



Semi-Annual Progress Report Mineta Consortium for Transportation Mobility April 1 - September 30, 2020



To move is to live.



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:**
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- **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).

Special Update on COVID-19 and MCTM

The crisis caused by COVID-19 continues to pose significant challenges and disrupt traditional operations. Following is a brief snapshot of how MCTM has been impacted.

COVID-19: Impact on Research: After some delays during the first few months of the pandemic, most research activities have returned to normal levels. At Howard University, traffic data collection resumed in August, however, the Annual Seatbelt Survey has been canceled along with a planned trip to conduct a safety assessment project in the U.S. Virgin Islands. At SJSU and Howard University, the university established a protocol for any researchers requiring access to campus facilities.

COVID-19: Impact on Education: Consortium partners at SJSU and Howard University continue to teach classes predominantly online with limited opportunities for in-person engagement, while NTU and UNCC have resumed in person instruction. The most significant and negative impact is reflected in NTU enrollment rates which are down 50% from Fall 2019. Online education and workforce development programs at NTU are a particular challenge because most students do not have personal computers or internet access. Toward that end, the 2020 NTU STEM & Skills Summer Dual Credit Program enrollment was down 90%.

COVID-19: Impact on Workforce Development: MCTM's workforce development initiatives continue to be negatively impacted due to COVID-19. Howard University had to cancel recruitment for the 2020 DDOT internship program and events that typically take place towards the end of the school year or over the summer were canceled such as MTI's [Summer Transportation Institute](#) while NTU's summer program moved online with much lower enrollment. Planning for the 2021 Garrett Morgan Sustainable Transportation Competition is underway with adaptations to address changes in schooling nationwide. MTI was able to offer two professional development opportunities at the Metropolitan Transportation Commission focused on helping employees adjust to COVID-19 —1) Effective Interpersonal “Virtual” Communications and 2) Communications: Techniques for Persuasive Delivery.

COVID-19: Impact on Technology Transfer: Four (4) MCTM technology and information events have been cancelled as have numerous conference presentations and in-person meetings;

however, MTI elected to increase its webinar output and refashioned several in-person events into virtual offerings. By pivoting to a virtual format, MCTM has been able to continue offering access to cutting-edge research and, in many cases, to reach a broader national and international audience.

COVID-19: Request for Technical Assistance/Information: During the initial weeks of the COVID-19 national shutdown, MTI was contacted to provide technical assistance focused on emergency management as documented in the [last progress report](#). Since April 2020, MTI has also responded to requests to conduct rapid-response research in two major areas: transportation finance and virus transmission on public buses. California State Senator Jim Beall reached out to MTI to learn [what impact COVID-19 might have on gas tax revenues](#) both in the short-term with fewer drivers on the roads, and long-term depending on different recovery scenarios. MTI's Executive Director, Dr. Karen Philbrick, and MTI Research Associate, Dr. Martin Wachs, both provided expert testimony to the California State Assembly Transportation Committee on the impact of COVID-19 on transportation revenue and Dr. Philbrick was also asked to speak to the [Bay Area Legislative Caucus](#) about the impact COVID-19 on public transportation nationally. Most recently, MTI was contacted by the Valley Transportation Authority (VTA) to provide an analysis on social distancing on public transportation and, at the direct request of Cindy Chavez, President of the Santa Clara County Board of Supervisors, MTI provided a briefing on the MTI study investigating [transit bus air circulation and virus mitigation](#).

■ **MCTM Director's Leadership Activities**

MCTM partners bring an outstanding record of national and international leadership and success in advancing transportation policy and generating solutions. Over the past several years, our directors have advised our nation's policy makers through such diverse venues as congressional testimony; conference panels; briefings of senior policy makers and through board and committee service. Details have been provided in a [previous progress report](#).

■ **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 nine seed grants to faculty from five of the seven academic Colleges at SJSU.

During this period of performance one seed grant project was completed: [Freeways and Farms: Veggelution & Taylor Street Urban Farms Study](#) (Faculty Member: Joshua Baur, Ph.D., Assistant Professor, Department of Health Science and Recreation) and one was funded: [Analytical](#)

[Model for Traffic Congestion and Accident Analysis](#) (Hongrui Liu, Assistant Professor, Department of Industrial and Systems Engineering).

Ongoing Research

Since January 6, 2017, MCTM has funded 70 research projects. Of these, 34 projects were competitively selected or underwent *peer review* prior to selection, 9 were emerging leader seed grants, and 27 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 September 2020, MTI submitted a proposal to renew this grant and anticipates a successful outcome, which would provide an additional \$6 million in funding over 3 years. In addition, MTI has received grants from 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 an evaluation of their eBike program, 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 launched during the previous reporting period. 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: <http://transweb.sjsu.edu/mctm/index.html>. This website is updated regularly with event information, media coverage, and research activities.

