



# 2016 ANNUAL REPORT





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## Director's Summary

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## Director's Summary

**Karen E. Philbrick, PhD**  
**Executive Director**

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*Secretary of Transportation (ret.) receives a Lifetime Achievement Award from Council of University Transportation Centers (CUTC).*

The Mineta Transportation Institute (MTI) remained steadfastly focused on providing world-class education, cutting-edge research, and innovative approaches to technology transfer in 2016. This year we celebrated many successes while at the same time winding down the Mineta National Transit Research Consortium (MNTRC). MNTRC, a tier 1 transit-focused University Transportation Center funded through the SAFETEA-LU Extension Act, brought together nine stellar universities including: Bowling Green State University, Grand Valley State University, Howard University, Penn State University, Rutgers University, San José State University, University of Detroit Mercy, University of Nevada Las Vegas, and University of Toledo. MNTRC was funded for five years and thanks to the dedicated efforts of the MTI/MNTRC staff and directors, who keep the big picture in focus, we accomplished the following from 2012-2016:

- Published 112 peer-reviewed research reports
- Presented research findings at 325 academic conferences and meetings
- Engaged 322 undergraduate and graduate students in surface transportation research
- Sponsored 94 forums, summits, and conferences attended by 10,072 transportation professionals
- Documented users from 194 countries who visited the MTI website for up-to-date transportation information and research findings

We are grateful to our Consortium partners and look forward to collaborating long into the future.



## Award winning students, faculty, and staff

MTI students, faculty, and staff received numerous awards in 2016 and we are proud to highlight these transportation professionals.

At the 2016 Council of University Transportation Centers (CUTC) awards banquet in Washington DC, MTI student Rebecca Walters received the Neville A. Parker Award for her outstanding non-thesis paper in the field of policy and planning in transportation studies. This marks the sixth time MTI students have won this prestigious award in the prior eight years!



At this same banquet, student Ben Lichty was named MTI's Student of the Year and Secretary Norman Y. Mineta was truly honored to receive the CUTC-Lifetime Achievement Award for Transportation Professional and Public Service presented by current Secretary of Transportation Anthony Foxx. Secretary Mineta was recognized for his long and distinguished career and significant contributions in the areas of transportation security, transportation workforce development, and transportation education and research.

On the evening of June 18, MTI was proud to present eleven 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 Transportation Agency Secretary Brian P. Kelly. In addition, several individuals were honored for their achievements:

James Helmer (MSTM 2003) was recognized as Alumnus of the Year by the MSTM Alumni Association. He was hailed for his significant contributions to the field of transportation and for his commitment to educating the mobility managers of the future. Jim is the past Director of the San José Department of Transportation and previously served the city of Santa Cruz as a Traffic Engineer. Jim remains active in the transportation sector and serves as an instructor in the MSTM program.



Council of University Transportation Centers in June.

Charles Standridge, Ph.D., Professor and Associate Dean at Grand Valley State University, was recognized by the Office of Sustainability Practices at GVSU as a “2016 Sustainability Champion” through his leadership and research in the area of battery recycling.

MNTRC congratulates these award winners, who exemplify the high standards and achievements of our entire team.

Bernadette Lambert received the 2016 Valedictorian Achievement Award for her academic accomplishments. In her speech, she spoke eloquently about the many opportunities available to MSTM students.

An ambitious team from Morada Middle School of Stockton, CA received this year’s Garrett Morgan Sustainable Transportation Award and a check for \$1,000. Present to receive the award for their Grape Stomp Bio-Fuel project were teacher Michael Hurst and students Tristan Bustillos-Hawk and Peter Lau.

Throughout the year we were notified of additional successes, including:

Frances Edwards, Ph.D., Deputy Director of MTI’s National Transportation Safety and Security Center, was honored by the College of Social Sciences at San José State University with the 2016 Austen D. Warburton Award of Merit in recognition of her high level of scholarly achievement.

Harriet John, SJSU MSTM student and Valley Transportation Authority HR Analyst, received the American Public Transportation Association Dr. George M. Smerk Scholarship for outstanding achievement in public transit management.

Karen Philbrick, Ph.D., MNTRC Executive Director was recognized by the Conference of Minority Transportation Officials (COMTO) as one of their “Women Who Move the Nation” award recipients in 2016. She was also appointed to the WTS Foundation Board of Directors in May and elected Secretary of the



*It is always a privilege to host this event where we celebrate our graduates' achievements, recognize our outstanding alumni, and support future transportation professionals.*

- Karen Philbrick



# Consortium Departments

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## Research Department

Research Director Hilary Nixon, PhD

Since 1999, MTI has published 237 expertly-conducted, peer-reviewed policy research projects. During this reporting period, research supported by the SAFETEA-LU and Caltrans grants engaged 52 of MTI's 287 certified Research and Consulting Associates, most of whom are PhDs, as well as 19 student research assistants. Research topics are selected annually through a structured needs assessment involving designated US DOT and Caltrans committees, the internationally prominent MTI/MNTRC 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 MTI/MNTRC. The summary of activities for the three Research sub-centers follows.

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

Director Brian Michael Jenkins and  
Deputy Director Frances Edwards, PhD

MTI's NTSSC research includes all threats – not only terrorism, but also natural disasters, accidents, operational emergencies, and other transportation hazards. 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 pragmatic and impactful – producing applicable results that can be used by stakeholders. 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, serves as chair of the Section on Emergency and Crisis Management of the American Society for Public Administration (ASPA). She and MTI Research Associate Dan Goodrich represent MTI on the San José State 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*.

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## **MTI's National Transportation Finance Center (NTFC)**

Director Asha W. 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 2016, 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 Seven of a National Survey" (PI: Asha W. Agrawal). Findings were then presented at the Norman Mineta National Transportation Policy Summit, co-sponsored by the Commonwealth Club of California in San Francisco, in June. This event





began with a keynote address from Brian Kelly, California State Transportation Agency (CalSTA) and then moved to a panel of nationally prominent speakers: Grace Crunican, General Manager of Bay Area Rapid Transit; Steve Heminger, Executive Director of the Metropolitan Transportation Commission; and Tim Rainey, Executive Director of the California Workforce Development Board. This Commonwealth Club event attracted more than 174 attendees and was later broadcast on the Commonwealth Club's National Public Radio affiliates. During the panel discussion, Dr. Agrawal presented the results of seven 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.

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

Director Ben Tripousis

MTI has a long history, beginning in 1998, of studying HSR issues, has published 51 peer-reviewed research reports, and has hosted 17 Information and Technology Transfer national summits and regional forums generally related to this subject. Nineteen of the 51 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.

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## **MTI's Education Department**

Director Peter Haas, PhD

More than 230 California State University AACSB accredited Master of Science in Transportation Management (MSTM) degrees have been granted since 1999, and 12 were conferred in June 2016. For 2016, more than 200 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 12-site Caltrans statewide videoconference network. In addition, Caltrans and MTI have provided satellite feeds to outside agencies such as Orange County Transit Authority (OCTA), Los Angeles County Metropolitan Transportation Authority (LA Metro), the Transportation Agency for Monterey County (TAMC), and the Contra Costa Transportation Authority (CCTA).

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

video streaming of archived classes.

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

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

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## Communications and Information/ Technology Transfer Department

To promote information/technology transfer, MTI has conducted 94 national summits and regional or statewide forums since 2012. During the past 12 months, MTI/MNTRC Research Associates and staff have testified before legislative committees, given 46 speeches and panel presentations on transportation issues throughout the world, and conducted scores of media interviews related to MTI/MNTRC research.

