SJSU SAN JOSÉ STATE UNIVERSITY



Semi-Annual Progress Report Mineta Consortium for Transportation Mobility April 1, 2021 - September 30, 2021



MINETA TRANSPORTATION INSTITUTE

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

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- Center Director: Karen E. Philbrick, PhD MCTM Executive Director <u>karen.philbrick@sjsu.edu</u> and 408.924.7562
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- **Report Term or Frequency:** Semi-annual
- Signature of Submitting Official: Kann Phillich

#### 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).

#### MCTM Planned Activities for 2021-2022 Grant Extension

Over the past five years, MCTM has produced innovative, transferable, and implementable solutions to improve mobility of people and goods. In the coming year, the Consortium has identified several key activities, described below, in the areas of research, education, workforce development, and technology transfer which help address inequities in our transportation system and that leverage the planning, policy, and engineering research expertise across the team.

- Research: MTI will conduct a targeted needs assessment exercise with the Consortium's <u>Advisory Board</u> to identify pressing research needed by the transportation sector. A focus will be on identifying projects that focus on equity and recovery from the COVID-19 pandemic. A recent similar exercise led to the funding of two research projects conducted in partnership with the American Public Transportation Association: <u>Pathway to Promote Diversity within Public Transit</u> <u>Workforce</u> and <u>Ensuring that the Transit Industry and Their Vendors are Aligned to Face the Increasing Cybersecurity Challenges. Recommendations for Quickly Identifying and Addressing Challenges.
  </u>
- **Education and Workforce Development:** MCTM has identified four key projects focused on developing career pathways into transportation fields for K-12, enhancing opportunities for graduate education in transportation, and expanding professional development training.
  - *K-12:* MTI will partner with Lorin Eden Elementary School in Hayward, CA to develop and pilot test a set of lesson plans for grades 1-6. These STEM-transportation focused lessons will introduce students to the field of transportation and teach them the basics of how people and goods are moved. We plan on developing, piloting, and delivering three lesson plans that can easily be adapted to appropriate grade levels:
    - Lesson Plan 1: Inclusive, Active Modes of transportation
    - Lesson Plan 2: Future Technology Today: Emerging Transportation Technology
    - Lesson Plan 3: Renewable & Nonrenewable Energy
  - *Higher Education:* MCTM proposes two activities focused on college students. MCTM partner, Navajo Technical University, became the first ABET accredited tribal college and university engineering program at the beginning of our UTC partnership. Over the course of the past five years, faculty at NTU have worked to enhance their curriculum and expand dual credit programs with local high schools. The university now plans to establish a masters and PhD program in

engineering and a Clean Energy Institute with a Center for Transportation. Over the next year, NTU will work to define the graduate curriculum, starting with a Master of Science in Engineering. Additional concentrations at the undergraduate level will focus on electric vehicles and/or electric mobility engineering and will be part of the Center for Transportation. As an extension of the STEM & Skills Summer Dual Credit Program, the NTU team plans to develop an off-grid model home outfitted with an EV charging station.

MTI/SJSU will develop a video portfolio featuring interviews with transportation leaders about what's next in transportation. The interviews will be conducted by graduate students in the Master of Science in Transportation Management program as part of a course focused on emerging technology and trends in transportation. The video portfolio will be publicly available for others to view and/or incorporate into courses.

- Adult Professional Development: In partnership with The Allen Group, an African-American woman-owned construction management firm in San Francisco, MTI will develop and pilot a small business enterprise (SBE)/disadvantaged business enterprise (DBE) continuing education training program designed to teach participants the skills needed to participate effectively in the contracting process with large public agencies. Training will cover the following topics: fundamentals of public procurement; business management; scheduling; small business accounting and financial management; public construction standards; principles and practice of cost estimating and bidding; contract negotiations; project management; health and safety for construction projects; and quality assurance/quality control.
- **Technology Transfer:** MCTM will continue efforts to disseminate research results such that they get into the hands of transportation professionals. To expand on this, however, in the next year, MCTM will place a particular emphasis on two tech transfer areas. First, an effort will be made to identify and participate in high-impact, high visibility activities. For example, in past years, MTI Research Associate Brian Michael Jenkins has been asked to brief Congress on transportation security issues and Dr. Karen Philbrick has provided testimony to the California State Legislature. These high-impact activities not only raise the profile of the Consortium, but also of the UTC program. In addition, MTI has identified an opportunity to explore the development of a start-up stemming from an <u>MTI-funded project</u> on Automatic Traffic Monitoring and Management for Pedestrian and Cyclist Safety Using Deep Learning and Artificial Intelligence. Over the next year, MTI will work with Dr. Mohammad Pourhomayoun on the development of a start-up that would provide "software-as-a-service" to assist users with managing transportation, mobility and traffic safety.

## MCTM Review of Accomplishments

Over the course of the prior five years, MCTM has been able to meet or exceed all established performance metrics, as evidenced <u>from prior semi-annual progress reports</u>. This success is, in part, predicated on the strong partnerships among the Consortium members which has achieved its overarching goals of supporting cross-disciplinary and interdisciplinary activities

that contribute to effective transportation decision making. We have increased collaboration between universities, broadened perspective through geographic diversity, and increased participation by minority-serving institutions. To that end, Navajo Technical University (NTU) was the first tribal college to officially be a named a partner in the federally-funded UTC program and our engagement with NTU has been deeply rewarding – delivering innovative workforce development programs and providing the scaffolding needed to expand their academic offerings.

MCTM partners acknowledge the significant investment of federal funds into this consortium and have actively worked to leverage those funds to bring in additional financial support. MTI has had significant accomplishment in this area. Specifically, as part of California's Road Repair and Accountability Act of 2017 (CA Senate Bill 1), funds from new fuel taxes and vehicle fees were dedicated to support transportation research and workforce development activities at the University of California (\$5 million annually) and California State University (\$2 million annually) systems. The California State University (CSU) Chancellor's Office initiated a competition across the 23-campus system to identify a multi-campus consortium to direct the CSU's efforts under SB 1. MTI partnered with CSU Chico, Fresno, and Long Beach to lead the California State University Transportation Consortium (CSUTC) initially for three years at \$2M in funding annually – that contract was then extended for an additional 3-years – bringing total funding to 12 million.

