



2015 **ANNUAL
REPORT**





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About MTI and MNTRC



About the Mineta Transportation Institute and the Mineta National Transit Research Consortium

The Mineta Transportation Institute (MTI) at San José State University was established by Congress in 1991 as part of the Intermodal Surface Transportation Efficiency Act (ISTEA) and was reauthorized under the Transportation Equity Act for the 21st century (TEA-21). MTI then successfully competed to be named a Tier 1 University Transportation Center in 2002 and 2006 in the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). Most recently, MTI was named a Tier 1 Transit-Focused University Transportation Center in the Surface Transportation Extension Act of 2011.

In the Extension Act, MTI was selected as lead institution for a nine-university transit consortium funded by the Federal Transit Administration via the Office of the Assistant Secretary for Research and Technology of the US DOT. 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 undertakes research, education, workforce development and information/technology transfer programs and 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.

The Lucas College and Graduate School of Business at San José State University is the Institute's academic home. MTI conducts research, education programs, and information and technology transfer, focusing on multimodal surface transportation policy and management issues.

Director's Summary

Director's Summary

Executive Director
Karen E. Philbrick, PhD

The Consortium was a whirlwind of activity in 2015 thanks to the dedicated efforts of the MTI/MNTRC staff and an able team of directors who keep the big picture in focus. We're pleased to bring you up to date with a few highlights.

BOARD ACQUIRES NEW LEADERSHIP AND TALENT

MTI/MNTRC welcomed Nuria Fernandez, CEO of the Valley Transportation Authority (VTA), as its new chair, and Grace Crunican, general manager of Bay Area Rapid Transit (BART), as vice chair, at its semiannual business meeting on June 27. These experienced trustees have impressive records of accomplishment and dynamic leadership skills.

The Board also welcomed three new trustees: Donna DeMartino, CEO of San Joaquin Regional Transit District; Art Leahy, CEO of Metrolink; and Abbas Mohaddes, CEO of Mohaddes Group.

The Board bid farewell to trustees Thomas Barron, group president at Parsons Corporation, who served from 2010 to 2015; Donald Camph, president of the California Institute for Technology Exchange, whose long service ran from 1992 to 2015; and Stephanie Pinson, president of Gilbert Tweed Associates, who served from 2004 to 2015 and was chair from 2014 to 2015.

AWARD WINNING STUDENTS, FACULTY, AND STAFF

MTI students, faculty, and staff received numerous awards in 2015 and we are proud to highlight these transportation professionals.

At the 2015 Council of University Transportation Centers awards banquet in Washington DC, MTI Master of Science in Transportation Management (MSTM) student Deanna Smith received the **Neville A. Parker Award** for her outstanding non-thesis paper in the field of policy and planning in transportation studies. Her paper titled "Establishing Citizen Advisory Committees to Enhance the Public Hearing Process and Increase the Social Capital of Small Urban Public Transit Operators" marks the fifth time MTI students have won this prestigious award in the prior seven years!

At this same banquet, MSTM student Allie Scrivener was named MTI's Student of the Year and I was truly honored to receive the CUTC-ARTBA Award for Administrative Leadership.



Left to right:
New Board Chair Nuria
Fernandez; Transportation
Secretary (ret.) Norman
Mineta; Executive Director
Karen Philbrick; Emeritus
Executive Director
Rod Diridon

Award Winning Students, Faculty, and Staff

On the evening of June 27, MTI was proud to present twenty-one deserving graduates with their Master of Science in Transportation Management (MSTM) at its annual awards banquet and convocation. Keynote addresses were delivered by Norman Mineta, US Secretary of Transportation (ret), and California State Senator Jim Beall. In addition, several individuals were honored for their achievements:

- **Donna DeMartino**, mentioned earlier as a new member of the MNTRC Board, was named Alumna of the Year by the MSTM Alumni Association. She was hailed for her professional accomplishments as well as her expertise as an instructor in the MSTM program.
- Allie Scrivener was named the 2015 MTI valedictorian and was the proud recipient of the inaugural MTI **Congressman James Oberstar Award for Academic Achievement**.
- An ambitious team from **Guntown Middle School** of Guntown, MS, received this year's Garrett Morgan Sustainable Transportation Award and a check for \$1,000. The team's winning plan proposed to increase awareness of hydrogen-powered vehicles and boost availability of hydrogen fueling stations. Accepting the award were teacher **Connie Gusmus**, mentor **Julia Smith**, and student team members **Brandon Dillard** and **Luke Smith**.



Team from Guntown Middle School of Guntown, MS

From left: teacher Connie Gusmus, student team members Brandon Dillard and Luke Smith, and mentor Julia Smith

- The status of emeritus trustee is a rare honor reserved for those who have served with exceptional longevity and achieved specific outstanding accomplishments. It is so rare, in fact, that over the past quarter-century, only six MTI trustees have attained it. Thus, MTI was tremendously gratified to bestow the title of emeritus trustee on not one but two remarkable individuals at this year's event: **David Turney**, CEO and Founding Principal, EEI Strategic Consulting, who served as an MTI Trustee from 1992 to 2012 and chair from 2006 to 2008, and **Stephanie Pinson**, whose service was detailed above. Together, they cofounded the MTI Student Scholarship Endowment, which will provide financial support for MSTM students in perpetuity.
- Finally, **MTI** was honored to receive a commendation on behalf of the City of San José from Mayor Sam Liccardo for excellence in transportation policy leadership.



From left: Emeritus Executive Director Rod Diridon, 2015 MTI valedictorian Allie Scrivener, Ted Link-Oberstar, and Transportation Secretary (ret.) Norman Mineta

MTI HOSTS SECRETARY OF TRANSPORTATION SUMMIT

On February 2, US Transportation Secretary Anthony Foxx presided over a roundtable policy discussion at MTI and introduced Beyond Traffic: Trends and Choices, the US Department of Transportation's 30-year framework for the future.

He was joined by retired Secretary Norman Mineta, then Under Secretary for Policy Peter Rogoff, Congresswoman Zoe Lofgren, State Senate Transportation Committee Chair Jim Beall, San José Mayor Sam Liccardo, then San José State University President Mo Qayoumi, and state and local highway and transit planners and operators.



From left: Councilmember Ash Kalra, MTI Executive Director Karen Philbrick, Councilmember Johnny Khamis, and San José Mayor Sam Liccardo

At the Secretary's invitation, attendees offered their insights about current and future transportation issues and how to solve them. He challenged the group to become agents for change, but in an innovative way, noting that the US has typically led other nations with creative solutions. And yet this nation seems to be falling behind with increasing gridlock on its roadways.

The attendees offered several insights about social justice issues, transportation funding, the need for high-speed rail, how traffic congestion affects housing and jobs, how to leverage Silicon Valley technology to benefit transportation, ways to increase multi-modal options, how climate change is affecting transportation infrastructure, and more.

FOXX TAPS MNTRC TRUSTEE AND DIRECTOR FOR "BEYOND TRAFFIC" PANEL

At the request of the office of the Secretary of Transportation, Consortium trustee and executive director of the Metropolitan Transportation Commission

From left: US Under Secretary for Policy Peter Rogoff, Secretary Foxx, and Transportation Secretary (ret.) Norman Mineta

Steve Heminger and I participated in a lively panel discussion of USDOT's Beyond Traffic Draft Framework at the Northern California megaregional transportation forum on September 18 in Sacramento. US DOT hosted eleven such forums over a two-month period in the nation's eleven "megaregions" – defined on the Secretary's blog as networks of urban clusters interconnected by economic, social, and cultural relationships and transportation infrastructure.

As explained on the USDOT website, the framework "does not advocate for specific policy solutions. Rather, it underscores critical decision points facing the country..."

The framework identifies some of the major trends and potential issues around movement of people and goods. For example:

- By 2050, emerging megaregions could absorb 75 percent of the US population. Rural populations are expected to continue declining.
- Existing infrastructure may not be able to accommodate population growth, which will be greatest in the South and West.
- Due partly to low US energy costs, international trade balances could shift from imports to exports. Globalization will increase both, straining ports and border crossings.

Moderated by USDOT Deputy Secretary Victor Mendez, the panel engaged in a robust discussion of these and other issues. Other panelists included Northern California elected officials, MPO directors, transportation industry partners, and business and community leaders.

We are proud to have played a role in a process that encourages all Americans to discuss our transportation system and how it can meet our goals going forward.



Consortium Departments

RESEARCH DEPARTMENTS

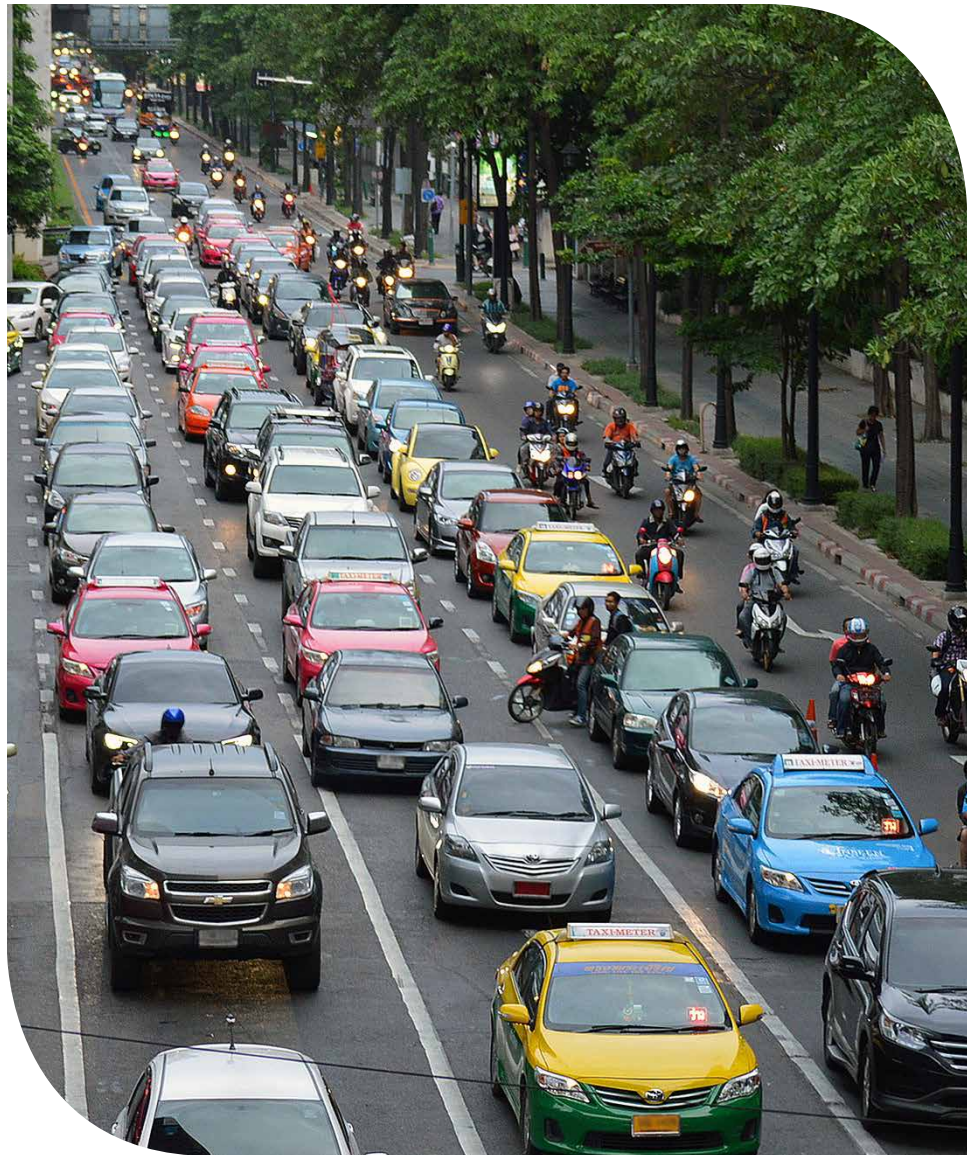
Executive Director and Research Director Karen Philbrick, PhD

Since 1999, MTI has published 215 expertly-conducted, peer-reviewed policy research projects. MNTRC has 24 more projects under contract and in process. During this reporting period, research supported by the SAFETEA-LU and Caltrans grants engaged 63 of MTI's 287 certified Research and Consulting Associates, most of whom are PhDs, as well as 47 student research assistants. Research topics are selected annually through a structured needs assessment 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 then competitively selected 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

In 2004, with the approval of its Trustees, MTI established the National Transportation Safety and Security



Center (NTSSC) funded jointly by US DOT and Caltrans grants. MTI's NTSSC research includes all threats – not only terrorism, but also natural disasters, accidents, operational emergencies, and other hazards prioritized by the Federal Transit Administration (FTA). 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 supports that mission.

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.

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 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.

Dr. Frances Edwards, NTSSC Deputy Director, was elected to a three year term as the chair of the Section on Emergency and Crisis Management of the American Society for Public Administration (ASPA) in April 2015. She and MTI Research Associate Dan 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 is on the editorial board for the Journal of Transportation Security.

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 2015, MTI published the final report "What Do Americans Think About Federal Tax Options to Support Public Transit, Highways, and Local Streets and Roads? Results from Year Six of a National Survey" (PI: Asha Agrawal). This trend analysis was so well received that excerpts were published in the Washington Post, ITS International, The Hill and over ten other media outlets. Findings were also presented to the California State Senate Committee on Housing and Transportation and six academic conferences.

In June, MTI's NTFC hosted a public forum, the Norman Mineta National Transportation Policy Summit, co-sponsored by the Commonwealth

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When an organization carries a person's name, it makes them especially sensitive about how that name is used. Without a doubt, the Mineta Transportation Institute has been a source of personal pride for me, which is why I continue to serve as an active member of the Board of Trustees.

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-Norman Y. Mineta
Founder
Mineta Transportation
Institute, US Secretary
of Transportation (ret.)

215

peer-reviewed
policy research reports

Club of California in San Francisco. This event began with a keynote address from Jim Beall, Chair, CA Senate Transportation Committee, and then moved to a panel of nationally prominent speakers: Grace Crunican, General Manager of Bay Area Rapid Transit; Carl Guardino, Past Chair of the California Transportation Commission; Steve Heminger, Executive Director of the Metropolitan Transportation Commission; Michael Melaniphy, CEO of the American Public Transportation Association; and Dr. Agrawal. Norman Mineta, retired US Secretary of Transportation,

moderated the panel. This Commonwealth Club event attracted more than 175 attendees and was later broadcast on the Commonwealth Club's National Public Radio affiliates. During the panel discussion, Dr. Agrawal presented the results of six annual MTI NTFC national surveys on what types of taxes or fees voters would support to fund transportation infrastructure, including the results from the latest survey, published earlier that month.

MTI'S NATIONAL HIGH SPEED RAIL CONNECTIVITY CENTER (NHSRCC)

Director Ben Tripousis

In January 2010, at the direction of the Board of Trustees, MTI established the National High-Speed Rail Connectivity Center (NHSRCC) funded jointly by US DOT and Caltrans grants. MTI has a long history, beginning in 1998, of

studying HSR issues, has published 47 peer-reviewed research reports, and has hosted 14 Information and Technology Transfer national summits and regional forums generally related to this subject. Eighteen of the 47 completed publications directly relate to HSR connectivity, and most of those studies stress the need for seamless connectivity to local transit feeder systems.

NHSRCC Director Tripousis 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 national high-speed rail corridors designated by congress and the Secretary of Transportation.



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>).