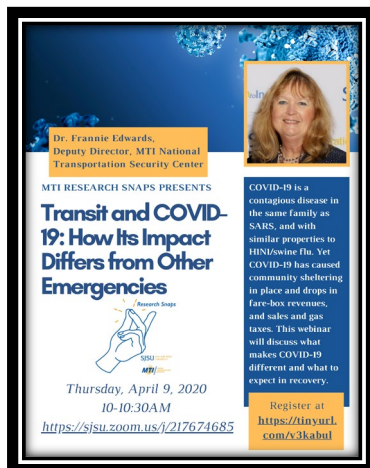
Media Coverage

During the reporting period, there were 86 stories featured in print, radio, and television media, bringing the total number of MCTM stories to 1,188 since inception. Links to many of these articles are featured on the [Consortium website](#) and below is a snapshot of activity:

Article	Media Outlet
How the COVID-19 pandemic and George Floyd protests could give rise to terrorism	NBC Bay Area
Mineta Institute finds drivers would carpool for \$15 a day, reducing congestion	Mass Transit Magazine
Survey finds growing support for mileage fee over the gas tax	Planetizen
Report finds half of Americans support mileage fees	Metro Magazine
Can valley researchers wipe out COVID-19 on Mass Transit?	GV Wire
The view from the state level	Politico
Will Bay Area Traffic come roaring back after COVID-19? It might if we ditch transit for cars	San Jose Mercury News
California electric vehicle growth spurs look at mileage fees	Bloomberg Law
California's search for equitable, sustainable, and safe transportation choices	Fox & Hounds
What's next: The road to post-COVID recovery	Propel by Eno

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 11 technology transfer activities that reached 893 attendees; a selection follows:



MTI Research Snaps presents "Transit and COVID-19: How Its Impact Differs from Other Emergencies" April 9, 2020 • [Online](#): With COVID-19, a highly contagious virus in the same family as SARS and similar to H1N1/swine flu, upsetting all aspects of daily life, MTI investigated what makes COVID-19 different and what to expect in economic recovery, especially with regard to the transportation industry.

MTI Research Snaps presents "COVID-19 & State-Generated Transportation Funds in California" May 14, 2020 • [Online](#): The COVID-19 public health emergency drastically changed every aspect of California life, including reducing personal travel by as much as half in many regions. As a result, because user fees produce a large share of resources needed to operate California's transit systems,

transportation revenues plummeted. This research used simple spreadsheet models to estimate the impact of different scenarios for economic recovery from the COVID-19 pandemic on state-generated transportation revenues. The model covers the package of SB1 gasoline and diesel taxes, as well as two fees levied on vehicles.

2020 Garrett Morgan Sustainable Transportation Competition May 21, 2020 • [Online](#): Garrett Augustus Morgan, the son of slaves, recognized the importance of education, entrepreneurship, and innovation and is well known for creating the modern three-way traffic signal. In honor of his trailblazing contributions, MTI annually delivers this event which engages students in science, technology, engineering, and math (**STEM**) through a competition focused on sustainable transportation. Our 2020 participants overcame significant hurdles to deliver innovative transportation projects despite the challenges associated with their schools closing as a result of COVID-19. The first-place project “Fast. Easy. Smart: A Sustainable AV Plan for Cities” was submitted by California Montessori Project-Capitol Campus and proposes a system for the deployment of autonomous vehicles that meets societal needs as well as safety and environmental concerns.

NOTE: Two schools did have to excuse themselves from the competition due to difficulties regarding COVID-19.

MTI Research Snaps presents “Mitigation v. Adaptation, Transportation and Land-Use Planning to Combat Climate Change” June 4, 2020 • [Online](#): Recent extreme weather events in California—wildfires, droughts, and flooding—make abundantly clear the need to plan effective responses to both the causes and consequences of climate change. [Harmonizing Climate Change Mitigation and Adaptation in Transportation and Land-Use Planning in California Cities](#), analyzed the climate plans for 23 California cities in addition to interviewing 25 local, regional, and state officials working on climate planning. Identifying transportation and land-use (TLU) strategies that both mitigate greenhouse gas emissions and successfully prepare communities to be less severely impacted by climate change remains a challenge. The study assessed existing city plans and identified the potential pitfalls between mitigation and adaptation. Then, it established methods the state can implement to help cities effectively incorporate integrated TLU actions.

MSTM 2020 Virtual Graduation Celebration June 26, 2020 • [Online](#): In the unprecedented times of an unheard of global pandemic, economic crisis, and mandatory social distancing, the class of 2020 persevered. The MTI/SJSU community gathered to recognize and celebrate the graduating students in a virtual session, as well as to hear the congratulations and wise words of MTI Founder Secretary Norman Y. Mineta. Joining in in the virtual celebratory spirit, MTI Trustees submitted [congratulatory videos](#) commemorating the achievements of the 2020 graduates. A special thank you to the sponsors for their generous contributions: American Public Transportation Association (APTA), Econolite Group Inc., Union Pacific Railroad, Association of American Railroads (AAR), InfraStrategies, LLC, LEA & Elliot Inc., and WMH Corporation.

11th Annual Mineta National Transportation Policy Summit presents “Paying for Transportation in California: Does COVID-19 Change Everything?” June 26, 2020 • [Online](#): The COVID-19 pandemic threatens every aspect of transportation funding in California. State revenues from federal, state, regional, and local taxes and fees are all at risk. Since California’s shelter-in-place order went into effect in March, the state has already faced plummeting revenues from gasoline taxes, tolls, transit fares, and sales taxes. These revenue sources will most likely continue to be severely threatened in the coming months and possibly even years. In this annual summit, which included a keynote address by CalSTA Secretary and newly appointed MTI Trustee David S. Kim, panelists discussed the opportunities for every level of government to help recover transportation revenues in our uncertain future.

