SJSU SAN JOSÉ STATE UNIVERSITY

Mineta Consortium for Transportation Mobility

Semi-Annual Progress Report
Mineta Consortium for Transportation Mobility
October 1, 2021 - March 31, 2022

Mineta Consortium for Transportation Mobility

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
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- **Center Director:**
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  210 N. Fourth Street, 4th Floor, San Jose, CA 95112
- **Recipient Identifying Number or Account Number:** Not Applicable
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- **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 sixteen seed grants to faculty from five of the seven academic Colleges at SJSU.

During this period of performance four seed grant projects were funded:

1. Investigating the Usability and Effectiveness of Public Transportation Technology in Older Adults during a Public Health Crisis: Egbe-Etu Etu, Assistant Professor, Department of Marketing and Business Analytics and Gaojian Huang, Assistant Professor, Department of Industrial and Systems Engineering
2. Assessing Transportation's Impact on the Urban Heat Island Effect Using Remote Sensing: Bo Yang, Assistant Professor, Department of Urban & Regional Planning),
3. Twilytics: A Social Perception Analysis of Public Transit Systems during the COVID-19 Pandemic: Egbe-Etu Etu, Assistant Professor, Department of Marketing and Business Analytics
4. Attention-based Data Analytical Models for Traffic Flow Prediction: Yupeng Wei, Assistant Professor, Department of Industrial and Systems Engineering

Ongoing Research
Since January 6, 2017, MCTM has funded 110 research projects. Of these, 46 projects were competitively selected or underwent *peer review* prior to selection, 16 were emerging leader seed grants, and 48 projects were commissioned white papers and research projects. Details on all MCTM projects can be found in the UTC project information sheets.

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.

To that end, in 2018 MTI was competitively selected to lead the California State University Transportation Consortium, funded at $2 million annually. In Fall 2020, MTI received notification that a 3-year extension with six million in additional funding was awarded to continue to lead this Consortium. In total, then, MTI will receive 12 million in funding that would not have been possible without the federal UTC designation.

In addition, MTI has received ongoing funding from the California High-Speed Rail Authority to research high priority needs, the Department of Homeland Security to conduct research on terrorist and serious criminal attacks against public surface transportation, funding from TRB to develop and deliver incident command training for eight states, funding from Google to conduct evaluations of their eBike program and microtransit pilot, as well as funding from transit agencies to deliver the successful MTI Leadership Academy.

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. Recordings and accessible transcripts for each webinar are available online at https://transweb.sjsu.edu/research/webinars/past and are 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 the reporting period, there were 218 MTI stories featured in print, radio, and television media, bringing the total number of MCTM stories to 1,829 since inception. Links to many of these articles are featured on the Consortium website and below is a snapshot of activity:

Article	Media Outlet
The Car Becomes the Weapon	Boston Global
Infrastructure Package Expected to Have Widespread Impact in California	KQED (National Public Radio)
Traffic Unlikely to Ever Return to Normal Rush Hour Patterns Post-COVID-19	KCSB

Article	Media Outlet
Transit Needs to Bolster Protection of Personal Data	MassTransit
Predictive Models Could Reduce Car Crashes, Mineta Research Finds	Transportation Today
The Bay Area has Twice as Many Parking Spots as People—and There's a Hidden Toll	San Francisco Examiner
California's Ambitious High-Speed Rail at a Crossroads	New York Times
Some say California Gas Rebate Plan Doesn't Address Long-term Issues	KTVU-Fox
Transit-Oriented Development Can Save Money	Informed Infrastructure
As Cities Find Streetcars Put Them on Track for Growth, Omaha Aims to Get on Board	York News-Times

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 16 technology transfer activities that reached 1,114 attendees; a selection follows:

MTI Research Snaps presents "(Cyber) Security Risk: Aligning the Transit Industry and Vendors to Address Increasing Cybersecurity Challenges"
October 19, 2021 • Online: This webinar looked at research to help public transit agencies understand the cybersecurity risks posed by the role some vendors play in their systems, and aligned vendors' interests with the agency's to better understand, mitigate, and respond to threats. The research team is delving into crucial behind-the-scenes details with these issues by conducting interviews, reviewing best practices, and examining U.S. policy on cybersecurity in public transportation and potential changes from the new Administration. The researchers provided operational recommendations for public transit operators and supply chain of vendors to adequately combat critical cyber risks.

SoFA Pocket Park Exploration October 29, 2021 • San José, CA: MTI partnered with the SJSU Department of Urban Planning, CommUniverCity, and Veggielution on this community-based project. MTI co-hosted three outreach events, including two geared towards K-12 participants, in order to broaden community participation in a survey exploring the habits of Downtown San Jose residents and the new SoFA Pocket Park.

