



Mineta  
Consortium  
for Transportation  
Mobility

# Semi-Annual Progress Report

## Mineta Consortium for Transportation Mobility

April 1, 2023 - September 30, 2023





## Semi-Annual Progress Report for University Transportation Centers Mineta Consortium for Transportation Mobility (MCTM) Led by San José State University

- **Federal Agency and Organization Element to Which Report is Submitted:**  
U.S. Department of Transportation Office of the Assistant Secretary for Research and Technology
- **Federal Grant or Other Identifying Number Assigned by Agency:** 9A3551747127
- **Project Title:** Tier 1 University Transportation Center
- **Center Director:**  
Karen E. Philbrick, PhD  
MCTM Executive Director  
[karen.philbrick@sjsu.edu](mailto:karen.philbrick@sjsu.edu) and 408.924.7562
- **Submission Date:** October 30, 2023
- **DUNS and EIN Numbers:** 0568207150000 and 94-6017638
- **Recipient Organization:**  
San Jose State University Research Foundation  
210 N. Fourth Street, 4<sup>th</sup> Floor, San Jose, CA 95112
- **Recipient Identifying Number or Account Number:** Not Applicable
- **Project/Grant Period:** November 30, 2016 – September 30, 2023
- **Reporting Period End Date:** September 30, 2023
- **Report Term or Frequency:** Semi-annual
- **Signature of Submitting Official:** *Karen Philbrick*

## Introduction

The Mineta Consortium for Transportation Mobility (MCTM), led by the Mineta Transportation Institute (MTI) at San José State University, conducts research, education, workforce development, and technology transfer activities to improve mobility of people and goods. MCTM unifies and focuses the efforts of four outstanding institutions that represent and support the geographical, cultural, racial, and socioeconomic diversity that makes our nation strong: Howard University; Navajo Technical University (NTU); San José State University (SJSU); and the University of North Carolina Charlotte (UNCC).

### 1. Accomplishments

#### Emerging Leaders Seed Grant Program

The Emerging Leader Seed Grant Program engages and develops leadership capacity among junior faculty at SJSU. This program supports faculty in the first five years of an academic position who are interested in exploring transportation research problems aligned with MTI's research goals and objectives and encourages multidisciplinary participation. To date, MTI has awarded eighteen seed grants to faculty from six of the seven academic Colleges at SJSU.

During this period of performance, no new seed grants were funded.

During this period of performance, two seed grant reports were published:

1. [Using Thermal Remote Sensing to Quantify Impact of Traffic on Urban Heat Islands during COVID](#)
2. [Domestic Migrations, Train Travel in the United States 2012-2022](#)

#### Ongoing Research

Since January 6, 2017, MCTM has funded 69 peer reviewed projects, 18 emerging leader seed grants, and 36 commissioned research or white papers. Details on all MCTM projects can be found in the [UTC project information sheets](#).

Project Type	# Published	# in Progress
MTI lead (competitively-selected/peer reviewed, including Caltrans projects)	43	5
MCTM partner lead (peer reviewed)	16	5
Commissioned research/white papers	29	7
Emerging leader seed grants (peer-reviewed, SJSU lead)	16	2

### Leveraging Federal Funds

USDOT has made, and continues to make, a significant investment in developing and sustaining the UTC program and MCTM researchers and staff work tirelessly every day to leverage that federal investment to dramatically increase its return.

Since the last semi-annual progress report, MTI has received an additional \$6 million in funding from California's Road Repair and Accountability Act of 2017 bringing the total received through that source to \$18 million. In addition, MTI is part of a consortium, led by the University of South Florida, selected to receive \$17 million in funding from the Federal Railroad Administration. Additional ROI successes were reported [previously](#).

### Dissemination of Results

MCTM utilizes a diverse array of dissemination methods and media to ensure research results, conference proceedings, and expert interviews reach those responsible for managing change. These methods include publication, seminars, workshops, websites, social media, webinars, and other technology transfer mechanisms.

MCTM continued its #MTIResearchSnaps webinar program. This program provides a diverse audience with access to the latest MCTM research during a short, 30-minute period. This "mini" format allows individuals to learn from the researchers for 15-minutes followed by a moderated Q&A for the last 15-minutes. Webinar recording and any related resources shared during the event are available online at <https://transweb.sjsu.edu/events/past>. These are also widely promoted through social media, newsletters, and other MTI communication opportunities.

### Consortium Website

In compliance with the Grant Deliverables and Reporting Requirements for 2016 University Transportation Centers, MCTM has a website that features all consortium activities: <https://transweb.sjsu.edu/mctm>. This website is updated regularly with event information, media coverage, and research activities.