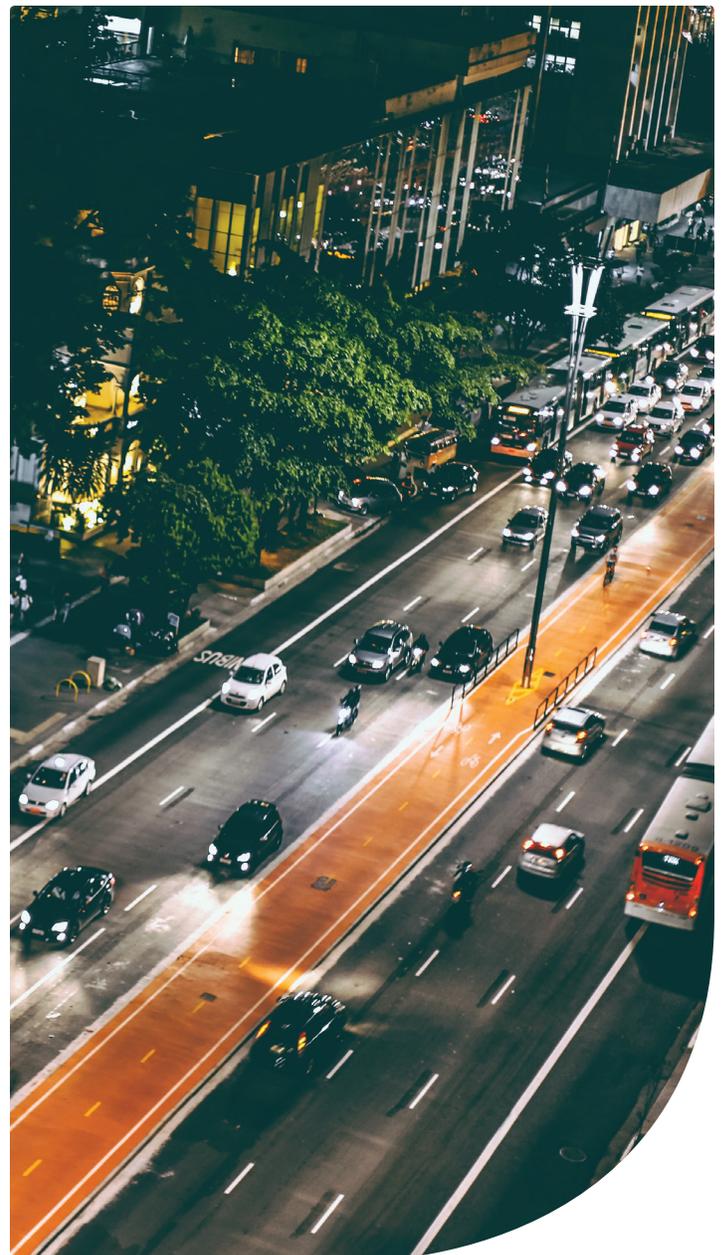
In addition, MTI/MNTRC newsletter, *World in Motion*, was published three times in the last 12 months. This newsletter is distributed electronically to thousands of national transportation leaders and other interested parties, and it is posted on the MNTRC and MTI web sites. The Institute continues to embrace social media, with an active presence on Facebook and two sites on LinkedIn – one for MTI/MNTRC supporters, and another for MSTM alumni. MTI also has a Twitter account, @MinetaTrans. The Institute continues to engage

more sophisticated search engine optimization (SEO) techniques to guide users to the research reports on the MTI/MNTRC web sites and to continue to attract and educate a new generation of transportation leaders.

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## Conclusion

The MTI/MNTRC 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 in the 21st century.





## Research

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# PROJECTS COMPLETED IN 2016



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## **An Overview of System Design Issues Related to Safety Aspects of Bicycle Infrastructure**

Project 1125

Principle Investigator: Jan L. Botha, PhD

The wide range of bicyclists' physical characteristics (such as size, power, skill, response to road and traffic conditions) makes it challenging for the designer to design bicycle facilities with the same sophistication and safety as facilities for motor vehicles. An attempt should be made to integrate the design standards for motor vehicles and bicycles into common design manuals. Incompatibility of the standards may make it clear when separate facilities for bicyclists should be considered and when bicyclists should not be allowed on a road. To that end, this report provides a critical review of the current practices and policies regarding infrastructure design for bicycling. The infrastructure is discussed primarily from a system perspective.

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## **Remedial Actions to Prevent Suicides on Commuter and Metro Rail Systems**

Project 1129

Principle Investigator: Patrick Sherry, PhD

This study reviewed commuter railroad efforts designed to reduce or prevent suicide on railways and discussed preventative activities. Recommendations for prevention strategies include continued efforts to identify hotspots and to erect barriers to reduce access to the railroad right-of-

way, and for installing signage with warnings and contact information for crisis services. The use of drones equipped with video monitoring systems working in tandem with trespasser intrusion alert technology could be one way of dealing with more remote locations. Training programs for railroad employees designed to increase their confidence and skill intervening with suicidal individuals is also needed.

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## **Exploring Bicycle and Public Transit Use by Low-Income Latino Immigrants: A Mixed-Methods Study in the San Francisco Bay Area**

Project 1202

Principle Investigator: Jesus Barajas, MURP

Latin American immigrants will continue to make up a large share of transit ridership, bicycling and walking in the United States for the foreseeable future, but there is relatively little research about them. This mixed-methods study compares the travel patterns of low-income immigrants living in the San Francisco Bay Area with that of other groups and investigates the barriers and constraints faced by low-income immigrants when taking transit and bicycling. Much of the previous work on immigrant travel has relied on national surveys and qualitative analysis, which underrepresent disadvantaged population groups and slower modes of travel, or are unable to speak to broader patterns in the population. We conducted interviews with 14 low-income immigrants and a paper-based intercept

survey of 2,078 adults. Interviewees revealed five major barriers that made public transit use difficult for them, including safety, transit fare affordability, discrimination, system legibility, and reliability. Although crime was the most prominent issue in interviews, the survey results suggest transit cost is the most pressing concern for low-income immigrants. The prevalence of concerns about transit affordability, crime, and reliability suggest transit agencies should consider income-based fare reductions, coordinated crime prevention with local law enforcement, and improved scheduling.

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## **Benefit-Cost Analysis for Transportation Planning and Public Policy: Towards Multimodal Demand Modeling**

Project 1203

Principle Investigator: Matthew Holian, PhD

This report examines existing methods of benefit-cost analysis (BCA) in two areas, transportation policy and transportation planning, and suggests ways of modifying these methods to account for travel within a multimodal system. Although the planning and policy contexts differ substantially, this report shows how important multimodal impacts can be incorporated into both by using

basic econometric techniques and even simpler rule-of-thumb methods. Case studies in transportation planning focus on the California Department of Transportation (Caltrans), but benchmark California's competencies by exploring methods used by other states and local governments. The report concludes with a list and discussion of recommendations for improving transportation planning models and methods. These will have immediate use to decision makers at Caltrans and other state DOTs as they consider directions for developing new planning capabilities. This project also identifies areas, and lays groundwork, for future research. Finally, by fitting the planning models into the broader context of transportation policy, this report will serve as a resource for students and others who wish to better understand BCA and its use in practice.

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## **Bikesharing and Bicycle Safety**

Project 1204

Principle Investigator: Elliot Martin, PhD

The growth of bikesharing in the United





States has had a transformative impact on urban transportation. Major cities have established large bikesharing systems, including Boston, Chicago, Denver, Minneapolis-Saint Paul, New York City, Salt Lake City, the San Francisco Bay Area, Seattle, Washington DC, and others. These systems began operating as early as 2010, and no fatalities have occurred within the US as of this writing. However, three have happened in North America—two in Canada and one in Mexico. Bikesharing has some qualities that appear inherently unsafe for bicyclists. Most prominently, helmet usage is documented to be quite low in most regions. Bikesharing is also used by irregular bicyclists who are less familiar with the local terrain. In this study, researchers take a closer look at bikesharing safety from qualitative and quantitative perspectives.

Through a series of four focus groups, they discussed bikesharing usage and safety with bikesharing members and nonmembers in the Bay Area. They further engaged experts nationwide from a variety of fields to evaluate their opinions and perspectives on bikesharing and safety. Finally, researchers conducted an analysis of bicycle and bikesharing activity data, as well as bicycle and bikesharing collisions to evaluate injury rates associated with bikesharing when compared with benchmarks of personal bicycling. The data analysis found that collision and injury rates for bikesharing are lower than previously computed rates for personal

bicycling. Experts and focus group participants independently pointed to bikesharing rider behavior and bikesharing bicycle design as possible factors. In particular, bikesharing bicycles are generally designed in ways that promote stability and limited speeds, which mitigate the conditions that contribute to collisions. Data analysis also explored whether there was evidence of a “safety in numbers benefit” that resulted from bikesharing activity. However, no significant impact from bikesharing activity on broader bicycle collisions could be found within the regions in which they operate. Discussion and recommendations are presented in the conclusion.

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## Transit Performance Measures in California

Project 1208

Principle Investigator: Caroline Rodier, PhD

This research is the result of a California Department of Transportation (Caltrans) request to assess the most commonly available transit performance measures in California. Caltrans wanted to understand performance measures and data used by Metropolitan Planning Organizations (MPOs) and transit agencies to help it develop statewide measures. This report serves as a summary reference guide to help

Caltrans understand the numerous and diverse performance measures used by MPOs and transit agencies in California. First, investigators review the available literature to identify a complete transit performance framework for the purposes of organizing agency measures, metrics, and data sources. Next, they review the latest transit performance measures documented in planning reports for the four largest MPOs in California (San Francisco Bay Area, Los Angeles, San Diego, and Sacramento). Researchers pay special attention to the transit performance measures used by these MPOs, because these measures are available for the majority of California's population. Finally, investigators summarize 231 performance measures used by a total 26 local transit agencies in the State of California, based on transit planning documents available on the internet.

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

Project 1226

Principle Investigator: Stan Feinsod, MS

As the California High-Speed Rail (HSR) project becomes reality, many communities involved in, or affected by, the California HSR project have considered how to connect the new HSR passenger services to local urban transportation systems – such as bus and light rail systems – and how they can take advantage of HSR accessibility and speed throughout the state. European and other overseas systems have decades of experience in forging connections between HSR and various transportation options. This study examines international HSR stations and identifies patterns in transit connections associated with stations on the basis of size, population levels, and other characteristics. Additionally, a closer examination is made of the lessons that can be learned from a strategic sample of overseas HSR stations, correlated to similar cities in the planned California system. Generally, the findings from the comparison suggest that California cities must make significant strides to approach the level of integration and ease of access to other modes that systems outside the U.S. now enjoy.

