



Semi-Annual Progress Report  
Mineta Consortium for Transportation Mobility  
October 1, 2019 - March 31, 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

- **Federal Agency and Organization Element to Which Report is Submitted:**  
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- **Center Director:**  
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210 N. Fourth Street, 4<sup>th</sup> Floor, San Jose, CA 95112
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- **Report Term or Frequency:** Semi-annual
- **Signature of Submitting Official:** *Karen Philbrick*

## Introduction

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

### ■ Special Update on Covid-19 and MCTM

The recent crisis caused by the novel coronavirus and the rapid spread of COVID-19 across the nation has revealed the distinct and invaluable role of transportation in American society. Schools and businesses locked their doors and families have hunkered down inside their homes yet one vital infrastructure has kept moving: transportation. Transportation systems fulfill the household supplies and food to allow adherence to “shelter-in-place” and “stay at home” orders of over 300 million people in 45 states. Yet as essential transportation workers keep America moving, the question of the far reaching ramifications of this pandemic remains. Following is a brief snapshot of how MCTM has been impacted.

**COVID-19: Impact on Research:** Though minimal, MCTM research has been impacted. Lack of access to driver simulators, human subjects, and transportation simulation software (for large-scale data processing and analysis) have slowed progress on the project [Drivers' Response to Scenarios When Driving Connected and Autonomous Vehicles Compared to Vehicles With and Without Driver Assist Technology](#). Similarly, traffic data collection for turning movements, speed, and volume in Washington, DC have been suspended.

**COVID-19: Impact on Education:** All Consortium partners have transitioned to online classes and campuses are closed. This change in teaching format required significant faculty effort and resulted in the loss of all interactive class activities and lab courses.

**COVID-19: Impact on Workforce Development:** MTI's workforce development initiatives have been significantly and negatively impacted. Internships have been cancelled or postponed, as has the Formula SAE and NASA Rover Competitions and MTI's [Summer Transportation Institute](#) for high school students. MTI's signature [Garrett Morgan Sustainable Transportation Competition](#) for middle school students has transitioned to a virtual format, but some schools from rural New Mexico have had to discontinue participation due to lack of computers and internet connectivity and others due to lack of mentor contact. Similarly, Navajo Tech's 2020 STEM and Skills Summer Dual Credit Program has been converted from in-person, on-campus program to an online format.

**COVID-19: Impact on Technology Transfer:** Eleven (11) MCTM technology and information events have been cancelled as have numerous conference presentations and in-person meetings. Select details are documented below.

**COVID-19: Request for Technical Assistance/Information:** In the twenty-first century, and certainly in light of the pandemic, improving the safety and security of the U.S. transportation system is of paramount importance to the uninterrupted flow of people and goods. To that end, MTI’s National Transportation Safety and Security Center (NTSSC) conducts research on all surface transportation threats, including natural disasters, accidents, terrorism, operational emergencies, and others hazards. NTSSC Deputy Director, Dr. Frances Edwards, an expert in emergency management and response has been tapped for technical assistance and advice from multiple entities. Select examples follow.

- Provided training to Valley Transportation Authority staff on communicating and implementing their continuity of operations plan under COVID-19 to the California Public Utilities Commission
- Briefed the Public Information Office at SAMTRANS regarding COVID-19 response and the SJSU Provost on FEMA funding
- Consulted on emergency management for Valley Medical Center Foundation
- Delivered a [#MTIResearchSnaps webinar](#) to document how COVID-19 differs from other emergencies and what transit agencies should expect in recovery. The Q&A was so robust that a separate webinar to address questions was filmed for “*Transit and COVID-19: How Its Impact Differs from Other Emergencies*”
- Former MTI research assistants and students of Dr. Edwards are on the front lines helping transit agencies respond to COVID-19 too. For example, James Griffith is advanced planning lead for the California State Operations Center and Brandi Childress is the public information officer for the Valley Transportation Authority

**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. Thought leadership and the representation of the UTC program in multiple venues is critically important. To that end, following is a table of MCTM Executive Director activities.

