linkages are complex and are not well captured by simple econometric models.

This work will build on previous analysis that has resulted in the development of both a cross-sectional time-series database of MSAs, one of which covers 2002-2008, and the other of which covers three decadal periods, from 1990 to 2010. Previous work has analyzed two agglomeration measures: total MSA population and employment density. This work will examine a number of additional measures, including population density and employment density for a wide range of economic sectors.



Combustion Chemistry of Biodiesel for the Use in Urban Transport Buses: Experiment and Modeling

Project 1146

Principal Investigator: Ashok Kumar, PhD

This study will focus on NO_x and particulate matter (PM) released during combustion. Because, in general, biodiesel produces more NO_x than diesel, its production mechanisms should be more deeply investigated for better pollution control. Furthermore, even if biodiesel's PM emission is lower than diesel, its formation mechanisms must be better understood to reduce it without compromising engine performance. Biodiesels with various compositions and feedstock resources will be chemically analyzed for their chemical characteristics. The major components will be identified and will then be used for the combustion mechanism study. A high-pressure, high-temperature combustion chamber will be used at controlled temperature and pressure, and GC will be used to analyze the emission gases.

The proposed experimental research is unique because it is oriented towards fundamental chemical reactions. The team will look into a simplified combustion reaction model that describes the reaction mechanisms of biodiesel's major components that lead to specific emission species. The results can be correlated to biodiesel source feedstock type, engine temperature, and pressure to specific components in the emissions.



Enhancing Transit Service in Rural Areas and Native American Tribal Communities: Potential Mechanisms to Improve Funding and Service

Project 1147

Principal Investigator: Mahomed Kaseko, PhD

Considering the existing financial constraints and the most common transit needs and desires for transit in the rural area of Nevada, this study will determine the best sources of funding for transit services and the optimal allocation of resources to meet the most important transit needs. This analysis will consider the difficulties of obtaining funding from various potential sources and will determine the best strategy to pursue the corresponding funding. Given a fixed budget, a multi-objective optimization approach will be used to determine the optimal allocation of funds to meet transit needs that provide the most benefit to the tribal communities in rural areas in Nevada. The analysis will include the idea of enabling the use of travel substitutes such as remote access to services. In addition, coordination among providers and intercity transit service will be analyzed.



Developing Seamless Connections in the Urban Transit Network: A Look Toward High-Speed Rail Interconnectivity

Project 1148

Principal Investigator: Hualiang (Harry) Teng, PhD

Research on high-speed rail (HSR) has been focused on the economic impact studies that are needed in the early stage of HSR development in the US. As HSR moves to the stage of design and operations, there is a need for guidance on providing effective connectivity at HSR multimodal stations. In this study, the layout of multiple modes of transportation at HSR stations, the operation schedule of these modes, and the resulting transfer time and convenience will be studied. Patterns of multimodal layouts, operation schedules, and transfers in other countries will be reviewed, and relevant data will be collected to characterize the transfers and models. Recommendations for seamless connections in the US urban transit network will be developed based on this characterization and modeling.



Transportation Futures: Policy Scenarios for Achieving Greenhouse Gas Reduction Targets

Project 1149

Principal Investigator: Caroline Rodier, PhD

The transportation sector under a low emissions world looks vastly different from the transportation sector we have now. It would be helpful to envision different transportation futures that would be consistent with the agreement that the United States and other nations have made. (Under the United Nations Framework Convention on Climate Change, nations agreed to limit global warming to 2°C [3.6°F], which would require cutting global greenhouse gas emissions in the range of 50 to 85 percent, with developed nations likely needing to be on the high end of that range). The proposed study would be a broad brush look at what the transportation sector might look like and what implications that would have for the US Department of Transportation and national transportation policy. Such a broad look would complement well the work that has been done by the US DOT in the 2010 report to Congress and by the Transportation Research Board. This research will specifically focus on accounting for current policy trends and identifying what additional measures will be needed to achieve these major reductions in GHG emissions from transportation by examining several alternative scenarios.



Electrical and Thermal Management of a Lithium Titanate Prismatic Cell Battery System

Project 1150

Principal Investigator: Timothy Cleary

Improved prediction of state of health (SOH) and state of charge (SOC), along with improved management of thermal flow in the energy storage systems (ESS) of electric buses and other heavy vehicles will lead to greater efficiencies in, and wider adoption of, an electric vehicle fleet. This project will develop improved models for predicting SOC and SOH for a battery pack consisting of cells that employ lithium titanate chemistry and prismatic shape, and that are contained in a fully electric, class 8 passenger bus. The research also will afford the opportunity for improving the thermal management system in such an ESS.



Advanced Low-Floor Vehicle (ALFV) Specification Research

Project 1151

Principal Investigator: Suresh Iyer, PhD

There is a need in the transit industry for a new type of versatile, high-capacity, long-life bus to satisfy the needs of smaller agencies and to enable the emerging adaptable service formats, such as flex route, that are being driven by budget constraints and transit ITS development. The research objective of this project is to identify and quantify the technical characteristics of a new breed of transit bus that is accessible, versatile, reliable, durable, and efficient in all operating environments.

This project furthers US Department of Transportation/Federal Transit Administration strategic goals in several areas. The project will address the state of good repair issues associated with operating cutaway chassis buses on rough roadways. Safety and livability will be advanced through the provision of greater bus accessibility and superior ride quality characteristics. Through the formulation of a new bus product, interested US bus manufacturers will have an opportunity to expand their product line here and abroad, enhancing US economic competitiveness and providing opportunities for workforce development and training.



The Purpose, Function, and Performance of Streetcar Transit in the Modern US City: A Multiple Case Study Investigation

Project 1201

Principal Investigator: Jeffrey Brown, PhD

The streetcar has begun to make a remarkable comeback in US cities after decades of perceived technological obsolescence. Streetcars presently operate in regular year-round revenue service in about ten cities, and dozens more cities are building or planning their streetcar lines. Streetcars have reappeared in cities for a variety of reasons, including their relatively low cost and smaller urban footprints compared to light rail transit, their believed link to downtown redevelopment, and the active promotion of federal officials, planners, transportation consultants, and other constituencies. Despite their increased popularity as urban transit projects, there is remarkably little research that documents how these transit investments function and perform. This research seeks to fill this gap in our knowledge of the streetcar's function and performance as a transit investment.

The research examines the modern streetcars in Little Rock, Memphis, Portland, Seattle, and Tampa to better understand the purpose of streetcar development in these cities, the function the streetcar serves in the local transit system, its ridership and service productivity as a transit mode, and how planners, elected officials, and other key local actors assess the overall performance of the streetcar. The primary

emphasis of the research is on the transportation role and transit performance of the streetcar, as opposed to its possible redevelopment or quality of life effects. Using a combination of national and agency data on ridership, service, cost, and socioeconomic characteristics of the local setting, plus key informant interviews, the research seeks to derive lessons that will lead to more informed planning and policy decisions in cities already operating or contemplating development of these transit investments.



Bicycling and Access to Transit by Low-Income Immigrants

Project 1202

Principal Investigator: Daniel G. Chatman, PhD

Public transportation is a vital link in meeting the mobility needs of low-income individuals and immigrants to the United States. Roughly 2 percent of all trips nationwide are made by public transit, but immigrants who live in households that earn less than \$25,000 per year take nearly 9 percent of their trips by public transportation. Because it is nearly impossible for transit to provide door-to-door service, it is critical to examine the characteristics of the “last mile” segments that connect origins and destinations to transit, 88 percent of which are walk trips and 0.5 percent of which are bicycle trips in the low-income immigrant population. A focus group study that included primarily low-income Mexican immigrants identified a need to improve public transit, partially through improving the links among home, work, and transit.

Despite their importance, few studies have examined these access and egress trips and none we are aware of have done so for low-income immigrants. To fill this gap, the authors will conduct a travel survey that will oversample low-income immigrants as well as those who access and egress transit via bicycle, focusing on Alameda County CA. The results of the study will help transit and transportation planners better understand how low-income immigrants access transit stations and what barriers and constraints they face in accessing transit.



Integrating Highway and Transit Data into Benefit-Cost Analysis

Project 1203

Principal Investigator: Matthew Holian, PhD

Federal, state and local governments allocate billions of dollars in transportation funds each year. Among the tools available to help decide which projects are the best investment is Benefit-Cost Analysis (BCA). Ideally, BCA takes into account all impacts of an investment and provides a way of selecting investments that maximize social welfare. However, even the best BCAs measure only select impacts. This project will develop methods of better integrating highway and transit data into BCA and will evaluate the extent to which the results of the analysis depend on data integration. BCA is used for both academic and practical purposes, and methods for data integration will be developed in both cases. In addition, an organizational analysis of state Departments of Transportation (DOTs), including Caltrans, will be carried out. This study will also explore the multidivisional forms of state DOTs and take inventory of planning tools used by various offices. This exploration of state DOTs will be embedded into the broader planning process and comment on the ways in which organizational and institutional constraints impede transportation investment planning.



The Impact of Public Bikesharing on Bicycle Safety in North America

Project 1204

Principal Investigator: Elliott Martin, PhD

Public bikesharing systems have proliferated across cities within the United States, Canada, and Mexico in recent years. The result has been transformative on the mobility options available to residents of cities both big and small. People within these cities are bicycling more, often in substitute of all other modes. While the dynamics of bikesharing on modal shift are a subject of active study, it is clear that bikesharing is increasing the presence of bicycles on the urban streets of North America. Furthermore, many of the bicycles deployed in bikesharing systems are equipped with lights and are brightly marked, increasing their visibility at night. The presence of bikesharing and its inducement of bicycle travel may have impacts on the broader safety of bicycling in North America. The increased presence of bicycles and prominence that comes with public bikesharing brings an elevated visibility and awareness of bicyclists on the street. At the same time, it also increases bicyclist exposure to motor vehicles, often without protective gear. What are the overall bicycle safety implications of bikesharing? This study is designed to explore whether there is empirical evidence as to whether bikesharing has had an impact on the broader safety of bicycling within cities across North America. The results of the study will help to quantitatively define the impacts of public bikesharing on overall bicycle safety with North American cities as well as provide a qualitative evaluation of safety measures and considerations being undertaken in the San Francisco Bay Area.



A Tool to Evaluate and Optimize Multi-Modal Transit Access

Project 1205

Principal Investigator: Maaza Christos Mekuria, PhD

The objective of this research is to develop, apply, evaluate, and enhance a geographic based evaluation and optimization model for transit service using an advanced algorithmic-based model and GIS tools. One of the novel aspects of the research is the use of expanded state space dynamic programming. An aspect of the research deals with building a model that captures the relationship between bicycle and walk access modes in determining transit service area. It is the research team's desire to investigate the impact of bicycle use on transit mode share. The team endeavors to find ways to improve the state of the practice through lessons learned by comparing algorithmic models built on advanced geographic modeling and network analysis.



Comparing Modes of On-Board Transit Passenger Surveys: Assessing Trade-Offs Between Data Quality and Cost

Project 1206

Principal Investigators: Hilary Nixon, PhD and Asha Weinstein Agrawal, PhD

Transit agencies invest tremendous financial and time resources into surveying their customers. These efforts are justified, as the data collected are fundamental inputs for a range of purposes including “travel modeling, long-range and area-wide planning, route planning and scheduling, service design, marketing, and customer communications” (Schaller 2005). In addition, as of autumn 2012, these surveys are required by a new Federal Transit Authority circular to ensure participation from minority and low-income populations, who have historically under-participated in such efforts.



Despite the critical value of transit surveys, they are also very costly to agencies, easily running \$500,000 to \$1 million for a large agency. Thus, there is a need to identify the lowest-cost survey mode options that can still produce quality results.

The results of this research, comparing cost and quality for three different modes of surveying transit riders, will provide transit agencies a quantified assessment of the tradeoffs in terms of cost and quality of the distinct surveying modes. The three modes to be compared will be determined as part of the project, but are highly likely to be: (1) a paper-based, self-administered survey, (2) a paper-based self-administered short survey followed by a computer assisted telephone survey, and (3) a paper-based self-administered short survey on a postcard followed by an Internet survey.



Transportation Futures for Deep Greenhouse Gas Reductions: Synergistic Interactions of New Transportation Technologies and Services with Land Use, Transit, and Auto Pricing Policies

Project 1207

Principal Investigator: Caroline Rodier, PhD

Very little research has explored how new transportation technologies and services (e.g., dynamic ridesharing and electric vehicles) may have synergistic interactions with land use, transit, and auto pricing policies and what the magnitude of those interactions might be with respect to VMT and/or GHG reductions. The proposed study would use the California ABM to examine the potential magnitude of markets for and VMT and/or GHG reductions from dynamic ridesharing and adoption of electric vehicles created by land use, transit, and auto pricing policies. The California Statewide Travel Demand Model (CSTDm) is the first ABM to be applied at a large state-level geographic scale. The study builds on the deep GHG reduction scenarios simulated with the CSTDm in year one of Transportation Futures project (funded by MTI and FTA), which includes land use, transit, and VMT fee measures.

In year two of the project, the team will mine the rich data produced by the simulated scenarios. For dynamic ridesharing, decision rules will be obtained from the behavioral literature and expert consultations and applied to these data to identify the number of potential participants as well as the number of trips and VMT that could be satisfied by the service in both the business-as-usual and alternative scenarios. For electric vehicles, the focus will be on how land use and transit scenarios could increase their market penetration. The California Air Resources Board has recently decided that they will accept GHG reductions from electric vehicles as part of regional sustainable community strategies under SB 375, which demonstrate how regional GHG targets for passenger travel will be met. Shorter driving ranges possible from land use and transit scenarios may increase the adoption of electric vehicles. Analytical uncertainties will be addressed through extensive sensitivity analyses.



Performance Measurement and Transit Data

Project 1208

Principal Investigator: Caroline Rodier, PhD

The goal of this project is to help the California Department of Transportation (Caltrans) develop high quality transit related data and performance measures, specifically for interregional travel, to support the development of a robust multimodal transportation system, increase mobility options for the public, and maintain a world-class transportation system. The researchers will conduct a project that (1) clarifies Caltrans' objectives with respect to transit performance measures; (2) helps Caltrans identify the transit performance measures that will best assist Caltrans in meeting those objectives; (3) identifies and evaluates the suitability of observed and modeled transit data currently available to Caltrans; (3) demonstrates how to implement transit performance measures that can be developed with currently available data; and (4) develops a plan that articulates the steps and resources necessary to integrate data from intelligent transportation systems that is increasingly becoming part of California's transit operation systems.



Promoting Intermodal Connectivity at California's High-Speed Rail Stations

Project 1209

Principal Investigator: Anastasia Loukaitou-Sideris, PhD

A high level of intermodal connectivity is a major prerequisite for robust ridership and successful operation of high-speed rail (HSR) systems. The integration of high-speed trains with existing intercity and commuter/regional rail systems in a blended system offers the advantages of higher connectivity as well as potentially lower capital costs and decreased adverse environmental and urban form impacts. However, a blended approach requires careful pre-planning to achieve a high degree of coordination in operations and passenger services. It also requires station infrastructure that accommodates smooth transitions between the different modes.

While not much research exists on issues of inter-modality in the context of HSR systems, a number of blended HSR systems exist and operate successfully around the world. There is also important international scholarly "knowhow" on the topic of HSR operations.

The proposed study will take advantage of our contacts with a network of domestic and international HSR scholars and practitioners (that we also have utilized in our previous research projects) to help us identify the most successful international examples of HSR blended systems. We will then study these successful examples of HSR inter-modality. Our purpose is to identify and compare different models of blended systems and draw lessons from the ways they have addressed infrastructural, operational, and spatial challenges. The research team believes that most of the case-study stations will be in Germany and Spain – two countries with dense HSR networks operating in largely shared-use tracks. Additionally, the research intends to study two major multi-modal transit stations in California – Transbay Terminal in San Francisco and Union Station in Los Angeles – to understand their current capacities and operations, and to better appreciate how lessons from international contexts can be adjusted to California realities. Both facilities and their surrounding districts are currently undergoing extensive re-envisioning and master planning processes to optimize access, transit operations, and capacity; to intensify land use in the surrounding area; and to plan for the future arrival of HSR service.



Transportation Construction Work Zone Safety Impact on Time-Related Incentive Contracting Projects

Project 1224 (MTI Seed Grant)

Principal Investigator: Jae-Ho Pyeon, PhD

The Federal Highway Administration (FHWA) strives to improve work zone safety. At the same time, the FHWA endeavors to enhance the US transportation system by continuously improving the early delivery of highway construction projects encouraging state transportation agencies (STAs) to implement time-related incentive contracting for early completion of time-sensitive highway construction projects, including urban rehabilitation and reconstruction. In many states, including California, the STAs have successfully implemented incentive contracting methods. While there have been numerous studies published regarding time performance of the incentive contracting projects, as yet there has been no quantitative research to measure the safety performance of expedited incentive construction projects. It is unknown whether or not a contractor's accelerated work schedule under incentive contracting has a positive or negative impact on work zone safety performance. Thus, this project will focus on investigating the statistical relationship between time-related incentive road construction projects and the frequency of vehicle crashes in California.