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## Improving Pathways to Transit for Persons with Disabilities

Project 1233

Principle Investigator: Stephanie DiPetrillo, M.Arch, MCRP

Persons with disabilities can achieve a greater degree of freedom when they have full access to a variety of transit modes, but this can only be achieved when the pathways to transit – the infrastructure and conditions in the built environment – allow full access to transit stops, stations, and vehicles. Since passage of the Americans with Disabilities Act (ADA) in 1990, many transit agencies and governmental jurisdictions have made significant progress in this area. Policy initiatives, incremental enhancements, modifications, and other measures undertaken by transit agencies and their partners have significantly improved access to transit for persons with disabilities, others who rely on public transportation, and individuals who chose to utilize these services.

This research study explores, through case study work, efforts that have been effective in improving pathways to transit. Interviews and site visits were conducted with five transit agencies, along with their partners, that are actively engaged in improving pathways to connect transit consumers



- particularly people with disabilities - with transit stations and stops. These agencies are: Broward County Transit (Broward County, FL), Memphis Area Transit Authority (Memphis, TN), NJ TRANSIT (Newark and New Brunswick, NJ), Tri-County Metropolitan Transportation District of Oregon (Portland, OR), and Link Transit (Wenatchee, WA). Promising practices and/or lessons were identified through the case study analysis; these should be considered by any transit agency seeking to create improved access to its services for persons with disabilities.

salient policy areas include regulating emissions, disabled access, procurement, alternative fuels, the Altoona Test, pooled purchases and piggybacking, spare ratios, workforce training, minimum useful life, Buy America, and research & development (R&D). The purpose of this report is to provide policy makers with an update on the state of the industry, an analysis of how government policies are impacting the industry, and suggestions for policies that can help the industry move forward and thrive to best serve the transit-riding public.

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## The US Transit Bus Manufacturing Industry

Project 1234

Principle Investigator: David Czerwinski, PhD

Manufacturing buses for the US transit market has been a challenging business over the last several decades. It is a small market with volatile demand. Many manufacturers have gone bankrupt, left the market, or been acquired by competitors. Manufacturers of transit buses in the US must comply with a wide range of operational and design regulations. The most

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## Advances in Repurposing and Recycling of Post-Vehicle-Application Lithium-Ion Batteries

Project 1238

Principle Investigator: Charles R. Standridge, PhD

Increased electrification of vehicles has increased the use of lithium-ion batteries for energy storage, and raised the issue of what to do with post-vehicle-application batteries. Three possibilities have been identified:

1) remanufacturing for intended reuse in vehicles; 2) repurposing for non-vehicle, stationary storage applications; and 3) recycling, extracting the



precious metals, chemicals and other byproducts. Advances in repurposing and recycling are presented, along with a mathematical model that forecasts the manufacturing capacity needed for remanufacturing, repurposing, and recycling. Results obtained by simulating the model show that up to a 25% reduction in the need for new batteries can be achieved through remanufacturing, that the sum of repurposing and remanufacturing capacity is approximately constant across various scenarios encouraging the sharing of resources, and that the need for recycling capacity will be significant by 2030. A repurposing demonstration shows the use of post-vehicle-application batteries to support a semi-portable recycling platform. Energy is collected from solar panels, and dispensed to electrical devices as required. Recycling may be complicated: lithium-ion batteries produced by different manufacturers contain different active materials, particularly for the cathodes. In all cases, however, the collecting foils used in the anodes are copper, and in the cathodes are aluminum. A common recycling process using relatively low acid concentrations, low temperatures, and short time periods was developed and demonstrated.

Recent major natural disasters in New Jersey have demonstrated the need to increase the resilience of transportation infrastructure. This research examines public attitudes toward revenue sources that can be dedicated to protecting vulnerable areas, most notably the transportation linkages on which the state depends. A statewide survey was conducted to gather data approximately four months following Superstorm Sandy, the costliest natural disaster in the state's history. The authors' objective was to sample public attitudes while the impacts of the disaster were still fresh. They found little support for temporary tax increases to improve resiliency, with the most positive support for taxing visitors (i.e., a hotel and recreational tax) and for a 30-year bond measure (i.e., taxing the future). This observation seemingly contradicts broad support for investing in new infrastructure, as well as maintaining and protecting existing infrastructure. Multivariate analysis to understand the underlying attitudes toward raising revenue found that more left-leaning or communitarian attitudes are associated with more support for gasoline, income, or sales taxes devoted to mitigating vulnerability. Those who supported investment in transit and protecting infrastructure also were more likely to support these taxes. There was no parallel finding of factors associated with taxing visitors or issuing bonds.

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## **Funding Resilient Infrastructure in New Jersey: Attitudes Following a Natural Disaster**

Project 1243

Principle Investigators: Robert B. Noland, PhD,  
Marc D. Weiner, PhD, and  
Michael R. Greenberg, PhD



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## Experimental Modeling of NO<sub>x</sub> and PM Generation from Combustion of Various Biodiesel Blends for Urban Transport Buses

Project 1245

Principle Investigator: Ashok Kumar, PhD

Biodiesel has diverse sources of feedstock and the amount and composition of its emissions vary significantly depending on combustion conditions. Results of laboratory and field tests reveal that nitrogen oxides (NO<sub>x</sub>) and particulate matter (PM) emissions from biodiesel are influenced more by combustion conditions than emissions from regular diesel. Therefore, NO<sub>x</sub> and PM emissions documented through experiments and modeling studies are the primary focus of this investigation. In addition, a comprehensive analysis of the feedstock-related combustion characteristics and pollutants are investigated. Research findings verify that the oxygen contents, the degree of unsaturation,

and the size of the fatty acids in biodiesel are the most important factors that determine the amounts and compositions of NO<sub>x</sub> and PM emissions.

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## Estimating Uncertainty of Bus Arrival Times and Passenger Occupancies

Project 1246

Principle Investigator: Vikash V. Gayah, PhD

Travel time reliability and the availability of seating and boarding space are important indicators of bus service quality and strongly influence users' satisfaction and attitudes towards bus transit systems. With Automated Vehicle Location (AVL) and Automated Passenger Counter (APC) units becoming common on buses, some agencies have begun to provide real-time bus location and passenger occupancy information as a means to improve perceived transit reliability. Travel time prediction models have also been established based on AVL and APC data. However, existing travel time prediction models fail to provide an indication of the uncertainty associated with these estimates. This can cause a false sense of precision, which can lead to experiences associated with unreliable service. Furthermore, no existing models are available to predict individual bus occupancies at downstream stops to help travelers understand if there will be space available to board.

The purpose of this project was to develop modeling frameworks to predict travel times (and associated uncertainties) as well as individual bus passenger occupancies. For travel times, accelerated failure-time survival models were used to predict the entire distribution of travel times expected. The survival models were found to be just as accurate as models developed using traditional linear regression techniques. However, the survival models were found to have smaller variances associated with predictions. For passenger occupancies, linear and count regression models were compared. The linear regression models were found to outperform count regression models, perhaps due to the additive nature of the passenger boarding process. Various modeling frameworks were tested and the best frameworks were identified for predictions at near stops (within five stops



downstream) and far stops (further than eight stops). Overall, these results can be integrated into existing real-time transit information systems to improve the quality of information provided to passengers.

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

Project 1247

Principle Investigator: Timothy Cleary, MS

The future of mass transportation is clearly moving toward the increased efficiency and greenhouse gas reduction of hybrid and electric vehicles. With the introduction of high-power/high-energy storage devices such as lithium ion battery systems serving as a key element in the system, valid safety and security concerns emerge. This is especially true when the attractive high-specific-energy and power-chemistry lithium nickel cobalt aluminum oxide (NCA) is used. This chemistry provides great performance but presents a safety and security risk when used in large quantities, such as for a large passenger bus. If triggered, the cell can completely fuel its own fire, and this triggering event occurs more easily than one may think.



To assist engineers and technicians in this transfer from the use of primarily fossil fuels to battery energy storage on passenger buses, the Battery Application Technology Testing and Energy Research Laboratory (BATTERY) of the Thomas D. Larson Pennsylvania Transportation Institute (LTI) in the College of Engineering at The Pennsylvania State University partnered with advanced chemistry battery and material manufacturers to study the safety concerns of an NCA battery chemistry for use in transit

buses. The research team ran various experiments on cells and modules, studying rarely considered thermal events or venting events. Special considerations were made to gather supporting information to help better understand what happens, and most importantly how to best mitigate these events and/or manage them when they occur on a passenger bus.