Organization	Service Role: Karen E. Philbrick, PhD
American Public Transportation Association (APTA) High-Speed and Intercity Passenger Rail Committee	Committee Member
American Road and Transportation Builders Association (ARTBA)	Board Member and Executive Committee

Organization	Service Role: Karen E. Philbrick, PhD
ARTBA Research and Education Division	President
City and County Pavement Improvement Center, UC Davis Institute of Transportation Studies	Executive Committee
Council of University Transportation Centers (CUTC)	Immediate Past President
LA Metro Office of Extraordinary Innovation (OEI)	Advisory Board Member
Rotary Club of San Jose	Board Member
San Jose Spotlight	Transportation Columnist
Transit Advisory Committee for Safety (TRACS)	Committee Member (appointed by Secretary Chao)
Transportation Research Board AR010 Committee: Passenger Rail	Committee Member, Research Subcommittee Chair, and CRC Chair
Transportation Research Board AP080 Committee: Transit Safety and Security	Committee Member
Women in Transportation Seminar (WTS) Foundation Board	Board Member

## I. 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 eight seed grants to faculty from five of the seven academic Colleges at SJSU.

During this period of performance one seed grant project was completed: [Design of a Feedback-Controlled Wireless Converter for Electric Vehicle Wireless Charging Applications](#) (Faculty Member: Mohamed Badawy, Ph.D., Assistant Professor, Department of [Electrical Engineering](#)) and one was funded: [Building an Oasis in a Transportation Desert](#) (Faculty Member: Melissa Beresford, Ph.D, Assistant Professor, Department of [Anthropology](#)).

### Ongoing Research

Since January 6, 2017, MCTM has funded 65 research projects. Of these, 34 projects were competitively selected or underwent peer review prior to selection, 8 were emerging leader seed grants, and 23 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 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 as well as funding from transit agencies to deliver the successful Mineta Transportation Institute 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 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 79 stories featured in print, radio, and television media, bringing the total number of MCTM stories to 1,102 since inception. Links to many of these articles are featured on the [Consortium website](#) and below is a snapshot of activity:

Article	Media Outlet
<a href="#">Power-Driven: Can ZEVs Rev Up Transportation Revenue?</a>	Bay Area Monitor
<a href="#">How Google and San Jose State can team up on downtown plan</a>	San Francisco Chronicle
<a href="#">Autonomous truck makes first cross-country delivery</a>	Fox KTVU News
<a href="#">Will the 2020s deliver Bay Area from traffic hell?</a>	Mercury News
<a href="#">Scooter popularity comes with a price: a surge in injuries</a>	SiliconValley.com
<a href="#">Telecommuters create positive change – so why aren't employers more flexible about people working from home?</a>	The Conversation

Article	Media Outlet
<a href="#">Successful ways to attract, retain women in the transportation industry</a>	Metro
<a href="#">Gas tax study carries timely lesson for lawmakers</a>	Politico
<a href="#">Florida's move to pull in its welcome mat may draw court challenge</a>	Politico
<a href="#">As California's homeless people camp out on railroad tracks, train-related deaths are rising</a>	Los Angeles Times

## Continuing Education: Opportunities for Growth and Engagement

MCTM is providing thought leadership and contributing to solutions for some of our nation's most pressing transportation problems. Through regional forums, national summits, mid-career leadership training, and K-12 workforce development initiatives we help create a connected world. To that end, and during this period of performance, MCTM sponsored 23 technology transfer activities that reached 1,622 attendees; a selection follows:

### A Look Back, a Look Forward: Lessons Applied 30 Years After Loma Prieta

**A Look Back, a Look Forward:  
Lessons Applied 30 Years After Loma Prieta**  
#30YearsAfterLomaPrieta

Light refreshments provided.

October 18, 2019  
Panel: 1-4pm (PDT) Networking  
Reception: 4-6pm (PDT)

SJSU College of Engineering  
Alumni Room (ENG 285-287)

Keynote Speaker: Anne Wein,  
Ph.D., Operations Analyst U.S.  
Geological Survey

- A Look Back: What Happened in 1989?
- A Look Forward: Are We Resilient?
  - Bridges and transportation
  - Telecommunications and earthquake early warning
  - Cyber security for our Smart Infrastructure
- ⚠ Networking Reception

Register now: <https://tinyurl.com/y3hoz59p> (space is limited).

SJSU COLLEGE OF ENGINEERING MTI

October 18, 2019 • San José, CA: MTI and San Jose State University's (SJSU) College of Engineering welcomed Dr. Anne Wein, US Geological Survey, Operations Research Analyst, who delivered a pivotal keynote address documenting how changes over the last 30 years have enhanced seismic safety. Panel presentations focused on future developments needed to improve the Bay Area's earthquake resilience.