Make the Connection: Next Step Your Career November 8, 2021 • Online: WTS-SF Bay Area and MTI hosted this free virtual event "Make the Connection: Next Stop Your Career" that introduced Bay Area university students studying transportation to local professional organizations that offer networking, professional development opportunities, and/or scholarship opportunities. At this event, Bay Area university students studying transportation (all disciplines) were introduced to the numerous professional organizations in the region.

MTI Research Snaps presents "Advanced Driver Assistance Systems & Automated Features: Are They Driving Us to Safety?" November 16, 2021 • Online: Automotive companies are constantly striving to enhance their vehicles to minimize and ultimately eliminate driver errors and enhance safety. Various advanced driver assistance systems (ADAS) and automated features are designed to warn, and in some cases, take over certain driving maneuvers. These systems are part of vehicles with driver assist technology, which are vital for the successful deployment of connected and automated vehicles (CAVs) in the near future. What are these features? How do they work? How does a driver's behavior vary when driving a vehicle with ADAS or automated features in rural, urban, and freeway driving scenarios? This webinar explored these questions based on research from evaluating drivers' behavioral response to scenarios when driving vehicles with and without features like lane departure warning (LDW), blind spot warning (BSW), over speed warning (OSW), lane keep assist (LKA), and adaptive cruise control (acc).

ARTBA's 11th Annual Student Transportation Industry Video Contest December 3, 2021 • Online: This Student Video Contest is an annual competition aimed at helping students gain a better understanding of the importance of transportation infrastructure investment to the U.S. economy and quality of life, and to learn more about the industry and potential transportation construction career opportunities. *This contest was supported by MTI and its Executive Director who also serves as the President of ARTBA's Research and Education Division.

MTI Research Snaps presents "Accessibility Policy for Autonomous Public Transit" December 9, 2021 • Online: One of the greatest advantages of autonomous vehicle technology is its potential to empower people to achieve mobility. This technology has significant potential to empower Americans with disabilities to move from A to B in ways previously unheard of. However, the realization of this potential depends on many. This webinar explored how, through improved collaboration and adoption of best practices, the industry can learn to address the needs of individuals with disabilities.

Aviation and Climate Change Forum January 20, 2022 • Online: Aviation's impact to climate change is significant; without mitigation, this impact is expected to grow as the industry recovers from the global pandemic. MTI hosted a virtual forum on Aviation and Climate Change to discuss these issues. The forum brought together Silicon Valley leaders in academia, government, and industry to showcase the regional capabilities available to address climate change and aviation challenges, and to encourage the public-private partnerships and collaborations needed to do so.

MTI Research Snaps presents "Transportation to Combat Human Trafficking" January 27, 2022 • Online: Human trafficking—a form of modern slavery—is the recruitment, transport, or transfer of persons using force, fraud, or coercion to exploit them for acts of labor or sex. This webinar shared the state-of-the-art efforts being used to combat this issue in the United States, including the role of transportation in facilitating effective prevention programs and increasing victim identification. It informed ongoing efforts on legislation, key initiatives, collaboration, data collection, and research on transportation.

Student Leadership Summit 2022 January 28-30, 2022 • Online: MTI was a proud to co-sponsor of the Institute of Transportation Engineers (ITE) SJSU Student Leadership Summit (SLS), an event organized by students to promote guidance and professional development through fun events such as presentations, socials, and technical events. Previously hosted by California Polytechnic State University, it was a great honor to continue the tradition of providing opportunities on behalf of San Jose State University for students to network with professionals in the transportation sector and streamline their interpersonal and leadership skills.

How to Be Your Own Boss Without Going Broke or Crazy (Part 1) February 10, 2022 • Online: WTS-SF Bay Area and MTI hosted a three-part series on starting a consulting business. This first session was an opportunity to talk with three business owners about how they started off, what they've learned on the way, and their successes and challenges.

Artificial Intelligence for Real-Time Traffic Vision, Detection, Tracking, and Counting February 10, 2022 • Online: MTI hosted this webinar for Caltrans employees on research to develop and implement an accurate, real-time, and automatic system based on artificial intelligence and computer vision to monitor, detect, track, count, and manage traffic elements like pedestrians, bicyclists, cars, and more. This cost-effective system does not require installing new cameras. Instead, the system has been trained on videos captured from existing traffic cameras in Los Angeles.

Riding with Transportation Equity February 16, 2022 • Online: How can the transportation industry approach issues of diversity and accessibility in the workforce, in transit riders, and in the community? How can we overcome historic and current injustices both by taking action now and by laying the groundwork for further transformation down the road? By shifting from broader conversations on equity to timely, focused discussions and hands-on planning, our industry can begin to understand and address the needs of community members of all ages, races, genders, and abilities. In recognition of Black History Month MTI hosted a panel of experts to discuss transforming racial inequity in the transportation industry. The panelists reflected on some of the most pressing issues of equity in the nation and industry and discussed how to address these issues.