MTI'S EDUCATION DEPARTMENT

Director Peter Haas, PhD

More than 220 California State University AACSB accredited Master of Science in Transportation Management (MSTM) degrees have been granted since 1999, and 21 were conferred in June 2015, tying the record set in 2014 for the highest number of graduates in one year. Ten professional Certificates

were awarded in Transportation Management, Transportation Security Management, and High-Speed Rail Management. For 2015, more than 256 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.

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Each year, MTI and Caltrans develop a needs assessment to ensure that MTI research meets Caltrans objectives. The result has been a large number of peer-reviewed and broadly disseminated research products, some of which are the basis for current Caltrans policy manuals.

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-Malcolm Dougherty
Director
California State DOT (Caltrans)

143

national summits
and regional or
statewide forums since
1999

*MTI has a long history, beginning in **1998**, of studying HSR issues, has published **47** peer-reviewed research reports, and has hosted **14** Information and Technology Transfer national summits and regional forums generally related to this subject.*

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 143 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 63 speeches and panel presentations on transportation issues throughout the world, and conducted scores of media interviews related to MNTRC/MTI research.

In addition, MNTRC/MTI newsletter, *World in Motion*, was published three times in the last 12 months. This newsletter is distributed electronically to nearly thousand of national transportation leaders and other interested parties, and it is posted on the MNTRC and MTI web sites. The Institute continues to embrace 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. With aggressive outreach, especially the expanded use of social media, the 2015 calendar year saw the website's average monthly numbers increase to 319,623 hits/uses and 124,788 downloaded documents. MNTRC also established a web site in March 2012, transweb.sjsu.edu/mntrc, which contains relevant consortium news and research documents.

CONCLUSION

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.

Performance Metrics

MNTRC/MTI RESEARCH

METRIC	2007-08	2008-09	2009-10	2010-11	7/1/11-12/31/12*	CY2013	CY2014	CY2015
Number of reports issued	5	12	35	37	41	25	22	22
Number of research papers presented	17	33	66	71	80	72	64	63
Number of students participating in research	28	42	39	40	137	76	43	47

MTI MASTER OF SCIENCE IN TRANSPORTATION MANAGEMENT

METRIC	FY 2007-08	FY 2008-09	FY 2009-10	FY 2010-11	7/1/11-12/31/12*	CY 2013	CY 2014	CY2015
Enrollment	44	45	67	63	65	69	78	105
Graduates	15	19	14	14	17	10	21	21

MNTRC/MTI WEB SITES

METRIC	FY 1998-2006	7/1/11-12/31/12*	CY 2013	CY 2014	CY 2015
Average monthly uses	173,985	294,904	382,125	276,554	319,623
Average monthly downloads	~5,000	97,502	106,829	116,020	124,788

* 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.



Institute Personnel



Karen Philbrick, PhD

MNTRC/MTI Executive Director
Karen.Philbrick@sjsu.edu

Karen Philbrick was appointed executive director of MNTRC and MTI in 2014, after five years as MTI research director, with two years as deputy executive director and research director for both MTI and MNTRC. As research director, she led the three MTI research subcenters, directed more than 200 principal investigators for both agencies, oversaw the competitive selection of 129 research projects, and the production of more than 175 peer-reviewed research reports and journal publications.

Prior to joining the MTI team, she was assistant director of the National Center for Intermodal Transportation at the University of Denver where her research areas of expertise included transportation fatigue management and operator response to work related trauma.

In 2014, Dr. Philbrick was appointed by US Secretary of Transportation Anthony Foxx to the US Department of Transportation Transit Advisory Committee for Safety (TRACS) for a second two-year term and was named chair of the TRACS working group charged with identifying key elements of a fatigue management program for the transit industry.

In 2013, she was elected to the prestigious Executive Committee of the national Council of University

Transportation Centers (CUTC) for a three year term. After serving two years on the Executive Committee, she was elected Treasurer of CUTC and received the 2014 CUTC-ARTBA Award for Administrative Leadership. In 2015, Dr. Philbrick was honored to receive a commendation on behalf of the City of San José from Mayor Sam Liccardo for excellence in transportation policy leadership.

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, in the Philippines and Indonesia. She has been a member of the US delegation to the Asian Pacific Economic Cooperation (APEC) Transportation Working Group since 2000.

Dr. Philbrick is frequently requested to speak at national and international conferences and serves her community as an active member of the Rotary Club of San José.

Dr. Philbrick holds a PhD from the University of Denver and an MA and EdM from Columbia University. She earned her undergraduate degree from California State University, Fresno.



Rod Diridon, Sr.

MNTRC/MTI

Emeritus Executive Director

Rod.Diridon@sjsu.edu

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 a BS in accounting and a MSBA with an emphasis in statistics 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 José's main railroad station was rededicated the San José Diridon Station upon his 1994 retirement from elected office because of term limits. In 2014, he was given the Lifetime Achievement Award from the national Council of University Transportation Centers and was inducted into the APTA Hall of Fame.

MTI 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 José State University. She is also a Professor in the Urban and Regional Planning Department at San José State University. Dr. Agrawal's PhD in Urban and Regional Planning is from UC Berkeley.



Frances Edwards, PhD
MTI Deputy Director, NTSSC
kc6thm@yahoo.com

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 José State University.



Ben Tripousis
MTI Director, HSRCC
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Mr. Tripousis 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 industry experience and is the Northern Regional Director for the California High-Speed Rail Authority.



Peter Haas, PhD
MNTRC/MTI Director of Education
Peter.Haas@sjsu.edu

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 certificate programs.



Brian Michael Jenkins
MTI Director, NTSSC
bmjenk@gmail.com

Mr. Jenkins was appointed in 1996 to lead MTI's National Transportation Safety and Security Center, which was elevated to a Center of Excellence (NTSCOE) 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 the University of California.

MNTRC Partner Directors

The Mineta National Transit Research Consortium (MNTRC) includes nine partner university transportation centers, including the Mineta Transportation Institute, and their respective directors. Those eight other directors are listed here in alphabetical order.



Leo Hanifin, ME, DE

*Retired Professor of
Mechanical Engineering*
College of Engineering and Science
University of Detroit Mercy
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Dr. Hanifin retired in 2015 as 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
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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

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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
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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
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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, 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

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In addition to directing the Howard University Transportation Research Center, Dr. Noel served, for ten years, as chair of the university's Department of Civil and Environmental Engineering where he teaches graduate and undergraduate courses in transportation engineering. He has more than 35 years of practical experience in transportation engineering, transportation research, and has an outstanding record of published articles. He served as manager and principal investigator on numerous projects on highway traffic operation and safety, highway engineering, simulation and operation bus transit, pavement ride quality, and safety data analysis. Recently, his focus has been on applied research on urban bus transit schedule reliability. Dr. Noel earned his B.S. in civil engineering and his M.S. in transportation engineering at Howard University, and his Ph.D. in transportation engineering at the University of Maryland, College Park.



Robert B. Noland, PhD

Director
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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

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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.

Support Staff

**Jill Carter**

MNTRC/MTI Executive Administrative Assistant

Jill.Carter@sjsu.edu

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

**Frances Cherman**

MNTRC/MTI Webmaster

(part time)

Frances.Cherman@sjsu.edu

Ms. Cherman has been responsible for the operation and management of the MTI website since July 2010. She also uses her InDesign and editing skills to assist with production of MTI publications. She has been a longtime business consultant specializing in copywriting for the Web, direct marketing, sales collateral, and packaging. Her clients have included some of Silicon Valley's most successful companies, such as Apple, HP, Intuit, LegalZoom, Netflix, Wells Fargo, and many others. She holds a BA 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.

**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 holds a BA in Psychology from San José State University.

Student Assistants

**Claire Horner**

Graphic Designer

Claire.Horner@sjsu.edu

Ms. Horner joined MTI in March 2015. She is currently working toward her degree in Design Studies at San José State University while providing design services for MTI. She prepares publications for print and online posting, edits photography and video, creates collateral material and designed this annual report.

MTI BOARD OF TRUSTEES

Institute activities are overseen by a prestigious, hands-on board (see Appendix E) that meets twice a year to provide policy guidance. MNTRC/MTI's Board of Trustees winter meeting was hosted on January 10, 2015 at the Amtrak offices in Washington DC. That evening, two MTI graduate students and Executive Director Karen Philbrick were honored by CUTC at the awards banquet, which the trustees attended.

The Board's summer meeting was held on June 27, 2015 at Allied Telesis headquarters in San José CA. That evening featured the 23rd Annual MTI Board of Trustees Scholarship Awards Banquet and the

graduation of this year's Master of Science in Transportation Management (MSTM) class. The 2015 commencement address was given by Jim Beall, Chair, CA Senate Transportation and Housing Committee. Commencement addresses during the recent past were delivered by US Secretary of Transportation (ret.) Norman Mineta, acting U.S. Federal Transit Administrator Therese McMillan, 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 José 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 José 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 a 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 José 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 signed 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. In 2014, MTI hosted Shintaro Terrabe, PhD, from the University of Tokyo. He completed a one-year sabbatical to study US high-speed rail planning.



Research

Research Program Overview and Goals

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. Individuals from public and private organizations outside academia can bring a practical, “real world”, 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, and projects are conducted in an academic format, including rigorous peer review of work prior to publication.

MTI requires that all research team members be certified Research Associates (RA) or Consulting Associates (CA). Certification requires an application with references, a résumé, and a sample of published research. The Research Associates Policy Oversight Committee (RAPOC) reviews the applications and recommends certification where appropriate. Certification is approved by the executive director and must be renewed every five years.

TRANSFER OF RESEARCH INFORMATION

All research is professionally published following successful peer review, author revisions, and editing. MTI has developed a number of other approaches to information transfer, including sponsoring symposia, funding post-research travel for researchers to address professional conferences, providing financial incentives for publishing in peer-reviewed journals, and presenting research summaries for distribution to practitioners. (See additional details in the Information Technology Transfer section of this report.)



Projects Completed in 2015

INVESTIGATING THE DETERMINING FACTORS FOR TRANSIT TRAVEL DEMAND BY BUS MODE IN US METROPOLITAN STATISTICAL AREAS

Project 1101

Principal Investigator: Bhuiyan Alam, PhD

Proper understanding of the nature of the transit travel demand 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. This study is an attempt to investigate the determining factors for transit travel demand by bus mode in the United States at Metropolitan Statistical Areas in 2010. The multiple regression results indicate that seven internal factors, which the transit managers and operators have control over, and only one external variable, namely gas price, show to have significant impacts on transit travel demand by bus mode. Transit supply, transit fare, average headway, transit coverage, service intensity, revenue hours, and safety are the contributing internal factors for transit demand by bus. This indicates that the mechanisms to increase the transit ridership patronage are in the hands of the transit authorities, which further indicates that they do not need to depend on outside world to attract more ridership but can do so by adjusting the influential internal factors that are under their control.

NEIGHBORHOOD CRIME AND TRANSIT STATION ACCESS MODE CHOICE – PHASE III OF NEIGHBORHOOD CRIME AND TRAVEL BEHAVIOR

Project 1107

Principal Investigator: Christopher E. Ferrell, PhD

This report provides the findings from the third phase of a three-part study about the influences of neighborhood crimes on travel mode choice. While previous phases found evidence that high levels of neighborhood crime discourage people from choosing to walk, bicycle and ride transit, consistent with the authors' hypothesis, they also produced counterintuitive findings suggesting that in some cases, high crime neighborhoods encourage transit ridership at the expense of driving—the opposite of what common sense would suggest. Phase 3 tested possible explanations

for these counterintuitive findings with a series of methodological improvements. These improvements were:

- Improvement 1: Used the Bay Area Rapid Transit (BART) system's 2008 Station Profile Survey travel data set to replace the Bay Area Travel Survey (BATS) 2000 data used in previous phases.
- Improvement 2: Separated drop-off and drive-alone modes in logit models.
- Improvement 3: Variables at the corridor level replaced previous variables at the transportation analysis zone (TAZ) level.
- Improvement 4: Average parcel size (APS) variable replaced the intersection density measure of urban design.
- Improvement 5: Used nested logit modeling techniques.

These yielded strong evidence supporting the hypothesis that high-crime neighborhoods encourage driving, and they generated none of the counterintuitive findings from previous phases.

CHANGES IN TRANSIT USE AND SERVICE AND ASSOCIATED CHANGES IN DRIVING NEAR A NEW LIGHT RAIL TRANSIT LINE

Project 1108

Principal Investigator: Hilary Nixon, PhD

Los Angeles is pursuing possibly the most ambitious rail transit investment program in the nation with plans to open six new rail transit lines between now and 2019. The report provides policy makers and planners a better understanding of the potential impacts of Los Angeles Metro's rail transit investment program by assessing the changes in transit use of nearby residents and nearby bus service associated with the Expo Line, the first of the six new lines. Our findings indicate that changes in bus service that are coincident with the introduction of new light rail transit can negatively affect the overall transit ridership in the corridor. In addition, we find that households living near new Expo Line light rail stations reduced their vehicle miles traveled (VMT), but those households living near bus stops that were eliminated as part of the service change increased their VMT.

WHAT DO AMERICANS THINK ABOUT PUBLIC TRANSIT? A REVIEW OF U.S. PUBLIC OPINION POLLING SURVEY QUESTIONS

Project 1132

Principal Investigator: Asha Weinstein Agrawal, PhD

This “seed grant” research project compiled a set of 56 US public opinion polls that asked respondents their opinions about public transit. The first and primary goal of the project was to assemble a large set of transit-related survey questions that can be used to inspire the design of future surveys on the topic of public transit. The report presents the specific wording of every relevant question identified.

A second objective of the project was to identify general patterns in public opinion about transit that emerge across multiple surveys. Reviewing the entire set of polling questions related to public transit revealed that the surveys commonly address the following themes: the reasons people support public transit; opinions about transit service quality; the extent to which people support improving transit as a general concept; and support levels for raising additional revenues to support transit. The analysis of the poll questions on these topics shows that strong majorities of people believe that transit brings a number of specific benefits to their community, especially congestion relief and accessibility to vulnerable residents. Strong majorities also support improvements to transit as a general concept. However, fewer people support the general concept of increased spending on transit, and considerably fewer than half support raising any specific tax to increase transit funding, except for sales taxes, which usually enjoy majority support.

ELECTRICAL AND THERMAL MODELING OF A LARGE-FORMAT LITHIUM TITANATE OXIDE BATTERY SYSTEM

Project 1150

Principal Investigator: Timothy Cleary, MS

The future of mass transportation is clearly moving towards the increased efficiency of hybrid and electric vehicles. Electrical energy storage is a key component in most of these advanced vehicles, with the system complexity and vehicle cost shifting from combustion engines to battery and electric drive systems.

To assist engineers and technicians in this transfer, the Battery Application Technology Testing and Energy Research Laboratory (BATTERY) of the Thomas D. Larson Pennsylvania Transportation Institute in the College of Engineering at The Pennsylvania State University partnered with an advanced bus manufacturer to study lithium titanate oxide battery chemistry for use in transit buses. The research team found, other than proprietary data/models,

scant technical information or research on electrical and thermal modeling of this advanced chemistry.

The research team developed lithium titanate oxide modules to study their characteristic behaviors and produce state-of-charge estimators capable of running on the limited embedded processing power and memory of a typical battery management system. The team also investigated the thermal performance of this chemistry in the large format, producing a physics-based empirical thermal model for use in system-level simulations. This model predicts pack-level thermal behavior by reporting the minimum, maximum, and average temperatures within a system typically used for large automotive applications, as testing was concentrated on transit bus usage profiles.

