

2022 Mineta Summer Transportation Institute at San José State University

Alverina Eka Weinardy



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Project 2250
September 2022

Alverina Eka Weinardy

Program Administration

Host Site Name and Address:

Mineta Transportation Institute
San José State University
210 N. 4th St., 4th Floor
San José, CA 95112

Project Director:

Hilary Nixon, PhD

Length of Program:

July 25 – August 5, 2022

Type of Program:

Non-residential

Congressional District:

19th Congressional District

Student Demographics

Table 1. Enrollment by Grade Level (rounded to the highest tenth)

Grade	Number of Students	% of total
9th	9	28
10th	11	34
11th	11	34
12th	1	3

Table 2. Recruitment Details

	Number of Students
Number of applications received	42
Number of students selected for program	35
Number of students who completed the program	32*
Number of students who did not pass	2

*One student completed the program but did not take the environmental studies course for credit (not graded)

Table 3. Enrollment by Gender

Gender	Number of Students	% of total
Male	11	52
Female	8	38
Prefer not to say	2	10

Table 4. Enrollment by Race/Ethnicity*

*Note that students were able to select all that applied

Race/Ethnicity	Number of Students	% of total
Asian	12	57
Hispanic/Latinx	5	24
Caucasian/White	5	24
American Indian/Alaskan Native	2	10
African American/Black	0	0
Native Hawaiian/Other Pacific Islander	0	0
Multiple races/Unknown	2	10

Table 5. Academic Background of Students*

*Note that students are able to take multiple science courses in one academic school year

STEM Course Completed	Number of Students	% of total
Algebra	35	100
Biology	10	29
Chemistry	15	43
Physics	11	31
Environmental Science	2	6
Other	3	9

Executive Summary

San José State University (SJSU) conducted its seventeenth annual Mineta Summer Transportation Institute (MSTI) during July-August 2022. MSTI was offered as a 3-week, Monday through Friday, 15-day non-residential program for high school students (9th through 12th grades) on the campus of San José State University, San José, California.

The primary goal of the program was to inform and inspire students to think critically about their futures and their potential for careers in transportation. The program comprised three main components: (1) a college-level course in environmental studies, with an emphasis on transportation; (2) field trips; and (3) guest speakers.

A secondary goal of the program was to inspire the students to attend a college or university after high school. Most of the students in the program are from schools with a high socioeconomically

disadvantaged population, lacking college role models; thus, having a need to reinforce attending college. By meeting on the SJSU campus, the students became not only familiar with the campus but could literally see themselves and their peers attending college.

San José State University is a large, urban university located in the heart of Silicon Valley. MSTI is structured in the style and format of a pre-college internship with an emphasis on civic leadership and public policy, which are anchoring principles of the Mineta Transportation Institute. Thus, a balance is sought between academic and experiential learning designed to motivate high school students to expand their horizons into the field of transportation and to be connected to the University in a meaningful way.

A competitive selection process based on a comprehensive application and essay was used to identify participants. Of the 42 applications received, a screening process was used, including a rubric for scoring the written essay and recommendation letter. Thirty-five students attended the first day of the program. At the end of the first day, one student withdrew from the program. At the end of the second day, after the first environmental studies course, two students chose not to participate in the program, and one student decided not to take the course for credit, bringing the total number of participants to 32. Because of the University's COVID protocol, there were additional steps in the enrollment process; therefore, the program coordinator did not reach out to the next runners-up on the waiting list.

Focusing on field trips, visiting experts, a job skills component, and a college-level three-unit environmental education course with an emphasis on transportation issues, the Mineta Summer Transportation Institute was designed to be both academically challenging and fun. The 31 participants (1 student was actively enrolled in the program without earning credits) had the opportunity to earn three units of college credit at no cost to the student through SJSU in an introductory environmental studies class with a STEM and transportation emphasis taught by Professor Bruce Olszewski. The course explored the need to reduce dependence on fossil fuels and toxic automobile emissions. Students both learned about mass transit, and the critical role transportation serves in the environment and, in particular, in Silicon Valley and the Bay Area. The students experienced a total of 8 field trips over the course of the 15 days of the program, where they were exposed to a wide range of careers in transportation. Students used a range of transportation options to access the field trips, including walking, bus, and carpools.