Coming to Terms with the Bay Area's Parking Problem February 28, 2022 • Online: Parking may seem scarce when you're looking for just the right spot, but it's actually one of the Bay Area's most expansive resources. With 15 million parking spaces — enough to wrap around the planet more than twice — the region has an excessive amount of parking. Yet for decades, planners have operated blindly when they attempt to determine parking needs or assess the impacts of new parking policies. This webinar discussed a new effort, the Bay Area Parking Census, produced by MTI in partnership with SPUR, to quantify the region's parking supply and its negative impacts on health, climate and affordability.

Effects of Bike Lending on Commuting to Work: The Google Case Study March 9, 2022 • Online: How are high tech employees returning to work? Maybe by bike. Google employees borrowed high quality electric- assisted and conventional bicycles for free, for up to six months. The lending program at Google represents one of the largest employer-sponsored bike and e-bike lending programs in North America with over 1,000 bikes in its inventory. MTI researchers discussed their recent evaluation of this transportation demand management program in this webinar.

How to Be Your Own Boss Without Going Broke or Crazy - Part 2 March 24, 2022 • Online
WTS-SF Bay Area and MTI hosted a three-part series on starting a consulting business. This webinar talked about independent consultants and small business owners and their experience starting their business, with a focus on key administrative steps and considerations (e.g., necessary permits, selecting insurance, setting billing rates). VTA's Office of Business Diversity Programs also shared more about state and local small business certification programs.

A Hands-On Exploration of the Bay Area Parking Census March 29, 2022 • Online
MTI researchers conducted a parking census of the Bay Area which revealed the true enormity of land that we dedicate to our cars: 15 million spaces spread across the region's nine counties. To coincide with the launch of this census MTI released the database that was used as the backbone for our research. This innovative, publicly-available tool can serve as an important asset to help policymakers and planners throughout the Bay Area make more strategic decisions about parking. This interactive workshop taught participants how to make use of the database to inform policy.

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 $23,800 to deserving students.

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 universities partnered with the 18 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: **American Public Transit Association (APTA)** (Washington, DC)
    - Partner's Contribution to the Project: In-kind sharing of information
    - Project: **Promoting Diversity within the Public Transit Workforce**

3. Organization Name and Location: **California Department of Transportation** (Caltrans-Sacramento, CA and several district offices)
    - Partner's Contribution to the Project: In-kind support providing internal promotion of MSTM program
    - Project: MTI Master of Science in Transportation Management; Garrett Morgan Information Session; MTI Finance Summit

4. Organization Name and Location: **Capital Area Metropolitan Planning Organization** (Raleigh, NC)

- Partner's Contribution to the Project: In-kind support (project-related data)
- Project: UNCC Research Projects
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5. 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

6. 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

7. Organization Name and Location: **CommUniverCity** (San José, CA)
    - Partner's Contribution to the Project: In-kind support focused on community outreach
    - Project: SoFA Pocket Park

8. 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

9. Organization Name and Location: **French Broad River MPO** (Asheville, NC)
    - Partner's Contribution to the Project: In-kind support (project-related data)
    - Project: UNCC Research Projects

10. Organization Name and Location: **Google**
    - Partner's Contribution to the Project: In-kind sharing of information
    - Project: Google It: Microtransit Pilot ViaG2 and the Future of Commuting

11. Organization Name and Location: **Morningbird Foundation**
    - Partner's Contribution to the Project: In-kind sharing of information
    - Project: Navajo Technical University Workforce Development Components

12. Organization Name and Location: **National Advanced Driving Simulator** (University of Iowa)
    - Partner's Contribution to the Project: In-kind support (maintenance and support for the miniSim simulation software and assistance with AV scenario development)
    - Project: UNCC Research Projects

13. 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

14. Organization Name and Location: **Spin (Ford Mobility)**
    - Partner's Contribution to the Project: Data, software, and in-kind technical support
    - Project: The San José City (SJC) Bikeway Equity Web Map (MTI was one of five awardees for the 2021 Mobility Data for Safer Streets Initiative)

15. Organization Name and Location: **SPUR** (San José, CA)
    - Partner's Contribution to the Project: In-kind support
    - Project: Inventorying San Francisco Bay Area Parking Spaces

16. Organization Name and Location: **Veggielution** (San José, CA)
    - Partner's Contribution to the Project: In-kind support
    - Project: SoFA Pocket Park

17. Organization Name and Location: **Washington Metropolitan Area Transit Authority (WMATA)** (Washington, DC)
    - Partner's Contribution to the Project: In-kind technical support, AVL data, and other transit-related data
    - Project: Howard University Research Projects