Great East Japan Earthquake: A Case Study of the JR East Mitigation Successes

Project 1225

Principal Investigator: Frances Edwards, PhD

MTI will use its resident expertise in rail seismic safety, security, and emergency management to examine best practices for addressing the mitigation against earthquake damage of critical components of high-speed rail: customers, employees, equipment, infrastructure, and operations. It will collaborate with Japanese Railway East's (JR East) research laboratory, PEER, CUREE, and the California Seismic Safety Commission to examine the types of seismic sensors, structural mitigation, and staff training that have been used by JR East and compare them to technologies and practices available and applied in the United States. While seismic sensors have been used in the United States for stationery applications such as hospitals and fire stations, and a few rail transit systems like BART, the United States is a novice in high-speed passenger rail operations in seismically active areas. Japan has been operating high-speed rail systems for decades, and has learned a great deal about seismic safety, security and emergency management through research and experience.

This effort will review the JR East experience with developing enhanced seismic safety through the development and application of seismic sensors to manage train operations in seismic zones, of JR East's application of lessons learned from the Kobe Earthquake about structural mitigation for infrastructure components, and of training for JR East employees on emergency response during seismic events. This information will be used to identify best practices for rail seismic safety, security, and emergency management that can inform the development, design, construction and operation of the California high-speed rail system. This will help avoid costly errors and retrofits both operationally and technologically.



International Lessons for Promoting Transit Connections to High-Speed Rail Systems

Project 1226

Principal Investigator: Stan Feinsod

Intercity and High-Speed Rail Services provide trunk line rail service between major cities and, in some cases, rural activity centers. The success of these trunk line services rests on their quality, frequency and reliability. However, they also depend on the quality and the amount of connecting linkages established at stations and major terminals with other modes of transportation. This creates a connected transportation system and the connectivity attributes of the high-speed and intercity passenger rail lines is crucial for their success. In each local community the ability to feed and distribute riders safely, efficiently, and quickly will make the entire system more attractive and result in the maximum number of riders.

This project will establish benchmarks by population size of connectivity for these types of services based on a world-wide review of connections on existing services. Once benchmarks are available, they will be applied to three examples of differing population sizes along the California high-speed rail project alignment. These examples will serve as a model for all of the stations on the project to establish planning and implantation processes to advance connectivity.



Automated Transit Networks (ATN): A Review of the State of the Industry and Prospects for the Future

Project 1227

Principal Investigator: Burford Furman, PhD

The objective of this study is to report on the state-of-the-industry of automated transit networks (ATN), which subsumes personal rapid transit (PRT) and group rapid transit (GRT), and potentially dual mode transit (DMT). The study is intended to be an informative tool for planners, urban designers, and those involved in public policy, especially for urban transit. It will be a tool for these professionals to look to for history and background on ATN and to use it for policy development and research.



Building Consensus and Partnerships for Implementing MAP-21's Section 5310 Program in California

Project 1229 (MTI Seed Grant)

Principal Investigator: Christopher Ferrell, PhD

The FTA Section 5310 Enhanced Mobility of Seniors and Individuals with Disabilities program will have significant changes under MAP-21 that could impact how it is administered – i.e., there are new percentages/splits that will be applied to this program (60 percent - Large UZA; 20 percent Small UZA; 20 percent Rural), and large UZAs will be given the option to be designated recipients, with the State's concurrence. Caltrans' Department of Mass Transit (DMT) has enlisted MTI to initiate and facilitate necessary statewide discussions with large UZAs and MPOs to see if they would like to seek responsibility for regional administration of the large UZA portion of the 5310 program beginning fiscal year 2014. Many questions surround this action that may dictate the path forward.



Passenger Flows in Railway Stations and Platforms

Project 1230

Principal Investigator: Anastasia Loukaitou-Sideris, PhD

Urban rail transit systems are designed to carry very large volumes of people into and out of major activity centers. As a result, the stations at these major activity centers are often very crowded with boarding and alighting passengers, resulting in passenger inconvenience, delays, and at times endangerment. This research will offer rail transit station designers and transit system operators guidance on how to best manage these passenger flows in stations. The objectives of the proposed research are: 1) to understand the particular infrastructural, operational, behavioral, and spatial factors that affect and may constrain passenger flows in different types of underground rail transit stations; 2) to identify, compare, and evaluate best practices for efficient, expedient, and safe passenger flows in different types of station environments and during typical (rush hour) and atypical (evacuations, station maintenance/refurbishment) situations; 3) to compile short-, medium-, and long-term recommendations for optimizing passenger flows in different station environments.



Managerial Segmentation of Transit Offerings

Project 1232 (MTI Seed Grant)

Principal Investigator: Steven Silver, PhD

A typically high level of aggregation in conventional analysis of urban commuting by transit agencies may be obscuring meaningful differences in sensitivity to the design of service offerings among sub-groups of work travelers. In many cases, service users are willing to pay more for designs that are closer to their needs and/or their preferences than the cost of differentiating the service.

This study proposes to identify market segment differences in importance of and satisfaction with attributes of travel offerings in a major suburban travel corridor and profiles and demographics of the segments. Multivariate methodology that improves on the measurement and efficiency in application will be implemented. Communication with managers will then be undertaken to inform on and support the application of methodology that is introduced.



Nexus Between Infrastructure and Accessibility

Project 1233

Principal Investigators: Stephanie DiPetrillo and Andrea Lubin

This project will seek to identify and explore through case study analysis successful strategies being employed by transit agencies in the United States to address infrastructure barriers impeding access to transit facilities by people with disabilities. The result will be a detailed report documenting the strategies identified through the case study analysis. The report will be written to provide guidance and recommendations to transit agencies seeking to address this significant concern that is limiting transit access to a specific transportation-disadvantaged population – namely, people with disabilities.





Analysis of the US Transit Bus and Paratransit Vehicle Manufacturing Industry

Project 1234

Principal Investigator: David Czerwinski, PhD

The challenge of maintaining profitability in the US bus transit and para-transit vehicle manufacturing industry threatens to undermine innovation that could lead to improved vehicles, higher vehicle quality, and more cost-effective manufacturing methods. The goal of this research is to identify means of improving the health of the industry to promote investment in R&D. To this end, the researchers will seek to understand the structural factors and government policies (at the federal, state, and local levels) that impact the industry. The methodology will include literature review, a cross-industry comparison, and interviews with key industry and government stakeholders. The output of this research will be a report detailing the findings, a list of policy recommendations, and identification of additional research needs.



Developing Public-Private Partnerships for Improving Regional Mass Transit Services in the United States

Project 1235

Principal Investigator: Hokey Min, PhD

In times of budget cuts and government downsizing, the mass transit authority alone cannot create needed financial and human resources. As a viable strategic alternative, this project proposes the development of public-private partnerships (PPPs) that can help the mass transit authority reduce its financial burdens to expand and sustain capital-intensive mass transit systems. The PPP also makes sense for private enterprises because many of their employees and customers are likely to use mass transit systems for commute, social, and business related activities. Indeed, private enterprises supported by PPPs can yield significant managerial benefits through improved transportation infrastructure, higher supply chain velocity (e.g., shorter lead time), greater public exposure, and economic spillover effects resulting from capital investment in the mass transit system. Considering the synergistic benefits of PPPs, this proposed project will develop viable planning policy guidelines which can help the transit authority better exploit PPP opportunities, effectively manage its revenue streams, and make the best use of government funds and taxpayers' monies while assessing the various impacts of PPPs on mass transit systems and the regional community's socio-economic welfare.



Understanding and Building Public Opinion Regarding Transit in Southeastern Michigan

Project 1236

Principal Investigator: Claudia Bernasconi, PhD

This study will investigate public knowledge, opinions, and attitudes towards transit in Southeastern Michigan. Understanding differences in the perceptions of diverse population groups in the region will help lead to the development of recommendations for effective transit educational efforts.

To that end, public opinion and attitudes toward transit will be measured in relation to exposure to travel behavior and needs, and to socio-demographic characteristics of identified population groups. The study will explore the public's willingness to take certain actions to improve transit sustainability. The public's perspective will be examined through the design, administration, and analysis of a comprehensive public opinion survey. The results from the survey will allow for the definition of priority content (messages) and methodologies for effective transit educational campaigns.



Economic Benefit of Bus Rapid Transit (BRT) in Southeast Michigan

Project 1237

Principal Investigator: Utpal Dutta, PhD

Within the next couple of years, residents of Michigan, particularly southeast Michigan, will be able to consider Bus Rapid Transit (BRT) as an option for a rapid travel mode. While the planned BRT will be an asset to southeast Michigan's public transit system, the economic impact of this service has not yet been quantified. There is a need to identify and evaluate the potential benefits the BRT regional transit brings to the economy of southeast Michigan.

Using existing literature, case studies from other regions, published report metrics, and input from professionals, the researchers will identify specific factors to be measured over time and will develop a "framework for evaluation."

The difference in economic impact between BRT "light" (Bus Rapid Transit in mixed traffic, street level boarding, and no signal preemption) and BRT "heavy" (Bus Rapid Transit in a dedicated right-of-way with level boarding and signal preemption) will be considered. If there is a variation in the degree of economic impact, that difference will be measured and reported. With a measured value for economic impact, a comparison can be made to the capital cost and the economic benefit of each form of BRT.



Remanufacturing, Repurposing, Recycling and Disposal of Batteries Powering Public Transit Vehicles

Project 1238

Principal Investigator: Charles R. Standridge, PhD

An industrial-academic partnership to address issues regarding the effective processing of end-of-vehicle-life lithium-ion batteries has been formed between researchers at Grand Valley State University (GVSU) and Sybesma's Electronics in Holland MI. The goal is the development and commercial implementation of a center of excellence for testing, remanufacturing, repurposing, and recycling such batteries.

Remanufacturing provides batteries for vehicles at a lower cost than original equipment, thus making the use of such vehicles more economical. If remanufacturing can no longer bring the battery back to vehicle operational standards, then alternative stationary energy storage applications (repurposing) can extend battery application life and further lower cost. Recycling provides for the environmentally friendly disposal of batteries that can no longer hold a charge and, thus, are not suitable for vehicle or stationary applications.



Development of Bus-Stop-Time (Or Dwell Time) Models in Dense Urban Areas Using Automated Data: A Case Study in Washington DC

Project 1239

Principal Investigator: Stephen Arhin, PhD

The overall reliability of a transit bus system depends on several factors along the route of travel. This includes, but is not limited to, scheduled arrivals, traffic congestion, weather conditions, dwell times at bus stops, and number of passengers onboard. Dwell time at bus stops represents a significant portion of en route bus operating time and contributes to its variability and reliability. For planning and scheduling purposes, there is a need to know or to be able to estimate the total time that buses spend at bus stops, not just the time between the opening and closing of doors. The extra time consumed in awaiting the opportunity for a safe maneuver from a bus stop is an important element in urban bus transit schedule development. That extra time, plus the dwell time, is being referred to as the total bus-stop-time (TBST), which is likely to be affected by bus-specific activities and systems and by traffic operational conditions.

This research will determine the extent to which bus transit reliability along heavily traveled routes in Washington DC is affected by dwell time and TBST, and will identify measures to improve reliability. The research team is collaborating with Washington Metropolitan Area Transit Authority (WMATA) in obtaining the data for the research in addition to field data collection.



Finances and Transit: A Historical Case Study of the New York Metropolitan Transportation Authority

Project 1241

Principal Investigator: Robert B. Noland, PhD

This project will document the historical trends of transit finance in New York City from the 1980s to present. The main goal of the project is to understand the technical and political challenges faced in several eras of transportation finance, as well as the attempted fixes employed to correct perceived and real fiscal problems. The result of this project will be a detailed report on the policy decisions taken to resolve fiscal challenges and an assessment of their relative effectiveness in addressing the challenges the policies were established to address. The report will also highlight the unintended consequences of these policies in giving rise to new fiscal challenges.



Performance Measures to Assess Efficiency and Resilience of Transit Systems

Project 1242

Principal Investigator: Hani Nassif, PhD

Transit agencies, like other transportation agencies, are interested in assessing their short-, mid- and long-term performances with the objective of making better decisions that will enhance efficiency and resilience. This project proposes a holistic approach to this problem by developing different sets of performance measures for infrastructure, transit and agency operations. The research team will use various data-driven models to quantify a series of performance measures. Different performance measures will be developed for different objectives ranging from day-to-day operations to long-term planning, monitoring, and maintenance of transit infrastructure.



Behavioral Analysis of the Impacts of Hurricane Sandy in New Jersey

Project 1243

Principal Investigator: Robert B. Noland, PhD

This project will collect New Jersey statewide general population data, using Hurricane Sandy as the touchstone event, to explore major hazard events response and preparation. Specifically, evacuation planning and capacities will be documented; respondents' experiences with regard to transit disruption will be reported; attitudes, interests, and preferences with regard to New Jersey shore redevelopment in terms of infrastructure, housing, and financing will be assessed. Moreover, this study will gauge perceptions of "superstorm" events such as Sandy and, previously, Hurricane Irene as they relate to attitudes about global climate change.



A Longitudinal Assessment of Social Networks' Effect on Mode Choice

Project 1244

Principal Investigator: Michael Smart, PhD

This project will examine how social networks embedded in neighborhoods influence the mode choice of certain population groups: immigrants, the elderly, and same-sex partnered households. The project will focus on understanding the increased propensity of these groups to use public transit in environments with dense social networks.

Non-confidential, non-geocoded data from the PSID will be examined (as will the confidential, geo-coded version of the data) to determine whether living in particular neighborhoods with members of one's own cultural group influences travel patterns.



Experimental Modeling of NO_x and PM Generation from Combustion of Various Biodiesel Blends for Urban Transport Buses

Project 1245

Principal Investigators: Ashok Kumar, PhD and Dong-Shik Kim, PhD

There is very little information about how the use of biodiesel fuel affects the composition of the emitted particles. The ability to model the combustion kinetics is still in the development stage. This is of concern because combustion strategies that are currently being developed are based more on fuel properties than on actual combustion mechanisms that directly affect engine performance and emissions. Combustion largely depends on temperature, so the combustion will be studied in low temperature in addition to standard conditions. In the proposed research, biodiesel combustion experimental modeling will be attempted to understand biodiesel potential for the present world. The biodiesels are manufactured from soybeans, animal fats, waste oils, and algae. Depending on the applications, some biodiesels are blended with diesel 0, 10, 20, 50, 80, or 100 percent. Due to these variations, the emissions vary. Accordingly, the engine design and operation conditions must be adjusted to optimize engine performance and to reduce harmful emissions. The study will focus on oxides of nitrogen (NO_x) and particulate matter (PM) formed and released during combustion. Because, in general, biodiesel produces more NO_x than diesel does, its production mechanisms will be more deeply investigated for better pollution control.





Estimating Uncertainty of Bus Arrival Times and Passenger Occupancies

Project 1246

Principal Investigator: Vikash V. Gayah, PhD

Public transportation users typically identify reliability as a key measure of transit service quality and a major determinant of transit use. Improving transit system reliability can have numerous potential benefits: increased transit ridership, decreased congestion (which further improves transit reliability), and decreased negative externalities like greenhouse gas and other emissions. Unfortunately, transit systems are highly unstable, making it difficult to maintain reliable schedules. To mitigate this, real-time information on the transit system can be used to update transit schedules (e.g., bus arrival times to each stop), increasing users' perceptions of system reliability. However, a potential drawback is that the information can provide a false sense of precision. That is, users expecting a certain arrival time based on real-time information can develop even more negative feelings about the transit system if the bus is earlier or later than expected. A better approach might be to also provide users an indication of the predictions' uncertainty. This would help users plan trips more effectively and minimize negative experiences.

In light of this, the research seeks to develop models that provide estimates of how the system will evolve and the uncertainty of these estimates. Two metrics will be considered: bus arrival times, and passenger occupancies upon bus arrival to each stop. These models will use historical data on bus arrival times and passenger loadings throughout a transit system and merge this information with real-time data collected using Automated Passenger Counters and Automatic Vehicle Location systems. Bus arrival times will be modeled using traditional regression techniques and survival models that can estimate the distribution of potential bus arrival times. The latter technique will be used to estimate the expected arrival time as well as its uncertainty. Bus passenger occupancies and their uncertainty will be modeled using regression techniques and count models. In addition, the study will investigate ways of visualizing these uncertainty estimates that minimize information overload and maximize usefulness to transit users. The results of this work will be useful to transit agencies wishing to improve the quality of information provided to passengers and to increase the perceived level of system reliability. It will also be useful to academics modeling the behavior of transit systems.



Safety of Lithium Nickel Cobalt Oxide Battery Packs in Transit Bus Applications

Project 1247

Principal Investigator: Timothy Cleary

This study will investigate the potential risks of integrating an advanced chemistry battery into a transit bus. An emphasis will be placed on covering battery management systems and their ability to effectively prevent and anticipate failures resulting in thermal events during nominal operation. The research team will also investigate and validate structural solutions to protect large-format NCA battery packs in transit bus crashes. This research will include the analysis, simulation, and real-world validation of traction/SLI battery systems. Through this analysis, protective design concepts will be proposed to ensure the safety of passengers and pedestrians during and after a crash.

Compatibility of system shock and vibration fatigue requirements will be considered. The team will also evaluate available fire suppression system performance during these crash events.

This process will also be presented as potential standard for battery integration into transit vehicles.



MTI NATIONAL TRANSPORTATION SAFETY AND SECURITY CENTER



**Brian Michael Jenkins**

Director

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Mr. Jenkins has directed MTI's National Transportation Safety and Security Center and its continuing research on protecting surface transportation against terrorist attacks since 2004. 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.