The research team found that the greatest safety concern when using such a high-energy chemistry is ensuring passenger safety when a cell's electrolyte boils and causes the ventilation of high-temperature toxic material. A cell-venting event can be triggered by a variety of scenarios with differing levels of likelihood. Also, though the duration of a venting event is relatively short, on the order of just a few seconds, the temperature of the venting material and cell is extremely high. During a venting event, the high-pressure, burning gases tend to burn holes in nearby packaging materials. Most interestingly, the team discovered that following a venting event the large-format cells tested immediately reached and remained at extremely high external skin temperatures for very long periods, on the order of hours. The majority of this report covers the testing designed to better understand how high-energy cells of this chemistry fail and what materials can be used to manage these failures in a way that increases passenger survivability.

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## **The Impact of Transit-Oriented Development on Social Capital**

Project 1252

Principle Investigator: Robert B. Noland, PhD

This paper focuses on the ability of Transit Oriented Development (TOD) to improve social capital and interactions within a community. The expectation is that TOD has a positive impact on the lifestyle and activities of individuals who reside, work, and frequent these locations, and that this can include increases in social capital. Using data from a survey of transit station locations in New Jersey, the authors examine how proximity to the station and various built environment variables are associated with

different measures of social capital, derived from responses to survey questions. These questions inquire about respondents' perceptions of their neighborhood as a place to live, sense of community, knowing their neighbors, trust, and whether their community is a good place to raise a child. The authors also include a question on volunteering in the community. These questions reflect various domains of social capital as established in the literature. Results generally do not support the hypothesis that social capital is associated with transit station proximity and TOD. Features of the built environment, proxied by population and employment density, are also not associated with increased social capital, and in some cases have a negative association. While there are some limited positive associations with some of the social capital variables, one of the strongest indicators is living in a detached family home.

the Incident Command System (ICS) as their organizational basis. At the headquarters level, the Emergency Operations Center (EOC) coordinates the use of resources across the department and its districts, with other state departments and agencies, and through the federal Emergency Support Function 1. District-level EOCs coordinate with the department. In extreme events, the transportation department may only be able to deliver limited essential services in austere conditions, so a continuity of operations/continuity of government plan (COOP/COG) is essential. This research applied the principles of andragogy to deliver ICS field level training, EOC training and COOP/COG training to state transportation agency's staff in all districts and at headquarters. The data supports the need for adult-oriented methods in emergency management training

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## **Emergency Management Training for Transportation Agencies**

Project 1280

Principle Investigator: Frances Edwards, PhD

State transportation agencies have a variety of responsibilities related to emergency management. Field personnel manage events--from day-to-day emergencies to disasters--using

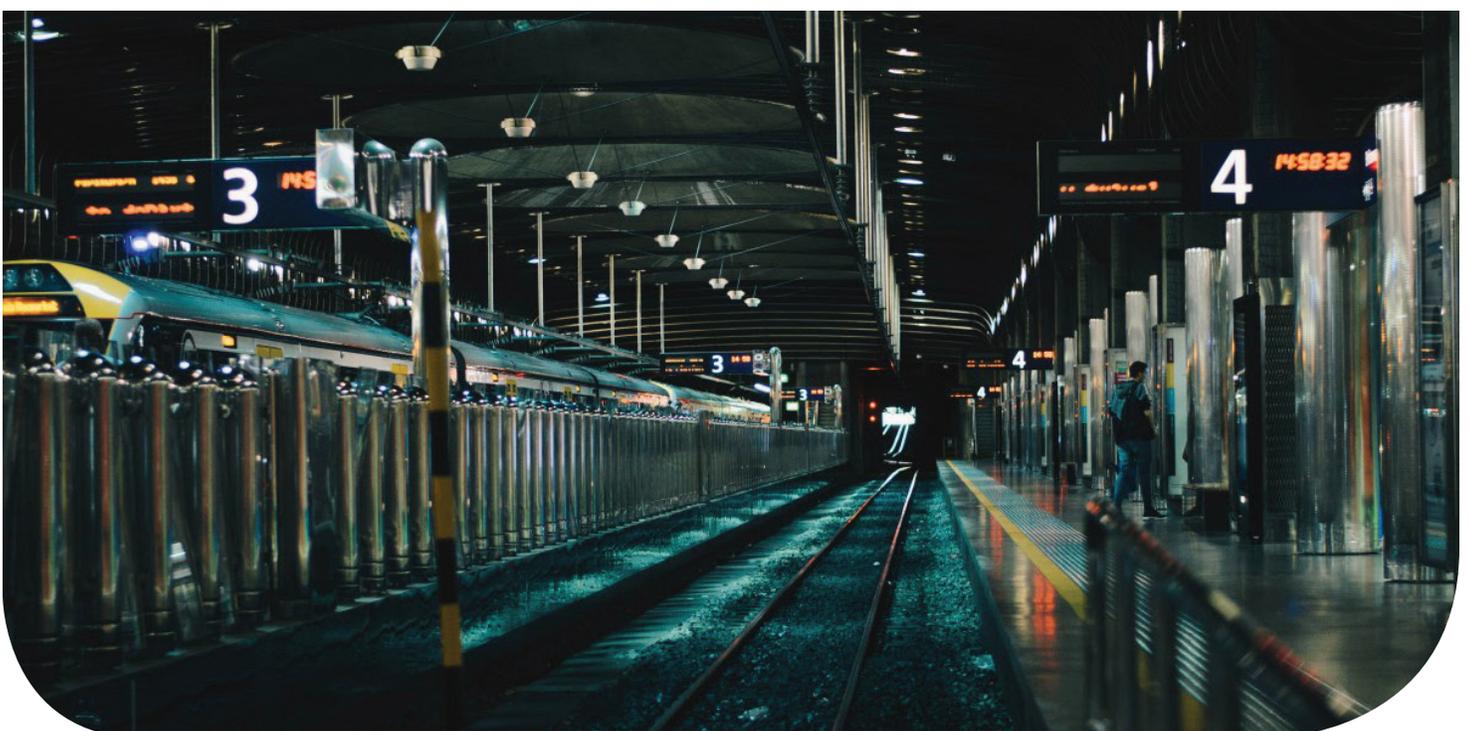
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## **Bus Transit Operational Efficiency Resulting from Passenger Boardings at Park-and-Ride Facilities**

Project 1401

Principle Investigator: John S. Niles, MS

In order to save time and money by not driving to an ultimate destination, some urban commuters drive themselves a few



miles to specially designated parking lots built for transit customers and located where trains or buses stop. The focus of this paper is the effect Park-and-Ride (P&R) lots have on the efficiency of bus transit as measured in five bus transit systems in the western U.S. This study describes a series of probes with models and data to find objective P&R influence measures that, when combined with other readily-available data, permit a quantitative assessment of the significance of P&R on transit efficiency. The authors developed and describe techniques that examine P&R as an influence on transit boardings at bus stops and on bus boardings along an entire route. The regression results reported are based on the two in-depth case studies for which sufficient data were obtained to examine (using econometric techniques) the effects of park-and-ride availability on bus transit productivity. Both Ordinary Least Square (OLS) regression and Poisson regression are employed. The results from the case studies suggest that availability of parking near bus stops is a stronger influence on transit ridership than residential housing near bus stops. Results also suggest that expanding parking facilities near suburban park-and-ride lots increases the productivity of bus operations as measured by ridership per service hour. The authors also illustrate that reasonable daily parking charges (compared to the cost of driving to much more expensive parking downtown) would provide sufficient capital to build and operate new P&R capacity without subsidy from other revenue sources.

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## **Trend Analysis of Long Tunnels Worldwide**

Project 1429

Principle Investigator: Jae-Ho Pyeon, PhD

High-speed rail construction projects have frequently required long tunnels to reduce travel time and distance. The California High-Speed Rail (CHSR) authority is considering a tunnel up to 16 miles long for a direct route from Palmdale to Burbank. With advances in tunneling technology, the many long tunnels in use around the world today hold valuable lessons for CHSR, particularly with respect to minimization of ground disturbance and improved passenger and operator safety. The primary objective of this project is to determine the state of the art

for construction and operation of long tunnels used for high-speed rail. With an abundance of long tunnels successfully completed and already in use around the globe, an examination of those projects can provide the State with the benefit of their experience at little cost.

The research began with a review of the literature on long tunnels around the world, with a focus on characteristics and the research team constructed a detailed database of information on the projects behind the world's long tunnels. Based on the data, this report presents data on 67 tunnels longer than 4.5 miles, including 32 high-speed railway tunnels, located in 28 countries around the world. The research team analyzed the data to determine the factors that should be considered in planning long tunnels for HSR projects. Analysis results were documented in a systematic manner to compare with potential tunnels for the Palmdale-to-Burbank segment of the California HSR system. It is hoped that the trends identified from the aggregate data will help inform decisions for the tunnel projects being considered for the Palmdale-to-Burbank segment of California High-Speed Rail.