18. Organization Name and Location: **WTS-SF Bay Area**
    - Partner's Contribution to the Project: In-kind support
    - Project: Make the Connection: Next Stop Your Career

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	2022[a]	2021	2020	2019	2018
Number of completed research reports, including two-page research briefs *Target goal: 12 reports, including research briefs, annually*	4	15	19	16	8

Number of research presentations at professional meetings and conferences *Target goal: 35 presentations annually*	23	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) *Target goal: 3,000 downloads annually*	4,663 (GA) 4,120 (SW)	17,939 (GA) 18,307 (SW)	14,248 (GA) 12,955 (SW)	15,380 (GA) 8,782 (SW)	13,597 (GA) 6,198 (SW)

[a] Number reported through March 31, 2022

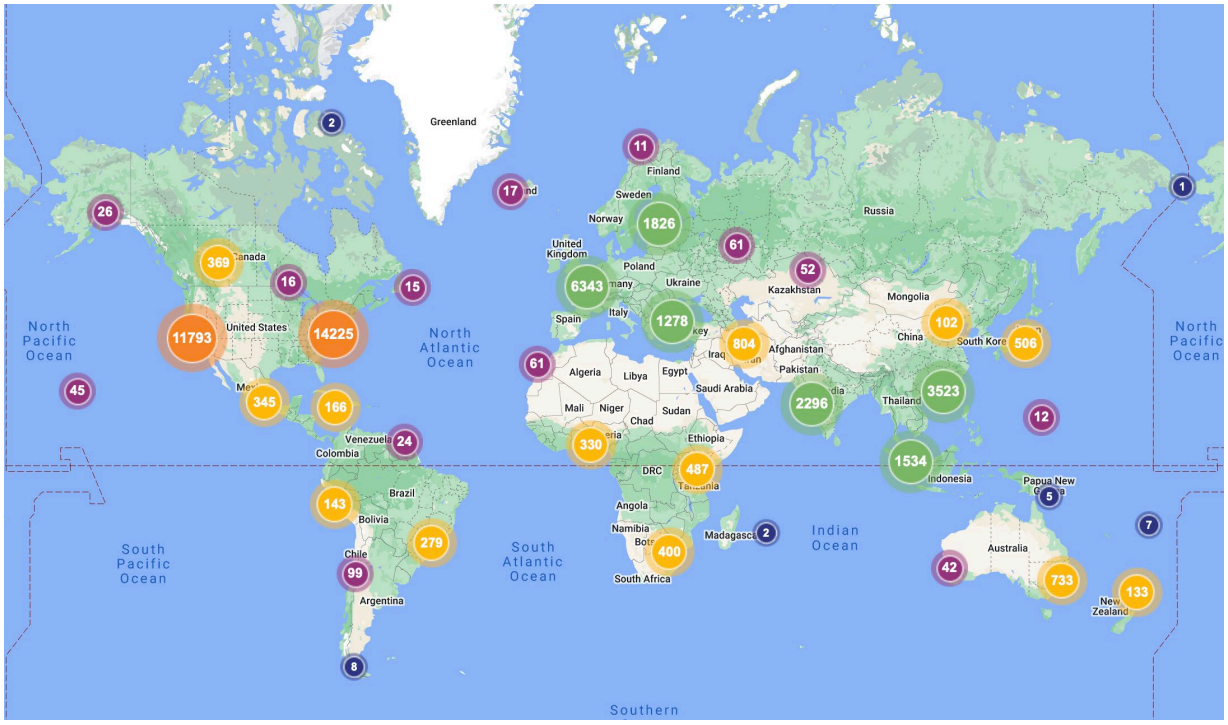

Figure 1 Distribution of MTI Report Readers via ScholarWorks, January 1, 2018-March 31, 2022 [50,362 downloads from 3,091 Institutions in 162 countries]

Published Research Reports

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

1. Shetty, R. R., & Liu, H. (2021, November). Analytical Models for Traffic Congestion and Accident Analysis.
2. Gouribhatla, R. & Pulugurtha, S. (2022, January). Drivers' Response to Scenarios when Driving Connected and Automated Vehicles Compared to Vehicles with and without Driver Assist Technology.

3. Ng, A. & Beresford, M. (2022, February). Negotiating Transportation Insecurity: Local Responses and Coping Strategies in San Jose, CA.
4. Chester, M., Helmrich, A. & Li, R. (2022, February). Inventorying San Francisco Bay Area Parking Spaces: Technical Report Describing Objectives, Methods, and Results.

Publications, Conference Papers, and Presentations

During this period of performance, 44 academic and professional presentations/briefing featured MCTM-federal or match funded research and researchers. Two additional presentations occurred in prior reporting periods but had not been included in those reports.