MTI's experience leading large-scale consortiums such as our UTC consortiums over the past 20 years helped solidify this win. The Chancellor's Office recognized the research and workforce development expertise housed within MTI and the broader consortium and clearly acknowledged the administrative and leadership experience that MTI brings to the table. Similar to the approach taken with the federal consortium, each partner receives a set amount of funding for research and workforce development activities, but the bulk of the funding is reserved for a competitive RFP that MTI oversees. To date, MTI has funded 137 projects (79 are completed) and engaged over 270 CSU students in transportation research. This is the direct result of leveraging the MCTM investment.

## **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 <u>twelve seed grants</u> to faculty from five of the seven academic Colleges at SJSU.

During this period of performance two seed grant projects were funded: <u>The San José City (SJC)</u> <u>Bikeway Equity Web Map</u> (Ahoura Zandiatashbar, Assistant Professor, Department of Urban & Regional Planning) and <u>Exploring the Effects of Individual Differences on Tactile Display</u> <u>Perception in Automated Vehicles</u> (Gaojian Huang, Assistant Professor, Department of Industrial and Systems Engineering).

#### **Ongoing Research**

Since January 6, 2017, MCTM has funded 89 research projects. Of these, 35 projects were competitively selected or underwent *peer review* prior to selection, 12 were emerging leader seed grants, and 42 projects were commissioned white papers and research projects. Details on all MCTM projects can be found in the <u>UTC project information sheets</u>.

#### **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, and as previously reported, since being competitively-selected to lead the California State University Transportation Consortium in 2018, MTI has received 12 million in funding to support research and workforce development activities in California. In addition, MTI has received grants 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. MTI's funded research in emergency management focused on transportation has led to the receipt of a \$113K grant to Dr. Frances Edwards from the Knight Foundation to conduct research on best practices to inform the public regarding disaster notifications. MCTM partner, Navajo Technical University, secured a \$273K NSF grant which will be used to extend and expand the STEM & Skills Summer Dual Credit Program.

#### **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 <a href="https://transweb.sjsu.edu/research/webinars/past">https://transweb.sjsu.edu/research/webinars/past</a> 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: <u>https://transweb.sjsu.edu/mctm</u>. This website is updated regularly with event information, media coverage, and research activities. This website recently went through a modernization exercise and the new "look" was released in September 2021, it is now more vibrant and engaging.

#### Media Coverage

During the reporting period, there were 225 MTI stories featured in print, radio, and television media, bringing the total number of MCTM stories to 1,611 since inception. \*Of note: MTI's National Transportation Security Center Director, Brian Michael Jenkins, is a world-renowned counter terrorism expert who is frequently interviewed and cited. In fact, his expertise on the several security-related articles was cited in 134 media outlets. Since this was not specifically transportation focused, we did not count those citations in our metrics, but we did want to note this significant work because it elevates the reputation of the Institute. Links to many of these articles are featured on the <u>Consortium website</u> and below is a snapshot of activity:

Article	Media Outlet
Increased Crime Reports Demand Response	Daily Targum
<u>MTI Research shows Best Practices for Getting</u> <u>State Rail Plans Back on Track</u>	Metro Magazine
MTI Research Finds solution to Parking Woes	Metro Magazine
MTI Cybersecurity-focused 'Made in America' EO May Cause Sourcing Issues	Progressive Railroading
<u>Researchers Look to Social Media for More</u> <u>Information Involving Motor Vehicle Traffic</u> <u>Patterns</u>	Washington Examiner
<u>New York Subway Authority Breached by</u> <u>Hackers with Suspected Ties to China</u>	Complex CA
What Plays Vetter with the Public, Democratic Corporate Tax Hikes or GOP User Fees?	Forbes
Panelists Continue Push For Integrated Transit	Streetsblog USA
VTA's system hacked: Transit officials say buses. light rial not impacted	KTVU-TV
Don't Accept the Premise! Mayor Pete Wants to Tax Your Liberty by the Mile!	Rush Limbaugh Show

## **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 13 technology transfer activities that reached 1,166 attendees; a selection follows:

MTI Research Snaps presents "Will AVs Do Away with Traffic Fines and Fees" April 22, 2021 • <u>Online</u>: This webinar discussed how widespread autonomous vehicle use impacts traffic law violations and current government revenue schematics. States and localities have the opportunity to rethink and replace current practices since these vehicles will likely commit fewer traffic offenses. Governments can begin to reallocate resources that are currently invested in writing these tickets, defending the charges, and pursuing the debts in addition to re-evaluating the considerable equity issues that autonomous vehicle adoption may further highlight.



## Transportation and Tech Discussion with Adam Cohen April 6,

2021 • Online: MTI Research Associate, Adam Cohen, virtually visited San Jose's Lincoln High School to deliver a discussion on new and potentially future technology making a big impact in the transit industry. The attendees included a computer science class of 20 and two Lincoln High teachers, seeking to inspire their students to consider careers in the transit industry.



Garrett Morgan Awards Ceremony April 22, 2021 • <u>Online</u>: MTI hosted its annual Garrett Morgan Sustainable Transportation Competition, which featured keynote address by **Dr. Robert C.** Hampshire, Chief Science Officer, U.S. Department of Transportation. Participants included students from California, Florida, Maryland, and Virginia. The winning project "Transportation Utopia: Reducing Our Carbon Footprint" came from Suitland, Maryland's "From the Heart Christian School."

**Lorin Eden Transportation and Tech Assembly** April 26, 2021 • Online: MTI was a proud partner of Lorin Eden Elementary of Hayward, CA for their annual STEAM Innovation Showcase, where students unveiled their sustainable transportation-related projects. After exploring three critical areas of transportation— active transportation, fuel sources, and new and emerging technology, these students had the opportunity to discuss their ideas with transportation professionals. Featured speakers included representatives from the California High Speed Rail Authority and Fresno's Institute of Transportation.