### Media Coverage

During this reporting period, there were **872 MTI stories featured in print, radio, and television media**, bringing the total number of MCTM stories to 4,194 since inception. Links to many of these articles are featured on the [Consortium website](#) and below is a snapshot of activity:

Article	Media Outlet
<a href="#">As fuel taxes plummet, states weigh charging by the mile instead of the tank</a>	Associated Press
<a href="#">Caltrain records two fatalities in 11 hours</a>	Axios
<a href="#">Lyft service connects women and nonbinary drivers and riders</a>	KTVU-Fox
<a href="#">Taxpayers aren't getting the bang-for-buck promised in transportation projects</a>	Washington Examiner

Article	Media Outlet
<a href="#">San Francisco's Valencia Street was dangerous for cyclists. Is the 'solution' making it worse?</a>	SFGate
<a href="#">Family, friends gather to honor 9 killed in 2021 San Jose VTA shooting</a>	KTVU-Fox
<a href="#">14th Annual Mineta National Transportation Policy Summit—Getting to Zero Deaths on Our Roadways: Is the IJIA up to the Challenge?</a>	Commonwealth Club of California Podcast
<a href="#">San Jose studies how to best use curb space</a>	San José Spotlight
<a href="#">Air taxis are taking off. Cities should start planning now.</a>	SmartCitiesDive
<a href="#">Cyber Attackers are Coming for Transit Agencies, Here's How to Strengthen Your Security Posture</a>	Mass Transit Magazine
<a href="#">Public transit systems remain vulnerable to cyber threats</a>	RouteFifty

### Continuing Education: Opportunities for Growth and Engagement

MCTM is providing thought leadership and contributing to solutions for some of our nation's most pressing transportation problems. Through regional forums, national summits, mid-career leadership training, and K-12 workforce development initiatives we help create a connected world. To that end, and during this period of performance, MCTM sponsored/co-sponsored 9 technology transfer and workforce development activities that reached 713 attendees; a selection follows:

**2023 MSTM Capstone Showcase** May 18, 2023 • [Online](#): During this virtual event, students from the Master of Science in Transportation Management program at San José State University, which is supported by MTI, presented their final capstone research projects. This interactive event provided attendees the opportunities to meet with the students and learn about their research and key issues in the field of transportation.

**Cycling Past 50** May 25, 2023 • [Online](#): Most people learn to ride a bike as a child, but when do they stop cycling? May is National Bike Month, and MTI is investigating the habits of older adults who cycle with the nationwide 50+ Cycling Survey. Carol Kachadoorian, an MTI Research Associate and founder of dbITilde CRE, Inc., initiated the survey in 2018, and it has since examined the cycling habits and preferences of thousands of adults ages 50 to 85-plus. Year 5 of the 50+ Cycling Survey will begin soon, and you can be a part of it. How can our growing understanding of older cyclists affect policy, programs, design, and practice? Join us to discuss health and mobility and to dig into ways this information can be used by engineers, planners, advocates, and more.



**(14th Annual Mineta National Transportation Policy Summit) Getting to Zero Deaths on our Roadways. Is the IIJA up to the Challenge?** June 2, 2023 • [Online](#): The United States faces a public health crisis on its roads. In 2021 alone, almost 43,000 people died in traffic crashes and millions more suffered serious injuries. Secretary Pete Buttigieg calls the situation a preventable crisis—one for which we must take responsibility by recognizing that human lives are not a price to pay for modernity. New funding available through the 2021 Infrastructure Investment and Jobs Act (IIJA) provides a significant opportunity to reduce crashes through infrastructure redesign. The Mineta Transportation Institute and a panel of national experts discussed the role of infrastructure redesign in achieving a national goal of zero traffic fatalities. **Federal Motor Carrier Safety Administrator Robin Hucheson was featured in a fireside chat with MCTM’s Executive Director and the Honorable Jennifer Homendy, Chair of the National Transportation Safety Board, delivered a keynote address.**

**14th Annual Mineta National Transportation Policy Summit**  
**Getting to Zero Deaths on Our Roadways: Is the IIJA up to the Challenge?**  
 In partnership with the Commonwealth Club of California

**Friday, June 2, 2023**  
 10:00a.m - 12:00p.m. (PT)  
 2 PDH Credit | Free Webinar

**FEATURED SPEAKER**  
**ROBIN HUTCHESON**  
 Administrator  
 Federal Motor Carrier Safety Administration

**KEYNOTE SPEAKER**  
**JENNIFER HOMENDY**  
 15th Chair  
 National Transportation Safety Board (NTSB)

**FIRESIDE CHAT MODERATOR**  
**KAREN PHILBRICK, PhD**  
 Executive Director  
 Mineta Transportation Institute

**KEYNOTE SPEAKER**  
**PAULA HAMMOND**  
 Q&A MODERATOR  
 Multimodal National Market Leader  
 WSP USA

**MTI GATEWAY SURVEY PRESENTER**  
**ASHA WEINSTEIN AGRAWAL, PhD**  
 Director  
 MTI National Transportation Finance Center

**PANELIST**  
**BETH OSBORNE**  
 Vice President, Transportation & Thriving Communities  
 Smart Growth America

**PANELIST**  
**TONY TAVARES**  
 Director  
 California Department of Transportation (Caltrans)

**PANELIST**  
**RAVINDER S. BHALLA**  
 Mayor  
 City of Hoboken

**PANELIST**  
**EMILY SCHWENINGER**  
 Senior Policy Advisor, Transportation Health and Safety  
 U.S. Department of Transportation

**MODERATOR**  
**SELIKA TALBOTT**  
 MTI Research Associate  
 Founder and CEO, Autonomous Vehicle Consulting

**Registration:**  
[tinyurl.com/MTISummit23](https://tinyurl.com/MTISummit23)

**SJSU** **SAN JOSÉ STATE UNIVERSITY** **MTI** **MINETA TRANSPORTATION INSTITUTE**  
[transweb.sjsu.edu](https://transweb.sjsu.edu)