Academic Presentations				
	Presentation Title	**Audience/Conference**	**Location**	**Date**
1	* Government Responses to the Novel Coronavirus (COVID-19) Global Pandemic	ASPA Virtual Conference	Online	4/11/21
2	* Fire Science, Emergency Planning & Community Resilience	California Planning Roundtable	Online	4/23/21
3	Effect of Level 1 and Level 2 Connected and Automated Vehicles on Fatal Crashes.	NCDOT Virtual Research & Innovation Summit 2.0, Raleigh, NC	Online	10/05/21
4	Geospatial Mapping of Truck Travel Performance Measures to Identify Areas Susceptible to Congestion.	NCDOT Virtual Research & Innovation Summit 2.0, Raleigh, NC.	Online	10/05/21
5	Geospatial Mapping of Truck Travel Performance Measures to Identify Areas Susceptible to Congestion	NCDOT Virtual Research & Innovation Summit 2.0	Online	10/05/21
6	Effect of Level 1 and Level 2 Connected and Automated Vehicles on Fatal Crashe	NCDOT Virtual Research & Innovation Summit 2.0	Online	10/05/21
7	Mini-Roundabout CMF Development	NCDOT Virtual Research & Innovation Summit 2.0	Online	10/05/21
8	Money for Transit	UCLA Lake Arrowhead Symposium on Transportation, Land Use and the Environment	Online	10/07/21
9	Learning from California's Groundbreaking State Rail Plan	High-Speed Rail Alliance	Online	10/08/21
10	Panel Discussion on New Direction in Rail, based on Latest Trends and Developments	Caltrans Research-to-practice Symposium	Online	10/14/21
11	Congestion Costs and Scheduling Preferences of Car Commuters	15th North American Meeting of the Urban Economics Association	Online	10/14/21

	in California: Estimates using Big Data			
12	Understanding the Role of Transportation in Combating Human Trafficking in California	HT Radar Conference, San Diego, CA	Online	10/15/21
13	10% in 10 Years: Advancing Women in Transportation	MobilityXX Pledge Program/ Webinar panel	Online	10/20/21
14	Ensuring that the Transit Industry and Their Vendors are Aligned to Face the Increasing Cybersecurity Challenges.	Recommendations for Quickly Identifying and Addressing Challenges, California Transit Association Panel on Cybersecurity, 11/2/21	Online	11/02/21
15	The Evolving Cybersecurity Landscape: Industry Perspectives on Securing the Nation's Infrastructure	California Transit Association - Annual Conference, Panel on Cyber	Sacramento, CA	11/02/21
16	The Evolving Cybersecurity Landscape: Industry Perspectives on Securing the Nation's Infrastructure	U.S. House of Representatives Transportation & Infrastructure Committee Hearing	Online	11/04/21
17	Cycling Through Life; What I've Learned from Who I've Met	Bike Minds, Tales of the Bicycle	Online	11/04/21
18	The Evolving Cybersecurity Landscape: Industry Perspectives on Securing the Nation's Infrastructure	APTA TRANSform Conference	Orlando, FL	11/07/21
19	Developing Slurry Seal Performance Models for Street Saver	MTC StreetSaver Fall Virtual User Week	Online	11/15/21
20	The Impact of the COVID-19 Recovery on California Transportation Revenue: A Scenario Analysis through 2040	California State Association of Counties 2021 Annual Meeting	Online	12/01/21
21	The Future Starts Now: Developing a Workforce that Represents the Communities We Serve	ITS America Conference	Charlotte, NC	12/07/21
22	MobilityXX: Highlighting Women's Leadership in Transportation	ITS America Conference	Charlotte, NC	12/07/21
23	Understanding the Role of Transportation in Human Trafficking in California	TRB Human Trafficking Interest Group Meeting	Online	12/15/21
24	Factors Influencing Fatal Crashes Involving Level 1 and Level 2 Connected and Automated	101st Annual Meeting of Transportation Research Board	Washington, DC	01/09/22