**MTI Photography Contest** May 3, 2021 • Online: MTI held a photography contest open to all who take an interest in photography. MTI embraces diverse submissions and photographers to amplify the convergence of all voices. The 2021 theme for this contest was ground transportation with an emphasis on safety by diverse groups ranging in age, race, gender, and socioeconomic backgrounds. Ground transportation methods including but not limited to autonomous vehicles, bicycling, micro-mobility, pedestrian access, public transit, etc. Safe transit practices should be observed in the images (i.e. helmets for bicyclists, e-scooters in bike lanes, etc.).

**MTI Research Snaps presents "Curb Chaos: Managing the Curb after COVID"** May 18, 2021• <u>Online</u>: In recent years, curbspace has become more diverse and complex necessitating

strategies for managing competition between multiple modes and types of users. This webinar featured policies, best practices, and lessons learned for managing curbspace in complex built environments and discussed recent changes in response to the global pandemic. Topics discussed included:

- Fees for access and use;
- Prioritizing access for public transportation, cyclists, pedestrians, older adults, youth, and people with disabilities;
- Geofencing to limit curb access; and
- Pricing; and other related strategies.

**MSTM Capstone Showcase 2021** May 24, 2021 • Online: During this virtual event, students from the Master of Science in Transportation Management program at San José State University presented their final capstone research projects. This interactive event provided opportunities to meet with the students and learn about their research and key issues in the field of transportation.

## 12<sup>th</sup> Annual Mineta National Policy Summit presents

**"Electrifying the Transportation Future"** June 11, 2021 • Online: Transportation policymakers face two overlapping, once-in-a-generation opportunities: electrifying the nation's vehicle fleet and re-establishing a stable source of federal and state revenue for transportation. As states and the Biden administration began a push to rapidly electrify the US fleet for climate reasons, policymakers came under increasing pressure to rethink how states and the federal government fund transportation infrastructure and services. For decades, motor fuel taxes have generated most state and federal funds



spent on transportation, even if recently these taxes have been losing their purchasing power. However, a shift to electric vehicles will require a new transportation funding model. The speakers discussed the challenges and opportunities with such options as mileage fees, carbon taxes, higher vehicle registration fees, or a shift entirely away from user-generated revenue. **USDOT Secretary of Transportation, Pete Buttigieg, was featured in a fireside chat** with MCTM's Executive Director.

**MTI Research Snaps presents "Using Twitter to Model Traffic Flows"** June 17, 2021 • <u>Online</u>: This webinar discussed how Twitter data can be used to understand and explain travel patterns in the relation between commuting and non-commuting trips. Local and regional planners struggle to keep up with rapid changes in mobility patterns, but researchers looked at whether geo-social network data can help. When comparing a robust data set of tweets from the Bay Area to US Census LODES data, researchers found that the data closely matched, and concluded that the common practice of employing LODES data to extrapolate to overall traffic demand is indeed justified. Regardless of trip purpose (e.g., shopping, regular recreational activities, dropping kids at school), the LODES data is an excellent predictor of overall road segment loads. **MSTM Virtual Convocation Celebration** June 25, 2021 • <u>Online</u>: As we begin to see the world move towards recovery from the COVID-19 pandemic, we bear witness to the resilience and strength of the American people. The class of 2021 demonstrated not only these values, but



also the determination to continue to better themselves, their career, and their future and ours. The MTI/SJSU community gathered to recognize and celebrate the graduating students in a virtual session. Joined by <u>Secretary Norman Y. Mineta</u> and Denver International Airport's CEO Phil Washington, who recently led the Biden-Harris transportation agency review team, we came together to celebrate these future mobility leaders. This exciting MSTM celebration included <u>individualized recognition of each graduate and award presentations</u>.

MTI Research Snaps Webinar "Google It: Microtransit Pilot

**Via2G and the Future of Commuting**" July 22, 2021 • <u>Online</u>: This webinar found alternatives to solo driving can help reduce congestion, improve air quality, and reduce parking demand. In October 2019, Google contracted the company Via to launch a new on-demand microtransit commute option called Via2G. This webinar discussed three months of pilot operations to understand the trends, challenges, and successes of microtransit commuting. The Via2G program enjoyed increasing popularity over time, providing more than 7,500 rides to nearly 900 Google employees. Most trips were relatively short, suggesting the program complemented peoples' existing commute modes. Findings suggested future program iterations should seek ways to minimize deadheading, focus future programming and outreach on employees who always drive and/or complete errands on the commute trip, and extend program hours.

**Progressive Parking Policies: A Conversation with Professor C.J. Gabbe and Students** September 8, 2021 • <u>Online</u>: The City of San Jose considered reducing the regulations it placed on parking to allow development to occur more easily. On August 27th, the City Council held a study session on this. What would these changes mean? Could they be beneficial for San Jose? How will they impact the next generation of San Joseans? Catalyze SV & Mineta Transportation Institute held a dynamic panel bringing together Professor C.J. Gabbe of Santa Clara University and his Environmental Studies and Sciences students. MTI was a proud cosponsor of this event.

**MTI Research Snaps Webinar "Roadblock Up on the Cloverleaf Workforce Development for the Transportation Industry"** September 16, 2021 • <u>Online</u>: The trucking industry transports goods essential to our everyday lives. In recent years, the industry has faced workforce dilemmas such as driver shortages and high turnover—and supply chain issues stemming from the pandemic only amplify these problems. How can we ensure this important workforce remains functional and efficient? How does trucking fit into the future of transportation? This webinar explored truck driver recruitment and retention as well as other broader industry trends.

**2021 Mobility 21 Southern California Transportation summit "Road to Recovery"** September 30, 2021 • MTI proudly co-sponsored Mobility 21's 2021 Summit "Road to Recovery." Mobility 21 is a coalition that brings together public, business and community stakeholders to pursue regional solutions to the transportation challenges facing Imperial, Los Angeles, Orange, Riverside, San Bernardino, San Diego and Ventura counties. In this year's summit, speakers tackled such topics as: California's Global Ports & Supply Chains; Carbon Neutrality; Employees Commutes; Transportation Advocacy; Equity; Contractors; and Housing.