**31st Annual Awards Banquet and Convocation Celebration** June 24, 2023 • San José, CA: To ensure the efficient movement of people and products, we must prepare a new cohort of transportation professionals who are ready to lead a diverse, inclusive, and equitable transportation industry. To that end, MTI held its 31st Annual Banquet and Convocation Celebration at San José State University on June 24, 2023. Joined by our distinguished Board of Trustees, we celebrated our 2023 MSTM graduates, alumni of

the year, the winners of the Garrett Morgan Sustainable Transportation Competition, and much more. This exciting MSTM celebration included individualized recognition of each graduate and award presentations.

**2023 WTS Capital Summit** June 25-29, 2023 • College Park, MD • *MTI was a proud co-sponsor of this program:* The WTS Capital Summit offered students an opportunity to meet transportation industry thought leaders, government and administration officials, and college students beginning their own career journeys in the industry. Historically, the Summit brings high school-aged mentees and transportation professional mentors to the Washington, D.C. area for a 4-day summer program of tours, lectures, and interactive experiences showcasing careers in transportation. Tours included the U.S. Department of Transportation; the U.S. Capitol

and U.S. Congress, local airports, highway research facilities, the Washington Area Metropolitan Transit Authority (Metro), live engineering projects, port operations, and other transportation hubs. The Summit also encouraged student attendees to consider a wide variety of future undergraduate and advanced degree opportunities... STEM, engineering, and beyond.

### **Student Scholarships**

Each year, MTI hosts an annual awards banquet and convocation celebration to recognize students graduating with their Master of Science in Transportation Management ([MSTM](#)) degree. This celebration also serves as a fundraising opportunity whereby MTI secures sponsorships that support scholarships for MSTM students. During this period of performance, MTI awarded \$15,200 to deserving students from proceeds raised during the [2023 celebration](#). Additionally, and as a result of MTI's leadership team building strong relationships with industry partners through board service, MTI partnered with the American Public Transportation Foundation and the American Road and Transportation Builders Association to award two joint 10K scholarships to deserving MSTM students. And, we were thrilled to develop the AECOM Spark scholarship whereby AECOM pays for half (\$6,500) of the MSTM tuition for a student from an underrepresented background. Finally, we awarded a \$1,000 honorarium for the "Allied Telesis Outstanding Security Capstone Project" in honor of our Trustee Taki Oshima who passed away recently.

### **Plans During the Next Reporting Period to Accomplish the Goals?**

No change to the agency-approved application.

## **2. Participants & Collaborating Organizations**

### **What Organizations Have Been Involved as Partners?**

During this period of performance, MCTM partnered with the 16 organizations listed below.

1. Organization Name and Location: **Alabama A&M University** (Huntsville, AL)
  - Partner's Contribution to the Project: Fabricated structural components for Formula SAE competition vehicle
  - Project: Navajo Technical University Workforce Development Components
2. Organization Name and Location: **California Department of Transportation**
  - Partner's Contribution to the Project: In-kind sharing of information
  - Project: (14th Annual Mineta National Transportation Policy Summit) Getting to Zero Deaths on our Roadways. Is the IJJA up to the Challenge? Research to Practice Transit Symposium
3. Organization Name and Location: **Charlotte Douglas International Airport** (Charlotte, NC)
  - Partner's Contribution to the Project: In-kind support (project-related data)
  - Project: UNCC Research Projects

4. Organization Name and Location: **City of Charlotte and Charlotte Regional Transportation Planning Organization** (Charlotte, NC)
  - Partner's Contribution to the Project: In-kind support (project-related data)
  - Project: UNCC Research Projects
5. Organization Name and Location: **City of Hoboken**
  - Partner's Contribution to the Project: In-kind sharing of information
  - Project: (14th Annual Mineta National Transportation Policy Summit) Getting to Zero Deaths on our Roadways. Is the IIJA up to the Challenge?
6. Organization Name and Location: **District Department of Transportation** (DDOT: Washington, DC)
  - Partner's Contribution to the Project: In-kind support (access to signal timing and other field-related-data; traffic control for the safety of students and field technicians during data collection efforts)
  - Project: Howard University Research Projects
7. Organization Name and Location: **Federal Motor Carrier Safety Administration**
  - Partner's Contribution to the Project: In-kind sharing of information
  - Project: (14th Annual Mineta National Transportation Policy Summit) Getting to Zero Deaths on our Roadways. Is the IIJA up to the Challenge?
  - Project: Howard University Research Projects and HBCU Funding Opportunities Summit
8. Organization Name and Location: **International Transportation Learning Center**
  - Partner's Contribution to the Project: In-kind sharing of information
  - Project: Youth Careers in Transit - Exploring a World of Opportunity
9. Organization Name and Location: **Introducing Youth to American Infrastructure ("iyai+")**
  - Partner's Contribution to the Project: In-kind sharing of information
  - Project: Youth Careers in Transit - Exploring a World of Opportunity
10. Organization Name and Location: **Morningbird Foundation**
  - Partner's Contribution to the Project: In-kind sharing of information
  - Project: Navajo Technical University Workforce Development Components
11. Organization Name and Location: **National Transportation Safety Board**
  - Partner's Contribution to the Project: In-kind sharing of information
  - Project: (14th Annual Mineta National Transportation Policy Summit) Getting to Zero Deaths on our Roadways. Is the IIJA up to the Challenge?
12. Organization Name and Location: **North Carolina Department of Transportation** (NCDOT: Raleigh, NC)