MTI Research Snaps presents “Lessons Learned from Public Transit Success in Metropolitan Areas” July 30, 2020 • [Online](#): This research webinar featured the results from [Characteristics of Effective Metropolitan-Areawide Public Transit](#) which evaluated ten metropolitan areas in Australia, Canada, and Europe with highly effective regional transit. This research identified key traits that are correlated with high public transit usage, including the “behind the scenes” or political and institutional characteristics, the customer-apparent transit service features, and funding and willingness to subsidize transit.

MTI Research Snaps presents “Rising to the Transportation Challenge– Students Applying STEM Solutions to Improve Transit” August 20, 2020 • [Online](#): With the [Fresno State Transportation Challenge](#), K-8 students in the Central Valley learned about transportation while making a positive impact in their communities. This interdisciplinary program, led by [Fresno State Transportation Institute](#) founder Professor Aly Tawfik, also documented the challenges and best practices for leveraging university resources to effectively engage youth. As a direct result of this webinar, MTI was later approached by SJSU’s CommUniverCity to participate in a virtual K-12 Career Day led by Silicon Valley Education Foundation. MTI provided two transportation videos: [Transportation Careers: Moving More than People](#) and [VTA Careers](#).

MTI Research Snaps presents “Predicting Future Highway Maintenance and Rehabilitation Costs” August 25, 2020 • [Online](#): This webinar documented trends in primary pavement materials’ unit price over time and developed guidelines for selecting unit price values for future maintenance and rehabilitation in life cycle cost analysis (LCCA). Researchers collected 20 years of California socio-economic data—including oil price, population, and other key variables to identify correlations with pavement materials’ unit price. Using this data, researchers predicted future price values and then used a case study to compare the results with the prices in the current LCCA procedure.

MTI Research Snaps presents “See the USA in Your Chevrolet: The American Road Trip Reconsidered” September 17, 2020 • [Online](#): Road trips, often understood as an embodiment of American freedom, are an essential summertime activity for millions even during a global

pandemic. New research and recent events, however, complicate the vision of the great American road trip by revealing how it has been shaped by democratic ideals, commercial interest, and nostalgia. Reexamining the road trip through a historical lens can inform the work of transportation professionals – especially in the context of the mobility revolution, social justice reform, and pandemic shutdowns.

Surveying Silicon Valley Cyclists September 24, 2020 • [Online](#): Silicon Valley is committed to California’s goal of reducing vehicle miles traveled (VMT) by 15% in the next three decades. To investigate local support for this initiative, [MTI](#) researchers—in collaboration with [Silicon Valley Bicycle Coalition](#) (SVBC) and the [Santa Clara Department of Public Health](#)—surveyed 1,009 Santa Clara County residents, recruited via location-based targeted advertisements, about their travel behavior and attitudes. This webinar, based on the report [Surveying Silicon Valley Cycling, Travel Behavior, and Travel Attitudes](#), discussed survey findings on a range of transportation modes (driving, public transportation, walking, and more), with an emphasis on cycling.



The following events were either cancelled or postponed in light of county and state recommendations related to COVID-19.

FEMA Cybersecurity VTTX April 23, 2020 • San José, CA: MTI in partnership with Allied Telesis and the Federal Emergency Management Agency (FEMA) planned a workshop in which different agencies and municipalities would participate in a cyber threat scenario that would test their existing cybersecurity preparedness plan. The workshop would then evaluate, assess, and discuss the strengths and weaknesses of the participants’ response.

UPC Symposium 2020 – Redefining the American Dream: Silicon Valley’s Housing Crisis April 18, 2020 • San José, CA: In partnership with the Urban Planning Coalition of the Department of Urban and Regional Planning at San José State University, MTI planned to co-sponsor this event, intended to bring together planning professionals, experts and advocates to shed light on the housing challenges facing our region and explore potential solutions. Focus areas included housing and health, additional dwelling units and other microunits, displacement and gentrification, and homelessness and hunger at SJSU.

Calcoq Reginal Leadership Forum: Regions Rise Together April 5-7, 2020 • Riverside, CA: MTI in partnership with California Association of Councils of Government (CALCOG), planned a conference to explore the governor’s Regions Rise Together initiative, inviting leaders from different California regions to share their ideas about improving the state by developing stronger partnerships between our state, regional, and local governments. Topics included but were not limited to housing policy and trends, transportation and climate resiliency, innovations in transportation, sustainable community strategies, and inclusive economic development.

Youth Climate Action Summit April 1, 2020 • San José, CA: MTI, in partnership with Valley Transportation Authority, planned a summit that would bring together local high school youths, San José State University students and faculty, and industry professionals to discuss transportation policy for climate action.