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## **A Survey of Viva CalleSJ Participants: San José, California 2015**

Project 1430

Principle Investigator: Asha W. Agrawal, PhD

This report presents the findings from a survey of participants at the Viva CalleSJ open streets event held on October 11, 2015. The survey was designed to provide information that would help the City of San Jose assess the success of the event, guide the planning for future Viva CalleSJ events, and inform potential funders and community partners about the benefits of Viva CalleSJ. A total of 618 people completed the one-page paper survey while at the event. Survey findings provide detail on how people learned about the event, how they traveled to the event, what they did at the event, how much physical activity they got, and their interest in attending future Viva CalleSJ events. The survey also collected data on respondents' gender, age, and race/ethnicity.

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

Project 1528

Principle Investigator: Asha W. Agrawal, PhD

This report summarizes the results of year seven 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. Ten 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), respondents' views on the quality of their local transportation system, their priorities for government spending on transportation in their state, and environmental concerns. 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 75% 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.

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## Trains, Concert Halls, Airports, and Restaurants—All Soft Targets: What the Terrorist Campaign in France and Belgium Tells Us about the Future of Jihadist Terrorism in Europe

Project 1532

Principle Investigator: Brian Michael Jenkins

The terrorist attacks in Paris on November 13, 2015, which left 130 dead, and in Brussels on March 22, 2016, in which another 35 people were killed, underscore the heightened terrorist threat Europe faces as those who left European countries to join the ranks of the Islamic State or other jihadist fronts in the Middle East return home. Some come back disillusioned, others traumatized by their experience, but some return determined to bring the war home. Their goal is slaughter. Their targets vary—concert venues, sports stadiums, churches, restaurants, trains, airport terminals—all public places where people gather. That coincides with a long-term trend identified in previous MTI research—public surface transportation is especially attractive to terrorists seeking high body counts.

The attacks in Paris and Brussels were part of



a continuing campaign of terrorism that began in 2014. Many of the earlier events attracted less international attention because police uncovered the plots or because their attacks failed. By connecting the events, we were able to discern more about the group behind the campaign. And this, in turn, told us more about the subculture from which this terrorist enterprise emerged.

The network responsible for the terrorist campaign combined fighters returning from Syria with local confederates who provided the returnees with logistical support and additional recruits. This combination enhanced the group's operational capabilities. The relationships among the participants preceded the terrorist campaign. Many were petty criminals and had carried out crimes or served in prison together. Those returning from Syria were clearly a more violent bunch—they carried out most of the suicide bombings or died in shootouts with police.

The terrorist network emerged from a subculture that transcended the criminal underworld and a radicalized underground. While these young men went to Syria to fight for the Islamic State, some saw Syria as a base from which to launch a terrorist campaign at home. The network appears to be the creation of a terrorist entrepreneur who the Islamic State either ordered or exploited to carry out the campaign. It is not clear whether the Islamic State was the incubator or, as French authorities believe, the central command behind the attacks. While this particular network has been largely

dismantled, a number of suspects remain at large and the embryos of new networks have been uncovered. The terrorist threat to Europe remains high. The number of Americans going to Syria is a fraction of that seen in Europe, and domestic intelligence efforts have proved remarkably effective in uncovering terrorist plots.

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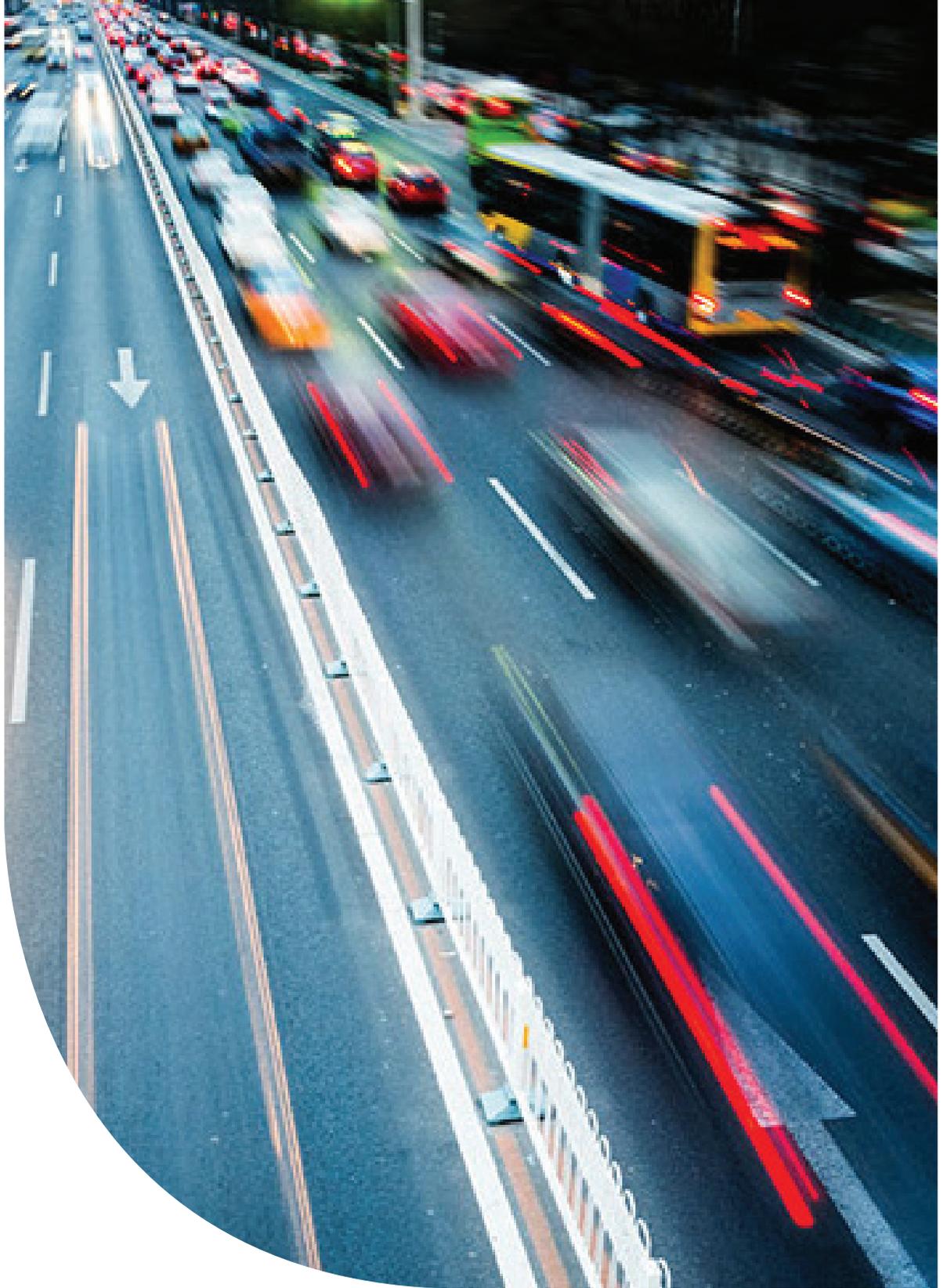
## **A Survey of Viva CalleSJ Participants: San Jose, California 2016**

Project 1628

Principle Investigator: Asha W. Agrawal, PhD

This report presents the findings from a self-complete paper survey of participants at the Viva CalleSJ open streets event held on September 18, 2016. The survey was designed to provide information that would help the City of San Jose assess the success of the event, guide the planning for future Viva CalleSJ events, and inform potential funders and community partners about the benefits of Viva CalleSJ. A total of 318 people completed the one-page paper survey while at the event. Survey findings provide detail about how people learned about the event, how they traveled to the event, what they did at the event, how much physical activity they got, and how much money they planned to spend while at the event. The survey also collected data on respondents' gender, age, and race/ethnicity.





## Communications and Information/ Technology Transfer

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## 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 website.
- 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.
- 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.

## 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 Sponsered Forums and Summits



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## Council of University Transportation Centers Meeting and Banquet

January 2016 • Washington DC

US Secretary of Transportation (ret.) Norman Y. Mineta, MTI's founder and an active trustee, received the CUTC Lifetime Achievement Award at this annual banquet. MTI's Student of the Year, MSTM student Ben Lichty, received a certificate and a \$1000 cash award. US Secretary of Transportation Anthony Foxx was the keynote speaker. This annual event honors those who have made significant achievements in transportation – as professionals, as students, or as researchers.

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## Radio Amateur Civil Emergency Services (RACES) Training

January 2016 • San José, CA

Following many disasters, amateur radio is the only means of two-way communication, giving emergency services and municipalities excellent communications capabilities. 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.

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## High Speed Rail in California: Progress and Prospect

March 2016 • San Francisco, CA

A comprehensive examination of high-speed rail in California. Representatives from the CHSRA, local planning officials, and academic experts explored in detail the plan to build the nation's first, true, high-speed rail line – the progress achieved to date and the major challenges that lie ahead. MTI co-sponsors the half-day workshop at the annual meeting of the Association of American Geographers.