- Partner's Contribution to the Project: In-kind support (project-related data)
- Project: UNCC Research Projects

13. Organization Name and Location: **Smart Growth America**

- Partner's Contribution to the Project: In-kind sharing of information
- Project: (14th Annual Mineta National Transportation Policy Summit) Getting to Zero Deaths on our Roadways. Is the IJJA up to the Challenge?

14. Organization Name and Location: **Toyota**

- Partner's Contribution to the Project: Hybrid Car Trainer
- Project: Navajo Technical University Workforce Development Components

15. Organization Name and Location: **US High Speed Rail Association**

- Partner's Contribution to the Project: sharing of information on Master of Science in Transportation Management program and rail research projects
- Project: High Speed Rail Conference 2023

16. Organization Name and Location: **Wingate High School**

- Partner's Contribution to the Project: Access to facilities for project activities.
- Project: Navajo Technical University Workforce Development Components

**Have Other Collaborators or Contacts Been Involved?**

MTI collaborates with a wide range of departments/programs on campus at SJSU. Additionally, several organizations have participated as experts in MCTM summits, conferences and events.

**3. Output**

Performance Measures for Research Outputs	2023 <sup>a</sup>	2022	2021	2020	2019	2018
Number of completed research reports, including two-page research briefs  <i>Target goal: 12 reports, including research briefs, <u>annually</u></i>	11	18	15	19	16	8
Number of research presentations at professional meetings and conferences  <i>Target goal: 35 presentations <u>annually</u></i>	51	88	79	117	107	53

Number of downloads of research reports as tracked through Google Analytics (GA) and ScholarWorks (SW) annually (see Figure 1 below for geographic distribution)	15,728 (GA)	17,841 (GA)	17,939 (GA)	14,248 (GA)	15,380 (GA)	13,597 (GA)
	14,844 (SW)	15,583 (SW)	18,307 (SW)	12,955 (SW)	8,782 (SW)	6,198 (SW)
<i>Target goal: 3,000 downloads <u>annually</u></i>						

<sup>a</sup> Number reported through September 30, 2023

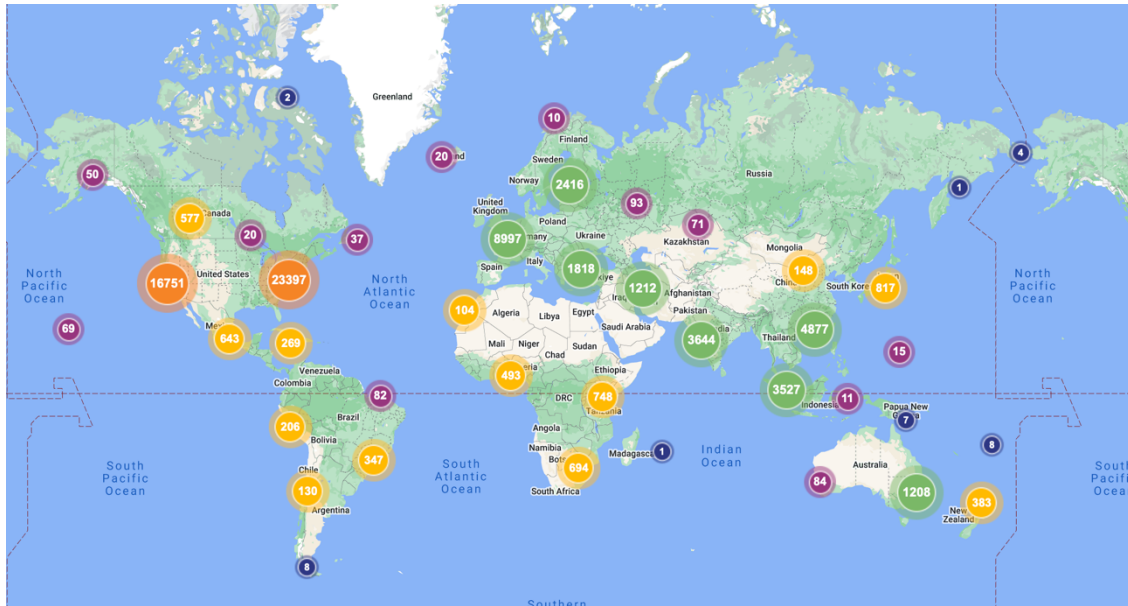


Figure 1 Distribution of MTI Report Readers via ScholarWorks, January 1, 2018-September 30, 2023 [76,669 downloads from 4,172 Institutions in 169 countries]

### Published Research Reports

During this period of performance, seven research reports featuring the results of MTI-funded research, were published on the MCTM website. *All reports are peer-reviewed prior to publication.*