Overall, the program's curriculum exposed students to new frontiers in some of the major transportation-related topics of the moment and gave them the opportunity to see firsthand "behind the scenes" operations of major Bay Area transportation sites and agencies such as the Santa Clara Valley Transportation Authority (VTA) system, San Jose's Transportation Management Center (TMC), and the Port of Oakland.

We are happy to note again a high level of satisfaction with the program among students, parents, and our partnering agencies this year. Since there was no MSTI in 2020 and 2021 due to the COVID-19 pandemic, additional administrative requirements and class rules were implemented to comply with SJSU regulations and help keep all participants safe. In addition, it was not feasible for some past partners to host a field trip due to their internal policies. Program changes were made to refine and improve upon STIs from previous years. Combining elements from the program's previous successes and adding new activities helped contribute to this year's overall success. This

year, additional changes were made due to new community partnerships, including the California High-Speed Rail Authority, the Port of Oakland, and the US Coast Guard.

Partners and Staff Information

Partners and Sponsors

San Jose Unified School District (SJUSD) and East Side Union High School District (ESUHSD) were significant partners in support of the Mineta Summer Transportation Institute. Flyers with the link to the online application in English, Spanish, Mandarin, Cantonese, and Vietnamese were distributed to principals and vice-principals in both districts. Furthermore, the flyer was also included in several school newsletters, increasing parents' awareness of the program. In addition, program information was posted on the Mineta Transportation Institute website and social media sites.

As part of the environmental studies component of the program, students took their lesson outdoors at Henry Cowell State Park in the Santa Cruz Mountains. Traversing the mountain pass allowed for a lesson on the challenges facing transportation before the technological developments of the 20th century, as well as lessons regarding the relationship between the train and lumber industry. Once at Henry Cowell, the students were taken on a non-strenuous hike where they learned about the ecosystem the park seeks to conserve. In addition to the environmental experience, the students walked over to the Roaring Camp Railroad Station and faux logging town. The proximal juxtaposition of the locomotive town and the natural environment surrounding it further demonstrated the relationship between nature and transportation.

The students also participated in a rewarding field trip to the construction sites of the future California High-Speed Rail in Fresno, where they were exposed to the intricacies of public infrastructure project and how it helps revitalize the local economies of California's megaregions. During this trip, students could walk the completed San Joaquin River Viaduct and tour the construction of Cedar Viaduct. MTI worked closely with the California High-Speed Rail Authority (CAHSRA) staff to organize this trip, including securing sponsorship from their Early Train Operator DB E.C.O. North America Inc. (DB). This sponsorship allowed us to rent a bus with a restroom on board, HDMI capability, TV screens, and a P/A and audio system. With these additional features, CAHSRA and DB staff could join the students, give presentations, and run small train-related competitions throughout the three-hour bus ride from SJSU campus to Fresno.

To give the students a more in-depth look at maritime transportation, they visited the Port of Oakland and Coast Guard Island. The students took a tour through the Port's facilities and learned about how supplies overseas made their way to Oakland. Furthermore, the Coast Guard service members delivered a presentation on their environmental protection unit and the bomb-detecting K9 unit, demonstrating how they kept our shores safe. The students were also exposed to innovative transportation technologies through a drone course with Dr. Bo Yang, a presentation and guided discussion on Aurora Innovations' autonomous freight trucks, and a vehicle demonstration of a Nuro delivery robot. The program's final trip was to the Valley Transportation Authority for lessons on the behind-the-scenes management and maintenance of a public bus fleet.