### MTI Research Snaps Presents: From White Lines to Green Lanes, How Does Level of Traffic Stress (LTS) Compare Against a Ride

**Feedback App?** November 14, 2019 • Online: With new bike infrastructure rolling out in cities across the U.S., how is bike infrastructure evaluated by both cyclists and experts? Enter the popular and widely used "Level of Traffic Stress" (LTS), but how does this method measure up against popular bike review apps like Ride Report? MTI researchers discussed the validity of LTS when compared to results from Ride Report and their findings from "[Evaluating Alternative Measures of Bicycling Level of Traffic Stress Using Crowdsourced Route Satisfaction Data.](#)"

### Bachrodt Elementary Transit Career Exploration

December 3, 2019 • San José, CA: MTI visited Bachrodt Elementary to discuss careers in transportation, train and rail safety, and a hands-on activity to introduce 2<sup>nd</sup> graders to bridge building.

### Transportation Supply Chain Workshop

January 9, 2020 • San José, CA: MTI researchers convened a workshop on "Surface Transportation Supply Chain Security," bringing together subject matter experts from academia, government and the private sector. Areas of focus included risk estimation, geopolitical

concerns, challenges of cargo security/ port management, and cybersecurity threat. A blueprint for future research in surface transportation supply chain security was delivered.

### **MTI Research Snaps Presents: Texting While Driving, Is Hands-free Really Safer?**

January 30, 2020 • [Online](#): Hands-free texting is a popular way around a hefty fine in 48 states and often viewed as safe behind the wheel. However, MTI research found that while participants perceived an increased level of safety while using hands-free interfaces, response times and drift did not significantly differ from those manually texting. In conversation with Dr. Francesca Favaro, the webinar discussed how this seemingly convenient solution to texting and driving bans might do little to limit distracted driving.

### **Sciencepalooza!2020 (ESUHSD science fair)**

February 1, 2020 • San José, CA: MTI proudly participated in Sciencepalooza2020! a science fair for all East Side Union High School (ESUHSD) students. As part of the institute's contribution, MTI awarded one project the MTI Innovative Transportation Project Award.

### **Seniors' Agenda Network Summit**

February 6, 2020 • San José, CA: MTI partnered with the Seniors' Agenda Network Summit to bring together nearly 200 professional, aging advocates, and elected officials to actively engage in meaningful learning to strengthen our community for older adults. Age-friendly efforts were highlighted, and new resources were shared. MTI research associates, partners, and friends, including keynote speaker Dr. Sandra Rosenbloom and VTA's Nuria Fernandez, participated.

### **Leland Tech Talks**

February 13, 2020 • San José, CA: Put together by one of our Mineta Summer Transportation Institute alumnae and her Robotics class/ team, MTI partnered with Leland High School for a career talk on STEM-related disciplines.

### **Understanding How Women Travel**

February 19, 2020 • San José, CA: MTI proudly sponsored this event in collaboration with San Jose State University's Urban and Regional Planning Department, SPUR, and Fehr and Peers. Presenters discussed women's mobility in LA county, documented core social justice principles and laid the foundation for bridging the gender equity gap for our current and future female riders.

### **Bachrodt Elementary Transportation and University Day**

March 5, 2020 • San José, CA: MTI hosted Bachrodt Elementary's second grade class at SJSU for a day of transit safety activities and university exploration. The students traveled to SJSU using public transit, where they received a tour of the university campus, Spartan Recreation and Aquatics Center, and the library. In between tours the students partook in a hand-on, STEM activity that taught them the principles of the scientific process.





### **Navajo Tech Maker's Fair**

March 12-13, 2020 • Crownpoint, NM: MTI partner Navajo Tech University hosted this year's fair, which tasked regional middle and high school students with designing a 3D printed product and developing a business model.

### **MTI Research Snaps Presents: Sexual Harassment on Public Transit: The University Student Experience**

March 19, 2020 • [Online](#): Sexual harassment is, sadly, a routine experience for transit users. MTI research explores SJSU students' experiences and perceptions related to sexual harassment and assault when using public transit. The report, [Crime and Harassment on Public Transportation: A Survey of SJSU Students Set in International Context](#), found that twice as many women as men reported verbal and non-verbal harassment, but that both genders indicate harassment as a deterrent to using public transit. Fully 63% of SJSU students reported some form of harassment during transit journeys. The SJSU experience was then compared to findings from a global study surveying college student in 18 cities across six continents. These and other findings, as well as the researchers' recommendations, were discussed in the webinar.

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

### **Pathways to Climate Smart Careers**

March 7, 2020 • San José, CA: MTI, in partnership with the City of San Jose, planned a free high school career fair featuring trade schools, businesses, colleges, and universities focused on addressing climate change.

### **MAAS-A-CON**

March 11-12, 2020 • San Francisco, CA: MTI, in partnership with Mobility as a Service (MaaS), planned a conference focused on a shift away from personally owned modes of transportation and towards mobility provided as a shared service.