## **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 \$30,300 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 20 organizations listed below.

- 1. Organization Name and Location: American Association of State Highway and Transportation Officials (AASHTO) (Washington, DC)
  - Partner's Contribution to the Project: Joint research funding
  - Project: Assessing the Business Case ROI for Intercity Passenger Rail Corridor Investments
- 2. Organization Name and Location: Alabama A&M University (Hunstville, AL)
  - Partner's Contribution to the Project: Fabricated structural components for Formula SAE competition vehicle
  - Project: <u>Navajo Technical University Workforce Development Components</u>
- 3. Organization Name and Location: **American Public Transit Association (APTA)** (Washington, DC)
  - Partner's Contribution to the Project: Joint research funding
  - Project: <u>Assessing the Business Case ROI for Intercity Passenger Rail</u> <u>Corridor Investments</u>
- 4. Organization Name and Location: **American Public Works Association (APWA)** (San Francisco Bay Area Chapter)
  - Partner's Contribution to the Project: In-kind sharing of information
  - Project: <u>Make the Connection: Next Stop Your Career</u>
- 5. 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: <u>MTI Master of Science in Transportation Management</u>; <u>Garrett Morgan</u> <u>Information Session</u>; <u>MTI Finance Summit</u>
- 6. Organization Name and Location: **Capital Area Metropolitan Planning Organization** (Raleigh, NC)
  - Partner's Contribution to the Project: In-kind support (project-related data)
  - Project: <u>UNCC Research Projects</u>
- 7. Organization Name and Location: **Charlotte Douglas International Airport** (Charlotte, NC)
  - Partner's Contribution to the Project: In-kind support (project-related data)
  - Project: <u>UNCC Research Projects</u>
- 8. 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: <u>UNCC Research Projects</u>
- 9. Organization Name and Location: **City of Concord** (Concord, NC)
  - Partner's Contribution to the Project: In-kind support (project-related data)
  - Project: <u>UNCC Research Projects</u>
- 10. Organization Name and Location: CommUniverCity San José (San Jose, CA)
  - Partner's Contribution to the Project: In-kind support facilitating College Day collaboration
  - Project/Program: <u>10<sup>th</sup> Annual College Day</u>
- 11. 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: <u>Howard University Research Projects</u>
- 12. Organization Name and Location: French Broad River MPO (Asheville, NC)
  - Partner's Contribution to the Project: In-kind support (project-related data)
  - Project: <u>UNCC Research Projects</u>
- 13. Organization Name and Location: **Google** 
  - Partner's Contribution to the Project: In-kind sharing of information
  - Project: <u>Google It: Microtransit Pilot ViaG2 and the Future of Commuting</u>
- 14. Organization Name and Location: Hayward Unified School District Lorin Eden Elementary
  - Partner's Contribution to the Project: In-kind sharing of information

- Project: <u>STEM Showcase</u>; <u>Transportation and Tech Discussion</u>
- 15. Organization Name and Location: Mobility 21
  - Partner's Contribution to the Project: In-kind sharing of information
  - Project: <u>2021 Mobility 21 Southern California Transportation Summit "Road to Recovery"</u>
- 16. 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: <u>UNCC Research Projects</u>
- 17. 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: <u>UNCC Research Projects</u>
- 18. Organization Name and Location: Santa Clara University
  - Partner's Contribution to the Project: In-kind sharing of information
  - Project: <u>Progressive Parking Policies</u>
  - •
- 19. Organization Name and Location: Spin (Ford Mobility)
  - Partner's Contribution to the Project: Data, software, and in-kind technical support
  - Project: <u>The San José City (SJC) Bikeway Equity Web Map</u> (MTI was one of five awardees for the 2021 Mobility Data for Safer Streets Initiative)
- 20. 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: <u>Howard University Research Projects</u>

## 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. Outputs

Performance Measures for Research Outputs	<b>2021</b> <sup>a</sup>	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>	14	19	16	8

Number of research presentations at professional meetings and conferences	95	117	107	53
Target goal: 35 presentations <u>annually</u>				
Number of downloads of research reports as tracked through	13,509	14,248	15,380	13,597
Google Analytics (GA) and ScholarWorks (SW) annually (see	(GA)	(GA)	(GA)	(GA)
Figure 1 below for geographic distribution)				
	13,792	12,955	8,782	6,198
Target goal: 3,000 downloads <u>annually</u>	(SW)	(SW)	(SW)	(SW)

<sup>a</sup> Number reported through September 30, 2021



*Figure 1 Distribution of MTI Report Readers via ScholarWorks, January 1, 2018-September 30, 2021 [41,727 downloads from 2,706 Institutions in 159 countries]* 

## **Published Research Reports**

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

- 1. Arhin, S, Manandhar, B, Gatiba, A, & Adam, H.B. (2021, April). <u>Predicting Bus Travel</u> <u>Times in Washington, DC Using Artificial Neural Networks (ANNs)</u>.
- 2. Edwards, F., Goodrich, D., Szyliowicz, J., Medigovich, B. & Lange, L. (2021, April). <u>Surface</u> <u>Transportation Supply Chain Security: Creating a Blueprint for Future Research</u>.
- 3. DeRobertis, M., Ferrell, C., Lee, R.W., & Moore, D. (2021, April). <u>City Best Practices to</u> <u>Improve Transit Operations and Safety</u>.
- 4. Albrecht, J., Petutschnig, A., Ramasubramanian, L., Resch, B, & Wright, A. (2021, May). <u>Comparing Twitter and LODES Data for Detecting Commuter Mobility Patterns</u>.