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## Sixteenth Annual Garrett Morgan Sustainable Transportation Competition

April 2016 • National Broadcast

Teams of middle-school students from across the country presented their ideas for achieving sustainable transportation. The live, streaming teleconference featured an address by the US Secretary of Transportation, the director of the California Department of Transportation, and other industry leaders. First-place went to the mechanical engineering class from Morada Middle School in Stockton for their "Grape-Stomp Biofuel Project." The 7th- and 8th-graders from the farming community presented an idea to convert grape pomace – the skins, stems and other plant matter left after grapes are crushed



– into ethanol that can be used locally as a low-emission fuel for farm equipment. The project would also eliminate the methane emissions produced when pomace is composted. This was the second time a Morada Middle School team has taken top honors. The students and their teacher will be introduced and awarded \$1,000 for their classroom at the MTI Awards Banquet and Convocation Exercises on June 18.

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### **Faster, Smarter, Cleaner, Greener: Developing the Transportation Workforce of the Future**

April 2016 • San Francisco, CA

Thought leaders in transportation technology and workforce development came together for this full-day workforce development summit on emerging career pathways in transportation and how to prepare the next generation of workers. How can schools work with industry leaders to ensure relevant education and training programs? What specialized skills will be needed to plan and construct a world-class transit system? Which technologies will be critical in developing clean, efficient freight transportation systems that can compete at the regional, state, and national levels? Focus was on innovative technologies, including Intelligent Transportation Systems (ITS), high-speed rail,

wireless technologies, big data systems, smart freight networks, environmentally sustainable technologies, and others.

Keynote by Therese McMillan, Acting Administrator, USDOT Federal Transit Administration. Panelists include Maria Ayerdi-Kaplan, Executive Director, Transbay Transit Center Project; Oliver Baines, President, Fresno City Council; Kristin Decas, CEO and Port Director, Port of Hueneme, CA; Mark Novak, PhD, Dean, Extended University Division, CSU Bakersfield; Thomas O'Brien, Executive Director, Center for International Trade and Transportation, METRANS Transportation Center; and Tim Rainey, Executive Director, California Workforce Investment Board.

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### **“Let’s Get Moving, Silicon Valley!” Transportation Choices and Healthy Communities Summit 2016**

May 2016 • Mountain View, CA

MTI co-sponsored this annual public event promoting improved transportation networks and complete communities in Santa Clara and San Mateo Counties. At this year’s Summit, participants explored the connections between health, equity, environment, economics, land use, and transportation.

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## Second Annual “Silicon Valley Bikes!” Festival & Bike Show

May 2016 • San José, CA

Silicon Valley’s bicycle enthusiasts and their families enjoyed an all-day celebration of cycling, family fun, community building, and an off-the-hook bicycle show by Gooseneck Bicycles. There were food trucks, events for kids, live music, and more. A collaboration between History San José, Silicon Valley Bicycle Coalition, Mineta Transportation Institute, Gooseneck Bicycles, Cycle California! Magazine and Santa Clara Valley Brewing.

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## International Conference on Transport and Health

June 2016 • San José, CA

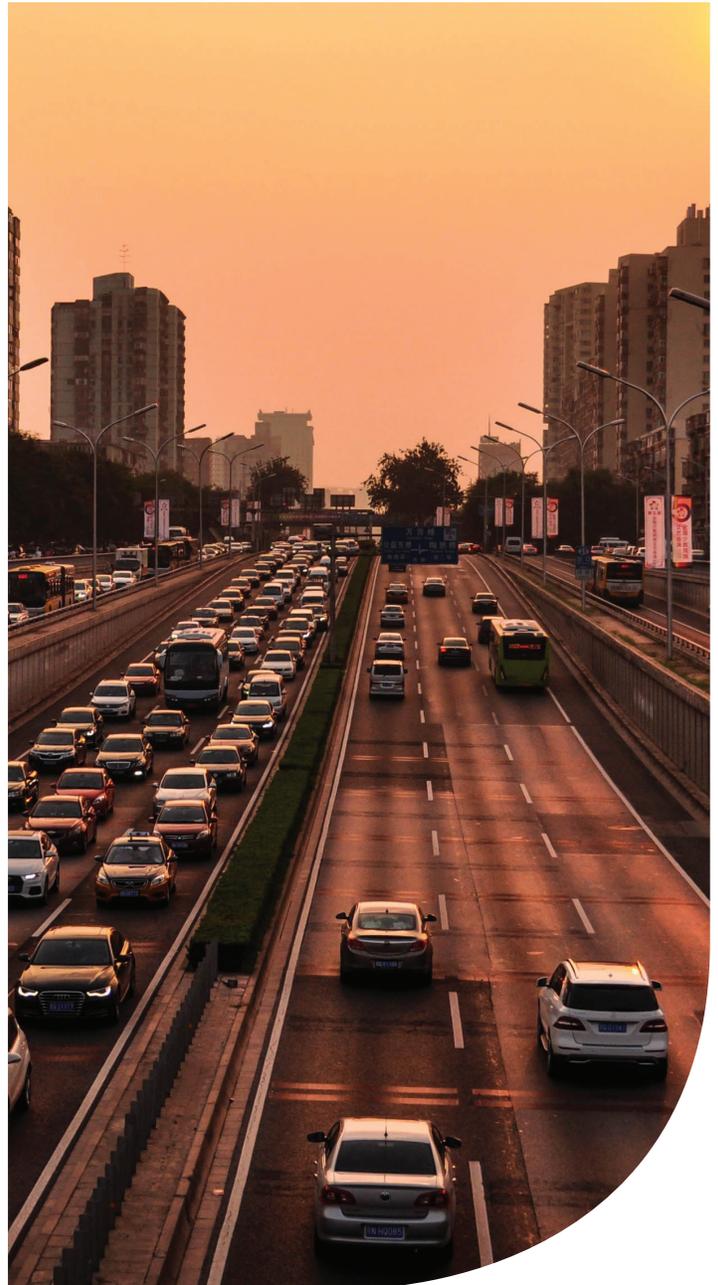
The Mineta Transportation Institute hosted this second annual conference addressing the convergence of transportation and health. The conference promotes the concept of cross-disciplinary teams of professionals in the design, planning, and development of proposed and rehabilitated transportation infrastructure projects.

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## 7th Annual Mineta National Transportation Finance Summit: “Superior Infrastructure = Economic Success.”

June 2016 • San Francisco, CA

Is it true, as Congress says, that Americans won’t pay more taxes and fees for mobility? What exactly are the funding challenges and how are transportation leaders addressing them? This free, half-day summit hosted by MTI at the Commonwealth Club in San Francisco presented results from year seven of a national public opinion poll of more than 1,500 Americans on various tax options for raising federal transportation revenues. Special attention was given to understanding opinions on increasing revenues for public



transit. Keynote address by California State Transportation Agency (CalSTA) Secretary Brian Kelly. Featured Speakers: Asha Agrawal, PhD, Director Mineta Transportation Institute National Transportation Finance Center; Grace Crunican, General Manager, Bay Area Rapid Transit District; Steve Heminger, Executive Director, Metropolitan Transportation Commission; and Tim Rainey, Executive Director, California Workforce Development Board. Moderator: Karen Philbrick, PhD, Executive Director, Mineta Transportation Institute. Keynote Introduction: Norman Mineta, Secretary (ret.) US Department of Transportation.



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## MTI Awards Banquet and Convocation Exercises

June 2016 • San José, CA

Graduates of MTI's Master of Science in Transportation Management received their hoods at a banquet attended by families and friends as well as national and international transportation leaders. An award was given to the winning team in the 2016 Garrett Morgan Sustainable Transportation Competition, and the 2016 MSTM Alumna/us of the Year was named.

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## Is the Gas Tax Here to Stay?

July 2016 • San José, CA

Can the "gas tax" continue to serve as a primary source of transportation revenue for California? What are the advantages and disadvantages of the gas tax compared to alternatives such as mileage fees, vehicle registration fees, and sales taxes? MTI Research Associate Dr. Asha W. Agrawal addressed these questions and presented results from year seven of the MTI national public opinion poll of more than 1,500 Americans on various tax options for raising federal transportation revenues. Location: SPUR San José, 76 South First Street, San José, CA 95113. Free for SPUR members, \$10 for non-members. Co-sponsored by SPUR San Jose.

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## Transportation Transformation: High Speed Rail in Silicon Valley

July 2016 • San José, CA

What do businesses need to do to get up to speed on high-speed rail scheduled to arrive in Silicon Valley within a decade? This sold-out panel discussion sponsored by MTI brought together top officials from the California High-Speed Rail Authority, Caltrain, the Valley Transportation Authority, and rail infrastructure businesses to discuss frequently asked questions, including:

- What's the master plan? How do high-speed rail, Cal Train, BART, ACE Train, Light Rail overlap, synchronize and work together?
- If not High Speed Rail, what are the options to address our transportation woes?
- How will the creation of this transportation hub affect the local quality of life?
- What economic impact is anticipate and where will is it most likely to occur? Where are the business opportunities?
- How will HSR be funded? What tax measures need to be approved

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## **The Intersection between Transportation and Emergency Preparedness in the United States**

August 2016 • San José, CA (invitation only)

The Mineta Transportation Institute (MTI) hosted a host an invitation-only, bilateral exchange with delegates from the Emergency Management Office (EMO), General Office of the State Council of China. Topics of discussion included emergency preparedness in the United States with a focus on the MTI publication Exercise Handbook: What Transportation Security and Emergency Preparedness Leaders Need to Know to Improve Emergency Preparedness.