He earned a BA in fine arts and a masters' 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?*



Frances Edwards, PhD

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Dr. Frances L. Edwards is the Deputy Director of the National Transportation Safety and Security Center (NTSSC), a Research Associate and an Instructor in the Master of Science in Transportation Management (MSTM) degree program at MTI. She is also a Professor of Political Science 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 a Member of the Transportation Research Board's Critical Infrastructure Protection Committee ABE 40.

Dr. Edwards is Co-Author with Research Associate Dan Goodrich of *Introduction to Transportation Security*, and with Friedrich Steinhausler of two books in the NATO Science Series on terrorism threats and response. She is the Principal Investigator or Co-Author of eleven MTI reports. She also authored numerous chapters for text and professional books, most recently on the impact of the 9/11 attacks on transportation systems, and on the California Seismic Safety Commission's hazard mitigation role with Dan Goodrich.

She has written more than 30 professional journal articles, most recently on post-disaster homelessness for *The Public Manager*, and cross border disaster response issues in *Journal of Contingency and Crisis Management*. 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 is a Certified Emergency Manager (IAEM) and a Professional Continuity Practitioner (FEMA). 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.

Overview

In 2004, with the approval of its Trustees, MTI established the National Transportation Security Center (NTSC) funded jointly by US DOT and Caltrans grants. In 2007, MTI became part of the new National Transportation Security Center of Excellence (NTSCOE), a consortium of seven universities and research centers created by the Department of Homeland Security (DHS). Funding concluded in 2012, when the NTSCOE program was no longer funded by DHS.

Near the end of 2012, the Center's name was changed to the National Transportation Safety and Security Center (NTSSC) to accurately reflect the broader scope of MTI's research. This includes all threats – not only terrorism, but also natural disasters, accidents, operational emergencies, and other hazards prioritized by the Federal Transit Administration under the new MAP-21 legislation. Specifically, FTA is ushering in a new era for transit safety, and it is committed to working with state leaders to strengthen and help fund robust state safety oversight agencies to carry out this vitally important mission. MTI is already in a position to support that mission.

In addition to Brian Michael Jenkins and Dr. Frances Edwards, the primary NTSSC 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 four decades of government experience. The primary team is assisted by a group of specialists and consultants recruited worldwide.

MTI's NTSSC 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.

MTI's NTSSC 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 the lessons; and to identify best practices. Its research is empirical and 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. MTI's NTSSC 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.

As during the period covered by the last annual report, a high priority for the NTSSC was to improve its computerized database – a compendium of attacks on public surface transportation targets, which grew to 4,139 as of December 31, 2013, up from 3,952 at the end December 2012. The objective of the work is to make it more rapidly responsive, more powerful, and web-based accessible to DHS users. After a hiatus of funding since the end of 2011, the Transportation Security Administration's Office of Intelligence (Division of Intelligence Analysis) awarded MTI a contract in August 2013 to update the database, bring it online for TSA and DHS use, and expand it to include attacks against passenger ferry and pipeline targets. Quarterly reports based on this data will be provided to government and industry.

To that end, 460 attacks against bus, train, track, and road targets were recorded between December 31, 2011 and December 31, 2013. Additionally, the database was expanded to include 416 attacks against pipeline targets and 36 attacks against passenger ferry targets. The expansion of the database to include pipeline and passenger ferry targets involved many new values – most importantly, 29 new values for targets, two new values for attack methods, and 15 new values for the delivery and concealment of explosive devices. All required new meta-data rules and studied judgment.

The NTSSC staff also took the initiative to further strengthen the databases analytical capabilities by adjusting and adding 25 additional values, focusing on vehicle-borne improvised explosive devices (VBIED), suicide attack methods, and the coding to determine which attacks were intended to derail a train.

Finally, the addition of new and more definitive categories of attackers required a group-by-group, description-by-description (where a group wasn't identified), and country-by-country analysis of each attack so the database now can be culled to determine which attacks were carried out by tribal, secular/political/anarchist, and jihadist terrorists or guerillas, as opposed to criminals or unaffiliated individuals.

The result has been an improved database with increased analytical power for the NTSSC to use in its work, and for TSA's Office of Intelligence to mine for its own trends. The database remains a key in NTSSC's delivery of different analyses that include not only qualitative but supporting quantitative analyses.

Activities

In August 2013, Dr. Edwards and Research Associate Dan Goodrich represented NTSSC at the Transportation Research Board's Transportation Hazards and Security Summit in Irvine CA. Dr. Edwards and Mr. Goodrich presented their research on Continuity of Operations as a panel ("Role of COOP in Preparing for Disaster Resilient Transportation: Building the COOP Plan" and "Role of COOP in Preparing for Disaster Resilient Transportation: COOP Implementation Plan for Transportation Resiliency"). They also had an interactive poster session on their exercise handbook research in which they collected feedback from attendees on the draft of the checklists and scenarios.

Dr. Edwards and Mr. Goodrich completed the *Exercise Handbook: What Transportation Security and Emergency Preparedness Leaders Need to Know to Improve Emergency Preparedness*, Report 12-08, which provides the first comprehensive guidance for the development of a Homeland Security Exercise and Evaluation Program (HSEEP) –compliant exercise cycle written specifically for transportation sector organizations. The publication contains two sections. The first is a research report that explains the evolution of the Department of Homeland Security's (DHS) guidance and policies for the development of disaster preparedness, including the first complete analysis of the changes to homeland security implementation growing out of Presidential Policy Directive-8 (PPD-8) and the issuance of the new frameworks for all phases of emergency management.

The second is a comprehensive exercise handbook for the transportation sector, using the project management approach, which includes specific guidance for all segments of the HSEEP exercise cycle. It includes the first transportation-specific exercise checklists, potential exercise objectives, and scenarios for each type of exercise based on actual transportation emergencies. It includes a complete set of home and personal preparedness materials for transportation workers and their households. Also included are acronym lists, glossaries, customized forms, and an example after-action report and implementation plan. It ends with an eight-page section on "Points to Consider: Advice from the Experts" to guide exercise designers. The bibliography includes URLs for HSEEP, DHS, and FEMA resources.

During the reporting period, Dr. Edwards was the invited keynote speaker for the University of New Orleans' Disaster Resistant University conference, where she addressed "Campus Roles in Emergency Management," which grew out of her research for MTI Report 08-06. She also delivered presentations at the American Society for Public Administration in New Orleans on "Katrina Recovery and Social Capital: Successes and Failures on the Road Home," "New Orleans: What's Changed since Hurricane Katrina? Lessons in Resiliency," and "Sea Level Rise and Emergency Management Policy Implications."

Mr. Goodrich discussed "Disasters and Development: California's Seismic Safety Commission," a presentation based on interviews with MTI Executive Director Rod Diridon, who was an early staff member of the Commission. Dr. Edwards and Mr. Goodrich also gave a poster session at the Natural Hazards Workshop on "Getting Back on the Road: Exercise Handbook for Transit and Transportation Agencies" based on their research for Report 12-08. She was interviewed by media outlets on emergency management topics, including the *New York Times* on the West TX disaster.

Dr. Edwards also wrote two case studies on transportation and emergency management for a graduate case book by Westview Press, one using research on 9/11 that was developed through MTI and the other on the Baltimore Tunnel fire using research that she developed for the MTI master's degree class at MTI. She wrote two chapters in an international emergency management textbook by Taylor & Francis, "Mitigation versus Prevention: A View from the Local Government Level," and "Emergency Management for Radiological Events: Lessons Learned from Three Mile Island, Chernobyl and Fukushima Reactor Accidents," and a third chapter, "Improvised Explosive Devices," co-authored with Mr. Goodrich, which grew out of his research for the MSTM class that he teaches at MTI. Dr. Edwards also had an article on seismic early warning systems in Southern California published in the *PA Times*.

Dr. Edwards and Mr. Goodrich represent MTI on the university's Cyber Security Committee, where they are helping to develop curriculum for a graduate level certificate program. Dr. Edwards is also a member of the Transportation Research Board Critical Infrastructure Protection Committee, and Mr. Goodrich is the alternate member. She is also a member of the editorial board for the *Journal of Transportation Security* and a peer reviewer for a number of professional journals, including the *Natural Hazards Review* of the American Public Works Association.

International Activities

On the international stage, Dr. Edwards gave presentations to leadership program students from France on threats and emergency management in California and on the government's approach to emergency management to officials from Shandong China. When a delegation from the Chinese Ministry of Transportation visited MTI, she spoke about her current research on seismic early warning systems.

Dr. Edwards and Mr. Goodrich are researching those early warning systems in Japan and California, with a focus on the successful application to the JR East high-speed rail system during the March 2011 triple disaster in Japan.

NTSSC Research Findings Summary

Terrorists remain obsessed with attacking commercial airliners, as evidenced by the attempt in December 2009 to sabotage a Northwest airliner flying between Amsterdam and Detroit, and the November 2010 attempt to detonate bombs in an all-cargo aircraft flying to the United States. However, public surface transportation is a more accessible killing field that is actively targeted by terrorists.

As of June 30, 2013, terrorists had carried out 78 terrorist attacks on airliners and airports (outside of the war zones in Iraq, Afghanistan and Somalia) since 9/11, about which data could be found. A good many of these caused no casualties and were, for example, rocket, mortar, or small arms attacks against commuter airports in Southwest Asia. Only six attacks delivered any fatalities, resulting in a total of 157 killed and 357 injured, yielding an average lethality per attack of 2.0 deaths. Taking the two most lethal attacks – twin suicide bombings of Russian airliners in 2004 – lethality per attack was 44 deaths.

Although there have been attacks on some airlines, it is attacks on transit systems that have been extensive. During the period from September 11, 2001 to December 31, 2013, terrorists carried out approximately 2,515 attacks against public surface transportation worldwide, resulting in 5,220 deaths and 17,106 injuries. (There were also 416 attacks against pipelines since 2008, attacks that generally result in few fatalities or injuries.) The average lethality per attack was proportionately higher than in aviation. For buses it was approximately 3.1 deaths; for passenger trains, it was 2.2 deaths; and for passenger ferries, four attacks yielded an average figure of 29 deaths per attack. Thus, there were proportionately more attacks on transit systems, which yielded a higher lethality rate than the attacks on airlines. In discussing the number of people killed, 12 attacks killed 50 or more people. In three of these attacks, the death toll climbed to just below 200. If one were to translate these 12 attacks into transport category hull losses, it would equate to eight airliners lost since 9/11 – a startling finding.

Many of the attacks on surface transportation (including some of the most spectacular) were carried out by individuals and groups connected with the global jihadist terrorist campaign. These include the March 2004 bombing of commuter trains in Madrid, which killed 191 people; the February 2004 attack in Manila against a passenger ferry, which killed 116; the July 2005 bombing of three London subway trains and a bus, which killed 52; the July 2006 attack on commuter trains in Mumbai, which killed 207; and most recently, the March 2013 attack by Boko Haram in Nigeria against a bus station, killing 41. However, other groups, from Palestinian resistance factions in the Middle East to Tamil separatists in Sri Lanka, have also carried out devastating attacks. For example, in May 2010, Maoist guerrillas in India derailed a passenger train onto the tracks of an oncoming freight train, killing 148 people.

NTSSC Analysis of Jihad versus Non-Jihad 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. The analysis revealed just how lethal jihadist attacks have been. The report identified that 71 percent of non-jihadist attacks resulted in zero deaths, and only 1.8 percent killed 25 people or more. In attacks on Western or analogous cities, 85 percent resulted in zero deaths, and 2.7 percent killed 25 people or more, a factor attributable to the inclusion of jihadist attacks in Madrid, London, and Moscow.

In contrast, only 38.5 percent of jihadist attacks resulted in zero deaths, 8.3 percent killed 25 or more people, and 5.2 percent killed 50 or more people. Even more interesting, this lethality is high even when compared with attacks in Israel and Sri Lanka, the scenes of very deadly campaigns (54.2 percent killed zero people, 2.2 percent killed 25 or more, and only 1.1 percent killed 50 or more). Finally, compared with attacks in Sri Lanka, which are probably the most bloody in MTI's database, jihadist attacks are still more lethal – 43.9 percent of attacks (compared to 38.5 percent for jihadist attacks) resulted in zero deaths, 7.3 percent killed 25 or more (compared to 8.3 percent for jihadist attacks), and 3.7 percent killed 50 or more (compared to 5.2 percent for jihadist attacks).

Continued Investigation of Terrorist Behavior against Transit

The statistics of attacks against transit systems have been organized, monitored, updated, and analyzed through the NTSSC/MTI *Database on Terrorist and Serious Criminal Attacks Against Public Surface Transportation*. As indicated, this database has the capability to monitor trends in terrorist activity against transit systems. This information has been organized to aid in the decision-making process related to suitable security responses.

Discussing general trends in terror activity between January 1, 2013 and December 31, 2013, there have been 187 recorded incidents of terrorism – although the true number is probably much higher and will be revealed when more detailed sources of attacks release their data, which MTI uses. These attacks have resulted in approximately 1,266 total casualties – 366 killed, and 900 injured.

In this period, the two most lethal attacks occurred in Kano Nigeria and in Mussayab Iraq (60 kilometers south of Baghdad). In both attacks, suicide bombers used VBIEDs against bus stations. The attack in Kano was carried out by Boko Haram, a jihadist group, killing 41. The suicide attack in Mussayab was carried out by a terrorist group targeting Shia Muslims at a station, killing at least 27. Notable activity continues to occur in various regions of Pakistan, as well as in other countries, in which buses have been predominately targeted for attack.

The year ended with attacks that received far more attention – the suicide bombings on December 29 and 30 against a train station and a bus trolley in Volgograd in the Russian Federation. The attacks, carried out by a terrorist group known as the Caucasus Caliphate, killed a combined total of at least 32. (At the start of 2014, Mr. Jenkins and Mr. Butterworth will publish an article prompted by the Volgograd attacks entitled, “By the Numbers: Russia’s Terrorists Increasingly Target Transportation.”)

The MTI database provides both up-to-date and historical information on terror activity against transit systems. Most recently, information from the database has been organized to assess characteristics of the attacks, such as the time of day and most common day of the week.

Terrorist Plots

NTSSC also actively analyzes patterns pertaining to terrorist plots against transit systems. Terrorist plots abroad include a plot to attack 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, public surface transportation systems in the United States have also been the targets of a number of terrorist plots, 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 through 2008 as MTI began to assemble its database, starting with its own seminal chronologies, and then maturing more with the help of NTSCOE funding.

Security Projects Completed from Fiscal Year 2009-10 through Calendar Year 2013

The following projects were described in more detail in prior annual reports. They are listed here in order of project number to ensure that all completed projects are acknowledged.

Emergency Management Supplemental Report

Project 2727-2

Publication WP 10-01

Investigators: Frances Edwards, PhD and Daniel Goodrich

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

Bus Operator Awareness Research and Development Training Program: Phase II

Project 2875-II

Investigators: Chris Kozub and Brian Michael Jenkins

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

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

Investigators: 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

Mass Transit Bus Operator Behavioral Awareness Training Program

Project 2982-II

Publication N/A

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

Continuity of Operations/Continuity of Government for State-Level Transportation Organizations

(Former Title: MTI NTSCOE: NIMS/COOP/COG Applications and Implementation for State Transportation Agencies: Best Practices)

Project 2976

Publication 11-02

Principal Investigator: Frances Edwards, PhD

Security Awareness for Public Bus Transportation: Case Studies of Attacks Against the Israeli Public Bus System

(Former Title: Mineta Transportation Institute Database of Terrorists Attacks against Public Surface Transportation: Chronologies)

Project 2978

Publication 11-07

Investigators: Bruce Butterworth, Shalom Dolev, and Brian Michael Jenkins

Carnage Interrupted: An Analysis of Fifteen Terrorist Plots against Public Surface Transportation

(Former Title: Terrorist Attack Annual Trends Analysis)

Project 2979

Publication 11-20

Investigators: Brian Michael Jenkins and Joseph Trella

Formulating a Strategy for Securing High-Speed Rail in the United States

(Former Title: Safety and Security Best Practices for High-Speed Rail Systems)

Project 1026

Publication 12-03

Investigators: Brian Michael Jenkins, Chris Kozub, Bruce Butterworth, Renee Haider, and

Jean-Francois Clair

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

Publication N/A

Principal Investigator: Brian Michael Jenkins

Engagement of Minority Communities in Public Awareness Programs (EMCAPS)

Project 1078

Publication N/A

Investigators: Renee Haider

Practices in Wayside Rail Track/Transit Worker Safety Protection (TCRP Synthesis J-07/Topic SF-15)

Project 1079

Publication N/A

Investigators: Chris Kozub and Renee Haider

MTI currently has two security projects in-process. These are: *"Exercise Handbook: What Transportation Security and Emergency Preparedness Leaders Need to Know to Improve Emergency Preparedness"* (PI: Frances Edwards, PhD) and *"Transit and Passenger Rail Security: A Critical Assessment of What Works"* (PI: Brian Michael Jenkins). Project descriptions can be found in the Research section of this report.





MTI NATIONAL TRANSPORTATION FINANCE CENTER



Asha Weinstein Agrawal, PhD

Director

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Dr. Asha Weinstein Agrawal is Director of the MTI National Transportation Finance Center at San José State University. She also is an Associate Professor in the Urban and Regional Planning Department at San José State University.