- 5. Agrawal, A.W. & Nixon, H. (2021, June). <u>What Do Americans Think About Federal Tax</u> <u>Options to Support Transportation? Results from Year Twelve of a National Survey</u>.
- 6. Duvvuri, S., & Pulugurtha, S. (2021, July). <u>Researching Relationships Between Truck</u> <u>Travel Time Performance Measures and On-Network and Off-Network Characteristics</u>.
- 7. Niles, J. & Pogodzinski, J.M. (2021, July). <u>Steps to Supplement Park-and-Ride Public</u> <u>Transit Access with Ride-and-Ride Shuttles</u>.
- 8. Nathan-Roberts, D. & Friedman-Biglin, N. (2021, July). <u>No Ticket to Ride: A Systematic</u> <u>Definition of Transit Insecurity</u>.
- 9. Peterson, E., Wei, W., & George, L. (2021, July). <u>A Model for Integrating Rail Services</u> with other Transportation Modalities: Identifying the Best Practices and the Gaps for <u>California's Next State Rail Plan</u>.

## **Publications, Conference Papers, and Presentations**

During this period of performance, 41 academic and professional presentations/briefing featured MCTM-federal or match funded research and researchers. Ten additional presentations occurred in prior reporting periods but had not been included in those reports. A selection follow.

Aca	Academic Presentations				
	Presentation Title	Audience/Conference	<b>Location</b>	<u>Date</u>	
1	*Identifying the Contributing Factors to the Severity of Animal-Vehicle Collisions	Construction Research Congress (CRC)	Tempe, AZ	03/10/20	
2	*Feature Selection for Deep Neural Networks in Cyber Security Applications	2020 IEEE International IOT, Electronics and Mechatronics Conference	Online	09/12/20	
3	*Examining the Effects of Precision Scheduled Railroading on Intercity Passenger and High Speed Rail Service	AREMA Conference	Online	09/15/20	
4	*Spatiotemporal Analysis of the Roadside Transportation Related Air Quality and Neighborhood Characterization	International Society of Exposure Science Virtual Meeting 2020	Online	09/22/20	
5	*Optimizing Connectivity for the Internet of Vehicles	Future Technologies Conference (FTC) 2020	Online	11/06/20	
6	*Impact of Transportation-Related Particulate Matters on the Roadside Air Quality in Fresno California	Korean Environmental Science Society (KENSS) 2020	Online	11/07/20	
7	*The Allocation of Transportation Investments Using a Multi-Objective Optimization Approach: Balancing Efficiency and Equity in Accessibility to Multi-Use Paths	ACSP 60th Annual Conference	Online	11/08/20	
8	*A Multi-Objective Optimization Model to Allocate Transportation Investments for Balancing Efficiency and Equity in Accessibility to Multi- Use Paths	International Association for China Planning (IACP) 14th Annual Conference	Online	12/13/20	
9	*Navigating a New Normal: COVID- 19 and Shared Micromobility in North America	Transportation Research Board Annual Meeting	Online	01/29/21	

10	*Congestion Costs and Scheduling Preferences of Car Commuters in California: Estimates Using Big Data	2021 AREUEA-ASSA Conference	Online	01/09/21
11	Developing Slurry Performance Models for StreetSaver in Wet-No Freeze Climate.	StreetSaver Software Development Meeting, Metropolitan Transportation Commission	Online	04/02/21
12	Congestion Clearing Payments to Passengers	62nd International Meeting of the Transportation Research Forum	Online	04/06/21
13	Combining Freeway Network-Wide Congestion Pricing with Incentivized On-Demand Ridesharing	62nd International Meeting of the Transportation Research Forum	Online	04/06/21
14	Sheltering the Homeless during COVID-19 in San Jose	American Society for Public Administration	Online	04/11/21
15	Intelligent Transportation System for Smart Cities in Developing Countries.	Council of Scientific & Industrial Research (CSIR), India.	Online	04/12/21
16	Protecting Your Client's Cybersecurity For Transit Business	APTA Webinar	Online	04/14/21
17	Analytics to Combat Human Trafficking	Marketing and Business Analytics Department (SJSU) Research Meeting	Online	04/23/21
18	Protecting Your Client's Cybersecurity for Transit Business	AASHTO Webinar	Online	04/27/21
19	Understanding the Role of Transportation in Combating Human Trafficking	Los Angeles Human Trafficking Task Force Labor Trafficking Subcommittee Meeting	Online	04/29/21
20	Assessing the Workforce Development Needs of Port-to- Warehouse Transportation and Supply Chain Middle-Skill Workers in Southern California	WTS 2021 Annual Conference	Online	05/01/21
21	Make Way for the Next Generation: Attracting and Training the Transportation Workforce of the Future	WTS 2021 Annual Conference	Online	05/01/21
22	What Do Americans Think about Federal Tax Options to Support Transportation? Topline Results from Year Twelve of a National Survey	California Transportation Commission, Road Charge Technical Advisory Committee	Online	05/21/21
23	Planned MTI Research on RUC Rates and Phasing Options	California Transportation Commission, Road Charge Technical Advisory Committee	Online	05/21/21
24	Achieving Excellence for California's Freight System	South Bay Workforce Investment Board	Online	05/27/21
25	Modeling the Influence of the Light Rail Transit System on Traffic Operational Performance Before and After It is in Operation	ASCE International Conference on Transportation & Development (ICTD 2021)	Online	06/08/21
26	Investigating Road Link-Level Data During Peak Hours to Identify Potential Areas for Implementing Variable Speed Limit Signs	ASCE International Conference on Transportation & Development (ICTD 2021)	Online	06/08/21