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## **Viva CalleSJ: Open Streets San José**

September 2016 • San José, CA

VivaCalleSJ was a free recreational program co-sponsored by MTI that closed miles of scenic San José streets to motor vehicles. Participants walked, biked, skated, played, and explored the city as never before. The route spanned six miles of streets, through some of San Jose's most iconic neighborhoods including Japantown, Willow Glen, Burbank and Downtown.



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## **Podcar City & Advanced Transit – Automated Mobility on Demand**

September 2016 • Antwerp, Belgium

Tenth annual Podcar City conference focused on how autonomous vehicles can reshape the way we live our lives in the urban landscape. MTI co-sponsored this annual event where more than 100 city planners, transit planners, consultants, architects, engineers, investors, developers, elected officials, and others discussed this 21st-century opportunity.

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## **Transit Oriented Development Conference: Accelerating Sustainable Communities**

September 2016 • Washington DC

Leading developers, cutting-edge designers, transit agencies, planners, elected officials, building users, and investors came together to network, discuss best practices, and share the excitement of Transit Oriented Development.

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## **Green TRIP Connect Workshop**

October 2016 • San José, CA

The Mineta Transportation Institute (MTI) hosted an invitation-only workshop with faculty, students, and staff at San José State University to introduce Transform's GreenTRIP Connect tool. GreenTRIP Connect is a free online tool that instantly calculates the impact of smart location, affordable homes, and traffic reduction strategies on reducing emissions from driving and residential development.

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## Getting it Right on Governance and on the Station-Neighborhood Interface at San José Diridon Station

October 2016 • San José, CA (invitation only)

Diridon Station is one of the Bay Area's best opportunities to improve mobility and to channel a significant amount of new growth near transit. Throughout the world, we have seen how new investments in intermodal transportation hubs have had transformational impacts on cities and regions. Concurrent with the Railvolution Conference, the Mineta Transportation Institute, in partnership with the German Marshall Fund of the United States, co-sponsored an invitation-only, bilateral exchange with SPUR San Jose to discuss best practices and cautionary tales from intermodal transportation hubs in Europe that are relevant to Diridon Station and San Jose. Keynote speakers included: Stephan de Fay, Executive Director of EPA Bordeaux-Euratlantique; Dr. Anastasia Loukaitou-Sideris, Professor of Urban Planning and Associate Dean of the UCLA Luskin School of Public Affairs, Research Associate at MTI; Dr. Deike Peters, Assistant Professor of Environmental Planning and Practice at Soka University of America, Research Associate at MTI; and Etienne Tricaud, President and CEO of AREP, the architecture office for the French Railway.

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## Solar-powered Automated Transit Networks: The Future of Sustainable Urban Transportation (sponsored by USDOT)

November 2016 • Free Online

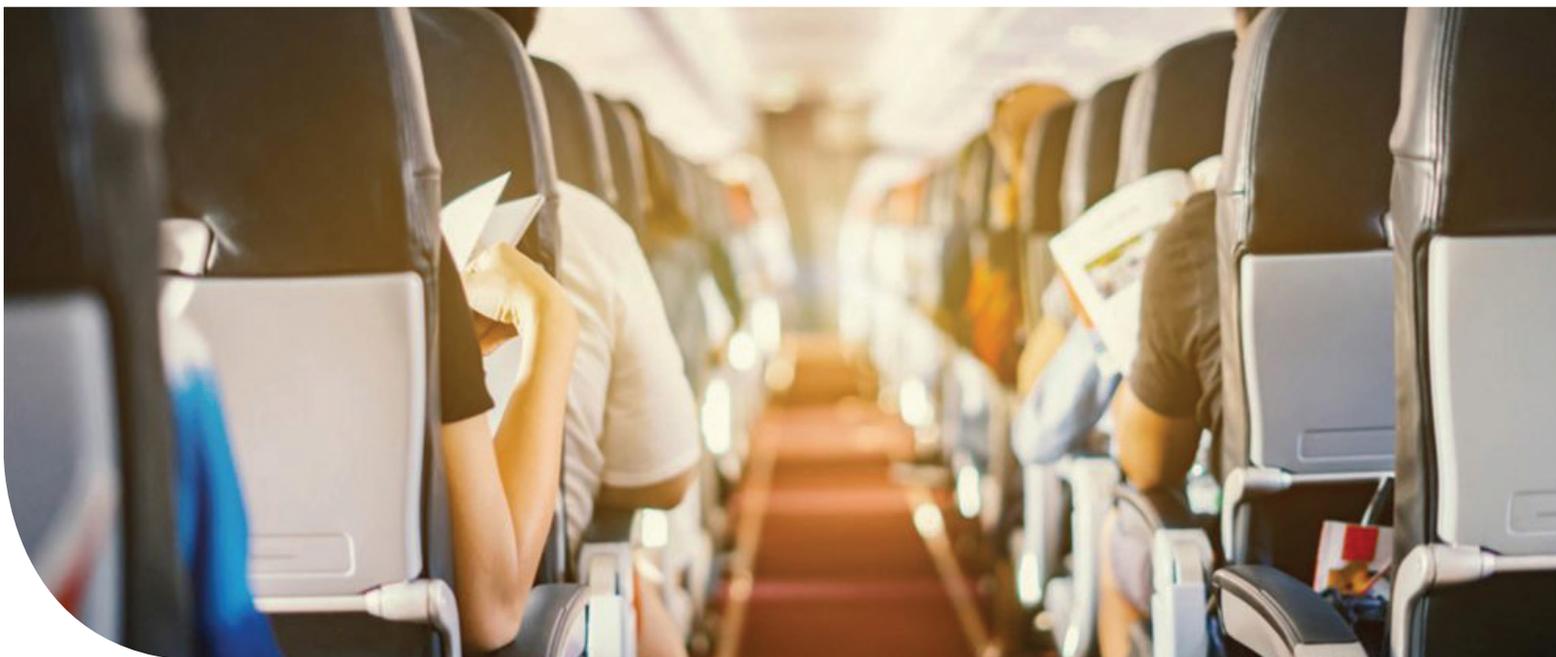
MTI researchers and others discussed the concept behind solar-powered automated transit networks (ATNs); why they are an ideal alternative transit mode for dense, urban areas; their unique advantages; and how they can integrate into existing urban environments. Free access to the archive available December 2016. Sponsored by US DOT.

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## What Do Americans Think of Mileage Fees?

December 2016 • Online (sponsored by TRB)

MTI's National Transportation Finance Center Director, Dr. Asha Agrawal, and Director of Research and Technology Transfer, Dr. Hilary Nixon, analyzed three sources of information about public opinion on mileage fees. The researchers presented key findings about overall support levels for mileage fees and the specific reasons why people support or oppose them. The TRB-sponsored webinar was free for TRB Sponsors and Sustaining Affiliates; \$95 for others.





# Education

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**Peter Haas, PhD**  
Director of Education  
Peter.Haas@sjsu.edu

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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

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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.

# 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

In the spring and fall of 2016, the Graduate Transportation Management Program offered 13 courses.

### Spring 2016

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

### Fall 2016

- 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

## MSTM Class of 2016

The faculty and staff of MTI and the Lucas College and Graduate School of Business were proud to present the graduating class of 2016 at the Annual MTI Board of Trustees Awards Banquet and Convocation on June 18, 2016. Students who earned their MSTM degrees completed 30 units of coursework, including an original research paper, while meeting the duties of full-time professional employment.



**The following MSTM students completed their graduate degrees in 2016:**

Alma Basurto  
Catharine Crayne  
Jillian Guizado  
Alex Kenefick  
Bernadette Lambert  
Benjamin Lichty  
Nathan Nairn  
Simon Oh  
Connie Raya  
Rachel Russell  
Susan Tse

**June 2016 Graduate  
Certificate in  
Transportation  
Management Recipients**

Abdoul Keita  
Blair Schlecter  
Brian Swanson  
Ayaba Takougnadi

**June 2016 Graduate  
Certificate in  
Transportation Security  
Management Recipients**

Kristian Castro  
Leshia Gatewood  
Nathan Nairn  
Simon Oh  
Hector Rangel  
Susan Tse

**June 2016 Graduate  
Certificate in  
High-Speed Rail  
Management Recipients**

Ryan Greenway  
Dennis Jacobs  
Benjamin Lichty  
Doreen Morrissey  
Olivia Rocha



**The 12-unit certificate 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 2016

## 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.

### **Alma Basurto**

Do Race-neutral Measures have a Positive Impact on Minority and Woman-owned Enterprise (M/WBE) Utilization in the Number of BART Federally Funded Professional Services Agreements and on the Total Dollar Amount Received by This Group?