1. Pulugurtha, S., Ogunbire, A. & Chirag Akbari, M. (2023, April). [Modeling and Evaluating Alternatives to Enhance Access to an Airport and Meet Future Expansion Needs.](#)
2. Tran, M.-T. & Yang, B. (2023, April). [Using Thermal Remote Sensing to Quantify Impact of Traffic on Urban Heat Islands during COVID.](#)
3. Agrawal, A.W. & Nixon, H. (2023, May). [What Do Americans Think About Federal Tax Options to Support Transportation? Results from Year Thirteen of a National Survey.](#)
4. Wei, W. et al. (2023, May). [Land Use Analysis on Vertiports Based on a Case Study of the San Francisco Bay Area.](#)
5. Agrawal, A.W. & Nixon, H. (2023, July). [Investing in California's Transportation Future: 2022 Public Opinion on Critical Needs.](#)

6. Ferrell, C. et al. (2023, September). [Defining and Measuring Equity in Public Transportation](#).
7. Evans, M. (2023, September). [Domestic Migrations, Train Travel in the United States 2012-2022](#).

### Publications, Conference Papers, and Presentations

During this period of performance, 35 academic and professional presentations/briefing featuring MCTM-federal or match funded research and researchers. Nine additional presentations occurred in a prior reporting period but had not been included in that report. A selection follows:

Academic Presentations				
	Presentation Title	Audience/Conference	Location	Date
1	Intelligent Transportation Systems: Visible Light Communications, AI-based Drowsy Driver Detection, and Pedestrian Detection at Night	10th International Conference on Computer and Communications Management (ICCCM 2022)	Okayama, Japan*	07/29/22*
2	Spatio-Temporal Analysis of the Roadside Transportation-Related Air Quality (StarTraQ 2022): Data-driven Exposure Analysis by Transportation Modes	Fourth Asia Pacific Clean Air Partnership (APCAP) Joint Forum	Suwon, Korea*	09/05/22*
3	Drowsy Driver Detection using Deep Learning and Multi-Sensor Data Fusion	IEEE Vehicle Power and Propulsion (IEEE VPPC 2022)	Merced, CA	11/01/22*
4	Smart Traffic Light Controller using Visible Light Communications	IEEE Vehicle Power and Propulsion (IEEE VPPC 2022)	Merced, CA	11/01/22*
5	Intelligent Transportation Systems: Visible Light Communications	IEEE Vehicle Power and Propulsion (IEEE VPPC 2022)	Merced, CA	11/01/22*
6	AI-based Drowsy Driver Detection	IEEE Vehicle Power and Propulsion (IEEE VPPC 2022)	Merced, CA	11/01/22*
7	A Gravity Model Integrating Transportation Investments and Land-Use Planning for Sustainable Development: Case Study of Fresno, California	Association of Collegiate Schools of Planning	Toronto, Canada*	11/03/22*
8	Evaluating the Engine's Efficiency after Converting an Internal Combustion Engine into an Advanced High- Performance Serial/Parallel Hybrid Powertrain	First Australian International Conference on Industrial Engineering and Operations Management	Sydney, Australia*	12/21/22*
9	Implementing University-Industry Partnership Gateways	CSULB University Research Advisory Council	Long Beach	02/09/23*
10	Combating Human Trafficking in Transportation	2023 Caltrans Safety Awareness Week	Online	04/01/23
11	Predicting and Mitigating Crash Risk in Adverse Weather Conditions	ITS Carolinas 2023	Charlotte, NC	04/03/23
12	Impact of Crash Occurrence on Non-Motorists' Safety Perception of Autonomous Vehicles in the	ITS Carolinas 2023	Charlotte, NC	04/03/23

	Context of Intelligent Transportation Systems			
13	A Comparative Analysis to Quantify the Effect of Level 1 and Level 2 AVs on Factors Affecting Fatal Crash Occurrence Compared to Level 0 Vehicles	ITS Carolinas 2023	Charlotte, NC	04/03/23
14	How Well Do Unconventional Intersection Designs Perform with AVs? Assessing Using a Simulation-Based Approach	ITS Carolinas 2023	Charlotte, NC	04/03/23
15	Assessing Speed Variations at Severe Crash locations on a Freeway	ITS Carolinas 2023	Charlotte, NC	04/03/23
16	Pattern Recognition Strategy to Identify Road Segments Suitable for the Implementation of Variable Speed Limit (VSL) Signs	ITS Carolinas 2023	Charlotte, NC	04/03/23
17	Implementing University-Industry Partnership Gateways	CSULB Provost meeting	Long Beach	04/12/23
18	Cybersecurity for Rail and Transit Agencies	Joint Rail Conference	Baltimore, MD	04/13/23
19	Do Telecommuters Make Fewer Trips? An Analysis of Telecommuting Travel Behavior in Urban and Rural Communities in the USA	44th Annual Central California Research Symposium	Fresno, California	04/19/23
20	Is eShopping Taking Over In-Store Shopping? A Trend Analysis of Shopping Activity using the American Time Use Survey (ATUS) Data	44th Annual Central California Research Symposium	Fresno, California	04/19/23
21	Combating Human Trafficking	Department of Protection of Victims of Human Trafficking, Presidency of Migration Management	Turkiye*	05/01/23
22	Active Mobility for Older Adult Communities Through Planning & Implementation	Association of Pedestrian and Bicycle Professionals	Online	05/17/23
23	Cybersecurity for Small Agencies	2023 Nevada Transportation Conference	Reno, NV	05/17/23
24	Implementing University-Industry Partnership Gateways	Center for International Trade and Transportation Policy and Steering Committee	Long Beach	05/23/23
25	Understanding the Role of Transportation in Combating Human Trafficking in California	Central Valley Transit Managers Meeting	Online	06/01/23
26	Tomorrow Ever Comes	Gallery Exhibition of Photographs and Passenger Journals	Asheville, NC	06/02/23
27	Cybersecurity for Small to Mid-sized agencies	TRACS Committee Meeting	Washington DC	06/07/23