27	Spatial and Temporal Effects of a Toll Road on Land Use Development and Travel Demand	ASCE International Conference on Transportation & Development (ICTD 2021)	Online	06/08/21
28	Transit Cybersecurity and the Supply Chain	Mobility as a Service (MaaS) in the US	Online	06/10/21
29	Congestion Costs and Scheduling Preferences of Car Commuters in California: Estimates Using Big Data	International Transportation Economics Association Conference	Online	06/24/21
30	What Do U.S. Adults Think About Mileage Fees? Findings from a Decade of Public Opinion Surveys	IRF Global R2T Conference	Online	07/07/21
31	Asphalt Pavement Preservation Treatments	2021 Summer Workshop sponsored by APWA, Sacramento Chapter.	Chico, CA.	07/20/21
32	Civil Engineering: State-of-the-Art, Careers, & Opportunities	NC A&T Virtual Summer Transportation Institute	Online	07/22/21
33	Congestion Costs and Scheduling Preferences of Car Commuters in California: Estimates Using Big Data	Korean Economic Review International Conference 2021	Online	07/27/21
34	Accidents Analysis and Severity Prediction Using Machine Learning Algorithms	2021 ICSS	Online	08/10/21
35	The Connection between Parking, Development, and Climate and Equity outcomes	San Jose City Council Study Session on Parking and TDM	San Jose	08/27/21
36	Enhancing Older Adults' Mobility in Active Living and Tiered Living Communities	Monthly Meeting, Mayor's Commission on Aging, City of Oakland - 10am-12pm, City of Oakland	Online	09/01/21
37	Using a Mobility Justice Lens to Expand Transportation Safety Research: Slow Streets, Whose Streets?	Paper and panel presentation at the Transportation Research Board Conference on Advancing Transportation Equity	Online	09/09/21
38	Economic Impacts of Grade Separations: Evaluating Financing Mechanisms and Economic Benefits to Fund Grade Separation Projects	TRB Intercity Passenger Rail Systems Committee (AR010). Mid- year Meeting	Milwaukee, WI	09/28/21
39	Statewide Planning Best practices: A Model for Integrating Rail Services with other Transportation Modalities: Identifying the Best Practices and the Gaps for California's Next State Rail Plan curred during a previous reporting peri	TRB Intercity Passenger Rail Systems Committee (AR010). Mid- year Meeting	Milwaukee, WI	09/28/21

## **Published Conference Proceedings**

During this period of performance, 5 articles in conference proceedings were published.

1. Kodupuganti, S. R. and S. S. Pulugurtha. (2021). Modeling the Influence of the Light Rail Transit System on Traffic Operational Performance Before and After it is in Operation. ASCE International Conference on Transportation & Development (ICTD 2021), Virtual Conference, Summer.

- 2. Duvvuri, S. V., S. Mathew, R. Gouribhatla and S. S. Pulugurtha. (2021). Investigating Road Link-Level Data During Peak Hours to Identify Potential Areas for Implementing Variable Speed Limit Signs. ASCE International Conference on Transportation & Development (ICTD 2021), Virtual Conference, Summer.
- 3. Duvvuri, S. V., R. Gouribhatla, R. Mishra and S. S. Pulugurtha. (2021). Travel Time Performance Measures for Passenger Cars and Trucks by Road Facility Type. ASCE International Conference on Transportation & Development (ICTD 2021), Virtual Conference, Summer.
- 4. Mishra, R., S. Mathew, S. V. Duvvuri and S. S. Pulugurtha. (2021). Assessing the Operational Performance of Different Road Facilities under CAV and Non-CAV Environment. ASCE International Conference on Transportation & Development (ICTD 2021), Virtual Conference, Summer.
- 5. Mathew, S., L. S. Jayanthi and S. S. Pulugurtha. (2021). Spatial and Temporal Effects of a Toll Road on Land Use Development and Travel Demand. ASCE International Conference on Transportation & Development (ICTD 2021), Virtual Conference, Summer.

## **Journal Publications**

During this period of performance, 7 journal articles were published. An additional 2 were published in a prior period, but not reported.

- Liu, B., Mehrara Molan, A., Pande, A., Howard, J., Alexander, S., & amp; Lou, Z. (2021). Microscopic Traffic Simulation as a Decision Support System for Road Diet and Tactical Urbanism Strategies. *Sustainability*, 13(14), 8076. <u>https://doi.org/10.3390/su13148076</u>
- Pogodzinski, J. M., & Niles, J. S. (2021). Impact Of Park-And-Ride On Public Transit Ridership. *Transport Problems*, 16(1), 211–221. <u>Https://Doi.Org/10.21307/Tp-2021-018</u>
- 3. Kukkapalli, V. M. and S. S. Pulugurtha. (2021). Comparing Travel Time Performancebased Measures to Assess the Effect of a Freeway Road Construction Project on Freeway and Connecting Arterial Street Links. *Urban, Planning and Transport Research Journal*, (in press).
- Edwards, F., & Ott, J. S. (2021). Governments' Responses to the COVID-19 Pandemic. International Journal of Public Administration, 1–6. <u>https://doi.org/10.1080/01900692.2021.1936964</u>.
- 5. Moghaddam, K., Balali, V., Singh, P., and Khalilikhah, M. (2021). "Evaluation of Multiclass Multi-label Machine Learning Methods to Identify the Contributing Factors to the Severity of Animal-Vehicle Collisions." *International Journal for Traffic and Transportation Engineering (IJTTE)*, 11(3), 341-358.
- 6. Shehab, T., Haghighat, R., Sajjan, K., and Balali, V. (2021). "Prioritization of K-12 School Maintenance Construction Projects Using Genetic Algorithm and Dynamic Programming Models." *Journal of Information Technology in Construction (ITcon)*, 26, 112-127.
- Tavakoli, A., Kumar, S., Guo, X., Balali, V., Boukhechba, M., and Heydarian, A. (2021). "HARMONY: A Human-centered Multimodal Driving Study in the Wild." *Journal of IEEE Access*, 9, 23956-23978.
- 8. \*Noghabaei, M., Heydarian, A., Balali, V., and Han, K. (2020). "Trend Analysis on Adoption of Virtual and Augmented Reality in the Architecture, Engineering, and Construction Industry." *Journal of Data*, 5(1), 26.

9. \*Balali, V., Zalavadia, A., and Heydarian, A. (2020). "Real-Time Interaction and Cost Estimating within Immersive Virtual Environments." *ASCE Journal of Construction Engineering and Management*, 146(2), 04019098.