Table 6. Summary of Financial Donations from Partners

Partner & Action	Estimated Dollar Value
DB E.C.O. North America Inc Sponsored the field trip to CAHSRA construction sites in Fresno. Included bus charter, lunch, snacks, and water service.	\$5,000
Nuro Sponsored pizza for lunch	\$350
HNTB Sponsored boxed sandwiches for lunch	\$1000
TNL Provided safety vests for students to wear during traffic management activity in downtown San Jose (estimated \$8 per student)	\$280
Port of Oakland Provided “swag bag” containing pen and notebook (estimated \$10 per student)	\$350

Program Staff

Table 7. List of Program Staff

Name	Position
Hilary Nixon, PhD	Deputy Executive Director, MTI
Alverina Weinaryd	Public Programs Coordinator, MTI
Nancy Urena Reid	MSTI High School Liaison, SJUSD, Abraham Lincoln High School
Bruce Olszewski	Faculty, Department of Environmental Studies, SJSU

Program Objective

The program’s primary goal was to inform and inspire students to think critically about their futures and potential for careers in transportation and to increase the *knowledge* and *interest* of students in this field as a possible career choice. In addition, MSTI is designed to provide an enjoyable learning experience for the students who would, in turn, share their experiences with classmates and friends when they return to school. A key objective of the MSTI is to stimulate students to take full advantage of the range of career opportunities that exist in the transportation industry.

To meet this goal, the program was designed to meet these three objectives:

1. Recruit 35 high-school students from diverse ethnic backgrounds to participate in the program;
2. Expose participating students to a variety of academic and practical experiences in the transportation field in the Bay Area;
3. Provide participating students with a variety of science, technology, and employment skills.

The objective of recruiting minority students was achieved by promoting the MSTI within the ESUHSD and SJUSD and the diversity of the student population in both districts. Marketing and recruitment of students are of critical importance. Additional efforts for recruitment were made by working closely with the high school liaison. MTI also created additional Mandarin, Cantonese, and Vietnamese flyers per several school officials' requests. This helped broaden the reach to parents whose first language was not English.

MSTI students demonstrated enthusiasm and interest during the environmental science portion and field trips. The SJSU class was challenging with its required textbook and lecture-style presentations. The course also expected the students to write papers using an analytical writing style expected at the college level. The students were evaluated through written assignments, midterms, and a final exam. Students who were unprepared to work at the fast pace of the summer program would have difficulty passing the course. While ultimately, all participants were encouraged by the success associated with completing their first college course, given the opportunity to implement MSTI again, a more significant emphasis would be placed on recruitment to ensure the students enrolled in the program have a greater dedication to passing the course.

A culminating survey was conducted using Google Forms after the program concluded. The survey was intended to assess various aspects of the total MSTI experience, including (1) guest speakers, (2) field trips, (3) staff, and (4) overall program effectiveness. These evaluations were conducted to determine success in measuring Objectives 2 and 3. (A complete discussion of the evaluation results is discussed in a separate section below.) A link to the survey was sent out to the students via email a total of three times.

Overall, the evaluations confirmed the positive impact that the students were experiencing. Out of the 32 participants, 21 completed the survey. Participants reported a high level of satisfaction with MSTI activities, and they found that the program helped them better understand the field of transportation. After site visits, conversations with students indicated that they might explore different job opportunities similar to those presented and that they recognized that a college education was important. They showed high interest and enthusiasm at each field trip site.

Marketing

Recruitment was a challenge due to challenges with the contracting process. As a result, MTI had to change the program dates and delayed recruitment efforts. The new program end date was also within three to seven days of the start of the Fall semester, reducing the number of students interested and their availability to commit to the 3-week program. In the future, we aim to establish a firm timeline that will require more frequent check-ins with the high school teacher in an effort to track recruitment efforts more diligently. We would also aim to host the program with enough gap between the program end date and the start of the school year.

Nevertheless, new flyers, available in five languages, with a lot of visual and verbal appeal, were sent out via e-mail and posted to MTI's website. The English flyer was also included in several schools' newsletters. In addition, MTI staff also attended career fairs at local high schools and distributed flyers in English and Spanish. Multiple contacts were made with the high-school liaison follow-ups. The online application and videos from previous years' STI were used to promote the program.