Her research and teaching interests in transportation policy and planning include transportation finance, pedestrian planning, and transportation history. Her publications include “How to Pay for Transportation? A Survey of Public Preferences in California” with Jennifer Dill in *Transport Policy*; “Unraveling Equity in HOT Lane Planning: A View from Practice” with Gian-Claudia Sciara in the *Journal of Planning Education and Research*; and *Getting Around When You’re Just Getting By: The Travel Behavior and Transportation Expenditures of Low-Income Adults*, published by the Mineta Transportation Institute. A complete list of her publications can be accessed at www.sjsu.edu/faculty/weinstein.agrawal/

Dr. Agrawal earned a BA from Harvard University, an MSc from the London School of Economics and Political Science, and a PhD from the University of California Berkeley.

Overview

Recognizing the critical role that transportation finance plays in transportation policy-making, the Mineta Transportation Institute established its National Transportation Finance Center (NTFC). The NTFC funds research in cutting-edge practices in surface transportation finance and disseminates the results widely to aid policy makers. In addition, the NTFC helps to educate decision-makers, planners, and the public about current transportation finance debates and opportunities.

Within the large arena of transportation finance topics, the NTFC emphasizes research into “smart” finance options – revenue and finance tools that not only raise needed transportation revenues but also promote social goals such as environmentally sustainable transportation systems, congestion management, and social equity.

Activities

Funding Transportation Finance Research

One of the NTFC’s central activities is to foster research on transportation finance. During the 12-month reporting period, the Center published one new research report and the Center’s researchers have made nine presentations of MTI finance studies.

Completed Research Project

What do Americans Think about Federal Tax Options to Support Public Transit, Highways, and Local Streets and Roads? Results from Year Four of a National Survey

Project 1228

Publication 12-07

Principal Investigator: Asha Weinstein Agrawal, PhD

This report summarizes the results of year four of a national random-digit-dial public opinion poll asking 1,501 respondents if they would support various tax options for raising federal transportation revenues, with a special focus on understanding support for increasing revenues for public transit. Eleven specific tax options tested were variations on raising the federal gas tax rate, creating a new mileage tax, and creating a new federal sales tax. Other questions probed various perceptions related to public transit, including knowledge and opinions about federal taxes to support transit. In addition, the survey collected data on standard socio-demographic factors, travel behavior (public transit usage, annual miles driven, and vehicle fuel efficiency), and attitudinal data about how respondents view the quality of their local transportation system and their priorities for government spending on transportation in their state. All of this information is used to assess support levels for the tax options among different population subgroups.

The survey results show that a majority of Americans would support higher taxes for transportation—under certain conditions. For example, a gas tax increase of 10¢ per gallon to improve road maintenance was supported by 67 percent of respondents, whereas support levels dropped to just 23 percent if the revenues were to be used more generally to maintain and improve the transportation system. For tax options where the revenues were to be spent for undefined transportation purposes, support levels varied considerably by what kind of tax would be imposed, with a sales tax much more popular than either a gas tax increase or a new mileage tax.

With respect to public transit, the survey results show that most people want good public transit service in their state. In addition, two-thirds of respondents support spending gas tax revenues on transit. However, questions exploring different methods to raise new revenues found relatively low levels of support for raising gas tax or transit fare rates. Also, not all respondents were well informed about how transit is funded, with only about half knowing that fares do not cover the full cost of transit.

Technology Transfer Activities

A highlight of the NTFC's outreach activities was hosting a public forum in June at the Commonwealth Club of California, the "Mineta National Policy Summit on Transportation Finance: Catching up with the Rest of the World." This event began with a keynote address from Kathryn B. Thomson, Acting General Counsel for the US Department of Transportation and then moved to a panel of nationally prominent speakers: Flora Castillo, Chair of the American Public Transportation Association; Malcolm Dougherty, Director of the California Department of Transportation; Jeff Morales, CEO of the California High-Speed Rail Authority; and MTI's NTFC Director Dr. Asha Weinstein Agrawal. Mortimer Downey, retired US Deputy Secretary of Transportation, moderated the panel.

In addition to the Commonwealth Club event, NTFC Director Agrawal has spoken on her finance research at the Annual Meeting of the Transportation Research Board and events hosted by the American Public Transit Association, South Bay Transportation Officials, and San José State University. Other NTFC researchers have also been actively presenting their research results across the US and even internationally. Their speaking engagements include presentations at the 92nd Annual Meeting of the Transportation Research Board in Washington DC and the World Conference in Transportation Research in Rio de Janeiro.

In the press, NTFC researchers have been featured in industry press outlets including *Governing Magazine*, *Fleet Owner*, *Equipment World*, *StreetsBlog*, and *Better Institutions*. Director Agrawal was also one of six experts featured in a report published by the Council of State Governments, "Changing Face of Transportation Revenues," and her public opinion research has been cited in publications such as McGraw Hill Financial Global Institute's report *Strengthening US Infrastructure* and a report to the Texas Transportation Commission and Legislature titled *Mobility Investment Priorities Project: State Funding Initiatives*.



MTI NATIONAL HIGH-SPEED RAIL CONNECTIVITY CENTER



**Stanley Feinsod**

Director

Stanfeinsod@astound.net

Stanley Feinsod is a national leader in the rail, especially high-speed rail movement, and has over three decades of executive-level experience in rail system design and management. He was a founding member and continues to lead the APTA High-Speed Intercity Rail Committee and co-chair APTA's High-Speed and Commuter Rail Joint Legislative Committee. His complete bio is available in the Administration section of this annual report.

Overview

In January 2010, at the direction of the Board of Trustees, MTI established the National High-Speed Rail Connectivity Center funded jointly by US DOT and Caltrans grants. MTI has a long history, beginning in 1998, of studying HSR issues, has published 43 peer-reviewed research reports, and has hosted 12 Information and Technology Transfer national summits and regional forums generally related to this subject. Ten of the 43 completed publications directly relate to HSR connectivity, and four high-speed rail research projects are currently in-process.

Completed High-Speed Rail Research Projects

Implementation of Zurich's Transit Preferential Program

Project 9809

Publication 01-13

Principal Investigator: Andrew Nash

Best Practices in Shared Use of High-Speed Rail Systems

(Former Title: Shared Use of Rail Infrastructure by High-Speed Rail: Best Practices in Design and Operations)

Project 2113

Publication 02-02

Principal Investigator: Andrew Nash

A Consumer Logistics Framework for Understanding Preferences for High-Speed Rail Transportation

Project 2206

Publication 05-04

Principal Investigator: Kenneth Gehrt, PhD

High-Speed Rail Projects in the United States: Identifying the Elements for Success

Project 2304

Publication 05-01

Principal Investigator: Allison de Cerreño, PhD

High-Speed Rail Projects in the United States: Identifying the Elements for Success – Part 2

Project 2401

Publication 06-03

Principal Investigator: Allison de Cerreño, PhD

Exploring the Future of California's Transport System

Project 2614

Publication WP 07-03

Principal Investigator: Triant Flouris, PhD

Advancing High-Speed Rail Policy in the United States

Project 2905

Publication 11-18

Principal Investigator: Senanu Ashiabor, PhD

Safety and Security Best Practices for High-Speed Rail Systems

Project 1026

Publication 12-03

Principal Investigator: Brian Michael Jenkins

Estimating Workforce Development Needs for High-Speed Rail in California

Project 1027

Publication 11-16

Principal Investigator: Peter Haas, PhD

**Planning for Complementarity:
An Examination of the Role and Opportunities of
First-Tier and Second-Tier Cities along
the HSR Network in California**

Project 1030

Publication 11-17

Principal Investigator: Anastasia Loukaitou-Sideris, PhD

Ongoing High-Speed Rail Research Projects

Complete descriptions of the ongoing high-speed rail research projects can be found in the research section of this report.

**Developing Seamless Connections in the Urban
Transit Network: A Look Toward High-Speed Rail
Interconnectivity**

Project 1148

Principal Investigator: Hualiang (Harry) Teng, PhD

**Promoting Intermodal Connectivity at California's
High-Speed Rail Stations**

Project 1209

Principal Investigator: Anastasia Loukaitou-Sideris, PhD

**Great East Japan Earthquake: A Case Study of the
JR East Mitigation Successes**

Project 1225

Principal Investigator: Frances Edwards, PhD

**International Lessons for Promoting Transit
Connections to High-Speed Rail Systems**

Project 1226

Principal Investigator: Stan Feinsod

High-Speed Rail Management Certificate

To further advance the study of HSR connectivity, MTI established a High-Speed Rail Management Certificate as part of the graduate education program. Two masters level courses specific to high-speed rail connectivity were added to the 2010-11 academic calendar. The first provides an introduction to high-speed rail, including history, development, design, and related issues. The second presents an overview of high-speed rail operations, including management, finance, security, and other operational topics. The need for station-area transit connectivity is stressed in both courses.

A large number of graduate students have shown interest in this unique educational track that leads to the professional HSR Management Certificate or a full Master of Science in Transportation Management degree, with emphasis on high-speed rail stressing the need for multimodal connectivity. These and other MTI programs will evolve to meet the workforce needs identified by the North American High-Speed Rail Workforce Needs Assessment conducted by MTI, as requested by the California High-Speed Rail Authority and California State University System (<http://transweb.sjsu.edu/project/1027.html>).

MNTRC has an HSR-related cooperative research and outreach program. The University of Nevada Las Vegas cooperated with MTI on research and in presenting the massive TRB HSR Workshop on January 13, 2013 in Washington DC. Secretary of Transportation Ray LaHood keynoted the workshop, with Federal Railroad Administrator Joseph Szabo convening the session and introducing the Secretary. Following the keynote were six panel sessions with 26 of the world's top HSR experts. Videos of that event can be viewed at <http://transweb.sjsu.edu/MTIportal/events/gallery3.html>.

Additional information on the popular new MTI and MNTRC research center and education program will be provided in future annual reports as MTI continues to meet the needs of an ever-evolving national transportation system.



COMMUNICATIONS AND INFORMATION/ TECHNOLOGY TRANSFER





Donna R. Maurillo, MSTM

Director

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Donna Maurillo joined MTI in 2007, managing Information/Technology Transfer (ITT), such as symposia, forums, and public meetings. She also manages MNTRC and MTI communications vehicles, including the web site, annual report, media relations, social media, and other public outreach, and she manages MTI's memoranda of cooperation (MOC) with universities in other countries.

Director 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 150-member Rotary Club named her Rotarian of the Year, and she is incoming president for 2014. 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.

Director Maurillo earned her BA from UC Santa Cruz and delivered the commencement address. Most recently, she earned her Master of Science in Transportation Management (MSTM), and she holds counter-terrorism certificates. 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*.



Overview

The Communications and ITT function at MNTRC and 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 and/or MNTRC, 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 MNTRC research reports, which are published as hard copy, PDF and HTML documents. These may be downloaded at no cost from the MTI and MNTRC web sites.
- Information resources for a broad variety of transportation topics – available on MNTRC’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 MNTRC’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 MNTRC’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 MNTRC outreach, including web design, event planning, PowerPoints, photography, illustrations, charts, marketing materials, handbooks, and other products and services.
- Promotion of MNTRC and its products and services by way of social media such as Facebook, the MSTM Alumni LinkedIn page, the MTI LinkedIn page, Google+, Pinterest, and the @MinetaTrans news dissemination by way of Twitter.
- Management of Information Technology (IT) as it relates to in-office technology functions, such as network maintenance, hardware and software support, and related tasks.
- Management of Memoranda of Cooperation (MOC) with foreign-based universities and other entities.

Martin Luther King, Jr. Library

SJSU's Dr. Martin Luther King, Jr. Library has assigned Research Librarian Diana Wu to the transportation area. In addition to functioning as the librarian for the MTI collection and all other transportation issues, Ms. Wu is also a member of the MTI academic advisory committee, and the Research Associates Policy Oversight Committee (RAPOC).

The King Library is a joint-use facility with the City of San Jose Main Library. It collects more than 300 databases and more than 100,000 e-books in all disciplines. Many electronic resources, including engineering and business databases, are exclusively available to SJSU students who are currently registered in the Master of Science in Transportation Management program and to anyone with a valid SJSU ID. These e-resources are available 24x7 globally. Ms. Wu has close contacts with other transportation libraries, such as the Institute for Transportation Studies at UC Berkeley, and she provides a wide network of resources and assistance for students and researchers working on MTI projects.

This joint-use library is a place for lifelong learning. All users with a valid library card may access resources owned by the San Jose Public Library, including many useful business databases.

Forums and Summits

Each year MNTRC and MTI host 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 Connectivity Center, MTI again presented or co-presented at a number of events focusing on high-speed rail.

Except where noted, Director Maurillo managed each of the following forums and summits. Listed in chronological order, the events presented during the 12-month reporting period include:

MTI-Sponsored Forums and Summits

Economic and Social Impacts of High-Speed Rail

January 13, 2013 – Washington DC

Project 1363

Project Manager – Donna R. Maurillo, MSTM

As part of the Transportation Research Board (TRB) annual meeting, MTI presented a day-long Norman Y. Mineta Transportation Policy Summit featuring a keynote by US Transportation Secretary Ray LaHood and commentary by Federal Railroad Administrator Joseph Szabo. An estimated 300 transportation professionals attended.

The summit comprised six expert panels covering various facets of high-speed rail (HSR) in the US. Those facets included the current status of high-speed rail (HSR) in the US; financing mechanisms; unique challenges at the front end; design and operational integration; benefits of the system; and the status of international HSR systems.

Notable panelists and speakers included David Simpson, TRB's Intercity Passenger Rail Committee; David Kutrosky, Capitol Corridor; Rod Diridon, MNTRC/MTI; Stephen Gardner, Amtrak; Rick Harnish, Mid-West HSR Association; Dan Richard, California HSR Authority; Karen Hedlund, Federal Railroad Administration (FRA); Mortimer Downey, retired Deputy Secretary of Transportation; Robert Eckels, Texas Central HSR; Peter Gertler, HNTB; Sasha Page, IMG; Michael Melaniphy, APTA; Peter Haas, MTI; Stephanie Pinson, Gilbert Tweed Associates; Paul Toliver, Council of Minority Transportation Officials; Ed Wytkind, AFL-CIO Transportation Trades; Jeff Morales, California HSR Authority; Stan Feinsod, RATP and MTI; Brian Michael Jenkins, MTI; Armin Kick, Siemens; David Kutrosky, Central Corridor JPA; Drew Galloway, Amtrak; Charles Quandel, Quandel Associates; Patricia Quinn,

Downeaster; Tom Skancke, WHSRA; Jean-Pierre Loubinoux, International Union of Railways; Helio Mauro Franca, Brazilian Enterprise for Planning and Logistics; Anthony Perl, Simon Fraser University; and Eduardo Romo, Fundacion de Hierro Spain.

A seven-part video (one part for each panel session) is available for viewing at <http://transweb.sjsu.edu/MTIportal/events/gallery3.html>

TransForm California: Let's Get Moving, Silicon Valley

February 23, 2013 – San Jose CA

Project 1369

Project Manager – Donna R. Maurillo, MSTM

MTI was a co-sponsor of this one-day public participation conference addressing the problems of mobility in an increasingly traffic-congested world. More than 200 people heard speakers from 35 organizations address the challenges facing Santa Clara County residents.

The summit opened with a plenary session that addressed several facts and issues. Among them: One-third of Americans don't drive at all, but the nation's spending on transportation does not reflect this reality. Only 0.6 percent of the US federal transportation budget is allocated for pedestrian infrastructure. Transit riders are more physically active than the general population, averaging 19 minutes of walking per day during their commute. One-third of transit riders meet their daily minimum requirements for physical activity during their daily commute. Nearly 40 percent of the area's greenhouse gas emissions come from cars and light trucks, and preliminary deaths linked to particulate matter are at levels comparable to traffic accidents and second-hand smoke.

The plenary session was followed by 12 interactive break-out sessions on a variety of transportation and land use topics. The summit concluded with final remarks from San Jose Council Member Sam Liccardo. He outlined a variety of serious economic, environmental, and health challenges facing American society and urged the audience to work together to create positive changes in their communities.

Videos from the event may be accessed at <http://www.youtube.com/user/TransFormCA>

13th Annual Garrett Morgan Sustainable Transportation Competition

April 9, 2013 – Nationwide

Project 1361

Project Manager – Donna R. Maurillo, MSTM

Will tomorrow's transportation use the power of wind or sun? Can algae produce a viable alternative to gasoline? Could a flying bus make commuting easier? And how can transit services be delivered more profitably?

Those are some of the questions addressed during the annual Garrett Morgan Sustainable Transportation Competition. MTI works in concert with California's DOT (Caltrans) and the US Department of Transportation to plan and organize this curriculum that challenges middle-school students to think creatively about solving transportation problems. Each student receives a free workbook from MTI, which provides the entire curriculum, including quizzes and thought-provoking questions. Then the student teams create a project that they demonstrate during a live streaming video broadcast.

Students are excited to be introduced to transportation leaders during the broadcast. These have included Transportation Secretary Ray LaHood, retired Transportation Secretary Norman Mineta, Caltrans Director Malcolm Dougherty, AASHTO CEO John Horsley, APTA CEO Michael Melaniphy, MTI Executive Director Rod Diridon, and others.