### **MTI Visiting Scholar Series presents Selika Talbott, J.D.**

March 13, 2020 • Washington, DC: Selika Talbott is currently a Professorial Lecturer at American University researching and speaking in the areas of Policy and Regulation concerning Vehicle Automation. She most recently was the Director of Executive Operations and Senior Advisor to the Administrator of the Federal Motor Carrier Safety Administration (FMCSA). Ms. Talbott planned to present at Howard University.

### **SCC Women's Leadership and Policy Summit**

March 13, 2020 • San José, CA: MTI, in partnership with Santa Clara County, planned a leadership and policy summit to discuss "What's Next?" with women from diverse backgrounds. This half-day conference included panels on the Relationship between Women and Homelessness, Climate Action and Environmental Policy, and Confronting Women's Workplace Challenges.

## 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 \$32,000 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: In-kind support (consultation on K-12 workforce development, design files and fabrication facilities)
  - Project: 2020 Formula SAE Design Competition (Navajo Tech)
2. Organization Name and Location: **Allied Telesis** (San Jose, CA)
  - Partner's Contribution to the Project: In-kind support (meeting space/host and speakers)
  - Project/Program: Transportation Supply Chain Workshop and A Look Back, a Look Forward: Lessons Applied 30 Years After Loma Prieta
3. Organization Name and Location: **American Public Transportation Association** (APTA-Washington, DC)
  - Partner's Contribution to the Project: In-kind support (meeting space/host and program sponsor)
  - Project/Program: MTI/MCTM Board of Trustees meeting
4. Organization Name and Location: **California Department of Transportation** (Caltrans-Sacramento, CA and several district offices)
  - Partner's Contribution to the Project: In-kind support (live-streaming broadcast network, facilities for MSTM classes)
  - Project: MTI Masters of Science in Transportation Management
5. Organization Name and Location: **Capital Area MPO** (Raleigh, NC)
  - Partner's Contribution to the Project: In-kind support
  - Project: 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 (hereafter referred to as Projects 1944 and 1946)

6. Organization Name and Location: **Charlotte Regional Transportation Planning Organization** (Charlotte, NC)
  - Partner's Contribution to the Project: In-kind support
  - Projects: 1944 and 1946
7. Organization Name and Location: **City of Concord** (Concord, NC)
  - Partner's Contribution to the Project: In-kind support
  - Projects: 1944 and 1946
8. Organization Name and Location: **City of San Jose Department of Clean Energy** (San Jose, CA)
  - Partner's Contribution to the Project: In-kind support providing location/ host site and resource fair needs
  - Project: Pathways to Climate Smart Careers
9. 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)
  - Project: SJSU and MTI Mentorship Program
10. Organization Name and Location: **County of Santa Clara** (Santa Clara, CA)
  - Partner's Contribution to the Project: In-kind support providing logistics, speakers, giveaways, and meals
  - Project: Women's Leadership and Policy Summit 2020 and Seniors' Agenda Networking Summit
11. Organization Name and Location: **DC Metropolitan Police Department** (Washington, DC)
  - Partner's Contribution to the Project: In-kind support (access to accident/crash reports)
  - Project: Predicting Travel Times of Bus Transit in Washington DC using Artificial Neural Network (ANN)
12. Organization Name and Location: **District Department of Transportation (DDOT)**: Washington, DC)
  - Partner's Contribution to the Project: In-kind support (access to signal timing data)
  - Project: Predicting Travel Times of Bus Transit in Washington DC using Artificial Neural Network (ANN)
13. Organization Name and Location: **East Side Union High School District** (San Jose, CA)
  - Partner's Contribution to the Project: In-kind support providing material distribution, event location and program
  - Project: Sciencepalooza2020!