Applications were received from Santa Teresa High School, Evergreen Valley High School, Piedmont Hills High School, Summit Denali, Branham High School, Abraham Lincoln High School, Pioneer High School, Basis Independent Silicon Valley, and Presentation High School. The schools outside ESUHSD and SJUSD were San Ramon Valley High School, Grant Union High School (Sacramento), and Inderkum (Sacramento).

Student Selection Process

Interested students were required to complete an application and obtain a letter of endorsement from faculty. The recruitment flyer (see Appendix A) was distributed and emailed to students and parents that expressed an interest. All applications were submitted online. While academic information was requested, other criteria were also applied to the pool of applicants. Sincere interest, recommendations from school faculty, and evidence of extracurricular interests were taken into consideration for acceptance to the program. The written essay was given the most significant weight in student selection. (Since college-level writing is expected in the class, students who did not submit an essay were not considered.)

A few technical issues affected the selection process. Some of the students provided information such as email or phone numbers which were either incorrect or illegible. Some of the students submitted applications without their parent contact information. While attempts were made to contact the students with the missing information, ultimately, without the contact information, some of the students had to be deleted because they could not be reached to receive notice of acceptance. Acceptance notices were distributed by email.

Media Coverage

The MSTI program was covered by several print, radio, and TV news outlets. Here are a select few that highlighted the program's main objectives and partnerships with local agencies.

1. [Bay Area high school students get a transportation lesson at San Jose State](#), Mercury News
2. [Future leaders in transportation tour Santa Clara VTA](#), Mass Transit
3. [San Jose high school students learn more about future of transportation](#), KCBS Radio
4. [Estudiantes aprenden con drones sobre carreras profesionales en el Área de la Bahía](#), Univision

Program Curriculum

9am-3pm**	Mon.	Tues.	Wed.	Thurs.	Fri.
Week 1 Morning 9am-12pm**	7/18 Introductions, SJSU Tour, Overview of Program	7/19 (9am-11am) Presentation and SJ Bike Lanes Tour; Vignesh Swaminathan (Crossroad Lab)	7/20 Environmental studies lecture @ BBC 102	7/21 Environmental studies lecture @ BBC 102	7/22 (7.45am-4.30pm) <u>Field Trip: California High-Speed Rail, Fresno</u> (8-11am) Bus ride to Fresno <i>Snacks will be provided. Students must wear closed-toe shoes.</i>
Lunch break 12pm-1pm**		Lunch break 11am-12pm		***Lunch will be provided	***Lunch will be provided
Afternoon 1pm-3pm**	GIS & Drone Crash Course with Dr. Bo Yang (SJSU)	(12pm-3pm) Environmental studies lecture @ BBC 102	Guest Speaker: Rachel Gardner (Aurora Innovations)	Guest Speaker & Vehicle Demonstration: Dan Mitchell (Nuro)	(1.30-4.30pm) Bus ride back to SJSU
Week 2 Morning 9am-12pm**	7/25 (9am-11am) <i>Conocimiento</i> with Dr. Maggie Barrera & Lilly Pinedo Gangai (SJSU)	7/26 Environmental studies lecture @ BBC 102	7/27 Environmental studies lecture @ BBC 102	7/28 Environmental studies lecture @ BBC 102	7/29 <u>Field Trip: The Tech</u> (9.40am-12.00pm) Meet at The Tech entrance at 9.40am <i>Lab options: 1) Engineering for Earthquakes; 2) Physics of Roller Coaster</i>
Lunch break 12pm-1pm**	Lunch break 11am-12pm				(12.00pm-12.30pm) Walk back to campus ***Lunch will be provided
Afternoon 1pm-3pm**	(12pm-3pm) Environmental studies lecture @ BBC 102	Guest Speakers: Kelly Snider (SJSU); Jason Su (Guadalupe River Park Conservancy); Mario Valadez (TransForm)	Environmental studies lecture @ BBC 102	Environmental studies lecture @ BBC 102	Guest Speakers: HNTB team @ Student Union Meeting Room 2A & 2B (2 nd floor)