28	Exploring the Interaction between Topography and Weather-Related Crashes in Mountainous Areas	NCSITE 2023 Mid-Year Meeting	Asheville, NC	06/08/23
29	Autonomous Shuttles: An Investigation of Past Deployments and Best Practices	ASCE International Conference on Transportation & Development (ICTD 2023)	Austin, TX	06/14/23
30	What is my Trip Footprint and How Can I Reduce It? Development of a Personal Trip- and Mode- Specific Trip Footprint Model	International Conference on Transportation and Development 2023: Transportation Planning, Operations, and Transit	Austin, Texas	06/14/23
31	Employing Technology to Advance the Safety of Active Transportation: The Design and Content of an Effective Mobile Application	International Conference on Transportation and Development 2023: Transportation Planning, Operations, and Transit	Austin, Texas	06/14/23
32	Exploratory Study to Develop an Effective Communication Message Strategy to Create Safer Communities for the Use of Active Transportation Modes	International Conference on Transportation and Development 2023: Transportation Planning, Operations, and Transit	Austin, Texas	06/14/23
33	Why are Electric Vehicles Mainly being Adopted by Only the Affluent in the US, and How Can We Open the Market to All Americans?	International Conference on Transportation and Development 2023: Transportation Planning, Operations, and Transit	Austin, Texas	06/14/23
34	Freight Movements: An Analysis of Data Sources and Methods for Estimating Freight Exports and Imports of the San Joaquin Valley Counties	International Conference on Transportation and Development 2023: Transportation Planning, Operations, and Transit	Austin, Texas	06/14/23
35	Is eShopping Taking Over In-Store Shopping? A Trend Analysis of Shopping Activity using the American Time Use Survey (ATUS) Data	International Conference on Transportation and Development 2023: Transportation Planning, Operations, and Transit	Austin, Texas	06/14/23
36	A Well-to-Wheel Analysis to Estimate the Potential Environmental Impact of Converting Agricultural Tractors and Trucks to Electric in CA and the US	International Conference on Transportation and Development 2023: Transportation Planning, Operations, and Transit	Austin, Texas	06/14/23
37	Cybersecurity for Small Agencies and MaaS Providers	Mobility as a Service in the United States	San Francisco, CA	06/23/23
38	Critical Empathy, Finding Hope in America's Passenger Rail System	US Japan Leadership Program Conference	Kyoto, Japan	07/25/23
39	Combating Human Trafficking in United States	World Day to Fight Human Trafficking Awareness Workshop	Izmir, Turkey	07/30/23
40	Getting RUC Right: What Does the U.S. Public Think? Results from a 2023 Survey	Mileage Based User Fee Alliance	Online	08/15/23
41	Pay-As-You-Go Driving: Possible Road User Charge Rate Structures for California	Mileage Based User Fee Alliance	Online	08/15/23



42	Important Sustainability Determinants Meeting Sustainability Goals of California Infrastructure Construction Projects	Presentation at the 2nd Maintenance and Rehabilitation of Constructed Infrastructure Facilities	Honolulu, Hawaii,	08/16/23
43	Cycling and other Active Mobility Infrastructure for Older Adult Communities: How Common and Complete Are They?	Cycling & Society Annual Symposium	Dublin, Ireland*	09/07/23
44	State of Transportation	San Jose Spotlight Panel Discussion	San Jose	09/20/23
* No federal funding was used to support international travel.				
** Not previously reported				

### Published Conference Proceedings

During this period of performance, 2 conference proceedings were published.

1. Kim, Joseph J., and Patricia McCarthy. 2023. "Important Sustainability Determinants Meeting Sustainability Goals of California Infrastructure Construction Projects" Engineering Proceedings 36, no. 1: 63. <https://doi.org/10.3390/engproc2023036063>
2. Gajera, H., P. Kalambay and S. S. Pulugurtha. (2023). Identifying Factors Affecting Fatal Crashes Involving At-Fault and Not-At-Fault Level 1 and Level 2 Automated Vehicles. ASCE International Conference on Transportation & Development (ICTD 2023), Austin, TX, June 14-17.

### Journal Publications

During this period of performance, 2 journal articles were published or are in press.

1. Edwards, F.L. and Ott, J. Steven. (2023). Lessons Learned, Opportunities Developed: Building Administrative and Governance Capacities Through the Pandemic and Post-Pandemic Eras. *Public Organization Review*, <https://doi.org/10.1007/s11115-023-00717-1>.
2. Shehab, Tariq, Nigel Blampied, Elhami Nasr & Laxmi Sindhu (2023) ANN-based estimation model for the preconstruction cost of pavement rehabilitation projects, *International Journal of Construction Management*, DOI: 10.1080/15623599.2023.2239445

### Books or other non-periodical, one-time publications

MCTM documents 4 publications in this category during this period of performance.

