



Mineta
Consortium
for Transportation
Mobility

Final Progress Report Mineta Consortium for Transportation Mobility





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

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Introduction

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

1. Accomplishments

In the sections that follow, we focus on the overall accomplishments for MCTM since November 30, 2016. MCTM's in-depth research, performed to the highest academic standards, advanced the body of knowledge in transportation innovation, offered immediate and practical value for transportation officials and practitioners, and provided surface transportation solutions that keep communities moving.

MCTM's certified Research and Consulting Associates provided expertise in a wide range of disciplines, including business, design, economics, engineering, environmental sciences/studies, political science, and urban planning, among others. MCTM's outstanding record of national and international leadership and success in advancing research and delivering high-quality education and workforce development programs was evident throughout the Consortium's tenure. Consortium partners demonstrated national leadership in advancing transportation policy and generating solutions, as evidenced in the summary that follows.

Emerging Leaders Seed Grant Program

The Emerging Leader Seed Grant Program was designed to engage and develop leadership capacity among junior faculty at SJSU. Faculty in their first five years of an academic position at SJSU who were interested in exploring transportation research problems aligned with MCTM's research goals and objectives were eligible to participate. Over the course of this grant, MCTM awarded eighteen seed grants to faculty from six of the eight academic Colleges at SJSU.

Report Title	PI(s)	Department
Analytical Model for Traffic Congestion and Accident Analysis	Hongrui Liu	Industrial and Systems Engineering
Attention-based Data Analytical Models for Traffic Flow Prediction	Yupeng Wei	Industrial and Systems Engineering
Design of a Feedback-Controlled Wireless Converter for Electric Vehicle Wireless Charging Applications	Mohamed Badawy	Electrical Engineering
Domestic Migrations, Train Travel in the United States 2012-2022	McNair Evans	Art and Art History
Exploring the Effects of Individual Differences on Tactile Display Perception in Automated Vehicles	Gaojian Huang	Industrial and Systems Engineering

Report Title	PI(s)	Department
Exploring the Use of Public Transportation Among Older Adults During the COVID-19 Pandemic: A National Survey	Egbe-Etu Etu, Gaojian Huang	Business Analytics; Industrial and Systems Engineering
Freeways and Farms: Veggielution & Taylor Street Urban Farms Study	Joshua Baur	Health Science and Recreation
Improving Demand Modeling in California Rail Transit System	Rui Liu	Economics
Misconduct on Public Transit: An Exploratory Analysis Using the Comments Formerly Known as Tweets	Egbe-Etu Etu	Business Analytics
Negotiating Transportation Insecurity: Local Responses and Coping Strategies in San Jose, CA	Melissa Beresford	Anthropology
No Ticket to Ride: A Systematic Definition of Transit Insecurity	Dan Nathan-Roberts	Industrial and Systems Engineering
Older Adults' Perceptions Regarding Transportation Services in San Jose, CA: Access, Barriers, and Innovations	Deborah Bolding	Occupational Therapy
Review of the Literature and Curricula in Smart Supply Chain & Transportation	Seung Jun Lee, Tianqin Shi	Global Innovation and Leadership
The San José City (SJC) bikeway equity web map	Ahoura Zandiatashbar	Urban & Regional Planning
Towards a Smart World: Hazard Levels for Monitoring of Autonomous Vehicles' Swarms	Francesca Favaro	Aviation & Technology
Twilytics: A Social Perception Analysis of Public Transit Systems during the COVID-19 Pandemic	Egbe-Etu Etu	Business Analytics
Understanding the Role of Transportation in Human Trafficking in California	Kezban Yagci Sokat	Business Analytics
Using Thermal Remote Sensing to Quantify Impact of Traffic on Urban Heat Islands during COVID	Bo Yang	Urban & Regional Planning

Research

Since inception, MCTM research activity led to 130 publications including 42 MTI-led research studies, 20 Caltrans funded task orders, 21 MCTM partner-led research studies, 29 MTI-led “perspectives,” and 18 emerging leader seed grants. Access to all MCTM final publications are available on the [Consortium website](#).

Project Type	# of Publications
MTI-led research studies	42
Caltrans (match-funding) research task orders	20

Project Type	# of Publications
MCTM partner-led (peer reviewed)	21
MTI perspectives	29
Emerging leader seed grants	18

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 worked tirelessly every day to leverage that federal investment to dramatically increase its return.