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

MCTM documents 12 publications in this category during this period of performance. One additional item was published in a prior period, but not reported.

- Leggon, C., Romine, P., Jones, E., Reidhead, C. & Chischilly, A. (2021) Models of Excellence for Social Justice: Historically Black Colleges and Universities and Tribal Colleges and Universities. In: Pearson Jr., W & Reddy, V. (eds.) *Social Justice and Education in the 21st Century: Research from South Africa and the United States*. Springer. <u>https://doi.org/10.1007/978-3-030-65417-7</u>.
- 2. Edwards, Frances. (2021) Emergency Response Systems. In: Vickerman, Roger (eds.) *International Encyclopedia of Transportation*. vol. 2, pp. 240-246. UK: Elsevier Ltd. <u>http://dx.doi.org/10.1016/B978-0-08-102671-7.10130-7</u>.
- Edwards, F. (2021). Practical Considerations for Ethical Research in Post-Disaster Communities. In J. Rivera (Ed.), *Disaster and Emergency Management Methods: Social Science Approaches in Application*. Taylor and Francis. ISBN 9780367423964. <u>https://www.routledge.com/Disaster-and-Emergency-Management-Methods-Social-Science-Approaches-in/Rivera/p/book/9780367423964</u>.
- Edwards, F., & Goodrich , D. (2021). Emergency Management, Safety, and Security. Farazmand A. (Eds) *Global Encyclopedia of Public Administration, Public Policy, and Governance*. Springer, Cham. <u>https://doi.org/https://doi.org/10.1007/978-3-319-31816-5 2885-1</u>.
- 5. Kachadoorian, C. (2021, April). <u>Cycling Past 50: A Closer Look into the World of Older</u> <u>Cyclists</u>.
- 6. Jenkins, B. & Butterworth, B. (2021, June). <u>Frequency and Lethality of Attacks on</u> <u>Surface Transportation Systems of Developed Countries, by Time of Day</u>.
- 7. Belcher, S., Belcher, H., Seckman, K. & Thomas, B. (2021, June). <u>Will the Biden</u> <u>Administration's 'Made in America' Executive Order Present Significant New</u> <u>Cybersecurity Obligations for Transit Operators?</u>
- 8. Garcia, I. (2021, June). <u>High School Students on Track for Transportation Careers The Mineta Summer Transportation Institute of San José State University</u>.
- 9. Weisbord, G., Hirschman, I., & Blair, A. (2021, June). <u>Assessing the Business Case ROI for</u> <u>Intercity Passenger Rail Corridor Investments</u>. \*Special partnership with American Public Transportation Association, American Association of State Highway and Transportation Officials, and EBP.
- 10. Ishihara, W., Lee, J., Sum, K., & Nathan-Roberts, D. (2021, July). <u>Flunking COVID out of</u> <u>Schools; a Systematic Review of Non-Pharmaceutical Interventions to Minimize Novel</u> <u>Coronavirus-2 in Educational Settings</u>.
- 11. Litman, T., Nixon, H., & Simons, C. (2021, July). <u>Commute Duration Dashboard Guide:</u> <u>Mapping Commute Travel Times to Evaluate Accessibility</u>.
- 12. Alexander, S. (2021, September). <u>Ambitious Action Plan Tackling Climate Change or</u> <u>Finding Common Ground? A Perspective on the Climate Action Potentials of the</u> <u>Bipartisan Infrastructure Investment and Jobs Act</u>.
- 13. \*Noghabaei, M., Heydarian, A., Balali, V., and Han, K. (2020). "A Survey Study to Understand Industry Vision for Virtual and Augmented Reality Applications in Design and Construction." *arXiv* arXiv:2005.02795.

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

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

#### Technologies or Techniques: Nothing to report

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

#### **Other Products**

- <u>Dataset on predicting bus travel times in Washington, DC</u> is publicly available through SJSU ScholarWorks archive.
- <u>Bibliography on surface transportation supply chain security</u> is publicly available through <u>SJSU ScholarWorks archive</u>.
- <u>Dataset on public opinion on transportation taxes and fees in the U.S.</u> is publicly available through SJSU ScholarWorks archive.
- Dataset on <u>truck travel time performance measures</u> is publicly available through SJSU ScholarWorks archive.
- Dashboard for commute duration analysis at the <u>US County</u> and <u>US Census Tract</u> geographies is publicly available.

#### 4. Outcomes

• Performance Measures for Research Outcomes

Performance Measures for Research Outcomes	<b>2021</b> <sup>a</sup>	2020
Number of technology transfer events (workshops, seminars, webinars, etc.)	22	29
Target goal: 12 <u>annually</u>		
Number of technology transfer event participants	2,383	2,382
Target goal: 500 participants <u>annually</u>		

<sup>a</sup> Number reported through September 30, 2021

Performance Measures for Research Outcomes	Current Period	Previous Period
Number of organizations participating in consortium activities	20	32
Target goal: 10 during each semi-annual performance reporting period		

#### 5. Impacts

#### Performance Measures for Research Impacts

Performance Measures for Research Impacts	<b>2021</b> <sup>a</sup>	2020
Number of instances of research influencing policy or practice	5	6

Target goal: 3 <u>annually</u>		
Evidence of impact and exposure based on number of media articles covering MCTM	297	334
activities		
Target goal: 50 <u>annually</u>		
Evidence of impact on transportation workforce development based on number trained	990	1,063
and/or educated individuals (K-12 level)		
Target goal: 50 K-12 students <u>annually</u>		
Evidence of impact on transportation workforce development based on number trained	1,348	1,417
and/or educated individuals (college level/working professionals)		
Target goal: 75 college students and/or working professionals <u>annually</u>		
Percent of surveyed participants attending MCTM technology transfer events and training	95%	90%
programs reporting that MCTM research and training is useful, effective, and impactful		
Taraet goal: 60% with an average survey score of more than 4 out of 5 indicating that the		
event was useful, effective, and impactful		

<sup>a</sup> Number reported through September 30, 2021

MCTM documents the following instances of research influencing policy or practice during the current period of performance (April 1, 2020 – September 30, 2021):