	Vehicles (CAVs) Compared to Near Vicinity Level 0 Crashes.			
25	Synthesis of STIP Programming Systems in the United States	101st Annual Meeting of Transportation Research Board	Washington, DC	01/09/22
26	Modeling Truck Travel Times Using On-network and Off-network Characteristics	101st Annual Meeting of Transportation Research Board	Washington, DC	01/09/22
27	Modeling Teen Crash Frequency Using Geographically Weighted Negative Binomial Regression and Comparing with Generalized Linear Model	101st Annual Meeting of Transportation Research Board	Washington DC	01/09/22
28	Modernizing Sate Rail Planning	101st Annual Meeting of Transportation Research Board	Online	01/10/22
29	Is the Transit Industry Ready for the Cyber Revolution: Policy Recommendations to Enhance Surface Transit Cyber Preparedness	APTA BMBG Meeting	Miami, FL	01/20/22
30	Ensuring that the Transit Industry and Their Vendors are Aligned to Face the Increasing Cybersecurity Challenges	APTA, Business Members Annual Meeting	Miami, FL	1/20/22
31	Integrating Analytics to Combat Human Trafficking: Transit Monitoring.	Transportation Careers as Opportunities to Improve Social Equity Panel, SJSU Institute Transportation Engineer Student Leadership Summit	San Jose, CA	01/28/22
32	Transportation and Cybersecurity: Next Steps to Secure Our Future	Webinar-Enotrans.org	Online	02/15/22
33	Ensuring that the Transit Industry and Their Vendors are Aligned to Face the Increasing Cybersecurity Challenges	Eno Foundation webinar	Online	02/15/22
34	Is the Transit Industry Ready for the Cyber Revolution: Policy Recommendations to Enhance Surface Transit Cyber Preparedness	CTAA Webinar	Online	02/25/22
35	Ensuring that the Transit Industry and Their Vendors are Aligned to Face the Increasing Cybersecurity Challenges	Community Transportation Association of America webinar	Online	02/25/22
36	Do you know the way to San Jose? Landing a safe, equitable	American Association of Geographers annual meeting	Online	02/25/22

	and accessible vertiport using GIS			
37	Assessing the Public Health Benefits of Replacing Freight Trucks with Cargo Cycles in Last Mile Delivery Trips in Urban Centers: West Oakland, CA Case Study	RSCA in Five: Faculty Short Talks on Sustainable Futures and Earth Systems Science, on Friday	San Jose, CA	03/04/22
38	Evacuation Challenges in Wildland Fires	SJSU RSCA in Five: Faculty Short Talks on Sustainable Futures and Earth Systems Science	San Jose CA	03/04/22
39	Climate Action Planning	SJSU RSCA in Five: Faculty Short Talks on Sustainable Futures and Earth Systems Science	San Jose, CA	03/04/22
40	Evacuation Challenges in Wildland Fires	SJSU RSCA in Five: Faculty Short Talks on Sustainable Futures and Earth Systems Science	San Jose, CA	03/04/22
41	Challenges and Solutions for Better Adoption of Augmented and Virtual Reality Environments within the AEC Industry	Construction Research Congress (CRC)	Arlington, VA	03/09/22
42	Ensuring that the Transit Industry and Their Vendors are Aligned to Face the Increasing Cybersecurity Challenges	Zoom Briefing for the FTA Safety Office	Online	03/16/22
43	Ensuring that the Transit Industry and Their Vendors are Aligned to Face the Increasing Cybersecurity Challenges	In person presentation at Smart Transit - East	Boston, MA	03/17/22
44	The Future of Equality in a Post-COVID World: Governing Better by Learning from the Pandemic Experience	ASPA	Jacksonville, FL	03/20/22
45	Climate Change Impacts: Wildland Fire & Melting Arctic	2022 California (CA)-Hawai'i (HI) Transportation Symposium, Honolulu	Online	03/23/22
46	Building Public Health Emergency Resilient Communities	SJSU College of Engineering Bio Medical Conference	Online	3/31/22
* Occurred during a previous reporting period, but had not been reported.				

Published Conference Proceedings

No conference proceedings were published during this period of performance.

Journal Publications

During this period of performance, 14 journal articles were published.