Each team is judged not only on its project, but also on its presentation skills, professional demeanor, teamwork, and other essential factors. The winning school, Juan Crespi Middle School of El Sobrante CA, received a plaque and a \$1000 cash award. Second- and third-place teams received plaques. Participants from all teams received certificates personally signed by the Secretaries. The other participating schools included Eagle Prairie Middle School (two teams), Rio Dell CA; Morada Middle School, Stockton CA (two teams); St John the Baptist School, Irvine CA (two teams); Tupelo Middle School, Tupelo MS; Cardozo Senior High School, Washington DC (demonstration project only).

Emergency Management and the Role of Transportation

May 31, 2013 – New York NY

Project 1370

Project Manager – Frances Edwards, PhD

This training, sponsored by MTI, was given at Metropolitan College in New York City. The specific topics were student-driven, and the top three questions were addressed in depth. Topics included COOP/COG plans for transportation agencies (based on MTI research reports 2976 and 1080), the role of transportation in emergency response and recovery (based on MTI research report 2950), and the importance of exercises for transportation agencies (based on MTI research reports 2910 and 1103). Three faculty and 30 students attended. The training was conducted by MTI's National Transportation Safety and Security Center Deputy Director Frances Edwards, PhD, and MTI Research Associate Daniel Goodrich, who distributed research briefs describing the Institute's research reports, listed above. Those briefs included links to the full research reports on the MTI web site.

Transportation Finance: Catching up with the Rest of the World

June 21, 2013 – San Francisco CA

Project 1366

Project Manager – Donna R. Maurillo, MSTM

In this annual event at the Commonwealth Club of California, MTI presented an update on its research regarding America's attitudes about transportation infrastructure funding and finance. A panel discussion followed before a group of about 225 people. Moderator was Mortimer Downey III, Former US Deputy Secretary of Transportation.

A keynote, delivered by Kathryn Thomson, Acting General Counsel for the US Department of Transportation, opened the program. She was introduced by retired US Secretary of Transportation Norman Mineta. Following her keynote, an expert panel addressed the challenges facing transportation infrastructure funding and finance.

The experts' panel included Dr. Asha Agrawal, Director, Mineta Transportation Institute's National Transportation Finance Center; Flora Castillo, Chair of the American Public Transportation Association (APTA) and Board Member of New Jersey Transit; Malcolm Dougherty, Director of the California Department of Transportation (Caltrans); and Jeff Morales, CEO of the California High-Speed Rail Authority.

Dr. Agrawal, reporting from her recent national telephone poll, said that Americans indicated a lack of support for taxes or fees if they were earmarked only for transportation in general. However, if those taxes were given specifically for "green" purposes, such as reducing global warming, then respondents were significantly more favorable. Dr. Agrawal cautioned that if governments wish to raise revenue for this purpose, they must word the proposed legislation very carefully. The research results did not change when compared to the previous three surveys, indicating that people's attitudes have remained rather stable.

The panelists discussed various aspects of US transportation, including transit ballot initiatives; the situation with federal transportation legislation; the condition of the Highway Trust Fund; the viability of highway tolls; and other issues affecting the condition of America's transportation infrastructure. A Q&A period followed.

The National Public Radio broadcast is available at <http://goo.gl/Oo0EDF> for the keynote and at <http://goo.gl/sdnkqi> for the panel discussion.

Public Sector Innovation Workshop

June 28, 2013 – El Segundo CA

Project 1368

Project Manager – Donna R. Maurillo, MSTM

MTI co-sponsored this one-day workshop addressing the ways that public agencies can leverage transportation innovation while minimizing financial risk. A capacity crowd of 75 transportation professionals attended the event, hosted at The Aerospace Corporation facilities. Speakers included Thomas Paige, The Aerospace Corporation; Mark Pisano, National Academy of Public Administration; Laura Stuchinsky, City of San Jose (CA) Department of Transportation; Lin Midkiff, The Aerospace Corporation; Jim Kelly, SCE (ret.); Dave Beardon, The Aerospace Corporation; Hans Larsen, City of San Jose Department of Transportation; John Goble, The Aerospace Corporation; and several others. Rod Diridon of the Mineta Transportation Institute delivered a dinner keynote about the benefits of high-speed rail.

The day's sessions included: If We Can Go to the Moon, Why Can't We...?; Pursuing Public Sector Innovation; The City of San Jose's ATN Evaluation Experience; ATNs Crossing the Valley of Death; Costs, Risks, Opportunities; What We Have, and What We Need; Governing Structures as Frameworks for Action; The Development Process as a Framework for Action; and two Q&A sessions.

Aerospace Corporation was chosen as a partner because of its history of providing innovative approaches to space exploration funded by tax revenue. How did the federal government win public approval for such a risky vision? Why did it succeed? And what can transportation professionals learn that can be applied to smaller-scale local and state projects?

It was noted that these projects succeeded because they did not involve a massive, top-down government program. Rather, they were based in the private sector, which has a greater ability to tolerate risk. Innovation also must not be governed by pure market forces. Rather, it must have a clear definition of its mission, it must have the right leadership and technology, and finally, it must have sufficient funding.

Speakers also noted that establishing path-finding local governing structures is essential to establishing markets for innovation. These structures must represent the affected stakeholders, manage the technology development process, and address the economics of the proposed solutions.

Transit Feeder and Distribution Systems for High-Speed and Intercity Rail: Opportunities to Create a Network

October 1, 2013 – Chicago

Project 1371

Project Manager – Donna R. Maurillo, MSTM

Held in conjunction with the annual meeting of the American Public Transportation Association (APTA), this summit addressed the various options to carry passengers from outlying areas to the nation's high-speed rail stations. Deputy Secretary of Transportation (ret.) Mortimer Downey delivered the keynote address, "Financing High-Speed Rail and Transit: The Nation's Mobility Challenge." Mr. Downey is also Senior Adviser at PB Consult, Inc. and Chair Emeritus of the MTI Board of Trustees.

Panelists spoke to a near-capacity crowd at the Chicago Hilton. They included Judge Robert Eckels, president, Texas Central High-Speed Railway, Dallas TX; Andrew J. Galloway, chief, Northeast Corridor Planning and Performance, Amtrak, Philadelphia PA; Jeff Morales, CEO, California High-Speed Rail Authority, Sacramento, CA; and Stanley G. Feinsod, director, National High-Speed Rail Connectivity Center, Mineta Transportation Institute, San Jose CA. Rod Diridon, executive director of MTI, moderated the program.

Topics included Delivering High-Speed Rail Access to All Californians; Connectivity Planning in the Northeast Corridor; Access to Stations, Access to Customers: Priorities for Private HSR Development in Texas; and High-Speed Rail Connectivity: An MTI Study.

Shared-Use Mobility Summit

October 10-11, 2013 – San Francisco

Project 1365

Project Manager – Donna R. Maurillo, MSTM

MTI co-sponsored this two-day summit that offered interactive dialog among mobility providers, policy makers, government agencies, non-profit organizations, affiliated industries, technologists, academics, and other stakeholders.

The summit initiated policy discussions to help attendees understand and generate ideas for shared-use mobility in its many forms, including car sharing, bike sharing, ride sharing, and emerging sharing options. Participants included representatives from regulatory and planning agencies, along with allied industries, such as auto insurance companies, vehicle manufacturers, and technology providers. The goal was to help shape the agenda for next steps, education/outreach, industry-wide collaboration, policy development, and future research.

The program included several discussion sessions, including The Sharing Economy: Scaling the Shared-Use Mobility Marketplace; Insuring Shared-Use Mobility Services; Bikesharing: Funding 2.0; Fostering Multi-Modal Integration and Public Transit Connections; The Future of Mobility and Transportation policy and Planning; and more.

Featured speakers included Guy Fraker, co-founding CEO at get2kno, Inc.; Ed Reskin, San Francisco Director of Transportation; Timothy Papandreou, a deputy director at San Francisco MTA; Gabe Klein, Chicago Department of Transportation Commissioner; Lisa Gansky, author of the The Mesh; Caroline Samponaro, a senior director with Transportation Alternatives; Alan Woodland, executive director of Carsharing Association; Marzia Zafar, a director with the California Public Utilities Commission; Susan Shaheen of UC Berkeley, and others.

The overall goals included helping to provide more mobility choices, reducing traffic congestion, filling empty seats, mitigating various forms of pollution, helping people control transportation costs, reducing fossil fuel consumption, reducing pressures on parking spaces, and improving efficiency. Employment opportunities are created through these services as well. Vehicle sharing also provides transportation choices for those who cannot afford to buy and maintain a vehicle.

Challenges were addressed, as well. For example, controversies have sprung up over the role of public policy in this arena. The operators of many of these innovative services are not strictly commercial carriers, such as taxis and buses. Some taxi companies have complained about what they believe is unfair competition in cities across the nation. The summit addressed the legal and regulatory impacts and possible requirements for emerging sharing options.

China Ministry of Transportation Visit

October 14, 2013

Project 1375

Project Manager – Donna R. Maurillo, MSTM

The China Ministry of Transportation sent an official delegation to the US to learn about American practices in various facets of mobility. As part of their trip, they visited the Mineta Transportation Institute to inquire about research, education, technology transfer, and other facets of operating this type of organization.

MTI directors and faculty made presentations regarding goals, responsibilities, and accomplishments. The visitors also were given copies of the MTI annual report, research reports, and other materials. They asked many questions and were openly impressed by the large quantity of valuable work that MTI produces, as well as its ability to perform within restricted budgets.

Smart Technologies, Smart Policies: The UCLA Lake Arrowhead Symposium on the Transportation, Land Use, Environment Connection

October 20-22, 2013 – Lake Arrowhead CA

Project 1373

Project Manager – Donna R. Maurillo, MSTM

MTI co-sponsored the 23rd annual UCLA Lake Arrowhead Symposium, which explored the implications of recent and foreseeable future technological innovations for transportation, land use, and environmental policy and planning.

The UCLA Lake Arrowhead Symposium is a collaborative enterprise that each fall brings together researchers, practitioners, elected officials, and private sector stakeholders to discuss and debate some aspect of the transportation – land use – environment connection. This symposium is intended for policy decision-makers and analysts in the public and private sectors whose work concerns technology, land and transportation systems, and their environmental consequences. Speakers and audience members are purposely heterogeneous to stimulate thoughtful discussion and debate among all participants.

Over three days, the conference addressed several questions about the future of mobility, cities, and regions:

- What implications do new technologies, related services, and technology-enabled policies have for travel, air quality, energy conservation, and urban form?
- Do new technologies and services influence big-life decisions (residential or employment location, cars per household) in addition to daily decisions?
- How can the public sector leverage big data and new tools to improve operations and planning processes, especially as cities and regions change?
- What is the government's role amidst private sector innovation of technologies or standards for data publishing?
- What implementation, legal, and political issues emerge as a result of new technologies?

Third Annual Transit Communications Congress

October 22-24, 2013 – Washington DC

Project 1372

Project Manager – Donna R. Maurillo, MSTM

Retired Secretary of Transportation Ray LaHood opened the Third Annual Transit Communications Congress, which MTI co-sponsored. This is the definitive event for more than 300 communications and passenger service experts. The 2013 show featured a program that presented technological evolutions to enhance networks and service, along with dedicated streams on fare collection and customer engagement to increase ridership and revenue. New topics this year included closed-circuit television (CCTV), infotainment, mobile ticketing, passenger information systems (PIS) station management, and a new FirstNet interactive workshop with a site visit to the Washington Metropolitan Area Transit Authority (WMATA) control center.

Besides Mr. LaHood, featured speakers included David Leininger, Dallas Area Rapid Transit; Kathy M. Haley, Union Pearson Express; John McGee, Southeast Pennsylvania Transportation Authority (SEPTA); Lenetta McCampbell, Amtrak; John Augustine, Regional Transportation District Denver; Manuel Galdo, Federal Railroad Authority; Todd Solomon, Federal Transit Administration; and many other transportation leaders. Director Maurillo was also invited to present during a panel addressing social media as a tool to increase transit ridership.

Podcar City 7: Innovations in Public Transportation

October 23-25, 2013 – Arlington VA

Project 1367

Project Manager – Donna R. Maurillo, MSTM

George Mason University was the site of this annual international conference, co-sponsored by the Mineta Transportation Institute. It continues the dialog and planning for instituting personal rapid transit (PRT), also known as automated transit networks (ATN) or “podcars,” into the urban landscape. The plan is to provide alternatives to single-occupancy vehicles for short trips or for connecting to the main transit systems.

The event opened with a keynote by Representative Mike Honda of California’s 17th Congressional District. An afternoon keynote was given by Congressman James L. Oberstar D-MN (ret.), former Chair of the House Committee on Transportation and Infrastructure (2007-2011). Congressman Oberstar also moderated a panel discussion of municipal transportation officials from California, South Carolina, and three Swedish cities – Upplands Vasby, Stockholm, and Umea.

Panels and their moderators included ATN Projects Today, with Stan Young of ATRA; Emerging Transportation Technologies, with Alain Kornhauser of Princeton University; Urbanism and Transit, with Shannon McDonald of Southern Illinois University; A General Transportation System, with Kjell Dahlström of GTS Foundation; Examples of Planning in Practice, with David Little of Lea+Elliot; Software Tools and R&D, with Ingmar Andreasson of Logistikcentrum; Economics and Financing – New and Old Models, with Karen Philbrick of MTI; The Swedish/US Memorandum of Cooperation – Cities for Change, with Matthew Lesh of the US Federal Transit Authority; and Station and Real Estate Transit Design in the US and Sweden, with Bo Olsson of Trafikverket.

Numerous panelists also participated, coming from Europe and North America. Buff Furman, PhD, presented a recent MTI study on state-of-the-art ATN technology today.

TransOvation 2013: Where Technology Meets the Road

October 28-30, 2013 – San Jose CA

Project 1374

Project Manager – Donna R. Maurillo, MSTM

This event, co-sponsored by MTI, addressed the challenges of smart cars and transportation systems. ARTBA’s TransOvation was a unique opportunity to help key transportation design, construction and management professionals become industry leaders in this exciting new technology and transportation development market.

Workshop participants learned first-hand what some of the world’s leading digital communications technology firms and auto manufacturers are doing to revolutionize how Americans will use surface transportation systems. Participants also learned how to foster and lead innovation at work.

Then they were challenged to work on-site as part of facilitated teams to develop a proposed plan to move industry firms and public agencies into leadership roles in the new transportation industry. In the final workshop session, the teams presented their ideas to national thought leaders and decision makers, including Federal Highway Administrator Victor Mendez.

A select post-workshop taskforce led by HNTB’s MacArthur Foundation Fellowship winner Ted Zoli took the group even further, developing proposed national policy direction in this critical issue area for the American Road & Transportation Builders Association.

MNTRC Partner Forums and Summits

Practical Railroad Engineering

March 13-15, 2013 – Las Vegas NV

Project 1384

Project Manager – Hualiang “Harry” Teng, PhD

The University of Nevada Las Vegas, a member of the Mineta National Transit Research Consortium, hosted the American Railway Engineering and Maintenance-of-way Association (AREMA) for its seminar, “Introduction to Practical Railway Engineering.” In total, 29 students attended the seminar, which also attracted professionals from several states across the US.

Senior professionals who wished to return to the railway area also attended. For example, Edward Neumann, PhD, a senior professor in transportation engineering at UNLV, taught railway engineering many years ago at West Virginia University. He has an interest in railway-related projects and wished to refresh his knowledge in railway engineering.

Ms. Julie Longo, a technical writer in the College of Engineering, worked for New Jersey Transit some time ago and attended the first several sections of the seminar.

Distinguished Transportation Professional Seminar

March 21, 2013 – Las Vegas NV

Project 1385

Project Manager – Hualiang “Harry” Teng, PhD

Rod Diridon, Executive Director of the Mineta National Transit Research Consortium and the Mineta Transportation Institute, delivered a distinguished transportation professional seminar for the University of Nevada Las Vegas on March 21. “High-Speed Rail, Internationally and in California” attracted more than 40 attendees from private and public agencies and the university in Las Vegas.

His opening remarks about the transportation systems at the Las Vegas airport connected very well with the theme of economic development in Las Vegas. He said that he found a long line of taxis when he arrived at the airport. So he took a shuttle bus to the seminar location, which involved nearly a two-hour trip. This is normally a 10-minute trip when there is no traffic.

The Interface of Engineering and Operations for Railroads in the United States

April 30, 2013 – University of Nevada Las Vegas

Project 1383

Project Manager – Hualiang “Harry” Teng, PhD

The Chief Operating Officer for Las Vegas Rail Express provided the keynote at this seminar, which focused on passenger rail service engineering challenges and solutions.

21st Century Automotive Challenge

May 16-19, 2013 – University Park PA

Project 1381

Project Manager – David Klinikowski, PhD

The Thomas D. Larson Pennsylvania Transportation Institute’s Hybrid and Hydrogen Vehicle Research Laboratory hosted the 21st Century Automotive Challenge at Penn State’s University Park campus. As part of the overall program, a seminar on battery technology for transit applications was given for high school students. This work-force development outreach was presented with support from the Mineta National Transit Research Consortium.

Vehicles participating in the challenge represented a variety of automotive power technologies, including electric, hybrid, pluggable hybrid, compressed natural gas, and biodiesel. The vehicle laboratory partnered with Penn State’s Sustainability Institute to integrate vehicle-to-grid elements into the competition between competitors and the center’s award-winning MorningStar Solar Home. The competition format demonstrated the

real possibilities for vehicle, grid, and home interconnectivity, especially relevant now that pluggable electric and hybrid cars are gaining acceptance in the American marketplace.