9am-3pm**	Mon.	Tues.	Wed.	Thurs.	Fri.
Week 3 Morning 9am-12pm**	8/1 Environmental studies lecture @ BBC 102	8/2 (8.15am-4.30pm) <u>Field Trip: Port of Oakland & Coast Guard Island</u> (8.30-9.30am) Bus ride to Oakland <i>Snacks will be provided. Students must wear closed-toe shoes. A jacket is highly recommended due to the strong wind in the Port areas.</i>	8/3 <u>Field Trip: Henry Cowell Redwoods State Park</u> (9.00-9.45am) Bus ride to Henry Cowell <i>Students must wear closed-toe shoes appropriate for long walks on the trail.</i>	8/4 Environmental studies lecture @ BBC 102 (Final) Return your textbook.	8/5 <u>Field Trip: VTA Tour</u> <i>Drop-off at VTA River Oaks, 3331 North First Street, San Jose.</i> <i>Students must wear closed-toe shoes.</i>
Lunch break 12pm-1pm**		(12.15-1.00pm) <i>Bring a picnic lunch.</i>	<i>Bring a picnic lunch. Students can bring frisbee or football for lunch entertainment.</i>		***Lunch will be provided
Afternoon 1pm-3pm**	Guest Speaker: Paul Hoekstra (TNL) <i>Students will learn about traffic management</i>	(1.30-2.50pm) Coast Guard Island (3.00-4.30pm) Bus ride back to SJSU	(2.00-2.45pm) Bus ride back to SJSU	Field Trip: SJDOT, City Hall	MSTI Graduation Celebration @ VTA

Factors contributing to the outstanding success rate for the MSTI in 2022 include: (1) the overall preparedness of the students to take a college-level course, (2) the ability to focus on only one class, and (3) the pacing of the class which allowed students' progress to be assessed while they were still able to recall the material. Participants were able to register as SJSU students about a month before the start date. While this was mainly driven by the need to obtain an SJSU ID card for classroom access, it also allowed students access to the online study materials, helping them to review for the two midterms and the comprehensive final exam. The instructor provided study guides to help the students prepare for all three exams. In addition, the students were encouraged to access SJSU Writing Center for assistance in the writing assignments, including the final essay. After each exam, the students were able to go over their scored answer sheets to get clarification on the correct answers. The reinforcement of the curriculum by field trips also contributed to the success of the students. During MSTI, the students were not distracted by having to study for other classes as they would during the school year and developed a camaraderie during the 3-hour intensive lectures.

Three distinct elements made up the MSTI curriculum, which are listed below:

1. Field Trips

Students participated in eight field trips over the three-week MSTI period, listed in Table 8. Field trips represented an experiential learning environment. These trips involved meeting with key personnel, agency staff, and career presentations, with few exceptions. Field trips were a significant component of the program and were used to both offset confines of the classroom experience and reinforce the concepts of the class. Most of the field trips were first-time experiences for the students.

Table 8. List of Field Trips, Mode of Transportation, and Topics

Site	Mode of Transportation	Topics
1. Downtown San José	Walking	Bike & pedestrian infrastructure, active transportation, transportation planning, city planning
2. California High-Speed Rail construction sites and office, Madera & Fresno	Charter Bus	High-speed rail, public transit, surface transportation, local economy
3. The Tech Interactive & Science Lab, San José	Walking	Hands-on activities on 1) Planning for Earthquake, and 2) Physics of Roller Coaster
4. Port of Oakland	Charter bus	Tour of the port, Q&A on freight and supply chain, panel presentation from the Port staff of various departments focusing on career development
5. Coast Guard Island, Alameda	Charter bus	Tour of Coast Guard Cutter Bertholf, bomb-detecting K-9 demonstration, environmental protection unit presentation, helicopter fly-by

Table 8. List of Field Trips, Mode of Transportation, and Topics, cont.