14. Organization Name and Location: **Federal Highway Administration** (Washington, DC)
  - Partner's Contribution to the Project: In-kind support (access to data)
  - Project: Predicting Travel Times of Bus Transit in Washington DC using Artificial Neural Network (ANN)
15. Organization Name and Location: **Federal Motor Carrier Administration** (Washington, DC)
  - Partner's Contribution to the Project: In-kind support (access to data)
  - Project: Predicting Travel Times of Bus Transit in Washington DC using Artificial Neural Network (ANN)
16. Organization Name and Location: **Fehr and Peers** (San Jose, CA)
  - Partner's Contribution to the Project: In-kind support providing speakers/ presenters and graphics creation
  - Project: Bachrodt Transportation and University Day and Understanding How Women Travel
17. Organization Name and Location: **French Broad River MPO** (Asheville, NC)
  - Partner's Contribution to the Project: In-kind support
  - Projects: 1944 and 1946
18. Organization Name and Location: **Los Angeles County Metropolitan Transit Authority** (Los Angeles, CA)
  - Partner's Contribution to the Project: In-kind support providing report, speakers/ presenters
  - Project: Understanding How Women Travel
19. Organization Name and Location: **North Carolina Department of Transportation** (NCDOT: Raleigh, NC)
  - Partner's Contribution to the Project: In-kind support (data)
  - Projects: 1944 and 1946
20. 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
21. Organization Name and Location: **Podcar City** (San Jose, CA)
  - Partner's Contribution to the Project: In-kind support providing speakers/ presenters
  - Program: Podcar City Conference
22. Organization Name and Location: **San Jose Unified School District- Leland High School** (San Jose, CA)

- Partner's Contribution to the Project: In-kind support providing facilities for Tech Talk
  - Program: Leland Tech Talks
23. Organization Name and Location: **Silicon Valley Bike Coalition** (San Jose, CA)
- Partner's Contribution to the Project: In-kind support providing online and social media promotion of MTI events
  - Program: MTI Research Snaps presents From White Lines to Green Lanes...
24. Organization Name and Location: **SPUR** (San Jose, CA)
- Partner's Contribution to the Project: In-kind support providing promotion of event activities
  - Project: Understanding How Women Travel
25. Organization Name and Location: **Union Pacific Railroad** (Milpitas, CA)
- Partner's Contribution to the Project: Financial support providing materials and lunch for elementary workforce development activities
  - Program: Bachrodt Transportation and University Day and Bachrodt Transit Career Exploration
26. Organization Name and Location: **United States Geological Survey** (San Jose, CA)
- Partner's Contribution to the Project: In-kind support providing speaker/presenter
  - Project: A Look Back, a Look Forward: Lessons Applied 30 Years After Loma Prieta
27. Organization Name and Location: **Valley Transportation Authority (VTA)** (San Jose, CA)
- Partner's Contribution to the Project: In-kind support providing facilities tour and panel of speakers on career development
  - Program: Bachrodt Transportation and University Day
28. 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

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

MTI collaborates with a wide range of departments/programs on campus at SJSU and is currently working on an opportunity with the College of the Humanities and Arts via a Transportation Photography Contest. Additionally, several organizations have participated as experts in MCTM summits, conferences and other 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.
      - 7 reports with research briefs published during this period of performance
      - 10 reports with research briefs published during the prior period of performance
      - 17 completed research reports (*exceeded annual goal*)
  - Number of research presentations at professional meetings and conferences annually.
    - Target goal: 35 presentations annually.
      - 49 presentations were given in this period of performance
      - 44 presentations were given in the prior period of performance
      - 93 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 5,242 times (approx. 874 monthly).
      - During the period of performance, research reports were downloaded from SJSU ScholarWorks archive a total of 5,850 times (approx. 975 monthly).
      - Total of 1,849 report downloads monthly (*exceeded monthly goal*)

#### Published Research Reports

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

1. Arhin, S. (2019, October). [Predicting Acceptable Wait Times for Patrons at Transit Bus Stops by Time of Day](#).
2. Shaheen, S., Cohen, A, Doud, M., and Davis, R. (2019, October). [A Framework for Integrating Transportation Into Smart Cities](#).
3. Ferrell, C. (2019, December). [The Potential for Using Loyalty Rewards and Incentives Programs to Encourage Transit Ridership and Regional Transportation and Land Use Integration](#).
4. Favaro, F. (2020, January). [Impact of Smart Phones' Interaction Modality on Driving Performance for Conventional and Autonomous Vehicles](#)

5. Goodrich, D., and Edwards, F. (2020, January). [Transportation, Terrorism and Crime: Deterrence, Disruption and Resilience](#)
6. Rodier, C. (2020, February). [The Potential for Autonomous Vehicle Technologies to Address Barriers to Driving for Individuals with Autism](#)
7. Agrawal, A.W., Loukaitou-Sideris, A., Tortora, C. and Hu, Y. (2020, March). [Crime and Harassment on Public Transportation: A Survey of SJSU Students Set in International Context.](#)

### Publications, Conference Papers, and Presentations

During this period of performance, 49 academic and professional presentations/briefing featured MCTM-funded research. (Full citations for all presentations available upon request, a select example appears below).