The competition events included inspection and dynamic tests as well as travel scenarios representing a busy day of errands and a day of leisure travel. Participants included teams from the former American Tour de Sol Electric Vehicle Championship and the Eastern Electric Vehicle Club. Scoring officials included professionals from Penn State engineering alumni, Penn State's Department of Energy-sponsored Graduate Automotive Technology Education Program, Central Pennsylvania Institute of Technology, and the local racing community.

Metro Detroit Transit Workshop

May 17-18, 2013 – Detroit MI

Project 1380

Project Manager – Leo Hanifin, PhD

The goal of the workshop was to illustrate transit development as a process that begins with a good plan that enjoys deep support, has good governance and oversight, a funding mechanism that pays for construction and operation, and a broad and diverse coalition. For a transportation related initiative to be successful the public must have a thorough grounding in the local transportation planning process.

Fashioned after the biennial Transit Initiatives and Communities Conference sponsored by the American Public Transit Association and the Center for Transportation Excellence (CFTE), attendees learned how to deliver the best transit planning and campaigns. More than one hundred leaders attended, representing a wide variety of community sectors in the four-county area served by the Regional Transit Authority.

The purpose was to begin developing and educating a broad coalition of stakeholders from key sectors who support the development of more effective regional transit in southeast Michigan and to define next steps toward that end.

Howard University Summer Transportation Institute

June 24-July 21, 2013 – Washington DC

Project 1382

Project Manager – Errol C. Noel, PhD

Each year, the Howard University Transportation Research Team selects 25-35 students to participate in a four-week, non-residential program on campus. Applications are accepted from students in junior and senior high school. This year's program consisted of 26 students from the District of Columbia, Maryland, and Virginia region. The Howard staff is supplemented by the addition of 4-6 college students to provide administrative support, manage logistics, and most important, to be mentors for the students during the summer tenure. The 2013 team of mentors had backgrounds in mechanical engineering (PhD applicant), and undergraduate majors in civil engineering, electrical engineering, biology, and accounting.

The students visited Maryland State Highway Administration (MSHA), DDOT, Turner Fairbank Highway Research Center, (FHRC), Virginia Department of Transportation (VDOT), and The Smithsonian National Air and Space Museum. They also took a multimodal trip to the Baltimore Aquarium.

The students also participated in professional development and technical classroom and lab sessions. Topics covered Excel, Word, PowerPoint, web development, journal writing, self-esteem and peer pressure, formal dining etiquette, FHWA transportation careers, career development, resume writing, and interviewing techniques. They also built a steel bridge in the lab.

At the end of the program, a ceremony acknowledged participant completion and provided an opportunity for the students to deliver a presentation on their STI experience. This year, the student teams gave presentations on DDOT, MSHA, TFHRC, FHWA, and WMATA. The program audience consisted of parents, staff members from DDOT, FHWA, the Office of Youth Empowerment Child and Family Services, and the Howard support team. Students received various team and individual awards, along with certificates of completion.

2013 Transportation Engineering Camp

July 7-19, 2013 – Reno and Las Vegas NV

Project 1386

Project Manager – Hualiang “Harry” Teng, PhD

MNTRC co-sponsored this summer camp for high school students in grades 10 and 11. It took place at the University of Nevada’s Reno and Las Vegas campuses. Primary activities included classroom lectures, projects, hands-on activities, and field trips. The students learned about the responsibilities of a transportation engineer, including planning, design, construction, operation, maintenance, and management of transportation modes. The goal of the profession, they learned, is to provide safe, rapid, comfortable, convenient, economical, and environmentally compatible movement for people and goods.

Lessons gave the students an overview of urban transportation planning, highway geometric design, traffic signal systems, public transportation, high-speed rail planning, and airport traffic control.

As part of the program, the students visited the Hoover Dam bypass bridge, the FAST traffic control center in Las Vegas, the Nevada Department of Transportation, and major urban transportation facilities.

Summer Transportation Camp

July 14-19, 2013 – Reno and Las Vegas NV

Project 1388

Project Manager – Hualiang “Harry” Teng, PhD

UNLV hosted a transportation summer camp for 25 Nevada high school students interested in related careers. Students interacted with UNLV faculty, visited the university’s Transportation Research Center to learn about current research on unmanned aerial vehicles, image processing for traffic detection, and traffic simulation models.

One interesting and enlightening experience gave students a chance to ride on UNLV’s driving simulator, which is often used for research on distracted driving. They put their week of learning to the test with a real-life transportation issue to solve, presenting their ideas and competing for a prize.

Additional camp highlights included tours of the Hoover Dam and bypass bridge, the Nevada Railroad Museum, and the RTC and its transit and bus system. Students also rode the monorail, listened to presentations from the Nevada Department of Transportation, and visited McCarran International Airport.

Transit Smart Moves

July 15-19, 2013 – Detroit MI

Project 1381

Project Manager – Leo Hanifin, PhD

The Transit Smart Moves Summer Program was conducted on the campus of University of Detroit Mercy, in the College of Engineering. Nineteen students representing more than 10 Detroit-area schools participated in the program. The 2013 summer program schedule included a Detroit Police Department drunk driving simulation, a tour of the Oakland County Road Commission, introduction to the LEGO NXT Mindstorms project, a discussion about equity in transportation, several sessions of LEGO Smart Moves, a discussion of roundabouts, a presentation on the architecture of urban planning and transportation, a UDM campus tour, and more. The week closed with student presentations of their Smart Moves projects, plus awards and recognitions for their fine work.

During the fall semester, a Saturday Transit Smart Moves program was conducted over the course of five weeks, during which the same program from the summer was utilized and expanded upon. Twenty-two metropolitan Detroit-area high school students participated in the program, along with an ACT Prep course to strengthen student skills in test taking as they prepare for college entrance. The students learned a great deal about the importance of transportation engineering and transit.

Previously Completed SAFETEA-LU Summits and Forums

The following Norman Y. Mineta National Summits and Regional Forums were completed in previous years under SAFETEA-LU funding, starting with FY2007-08. They are included here to acknowledge MTI's increasing outreach and information transfer under that legislation. Except where noted, all projects were managed by Communications and Information/Technology Transfer Director Donna R. Maurillo, MSTM.

The Crisis in Workforce Development

October 6, 2007 – Charlotte NC

Project 2751

Project Manager: Leslee Hamilton

Eighth National Garrett Morgan Videoconference and Symposium on Sustainable Transportation

April 1, 2008 - Nationwide

Project 2750

Project Manager: Donna R. Maurillo, MSTM

Town Hall Meeting on Our Bicycle Safety Crisis

June 28, 2008 – San Jose CA

Project 2753

Project Manager: Donna R. Maurillo, MSTM

Second Annual Transportation & Infrastructure Convention

March 11-13, 2009 – Washington DC

Project 2861

Project Manager: Donna R. Maurillo, MSTM

Ninth National Garrett Morgan Videoconference and Symposium on Sustainable Transportation

March 25, 2009 - Nationwide

Project 2860

Project Manager: Donna R. Maurillo, MSTM

Beyond the Crossroads: A National Discourse on Transportation Infrastructure and Regulatory Policy

May 27-28, 2009 – Denver CO

Project 2863

Project Manager: Donna R. Maurillo, MSTM

Using Bicycles for the First and Last Mile of Transit Commutes

June 3, 2009 – San Jose CA

Project 2862

Project Manager: Donna R. Maurillo, MSTM

Selective Screening of Rail Passengers: A Summary of the Pilot Tests

June 18, 2009 – Chicago IL

Project 2876

Project Manager: Donna R. Maurillo, MSTM

Bringing World-Class High-Speed Rail to America: Special General Session, 12th Annual Transportation and Infrastructure Summit

August 11–14, 2009 – Irving TX

Project 2960

Project Manager: Donna R. Maurillo, MSTM

The Vision and the Blueprint:

High-Speed Rail in the United States and Launching High-Speed Rail in the U.S.

October 4–7, 2009 – Orlando FL

Project 2961

Project Manager: Donna R. Maurillo, MSTM

San Jose State University Campus Bicycle Forum

October 2009 – San Jose CA

Project 2965

Project Manager: Donna R. Maurillo, MSTM

The Next Fifty Years: Addressing California's Mobility in a Time of Financial Challenges

October 29, 2009 – San Francisco CA

Project 2864

Project Manager: Donna R. Maurillo, MSTM

Ensuring the Growth of California's Transportation Workforce

February 1-2, 2010 – Long Beach CA

Project 2962

Project Manager: Donna R. Maurillo, MSTM

2010 High-Speed Rail International Practicum

February 8-13, 2010 – Washington, Chicago, Los Angeles

Project 2964

Project Manager: Donna R. Maurillo, MSTM

Everyone Wants a Spot: Why Free Parking is a Bad Idea

February 2010 – San Jose CA

Project 2968

Project Manager: Donna R. Maurillo, MSTM

Tenth National Garrett Morgan Videoconference and Symposium on Sustainable Transportation

March 23, 2010 – Nationwide

Project 2963

Project Manager: Donna R. Maurillo, MSTM

Meeting the Challenges of Urban Transportation

April 9-13, 2010 – San Jose CA

Project 2969

Project Manager: Donna R. Maurillo, MSTM

NCIT Transportation Workforce Development Conference

April 29-30, 2010 – Washington DC

Project 2967

Project Manager: Donna R. Maurillo, MSTM

Turning over a New Leaf: The Start of an Electric Vehicle Revolution

May 18, 2010 – San Francisco CA

Project 2866

Project Manager: Donna R. Maurillo, MSTM

Protecting Our Rail Infrastructure: What Are Our Risk Exposures?

June 6-9, 2010 – Vancouver BC

Project 2966

Project Manager: Donna R. Maurillo, MSTM

Norman Y. Mineta Regional Summit on Transportation Finance

June 25, 2010 – San Francisco CA

Project 2865

Project Manager: Donna R. Maurillo, MSTM

Inter-City Passenger Rail: Opportunities & Challenges for Colorado

September 16, 2010 – Denver CO

Project 1065

Project Manager: Donna R. Maurillo, MSTM

Norman Y. Mineta Transportation Forum: High-Speed Rail in California

September 24, 2010 – San Jose CA

Project 1063

Project Manager: Donna R. Maurillo, MSTM

Podcar City San Jose: The Fourth International Conference on Personal Rapid Transit

October 27-29, 2010 – San Jose CA

Project 1060

Project Manager: Donna R. Maurillo, MSTM

Eleventh National Garrett Morgan Videoconference and Symposium on Sustainable Transportation

March 30, 2011 – Nationwide

Project 1061

Project Manager: Donna R. Maurillo, MSTM

Ensuring the Growth of California's HSR Workforce

April 29, 2011 – San Jose CA

Project 1068

Project Manager: Donna R. Maurillo, MSTM

2011 International Practicum on Implementing High-Speed Rail in the US

May 3-5, 2011 – Baltimore MD

Project 1067

Project Manager: Donna R. Maurillo, MSTM

2011 APTA Rail Conference

June 12-15, 2011 – Boston MA

Project 1062

Project Manager: Donna R. Maurillo, MSTM

Summer Transportation Institute

June 20-July 21, 2011 – San Jose CA

Project 1167

Project Manager: Donna R. Maurillo, MSTM

From Point A to Point B: Fixing America's Transportation Problems

June 24, 2011 – San Francisco CA

Project 1066

Project Manager: Donna R. Maurillo, MSTM

Pacific Cities Sustainability Initiative: Green Transportation Conference

October 24, 2011 – San Francisco CA

October 26, 2011 – Los Angeles CA

Project 1166

Project Manager: Donna R. Maurillo, MSTM

US & China Transportation Forum: Disaster Assistance Working Group

January 5-8, 2012 – San Jose CA

Project 1260

Project Manager: Donna R. Maurillo, MSTM

Rail Security: Critical Insights and Applications

January 22, 2012 – Washington DC

Project 1261

Project Manager: Donna R. Maurillo, MSTM

Introduction to Practical Railway Engineering

March 21-23, 2012 – Las Vegas NV

Project 1281 (IPRI) and 1282 (AREMA)

Project Manager – Hualiang "Harry" Teng, PhD

Garrett Morgan Sustainable Transportation Competition

March 22, 2012 – Nationwide

Project 1262

Project Manager: Donna R. Maurillo, MSTM

White House Roundtable

April 12, 2012 – San Jose CA

Project 1267

Project Manager: Donna R. Maurillo, MSTM

How Can We Make Bicycle Travel Less Stressful?

April 16, 2012 – San Jose CA

Project 1268

Project Manager: Donna R. Maurillo, MSTM

National Transportation Workforce Development Summit

April 24-26, 2012 – Washington DC

Project 1263

Project Manager: Donna R. Maurillo, MSTM

COOP-COG Training for Transportation Agencies

May 31, 2012 – Cambridge MA

Project 1264

Project Manager: Donna R. Maurillo, MSTM

Financing Infrastructure for America: Are We Becoming a Second Class Country?

June 22, 2012 – San Francisco CA

Project 1265

Project Manager: Donna R. Maurillo, MSTM

Summer Transportation Institute

June 25-July 13, 2012 – San Jose CA

Project 1277

Project Manager: Donna R. Maurillo, MSTM

Transportation Summer Camp

July 9-19, 2012 – Reno and Las Vegas NV

Project 1285

Project Manager – Hualiang “Harry” Teng, PhD

Transit Summer Camp

July 30-August 3, and August 6-10, 2012 – Detroit MI

Project 1283

Project Manager – Leo Hanifin, PhD

Transportation Innovation Series

August 15, 2012 – Washington DC, National

Project 1279

Project Manager: Donna R. Maurillo, MSTM

Podcar City, Berlin

September 19-20, 2012 – Berlin Germany

Project 1266

Project Manager: Donna R. Maurillo, MSTM

COOP-COG Training for Transportation Agencies

September 28, 2012 – Cambridge MA

Project 1276

Project Manager: Donna R. Maurillo, MSTM

ThinkBike Workshop

October 22-23, 2012 – San Jose CA

Project 1274

Project Manager: Donna R. Maurillo, MSTM

Defining the Future of Transit Communications

October 23-24, 2012 – Dallas TX

Project 1269

Project Manager: Donna R. Maurillo, MSTM

Asia Pacific Economic Cooperation Conference

October 25, 2012 – San Jose CA

Project 1270

Project Manager: Donna R. Maurillo, MSTM

Financing the Future: The UCLA Lake Arrowhead Symposium on the Transportation - Land Use - Environment Connection

October 28-30, 2012 – Lake Arrowhead CA

Project 1278

Project Manager: Donna R. Maurillo, MSTM

California’s High-Speed Rail: Lessons from Asia

November 7, 2012 – San Francisco CA

November 8, 2012 – Los Angeles CA

Projects 1271 and 1273

Distinguished Lecturer Series

November 13 and 15, 2012 – Las Vegas NV

Project 1284

Project Manager – Hualiang “Harry” Teng, PhD

US High-Speed Rail Association Conference

December 3-5, 2012 – Los Angeles CA

Project 1275

Project Manager: Donna R. Maurillo, MSTM

Performance Metrics

Fiscal Year	2007-08	2008-09	2009-10	2010-11	7/1/11 - 12/31/12*	CY2013
Events	4	6	13	8	25	22
Attendance	301	353	1,325	1,472	2,477	2,525

* Includes MNTRC partner participation. Note that from July 1, 2011 until December 31, 2012, a transition was made from a Fiscal Year to a Calendar Year. Therefore, this period includes 18 months of performance.

Other Performance

MNTRC and MTI Web Sites

Information and Technology Transfer also manages the MTI and MNTRC websites. The sites—both hosted under the same domain for cost and maintenance efficiency—provide easy access to the Consortium’s research reports, which can be downloaded or read online at no charge, as well as information on the Consortium’s educational programs (from middle-school to graduate level), and sponsored events. The sites also explain the agencies’ purpose, provide usage examples of the organizations’ research in news articles, and include links to other related transportation resources. In 2013, the websites were accessed by more than 140,000 unique users located in 197 countries around the globe.

The required strategic plan for both organizations identifies two web site quality control variables – the number of hits per month, and the number of downloaded documents per month. Both metrics have continued to rise. The steady increase is attributable to well-timed, strategically targeted outreach campaigns via selected news media, and to frequent postings on an increasing number of social media sites, such as Facebook, Twitter, and LinkedIn. In addition, the Webmaster continues to optimize the sites for increased discovery of the content by search engines and a better user experience.

The use of mobile devices to access the MTI and MNTRC websites rose sharply from 6 percent of all visits in 2012 to more than 10 percent in 2013. To meet the demands of this growing audience, the Webmaster has begun implementing “responsive” design techniques that, when complete, will automatically switch to a mobile-friendly view when accessed by small-screen devices such as phones and tablets.

MTI Web Site Metrics

The following table indicates the monthly average for the number of MTI web site uses (hits) and the number of downloaded documents for the TEA 21 contract (1998-2006), and for the first SAFETEA-LU and Tier 1 competition agreement period (2006-13). However, this last item has been divided into two columns to specifically break out MTI’s performance over the 12 months since its last report.