Site	Mode of Transportation	Topics
6. Henry Cowell State Park	SJSU Bus	Train system, environmental impact, conservation, harmonic balance of transportation and nature
7. City Hall & Transportation Management Center (TMC), San José	Walking	<p>Presentation and Q&A with employees in the transportation department</p> <p>Presentation and Q&A on the city's ability to manage major arterial and freeway, emergency response, intelligent monitoring systems</p>
8. VTA Headquarter and Cerone Bus Yard	Students were dropped off at VTA headquarter	Presentation of VTA officials, tour of maintenance facilities and microgrid and electric bus charging station, drive-by to Milpitas BART station, closing ceremony with parents

Table 9 summarizes the students' evaluations of the field trips. Overall, students expressed high satisfaction with the field trips. They also expressed support for offering similar experiences in the future. In addition, many students noted that the field trips made them more likely to consider careers in transportation and/or engineering in Table 9c.

Table 9a. Summary of Student Evaluations of Field Trips

Site	Percentage of students who rated trip a 3 or better on a scale of 1-5	Percentage of students who recommend the trip for next year
1. Downtown San José	91%	68%
2. California High-Speed Rail construction sites and office, Madera & Fresno	100%	81%
3. The Tech Interactive & Science Lab, San José	95%	71%
4. Port of Oakland	95%	95%
5. Coast Guard Island, Alameda	100%	86%
6. Henry Cowell State Park	100%	95%
7. City Hall & Transportation Management Center (TMC), San José	81%	62%
8. VTA Headquarter and Cerone Bus Yard	100%	86%

Table 9b. Summary of Students' Satisfaction of the MSTI Program

	Percentage of affirmative student responses	Percentage of students who rated "Very Satisfied" and "Satisfied"
Overall Program Satisfaction	100%	100%

Table 9c. Summary of Students' Interest in a Career in Transportation

	Percentage of affirmative student responses	Percentage of students who rated "Strongly Agree" and "Agree"
This program has encouraged me to consider a career in transportation.	96%	61.9%

2. Guest Speakers

Students received key presentations from guest speakers, primarily at our field trip sites. Guest speakers also visited the class at SJSU and participated in or facilitated hands-on activities related to their expertise.

Table 10a. List of Guest Speakers

Name/Title	Topic
Alverina Weinardy MTI Public Programs Coordinator, SJSU Alum	Opening remarks during orientation on first day of program. Welcomed students and gave an overview of the Mineta Transportation Institute.
Bo Yang, PhD Assistant Professor, Urban & Regional Planning, SJSU	Provided overview on how autonomous drone mapping is being applied in environmental science and transportation. Facilitated a drone-flying practice.
My-thu Tran SJSU Graduate Student	Facilitated a drone-flying practice.
Vignesh Swaminathan President & CEO, Crossroad Lab	Presented on bicycle and pedestrian infrastructure, and how to design for vulnerable road users. Conducted a downtown San Jose tour focusing on bicycle lanes.
Rachel Gardner Machine Learning Engineer, Aurora Innovations	Provided overview of autonomous technology and the challenges in the research and development. Facilitated guided discussion throughout the presentation.
Dan Mitchell Senior Manager, City & Community Engagement, Nuro	Provided overview of delivery robot and organized a vehicle demonstration. Facilitated a group activity with a real-life problem to help the students deepen their understanding on transportation issues.
Jorge Rios Vice President, Business Development, DB E.C.O. North America Inc.	Provided overview of the California High Speed Rail project.
Alice Rodriguez Deputy Director of External Affairs, CAHSRA Yaqeline Castro Outreach & Student Engagement Specialist, CAHSRA	Coordinated a field trip with CAHSRA office in Fresno.
Magdalena Barrera, PhD Vice Provost for Faculty Success, SJSU Lilly Pinedo Gangai, MA Program Director, Chicanx/Latinx Student Success Center, SJSU	Facilitated a <i>conocimiento</i> exercise with the students to help them build meaningful relationship with their peers.