Academic Presentations		
Presentation Title	Audience/Conference	Location
* Pavement Preservation -Cape Seal and Life Cycle Cost Analysis	51st Annual Maintenance Superintendent Association Conference	Sacramento, CA
Smart Mobility and Data Driven Design: Synthesizing and Visualizing Travel Time Data to Unravel Contemporary Transportation Problems	Workshop. Technology for Good: Can Smart City Tech & A.I. Transform Charlotte?	Charlotte, NC
Women in Motion (moderated panel)	Making Connections, Transportation Learning Center	Philadelphia, PA
The Role of Betweenness Centrality Measures in Long-Range Bicycle Planning	Association of Collegiate Schools of Planning Annual Conference	Greenville, SC
Integrated Climate Action: Harmonizing Climate Change Mitigation and Adaptation in Transportation and Land-Use Planning in California Cities	Association of Collegiate Schools of Planning Annual Conference	Greenville, SC
Potential for Value Capture to Fund Public Transportation: Evidence from Fremont, CA Warm Springs BART Station's Impact on the Value of Neighboring Residential Properties	Association of Collegiate Schools of Planning Annual Conference	Greenville, SC
Smart Growth Calculator	San Diego Politifest Conference	San Diego, CA
AVs and the Environment (panel discussion)	Autonomous Vehicles and the City 2019	San Francisco, CA
Transportation Funding in an Era of Electric Vehicle Deployment (experts roundtable discussion)	National Governor's Association	Washington, DC
Crime and Harassment on Public Transportation: A Survey of San José State University Students, Set in International Context	2019 Annual Meeting of the American Society of Criminology	San Francisco, CA
Frameworks and Tools for the New Mobility Paradigm	American Society of Landscape Architects Annual Conference	San Diego, CA
The Future of Transportation Funding in California	California Road Charge Technical Advisory Committee	Sacramento, CA

**Truck Passenger Car Equivalent Value from a Travel Time Perspective	5th Conference of Transportation Research Group of India (CTRG)	Bhopal, India
Travel Time and Reliability Thresholds for Freeway Links from Planning Perspective	TRB Annual Meeting 2020	Washington, DC
Comparing Methods and Data Sources for Classifying Bicycle “Level of Traffic Stress:” How Well Do Their Outcomes Agree?	TRB Annual Meeting 2020	Washington, DC
Before-After Analysis of Freeway Corridor Efficiency following Adaptive Ramp Metering Deployment: An Empirical Bayes Approach	TRB Annual Meeting 2020	Washington, DC
The Impact of ZEV Adoption on California Transportation Revenue	TRB Annual Meeting 2020	Washington, DC
Transit and Homelessness: Addressing the Homelessness Crisis	TRB Annual Meeting 2020	Washington, DC
Buying Traffic Decongestion by Paying Drivers to Become Passengers: Methodology and Data Sources	TRB Annual Meeting 2020	Washington, DC
Transit and Homelessness: Addressing the Homelessness Crisis	TRB Annual Meeting 2020	Washington, DC
Characteristics and Circumstances of Injuries Related to the Use of Scooters and Other “Personal Transportation Devices” as Indicated by US National Emergency Room Data	TRB Annual Meeting 2020	Washington, DC
Insights, Inclusions, and Impact: Highlights from the 2019 Conference on Women's Issues in Transportation	TRB Annual Meeting 2020	Washington, DC
Investigating Critical Factors for Locations of Future Intercity Passenger Rail Maintenance	TRB Annual Meeting 2020	Washington, DC
Assessing the Effect of Rainfall and Visibility Conditions on Road Traffic Travel Time Reliability	TRB Annual Meeting 2020	Washington, DC
Building a National Transportation Data Preservation Network	TRB Annual Meeting 2020	Washington, DC
Sensitivity Analysis On Semi-Circular Bending Test Using The Plackett-Burman Matrix	TRB Annual Meeting 2020	Washington, DC
Congestion Index: A New Performance Measure to Characterize Congestion and Level-of-Service on Freeways	TRB Annual Meeting 2020	Washington, DC
Predicting STOP-Sign Compliance at All-Way STOP Intersections in Close Proximity to Signalized Intersections	TRB Annual Meeting 2020	Washington, DC
What Do Americans Think about Federal Tax Options to Support Transportation? Results from Year Ten of a National Survey	TRB Annual Meeting 2020	Washington, DC
Aging and Transportation	Roundtable Discussion of the Master Plan on Aging	Campbell, CA
* Occurred during the previous reporting period, but had not been reported.		
** Federal funds not used to support international travel.		