- MTI's research on <u>transit integration</u> was used by Seamless Bay Area to advance an evidence-based discussion about transit reform in the San Francisco Bay Area. [April 2021]
- 2. MTI's research on <u>transit integration</u> was used by LA Metro's Office of Extraordinary Innovation as they develop recovery recommendations on improved transit integration in the LA region post-pandemic. [May 2021]
- 3. MTI's research on <u>conducting on-board transit surveys</u> is being used by LA Metro as they consider new approaches to conducting their on-board surveys. [June 2021]
- 4. The State of California recently enacted Senate Bill 339, Road Usage Charge Pilot Program. In the <u>legislative text</u>, MTI's research on the financial impact of zero-emission vehicles is cited in Section 1(g). [September 2021].
- 5. MTI's Dr. Asha W. Agrawal has been named a member of the <u>California Road Usage</u> <u>Charge Technical Advisory Committee</u>. This committee has played a key role in advancing the potential for a mileage-based user fee in California to augment or replace fuel taxes in the future. With this appointment, MTI has a direct voice in helping to shape the direction of this effort under the auspices of the California Transportation Commission. [September 2021]

## 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?

MTI's Dr. Mohammad Pourhomayoun has launched a start-up company, AI-Agora, that focuses on artificial intelligence, data science, and machine learning. The company is based on the idea of "software-as-as-service." A key focus will be on managing transportation, mobility, and traffic safety. MTI-funded research <u>Automatic Traffic Monitoring and Management for</u> <u>Pedestrian and Cyclist Safety Using Deep Learning and Artificial Intelligence</u> helped to establish the company and MTI is in ongoing conversation with Dr. Pourhomayoun about the next steps.

**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, 2021 MCTM reports were downloaded 41,727 downloads from 2,706 Institutions in 159 countries from the SJSU ScholarWorks archive and there were 56,734 downloads from the MTI website.

## What is the Impact on Transportation Workforce Development?

- MTI's education program was highlighted by Jim Tymon, Executive Director, AASHTO, during the opening remarks at the AASHTO Rail Transportation Conference.
- MTI is now offering Professional Development Hours (PDH) for individuals who attend MTI's professional development programs, including the research snap webinars.
- MTI's Dr. Wenbin Wei led a team of undergraduate and graduate students from SJSU's Department of Aviation and Technology in the TRB ACRP annual University Design Competition for Addressing Airport Needs. The team won first place in the Airport Operation and Maintenance Challenge. [June 2021]
- Navajo Technical University completed the development of the "Formula Lab" in their auto tech program. This hands-on project-based learning laboratory allows students to engage in meaningful, hands-on activities and extend their classroom learning.

## 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.

- The City of San José asked MTI researchers, Drs. Jochen Albrecht and Laxmi Ramasubramanian, to provide additional information on their MTI-funded research <u>Comparing Twitter and LODES Data for Detecting Commuter Mobility Patterns</u> as they felt it would "inform some of [their] current and future transportation planning efforts." [May 2021]
- UK's Department for Transportation reached out to MTI for information and expertise related to vehicle ramming attacks. [June 2021]
- MTI's Dr. Asha W. Agrawal consulted with the California Transportation Commission's Deputy Director for Legislation and Finance on the impact of zero-emission vehicles on state gas tax revenue. [July 2021]
- MTI's Dr. Karen Philbrick was invited to chair TCRP Panel F-29, Mental Health, Wellness, and Resilience for Transit System Workers. [July 2021]
- MTI's Dr. Asha W. Agrawal was invited to serve on a NCHRP advisory panel for the project titled "Interdependence of Federal, State, and Local Transportation Funding and Ownership." [July 2021]
- MTI's Dr. Kezban Yacgi Sokat provided technical assistance to the South Bay Coalition to End Human Trafficking related to updating California's Supply Chain Act (SB 657). [July 2021]

- MTI's Dr. Edwards provided expert technical assistance to CADRE, a local communication organization, regarding emergency preparedness for heat events and power outages. [August 2021]
- MTI's Dr. Frances Edwards provided expert technical assistant to the Santa Clara School District related to their STEM curriculum and transportation career education opportunities for high school students in the district. [August 2021]
- MTI's Dr. Asha W. Agrawal briefed the San José City Council on transportation demand management and modernizing parking requirements in the City. [August 2021]
- MTI's Dr. Kezban Yacgi Sokat briefed staff from Congressman Ro Khanna's office related to corporate social responsibility, particularly in terms of the human trafficking, supply chain and transportation. [September 2021]
- MTIs Dr. Frances Edwards provided for than 30 hours of pro bono assistance to the Dry Creek Pruneyard Neighborhood Association in California regarding fire codes and emergency vehicle accessibility for a proposal development project. [September 2021]
- MTI's Dr. Kezban Yacgi Sokat consulted with Anthem, Inc. related to corporate social responsibility efforts towards human trafficking. [September 2021]
- Maine DOT's Director of Research contacted MTI for a briefing related to MTI research and expertise in <u>attracting, retaining, and promoting women in transportation</u>. [September 2021]
- MTI's Dr Kezban Yagci Sokat was asked by the Transportation Security Administration's Asia Pacific Region International Operations division to assist with development a framework for airport operations to combat human trafficking for San Antonio International Airport's Security Project. [September 2021]

## **14. Changes/Problems**

- Changes in Approach and Reasons for Change: Nothing to report
- Actual/Anticipated Problems or Delays Encountered: MCTM partners encountered two disruptions during this reporting period:
  - 1) Howard University experienced a ransomware attack in September 2021. This caused significant disruption to the institution and more than a month later, they are still not back up to 100% operations.
  - O 2) NTU continues to experience challenges due to COVID. The 2021 STEM & Skills Summer Dual Credit Program was negatively impacted likely due to the 6 week extension of the regular academic year for students and exhaustion with online learning. In addition, NTU students were unable to participate in the Formula SAE 2021 competition due to campus travel restrictions.
- 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