Fiscal Year	FY1998-2006	7/1/11 - 12/31/12*	CY2013
Average monthly uses	173,985	294,904	382,125
Average monthly downloads	~5,000	97,502	106,829

* Includes MNTRC partner participation. Note that from July 1, 2011 until December 31, 2012, a transition was made from a Fiscal Year to a Calendar Year. Therefore, this period includes 18 months of performance.

During the last 12 months, the MTI web site traffic increased 29 percent, and the average monthly downloads increased 9 percent.

Once again, some of MTI’s most frequently downloaded documents this fiscal year demonstrated a notable interest in cycling and/or pedestrian issues. Among the most popular research reports are MTI Report 11-26 *Public Bikes sharing in North America: Early Operator and User Understanding* (5.6 percent of all downloads); MTI Report 11-05 *Integration of Bicycling and Walking Facilities into the Infrastructure of Urban Communities* (1.7 percent); MTI Report 11-19 *Low-Stress Bicycling and Network Connectivity* (5.6 percent); and MTI Report 12-06 *Measuring the Performance of Livability Programs* (1.5 percent).

Transportation safety and security also continued as a popular topic for research report downloads. Among the most frequently downloaded reports include MTI Report 09-02 *Explosives and Incendiaries Used in Terrorist Attacks on Public Surface Transportation: A Preliminary Empirical Analysis* (this report remains exceedingly popular even four years after initial publication, with 3.8 percent of all downloads for the year); MTI Report 11-20 *Carnage Interrupted: An Analysis of Fifteen Terrorist Plots against Public Surface Transportation* (1.6 percent); and MTI Report 12-03 *Formulating a Strategy for Securing High-Speed Rail in the United States* (1.4 percent).

Transit issues also generated some of the top downloads. These included MTI Report 12-04 *Analyzing the Effects of Transit Network Change on Agency Performance and Riders in a Decentralized, Small-to-Mid-sized US Metropolitan Area: A Case Study of Tallahassee, Florida* (3.8 percent of annual downloads); and MTI Report 11-10 *Shared-Use Bus Priority Lanes On City Streets: Case Studies in Design and Management* (2.0 percent).

The MTI brochure on its Master of Science in Transportation Management ranked fifth in popularity, generating 2.4 percent of annual downloads for 2013.

The MTI and MNTRC Research pages provide research proposal information, downloadable forms for research associates, project descriptions for all active research, and links to full-text files for all final research reports. The MTI web site also includes reports completed before the University Transportation Center grant program required online posting.

MTI's Master of Science in Transportation Management (MSTM) students benefit from additional web site content and functions. The MSTM 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 updated web site 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.

Web site traffic metrics are tracked by both Google Analytics and sophisticated software that allows the organization to closely monitor the effects of variables, such as news releases and site improvements, and help the organization identify which third-party sites are most effective at generating referral traffic.

MNTRC Newsletter

MNTRC's *World in Motion* newsletter, published three times per year, is an effective medium to inform the transportation community and MNTRC supporters about its ongoing transit research and education programs. The newsletter is posted online on both the MNTRC and MTI sites.

First published in 1994, *World in Motion* updates readers about the consortium's education, research, and information transfer. Every issue includes an update from Executive Director Rod Diridon, along with topical articles and program updates by MNTRC directors and graduate students. The profile of a selected Board of Trustees member is featured in every issue.

This is a digital newsletter emailed to a proprietary list of thousands, as well as to the news media and other interested groups. The move from an earlier hard copy to the current digital publication has helped eliminate the costs of printing and mailing while using a more eco-friendly distribution. Second, the inclusion of active links in the newsletter allows readers to go directly to the web sites for more information on particular topics. The links also direct the reader to other important sites, such as the Transportation Research Board, US Department of Transportation, the American Public Transportation Association, and others. And third, the digital newsletter can be forwarded, tweeted, or otherwise shared with additional audiences.

Media Coverage

By way of active media pitching, MTI and MNTRC have established a growing reputation as resources for expert opinions about transit and connectivity issues. Regional and national media often phone unprompted, but MNTRC staff also maintains strong relationships with reporters and editors to whom story ideas can be submitted. MNTRC also subscribes to Profnet, a service that lists dozens of requests each day from editors who are searching for expert sources for particular articles. In addition, 23 news releases were issued during the 12-month reporting period.

During this reporting period, MTI and MNTRC experts were an important part of many news stories in print, online, and broadcast media. Executive Director Rod Diridon was often solicited for opinions on national and California transportation issues. He also wrote an op-ed piece on transit villages for the *San Jose Mercury News*. NTSSC Director Brian Michael Jenkins was interviewed frequently regarding national security as it related to terrorism and the terrorists' playbook, while NTSSC Deputy Director Frances Edwards, PhD, was a popular

interviewee regarding disaster and safety mitigations and management. MTI researchers and other associates also were interviewed on their topics of expertise, especially following the release of each new research report, and the media picked up stories about MNTRC symposia and other events.

Based only on actual interview placements, direct story placements, and media inquiries, MTI averaged five broadcast placements (radio and TV) and more than 20 print and/or online 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 12-month reporting period, MTI and MNTRC enjoyed expanded social media presence. The Facebook fan page has grown to more than 500 followers. Every weekday, the site features 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, Amtrak, FRA, Clean Energy Coalition, and other sites.

MTI also has a 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 and/or MNTRC web sites wherever appropriate, or to transportation-related news stories.

MTI’s Twitter account, @MinetaTrans, has continued to attract a growing audience, with new followers every day. At the start of the reporting period, followers were negligible because the account was newly established. However, the count stood at 1,387 followers as of December 31, 2013. Twitter is being leveraged to post news and announcements that link back to the MTI and/or MNTRC web sites, or to distribute news items in which followers have an interest.

Memoranda of Cooperation

The Mineta Transportation Institute is playing a role in helping to create more cooperation among nations through its growing list of Memoranda of Cooperation (MOCs) with international universities. Since September, MTI has been hosting Shintaro Terabe, PhD, who is in residence for one year to expand his knowledge about US high-speed rail systems. His home base is in Tokyo at the University of Tokyo, with which MTI has an MOC.

MTI expects to host other visitors, as well. Current MOCs are with Spain’s University of Cordoba, Sweden’s KTH Royal Institute of Technology, Italy’s University of Pisa, and Japanese Railway East’s research laboratory.

MTI is especially enthusiastic about its MOCs because the US can learn from the many other countries that are forging ahead in terms of integrating sustainable transportation.



Other Successes

Scholarship and Awards Banquet

On a Saturday evening in late 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. On June 22, 2013 the banquet attracted approximately 350 transportation leaders, corporate donors, and friends and families of the graduates. The keynote address was delivered by California High-Speed Rail Authority CEO Jeff Morales, with guest comments by Secretary of Transportation (ret.) Norman Mineta.

Corporate sponsors included Wells Fargo, Community Safety Foundation (AAA), Parsons Brinckerhoff, AECOM, Central Japan Railway Company, US High-Speed Rail Association, HNTB, CH2M Hill, CDM Smith, Granite Construction, Gilbert Tweed, CJ Lake LLC, and many more. The event typically raises more than \$40,000 per year for scholarships.

Additional Outreach

MTI directors and faculty presented at numerous conferences, symposia, and other gatherings. They also have been interviewed for print and broadcast media. During the 12-month reporting period, for example, Executive Director Rod Diridon spoke at several high-profile transportation conferences, he was interviewed frequently as a transportation and rail expert, and he presented at several conferences.

As noted above, NTSSC 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. NTSSC Deputy Director Frances Edwards has been interviewed numerous times regarding safety and disaster management. She also is a frequent guest speaker and trainer.

Asha Weinstein Agrawal, PhD, director of MTI's National Transportation Finance Center, presented her finance research at the Commonwealth Club of California, at the annual meeting of the Transportation Research Board, and at events hosted by the American Public Transit Association, South Bay Transportation Officials, and San José State University. Dr. Agrawal was also one of six experts featured in a report published by the Council of State Governments, "Changing Face of Transportation Revenues," and her public opinion research has been cited in publications such as McGraw Hill Financial Global Institute's report *Strengthening US Infrastructure* and a report to the Texas Transportation Commission and Legislature titled *Mobility Investment Priorities Project: State Funding Initiatives*.

Education Director Dr. Peter Haas makes regular visits to MSTM Education Program classroom sites around California to recruit and advise students. He also promotes the program at other transportation agencies and related meetings and conferences, such as the Bay Area Rapid Transit District (BART), the Los Angeles County Metropolitan Transportation Authority (MTA), and the Lake Arrowhead Symposium on the Transportation, Land Use, and Environment Connection (October 2013). He also presented MTI research concerning transportation tax initiatives at the 2013 Transit Initiatives and Communities Conference in Atlanta (June 2013).

Deputy Executive Director and Research Director Dr. Karen Philbrick continues to serve on the US Department of Transportation's Transit Rail Advisory Committee for Safety after having been appointed by former Secretary of Transportation Ray LaHood for a two-year term. This committee advises the Federal Transit Administration on transit safety issues. In June 2013, Dr. Philbrick was elected to the Council of University Transportation Centers executive committee. She continues to represent the United States at the Asian Pacific Economic Cooperation (APEC) Transportation Working Group meetings.

Communications/ITT Director Donna Maurillo was accepted for a poster session at the Transportation Research Board's 2013 conference in Washington. Her poster demonstrated how targeted marketing can boost web site visits and document downloads for university transportation centers. She also was invited to present at the Global Transit Communications Congress in Washington, where she discussed leveraging social media to increase transit revenue and ridership.

Additional details are available in each director's respective section of this report.

EDUCATION



**Peter Haas, PhD**

Director of Education

Peter.Haas@sjsu.edu

A member of the faculty in MTI's Graduate Transportation Management Program (GTMP) since 1999, Dr. Peter Haas was appointed Education Director in 2001. He earned a PhD in political science (public policy and public administration) from the University of North Carolina at Chapel Hill in 1985. He is a former Director of the SJSU Master of Public Administration Program, and he has consulted at every level of government and for nonprofit agencies. Dr. Haas has authored numerous reports and other publications in the field of transportation and co-authored the text, *Applied Policy Research: Concepts and Cases*. A Fulbright Scholar, he also regularly contributes to MTI research projects in various subject areas.

**Vivianne Ferea**

Education Program Assistant

Vivianne.Ferea@sjsu.edu

Vivianne Ferea was appointed to the position of Education Program Assistant (EPA) in 2000. As EPA, she is the primary contact for marketing and administration of the Graduate Transportation Management Program. Among her many responsibilities are continued efforts to recruit for the certificate and master's programs, to revise and maintain the Education portion of the MTI website, and to plan and schedule courses. Ms. Ferea received her BS in business marketing from the University of California Davis. Her studies in public relations and experience in media sales are a valuable resource to help her promote the program's continued growth and success.

Education Program Goal

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

Enrollment Trends

During Calendar Year Spring 2013 to Fall 2013, the program recorded 257 graduate student enrollments. These enrollments were associated with more than 122 individual, active students, including more than 60 matriculated Master of Science in Transportation Management students. Ten program graduates were recognized on June 22, 2013.

Education Program Accomplishments

Courses Offered

In Calendar Year 2013, the Graduate Transportation Management Program offered 14 courses. Class sites follow each course listing below:

Spring 2013

MTM 202: Introduction to Transportation Funding & Finance – Students enrolled in Caltrans Sacramento HQ, Caltrans D3-Marysville, Caltrans D4-Oakland, Caltrans D6-Fresno, Caltrans D8-San Bernardino, Caltrans D10-Stockton, Caltrans D11-San Diego, Los Angeles County Metropolitan Transportation Authority (Metro) Orange County Transportation Authority (OCTA)-Anaheim, and San Jose State University (SJSU).

MTM 217: Leadership and Management of Transportation Organizations – Students enrolled in Caltrans Sacramento Head Quarters, Caltrans D1-Eureka, Caltrans D3-Marysville, Caltrans D4-Oakland, Caltrans D6-Fresno, Caltrans D7-Los Angeles, Caltrans D8-San Bernardino, Caltrans D11-San Diego, Orange County Transportation Authority (OCTA)-Anaheim, Los Angeles County Metropolitan Transportation Authority (Metro), and San Jose State University (SJSU).

MTM 226A: Emergency Management Issues for Transportation Professionals – Students enrolled in Caltrans D4-Oakland, Caltrans D7-Los Angeles, Caltrans D11-San Diego, Los Angeles County Metropolitan Transportation Authority (Metro), and San Jose State University (SJSU).

MTM 226B: Security Issues for Transportation Professionals – Students enrolled in Caltrans Sacramento Head Quarters, Caltrans D4-Oakland, Caltrans D6-Fresno, Caltrans D7-Los Angeles, Caltrans D8-San Bernardino, Caltrans D11-San Diego, Los Angeles County Metropolitan Transportation Authority (Metro), Orange County Transit Authority (OCTA)-Anaheim, and San Jose State University (SJSU).

MTM 246: High-Speed Rail Management Students enrolled in Caltrans Sacramento HQ, Caltrans D4-Oakland, Caltrans D7-Los Angeles, Caltrans D8-San Bernardino, Caltrans D11-San Diego, and San Jose State University (SJSU).

MTM 283: Independent Research – Students enrolled in Caltrans D3-Marysville, Caltrans D4-Oakland, Caltrans D4-Oakland, Caltrans D7-Los Angeles, Orange County Transportation Authority (OCTA)-Anaheim, Los Angeles County Metropolitan Transportation Authority (Metro), and San Jose State University (SJSU).

MTM 290: Strategic Management in Transportation – Students enrolled in, Caltrans D3-Marysville, Caltrans D4-Oakland, Caltrans D7-Los Angeles, Los Angeles County Metropolitan Transportation Authority (Metro), Orange County Transportation Authority (OCTA)-Anaheim, and San Jose State University (SJSU).

Fall 2013

MTM 203: Transportation Markets and Business Development – Students enrolled in Caltrans Sacramento Head Quarters, Caltrans D3-Marysville, Caltrans D6-Fresno, Caltrans D4-Oakland, Caltrans D7-Los Angeles, Caltrans D10 Stockton, Caltrans D10-Stockton, Orange County Transportation Authority (OCTA)-Anaheim, Los Angeles County Metropolitan Transportation Authority (Metro), and San Jose State University (SJSU).

MTM 214: Transportation Policy and Regulation – Students enrolled in Caltrans Sacramento HQ, Caltrans D3-Marysville, Caltrans D4-Oakland, Caltrans D5-San Luis Obispo. Caltrans D7-Los Angeles, Caltrans D8-San Bernardino, Caltrans D11-San Diego, Los Angeles County Metropolitan Authority (Metro), Orange County Transportation Authority (OCTA)-Anaheim, Transportation Authority Monterey County (TAMC), and San Jose State University (SJSU).

MTM 215: Transportation Systems and Development – Students enrolled in Caltrans D3-Marysville, Caltrans D4-Oakland, Caltrans D7-Los Angeles, Caltrans D8-San Bernardino, Caltrans D11-San Diego, Los Angeles County Metropolitan Transportation Authority (Metro), and San Jose State University (SJSU).

MTM 230: Multi Modal Transportation in California – Students enrolled in Caltrans D4-Oakland, Caltrans D5-San Luis Obispo, Metropolitan Transportation Authority (Metro), and San Jose State University (SJSU).

MTM 245: High-Speed Rail Management – Students enrolled in Caltrans D4-Oakland, Caltrans D7-Los Angeles, Caltrans D8-San Bernardino, Caltrans D10-Stockton, Orange County Transportation Authority (OCTA)-Anaheim, Caltrans Sacramento Head Quarters, and San Jose State University (SJSU).

MTM 236 (Section 01): Contemporary Issues in Transportation – Students enrolled in Caltrans D4-Oakland, Caltrans D5-San Luis Obispo, Los Angeles County Metropolitan Transportation Authority (Metro), and San Jose State University (SJSU).

MTM 236 (Section 02) : Transportation and the Environment – Students enrolled in Caltrans D1-Eureka, Caltrans D4-Oakland, Caltrans D6-Fresno, Caltrans Sacramento Head Quarters, and San Jose State University (SJSU).

MSTM Class of 2013

The faculty and staff of MTI and the Lucas Graduate School of Business were proud to present the graduating class of 2013 at the 21st Annual MTI Board of Trustees Awards Banquet and Convocation on June 22, 2013. Ten students earned their MSTM degrees, each of whom completed 30 units of coursework, including an original research paper, while meeting the duties of full-time professional employment.

The following ten MSTM graduates were hooded during MTI's annual scholarship banquet. Copies of their capstone research projects are available upon request.

Scott Arbuckle
Martin Barna
Seth Cutter
Christopher Espiritu
James Falomare

Sarah Swensson King
Steven King
Peter Le
Grant Semple
Jonathan Yeo

One student received MTI's graduate Certificate in Transportation Management (CTM):

Amy Bailey

Nine students received MTI's graduate Certificate in Transportation Security Management (CSTM):

Scott Arbuckle
Martin Barna
Mary Beall-Farr
Seth Cutter
Sarah Swensson King

Steven King
Peter Le
Jonathan Yeo
Sean Yeung

Two students received MTI's graduate Certificate in High-Speed Rail Management (CHSRM):

Wesley D. Johnson
Jeffrey Windham

The 12-unit CTM and CSTM programs are rigorous and intense, each consisting of four core courses from the MSTM program. Many students earn their certificates as a significant step toward achieving their MSTM degrees.