## Published Conference Proceedings

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

1. Davtyan K., Favaro F. (2020) Effect of Phone Interface Modality on Drivers' Task Load Index in Conventional and Semi-Automated Vehicles. In: Ahram T., Karwowski W., Vergnano A., Leali F., Taiar R. (eds) *Intelligent Human Systems Integration 2020. IHSI 2020. Advances in Intelligent Systems and Computing*, vol 1131. Springer, Cham.
2. Rizvi S., Favaro F., Nader N. (2020) Driver's Situational Awareness and Impact of Phone Interface Modality in Conventional and Semi-autonomous Vehicles. In: Ahram T., Karwowski W., Vergnano A., Leali F., Taiar R. (eds) *Intelligent Human Systems Integration 2020. IHSI 2020. Advances in Intelligent Systems and Computing*, vol 1131. Springer, Cham.
3. Eurich S.O., Agarwal S., Favaro F. (2020) Evaluating the Impact of Phone Interface Modality on Response Times to Stimuli in Conventional and Semi-automated Vehicles. In: Ahram T., Karwowski W., Vergnano A., Leali F., Taiar R. (eds) *Intelligent Human Systems Integration 2020. IHSI 2020. Advances in Intelligent Systems and Computing*, vol 1131. Springer, Cham.
4. Pulugurtha, S. S. and R. N. Jain. (2019). Truck Passenger Car Equivalent Value from a Travel Time Perspective. *5th Conference of Transportation Research Group of India (CTRG)*, Bhopal, India, December 18-21.

## Journal Publications

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

1. Arhin, S., Gatiba, A. , Anderson, M. , Ribbisso, M. and Manandhar, B. (2019) Patron Survey of Acceptable Wait Times at Transit Bus Stops in the District of Columbia. *Open Journal of Civil Engineering*, **9**, 268-280. doi: 10.4236/ojce.2019.94019
2. Mathur, S. (2020). Impact of Heavy-rail-based Rapid Transit on House Prices: Evidence from the Fremont, CA, Warm Springs BART Extension Project. *Journal of Planning Education and Research*. <https://doi.org/10.1177/0739456X19898737>
3. Ferrell, C., J. Eells, J. Kott, R. Lee, F. Arellano, and R. Hosseinzade. "From Complete Streets to Complete, Green, and Sustainable Streets: A Review of the Green Streets Literature," *World Transport Policy and Practice*, Volume 26.1 January 2020, pp. 35-46.
4. Asha Weinstein Agrawal, Anastasia Loukaitou-Sideris, Cristina Tortora, and Yajing Hu (2020). "Crime and Harassment on Public Transportation: A Survey of SJSU Students Set in International Context". *Journal of Planning Literature* 1-14. <https://doi.org/10.1177/0885412220911129>.
5. Mane, A. S. and S. S. Pulugurtha. (2020). Influence of Proximal Land Use and Network Characteristics on Link Travel Time. *Journal of Urban Planning and Development*, (in press).

6. Mathew, S. and S. S. Pulugurtha. (2020). Assessing the Effect of Light Rail Transit System on Road Traffic Travel Time Reliability. *Journal of Public Transport*, (in press).
7. Kukkapalli, V. M. and S. S. Pulugurtha. (2019). Modeling the Effect of a Freeway Road Construction Project on Link-Level Travel Times. *Journal of Traffic and Transportation Engineering (English Edition)*, (in press).

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

MCTM documents six publications in this category during this period of performance:

1. Jenkins, B. and Butterworth, B. (2019, November). [“Smashing Into Crowds” -- An Analysis of Vehicle Ramming Attacks](#). (MTI Security Perspective).
2. Badawy, M. (2019, December). [Design of a Feedback-Controlled Wireless Converter for Electric Vehicle Wireless Charging Applications](#). (MTI Emerging Leader Seed Grant Final Report).
3. Edwards, F.L. “Cultural Competency and Emergency Management: Flooding in Coastalville” in Knox, C. and Hauptmann, B. (eds.), *Case Studies in Emergency Management*. Routledge, 2020.
4. King, Hannah, Wachs, Martin, Agrawal, W. Asha, (2020). Chapter 4: The Impact of ZEV Adoption on California Transportation Revenue. In Daniel J.B. Mitchell eds., *2020 California Policy Options*. UCLA Luskin School of Public Affairs.
5. Jenkins, Brian Michael (in press). "Targeting Transit: The Terrorist Threat and the Challenges to Security". *International Encyclopedia of Transportation* (Editor-in-Chief: Roger Vickerman) published by Elsevier.
6. Jenkins, Brian Michael in press). "The Terrorist Threat to Transportation Targets". In *Handbook of Terrorism Prevention and Preparedness* published by the International Centre for Counter-Terrorism.