This work supports battery system integration and management. The tools produced are intended to assist automotive engineers to achieve optimal system performance and ultimately a more efficient vehicle.

ADVANCED LOW-FLOOR VEHICLE (ALFV) SPECIFICATION RESEARCH

Project 1151

Principal Investigator: Suresh Iyer, PhD

This report details the results of research on market comparison, operational cost efficiencies, and prototype tests conducted on a novel design for an Advanced Low Floor Vehicle (ALFV), flex-route transit bus. Section I describes how the need for such a bus arises from a combination of diminishing transit funding from the federal government and demographic and transportation



factors. Section II describes the unique features of this bus design that render it suitable for rural and urban operation, including improved transit passenger and wheelchair accessibility, reduced maintenance, structural design features, safety provisions, and the technical specifications of this design. Section III details the potential differences in capital and operational costs of procuring and operating this bus in a fleet. Potential cost reductions due to the long-life vehicle concept, maneuverability, operational savings (from APTA Bus Rodeo tests), and reserve fleet savings are explored. Section IV refers to the Federal Transit Administration (FTA) new model bus tests (“Altoona Testing”). However, at the this time, the Altoona Bus Test Report for these tests is not yet released by the bus manufacturer, Ride Solution, Inc., as is its right under the Bus Testing Regulation. The report must be released to the public before this bus can be purchased by a transit agency using FTA funds. In addition to the standard Altoona Bus Test, additional research was conducted to determine the turning ability, suspension travel, ramp travel index, field of view for the driver, compliance to Americans with Disabilities Act (ADA) requirements, and timed assessment of wheelchair securement. Section IV also presents the results of these tests. Section V presents results from a market comparison that included the buses in this mid-size category that were tested at Altoona and are expected to be available for FTA grantees to purchase. The specifications and performance of the ALFV bus are compared with these buses. Section VI presents a flex-route utilization plan, and Section VII provides the results from a survey of transit professionals about their interest in the features of this

bus design. Section VIII gives Ride Solution’s experience in developing the concept for ALFV. Conclusions of this report are presented in Section IX, followed by the references and appendices.

THE PURPOSE, FUNCTION, AND PERFORMANCE OF STREETCAR TRANSIT IN THE MODERN U.S. CITY: A MULTIPLE-CASE-STUDY INVESTIGATION

Project 1201

Principal Investigator: Jeffrey Brown, PhD

The streetcar has made a remarkable resurgence in the United States in recent years. However, despite the proliferation of streetcar projects, there is remarkably little work on the streetcar’s role as a transportation service. This study examines the experiences of the modern-era streetcars operated in Little Rock, Memphis, Portland, Seattle, and Tampa. The authors discovered that in these cities, the primary purpose of the streetcar was to serve as a development tool (all cities), a second objective was to serve as a tourism-promoting amenity (Little Rock, Tampa), and transportation objectives were largely afterthoughts with the notable exception of Portland, and to a lesser degree, Seattle.

Key informant interviews revealed that in most cities, private sector actors from the local development and downtown business communities as well as streetcar advocacy groups were the key forces behind streetcar implementation and that these actors did so in order to use the streetcar primarily to achieve development goals. These informants viewed the streetcar as a catalyst for development that stood as a symbol of a permanent public commitment to an area. Despite the lack of serious assessments of the streetcar’s development effects, most informants believed the streetcar to be an important contributor to any development effects that had occurred. Many informants also regarded the streetcar as an icon or symbol of the community and an important way of denoting the city’s identity in efforts to attract visitors to the community.

When assessed as transportation, Portland’s streetcar emerged as the clear standout performer with the highest ridership and service productivity and the second-most cost effective service. Portland was also the only city in which streetcar performance (service productivity and cost effectiveness) measures surpass that of the average local bus. Planners’ decisions to locate the streetcar lines in an area with strong ridership potential combined with decisions to provide frequent service that is well integrated with other transit services help to explain Portland’s strong performance. These decisions reflected a view that the streetcar was not just a development tool, but that it also





needed to function effectively as a transit service that catered to a broader ridership.

Based on this study, the authors suggest that planners and policymakers in other cities think carefully about the fundamental purpose of any proposed streetcar in their communities and to proceed in all their decision making with that fundamental purpose clearly in mind. The authors also urge planners and policymakers in other cities to regard the example of Portland with much more caution. Many streetcar advocates point to Portland's experience and proceed as if it could be easily replicated elsewhere. But the authors suggest that Portland's experience is the result of a unique combination of external factors (local population and employment patterns, the health of the real estate market) and local decisions (land development policy decisions, financial decisions, other public investments, streetcar alignment location and length, streetcar operations decisions, streetcar fare policy decisions) that may or may not be applicable elsewhere.

COMPARING DATA QUALITY AND COST FROM THREE MODES OF ON-BOARD TRANSIT PASSENGER SURVEYS

Project 1206

Principal Investigator: Asha Weinstein Agrawal, PhD

This report presents the findings from a research project investigating the relative data quality and administration costs for three different modes of surveying bus passengers that produce results generalizable to the full passenger population. The three modes, all of which used survey

methods distributed or administered onboard the transit vehicle, were: self-complete paper surveys, self-complete online surveys, and interviewer-assisted tablet-based surveys. Results from this study indicate several implications for practitioners choosing a survey mode. First, and most importantly, the analysis reinforces the point that there is no single, best survey mode. The choice of mode must depend on an agency's priorities for what questions most need to be answered, what population groups are most important to represent, and exactly how the agency chooses to define concepts like a "complete" survey or a "usable" address. Findings suggest several general recommendations for current survey practice: (1) online surveys administered via an invitation distributed on the transit vehicle are not a good option; (2) old-fashioned, low-tech paper survey may still be the best option for many bus passenger surveys; (3) changes in survey results that accompany changes in survey methods should be interpreted with caution; and (4) using a new survey method, especially one relying on more complex technologies, may create unexpected glitches.

SYNERGISTIC INTEGRATION OF TRANSPORTATION DEMAND MANAGEMENT STRATEGIES (LAND USE, TRANSIT, AND AUTO PRICING) WITH NEW TECHNOLOGIES AND SERVICES (BATTERY ELECTRIC VEHICLES AND DYNAMIC RIDESHARING) TO ENHANCE REDUCTIONS IN VMT AND GHG

Project 1207

Principal Investigator: Caroline Rodier, PhD

It is widely recognized that new vehicle and fuel technology is necessary, but not sufficient, to meet deep greenhouse gas (GHG) reductions goals for both the U.S. and the state of California. Demand management strategies (such as land use, transit, and auto pricing) are also needed to reduce passenger vehicle miles traveled (VMT) and related GHG emissions. In this study, the authors explore how demand management strategies may be combined with new vehicle technology (battery electric vehicles or BEVs) and services (dynamic ridesharing) to enhance VMT and GHG reductions. Owning a BEV or using a dynamic ridesharing service may be more feasible when distances to destinations are made shorter and alternative modes of travel are provided by demand management strategies. To examine potential markets, we use the San Francisco Bay Area activity based travel demand model to simulate business-as-usual, transit oriented development, and auto pricing policies with and without high, medium, and low dynamic ridesharing participation rates and BEV daily driving distance ranges.

The results of this study suggest that dynamic ridesharing has the potential to significantly reduce VMT and related

GHG emissions, which may be greater than land use and transit policies typically included in Sustainable Community Strategies (under California Senate Bill 375), if travelers are willing pay with both time and money to use the dynamic ridesharing system. However, in general, large synergistic effects between ridesharing and transit oriented development or auto pricing policies were not found in this study. The results of the BEV simulations suggest that TODs may increase the market for BEVs by less than 1% in the Bay Area and that auto pricing policies may increase the market by as much as 7%. However, it is possible that larger changes are possible over time in faster growing regions where development is currently at low density levels (for example, the Central Valley in California). The VMT Fee scenarios show larger increases in the potential market for BEV (as much as 7%). Future research should explore the factors associated with higher dynamic ridesharing and BEV use including individual attributes, characteristics of tours and trips, and time and cost benefits. In addition, the travel effects of dynamic ridesharing systems should be simulated explicitly, including auto ownership, mode choice, destination, and extra VMT to pick up a passenger.

PROMOTING INTERMODAL CONNECTIVITY AT CALIFORNIA'S HIGH-SPEED RAIL STATIONS

Project 1209

Principal Investigator: Anastasia Loukaitou-Sideris, PhD

High-speed rail (HSR) has emerged as one of the most revolutionary and transformative transportation technologies, having a profound impact on urban-regional accessibility and inter-city travel across Europe, Japan,



and more recently China and other Asian countries. One of HSR's biggest advantages over air travel is that it offers passengers a one-seat ride into the center of major cities, eliminating time-consuming airport transfers and wait times, and providing ample opportunities for intermodal transfers at these locales. Thus, HSR passengers are typically able to arrive at stations that are only a short walk away from central business districts and major tourist attractions, without experiencing any of the stress that car drivers often experience in negotiating such highly congested environments. Such an approach requires a high level of coordination and planning of the infrastructural and spatial aspects of the HSR service, and a high degree of intermodal connectivity. But what key elements can help the US high-speed rail system blend successfully with other existing rail and transit services? That question is critically important now that high-speed rail is under construction in California. The study seeks to understand the requirements for high levels of connectivity and spatial and operational integration of HSR stations and offer recommendations for seamless, and convenient integrated service in California intercity rail/HSR stations. The study draws data from a review of the literature on the connectivity, intermodality, and spatial and operational integration of transit systems; a survey of 26 high-speed rail experts from six different European countries; and an in-depth look of the German and Spanish HSR systems and some of their stations, which are deemed as exemplary models of station connectivity. The study offers recommendations on how to enhance both the spatial and the operational connectivity of high-speed rail systems giving emphasis on four spatial zones: the station, the station neighborhood, the municipality at large, and the region.

GREAT EAST JAPAN EARTHQUAKE, JR EAST MITIGATION SUCCESSES, AND LESSONS FOR CALIFORNIA HIGH-SPEED RAIL

Project 1225

Principal Investigator: Frances L. Edwards, MUP, PhD, CEM

California and Japan both experience frequent seismic activity, which is often damaging to infrastructure. Seismologists have developed systems for detecting and analyzing earthquakes in real-time. JR East has developed systems to mitigate the damage to their facilities and personnel, including an early earthquake detection system, retrofitting of existing facilities for seismic safety, development of more seismically resistant designs for new facilities, and earthquake response training and exercises for staff members. These systems demonstrated their value in the Great East Japan Earthquake of 2011 and have been further developed based on that experience. Researchers



in California are developing an earthquake early warning system for the state, and the private sector has seismic sensors in place. These technologies could contribute to the safety of the California High-Speed Rail Authority's developing system, which could emulate the best practices demonstrated in Japan in the construction of the Los Angeles-to-San José segment.

PASSENGER FLOWS IN UNDERGROUND RAILWAY STATIONS AND PLATFORMS

Project 1230

Principal Investigator: Anastasia Loukaitou-Sideris, PhD

Urban rail systems are designed to carry large volumes of people into and out of major activity centers. As a result, the stations at these major activity centers are often crowded with boarding and alighting passengers, resulting in passenger inconvenience, delays, and at times danger. This study examines the planning and analysis of station passenger queuing and flows to offer rail transit station designers and transit system operators guidance on how to best accommodate and manage their rail passengers. The objectives of the study are to: 1) Understand the particular infrastructural, operational, behavioral, and spatial factors that affect and may constrain passenger queuing and flows in different types of rail transit stations; 2) Identify, compare, and evaluate 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; and 3) Compile short-, medium-, and long-term recommendations for optimizing passenger flows in different station environments.

MANAGERIAL SEGMENTATION OF SERVICE OFFERINGS IN WORK COMMUTING

Project 1232

Principal Investigator: Steven Silver, PhD

Methodology to efficiently segment markets for public transportation offerings has been introduced and exemplified in an application to an urban travel corridor in which high tech companies predominate. The principal objective has been to introduce and apply multivariate methodology to efficiently identify segments of work commuters and their demographic identifiers. A set of attributes in terms of which service offerings could be defined was derived from background studies and focus groups of work commuters in the county. Adaptive choice conjoint analysis was used to derive the importance weights of these attributes in available service offering to these commuters. A two-stage clustering procedure was then used to explore the grouping of individual's subsets into homogeneous sub-groups of the sample. These subsets are commonly a basis for differentiation in service offerings that can increase total ridership in public transportation while approximating cost neutrality in service delivery. Recursive partitioning identified interactions between demographic predictors that significantly contributed to the discrimination of segments in demographics. Implementation of the results is discussed.

UNDERSTANDING PUBLIC OPINION REGARDING TRANSIT IN SOUTHEAST MICHIGAN

Project 1236

Principal Investigator: Claudia Bernasconi, MDes

This report presents findings from a study on public opinion regarding transit in Southeast Michigan. The overall goals of this study were to assess the nature of public opinion regarding regional transit and to understand its relation to socio-demographic characteristics, political attitudes and orientations, and geographical characteristics of respondents. Results from the study were interpreted toward the identification of key recommendations for building a positive public opinion regarding transit in future transit initiatives in Southeast Michigan. The project consisted of three phases – Phase 1: a pilot mail survey; Phase 2: an educational effort; and Phase 3: a comprehensive phone and email survey. In the last phase, an ad hoc survey was designed based on the review of past public opinion surveys, local media coverage on public opinion about transit,¹ and previous educational campaigns. A sample of 799 likely-voters in four counties of Southeast Michigan provided opinions for this project. Results provide insight on how public opinion relates to respondents' socio-demographic, political, and geographical characteristics. In addition, a set of recommendations on how to enhance the success of future campaign initiatives and public opinion efforts for the Metro Detroit region and comparable regions is also provided. Key elements for such efforts include public education about transit, clarity about transit funds spending, accountability measures, and transparency of transit plans and decision-making processes. Specific recommendations for campaign messaging for Southeast Michigan are also included in this report.

ECONOMIC IMPACTS OF BUS RAPID TRANSIT IN SOUTHEAST MICHIGAN

Project 1237

Principal Investigator: Utpal Dutta, PhD

In recent years, Bus Rapid Transit (BRT) has generated great interest across the United States. There are more than 20 BRT systems in existence, and more are in the planning stage (including in Detroit). Within the next few years, BRT will be planned and implemented phase by phase in various parts of Southeast Michigan. The purpose of this study is to develop a framework to identify probable economic impacts of BRT in Southeast Michigan.

Taxable real estate values, injury and fatal crash data, and selected demographics of BRT users, including employment sector, age group, median income, and

daily vehicle miles traveled were reviewed to identify Southeast Michigan's current and future trends.

The project team also performed shift-share analysis using Cleveland and Kansas City data to determine the BRT-advantaged age group. The authors recommended a number of action items to attract choice riders and gratify riders who must rely on BRT, such as tax incentives, branding, guaranteed levels of service, etc. Based on the literature review and analysis of existing BRT-related data by the project team, BRT-advantaged job sectors and age groups within the Southeast Michigan region were identified. BRT will be implemented in phases. This will affect the amount, type, and timing of investments in BRT. Considering this uncertainty, the potential economic impacts as a function of type and amount of investment were discussed. It is to be noted that in order to achieve the projected results, the BRT system must be planned, designed, and implemented based on the unique attributes of the Southeast Michigan region rather than by copying a system that has achieved success in another region.