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 \$26,000 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 following:

1. Organization Name and Location: **Alabama A&M University** (Huntsville, AL)
 - Partner's Contribution to the Project: Vehicle design and chassis welding
 - Program: NTU's participation in Formula SAE Competition

2. Organization Name and Location: **American Indian Child Resource Center** (Oakland, CA)
 - Partner's Contribution to the Project: Student participation in the competition.
 - Project: Garrett Morgan Sustainable Transportation Competition

3. Organization Name and Location: **Alliance for Girls** (San Jose, CA)
 - Partner's Contribution to the Project: In-kind sharing of information from recent study.
 - Project: Crime and Harassment on Public Transportation: A Survey of SJSU Students Set in an International Context

4. Organization Name and Location: **American Public Transportation Association (APTA)** (San Francisco, CA)
 - Partner's Contribution to the Project: In-kind support providing competition judges.
 - Project: Garrett Morgan Sustainable Transportation Competition
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5. Organization Name and Location: **Aptos Middle School** (Aptos, CA)
 - Partner's Contribution to the Project: Student participation in the competition.
 - Project: Garrett Morgan Sustainable Transportation Competition

6. 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
7. Organization Name and Location: **Caltrans District 3 (headquarters)** (Sacramento, CA)
 - Partner's Contribution to the Project: In-kind support as a mentor to Montessori Middle School- Capitol Campus.
 - Project: Garrett Morgan Sustainable Transportation Competition
8. Organization Name and Location: **Caltrans District 4** (Oakland, CA)
 - Partner's Contribution to the Project: In-kind support as a mentor to American Indian Child Resource Center.
 - Project: Garrett Morgan Sustainable Transportation Competition
9. Organization Name and Location: **Capital Area Metropolitan Planning Organization** (Raleigh, NC)
 - Partner's Contribution to the Project: In-kind support (project-related data)
 - Project: Modeling Operational Performance on Urban Roads with Heterogenous Traffic Conditions; Drivers' Response to Scenarios When Driving Connected and Autonomous Vehicles Compared to Vehicles With and Without Driver Assist Technology; Researching Relationships Between Truck Travel Time Performance Measures and On-network and Off-network Characteristics (UNCC Research Projects)
10. Organization Name and Location: **Charlotte Regional Transportation Planning Organization** (Charlotte, NC)
 - Partner's Contribution to the Project: In-kind support (project-related data)
 - Project: UNCC Research Projects
11. Organization Name and Location: **City of Charlotte** (Charlotte, NC)
 - Partner's Contribution to the Project: In-kind support (project-related data)
 - Project: UNCC Research Projects
12. Organization Name and Location: **City of Concord** (Concord, NC)
 - Partner's Contribution to the Project: In-kind support (project-related data)
 - Project: UNCC Research Projects
13. Organization Name and Location: **City of San Jose Department of Transportation** (San Jose, CA)
 - Partner's Contribution to the Project: In-kind support (industry mentors to partner with Urban and Regional Planning Students at SJSU- Fall 2020)
 - Project: SJSU and MTI Mentorship Program

14. Organization Name and Location: **Commonwealth Club of California** (San Francisco, CA)
 - Partner’s Contribution to the Project: Provided registration and technical support.
 - Project: Annual Mineta National Transportation Finance Summit

15. 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: Predicting Travel Times of Bus Transit in Washington DC using Artificial Neural Network (ANN); Impact of Dedicated Bus Lanes on Intersection Operations and Travel Time Model Development

16. 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

17. Organization Name and Location: **Institute for Metropolitan Studies** (San Jose, CA)
 - Partner’s Contribution to the Project: In-kind support cross-promoting event.
 - Project/Program: MTI Research Snaps presents “See the USA in Your Chevrolet”

18. Organization Name and Location: **Highway Safety Information Systems** (McLean, VA)
 - Partner’s Contribution to the Project: In-kind support (project-related data)
 - Project: UNCC Research Projects

19. Organization Name and Location: **Montessori Middle School-Capital Campus** (Sacramento, CA)
 - Partner’s Contribution to the Project: Student participation in the competition.
 - Project: Garrett Morgan Sustainable Transportation Competition

20. 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

21. Organization Name and Location: **Ojo Encino Day School** (Ojo Encino, NM)
 - Partner’s Contribution to the Project: In-kind support providing facilities and mentors
 - Program: Garrett Morgan Sustainable Transportation Competition

22. Organization Name and Location: **TRANSITION SJSU** (San Jose, CA)
 - Partner’s Contribution to the Project: In-kind support cross-promoting event.

- Project/Program: MTI Research Snaps presents “See the USA in Your Chevrolet”
23. Organization Name and Location: **San Francisco Municipal Transportation Agency** (San Francisco, CA)
- Partner’s Contribution to the Project: In-kind support as a mentor to Aptos Middle School.
 - Project: Garrett Morgan Sustainable Transportation Competition
24. Organization Name and Location: **Silicon Valley Bicycle Coalition (SVBC)** (San Jose, CA)
- Partner’s Contribution to the Project: In-kind support hosting webinar. Financial support for survey administration.
 - Project/Program: Surveying Silicon Valley Cyclists
25. Organization Name and Location: **Urban Planning Coalition** (San Jose, CA)
- Partner’s Contribution to the Project: In-kind support cross-promoting event.
 - Project/Program: MTI Research Snaps presents “See the USA in Your Chevrolet”
26. 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: Predicting Travel Times of Bus Transit in Washington DC using Artificial Neural Network (ANN); Impact of Dedicated Bus Lanes on Intersection Operations and Travel Time Model Development
27. Organization Name and Location: **Wingate High School** (Fort Wingate, NM)
- Partner’s Contribution to the Project: In-kind support providing facilities for dual credit engineering course
 - Program: Dual Credit Engineering Certificate; STEM & Skills Summer Program