1. Shahnavaz, F., & Akhavian, R. (2022). Automated estimation of construction equipment emission using inertial sensors and machine learning models. *Sustainability*, 14(5), 2750. https://doi.org/10.3390/su14052750.
2. Acharya, T., Riehl, B., & Fuchs, A. (2021). Effects of albedo and thermal inertia on pavement surface temperatures with convective boundary conditions—a CFD study. *Processes*, 9(11), 2078. https://doi.org/10.3390/pr9112078.
3. Brown, D. and Edwards, F., "Managing COVID-19 In San Jose, California: Sheltering The Homeless." *International Journal of Public Administration*, March, 2021 (online), vol. 44, issue 11-12, p. 952-962. https://www.tandfonline.com/doi/abs/10.1080/01900692.2021.1896546.
4. Edwards, F., and Ott, S., "Government's Responses to the COVID Pandemic." *International Journal of Public Administration,* June 9, 2021 (on-line), vol. 44, issue 11-12, p. 879-884. https://www.tandfonline.com/doi/full/10.1080/01900692.2021.1936964.
5. Edwards, F., Ott, S., and Boonyarak, D., "Global Responses to the COVID-19 Pandemic." *Public Organization Review*, 21:4, 619–627 (2021). https://doi.org/10.1007/s11115-021-00595-5.
6. Yagci Sokat, K. and Altay, N. (2022), "Impact of modern slavery allegations on operating performance", *Supply Chain Management*, https://doi.org/10.1108/SCM-08-2021-0387
7. Edwards, F., Ott, S and Boonyarak, S., COVID-19 Special Edition, *Public Organization Review*, December, 2021. https://link.springer.com/journal/11115/volumes-and-issues/21-4?utm_source=toc&utm_medium=email&utm_campaign=toc_11115_21_4&utm_content=etoc_springer_20211231
8. Edwards, F. and Ott, S., COVID-19 Special Edition, Leading and Managing Responses to the Pandemic. *International Journal of Public Administration*, volume 44, issues 11-12. https://www.tandfonline.com/toc/lpad20/44/11-12
9. Duvvuri, S. and S. S. Pulugurtha. (2022). Modeling Road Link-Level Truck Travel Times using On- and Off-network Characteristics. *Journal of Transportation Research Board*, National Research Council, Transportation Research Record Series, (in press).
10. Mathew, S., S. S. Pulugurtha and S. Duvvuri. (2022). Exploring the Effect of Road Network, Demographic, and Land Use Characteristics on Teen Crash Frequency Using Geographically Weighted Negative Binomial Regression. *Accident Analysis & Prevention Journal*, (in press).
11. Jain, R. and S. S. Pulugurtha. (2022). Estimating Truck Travel Time to Passenger Car or Traffic Stream Travel Time Ratio in North Carolina, USA. *Urban, Planning and Transport Research Journal*, (in press), https://doi.org/10.1080/21650020.2022.2030791.
12. Mathew, S. and S. S. Pulugurtha. (2022). Quantifying the Effect of Rainfall and Visibility Conditions on Road Traffic Travel Time Reliability. *Weather, Climate, and Society Journal*, 14(2), 507-519, https://doi.org/10.1175/WCAS-D-21-0053.1 (in press).

13. Gouribhatla, R. and S. S. Pulugurtha. (2022). Drivers' Behavior When Driving Vehicles With or Without Advanced Driver Assistance Systems: A Driver Simulator-based Study. *Transportation Research Interdisciplinary Perspectives Journal*, (in press), https://doi.org/10.1016/j.trip.2022.100545.
14. Duvvuri, S. and S. S. Pulugurtha. (2021). Truck Travel Time Performance Measures and their Association with On- and Off-Network Characteristics. *Transportation Research Interdisciplinary Perspectives Journal*, 12, 100500, https://doi.org/10.1016/j.trip.2021.100500.

Books or other non-periodical, one-time publications

MCTM documents 9 publications in this category during this period of performance.

1. Schank, J. (2022, March). Transportation Equity -Says Who? (MTI Perspective).
2. Schorung, M. (2022, February). A Geographical Contribution on Interurban Passenger Rail Transportation in the United States. (MTI White Paper).
3. Pogodzinski, J. M., & Niles, J. S. (2022). Multimodal Transit, Demographic Segmentation, and Station Proximity Analysis. In *Modern Trends and Research in Intermodal Transportation* (Vol. 400). essay, Springer.
4. Belcher, S. (2021, December). Personal Data Protection as a Driver for Improved Cybersecurity Practices in U.S. Public Transit (MTI Perspective).
5. Belcher, S., Belcher, T., & Thomas, B. (2021, October 4). Cybersecurity and transit: What transit agencies need to know about cyber risk. *Metro Magazine*. https://www.metro-magazine.com/10152878/cybersecurity-and-transit-what-transit-agencies-need-to-know-about-cyber-risk.
6. Romine, P., Pearson, W., Reddy, V., Leggon, C., Jones, E., Reidhead, C., & Chischilly, A. (2021). Models of Excellence for Social Justice: Historically Black Colleges and Universities and Tribal Colleges and Universities. In *Social Justice and Education in the 21st Century: Research from South Africa and the United States* (pp. 309–328). essay, Springer.
7. Edwards, F. & Goodrich, D. (2021). Emergency management, safety & security. In Farazmand, A.,(ed.), *Global Encyclopedia of Public Administration, Public Policy, and Governance*. Springer Nature Switzerland. https://doi.org/10.1007/978-3-319-31816-5_2885-1.
8. Lira, L. & Edwards, F. (2021). Risk Management & Disasters. In Farazmand, A.,(ed.), *Global Encyclopedia of Public Administration, Public Policy, and Governance*. Springer Nature, Switzerland.
9. Jenkins, Brian Michael (2021). The Atomization of Political Violence. In Stockhammer, N. (ed.), *EICTP Vienna Research Papers on Transnational Terrorism and Counter-Terrorism: Trends and Scenarios of Transnational Terrorism. Forecast, Anticipation and Prediction of Defining Trends Against the Backdrop of Uncertainty. Volume III*. European Institute for Counter Terrorism and Conflict Prevention.