DEVELOPMENT OF BUS-STOP TIME MODELS IN DENSE URBAN AREAS: A CASE STUDY IN WASHINGTON DC

Project 1239

Principal Investigator: Stephen Arhin, PhD

Bus transit reliability depends on several factors including the route of travel, traffic conditions, time of day, and conditions at the bus stops along the route. The number of passengers alighting or boarding, fare payment method, dwell time (DT), and the location of the bus stop also affect the overall reliability of bus transit service. This study defines a new variable, Total Bus Stop Time (TBST) which includes DT and the time it takes a bus to safely maneuver into a bus stop and the re-entering the main traffic stream. It is thought that, if the TBST is minimized at bus stops, the overall reliability of bus transit along routes could be improved.

This study focused on developing a TBST model for bus stops located near intersections and at mid-blocks using ordinary least squares method based on data collection at 60 bus stops, 30 of which were near intersections while the remaining were at mid-blocks in Washington DC. The field data collection was conducted during the morning, mid-day, and evening peak hours. The following variables were observed at each bus stop: bus stop type, number of passengers alighting or boarding, DT, TBST, number of lanes on approach to the bus stop, presence of parking, and bus pad length. The data was analyzed and all statistical inferences were conducted based on 95% confidence interval. The results show that the TBST could be used to

aid in improving planning and scheduling of transit bus systems in an urban area.

A LONGITUDINAL ANALYSIS OF CARS, TRANSIT, AND EMPLOYMENT OUTCOMES

Project 1244

Principal Investigator: Michael J. Smart, PhD

Access to cars and transit can influence individuals' ability to reach opportunities such as jobs, health care, and other important activities. While access to cars and public transit varies considerably across time, space, and across populations, most research portrays car access as a snapshot in time; some people have a car and others do not. But does this snapshot approach mask variation in car ownership over time? And how does access to particular types of transportation resources influence individuals' economic outcomes?

The authors improve upon existing research by using panel data from 1999 to 2013 from the Panel Study of Income Dynamics (PSID) to examine levels of automobile access in groups that have variable access: poor families, immigrants, and people of color. They further employ two new national datasets of access to jobs using public transit. These datasets are used to examine the effect of transit and automobile access on income growth over time within families, controlling for a number of relevant variables.

The research found that for most families, being "carless" is a temporary condition. While 13% of families in the US are carless in any given year, only 5% of families are carless for all seven waves of data examined in the analysis. The research also found that poor families, immigrants, and people of color (particularly blacks) are considerably more likely to transition into and out car ownership frequently and are less likely to have a car in any survey year than are non-poor families, the US-born, and whites.

The research also found that improving automobile access is associated with a decreased probability of future unemployment and is associated with greater income gains. However, the analysis suggests that the costs of owning and maintaining a car may be greater than the income gains associated with increased car ownership. The relationship between public transit and improved economic outcomes is less clear. The research found that living in areas with access to high-quality public transportation has no relationship with future earnings. However, transit serves an important purpose in providing mobility for those who cannot or choose not to own a car.



THE BENEFITS OF TRANSIT IN THE UNITED STATES: A REVIEW AND ANALYSIS OF BENEFIT-COST STUDIES

Project 1425

Principal Investigator: Christopher Ferrell, PhD

This white paper presents the findings from a review and analysis of the available literature on benefit-cost (b-c) estimates of existing U.S. transit systems. Following an inventory of the literature, the b-c estimates from each study were organized according to the type of study area (e.g., rural, small urban, urban, etc.). Through this process, categories of monetary transit benefits were identified. The estimated dollar value for each benefit category was divided by the total estimated costs of providing the transit services, thus creating a benefit-specific b-c ratio for each category and allowing benefits from each study to be compared on an equal basis. Some of these differences are attributable to the population size and densities of the service areas (context) with rural and

small urban areas generally yielding lower b-c values than urbanized areas. However, differences remained even after the context was accounted for; suggesting appropriate transit investments in rural and small urban areas can yield benefits substantially greater than costs. The benefits of transit were measurable and strong in a variety of operating environments; not just in large cities. Key findings from this review and analysis were:

- Transit benefits often substantially exceed costs in rural and small urban areas—not just big cities;
- Transit typically pays for itself in congestion relief benefits for mid- to large-sized urban areas;
- Jobs and economic stimulus are among the largest benefit categories of transit;
- Transit improves health care access and outcomes while reducing costs;
- Transit saves people money, with transit in larger urban areas benefiting more people;

- Low b-c ratios aside, transit saves lives, with evidence presented that b-c analysis methods are likely undervaluing the role transit plays in reducing accidents and their costs to society; and
- Greenhouse gas emissions, air quality, and other important but undervalued transit benefits categories should be considered in future studies.

HOUSEHOLD INCOME AND VEHICLE FUEL ECONOMY IN CALIFORNIA

Project 1426

Principal Investigators: Christopher E. Ferrell, PhD

This white paper presents the findings from an analysis of the fiscal implications for vehicle owners of changing from the current statewide fuel tax to a “road user charge” (RUC) based on vehicle-miles traveled (VMT). Since 1923, California’s motor vehicle fuel tax has provided revenue used to plan, construct, and maintain the state’s publicly funded transportation systems. Over time, improvements in vehicle fuel efficiency and the effects of inflation have reduced both the revenue from the fuel tax and its purchasing power. Thus, there is growing interest among policy makers for replacing the state’s per-gallon fuel tax with an RUC based on VMT.

This study analyzes the 2010-2011 California Household Travel Survey (CHTS) to identify the potential effects this policy change would be likely to have on households across the state. The analysis found that while daily household fuel consumption and VMT both appear to increase with household income, urban and rural households show roughly the same amount of fuel consumption and VMT. No statistically significant difference in cost was found between the two programs in any income group. This suggests that an RUC designed to collect the same amount of revenues statewide as the current fuel tax would not place a significant financial burden on California households.

HIGH-SPEED RAIL AND EQUINE ISSUES

Project 1427

Principal Investigators: Peter Haas, PhD

Community concerns have been raised about the possible negative impacts of high-speed rail (HSR) service on equestrian areas. Although much is known about the impact of aircraft noise on wild and domestic animals, relatively little information is available on the potential impact of HSR service on equine populations. This study will explore possible conflicts between HSR construction and operations in areas used for equestrian ranching, recreation, and related activities, and identify geographic areas where such conflicts could occur.

WHAT DO AMERICANS THINK ABOUT FEDERAL TAX OPTIONS TO SUPPORT PUBLIC TRANSIT, HIGHWAYS, AND LOCAL STREETS AND ROADS? RESULTS FROM YEAR SIX OF A NATIONAL SURVEY

Project 1428

Principal Investigator: Asha Weinstein Agrawal, PhD

This report summarizes the results of year six of a national random-digit-dial public opinion poll asking 1,503 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 perceptions related to public transit, including knowledge and opinions about federal taxes to support transit. In addition, the survey collected data on standard sociodemographic factors, travel behavior (public transit usage, annual miles driven, and vehicle fuel efficiency), and respondents’ views on 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 71% of respondents, whereas support levels dropped to just 31% if the revenues were to be used more generally to maintain and improve the transportation system. For tax options in which 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 supported 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 half knowing that fares do not cover the full cost of transit.

Ongoing Research Projects



PROJECT TITLE	PROJECT	PRINCIPAL INVESTIGATOR
Safety Aspects of the Design of Bicycle Transportation Infrastructure	1125	Jan Botha, PhD
Remedial Actions to Prevent Suicides and Accidental Deaths on Commuter and Metro Rail Systems	1129	Patrick Sherry, PhD
Transit and Passenger Rail Security: A Critical Assessment of What Works	1130	Brian Michael Jenkins
Bicycling and Access to Transit by Low-Income Immigrants	1202	Daniel G. Chatman, PhD
Integrating Multimodal Data into Benefit-Cost Analysis for Transportation Planning and Public Policy	1203	Matthew Holian, PhD
The Impact of Public Bikes sharing on Bicycle Safety in North America	1204	Elliott Martin, PhD
A Tool to Evaluate and Optimize Multimodal Transit Access	1205	Maaza Christos Mekuria, PhD
Performance Measurement and Transit Data	1208	Caroline Rodier, PhD
Transportation Construction Work Zone Safety Impact on Time-Related Incentive Contracting Projects	1224*	Jae-ho Pyeon, PhD
International Lessons for Promoting Transit Connections to High-Speed Rail Systems	1226	Stan Feinsod
Nexus between Infrastructure and Accessibility	1233	Stephanie DiPetrillo and Andrea Lubin
Analysis of the US Transit Bus and Paratransit Vehicle Manufacturing Industry	1234	David Czerwinski, PhD
Developing Public-Private Partnerships for Improving Regional Mass Transit Services in the United States	1235	Hokey Min, PhD
Remanufacturing, Repurposing, Recycling and Disposal of Public Transit Vehicle Batteries	1238	Charles R. Standridge, PhD
Finances and Transit: A Historical Case Study of the New York Metropolitan Transportation Authority	1241	Robert Noland, PhD
Performance Measures to Assess Efficiency and Resilience of Transit Systems	1242	Hani Nassif, PhD
Behavioral Analysis of the Impacts of Hurricane Sandy in New Jersey	1243	Robert Noland, PhD
Experimental Modeling of NOx and PM Generation from Combustion of Various Biodiesel Blends for Urban Transport Buses	1245	Ashok Kumar, PhD and Dong-Shik Kim, PhD
Estimating Uncertainty of Bus Arrival Times and Passenger Occupancies	1246	Vikash V. Gayah, PhD
Safety of Lithium Nickel Cobalt Oxide Battery Packs in Transit Bus Applications	1247	Timothy Cleary
Feasibility Study of a Public Bikes sharing Program in Las Vegas	1248	Harry Teng, PhD
Enhancing Walkability in Las Vegas	1249	Mohamed Kaseko, PhD
Intermodal Bus and Bicycle Transportation in Southern Nevada	1250	Alexander Paz, PhD
University of Nevada Las Vegas Community Transit Services	1251	Pramen Shrestha
Park and Ride Linkage to Public Transit Service Productivity	1401	John Niles
Trend Analysis of Worldwide Long Tunnels for the California High-Speed Rail Palmdale to Burbank Section	1429	Jae-ho Pyeon, PhD
A Survey of Viva CalleSJ Participants - San José, CA 2015	1430	Asha Weinstein Agrawal, PhD
Transportation Data Trends and Best Practices for Caltrans, Division of Research, Innovation and System Information (DRISI)	1501	Frances Cherman
A Comparative Analysis of High Speed Rail Station Development into Destination and/or Multi-use Facilities	1502	Anastasia Loukaitou-Sideris, PhD

*MTI Seed Grant

**Phase I & II were combined in this report

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.

PROJECT TITLE	PROJECT	PRINCIPAL INVESTIGATOR
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	9700	George Gray
Analysis of Policy Issues Relating to Public Investment in Private Freight Infrastructure	9701	Dan Evans, JD
Why Campaigns for Local Transportation Funding Initiatives Succeed or Fail: An Analysis of Four Communities and National Data	9702	Peter Haas, PhD
NAFTA II: California Border Zone Land Transportation Issues	9802	George Gray
Land Use and Transportation Alternatives: Constraint or Expansion of Household Choice?	9803	Jonathan Levine, PhD
Applying an Integrated Urban Model to the Evaluation of Travel Demand Management Policies in the Sacramento Region	9804	Robert Johnston
Protecting Public Surface Transportation against Terrorism and Serious Crime: Continuing Research on Best Security Practices	9805	Brian Michael Jenkins
Protecting Public Surface Transportation Against Terrorism and Serious Crime: An Executive Overview	9805-2	Brian Michael Jenkins
GIS for Livable Communities: Using GIS to Improve Transportation Planning and Community Livability	9806	Tom Horan, PhD
A New Planning Template for Transit-Oriented Development	9807	Dick Nelson
The Travel Behavior and Needs of the Poor: A Study of Welfare Recipients in Fresno County, California	9808	Evelyn Blumenberg, PhD
Implementation of Zurich's Transit Preferential Program	9809	Andrew Nash
Envisioning Neighborhoods with Transit-Oriented Development Potential	9810	Earl G. Bossard, PhD
Best Practices in Developing Regional Transportation Plans	9811	Donald R. Rothblatt, PhD
Construction of Transit-Based Developments: New Policy Initiatives for Governments	9901	Scott Lefaver, DPA, AICP
How to Best Serve Seniors on Existing Transit Services	9902	David Koffman
Effects of Online Shopping on Vehicular Traffic Patterns	9903	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	9904	Richard A. Werbel, PhD
Developer-Planner Interaction in Transportation and Land Use Sustainability	9905	Aseem Inam, PhD
Transit Labor Relations Guide	9906	Herb Oestreich, PhD
Non-Pricing Methods to Optimize High Occupancy Vehicle Lane Usage	9908	George Gray
A Statewide Study for Bicyclists and Pedestrians on Freeways, Expressways, Tunnels and Toll Bridges	9909	Thomas C. Ferrara, PhD
Using the Internet to Envision Neighborhoods with TOD Potential	2001	Earl G. Bossard, PhD
Applying an Integrated Urban Model in the Evaluation of Travel Demand Management Policies in the Sacramento Region: Year Two	2002	Robert Johnston
The California General Plan Process and Sustainable Transportation Planning	2003	Richard Lee, PhD, AICP
Trucks, Traffic, and Timely Transport: A Regional Freight Logistics Profile	2004	John S. Niles
Increasing Transit Ridership: Lessons from the Most Successful Transit Systems in the 1990s	2005	Brian D. Taylor, PhD
Using Fiber Networks to Stimulate Transit Oriented Development: Prospects, Barriers and Best Practices	2007	Walter Siembab
Bridging the Gap: Planning Inter-Jurisdictional Transit Services	2102	Patrick McGovern, PhD
Toward Sustainable Transportation Indicators for California	2106	Richard Lee, PhD