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
 - Number of completed research reports, including two-page research briefs.
 - Target goal: 12 reports, including research briefs, annually.
 - 10 reports with research briefs published during this period of performance
 - 7 reports with research briefs published during the prior period of performance

- 18 completed research reports (*exceeded annual goal*)
- Number of research presentations at professional meetings and conferences annually.
 - Target goal: 35 presentations annually.
 - 46 presentations were given in this period of performance
 - 68 presentations were given in the prior period of performance
 - 114 total presentations (*exceeded annual goal*)
- Number of views and downloads of research reports as tracked through Google Analytics and ScholarWorks annually.
 - Target goal: 250 views/downloads monthly.
 - During the period of performance, research reports were downloaded from the Center’s website a total of 5,406 times (approx. 901 monthly).
 - During the period of performance, research reports were downloaded from SJSU ScholarWorks archive a total of 5,978 times (approx. 996 monthly) from 110 countries (see Figure 1)
 - Total of 1,897 report downloads monthly (*exceeded monthly goal*)

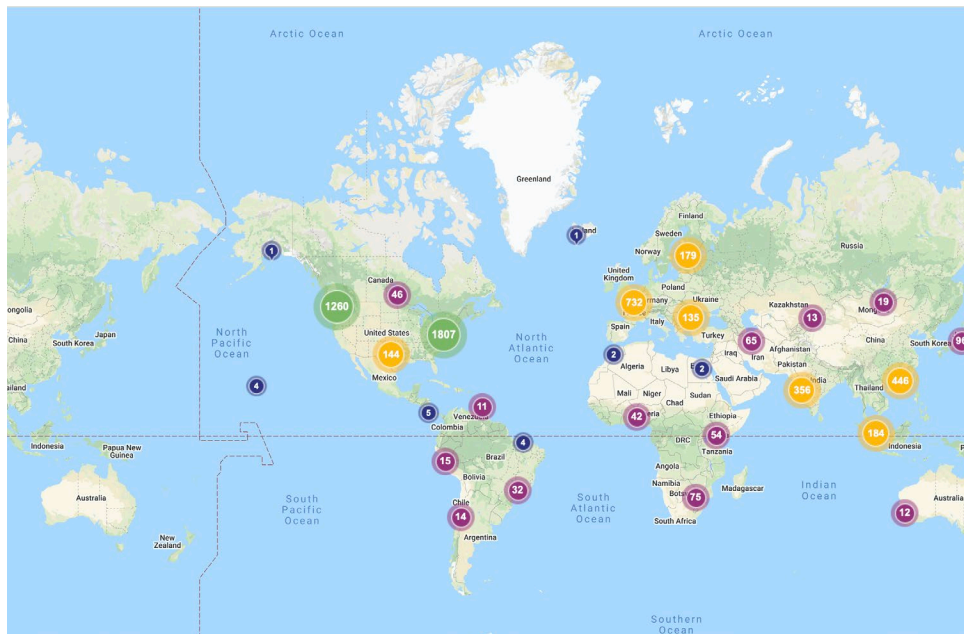


Figure 1 Distribution of MTI Report Readers via ScholarWorks, April 1-September 30, 2020

Published Research Reports

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

1. Molan, A.M., Murugeson, N., Shams, A., Tortora, C., Rahman, F., Loh, J., and Pande, A. (2020, April). [Evaluation of Coordinated Ramp Metering \(CRM\) Implemented by Caltrans.](#)

2. Agrawal, A.W., and Nixon, H. (2020, June). [What Do Americans Think About Federal Tax Options to Support Transportation? Results from Year Eleven of a National Survey.](#)
3. Liu, B., Shams, A., Howard, J., Alexander, S., Hughes, A., and Pande, A. (2020, June). [Assessing Complete Street Strategies Using Microscopic Traffic Simulation Models.](#)
4. Minett, P., Niles, J., Lee, R., and Bogue, B. (2020, July). [Congestion-Clearing Payments to Passengers.](#)
5. Voulgaris, C.T., Alexander, S., Hosseinzade, R., Jimenez, J., Lee, K., Pande, A. (2020, September). [Measuring Success for Safe Routes to School Programs.](#)
6. Belcher, S., Belcher, T., Greenwald, E., Thomas, B. (2020, September). [Is the Transit Industry Prepared for the Cyber Revolution? Policy Recommendations to Enhance Surface Transit Cyber Preparedness.](#)
7. Ferrell, C., Eells, J., Lee, R., and Hosseinzade, R. (2020, September). [Analysis of the Benefits of Green Streets.](#)
8. Agrawal, A.W., Shirgakar, M., Misra, A., Wachs, M., and Dobbs, B. (2020, September). [Will Ride-Hailing Enhance Mobility for Older Adults? A California Survey.](#)
9. Pourhomayoun, M. (2020, September). [Automatic Traffic Monitoring and Management for Pedestrian and Cyclist Safety Using Deep Learning and Artificial Intelligence.](#)
10. DeRobertis, M., Ferrell, C., Lee, R., Eells, J. (2020, September). [Characteristics of Effective Metropolitan Areawide Public Transit: A Comparison of European, Canadian, and Australian Case Studies.](#)

Publications, Conference Papers, and Presentations

During this period of performance, 46 academic and professional presentations/briefing featured MCTM-federal or match funded research and researchers. Twenty-five additional presentations occurred in prior reporting periods but had not been included in those reports. (Full citations for all presentations available upon request, a select example appears below).