Continuing Student Performance (CSP) Fellowships

Twice a year, subject to funding availability, MTI awards MSTM and CTM/CTSM Fellowships. Thanks to this generous program, students can continue their studies while meeting their other financial obligations. In the 2013 calendar year, MTI awarded \$51,000 in the following categories:

In Spring 2013, 16 MSTM Fellowships were awarded in the amount of \$21,250.
In Fall 2013, 25 MSTM Fellowships were awarded in the amount of \$27,500.

In Spring 2013, no CTM Fellowships were awarded.
In Fall 2013, three CTM Fellowships were awarded in the amount of \$2,250.

MSTM, Class of 2013, Graduate Research Papers

All graduate students in the MSTM program are required to produce an original research paper reflecting what they have learned during their regular coursework. Papers must propose a problem, include a section on research methodology, follow standard formatting, include citations, properly list tables and illustrations, and otherwise follow standard practices for producing a research paper. The variety of topics investigated by this year's class demonstrates the broad transportation areas that their graduate education has covered. In order of author's name, these papers include:

Scott Arbuckle, **"Selecting the Optimum Paratransit Service Delivery Model for Orange County"**

Martin Barna, **"Evaluation of Service Design Characteristics for Concurrent BRT and Local Bus Service in Santa Clara County and Other Urban Corridors"**

Seth Cutter, Jr., **"An Assessment of the Potential for Implementing Adopt-A-Bike Path Programs in the San Diego Region"**

Christopher J. Espiritu, **"Identifying Potential Freeway Segments for Dedicated Truck Lanes"**

James Falomare, **"Transit: Understanding and Capturing Teenage Market Share"**

Sarah Swensson King, **"Bridging the Public Communications Gap: Tales from the Trenches to Enhance Public Engagement"**

Steven L. King, **"Transportation Asset Management: Can California Maintain Its Highway Infrastructure Investments?"**

Peter Le, **"Is the VTA Contractor Prequalification Program Effective?"**

Grant J. Semple, **"Impacts of California's Anti-Redevelopment Legislation on Caltrans Right-of-Way Acquisition Costs"**

Jonathan Yeo, **"Aligning Training Toward More Effective Project Delivery: A Case Study on Caltrans Construction Training Program"**

Selected Alumni Successes

Martin Barna (MSTM 2013) won the 2013 Neville Parker Award for Best Non-thesis Paper in Transportation Policy and Planning. Martin's paper was titled, "Evaluation of Service Design Characteristics for Concurrent BRT and Local Bus Service in Santa Clara County and Other Urban Corridors." Mr. Barna will receive the reward on January 11, 2014 at the Annual Awards Banquet for the Council of University Transportation Centers (CUTC) in Washington DC and will receive a \$1500 honorarium. His award will mark the third winner of the Parker Award from MTI in the past five years.

Trent Bachman (MSTM, 2012) recently assumed the position of Superintendent of Passenger Services NEC Business-line for Amtrak. Formerly, he was Amtrak's Assistant Superintendent NEC Service Operations.

Program Outreach and Faculty Achievements

Faculty member Rod Diridon has been selected for the 2014 Council of University Transportation Centers CUTC 2014 Lifetime Achievement Award. He will be honored at the 2014 CUTC Annual Awards Banquet.

MSTM Faculty Matt Raymond has published a book titled *Best Practices for Transportation Agency Use of Social Media* (CRC Press, October 2, 2013). MSTM alumna Robin O'Hara (2012) co-authored one of the chapters, "Using Social Media to Connect with Customers and Community."

Faculty member Dr. Nick Compin is now the Statewide Manager for the Connected Corridors Pilot Project at Caltrans.

Education Program Director Dr. Peter Haas appeared at a number of public transportation meetings and conferences as part of the ongoing effort to publicize the MSTM program and to recruit students. Dr. Haas continues to serve on a number of committees, including as co-chair of the Student Award Committee for the Council of University Transportation Centers and as a member of the Board of Regents of the Eno Transportation Foundation.

Performance Metrics: Education

Fiscal Year	2007-08	2008-09	2009-10	2010-11	7/1/11 - 12/31/12*	CY2013
MTI's MSTM Enrollment	44	45	67	63	65	69
MTI's MSTM Graduates	15	19	14	14	17	10

* Note that from July 1, 2011 until December 31, 2012, a transition was made from a Fiscal Year to a Calendar Year. Therefore, this period includes 18 months of performance.

APPENDICES

A. Financial Illustrations

B. Organizational Chart

C. Research Associates Policy Oversight Committee

D. Certified Research and Consulting Associates

E. Research and Project Assistants

F. Editorial Associates and Transcribers

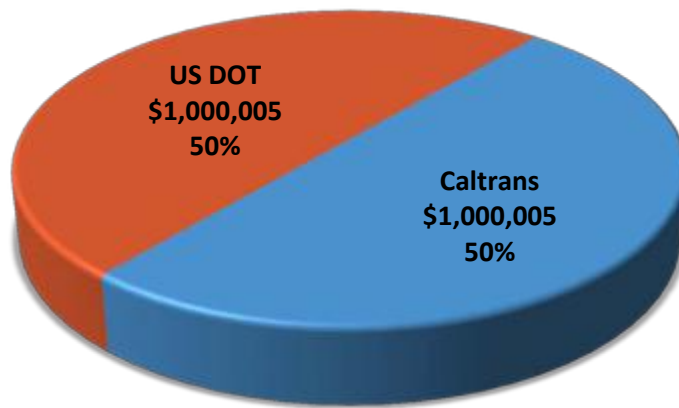
G. Graduate Transportation Management Faculty

H. Acknowledgements

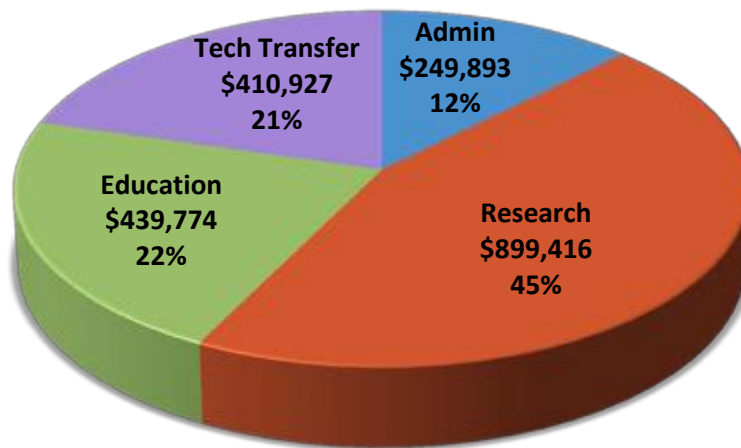


Financial Illustrations

Revenue*
Mineta Transportation Institute**
CY 2013 Revenue = \$2,000,010**



Expenditures
Mineta Transportation Institute
CY 2013 Revenue = \$2,000,010

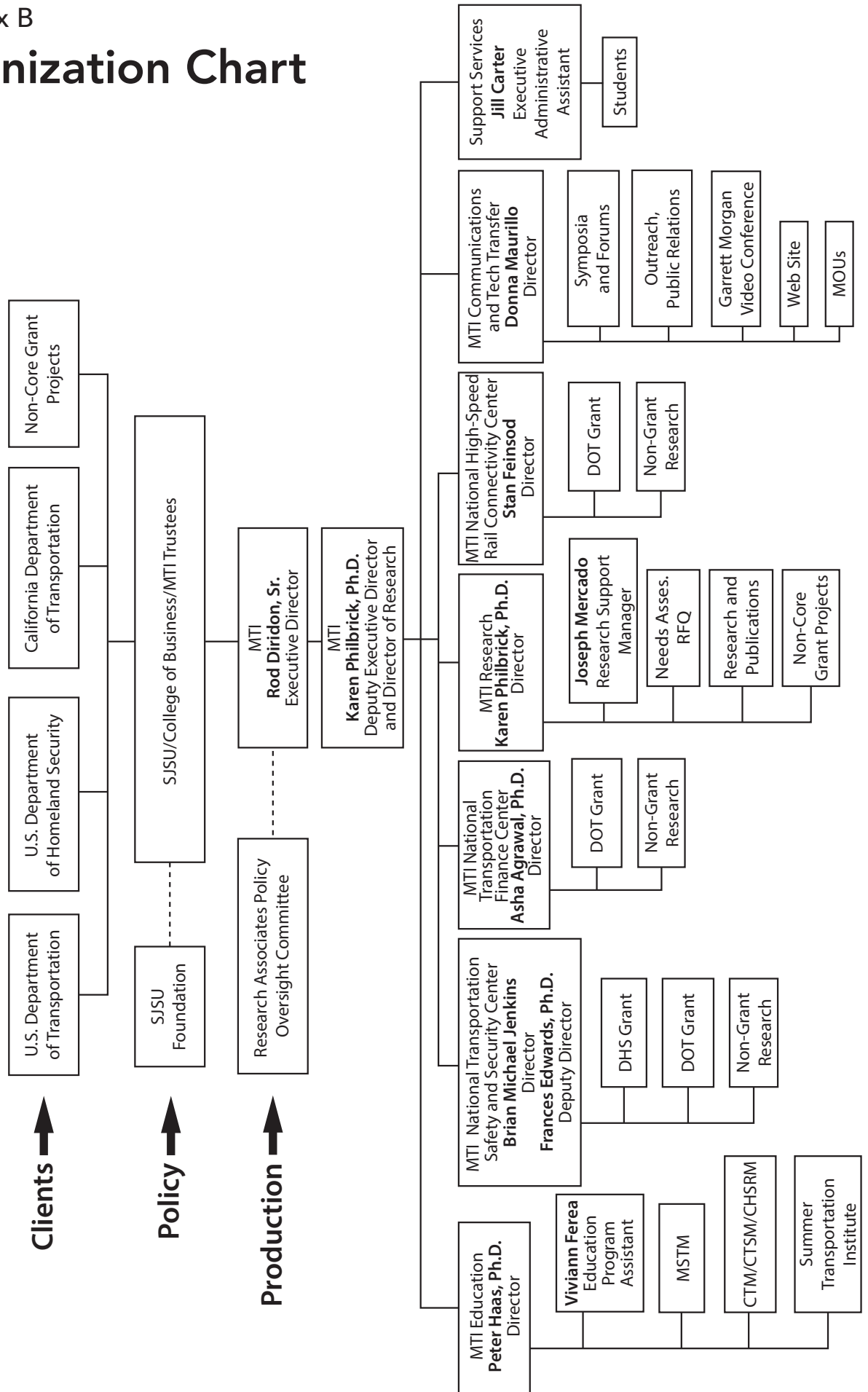


* In addition to MTI's grant revenue, the eight other MNTRC partners have been allocated a total of \$1,493,000 for 2013 research, education, and tech transfer projects conducted at their own university centers under the auspices of the Consortium.

** MTI enjoys \$364,332 in financial and administrative support from SJSU and the SJSU Research Foundation. The partner universities also receive support from their administrative structures. For example, in recognition of the essential impact that MTI has on research, education, and workforce development, and to demonstrate the University's commitment to the success of MNTRC, SJSU agreed to reduce the Facilities and Administration (F&A) rate from 43.4% to 31%. Similarly, Consortium partners secured commitments for F&A rates of 31%. Signed letters of commitment from all University partners are available upon request.

Organization Chart

Mineta Transportation Institute (Created by Congress in 1991) in the College of Business at San Jose State University



Research Associates Policy Oversight Committee (RAPOC)



Chair
(Term ends: Jun 30, 2013)
**Asha Weinstein
Agrawal, PhD**
*Urban and Regional
Planning*



Chair
(Term Begins: July 1, 2013)
David Czerwinski, PhD
*Marketing and
Decision Sciences*



Member
Jan Botha, PhD
*Civil and Environmental
Engineering*



Member
Frances Edwards, PhD
Political Science



Member
**Catherine Kao Cushing,
PhD**
Environmental Studies



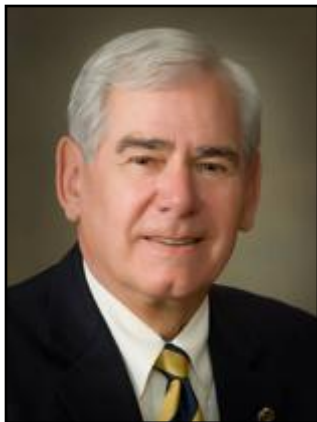
Member
Taeho Park, PhD
*Organization and
Management*



Member
Diana Wu
Martin Luther King, Jr. Library



Ex-Officio
Christine Azevedo
California Department of Transportation



Ex-Officio
Rod Diridon
MTI Executive Director



Ex-Officio
Karen Philbrick, PhD
*MTI Deputy Executive Director
 and Director of Research*

Not pictured:

Ex-Officio
Nancy Chinlund
*California Department of
 Transportation*

Ex-Officio
Nicole Longoria
*California Department of
 Transportation*

Ex-Officio
Bob O'Laughlin
*Federal Highway
 Administration*

Ex-Officio
Ted Matley
*Federal Transit
 Administration, Region IX*

Appendix D

Certified Research and Consulting Associates

Joy Adams
Seli Agbolosu-Amison
Asha Weinstein Agrawal
Majed Al-Ghandour
Bhuiyan Alam
Gila Albert
Lewis Ames
Scott Anderson
Ingmar Andreasson
Bruce Appleyard
Stephen Arhin
Senanu Ashiabor
Steve Atkinson
Patricia Backer
Torsha Bhattacharya*
Arthur Bauer
Peter Benjamin
Claudia Bernasconi
Michael Bernick
Robert Bertini
Evelyn Blumenberg
Marlon Boarnet
Earl G. Bossard
Jan Botha
James Brent
Thomas Brightbill
Jeffrey Brown
Ralph Buehler
Shaunna Burbidge
Bruce Butterworth
Lisa Callaghan
Michael Carroll
Jean Casey
Wendy Casper
Daniel Chatman
Peter Chun-Hung Chen
Xeuming "Jimmy" Chen
Christopher Cherry*
Yong Cho
Kunhee Choi
Giovanni Circella
Woodrow Clark, II
Michael J. Clay*
Cecile Clement
Adam Cohen*
Steven Colman
Lindsay Corneal
Dana Cuff
Elaine Curran
Graham Currie
Katherine Kao Cushing
David Czerwinski
Nancy Da Silva
Constantine Danopoulos

Charles Darrah
Marcia Daszko
Seebany Datta-Barua
Allison de Cerreño
Alexa Delbosc
Neil Denari
Omkar Deo
Randy Deshazo
Subhankar Dhar
Jennifer Dill
Stephanie DiPetrillo
Rod Diridon
Frank Douma
Mortimer Downey
Matthew Dresden
Michael Duncan
Utpal Dutta
Frances Edwards
Magdalini Eirinaki
Sam Elrahman
Daniel Evans
Rolanda Farrington
Stan Feinsod
Christopher Ferrell*
Robert Fields
Camille Fink
Rachel Finson
Bradley Flamm
Triant Flouris
Ann Forsyth
Lawrence Frank
Richard Funderburg, II
Peter Furth
Shengyi Gao*
Vikash Gayah
Rick Geddes
Kenneth Gehrt
Shahin Gerami
Larry Gerston
Reed Gibby
Robin Gillespie
Cynthia Glenn
Todd Goldman
Eric Gonzales
Daniel Goodrich*
Eileen Goodwin
Geoffrey Gosling
Robert Graham
George Gray
David Greene
Zhan Guo
Peter Haas
Renee Haider
Susan Handy

Leo Hanifin
Donald Hayes
James Helmer
Daniel Hess*
Aharon Hibshoosh
Harrison (Tim) Higgins
Judy Hilliard
Alan Hoback
Matthew Holian
Jinseok Hong
Doug Houston
Tai Hsu
Aseem Inam
Eric Ingbar
Hiroyuki (Hiro) Iseki*
Reza Jafari
James Jarzab
Brian Michael Jenkins
Camille Johnson
Michael Jones
Eugene Jud
Matthew Kahn
TC Kao
Mohammed Kaseko
Kevin Keck
Norman Kelley
Changmo Kim
Dohyung Kim
Dong-Shik Kim
Sungyop Kim
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Appendix E

Research and Project Assistants

More than 200 students ranging from senior-level undergraduates to PhD candidates have served as research and project assistants on MTI studies, with several working on more than one project. They attend school at San José State University, Bowling Green State University, California State University at Chico, California Polytechnic State University (Cal Poly) at San Luis Obispo and Pomona, Claremont Graduate School, Florida State University, Grand Valley State University, Howard University, New York University, Penn State University, Portland State University, Rutgers University, State University of New York at Buffalo, University of California Berkeley, University of California Davis, University of California Los Angeles, University of Detroit Mercy, University of Michigan, University of Nevada Las Vegas, University of New Orleans, University of Oregon, University of Toledo, and others.

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Research Librarian Diana Wu, LINK+ Coordinator Lindsay Schmitz, and InterLibrary Services Coordinator Danny Soares assure that the Martin Luther King, Jr. Library provides excellent service to those who use the MTI collection, including faculty, students and the community. Special thanks to each of them.

Annual Report Production Team

MTI staff produced this report in-house at no additional cost except for printing. It is also posted for free download at <http://transweb.sjsu.edu/MTIportal/about/AnnualReports.html> and at <http://transweb.sjsu.edu/mntrc/about/ar.html>

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