*MTI Seed Grant

**Phase I & II were combined in this report

Completed Research Projects

PROJECT TITLE	PROJECT	PRINCIPAL INVESTIGATOR
Modeling Long-Range Transportation and Land Use Scenarios for the Sacramento Region, Using Citizen-Generated Policies	2107	Robert Johnston
Verifying the Accuracy of Regional Models Used in Transportation and Air Quality	2108	Caroline Rodier, PhD
Impact of Ethnic Diversity on Transit: How Do Various Population Groups View and Utilize Various Transit Modes?	2109*	Richard A. Werbel, PhD
Making Growth Work for California's Communities	2111	Kenneth R. Schreiber, AICP
Best Practices in Shared Use of High Speed Rail Systems	2113	Andrew Nash
Saving City Lifelines: Lessons Learned in the 9-11 Terrorist Attacks	2114	Brian Michael Jenkins
The Future of Transportation Education: A Needs Assessment for the Transportation Management Program at San José State University	2201	Linda Valenty, PhD
Can Consumer Information Tighten the Transportation/Land Use Link? A Simulation Experiment	2202	Daniel Rodriguez, PhD
Using Spatial Indicators for Pre- and Post-Development Analysis of TOD Areas: A Case Study of Portland and the Silicon Valley	2203	Marc Schlossberg, PhD
Higher Density Plans: Tools for Community Engagement	2204	Kenneth Schreiber, AICP
The Impact of Telecommuter Rail Cars on Modal Choice	2205	James Hayton, PhD
A Consumer Logistics Framework for Understanding Preferences for High-Speed Rail Transportation	2206	Kenneth C. Gehrt, PhD
Lessons Learned in Attempting to Survey Hard-to-Reach Ethnic Segments Along with the Presentation of a Comprehensive Questionnaire	2207	Richard Werbel, PhD
Designing and Operating Safe and Secure Transit Systems: Assessing Current Practices in the U.S. and Abroad	2301	Brian D. Taylor, PhD
Verifying the Accuracy of Land Use Models Used in Transportation and Air Quality Planning: A Year-Two Validation Study	2302	Caroline Rodier, PhD
Applying Smart Growth Principles and Strategies to Resolving Land Use Conflicts Around Airports	2303	Richard Lee, PhD
High-Speed Rail Projects in the United States: Identifying the Elements for Success	2304	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	2305	Hollie Lund, PhD
High-Speed Rail Projects in the United States: Identifying the Elements for Success – Part 2	2401	Allison de Cerreño, PhD
Barriers to Using Fixed-Route Transit for Older Adults	2402	Michael Peck, PhD, MSW
Public Versus Private Mobility for the Poor: Transit Improvements Versus Increased Car Ownership in the Sacramento Region	2403	Robert Johnston
Video Transit Training for Older Travelers: A Case Study of the Rossmoor Senior Adult Community, California	2404	Susan Shaheen, PhD
Neighborhood Crime and Travel Behavior: An Investigation of the Influence of Neighborhood Crime Rates on Mode Choice	2405	Christopher Ferrell, PhD and Wenbin Wei, PhD
How Far, by Which Route, and Why? A Spatial Analysis of Pedestrian Preference	2406	Marc Schlossberg, PhD
Beyond Uncertainty: Urban Models in Transportation and Air Quality Planning	2407	Caroline Rodier, PhD
Paving the Way: Recruiting Students into the Transportation Professions	2408	Asha Weinstein Agrawal, PhD
Bus Rapid Transit: A Handbook for Partners	2426	Tom Larwin and George Gray
The 1995 Attempted Derailing of the French TGV (High-Speed Train) and a Quantitative Analysis of 181 Rail Sabotage Attempts	2501-2	Brian Michael Jenkins
Caltrans Statewide Cultural Properties Information System	2502	Eric Ingbar
Collaborative Funding to Facilitate Airport Ground Access	2503	Geoffrey Gosling, PhD
Exploration of Data Sources for Air Cargo Studies	2525*	Wenbin Wei, PhD
Evaluating the Environmental Justice Effects of Land Use Scenarios in the Sacramento Region with the PECAS Activity Allocation Model	2601-2705**	Caroline Rodier, PhD
Tribal Corridor Management Planning: Model, Case Study, and Guide for Caltrans District 1	2604	Mary Scoggin, PhD and Joy Adams, PhD
Shared-Use Bus Priority Lanes on City Streets: Case Studies in Design and Management	2606	Asha Weinstein Agrawal, PhD
Connecting Transportation Decision Making with Responsible Land Use: State and Regional Policies, Programs, and Incentives	2607	Gary Binger, AICP

*MTI Seed Grant

**Phase I & II were combined in this report

Completed Research Projects

PROJECT TITLE	PROJECT	PRINCIPAL INVESTIGATOR
The Influence of Service Planning Decisions on Rail Transit Success or Failure	2608	Jeffrey Brown, PhD and Gregory Thompson
Effects of Suburban Transit-Oriented Developments on Residential Property Values	2609	Shishir Mathur, PhD
The Nature of Context-Sensitive Solutions, Stakeholder Involvement and Critical Issues in the Urban Context	2610	Marta Pañero, PhD
How to Ease Women's Fear of Transportation Environments: Case Studies of Best Practices	2611	Anastasia Loukaitou-Sideris, PhD
Carsharing and Public Parking Policies: Assessing Benefits, Costs and Best Practices	2612	Susan Shaheen, PhD
An Ambit-Based Activity Model for Evaluation Green House Gas Emission Reduction Policies	2613*	Asim Zia, PhD
Creating an Educational Network in California to Assess and Address its Future Transportation Education Challenges	2614*	Triant Flouris, PhD
"Green" Transportation Taxes and Fees: A Survey of Californians	2701	Asha Weinstein Agrawal, PhD
Greenhouse Gas Emission Impacts of Carsharing in North America	2702	Susan Shaheen, PhD
Linking Highway Improvements to Changes in Land Use with Quasi-Experimental Research Design: A Better Forecasting Tool for Transportation Decision Making	2703	Hilary Nixon, PhD
Case Studies of Incremental Bus Rapid Transit Projects in North America	2704	John Niles
Evaluating the Environmental Justice Effects of Land Use Scenarios in the Sacramento Region with the PECAS Activity Allocation Model	2601-2705**	Caroline Rodier, PhD
The Role of Transportation in a Campus-Level Emergency	2727	Frances Edwards, PhD, CEM
Improving Transportation Construction Project Performance: Development of a Model to Support Decision-Making Process for Incentive/Disincentive Construction Projects	2801	Jae-Ho Pyeon, PhD
Neighborhood Crime and Travel Behavior: An Investigation of the Influence of Neighborhood Crime Rates on Mode Choice – Phase II	2802	Christopher Ferrell, PhD
Facilitating Telecommuting as a Means of Congestion Reduction	2803	Nancy Da Silva, PhD; Meghna Virick, PhD
Development Challenges of Secondary and Small Airports in California	2804	Senanu Ashiabor, PhD
Model-based Transportation Performance: A Comparative Framework and Literature Synthesis	2805	Caroline Rodier, PhD
Getting Around When You're Just Getting By: The Travel Behavior and Transportation Expenditures of Low-Income Adults	2806	Asha Weinstein Agrawal, PhD and Evelyn Blumenberg, PhD
Policy Issues in U.S. Transportation Public-Private Partnerships: Lessons from Australia	2807	Rick Geddes, PhD
Ecodriving and Carbon Footprinting: Understanding How Public Education Can Reduce Greenhouse Gas Emissions and Fuel Use	2808	Susan Shaheen, PhD
Understanding Household Preferences for Alternative Fuel Vehicle Technologies	2809	Hilary Nixon, PhD
Bicycling Access and Egress to Transit: Informing the Possibilities	2825	Kevin Krizek, PhD
A Framework for Developing and Integrating Effective Routing Strategies within the Emergency Management Decision Support System for Transit Centers	2901	Anurag Pande, PhD
Potential Economic Consequences of Local Nonconformity to Regional Land Use and Transportation Plans Using a Spatial Economic Model	2902	Caroline Rodier, PhD
An Investigation into Constraints to Sustainable Vehicle Ownership and Use: A Focus Group Study	2903	Bradley Flamm, PhD
Examination of Regional Transit Service under Contracting: A Case Study in the Greater New Orleans Region	2904	Hiro Iseki, PhD
Integration of Bicycling and Walking Facilities into the Infrastructure of Urban Communities	2906	Cornelius Nuworsoo, PhD
Measuring Walking and Cycling Using the PABS (Pedestrian and Bicycling Survey) Approach: A Low-Cost Survey Method for Local Communities	2907	Kevin Krizek, PhD and Ann Forsyth, PhD
Systematic Procedures to Determine Incentive/Disincentive Dollar Amount for Highway Transportation Construction Projects	2908	Jae-Ho Pyeon, PhD
The Intersection of Urban Form and Mileage Fees: Findings from the Oregon Road User Fee Pilot Program	2909	Zhan Guo, PhD
Emergency Management Training and Exercises for Transportation Agency Operations	2910	Frances Edwards, PhD
Revisiting Factors Influencing Voting Results of Local Transportation Funding Initiatives with a Substantial Rail Transit Component	2911	Peter Haas, PhD

*MTI Seed Grant

**Phase I & II were combined in this report

Completed Research Projects

PROJECT TITLE	PROJECT	PRINCIPAL INVESTIGATOR
Reliability Centered Maintenance: A Case Study of Railway Transit Maintenance to Achieve Optimal Performance	2913	Felix Marten, PhD
Exploring the Effectiveness of Transit Security Awareness Campaigns in the San Francisco Bay Area	2914	Nina Rohlich
Suicides on Urban Commuter Rail Systems in California – Possible Patterns	2926	Jan L. Botha, PhD
Promoting Bicycle Commuter Safety	2927	Asbjorn Osland, PhD
What Do Americans Think About Federal Transportation Tax and Fee Options? Results from a National Survey	2928	Asha Weinstein Agrawal, PhD
Continuity of Operations/Continuity of Government for State-Level Transportation Organizations	2976	Frances Edwards, PhD
Security Awareness for Public Bus Transportation: Case Studies of Attacks Against the Israeli Public Bus System	2978	Bruce Robert Butterworth
Carnage Interrupted: An Analysis of Fifteen Terrorist Plots against Public Surface Transportation	2979	Brian Michael Jenkins
Residential On-Site Carsharing and Off-Street Parking Policy in the San Francisco Bay Area	1001-Part I	Charles Rivasplata, PhD
Amenity or Necessity? Street Standards as Parking Policy	1001-Part II	Zhan Guo, PhD
The Impact of Center City Economic and Cultural Vibrancy on Greenhouse Gas Emissions from Transportation	1002	Matthew Holian, PhD
Understanding Transit Ridership Demand for a Multi-Destination, Multimodal Transit Network in an American Metropolitan Area	1003	Greg Thompson, PhD, and Jeffrey Brown, PhD
A Decision-Support Framework for Using Value Capture to Fund Public Transit: Lessons from Project-Specific Analysis	1004	Shishir Mathur, PhD
Low-Stress Bicycling and Network Connectivity	1005	Maaza Mekuria, PhD
Proactive Assessment of Accident Risk to Improve Safety on a System of Freeways	1006	Anurag Pande, PhD
Cost Estimate Modeling of Transportation Management Plan for Highway Projects	1007	Jae-Ho Pyeon, PhD
An Economic and Life Cycle Analysis of Regional Land Use and Transportation Plans	1008	Caroline Rodier, PhD
User Evaluations of Intermodal Travel to Work: Exploratory Studies	1025*	Steven Silver, PhD
Formulating a Strategy for Securing High-Speed Rail in the United States	1026	Brian Michael Jenkins
Estimating Workforce Development Needs for High-Speed Rail in California	1027	Peter Haas, PhD
Wellness Lessons from Transportation Companies	1028*	Asbjorn Osland, PhD
Public Bikes sharing in North America: Early Operator and User Understanding	1029	Susan Shaheen, PhD
Planning for Complementarity: An Examination of the Role and Opportunities of First-tier and Second-tier Cities along the High-Speed Rail Network in California	1030	Anastasia Loukaitou-Sideris, PhD
What Do Americans Think About Federal Transportation Tax Options? Results From Year 2 of a National Survey	1031	Asha Weinstein Agrawal, PhD
An Examination of Women's Representation and Participation in Bicycle Advisory Committees in California	1034*	Hilary Nixon, PhD
Generic Continuity of Operations/Continuity of Government Plan for State-Level Transportation Agencies	1080	Frances L. Edwards, PhD
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	1102	Jeffrey Brown, PhD
Exercise Handbook: What Transportation Security and Emergency Preparedness Leaders Need to Know to Improve Emergency Preparedness	1103	Frances Edwards, PhD
Perceptions of Bicycle-Friendly Policy Impacts on Accessibility to Transit Services: The First and Last Mile Bridge	1104	Bradley Flamm, PhD
California Voting and Suburbanization Patterns: Implications for Transit Policy	1105	Matthew Holian, PhD
Net Effects of Gasoline Price Changes on Transit Ridership in U.S. Urban Areas	1106	Hiroyuki Iseki, PhD
Active Travel Co-Benefits of Travel Demand Management Policies that Reduce Greenhouse Gas Emissions	1109	Caroline Rodier, PhD
Measuring the Performance of Livability Programs	1126	Peter Haas, PhD
Assessing Importance and Satisfaction Judgments of Intermodal Work Commuters with Electronic Survey Methodology	1127	Steven Silver, PhD

*MTI Seed Grant

**Phase I & II were combined in this report

Completed Research Projects

PROJECT TITLE	PROJECT	PRINCIPAL INVESTIGATOR
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	1128	Asha Weinstein Agrawal, PhD
Public Bikesharing in North America During a Period of Rapid Expansion: Understanding Business Models, Industry Trends, and User Impacts	1131	Susan Shaheen, PhD
2012 Census of California Water Transit Services	1133	Richard Kos, AICP
Assessing the Comparative Efficiency of Urban Mass Transit Systems in Ohio: Longitudinal Analysis	1135	Hokey Min, PhD
Detroit Regional Transit Study: A Study of Factors that Enable and Inhibit Effective Regional Transit	1136	Leo Hanifin, PhD
Remanufacturing, Repurposing, and Recycling of Post-Vehicle-Application Lithium-Ion Batteries	1137	Charles Standridge, PhD
Long Term Trends in Patron Satisfaction of DC Circulator	1138	Errol Noel, PhD
Evaluation of Bus Transit Reliability in the District of Columbia	1139	Stephen Arhin, PhD
Understanding & Modeling Bus Transit Driver Availability	1140	Kaan Ozbay, PhD
Modeling Taxi Demand with GPS Data from Taxis and Transit	1141	Eric J. Gonzales, PhD
Measuring the Benefits of Transit-Oriented Development	1142	Robert B. Noland, PhD
Fatigue Evaluation of the Increased Weight Limit on Transit Railway Bridges	1143	Hani Nassif, PhD
Exploring Transportation, Employment, Housing, and Location Issues for New Jersey Veterans with Disability	1144	Stephanie DiPetrillo and Andrea Lubin
Transit Access and the Agglomeration of New Firms: A Case Study of Portland and Dallas	1145	Robert B. Noland, PhD
Combustion Chemistry of Biodiesel for the Use in Urban Transport Buses: Experiment and Modeling	1146	Ashok Kumar, PhD
Enhancing Transit Service in Rural Areas and Native American Tribal Communities: Potential Mechanisms to Improve Funding and Service	1147	Mahomed Kaseko, PhD
Developing Seamless Connections in the Urban Transit Network: A Look toward High Speed Rail Interconnectivity	1148	Hualiang (Harry) Teng, PhD
Transportation Futures: Policy Scenarios for Achieving Greenhouse Gas Reduction Targets	1149	Caroline J. Rodier, PhD
The Purpose, Function, and Performance of Streetcar Transit in the Modern US City: A Multiple-Case-Study Investigation	1201	Jeffrey Brown, PhD
Automated Transit Networks (ATN): A Review of the State of the Industry and Prospects for the Future	1227	Burford Furman, PhD
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	1228	Asha Weinstein Agrawal, PhD
White Paper: Building Consensus and Partnerships for Implementing MAP-21's Section 5310 Program in California	1229*	Christopher E. Ferrell, PhD
Managerial Segmentation of Service Offerings in Work Commuting	1232*	Steven Silver, PhD
What Do Americans Think about Federal Tax Options to Support Public Transit, Highways, and Local Streets and Roads? Results from Year Five of a National Survey	1328	Asha Weinstein Agrawal, PhD

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MNTRC/MTI Research

METRIC	2007-08	2008-09	2009-10	2010-11	7/1/11-12/31/12*	CY2013	CY2014	CY2015
Number of reports issued	5	12	35	37	41	25	22	22
Number of research papers presented	17	33	66	71	80	72	64	63
Number of students participating in research	28	42	39	40	137	76	43	47

Mineta Transportation Institute

National Transportation Safety and Security Center



OVERVIEW

MTI's National Transportation Safety and Security Center (NTSSC) conducts research and technology transfer on all surface transportation threats – not only terrorism, but also natural disasters, accidents, operational emergencies, and other hazards.

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

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 and Daniel Goodrich whose civilian career has included emergency management positions for the City of San José, the Santa Clara County Public Health Department and Lockheed Martin Space Systems Company. 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.