Academic Presentations				
	<u>Presentation Title</u>	<u>Audience/Conference</u>	<u>Location</u>	<u>Date</u>
1	*Green Strategies for Design and Construction of Non-auto Transportation Infrastructure	2019 Engineering Mechanics Institute (EMI) Conference	Los Angeles, CA	6/19/19
2	*Does Accessibility via Green Transportation Modes Matter for Social Inequality? An Investigation for Two Medium-Size U.S. Cities	ACSP 59th Annual Conference	Greenville, SC	10/26/19
3	*How Do Environmental Factors Affect Driver's Gaze Direction and Head Movements? A Long-Term Naturalistic Driving Study	Transportation Research Board 99th Annual Meeting	Washington, DC	1/12-16/20
4	*The Geographic Disparities in Transportation-Related Physical Activity in the United States: An Analysis of 2017 NHTS Data	Transportation Research Board 99th Annual Meeting	Washington, DC	1/12-16/20

5	*Identifying the Contributing Factors to the Severity of Animal-Vehicle Collisions	Construction Research Congress (CRC)	Phoenix, AZ	3/8/20
6	Sexual Harassment on Public Transportation: The SJSU Student Experience	SFMTA Lunch and Learn	Online	04/16/20
7	The Ethics of Bearing Witness	ASPA SECM Webinar: Disaster Field Research	Online	04/17/20
8	The Impact of COVID-19 on State-Generated Transportation Funds in California - A Scenario Analysis	California Transportation Commission	Online	05/13/20
9	Transportation and Solid Waste Management Careers	Opportunities for All Summer Infrastructure Careers Interns and Fellows	Online	6/30/20
10	Briefing on Terrorism and Transportation Security	US Department of State, Combating Terrorism Office	Online	7/1/20
11	Improving the Financial, Environmental, and Social Sustainability of Local Government Pavement	9th International Conference on the Maintenance and Rehabilitation of Pavements	Online	7/1/20
12	Tribal Planning in California	North Coast Tribal Transportation Committee	Online	7/2/20
13	Comparing Surrogate Safety Measures to Proactively Evaluate Safety of Vulnerable Road Users at Signalized Intersections	11th International Conference on Applied Human Factors and Ergonomics and the Affiliated Conferences	Online	7/16-20/20
14	Impact of Automated Vehicles-exclusive Lane on Adjacent Lane Drivers	11th International Conference on Applied Human Factors and Ergonomics and the Affiliated Conferences	Online	7/16-20/20
15	Opportunity and Innovation: Transportation Careers of the Future	School to Work Virtual Professional Development Program, NSTI, Benedict College	Online	7/20/20
16	Transportation Engineering & Planning: Current State of Practice, Evolving Trends, & Opportunities	NC A&T Virtual Summer Transportation Institute	Online	7/20/20
17	What Do U.S. Adults Think About Mileage Fees?	Presentation for the Mileage-Based User Fee Alliance	Online	7/22/20

18	Death on the Rails: Developing Standard Signage on the Dangers of Trespassing	Transit Advisory Committee for Safety Public Meeting	Online	7/22/20
19	Workforce Assessment for Southern Californian Transportation and Supply Chain Industries	CITT Center Update	Online	7/28/20
20	Chemical Kinetic Model Reduction and Analysis of Tetrahydrofuran Combustion using Stochastic Species Elimination	ASME 2020 Power Conference	Online	8/4/20
21	COVID19 and Its Impact on the Environment and Transportation	Silicon Valley Bike Summit 2020	Online	8/7/20
22	Current Issues in Freight Management and Systems	Sustainable Freight Foundations Certificate Program	Online	8/7/20
23	Is the Transit Industry Ready for the Cyber Revolution: Policy Recommendations to Enhance Surface Transit Cyber Preparedness	APTA Board and APTA Board Administrator's Conference	Online	8/21/20
24	Is the Transit Industry Ready for the Cyber Revolution: Policy Recommendations to Enhance Surface Transit Cyber Preparedness	APTATech	Online	9/10/20
25	Congestion – Clearing Payments to passengers	United Nations ECE Expert Roundtable Economic Analysis of the Transformation of Urban Transport Systems	Online	9/10/20
26	Innovations in Forecasting and Addressing Supply Chain Disruptions During COVID-19	GIS-Pro 2020	Online	9/29/20
* Occurred during a previous reporting period, but had not been reported.				
** Federal funds not used to support international travel.				

The following accepted presentations were cancelled due to COVID-19:

1. “What are the barriers to expanding flexible workplace practices? A mixed-methods case study on the South Bay region of Los Angeles.” 2020 WRSA & PRSCO Joint Meeting, Honolulu, HI. Scheduled for 3/18-21/20.
2. “Harnessing the Greenhouse Gas Emissions Mitigation Potential of On-demand Mobility and Autonomous Vehicles through Climate Action Planning.” Urban Affairs Association, Washington, DC. Scheduled for 4/2-4/20.
3. “Freeways and Farms: Emma Prusch & Taylor Street Urban Farms Study.” 2020 National Environment and Recreation Research Symposium, Annapolis, MD. Scheduled for 4/5-7/20.