Table 10a. List of Guest Speakers, Cont.

Name/Title	Topic
<p>Kelly Snider Director, Real Estate Development Certificate, Urban & Regional Planning, SJSU</p> <p>Jason Su Executive Director, Guadalupe River Park Conservancy</p> <p>Mario Valadez Safe Routes to School Site Coordinator, TransForm</p>	<p>Participated in a panel of transportation-user organizations and facilitated a group activity on the topic of advocating for transportation solutions.</p>
<p>Shannon Gaffney Deputy Office Leader/Operations Manager, HNTB</p> <p>Melody Chen Civil Engineering Intern, HNTB</p> <p>Donjel Brox Mechanical Engineering Intern, HNTB</p> <p>Brett Faust Project Manager, HNTB</p> <p>Trisha Garrett Project Manager, HNTB</p> <p>Lacy Vong Senior Project Program Manager/ Deputy Operations Manager for Northern California, HNTB</p> <p>Esteban Martinez Deputy Project Manager, HNTB</p>	<p>Provided overview of HNTB transportation projects and facilitated design challenges & discussion hubs.</p>

Table 10a. List of Guest Speakers, Cont.

Name/Title	Topic
Paul Hoekstra Mobility BU Director, TNL	Gave overview of traffic management technology, software, and principles. Facilitated hands-on activity of traffic counting and finding a better traffic management solution.
Ron Brown Maritime Marketing and Commodities Representative, Port of Oakland Luana Espana Community Affairs Representative, Port of Oakland Nicole Hadassah Valdez Port Financial Analyst, Port of Oakland Pia Franzese Senior Maritime Projects Administrator, Port of Oakland Sean McKiernan Port Associate Engineer (Civil Work), Port of Oakland Toby Tatom Port Equipment Supervisor, Vehicle & Equipment Maintenance, Port of Oakland	Provided overview of the Port of Oakland's history, facilities, and supply chain system. Facilitated Q&A as students tour the Port. Participated in a career panel to demonstrate the numerous positions and pathways available at the Port.
Vice Admiral Andrew Tiongson Pacific Area Commander, U.S. Coast Guard	Gave opening remarks during Coast Guard Island field trip, including overview of Coast Guard's responsibilities and how they intersect with the nation's transportation system.

Table 10a. List of Guest Speakers, Cont.

Name/Title	Topic
Lieutenant David Chenlo U.S. Coast Guard	Coordinated the field trip to Coast Guard Island, including public safety demonstration and tour of Cutter Bertholf.
Colin Heyne Public Information Manager, City of San Jose	Gave an overview of Department of Transportation and answered students' questions about transportation projects happening in the city.
Renee Zhou Senior Transportation Engineer, City of San Jose	Facilitated tour of the Transportation Management Center.
Stacey Hendler Ross Public Information Officer, VTA	Welcomed students and introduced VTA General Manager. Facilitated the tour throughout Cerone Bus Yard.
Carolyn Gonot General Manager & CEO, VTA	Gave opening remarks during VTA field trip.
Karen Philbrick, PhD MTI Executive Director	Gave a keynote address at the graduation ceremony and handed certificates to students.

Table 10b. Summary of Student Evaluations of Guest Speaker Sessions and Activities

Guest Speaker/Activity	Percentage of students who rated trip a 3 or better on a scale of 1-5	Percentage of students who recommend the trip for next year
1. Drone crash course with Dr. Bo Yang	100%	91%
2. Aurora Innovations presentation & discussion	95%	81%
3. Nuro vehicle demonstration & group activity	95%	86%
4. Conocimiento	81%	43%
5. Transportation-user organization panel & group activity	76%	48%
6. HNTB design challenge & discussion hubs	90%	81%
7. TNL traffic management presentation & group activity	76%	48%