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 - www.twitter.com - "@MinetaTrans"

Technologies or Techniques: Nothing to report

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

Other Products

- San Francisco Bay Area Parking Census Database.
- Dataset on driver' response to scenarios when driving connected and automated vehicles compared to vehicles with and without Driver Assistance Technology.

4. Outcomes

- Performance Measures for Research Outcomes

Performance Measures for Research Outcomes	2022 [a]	2021	2020
Number of technology transfer events (workshops, seminars, webinars, etc.) *Target goal: 12 annually*	8	29	29
Number of technology transfer event participants *Target goal: 500 participants annually*	516	2668	2,382

[a] Number reported through March 31, 2022

Performance Measures for Research Outcomes	Current Period	Previous Period
Number of organizations participating in consortium activities *Target goal: 10 during each semi-annual performance reporting period*	18	20

5. Impacts

- Performance Measures for Research Impacts

Performance Measures for Research Impacts	2022 [a]	2021	2020
Number of instances of research influencing policy or practice *Target goal: 3 annually*	2	8	6
Evidence of impact and exposure based on number of media articles covering MCTM activities *Target goal: 50 annually*	116	399	334

Evidence of impact on transportation workforce development based on number trained and/or educated individuals (K-12 level) *Target goal: 50 K-12 students annually*	203	1162	1,063
Evidence of impact on transportation workforce development based on number trained and/or educated individuals (college level/working professionals) *Target goal: 75 college students and/or working professionals annually*	67	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 *Target goal: 60% with an average survey score of more than 4 out of 5 indicating that the event was useful, effective, and impactful*	79%	76%	90%

[a] Number reported through March 31, 2022

MCTM documents the following instances of research influencing policy or practice during the current period of performance (October 1, 2021 – March 31, 2022):

1. The City of San José's Department of Transportation Public Information Manager reached out in appreciation for information MTI's Dr. Karen Philbrick provided in her regular column in the *San José Spotlight* on pedestrian safety and driver responsibility as the information will help the City craft messaging on the topic. [October 2021]
2. The Transportation Security Administration briefed transit operators on a new TSA cyber security directive that will be issued. Many of the recommendations from MTI's report Is the Transit Industry Prepared for the Cyber Revolution? Policy Recommendations to Enhance Surface Transit Cyber Preparedness are referenced. [October 2021]
3. MTI's cybersecurity expert, Scott Belcher, testified before the U.S. House of Representatives Transportation & Infrastructure committee on cybersecurity issues impacting the transportation industry. [November 2021]
4. Caltrans' Sustainability Advisor and SB743 Program Manager reached out to MTI to note that they plan to make use of MTI's new Commute Dashboard Tool. [January 2022]
5. BRT Planning International contacted MTI related to a regional transit fare integration policy they are working on in Jakarta, Indonesia. The company president noted that MTI's report titled "Characteristics of Effective Metropolitan Areawide Public Transit" was "very useful" for their work and they were "impressed by how grounded it was." [March 2022]

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? Nothing to report

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 March 31, 2022 MCTM reports were downloaded 50,362 downloads from 3,091 Institutions in 162 countries from the SJSU ScholarWorks archive and there were 65,827 downloads from the MTI website.

What is the Impact on Transportation Workforce Development?

- Research conducted by Ms. Anna Harvey as part of her capstone SJSU's Master of Science in Transportation Management program is being used by the City of San Francisco to consider a new Caltrain Station in the Bayview neighborhood. [October 2021]
- MTI's Deputy Director of the Allied Telesis National Transportation Security Center was recertified by the Federal Emergency Management Agency as a California Specialized Training Institute Instructor. MTI provides specialized emergency management workforce training to transit agencies in the region including VTA.
- MTI's Techbridge Girls partnership with the Boys & Girls Club has had a broad impact on K-12 workforce development. *Ten Clubhouses across the region are running the program which focuses on eliminating the barriers girls face to persist in STEM.*
- MCTM partner, Navajo Technical University, has added a new program in Heavy Machinery that has developed a close partnership with their Commercial Driver's License (CDL) program. That program has purchased two diesel semi trucks, a bull dozer, and other dirt handling equipment (not using UTC funds).

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.

- MTI's Deputy Director of the Allied Telesis National Transportation, Dr. Frannie Edwards, briefed the Hawaii Emergency Management agency on public outreach and evacuation messaging. [March 2022]
- MTI's Director of the National Transportation Finance Center, Dr. Asha W. Agrawal briefed the Bay Area Rapid Transit Director's Sustainability Project Manager on a proposed EV Charging Policy. [November 2021]
- MTI researcher, Bruce Butterworth, provided a security briefing for the Palm Beach County Sheriff's Office Threat and Crime Analysis Division. [October 2021]

1. 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