Since MCTM’s inception in 2016, **MTI executed contracts on an additional \$30 million** in funding from federal, state, regional, and local sources. This funding supports faculty and students and expands on the expertise and capacity within the institution.

Dissemination of Results

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

Consortium Website

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

Media Coverage

There were **5,134 MTI stories featured in print, radio, and television media**, since inception. Links to many of these articles are featured on the [Consortium website](#) and below is a snapshot of notable activities:

Article	Media Outlet
Why a seemingly unplanned terrorist attack at National Harbor is the hardest kind to prevent (April 8, 2019)	USA Today
Gas tax study carries timely lesson for lawmakers (January 15, 2020)	Politico
California Tests Mileage Fee Plan as Answer to Dwindling Gas Tax (December 3, 2020)	Bloomberg Law
Researchers look to social media for more information involving motor vehicle traffic patterns (June 18, 2021)	Washington Examiner
California’s Ambitious High-Speed Rail at a Crossroads (March 13, 2022)	The New York Times
The Bay Area has twice as many parking spots as people—and there’s a hidden toll (March 3, 2022)	San Francisco Examiner

Article	Media Outlet
How cargo-bikes can reduce carbon emissions in Bay Area cities (June 27, 2022)	KCBS Radio
Why gas is actually cheap in America (August 13, 2022)	The Hustle
California air regulators vote to ban the sale of new gas-powered cars by 2035 (August 25, 2022)	CNN
California's Electric Revolution (October 17, 2022)	Fox2 KTVU
The Intersection Of Data Security And Smart Public Transit Systems (March 21, 2023)	Forbes
Lyft service connects women and nonbinary drivers and riders (September 12, 2023)	Fox2 KTVU
As fuel taxes plummet, states weigh charging by the mile instead of the tank (June 24, 2023)	Associated Press
Air taxi service is coming. But cities aren't ready for it, experts say. (October 3, 2023)	Business Journals
Safe and Efficient Transportation: Pioneering The Future of Silicon Valley (November 1, 2023)	Non-Profit Stories: Inspiring Tales from Silicon Valley
DIA head selected for transportation fellowship program (March 28, 2024)	Business Journals

Continuing Education: Opportunities for Growth and Engagement

MCTM provided thought leadership and contributed 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 helped create a connected world. To that end, MCTM sponsored/co-sponsored **220 technology transfer and workforce development activities that reached 26,759 attendees** since its inception; a selection follows:

Garrett Morgan Sustainable Transportation Competition April 12, 2018 • California & Washington, D.C.: MTI sponsored the 18th Annual Garrett Morgan Sustainable Transportation Competition to encourage young people to consider careers in transportation. Students from middle schools in California and the Washington, D.C. area participated in the event. Students worked with transportation professionals in the classroom to learn about sustainable transportation through a wide range of STEM-focused activities. In 2018, the students were addressed by **Secretary (ret.) Norman Y. Mineta, Deputy Secretary of Transportation Jeffrey A. Rosen, California Department of Transportation’s Deputy Director of Administration, Cris Rojas**, among other transportation leaders.



“An American Story: Norman Mineta and His Legacy” May 10, 2018 • San Francisco, CA: Former San Jose mayor, Democratic congressperson, cabinet secretary, founder of the Mineta Transport Institute (MTI), veteran, and World War II incarceration camp survivor, Norman Mineta’s life premiered on the big screen in Dianne Fukami and Debra Nakatomi’s [“An American Story: Norman Mineta and His Legacy.”](#) It was selected as the Opening Night film as part of the Center for Asian American Media’s (CAAM) film festival.

Mobility Leaders Series: A Conversation with Nuria Fernandez December 3, 2018 • San José, CA: MTI brought the then **CEO and GM of the Valley Transportation Authority, Ms. Nuria Fernandez**, to SJSU to discuss her diverse career experiences with an invitation-only group of 15 San Jose State students from a variety of disciplines including engineering, transportation management, urban planning, business, and Mexican American Studies. Topics discussed included: managing opportunities, the future of public transportation and micro-mobility integration, immigration, women in the workforce, and climbing the corporate ladder. Ms. Fernandez was later confirmed as FTA Administrator in the Biden-Harris Administration.