1. Kachadoorian, C. (2023, April). [Ageing and Mobility: A Look at How Ageing Impacts Driving and Cycling](#) (MTI Perspective)
2. Kachadoorian, C. (2023, April). [It's About the Bike: What We Learned About eBikes from the 50+ Cycling Survey, Year 4](#) (MTI Perspective)
3. Jenkins, B.M., Butterworth, B.R., & Yagyi, S. (2023, August). [Evolving Patterns of Violence in Developing Countries](#) (MTI White Paper).
4. Schank, J. (2023, August). [Fixing Our Broken Transit Planning Process](#) (MTI Perspective).

### Website(s) or other Internet site(s)

- An MCTM website is maintained at <http://transweb.sjsu.edu/mctm/index.html>
- An MCTM presence has been established, and continues to grow, in conjunction with the existing MTI Facebook page - <https://www.facebook.com/MinetaTransportation/> and Twitter feed - [@MinetaTrans](https://twitter.com/MinetaTrans)

**Technologies or Techniques:** Nothing to report

**Inventions, Patent Applications, and/or Licenses:** Nothing to report

**Other Products:**

- Researchers at MTI developed a [Bike Equity Web-Map for San José](#). This interactive tool utilizes a new bikeability index developed by the research team that draws from MTI's groundbreaking Low Travel Stress (LTS) method developed in 2012.

#### 4. Outcomes

- Performance Measures for Research Outcomes

Performance Measures for Research Outcomes	2023 <sup>a</sup>	2022	2021	2020
Number of technology transfer events (workshops, seminars, webinars, etc.) <i>Target goal: 12 annually</i>	13	31	29	29
Number of technology transfer event participants <i>Target goal: 500 participants annually</i>	1,373	6,860	2,668	2,382
<sup>a</sup> Data reported through September 30, 2023.				

Performance Measures for Research Outcomes	Current Period	Previous Period
Number of organizations participating in consortium activities <i>Target goal: 10 during each semi-annual performance reporting period</i>	16	35

#### 5. Impacts

- Performance Measures for Research Impacts

Performance Measures for Research Impacts	2023 <sup>a</sup>	2022	2021	2020
Number of instances of research influencing policy or practice <i>Target goal: 3 annually</i>	10	7	8	6
Evidence of impact and exposure based on number of media articles covering MCTM activities <i>Target goal: 50 annually</i>	1,117	1,304	399	334

Evidence of impact on transportation workforce development based on number trained and/or educated individuals (K-12 level) <i>Target goal: 50 K-12 students <u>annually</u></i>	128	133	1162	1,063
Evidence of impact on transportation workforce development based on number trained and/or educated individuals (college level/working professionals) <i>Target goal: 75 college students and/or working professionals <u>annually</u></i>	1,244	6,727	1,542	1,417
Percent of surveyed participants attending MCTM technology transfer events and training programs reporting that MCTM research and training is useful, effective, and impactful <i>Target goal: 60% with an average survey score of more than 4 out of 5 indicating that the event was useful, effective, and impactful</i>	78%	76%	76%	90%
<sup>a</sup> Data reported through September 30, 2023.				

MCTM documents the following instances of research influencing policy or practice during the current period of performance (April 1, 2023 – September 30, 2023):

1. Mr. Humberto “Burt” Tasaico, retired Strategic Initiatives and Program Support Director, North Carolina Department of Transportation, reached out to MTI to commend the Institute on the annual transportation finance survey series. “The annual Mineta Transportation Institute survey on federal funding has been a trusted and consistent source about federal transportation funding. The survey provides a unique value not found anywhere else to understand traditional federal funding and how changes in policy and technology are affecting public perception. The findings have been used in presentations with public and appointment officials as well as transportation professionals.” [September 2023]
2. A coalition of organizations in Northern Virginia [is teaching people how to use public transportation](#), aiming to help those limited by not having a car. The program is based on research conducted by MTI.
3. MTI’s Mr. Brian Michael Jenkins provided a briefing for U.S. Senator Cornyn’s chief of staff on suggestions for a legislative proposal focused on public transit security. [July 2023]

**What is the Impact on the Effectiveness of the Transportation System?** Nothing to report

**What is the Impact on the Adoption of New Practices, or Instances Where Research Outcomes Have Led to the Initiation of a Start-up Company?**

- Dr. William Riggs, who received funding for the project titled “[Blockchain and Distributed Autonomous Community Ecosystems: Opportunities to Democratize Finance and Delivery of Transport, Housing, Urban Greening and Community Infrastructure](#)” has

further developed this work and established [Intncity, Inc.](#). Their technology provides a plug & play blockchain-based platform for local Distributed Autonomous Organizations (DAOs) where neighbors can work together to build and finance infrastructure and provide better services that impact their daily lives.