ACTIVITIES

In this past year, the NTSSC team has made 12 presentations at academic and professional meetings. These included presentations to the Department of Homeland Security (DHS), the Federal Transit Administration (FTA), and at Transportation Research Board (TRB) meetings. The team also provided briefings through the Public Transportation and Surface Transportation Information Sharing and Analysis Centers (PT/ST-ISACs) and provided information for two Congressional Testimonies.

Dr. Frances Edwards, NTSSC Deputy Director, and Research Associate Dan Goodrich completed the *ICS for*

Transportation Professionals report and training program, NCHRP 20 (59) which entailed researching best practices in the delivery of Incident Command System training to field level personnel of various professions, and interviewing emergency management leaders from Washington, Idaho and Massachusetts. The training course has been offered in all twelve Caltrans districts, and was a featured topic at the August 2015 AASHTO meeting. In 2015, Dr. Edwards and Mr. Goodrich also delivered Continuity of Operations training, Emergency Operations Center training and ICS training to all twelve Caltrans districts and the Headquarters staff.

Dr. Edwards is a member of the editorial boards for the *Journal of Transportation Security*, *International Journal of Public Administration*, *Public Organization Review*, and *Natural Hazards Review*, and a peer reviewer for a number of professional journals.

NTSSC RESEARCH FINDINGS ON TERRORIST ACTIVITIES AGAINST SURFACE TRANSPORTATION TARGETS

A high priority for the NTSSC is to improve its computerized database – a compendium of attacks on public surface transportation targets, which grew to 4,692 as of December 31, 2015. The objective of the work is to make it more rapidly responsive, more powerful, and web-based accessible to users.

The database remains a key in NTSSC's delivery of different analyses that include not only qualitative but supporting quantitative analyses.

A snapshot of recent findings follows:

- **The threat to surface transportation is real.** Between 9/11 and the end of 2015, there have been over **120** terrorist attacks (outside of war zones in Afghanistan, Iraq, and Somalia) on airliners and the airports they serve. The total killed was just over 420 which **equates to 2 airplanes** like those bombed over Lockerbie in 1988 and over Egypt in 2015. Yet during this same period, terrorists worldwide carried out **3,409** attacks against passenger trains, buses, and ferries, and **1,281** more on road and rail infrastructure.

Looking just at attacks killing 25 or more, 2,217 people died, **which is the same as 9 airplanes being blown up.**

- **Protecting surface transportation is in some respects more challenging than protecting air transport.** An aviation security model won't work. The costs and delays would destroy public surface transportation. The country needs to develop new approaches that are compatible with civil liberties and resource constraints.
- **Mineta Transportation Institute's detailed database of attacks on public surface transportation is recognized as the most comprehensive source of information on the subject.** This comprehensive database provides detailed information on 4,692 terrorist and serious criminal assaults on surface transportation targets worldwide. The database enables MTI researchers to examine attacks by target, country, time, method of attack and weapons used, the specific and general types of groups involved, and whether the attacks were successful or not, and how many casualties they caused.
- The MTI database is a practical tool of value to police, transportation system operators, security planners, and first responders. In recognition of this contribution, DHS in 2011 named MTI as the recipient of the IMPACT award for providing *Analytical Support to TSA Explosives Training*.

SECURITY PERSPECTIVES

In January 2014, MTI initiated a series of Transportation Security Perspectives. These were distributed through the news release system and posted on the Institute's web site. Each was a bylined article addressing a timely facet of transport security. Authors were MTI's NTSSC Director Brian Michael Jenkins and MTI Research Associate Bruce Butterworth.

Two perspectives were published in 2015:

1. Troubling Trends in Terrorism and Attacks on Surface Transportation: The Outlook Is Grim, but People Still Have a Great Deal of Control
2. The High-Speed Rail Attack in France: What are the Security Challenges for Protecting Rail Systems?

These perspectives provide insight about the significance of each event, as well as practical information for the reader – why they should not feel helpless, how they can keep a rational perspective, what kind of action they can take, and other counsel.

Communications and Information Technology Transfer



Donna R. Maurillo, MSTM

Director

Donna.Maurillo@sjsu.edu

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 technology PR agencies, and she was an instructor and consultant in corporate communications for many years.

Director Maurillo earned her BA from the University of California and delivered the commencement address. 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.
- Summaries and reports from those meetings, along with promotions for MNTRC research reports. 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.
- 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.
- 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.
- 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.
- Management of Information Technology (IT) as it relates to in-office technology functions.

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. Listed in chronological order, the events presented during the 12-month reporting period include:

MTI-Sponsored Forums and Summits

RADIO AMATEUR CIVIL EMERGENCY SERVICES (RACES) TRAINING

January 2015 – San José CA

Following many disasters, amateur radio is the only means of two-way communication, giving emergency services and municipalities excellent communications capabilities. RACES members are also valuable for radio communications at marathons, parades, and other large events. MTI provided this training at its facility, with Frances Edwards, PhD, as instructor. These classes, which are taught as a 2.5 hour unit, are required for all emergency responders whose jurisdictions receive emergency planning grants or who may wish to receive post-disaster public assistance or disaster cost reimbursements from FEMA.

TRANSFORM CALIFORNIA: LET'S GET MOVING, SILICON VALLEY

March 2015 – Cupertino CA

MTI was a co-sponsor and a presenter at this one-day public participation conference addressing the problems of mobility in an increasingly traffic-congested world. More than 300 people heard speakers from more than three dozen organizations address these challenges. The summit opened with a plenary session, followed by interactive breakout sessions on transportation and land use topics. Skill-building workshops also were included. Videos from this event and others can be found at <https://www.youtube.com/user/TransFormCA/videos>



REGIONAL TRANSIT GOVERNANCE SEMINAR

March 2015 – San Francisco CA

This seminar brought together transportation experts, transit operators, and public officials to discuss regional transit governance challenges and how they affect performance outcomes, such as system integration, investment decisions, and customer orientation. They also discussed best practices that shape development and growth in several urban areas.

In addition to MTI, the event was co-sponsored by Eno Center for Transportation, SPUR, and TransitCenter. Several speakers and panelists from the San Francisco Bay region participated, including California State Senator Jim Beall; David Bragdon, executive director of TransitCenter; Steve Heminger, executive director of the Metropolitan Transportation Commission; Grace Crunican, general manager of Bay Area Rapid Transit; and several others. A portion of the program was recorded for broadcast on National Public Radio.

JOINT RAIL CONFERENCE

March 2015 – San José CA

JRC is the principal rail and transit research conference in North America. This year's conference theme was "A Century of Innovation: Heavy Haul to High-Speed Rail." Papers in this year's conference covered topics related to all rail modes developed in the past century—heavy haul freight, high-speed passenger service, commuter rail, subways, light rail, and high-speed rail. In developing

plans for expansion and enhancement of rail systems in North America, attendees at the conference seriously examined why things are the way they are and the path that innovation has taken to get where we are today.

The call for abstracts was distributed worldwide, and the conference accepted a large and excellent array of papers representing the best that global railway research, operations, and engineering communities can offer. Conference abstracts accommodated any subject related to railway planning, design, construction, operation, maintenance, and economics.

US HIGH-SPEED RAIL CONFERENCE

April 2015 – Washington DC

This annual conference, co-sponsored by MTI, brought together some of high-speed rail's most knowledgeable people. Business and political leaders and the world's top experts discussed high-speed rail in America. The conference also addressed the concept of transit-oriented development, which is essential for successful mobility as highways become more congested. The assembly also learned how private investment will be brought in, how Americans can advocate for high-speed rail, how to bring multi-modal transit centers into the mix, what the 21st century rail stations will include, and much more.

15TH ANNUAL GARRETT MORGAN SUSTAINABLE TRANSPORTATION COMPETITION

May 2015 – Nationwide

MTI works with California's DOT (Caltrans) and the US Department of Transportation to organize a curriculum that challenges middle-school students to solve transportation problems. Schools receive free curriculum workbooks from MTI. From these lessons, the student teams create a project that they demonstrate during a live streaming video broadcast. Cash awards are given to the top team classrooms.

Students are introduced to transportation leaders during the broadcast, including luminaries such as Transportation Secretary Anthony Foxx, retired Transportation Secretary Norman Mineta, and others.

MINETA TRANSPORTATION FINANCE POLICY SUMMIT

June 2015 – San Francisco CA

Congress says that Americans won't pay more taxes and fees for mobility. But is that true? What exactly are the funding challenges, and how are transportation leaders



addressing them? At this summit, MTI presented its results from the sixth year of a national telephone survey about taxpayer opinions regarding transportation taxes and fees. The event also offered expert perspectives from the regional, state, and national level.

“Fund Federal Transportation Investment Now” began with opening remarks by US Secretary of Transportation (ret.) Norman Mineta. This was followed by a keynote address by State Senator Jim Beall and a presentation of survey results by Asha Weinstein Agrawal, PhD. A panel of experts then discussed their viewpoints. Audience questions were taken, and a portion of the summit was recorded for broadcast on National Public Radio.

ENVISIONING AUTOMATED VEHICLES WITHIN THE BUILT ENVIRONMENT

July 2015 – Ann Arbor MI

Emerging and innovative public transport and technologies were addressed at this Michigan conference, co-sponsored by MTI. It was created especially for regulators, technologists, innovators, architects, planners, engineers, and environmental and transportation professionals. Primary topics included a description of the Michigan Connected Vehicle Proving Center, and potential land use and travel effects of automated vehicles. The assembly separated into groups to participate in built environment design workshops addressing plans for 2020, 2035, and 2050.

FIRST INTERNATIONAL CONFERENCE ON TRANSPORT AND HEALTH

July 2015 – London UK

The Transportation Public Health Link (TPH Link) is based on a systems approach to transportation infrastructure, which integrates social, political, economic and environmental elements that impact long-term sustainability and quality of life. Policy-makers, practitioners and academics from multiple disciplines involved with transport planning and engineering, public

health, urban planning, spatial and architectural design, environmental planning, economics, and beyond convened on the University College London campus. They learned how non-traditional thinking can lead to creative problem solving. MTI was a co-sponsor of this event.

5TH ANNUAL SILICON VALLEY BIKE SUMMIT

August 2015 – Palo Alto CA

This bicycle summit is the region’s largest gathering of active transportation leaders and organizers from government, law enforcement, non-profit, and the public. Participants heard fresh ideas about the future of safety and bicycling. Featured speakers included Nuria Fernandez, MTI Board Chair and VTA CEO, plus Jim Hartnett, GM and CEO, San Mateo County Transit District.

San Mateo County Health System and Santa Clara County Health Department introduced their bicycle collision reports and discussed recommendations for focus areas. Silicon Valley Bicycle Coalition presented a toolkit for local governments to implement Vision Zero plans. Fresh concepts from San Mateo and Santa Clara Counties also were presented.

STATEWIDE PLANNING ROUNDTABLE FOR TRANSIT ORIENTED DEVELOPMENT AT CALIFORNIA'S HIGH SPEED AND INTERCITY RAIL STATIONS

August 2015 – Sacramento CA

Transit-oriented development (TOD) is a key part of high-speed rail (HSR) success because of its interconnectivity facets. This conference addressed several relevant topics, including making the most of high-speed rail in California; maximizing economic development at HSR stations through good station design, placemaking, and land use; navigating the complexities of station area development for success; assessing existing involvement of state agencies in TOD planning at HSR stations; developing strategies for assisting cities with station area planning and long-term TOD implementation; and connecting good TOD planning to California’s sustainability goals. MTI co-sponsored.

SAN JOSÉ MINI-MAKER FAIRE

September 2015 – San José CA

MTI co-sponsored this first annual fair, which showcased local innovators who are solving problems in technology, invention, homesteading, transportation, science, and more. This event was based on successful makers’

fairs around the US and in Europe and Asia. This year's San José event presented everything from homemade bamboo bicycles and personal scooters to the Spartan Superhighway and an electric tricycle.

ATC/USGS SEISMIC HAZARD USER-NEEDS WORKSHOP

September 2015 – Menlo Park CA

This workshop program was designed to elicit feedback from those who use seismic hazard information and products. The earthquake engineering community discussed the transfer of seismic hazard results into engineering practice, seismic risk analysis, and public policy; and to make practical recommendations to the USGS National Seismic Hazard Mapping Project.

Experts described the changes in the 2014 update of the hazard maps, including changes to the hazard model input, hazard calculations, and the resulting differences in hazard values. Users discussed how they use hazard information from the Project. They also provided feedback on the hazard products they use, and they provided ideas about developing additional products or consolidating existing products. MTI was a co-sponsor.

RESPONDING TO HIGH-SPEED RAIL EARTHQUAKE EMERGENCIES

October 2015 – San Francisco CA

The purpose of this meeting was to discuss high-speed rail emergency response to earthquakes, and to share the information for current situations among railway operators.

The Railway International Standards Center (RISC) plans a development of international standard for this issue in near future. MTI co-sponsored the event, which included several

Japanese scientists, the Consulate General of Japan in San Francisco, and experts from MTI.

The overall purpose is to provide broad and centralized support for the activities of the international railroad-related standardization committees; to engage strategically in international railroad standardization to enhance the safety of rail transportation; and to foster the development of railroad technologies.

VIVA CALLE SAN JOSÉ

October 2015 – San José CA

Removing more than 40,000 cars off urban streets is no easy task; however, this event provided six miles of vehicle-free city streets to people. The City of San José estimated that more than 35,000 people filled the streets to walk, bike, skate, and play. A Heroes Ride celebrated the life of a local police officer, and other events included a street library, a petting zoo, tricycle races, chalk artwork, dance and music performances, athletes signing autographs, a bike helmet giveaway, hayrides, and more. MTI was a co-sponsor.

SMARTRAIL USA

October 2015 – Charlotte NC

MTI was a co-sponsor and presenter at this annual summit on national rail transport.

The SmartRail Congress gave executives and budget holders insight on the return of investment available from a long-term view of transit development. The Congress included round-table sessions, technical seminars, and solutions-provider exhibits. Attendees heard from more than 75 speakers, including Joseph Szabo, executive director of Chicago Metropolitan Agency for Planning; Nick Tennyson, North Carolina Secretary of Transportation;



Frank Vacca, chief program manager, California High-Speed Rail Authority, and many others. Topics covered technical and planning facets, as well as methods for attracting ridership, managing finances, and implementing wireless communications.

RAILWAY INTERNATIONAL STANDARDS CENTER (RISC)

San Francisco, October 2015

Frances Edwards, PhD, conducted this summit with the Consulate of Japan, Railway Technical Research Institute, and RISC to discuss high-speed rail emergency response to earthquakes, and to share the information for current situations as railway operators. RISC plans to develop an international standard for this issue in the near future. Participants included Mr. Kazunori Makino, Technical Expert of RISC, RTRI; Dr. Shunroku Yamamoto, Senior Chief Researcher, Laboratory Head, RTRI; Ms. Asako Togari, PE, Technical Expert of RISC, RTRI; Mr. Shunta Noda, Researcher, RTRI (also at USGS as a Visiting Scientist); and Mr. Masao Kanno, PE, Consul, Consulate General of Japan in San Francisco.

TRANSIT COMMUNICATIONS CONFERENCE

October 2015 – Charlotte, NC

MTI co-sponsored this three-day international gathering of communications and technology professionals discussing ways to make transit safer, more efficient, and more popular for those entering the workforce.