Garrett Morgan Sustainable Transportation Competition 2019 May 17, 2019 • Nationwide: MTI held its annual sustainable transportation competition for middle school students. Eight schools participated in a nationwide video-conference where teams from California, Maryland, and New Mexico gathered to present the results of their sustainable transportation project. A formal presentation and welcome was provided by **Diana Furchtgott-Roth, the Deputy Assistant Secretary for Research and Technology (OST-R)**. A complete [video](#) of the competition is available and the California Department of Transportation (Caltrans) created a **News Flash commercial** highlighting the program. Student innovations included a drone that transports commuters and an app that makes it easy for parents to take carpooling to the next level.

The Intersection between Transportation and Housing: Building Blocks to the Future June 21, 2019 • San Francisco, CA: In partnership with the Commonwealth Club, MTI held its annual transportation summit. Experts discussed how agency-owned land in and around transportation hubs could be incentivized to create transit-oriented development projects, which place high-density housing above or adjacent to transportation. The event recording was [broadcast nationwide](#) on more than 230 NPR stations.

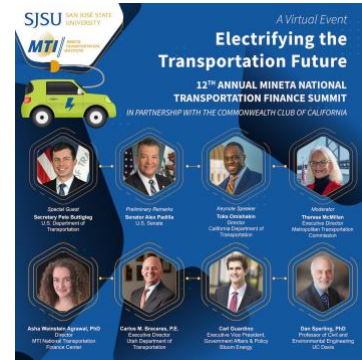


Surveying Silicon Valley Cyclists September 24, 2020 • [Online](#): Silicon Valley is committed to California’s goal of reducing vehicle miles traveled (VMT) by 15% in the next three decades. To investigate local support for this initiative, [MTI](#) researchers—in collaboration with [Silicon Valley](#)

[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.

12th Annual Mineta National Policy Summit presents “Electrifying the Transportation Future” June 11, 2021 •

Online: Transportation policymakers face two overlapping, once-in-a-generation opportunities: electrifying the nation’s vehicle fleet and re-establishing a stable source of federal and state revenue for transportation. As states and the Biden administration began a push to rapidly electrify the US fleet for climate reasons, policymakers were under increasing pressure to rethink how states and the federal government fund transportation infrastructure and services. For decades, motor fuel taxes have generated most state and federal funds spent on transportation, even if recently these taxes have been losing their purchasing power. However, a shift to electric vehicles will require a new transportation funding model. The speakers, included **US Secretary of Transportation Pete Buttigieg**, **US Senator Alex Padilla**, and **Caltrans Director Toks Omishakin**, who discussed the challenges and opportunities with such options as mileage fees, carbon taxes, higher vehicle registration fees, or a shift entirely away from user-generated revenue.



13th Annual Mineta National Transportation Policy Summit June 3, 2022 •

Online: The accelerating transition to electric vehicles brings new urgency to discussions on how to replace fuel taxes with other broad-based, reliable sources of transportation revenue. From Wyoming to Delaware to California, more and more state legislatures are considering mileage fees, regions like the San Francisco Bay Area are considering expanded tolling, and New York City is within reach of adopting a congestion pricing proposal. Overlaying these discussions is a persistent call to consider the equity of any new charges on drivers. How will the charges impact low-income drivers? Does payment require access to banking tools that are not universally available? This event explored proposals including fee rates that vary by driver income, vehicle characteristics, or time and place, and equity-centered policies for responding to non-payment of tolls or other fees. **Congressman Peter DeFazio** was featured in a fireside chat with MCTM’s Executive Director and **Polly Trottenberg**, **Deputy Secretary, US Department of Transportation** delivered a keynote address.



International Level Crossing Awareness Day (ILCAD) 2022 June 8-10, 2022 • Denver, CO: MTI was a part of the U.S. Committee hosting [ILCAD 2022](#) in Denver, CO June 8 – 10. This event was

co-organized by [International Union of Railways \(UIC\)](#), [Association of American Railroads \(AAR\)](#), [Federal Railroad Administration \(FRA\)](#) and [Operation Lifesaver Inc. \(OLI\)](#).

Mineta Summer Transportation Institute 2022 July 25-August 5, 2022 • San José, CA: San José State University (SJSU) conducted its seventeenth annual Mineta Summer Transportation Institute (MSTI) during July-August 2022 after pausing the program in 2020 & 2021 due to COVID-19 restrictions. Overall, we are happy to note a **100% satisfaction level with the program among students**. In addition, a survey of participants found that the program helped them better understand the field of transportation and encouraged them to consider a transportation career. Program changes were made to refine and improve upon MSTIs from previous years by combining elements from previous successes and adding new activities. This year, new community partnerships included the California High-Speed Rail Authority, the Port of Oakland, and the US Coast Guard. The MSTI program was covered by several media outlets, including [Mercury News](#), [Mass Transit Magazine](#), [KCBS Radio](#), and [Univision](#).