- Dr. Mohamad Badaway, who received funding for the project titled “[Design of a Feedback-Controlled Wireless Converter for Electric Vehicle Wireless Charging Applications](#)” has leveraged that work and founded [Scalvy, Inc.](#) Scalvy delivers fully modular and scalable e-powertrain systems for the E-Mobility industry. Dr. Badawy recently exhibited with his start-up company at MOVE America in Austin, Texas.
- Scott Belcher received funding to conduct several research projects focused on cybersecurity for the transit industry. This work led to Mr. Belcher providing [Congressional testimony](#) in 2021. He has also recently launched a new company, [Cybrbase](#) to provide cybersecurity assessment and planning services for small and mid-sized transit agencies.

**What is the Impact on the Body of Scientific Knowledge?** Collectively MCTM partners are impacting the body of scientific knowledge through the publication of reports, journal articles, conference presentations, technical advising, and other activities. As visually depicted in Figure 1, from January 1, 2018 to September 30, 2023 *MCTM reports were downloaded 76,669 times from 4,172 Institutions in 169 countries* from the SJSU ScholarWorks archive and there were 94,733 downloads from the MTI website.

#### **What is the Impact on Transportation Workforce Development?**

- The Northern Virginia Transportation Commission reached out to provide Howard University students with paid transit fellowships.
- MTI, in partnership with APTA, developed a new learning tool, “How We Move” for children, ages 6-11. These cards offer insights into the diverse transportation choices we make, their differences in features (capacity, speed, and greenhouse gas intensity), and the profound influence they exert on our daily lives. This [tool was featured in Passenger Transport magazine](#). [September 2023]
- MyThu Tran, a former student research assistant at MTI, was accepted into a PhD program to continue her studies in the field of transportation and GIS.
- MTI completed updated and revised the Garrett Morgan Sustainable Transportation Competition Teacher’s Guide. The guide now fully aligns with the California Common Core and Next Generation Middle School Science standards. [May 2023]
- MTI’s Dr. Kezban Yagci Sokat was awarded an SJSU Lucas College of Business Faculty Recognition Award and Faculty Student Collaboration Award for her USDOT-funded research.
- Swetha Ashok, a high school student who participated in MTI’s Summer Transportation Institute in 2022, received an internship with the Metropolitan Transportation Commission.
- MTI hosted Dr. Milad Mehdizadeh, a visiting scholar at the Norwegian University of Science and Technology in Spring 2023.

- Navajo Technical University hosted the 6<sup>th</sup> Annual Dine’ Maker Faire on June 29, 2023. MCMT partner, Dr. Peter Romine, and his students showcased 3D printing and drone technology.
- Navajo Technical University held their annual Summer STEM & Skills program in July 2023, which engages high school students from the Navajo Nation and provides them with an opportunity to earn college credit and learn about different career paths, particularly in transportation. Fifty students participated in Summer 2023, as well as 6 NTU faculty.
- NTU provided apprenticeship opportunities for students in their welding, construction, and engineering programs.

### **Additional Successes of Note**

MCTM is regularly contacted by academics, practitioners, elected officials, government entities, transit agencies and others to provide information, insight, and briefings on high priority transportation initiatives. The following are of note but do not fit neatly into any of the prior categories, as such this new section has been implemented.

- Governments (SANDAG) to help their local city council members better understand California transportation revenue sources. [August 2023]
- MTI’s Dr. Hilary Nixon briefed the US Interagency Rail Decarbonization Group which includes representatives from the FRA, EPA, USDOT, and DOE on MTI research. [May 2023]
- MTI’s Dr Hilary Nixon provided technical assistance to the USDOT’s international Transportation Specialist/Diplomatic Programs and Protocol Officer for Asia on the impacts of climate change on women and other vulnerable populations. [June 2023]
- MTI’s Dr. Asha W. Agrawal provided technical assistance to the San Diego Council of Governments to provide guidance on transportation revenue in the State of California.
- MTI has partnered with the City of San José on a new brownbag forum which brings MCTM researchers to present on their latest research to city staff. In April 2023, Research Associates Susan Shaheen and Adam Cohen presented on new mobilities and curbside management.

### **Leadership**

MCTM Directors and researchers are regularly tapped to serve in leadership roles across the transportation sector. The following lists several examples:

- MTI’s Dr. Kezban Yagci Sokat was appointed to the USDOT’s Advisory Committee on Human Trafficking Research and Data Subcommittee. [September 2023]
- Dr. Stephen Arhin, Howard University and MCTM Director, was promoted to full professor and is now chair of the Department of Civil and Environmental Engineering. He attributes his success and accomplishments in large part to the USDOT UTC funding he has received in partnership with MTI since 2012.
- Dr. Srinivas Pulugurtha, UNC Charlotte and MCTM Director, serves in a number of leadership roles in transportation including Associate Editor for Transportation Research Interdisciplinary Perspectives Journal and Journal of Modern Mobility Systems. He is also



a member of two TRB committees and a member of ASCE T&DI Economics and Finance committee.



### **Changes/Problems**

- Changes in Approach and Reasons for Change: Nothing to report
- Actual/Anticipated Problems or Delays Encountered: Nothing to report
- Changes that Have a Significant Impact on Expenditures: Nothing to report
- Significant Changes in Use or Care of Human Subjects, Vertebrate Animals, and/or Biohazards: Nothing to report
- Change of Primary Performance Site Location from that Originally Proposed: Nothing to report