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### **Catherine Crayne**

Establishing Realistic Mandates for Low or No Emission Vehicles for California Transit Agencies

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### **Jilian Guizado**

Optimizing the Effectiveness of 3+ Toll Lanes on State Route 91

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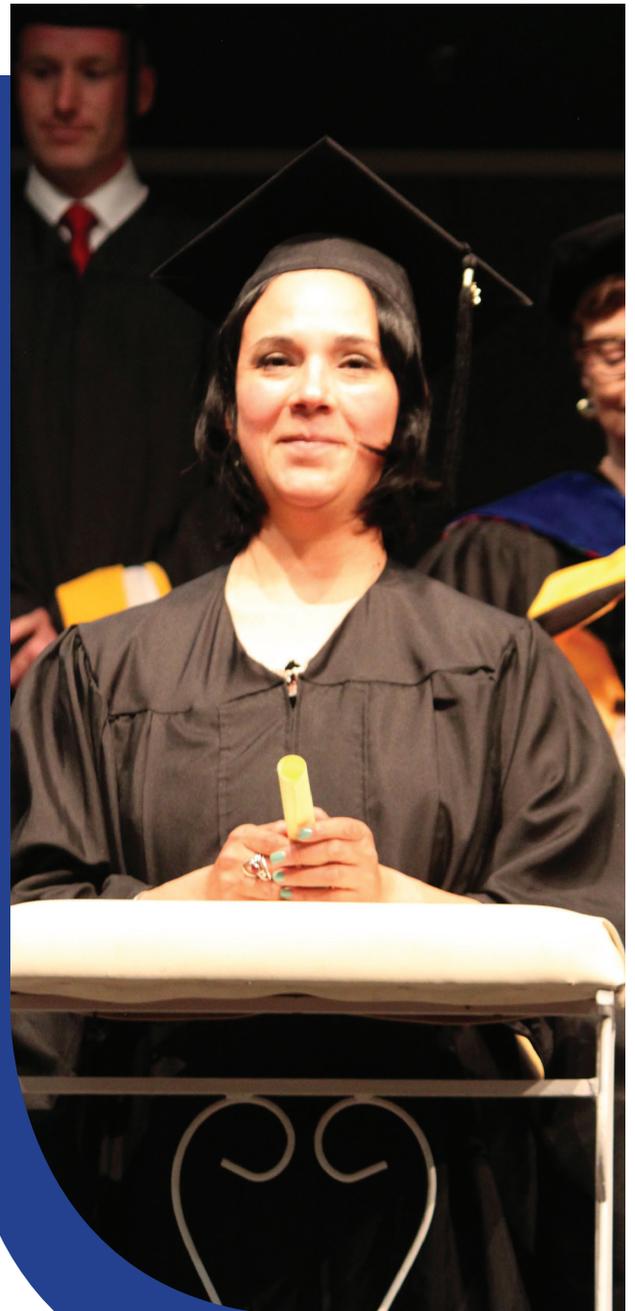
### **Alex Kenefick**

Coordination between Metrolink Commuter Rail and Southern California Local Transit Operators: Who are the Most Appropriate Partners for Schedule Coordination?

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### **Bernadette Lambert**

Preserving Future Transit Rights Of Way In The Face Of Development: A New Approach





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### **Benjamin Lichty**

Extend the Blend: A Benefit-Cost Analysis of Shared Infrastructure on the Rail Corridor from San Jose to Gilroy in Northern California

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### **Nathan Nairn**

Driving the Cars off Campus: How to get Kansas State University to Reach its Goal of Being Car-free?

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### **Simon Oh**

How can Transportation Agencies Incorporate Social Media to Enhance Their Public Engagement Efforts?

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### **Connie Raya**

Implementation Challenges of Adding a Mobile Ticketing Application

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### **Rachel Russel**

Designing a Cost-effective Low-income or Means-based Fare Product for BART

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### **Susan Tse**

Transportation and Public Health: Mobility Management for the Aging Population

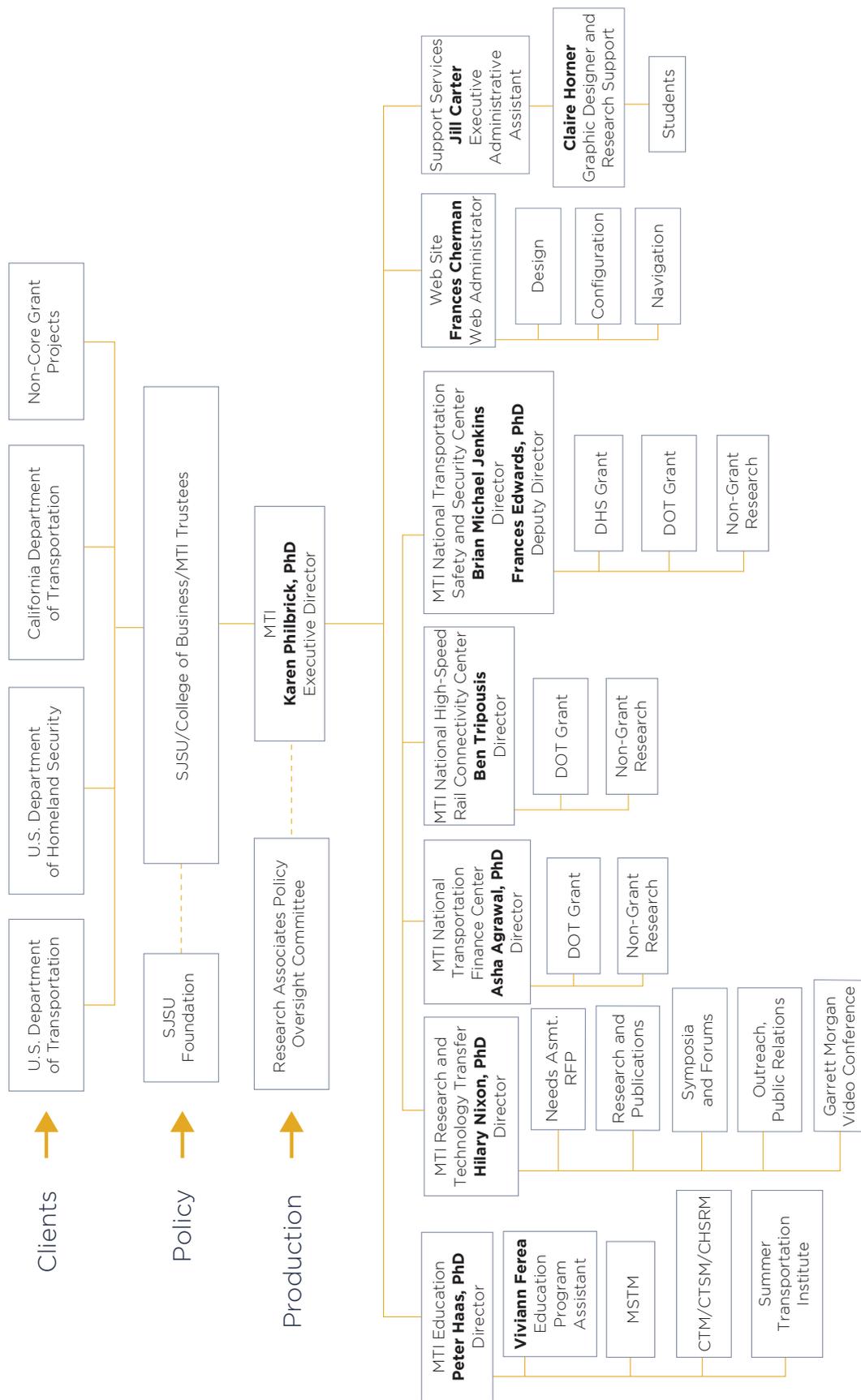




## Appendices

# Appendix A Organization Chart

Mineta Transportation Institute  
(Created by Congress in 1991)  
in the Lucas College of Graduate School of Business  
at San José State University



# Appendix B

## 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

### EX-OFFICIO

**Christine Azevedo**  
California Department of Transportation

**Rod Diridon**  
MTI Emeritus Executive Director

**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 C

## 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 Mary Papazian, Interim Dean of the College of Business 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 Rajnesh Prasad and staff Lan Duong, Steve Barranti, Steve Constantine, Lan Duong, Ha Ngo, Michele Vaccaro, Rick Yoneda and the many others who support the MTI programs.

Research Librarian Diana Wu, assures that the Martin Luther King, Jr. Library provides excellent service to those who use the MTI collection, including faculty, students and the community.



# Appendix D

## Board of Trustees

### **Founder, Honorable Norman Mineta (Ex-Officio)**

Secretary (ret.), US Department of Transportation

### **Honorary Chair, Congress Member Bill Shuster (Ex-Officio)**

Chair  
House Transportation and Infrastructure Committee  
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

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