When Women Lead: Strategies to Advance Equity March 21, 2023 • [Online](#): In partnership with the Conference of Minority Transportation Officials ([COMTO](#)), MTI celebrated Women’s History Month with a conversation with a diverse panel of women transportation leaders representing academia, public and private industries, and the nonprofit sectors as they shared personal stories from their careers and lessons learned as they rose to the top. Moderated by April Rai, CEO of COMTO and a member of the MTI Board of Trustees, this webinar delved into a critical issue faced by the transportation industry: How are we prioritizing women and other traditionally underrepresented voices to build the most inclusive and effective transportation workforce for our future? What can their success stories teach us about the values of empowering women?



(14th Annual Mineta National Transportation Policy Summit) Getting to Zero Deaths on our Roadways. Is the IJA up to the Challenge? June 2, 2023 • [Online](#): The United States faces a public health crisis on its roads. In 2021 alone, almost 43,000 people died in traffic crashes and millions more suffered serious injuries. Secretary Pete Buttigieg called the situation a preventable crisis—one for which we must take responsibility by recognizing that human lives are not a price to pay for modernity. New funding available through the 2021 Infrastructure Investment and Jobs Act (IIJA) provides a significant opportunity to reduce crashes through infrastructure



redesign. The Mineta Transportation Institute and a panel of national experts discussed the role of infrastructure redesign in achieving a national goal of zero traffic fatalities. **Federal Motor Carrier Safety Administrator Robin Hucheson** was featured in a fireside chat with MCTM’s Executive Director and the **Honorable Jennifer Homendy, Chair of the National Transportation Safety Board**, delivered a keynote address.

2. Participants & Collaborating Organizations

What Organizations Have Been Involved as Partners?

MCTM engaged with a wide range of public, non-profit, and private organizations during its tenure. Over the Consortium’s history, **140 unique organizations partnered** on research, education, technology transfer, and workforce development activities. Details of the partnerships are available in the previously submitted semi-annual progress reports. Examples of partners include American Association of State highway and Transportation Officials (AASHTO), American Public Transportation Association (APTA), California Association of Councils of Government (CalCOG), California Department of Transportation (Caltrans), District Department of Transportation (DDOT), Dutch Cycling Embassy, Google, Inc., Institute for Transportation Engineers, International Union of Railways, Navajo Division of Transportation, North Carolina Department of Transportation, Santa Clara Valley Transportation Authority, US High Speed Rail Association, Women’s Transportation Seminar (WTS), Young Professionals in Transportation (YPT), and many more. Partnerships like these are vital for translating academic research into real-world impact. These collaborations bridge the gap between innovation and application by providing resources, expertise, and pathways to scale solutions. Industry partners help ensure research aligns with market needs, while public sector and non-profit involvement facilitates policy integration and social benefit. Through these relationships, MCTM was able to accelerate the adoption of academic findings, driving economic growth, societal progress, and technological advancement.

3. Outputs

The table below documents key MCTM research output performance measures over the life of the Consortium. MCTM met or exceeded all target goals.

Performance Measures for Research Outputs (By Year)	2024	2023	2022	2021	2020	2019	2018
Number of completed research reports, including two-page research briefs (excludes MTI perspectives)	9	21	18	21	23	20	9
<i>Target goal: 12 reports, including research briefs, <u>annually</u></i>							
Number of research presentations at professional meetings and conferences	57	89	98	87	121	108	53
<i>Target goal: 35 presentations <u>annually</u></i>							

Performance Measures for Research Outputs (By Year)	2024	2023	2022	2021	2020	2019	2018
Number of downloads of research reports as tracked through Google Analytics (GA) and ScholarWorks (SW) annually (see Figure 1 below for geographic distribution)	11,113 (GA)	24,680 (GA)	17,841 (GA)	17,939 (GA)	14,248 (GA)	15,380 (GA)	13,597 (GA)
	18,019 (SW)	21,084 (SW)	15,583 (SW)	18,307 (SW)	12,955 (SW)	8,782 (SW)	6,198 (SW)
<i>Target goal: 3,000 downloads annually</i>							