### **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 from a survey of San Jose State University students](#) and their experiences related to sexual harassment on transit is publicly available through SJSU ScholarWorks archive.
- [Dataset on wait times at transit bus stops](#) 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 23 events reaching 1,622 during this period of performance
      - MCTM delivered 19 events reaching 3,813 during this previous period of performance
      - *Exceeded annual goal: 42 events reaching 5,435 participants*
  - Number of organizations participating in consortium activities
    - Target goal: 10 annually
      - MCTM engaged 28 organizations during this period of performance (see section 2 for a complete listing)
      - MCTM engaged 25 organizations during the previous period of performance
      - *Exceeded annual goal: 44 unique organizations engaged (some duplicates exist in each period noted)*

## Impacts

- Performance Measures for Research Impacts
  - Number of instances of research influencing policy or practice
    - Target goal: 3 annually
    - Example: Protection Engineering Consultants, who provide security training courses for the Federal Highway Administration, contacted MTI to support the development of new content. MTI's research on terrorist attacks against surface transportation have been incorporated into this training.
    - Three examples 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
      - 79 during this period of performance
      - 303 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
    - 1,294 students during this period of performance
    - 305 students during the previous period of performance
  - Target goal for post-secondary: 75 college students and/or working professionals annually
    - 78 professionals
- 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%
    - Goal added in October 2019, Progress to be reported in next reporting cycle

### **What is the Impact on the Effectiveness of the Transportation System?**

- The Northern California Regional Intelligence Center used MTI's database on terrorist attacks against surface transportation to publish a report in the National Counter Terrorism Center's *Alliance* journal. They noted that MTI's data led to a "more compelling intelligence product."
- MTI research on sexual harassment on transit was used as part of an internal inter-divisional meeting held by the Valley Transportation Authority. The agency used the research to "bring attention to the issue at VTA and see what we can do to address it" according to one of their senior transportation planners.
- MTI's research on [open streets](#) was highlighted in a [video presentation by SPUR](#) recognizing the impact and effectiveness of these kinds of events.

### **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?**

- Frances Edwards, PhD, was honored during SJSU's Annual Author & Artist Awards in November 2019 for publishing the book *Housing Recovery after Disasters*. She and Dan Goodrich also contracted with Taylor & Francis to publish a second edition of their transportation security book, which is based on MTI funded research.
- Hilary Nixon, PhD, at the invitation of the Managing Editor of *Transportation Research Record*, served as a panelist on "How to Promote Your Research." Dr. Nixon documented best practices for disseminating UTC research results.

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

- MCTM research projects provide opportunities for undergraduate and graduate students to learn research methods including data collection and data management skills,

data analysis, and report writing skills. To that end, during this period of performance, more than 75 students received financial support through MTI-funded research (federal funds and leveraged federal funding). This support included tuition, stipends, and paid hourly wages.

- Five students from Navajo Technical University received full tuition for their Commercial Driver's License (CDL) training. *(All five successfully passed the New Mexico Commercial Driver's License exam and road test.)*
- Florida's Secretary of Transportation requested a briefing on SJSU's Master of Science in Transportation Management program. *(It was recommended to the Secretary as an innovative model.)*
- An "at-risk" youth who participated in [MTI's Summer Transportation Institute](#) program for high school students continues to demonstrate why this program is so important. This motivated and dedicated student graduated from high school early and joined the National Guard where he is training as an aeronautics mechanic. At the same time, he is taking classes at San Jose City College with a plan to transfer to a four-year institution and major in aerospace engineering.
- More than 300 high school students participated in Navajo Technical University's Annual Open House and SkillsFest in Crownpoint, NM. The NTU transportation workforce team provided information on dual credit programs and career opportunities in transportation.
- MTI continues to partner with the [City and County Pavement Improvement Center](#) to provide training and research on innovative solutions to improve pavement materials and maintenance.

### **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 California Transportation Commission ([CTC](#)) requested a briefing on transportation equity research.
- Asha W. Agrawal, PhD, participated in a National Governors Association roundtable discussion on "Transportation Funding in an Era of Electric Vehicle Deployment." This invitation came directly as a result of Dr. Agrawal's recent research on the [impact of zero emission vehicles on transportation revenues](#) funded by MTI.

- MCTM partners met at Howard University in Washington, DC in January to review Consortium activities and discuss future research, technology transfer and workforce development activities. This face-to-face meeting, which included students from Howard University, provided in-depth knowledge on each partner's programs and how the Consortium can continue to work effectively together to impact transportation.



## 7. 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