PODCAR CITY 9

November 2015 – Mountain View CA

Each year, the Podcar City conferences, co-sponsored by MTI, present the latest information about automated guideway transit and its progress. Presenters come from around the world to discuss how these systems can fit into the urban environment to augment traditional transit. Speakers included those from several universities (UC Berkeley, Sydney Tech, Princeton, etc.), industry (Parsons, Lea + Elliot, Podaris, etc.), agencies (US DOT, Ithaca MPO, California High-Speed Rail Authority, etc.) and nations (France, Netherlands, Australia, Sweden, Italy, UK, etc.).

As a new feature, San José State University students presented a Podcar Student Design Charrette, designing podcars and their stations for a local California environment.

US HIGH-SPEED RAIL CONFERENCE

December 2015 – Los Angeles CA

Business and political leaders and the world's top experts brought high-speed rail to America. The event was co-sponsored by MTI, with Emeritus Executive Director Rod Diridon making a featured presentation. The conference addressed construction on the first phase of California's 800-mile state-of-the-art transportation system "set to revolutionize mobility in America."

“

MTI instituted a Master of Science in Transportation Management, which has a basis in the business side of mobility. This speaks to the very women we are trying to advance.

”

-Marcia Ferranto
President/CEO
Women's Transportation
Seminar

MNTRC Partner Forums and Summits

All projects were managed by their respective MNTRC directors.

PRE-COLLEGE ENGINEERING PROGRAM

March 2015 – Detroit MI

This program was created for high school students, bringing them into a hands-on experience with engineering for transportation and other fields. Nearly 25 students benefited from this introduction to practical science.

RAILWAY ENGINEERING SEMINAR

April 2015 – Las Vegas NV

The University of Nevada Las Vegas hosted the American Railway Engineering and Maintenance-of-way Association (AREMA) for its seminar, “Introduction to Practical Railway Engineering.” In total, 40 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.

21ST CENTURY AUTOMOTIVE CHALLENGE

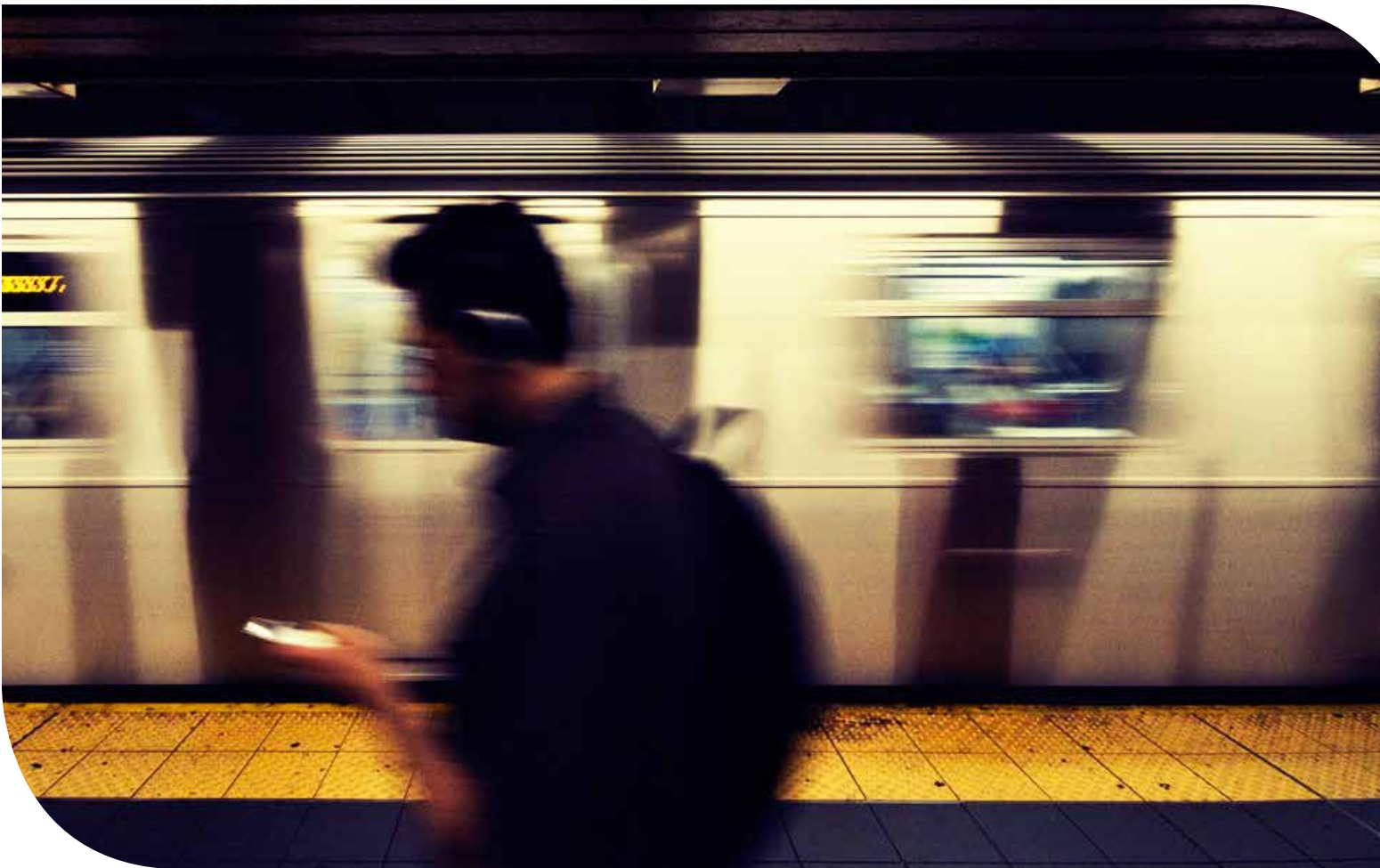
April 2015 – University Park PA

The Thomas D. Larson Pennsylvania Transportation Institute’s Hybrid and Hydrogen Vehicle Research Laboratory hosted the annual 21st Century Automotive Challenge at Penn State’s University Park campus. This event was a transportation and lifestyle competition for college and high school students alike. Teams demonstrated how to integrate vehicle-to-building and vehicle-to-grid technology.

EDUCATORS IN TRANSPORTATION

April 2015 – Detroit MI

Leo Hanifin, PhD, organized this meeting on behalf of Antoine Garibaldi, PhD, University of Detroit Mercy president, who led the discussion regarding solutions for transit among the



various university and college campuses in the area. Seventeen college presidents or their designees came to several agreements on how to proceed. These included student participation in transit planning; hosting “listening sessions” with students, faculty, and staff; ascertaining the particular needs of each campus; using demonstration projects to help change the culture of transit; and other agreements.

TRANSIT SMART MOVES

July 2015 – Detroit MI

TRANSIT is a two week summer commuter camp for high school students, currently in the 9th-12th grades, who wish to learn about transportation engineering. During this course, students engage in hands-on activities, labs and discussions led by university professors, high school science teachers, and industry leaders representing several public and private transportation organizations and businesses.

HOWARD UNIVERSITY SUMMER TRANSPORTATION INSTITUTE

July 2015 – Washington DC

This summer camp was designed to attract high school students to careers in transportation. STI provided a stimulating introduction to all modes of transportation through hands-on projects, problem-solving techniques, field trips, and classroom and enrichment activities. MNTRC sponsored the classes. Students received various team and individual awards, along with certificates of completion.

DETROIT AREA PRE-COLLEGE ENGINEERING PROGRAM (DAPCEP)

November 2015 – Detroit

In collaboration with the Detroit Area Pre-College Engineering Program (DAPCEP), the University of Detroit Mercy once again hosted Saturday morning programs for five weeks to generate excitement and prepare under-represented minority students for careers in engineering and science.

SEMINAR ON PUBLIC TRANSPORTATION SYSTEMS

December 2015 – Las Vegas NV

The Mineta National Transit Research Consortium co-sponsored this seminar at the University of Nevada, Las Vegas. This seminar helped transit engineers, planners, managers, and public agencies gain a broader understanding of public transportation systems. It also was valuable for university students and faculty. Participants learned how to perform better at their current positions and how to open new career opportunities as they connected with experienced professionals on practical and academic matters. They also gained a greater appreciation of the technical and the not-so-technical aspects of public transportation systems.

5th graders
working on
their vehicle
design in
*World in
Motion*.





— “ —

Much of MTI’s research has focused on public transit and interconnectivity with other modes such as intercity rail, route buses, bicycles, and shuttles. This work becomes the basis for public policy to best serve the needs of each community, in our region and in the US.

— ” —

-Steve Heminger
CEO
Metropolitan Transportation
Commission

Other Performance & Successes

MNTRC AND MTI WEB SITES

The ITT function also manages the MTI and MNTRC web sites, which provide easy access to the Consortium’s free research reports, as well as information on educational programs and sponsored events. The use of mobile devices to access the web sites has risen significantly. To meet that demand, MTI implemented design techniques that automatically switch to small-screen use. The web sites also conform to Americans with Disabilities Act requirements.

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 (2006-15). However, this last item has been divided into two columns to specifically break out MTI’s performance over the 12 months in the 2015 performance year.

The MTI and MNTRC Research pages provide research proposal information, downloadable forms for research associates, project descriptions for active research, and links to full-text files for final research reports.

MTI’s Master of Science in Transportation Management (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.

MNTRC NEWSLETTER

MNTRC’s *World in Motion* digital newsletter, published three times per year and posted on the web sites, is an effective medium to inform supporters about its ongoing transit research and education programs. The digital publication

has helped eliminate the costs of printing and mailing while using an eco-friendly distribution. Active links in the newsletter allow readers to access relevant web sites for more information. This year, MTI also began using MailChimp, a free service that makes distribution more efficient while providing its own metrics and usage insights.

MEDIA COVERAGE

MTI and MNTRC have established reputation as resources for expert opinions about transit and connectivity issues. During the 12-month reporting period, 29 news releases were issued, appearing in more than 50 countries from Albania to Zambia.

MTI was covered in at least 224 media stories related to its projects and activities in 2015. It is impossible to calculate metrics for every placement because news stories are normally picked up by several other media and repeated into their own markets. Therefore, actual news coverage is assumed to be significantly higher. Sample news outlets included *US News & World Report*, *Time Magazine*, *Mass Transit*, *Los Angeles Times*, *Engineering News Record*, *Epoch Times* (Taiwan), *Globe and Mail*, *China Daily*, *Boston Globe*, *The Hill*, *The Statesman* (India), *Wired*, *NPR*, *KCBS Radio*, *Washington Post*, *Security Info Watch*, and many others.

SOCIAL MEDIA

During the 12-month reporting period, MTI and MNTRC enjoyed expanded social media presence. The Facebook fan page has grown from 641 followers in January 2015 to 727 followers by the end of the year. At the start of 2015, MTI’s LinkedIn site had 656 followers. At the end of the year, the site had 710 followers.

MTI’s Twitter account, @MinetaTrans, has been quite successful, attracting a growing audience. As of January 2015, the account had 1,782 followers. At the end of the year, that had grown to 2,230.

MNTRC/MTI WEB SITES

METRIC	FY 1998-2006	7/1/11-12/31/12*	CY 2013	CY 2014	CY 2015
Average monthly uses	173,985	294,904	382,125	276,554	319,623
Average monthly downloads	~5,000	97,502	106,829	116,020	124,788

*The metric reporting system for web site uses was refined in 2014 to fit the latest standards

MEMORANDA OF COOPERATION

MTI is helping to create more cooperation among nations through its growing list of Memoranda of Cooperation (MOCs) with international universities.

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.

At the close of 2015, MTI also hosted two South Korean transit police officers, who requested training from US transit agencies over the course of two weeks. That was completed early in December.

Other Successes

SCHOLARSHIP AND AWARDS BANQUET

Each 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 27, 2015 the banquet attracted approximately 350 transportation leaders, corporate donors, and friends and families of the graduates.

ADDITIONAL OUTREACH

MNTRC/MTI directors and faculty presented at numerous conferences, symposia, and other gatherings. For example, Bruce Appleyard presented on Crime, Causality, and Mode Choice at the National Academy of Science. Chris Ferrell presented on The Benefits of Transit in the United States at the Americans for Transit Senate Briefing. Hualiang "Harry" Teng presented a Feasibility Study of Public Bike Sharing Program in Las Vegas at the Fall Transportation Conference. Many others have presented, as well, at the Transportation Research Board, International Union of Railways Workshop, Institute of Transportation Engineers, and other respected conferences.

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 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*. Dr. Haas continues to serve 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. A Fulbright scholar, he also regularly contributes to MTI research projects in various subject areas.



Viviann Ferea

Education Program Assistant

Viviann.Ferea@sjsu.edu

Viviann 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.

“

MTI has a strong relationship with unions and strives to work with labor on surface transportation policy research. Its education programs, which have a clear connection to job creation, were designed with union input. It also demands labor participation in its efforts to advance the field of transportation policy studies.

”

-Ed Wytkind
President
Transportation Trades
Department, AFL-CIO

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.

Courses Offered

SPRING 2015

- MTM 202: Introduction to Transportation Funding & Finance
- MTM 217: Leadership and Management of Transportation Organizations
- MTM 226A: Emergency Management Issues for Transportation Professionals
- MTM 226B: Security Issues for Transportation Professionals
- MTM 283: Independent Research
- MTM 290: Strategic Management in Transportation

FALL 2015

- MTM 201: Fundamentals of Transportation
- MTM 203: Transportation Markets and Business Development
- MTM 214: Transportation Policy and Regulation
- MTM 236: Contemporary Issues in Transportation
- MTM 246: High Speed Rail Management (1)
- MTM 245: High Speed Rail Management (2)
- MTM 250: Environment and Transportation



ENROLLMENT TREND

During Calendar Year 2015, the program recorded 259 graduate student enrollments. These enrollments were associated with more than 116 individual, active students, including 41 matriculated Master of Science in Transportation Management (MSTM) students. A record-tying 21 program graduates were recognized on June 27, 2015.

MSTM Class of 2015

The following 21 MSTM students completed their graduate degrees in 2015.

Susana Andres
Kyle Birch
Sarah Bird
Goldie Janell Bolden
Jose Luis Cáceres
Keanna Coolins
Kelly Cummings

Michael Eshleman
Catherine Graham
Daniel Hecht
Dennis Jacobs
Mattie Jones-Hope
Russell Kerwin
Christine Lan

Jason Miller
Olivia Rocha
Allie Scrivener
John Singer
Alice Tolar
Stephen Toms
Ronald Young

June 2015 Graduate Certificate in Transportation Security Management Recipients

Goldie Janell Bolden
Catherine Graham
Daniel Hecht
Mattie Jones-Hope
Alice Tolar
Stephen Toms

June 2015 Graduate Certificate in High-Speed Rail Management Recipients

Keanna Coolins
Kelly Cummings
John Singer

June 2015 Graduate Certificate in Transportation Management Recipient

Nicholas Yee

21

program graduates
recognized on
June 27, 2015



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.

MSTM Class of 2015 Graduate Research Papers

All graduate students in the MSTM program are required to produce an original, properly formatted research paper reflecting what they have learned during their regular coursework. The variety of topics investigated by this year's class demonstrates the broad transportation areas that their graduate education has covered.

These papers are available upon request:



SUSANA CECILIA ANDRES

Identifying Marketing and Communications Methods for the 10 and 110 ExpressLanes in Los Angeles County

KYLE E. BIRCH

Caltrans Complete Streets: Prioritizing Multimodal Improvements

SARAH E. BIRD

How Are Single-Use Turnstiles Effecting Fare Evasion?