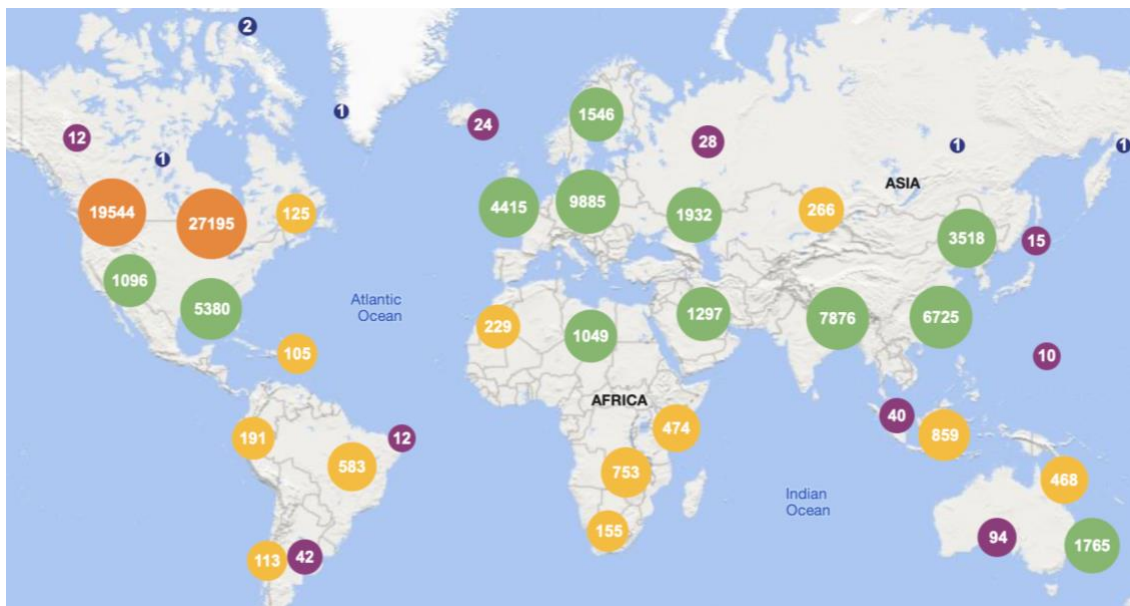


Figure 1 Distribution of MTI Report Readers via ScholarWorks, January 1, 2018-September 30, 2024 [100,928 downloads from 4,902 Institutions in 179 countries]

4. Outcomes

- Performance Measures for Research Outcomes

MCTM established several key performance measures for research outcomes, with a key focus on ensuring that research findings are disseminated broadly and that the research is of value and used by transportation professionals. Since 2018, MCTM organized, sponsored, and/or co-sponsored **101 technology transfer events that reached more than 18,000 participants**. In addition, MCTM partnered with 140 unique organizations, averaging more than 19 unique partners per semi-annual reporting period. MCTM met or exceeded all target goals.

Performance Measures for Research Outcomes (By Year)	2024	2023	2022	2021	2020	2019	2018
Number of Technology transfer events (workshops, seminars, webinars, etc.)	0	15	31	29	29	13	13
<i>Target goal: 12 annually</i>							
Number of technology transfer event participants	0	1,614	6,860	2,668	2,382	2,312	2,565
<i>Target goal: 500 participants annually</i>							

Performance Measures for Research Outcomes (By Semi-Annual Reporting Period)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Number of organizations participating in consortium activities <i>Target goal: 10 during each semi-annual performance reporting period</i>	12	12	20	15	24	26	25	32	20	17	34	33	16	2	2

5. Impacts

- Performance Measures for Research Impacts

Collectively MCTM partners impacted the body of scientific knowledge through the publication of reports, journal articles, conference presentations, technical advising, and other activities. As visually depicted in Figure 1, from January 1, 2018 to September 30, 2024 reports were downloaded 100,928 times from 4,901 institutions in 179 countries from the SJSU ScholarWorks archive and there were 114,798 downloads from the MTI website. This documents the significant global impact of the research. In addition to the table of performance metrics revealing that MCTM met or exceeded all target goals, a few key research highlights worth noting follow:

[National Transportation Finance Center Annual Survey](#): Starting in 2010 and continuing through MCTM’s tenure, MTI funded an annual survey series of U.S. adults that explores their opinions about federal funding of the transportation system. Core questions repeated in every year's survey ask about support for raising the federal gas tax rate or imposing new mileage fees. The surveys also explore how Americans rate the quality of the transportation system, their priorities for improving the system, and their knowledge of how it is funded.