4. "Life Cycle Assessment of Intelligent Construction Techniques for Highway Pavements." 2020 ASCE International Conference on Transportation & Development, Seattle, WA. Scheduled for 5/26-29/20.
5. "Investigating Link-Level Travel Time Measures to Identify Truck Traffic Related Bottlenecks." 2020 ASCE International Conference on Transportation & Development, Seattle, WA. Scheduled for 5/26-29/20.
6. "Modeling and Assessing the Influence of Connected and Automated Vehicle Penetration Rates on Urban Arterial Road Operational Performance." 2020 ASCE International Conference on Transportation & Development, Seattle, WA. Scheduled for 5/26-29/20.
7. "Effect of Light Rail Transit and Land Use on the Number of Crashes Within Its Vicinity." 2020 ASCE International Conference on Transportation & Development, Seattle, WA. Scheduled for 5/26-29/20.
8. "Synthesizing the Effect of Trucks on Travel Time to Identify Related Chokepoints." National Travel Monitoring Exposition and Conference, Raleigh, NC. Scheduled for 6/1-4/20.

Published Conference Proceedings

During this period of performance, two articles in conference proceedings were published. An additional two were published prior to the current reporting period but not previously reported.

1. *Hernandez, C., Slaton, T., Balali, V., and Akhavian, R. (2019). A Deep Learning Framework for Construction Equipment Activity Analysis. ASCE International Conference on Computing in Civil Engineering (i3CE): Data, Sensing, and Analysis, 479-486, Atlanta, GA, USA.
2. *Amouhadi, R., Veliz, V., Balali, V., and Aliasgari, M. (2019). "Optimization and Decision Making for Route Selection as an Alternative of Google Maps Considering Sustainability." Proceedings of the ASCE International Conference on Computing in Civil Engineering (i3CE): Smart Cities, Sustainability, and Resilience, 359-366, Atlanta, GA, USA.
3. Mathew, S., S. Duvvuri and S. S. Pulugurtha. (2020). Modeling and Assessing the Influence of Connected and Automated Vehicle Penetration Rates on Urban Arterial Road Operational Performance. ASCE International Conference on Transportation & Development (ICTD 2020), 98-108, Seattle, WA, May 26-29.
4. Gouribhatla, R. and S. S. Pulugurtha. (2020). Effect of Light Rail Transit and Land Use on the Number of Crashes Within Its Vicinity. ASCE International Conference on Transportation & Development (ICTD 2020), 25-35, Seattle, WA, May 26-29.

Journal Publications

During this period of performance, nine journal articles were published. An additional two were published prior to the current reporting period but not previously reported.

1. *Jahangiri, A., Ghanipoor Machiani, S., and Balali, V. (2019). Big Data Exploration to Examine Aggressive Driving Behavior in the Era of Smart Cities. *Journal of Data Analytics for Smart Cities*, (7), pp 177-196.
2. *Mahanpoor, M., Monajjem, S., and Balali, V. (2019). Sustainable Highway Maintenance: Optimization of Existing Highway Vertical Alignment Considering Pavement Condition. *Journal of Sustainability*, 11(6), 1-20. <https://doi.org/10.3390/su11061659>.
3. Mathur, S. (2020). Impact of Transit Stations on House Prices Across Entire Price Spectrum: A Quantile Regression Approach. *Land Use Policy*, (99). <https://doi.org/10.1016/j.landusepol.2020.104828>.
4. Yang, X., Huang, K., Zhang, Z., Zhang, Z., and Lin, F. (2020). Eco-driving system for connected automated vehicles: multi-objective trajectory optimization. *IEEE Transactions on Intelligent Transportation Systems (TITS)*.
5. Saadeh, S., Al-Zubi, Y., Mahmoud, E., Renteria, D., Mohammad, L. (2020). Sensitivity Analysis of Semi-Circular Bending Test using Plackett–Burman Matrix, *Transportation Research Record* 2674 (2), 302-312. <https://doi.org/10.1177/0361198120907587>.
6. Chandra, S., Naik, R.T. and Jimenez, J. (2020). Crowdsourcing for Mode Shift: An Empirical Evidence of its Success among College Students. *Transportation Research Procedia*, (8). <https://doi.org/10.1016/j.trpro.2020.08.173>.
7. Chandra, S. and Kumar, V., (2020). Crowdsourcing as a Social Interaction Tool to Stimulate Sustainable Transportation Mode Use. *The Open Transportation Journal*, 14(1). <http://dx.doi.org/10.2174/1874447802014010109>.
8. Wang, C-H. and Chen, N. (2020). A Multi-Objective Optimization Approach to Balancing Economic Efficiency and Equity in Accessibility to Multi-Use Paths. *Transportation*. <https://doi.org/10.1007/s11116-020-10117-9>.
9. Chen, N. and Wang, C-H. (2020). Does Green Transportation Promote Accessibility for Equity in Medium-Size U.S. Cities? *Transportation Research Part D: Transport and Environment* (84). <https://doi.org/10.1016/j.trd.2020.102365>.
10. Balali, V., Fathi, S., and Aliasgari, M. (2020). Vector Maps Mobile Application for Sustainable Eco-Driving Transportation Route Selection. *Journal of Sustainability*, 12(14), 5584. <https://doi.org/10.3390/su12145584>.
11. Mahanpoor, M., Monajjem, S., and Balali, V. (2020). An Optimization Model for Synchronous Road Geometric and Pavement Enhancements. *Journal of Traffic and Transportation Engineering*. <https://doi.org/10.1016/j.jtte.2019.03.008>.