GOLDIE BOLDEN

How can Union Station in Los Angeles utilize lessons learned in the global fight to combat terrorism and secure patron safety with technology, while maximizing passenger throughput and mobility?

JOSE LUIS CACERES

An Evaluation of the Rideshare Component of the Sacramento Area Council of Government's Transportation Demand Management Program

KEANNA COOLINS

Crowdfunding Transportation Projects: A Look into the Feasibility of Combining Public Agency Projects and Crowdfunding Campaigns

KELLY CUMMINGS

How can Caltrans streamline the project delivery process? As It Applies To The Environmental And Right Of Way Functions

MICHAEL ESHLEMAN

Caltrain Gopass Cost-effectiveness

CATHERINE L. GRAHAM

Is Succession Planning Being Accomplished Within Los Angeles Metro?

DANIEL HECHT

Evaluation of the VTA Trial Biodiesel Program: How Do Biodiesel Fuel Blends Affect the Operation and Maintenance of Urban Transit Buses?

DENNIS JACOBS

Is Motorcycle Rider Safety Training Effective At Preventing Accidents?

MATTIE JONES-HOPE

Reimagining Transit Inventory

RUSSELL KERWIN

Triple Bottom Line Analysis of LID Stormwater Systems and Related Stormwater Management Policy Recommendations



CHRISTINE LAN

Recommended Approach for
Extending the Federal Mandate for
PTC Implementation

JASON MILLER

Can Transit Assets be used to Combat
Food Deserts?

Exploring synergistic opportunities to
bring fresh food to food deserts along
L.A. Metro Blue Line

OLIVIA ROCHA

Transit Asset Management Map 21
Federal Standards: Achieving State of
Good Repair

ALLIE SCRIVENER

Transportation Equity In San Diego
Bicycle Networks: Using Traffic Stress
Levels To Evaluate Bicycle Facilities

JOHN R. SINGER

Parking Options and Challenges for
California State University
Monterey Bay

ALICE TOLAR

Active Transportation Planning in Los
Angeles County: What are the Rail
Corridor Conversion Considerations?

STEPHEN TOMS

An evaluation of how transit agencies
can ensure they are providing
the public with safe, reliable, and
affordable vertical transportation
systems providing the most
consistent access to elevated and
subterranean stations?

RONALD YOUNG

Mobile Applications: Improving Public
Participation in Transportation
Planning and Customer Experience

“

MTI offers an
exceptional Master
of Science in
Transportation
Management which is
attracting the some of
the best and brightest
young professionals.
Its affiliation with
San José State
University’s College
of Business provides
an opportunity
to approach
transportation from
a unique perspective
which departs
from the traditional
transportation
engineering and
technology focus.

”

-Bud Wright
Executive Director
AASHTO



Selected Student and Alumni Successes

- **Kyle Birch** (2015) now Development Reviewer for the City of Longmont Public Works and Natural Resources Department for Longmont, Colorado
- **Catherine Graham** (2015) promoted to Assistant Transportation Operations Manager for Los Angeles County Metropolitan Transportation Authority (METRO)
- **Russell Kerwin** (2015) now Deputy Project Manager for Metrolink's Positive Train Control (PTC) Program
- **Robin O'Hara** (2012) promoted to Deputy Executive Officer at Los Angeles County Metropolitan Transportation Authority (METRO)
- **Allie Schrivener** (2015) now the Regional Planner II for the San Diego Association of Governments (SANDAG) and recipient of MTI's Outstanding Student of the Year Awards at the CUTC banquet in Washington DC in January 2015.
- **Jacob Simmons** (2015) promoted to Senior Transit Operations Planner for Regional Transportation Commission of Southern Nevada (RTCNV)
- **Stephen Toms** (2015) Promoted to Senior Engineering Manager for Los Angeles County Metropolitan Transportation Authority (METRO)

SAFETEA-LU Performance Metrics: Education

	FY2007-08	FY2008-09	FY2009-10	FY2010-11	7/1/11 - 12/31/12	CY2013	CY2014	CY2015
MTI's MSTM Enrollment	44	45	67	63	65	69	54	41
MTI's MSTM Graduates	15	19	14	14	17	10	21	21



Appendices

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- A. Financial Illustrations
 - B. Organization Chart
 - C. Research Associates Policy Oversight Committee
 - D. Acknowledgments
 - E. Board of Trustees

Appendix A

FINANCIAL ILLUSTRATIONS

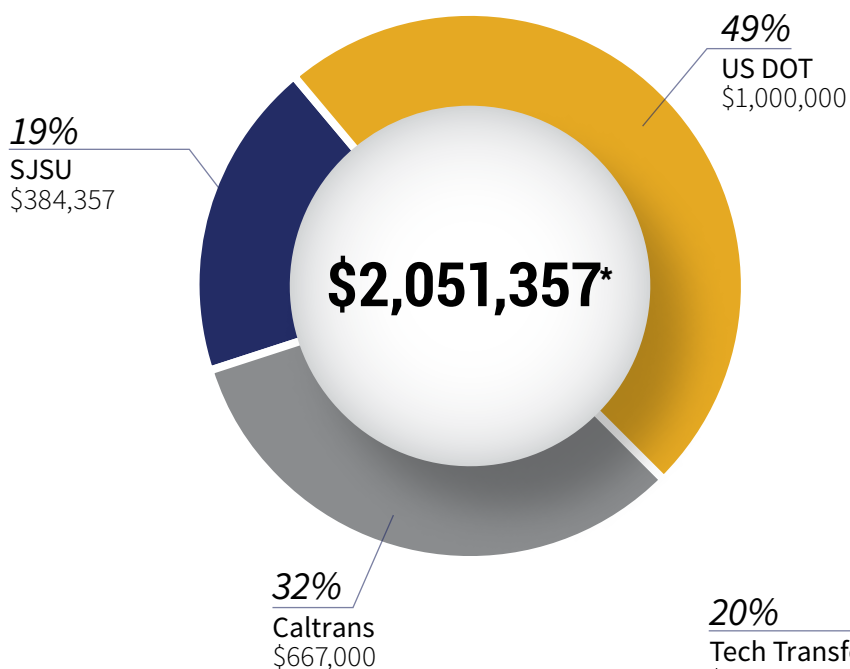


ILLUSTRATION OF REVENUE

Mineta Transportation Institute
CY 2015 Revenue = \$2,051,357

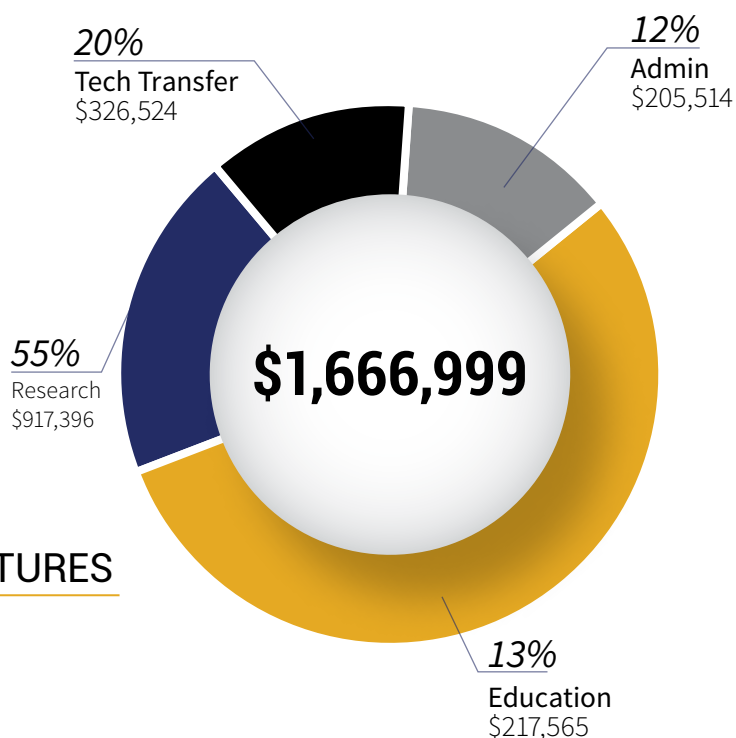


ILLUSTRATION OF EXPENDITURES

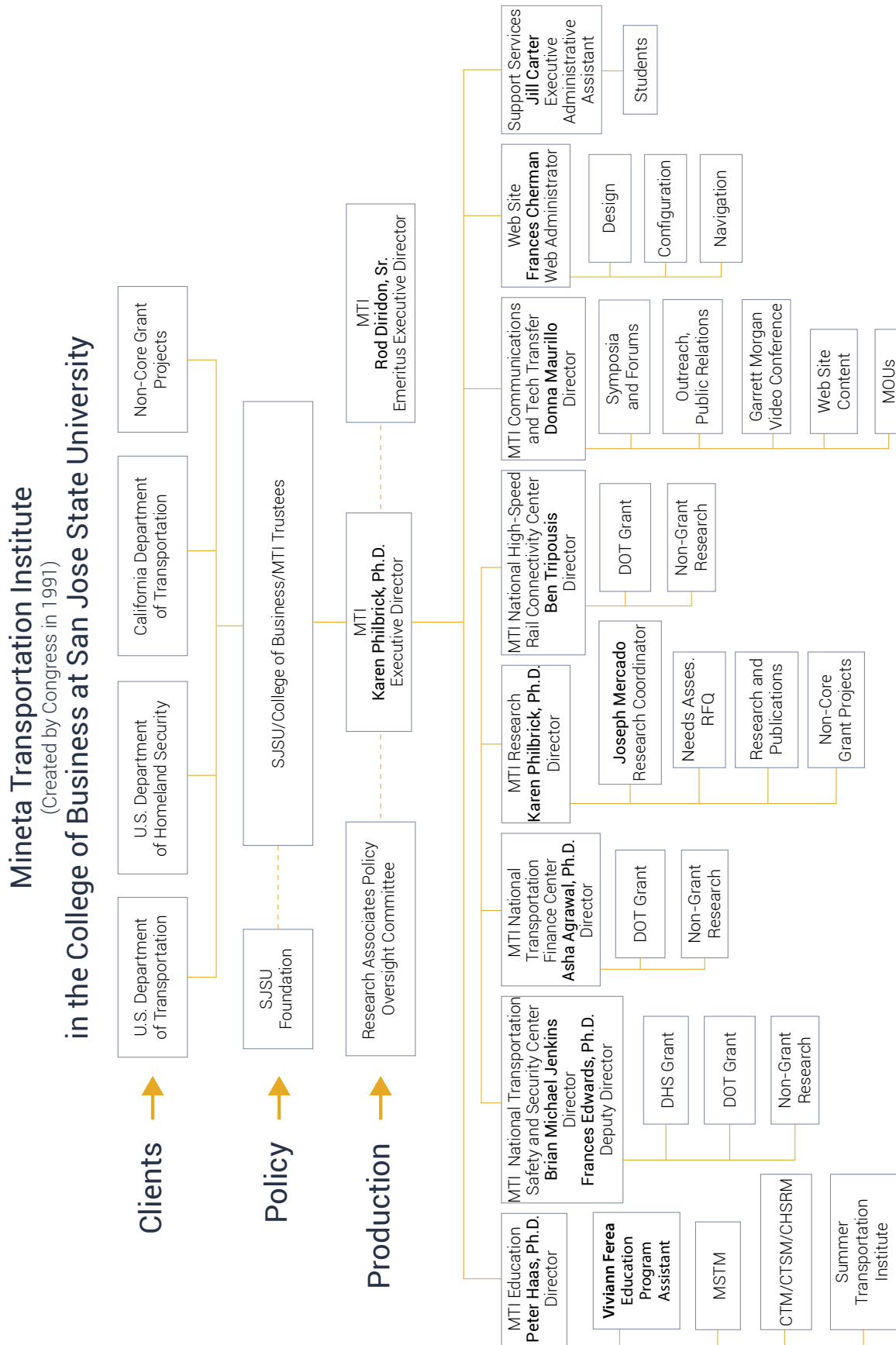
Mineta Transportation Institute
CY 2015 Expenditures= \$1,666,998

* In addition to MTI's grant revenue, the eight other MNTRC partners have been allocated a total of \$1,493,000 for 2015 research, education, and tech transfer projects conducted at their own university centers under the auspices of the Consortium.

** MTI enjoys substantial financial and administrative support from SJSU and the SJSU Research Foundation, as do the partner universities 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 44.5% 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



Appendix C

Research Associates Policy Oversight Committee (RAPOC)

CHAIR

David Czerwinski, PhD
Marketing and Decision Sciences

MEMBERS

Asha Weinstein Agrawal, PhD
Urban and Regional Planning

Jan Botha, PhD
Civil and Environmental Engineering

Catherine Kao Cushing, PhD
Environmental Studies

Frances Edwards, PhD
Political Science

Taeho Park, PhD
Organization and Management

Diana Wu
Martin Luther King, Jr. Library

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Nicole Longoria
California Department of Transportation

Bob O'Laughlin
Federal Highway Administration

Ted Matley
Federal Transit Administration, Region IX

Karen Philbrick, PhD
MTI Executive Director and Director of Research



Appendix D

Acknowledgments

The MNTRC and MTI Board of Trustees and staff gratefully acknowledge the administrators and staff of the Office of the Assistant Secretary for Research and Technology (OST-R) of the US Department of Transportation and of the Caltrans Division of Research, Innovation, and System Information (DRISI) for their support throughout the year. Thanks to Assistant Secretary for Research and Technology Greg Winfree, Director of the Office

of Research, Development and Technology Kevin Womack, PhD, and UTC Grant Managers Amy Stearns and Robin Kline. MTI is also grateful to Caltrans Director Malcolm Dougherty, Caltrans Chief of DRISI Coco Briseno, and UTC liaisons Christine Azevedo, Patrick Tyner, and Nicole Longoria. We give a special thanks to the Caltrans VTC Department, especially to Cherice Luckey, without whom MTI would not have been able to offer the MSTM to so many graduate students statewide.

San José State University

San José State University Research Foundation

The Mineta Transportation Institute operates under the Lucas College and Graduate School of Business as part of San José State University (SJSU). The University's College of Business, Dr. Martin Luther King, Jr. Library, and the SJSU Research Foundation provide valuable support to MTI. On behalf of the University, the College of Business Dean oversees MTI, particularly the education program. Thanks to SJSU President Mohammad Humayon Qayoumi, Interim President Sue Martin, Dean of the College of Business Dr. David Steele, Interim Dean Marlene Turner and their respective staffs for supporting MTI.

The SJSU Research Foundation manages MTI's funds and oversees administrative areas such as human resources. Thanks to Office of Sponsored Programs Director Jeanne Dittman and staff Cheree Aguilar-Suarez, Steve Barranti, Steve Constantine, Lan Duong, Ranjit Kaur, Ha Ngo, Michele Vaccaro, Rick Yoneda and the many others who support the MTI programs.

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.



Appendix E

Board of Trustees

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(Ex-Officio)

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United States House of Representatives

Honorary Co-Chair, Congress Member Peter DeFazio

(Ex-Officio)

Vice Chair

House Transportation and Infrastructure Committee

United States House of Representatives

Chair, Nuria Fernandez (TE 2017)

General Manager and Chief Executive Officer

Valley Transportation Authority

Vice Chair, Grace Crunican (TE 2016)

General Manager

Bay Area Rapid Transportation

Executive Director, Karen Philbrick, PhD (Ex-Officio)

Mineta Transportation Institute

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Emeritus Executive Director, Rod Diridon (Ex-Officio)

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Officials

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() = Term Expiration or Ex-Officio

* Past Chair, Board of Trustees



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