[Planning for Advanced Air Mobility](#): Advanced air mobility (AAM) has the potential to impact communities' access to air mobility, goods delivery, and emergency services in urban, suburban, and rural areas. Though AAM is still in the early days of development, this emerging transportation sector could result in fundamental changes to the built environment. Communities should be prepared to minimize the potential for adverse impacts and maximize the likelihood of sustainable and equitable outcomes. This report presented a snapshot of the current state of the industry and presented planners and policymakers with the foundational knowledge to understand important considerations for AAM development and potential community impacts. It provides information for the public sector to integrate AAM into planning and policymaking at the local and regional levels of government, and it highlights the need for greater awareness about AAM and its potential impacts among communities, which may have little prior experience with aviation planning issues. This research was a unique partnership between MCTM and the American Planning Association.

[Automatic Traffic Monitoring and Management for Pedestrian and Cyclist Safety Using Deep Learning and Artificial Intelligence](#): This project presented an effective end-to-end system based on advanced Artificial Intelligence (AI), machine learning, and computer vision to automatically monitor, detect, track, and count pedestrians and bicyclists. The main objective of this project is to improve the safety of pedestrians and bicyclists, by applying self-sensed and AI-powered systems to monitor and control the flow of pedestrians/bicyclists. The developed system includes algorithms for detecting the pedestrians and bicyclists, as well as algorithms for tracking and counting the pedestrians. Researchers evaluated the developed system on real videos captured by actual traffic cameras in the city of Los Angeles. Despite the low quality of some of the videos, the results demonstrated high accuracy and effectiveness of the developed system in automatically detecting and counting pedestrians and bicyclists. This work was highlighted as a key product of the USDOT UTC program.

[Understanding the Role of Transportation in Human Trafficking in California](#): Human trafficking, a form of modern slavery, is the recruitment, transport, and/or transfer of persons using force, fraud, or coercion to exploit them for acts of labor or sex. According to the International Labor Organization, human trafficking is the fastest growing organized crime with approximately \$150 billion in annual profits and 40.3 million individuals trapped in slave-like conditions. While it is not compulsory to involve transportation for human trafficking, the transportation industry plays a critical role in combating human trafficking as traffickers often rely on the transportation system to recruit, move, or transfer victims. This project examined the complex role of transportation in human trafficking and in empowering survivors in California. This project led to a variety of impactful presentations including to a Los Angeles Human Trafficking Task Force Labor Trafficking Subcommittee Meeting; two in Turkey for the World Day to Fight Human Trafficking; and a keynote speaker role at the Metro Human Trafficking Awareness Lunch and Learn Webinar.

[Is the Transit Industry Prepared for the Cyber Revolution? Policy Recommendations to Enhance Surface Transit Cyber Preparedness](#): Many recommendations from this report were included in a new TSA cyber security directive and Federal Transit Administration plan for addressing cybersecurity. This work led to MTI Research Associate Scott Belcher providing [Congressional testimony](#) in 2021.

Performance Measures for Research Impacts (By Year)	2024	2023	2022	2021	2020
Number of instances of research influencing policy or practice <i>Target goal: 3 annually</i>	-	12	7	8	6
Evidence of impact and exposure based on number of media articles covering MCTM activities <i>Target goal: 50 annually</i>	659	1,383	1,304	399	334

Performance Measures for Research Impacts (By Year)	2024	2023	2022	2021	2020
Evidence of impact on transportation workforce development based on number trained and/or educated individuals (K-12 level) <i>Target goal: 50 K-12 students <u>annually</u></i>	-	128	133	1162	1,063
Evidence of impact on transportation workforce development based on number trained and/or educated individuals (college level/working professionals) <i>Target goal: 75 college students and/or working professionals <u>annually</u></i>	-	1,485	6,727	1,542	1,417
Percent of surveyed participants attending MCTM technology transfer events and training programs reporting that MCTM research and training is useful, effective, and impactful <i>Target goal: 60% with an average survey score of more than 4 out of 5 indicating that the event was useful, effective, and impactful</i>	-	78%	76%	76%	90%

Education and Workforce Development: Impact on the Transportation Profession

MCTM partners offered a wide array of traditional undergraduate and graduate degree and certificate programs that enabled students to learn the skills and knowledge needed to obtain a career in transportation. At SJSU, students in the Master of Science in Transportation Management (MSTM) program regularly win prestigious state and national awards from organizations such as the American Public Transportation Foundation, ITS California, and WTS. Meet some of our recent student award winners [here](#). Each year, MTI supports students with approximately \$50,000 in scholarships to pursue higher education and more than 260 students received scholarships over the Consortium’s tenure.