Books or other non-periodical, one-time publications

MCTM documents two publications in this category during this period of performance. An additional two were published prior to the current reporting period but not previously reported.

1. *Rhoads, M. and F. Prager (January 9, 2020) [Telecommuters create positive change – so why aren't employers more flexible about people working from home?](#) *The Conversation*.
2. *Rhoads, M. and F. Prager (March 7, 2020) [Telecommuting could curb the coronavirus epidemic.](#) *The Conversation*.

3. Jenkins, B., and Butterworth, B. (2020, June). [How Sophisticated are Terrorist Attacks on Passenger Rail Transportation](#). (MTI Security Perspective).
4. Baur, J. and Estrada, A. (2020, July). [Freeways and Farms: Veggelution & Taylor Street Urban Farms Study](#). (MTI Emerging Leader Seed Grant Final Report).

Website(s) or other Internet site(s)

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

Technologies or Techniques: Nothing to report

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

Other Products

- [Dataset on cybersecurity preparedness and practices](#) from a survey of public transit operators in the U.S. is publicly available through SJSU ScholarWorks archive.
- [Dataset on ridehailing practices](#) from a survey of California seniors is publicly available through SJSU ScholarWorks archive.
- [Dataset on attitudes and opinions on transportation taxes and fees](#) from a nationwide survey of U.S. adults is publicly available through SJSU ScholarWorks archive.
- [Dataset on transit-oriented development policies](#) from a survey of local governments is publicly available through SJSU ScholarWorks archive.
- [Dataset on transit-oriented developments](#) from a survey of transit agencies is publicly available through SJSU ScholarWorks archive.

4. Outcomes

- Performance Measures for Research Outcomes
 - Number of technology transfer events (workshops, seminars, webinars, etc.) and number of participants
 - Target goal: 12 events reaching 500 participants annually
 - MCTM delivered 11 events reaching 893 during this period of performance
 - MCTM delivered 23 events reaching 1622 during this previous period of performance
 - *Exceeded annual goal:* 34 events reaching 2,515 participants
 - Number of organizations participating in consortium activities
 - Target goal: 10 annually

- MCTM engaged 27 organizations during this period of performance (see section 2 for a complete listing)
- MCTM engaged 29 organizations during the previous period of performance
- *Exceeded annual goal:* 56 organizations engaged (some duplicates exist in each period noted)

5. Impacts

- Performance Measures for Research Impacts
 - Number of instances of research influencing policy or practice
 - Target goal: 3 annually
 - Example: MTI was contacted by the California State Transportation Agency (CalSTA) to provide data on micromobility in the U.S.
 - Example: MTI's Executive Director, Dr. Karen Philbrick, and MTI Research Associate, Dr. Martin Wachs were invited to provide expert testimony to the California State Assembly Transportation Committee related to a bill under discussion focused on transportation funding.
 - Example: MTI provided expert guidance and recommendations for VTA regarding increased safety on public buses in light of COVID-19.
 - One example provided during the previous period of performance.
 - *Exceeded annual goal:* 4 total
 - Evidence of impact and exposure based on number of media articles covering MCTM activities
 - Target goal: 50 annually
 - 86 during this period of performance
 - 79 during the previous period of performance
 - Evidence of impact on transportation workforce development based on number trained and/or educated individuals
 - Target goal for K-12: 50 students annually
 - 43 students during this period of performance
 - 1,294 students during the previous period of performance
 - Target goal for post-secondary: 75 college students and/or working professionals annually
 - 866 professionals (participating in technology transfer events)
 - 170 Leadership Academy and MTC Workshop participants
 - 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%
 - 76% of respondents had an average survey score of more than 4 out of 5 indicating that the event was useful, effective and impactful
 - *Exceeded target goal*

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? Nothing to report

What is the Impact on Transportation Workforce Development?

- Dr. Frannie Edwards' book *Housing Recovery After Disaster* was selected by the Natural Hazards Center for inclusion in their "New Reads" series which increases visibility and awareness of this research among professionals.
- NTU faculty and students worked with Wingate High School, a Bureau of Indian Affairs school on the Navajo Nation, to participate in the Innoventure Product Challenge as part of the [Diné Maker Nation Maker Faire](#). The students won 2 of the 3 prizes offered.
- Make Magazine featured NTU's Maker Faire in their [May issue](#). MCTM collaborators, Dr. Peter Romine and Shawn Piechowski, are both featured in the article discussing their hands-on, technical-career focused work in electrical engineering and automotive tech.
- NTU expanded their Career Technical Education (CTE) programs in Automotive Technology, GIS, and Building Information Management.

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.

- Previous work funded by MTI to establish a [central archive for transit passenger data](#) has been recognized by the Federal Transit Administration and \$300,000 has been awarded to the USDOE National Renewable Energy Laboratory's Transportation Secure Data Center (TSDC) to incorporate the pilot database developed by MTI into the TSDC.

5. 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