Students across the Consortium also had an opportunity to become involved in research. To that end, more than 200 students were involved as research assistants on MCTM research projects allowing them to get first-hand experience in the research process and contribute to building scientific knowledge in the field.

MCTM also engaged in workforce development programs to empower children and young adults. Introducing students to transportation concepts is crucial for fostering early interest in STEM fields and cultivating essential career and life skills, including problem-solving, critical thinking, and communication. By engaging these students in the exploration of the history, current state, and issues of our industry, these programs inspired interest in and understanding of transportation infrastructure and its importance in our world. MCTM’s signature K-12 workforce development programs are highlighted below:

Garrett Morgan Sustainable Transportation Competition: The [Garrett Morgan Sustainable Transportation Competition](#) was instituted by former Secretary of Transportation Rodney Slater to encourage young people to consider careers in transportation. MTI has sponsored a competition every year since 2001. This competition is open to middle school classes, clubs, after-school programs, and any other youth-serving organizations. Students compete to win up to \$1,000 for their classroom, club, or program, plus an all-expenses-paid trip to San Jose, California, to be honored at the MTI Awards Banquet. Past winners have proposed solutions to problems related to protecting vulnerable road users like pedestrians, to reducing traffic deaths and injuries, to creating a smarter and more sustainable future, and more. Over the Consortium’s tenure, more than 230 middle school students participated in the Garrett Morgan Competition.

MTI Essay Contest: The [Mineta Transportation Institute Essay Contest](#) invites students in grades 6-12 to propose and explore a solution to a problem centered around a specific theme each year under one or more of the following principles of transportation: sustainability, equity, safety, community, and innovation. This essay contest is a chance for students to propose solutions to real-world issues. No matter their passion—sustainability, equity and diversity, safety, community, or technology—they can write something to be proud of while vying for an opportunity to be published and earn prize money. This contest empowered young people to analyze, research, and propose their own ideas about real issues in their communities while practicing important skills like writing and critical thinking and engaging with and learning more about the transportation industry.

Elementary Poster Contest: The [Mineta Transportation Institute Elementary Poster Contest](#) allows students in grades 1-6 to convey their knowledge of safe, affordable, and sustainable alternative transportation modes to passenger cars through an artistic, visually compelling image. Even the youngest community members can engage in and contribute to discussions of real-world issues that affect them and their families. The workforce development pipeline can begin at the earliest levels of education, inviting students of all ages to get excited about transportation-related futures.

Summer Transportation Institute: The [Mineta Summer Transportation Institute](#) invites Bay Area high school students to learn about transportation careers in a three-week on-campus session at San Jose State University. Regardless of their initial interest in transportation, students earn college credit while getting an inside look at businesses impacting the day-to-day activities of hundreds of thousands of people. A series of comprehensive, fun projects, academic lectures, and eye-opening field trips to local business and transit agencies exposes students to the principles of transportation systems. The program’s curriculum empowers students to embrace new experiences in some of the major transportation-related topics of the moment and see firsthand behind-the-scenes operations of prominent Bay Area transportation sites and agencies such as the Santa Clara Valley Transportation Authority (VTA), California High-Speed Rail Authority (CAHSRA), and San Francisco Municipal Transportation Authority (SFMTA). The program also allows students an introduction to university life and key concepts related to transportation development, construction, business management, technology,

intermodal systems, and environmental impact, which encourages students to pursue college degrees that prepare them for transportation careers. Partnerships with SJSU departments provided opportunities for students to experience different college pathways, such as the Department of Aviation & Gerald Shreve Simulation Lab, Department of Urban Planning, Spartan Racing, SJSU MLK Library & Writing Center, Peer Connections. Since 2017, 127 students have participated in MTI's Summer Transportation Institute.

■ **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

The MTI team will be forever grateful for the opportunity to contribute meaningful solutions to our nation's most pressing problems. We helped create a connected world!