Table 10c. Summary of Students' Evaluation of the Hands-On Class Activities

	Percentage of students who rated the class activities a 3 or better on a scale of 1-5
How do you feel about the hands-on activities the class offered?	100%

3. Academic Component (SJSU Environmental Studies Course)

The academic component of the program focused on ENV5 001, Introduction to Environmental Studies, taught by Professor Bruce Olszewski, an adjunct faculty member in the Department of Environmental Studies at San José State University. The course met for a total of 11 sessions for three hours per session. Assignments included written policy papers, letters to the editor based on current news articles, two midterms, and a final exam. The 11 sessions were spread throughout the three weeks to accommodate the numerous field trips and guest speaker sessions. When possible, the lecture sessions were held in the morning. Because of the number of all-day field trips, some lectures had both a morning and an afternoon session. Students who completed the 30 hours of coursework and passed the course with a C- (70%) or better received three transferable general education units from San Jose State University.

Closing Ceremony

Given the previous success of holding graduation in collaboration with the VTA field trip, the closing ceremony was once again held at VTA headquarters. The VTA graciously provided an outdoor auditorium for the closing ceremony. Dr. Karen Philbrick, MTI's Executive Director, handed certificates of completion to the participants. Family members were invited to the closing ceremony.

The top three Mineta STI students, who truly distinguished themselves as evidenced by academic achievement, teamwork, leadership skills, and avid participation, received another certificate acknowledging their achievements.

Before the presentation of the certificates, the students enjoyed boxed sandwiches for lunch. Many of the parents were able to attend and brought younger family members, like siblings, to celebrate the success of the student. During the graduation ceremony, the students were asked to share their answers to the following questions:

1. What's your favorite field trip/activity and why?
2. What's the most impactful lesson you learned from this program?

The parents were particularly pleased to see their children sharing their experiences in their own words.

Recommendations

Recommendations for any future programs include:

1. Continue marketing the program early and supplementing the traditional methods with the online marketing scheme so that the school districts can again include the information in their parent literature, school websites, parent and student emails, and school announcements. Identify more than one program advocate who can make classroom presentations at other schools for next year.
2. Use the video created of the 2022 program to market and recruit students for the program.
3. Avoid a field trip on the second-to-last day of the program. Instead, reserve the day for a lecture and an in-class final exam to expedite grading. In addition, students can also fill out the program survey in class to achieve a 100% response rate.
4. Continue the 3-week format, avoiding the disruptive 4th of July holiday, which causes absenteeism. Also, avoid scheduling too close to the start of a new Academic year, which reduces students' interest.
5. Emphasize the component of the program that comprises an undiluted college course with a significant amount of work compressed into a relatively brief time.
6. Keeping a class size to a maximum of 35 allowed for more personal interaction with staff and the instructor.
7. Give parents more opportunities to participate, such as incorporating evening events and asking them to help chaperone the field trips.
8. Pending contracting, ensure that field trips are coordinated as early as possible to ensure availability and diversity of experiences.

Additional comments made by students on the final student survey

(Note that the comments are written by the students in their own vernacular. Grammatical errors were not corrected. Responses with “No” or “N/A” type of comments were omitted.) No, everything was wonderful and very engaging!

- No, I thought the course was great!
- All the activities were very fun! I feel like more group activities would be great too! There was not a lot of opportunities to talk and meet the other people so maybe something like that for the first day would be great!
- I had a great time in this program and I highly recommend it!
- I have no feedback. I had a really fun time in the program. :)
- I really enjoyed this summer, and feel like I was able to find many things I am interested in.
- Not really any feedback but I really enjoyed this program. Most of the stuff I learned can create careers and industries for the future and is definitely relevant.
- I really enjoyed the class and I feel that it was a important part of my path to a career was it show me more types of careers I could have in transportation as I was already wanting to go in that direction.
- I feel as though too much of a focus was placed upon land based transportation within urban areas, resulting in some overlap in topics discussed; other activities addressing the various air or water modes would be great.
- no, i had a great time and am very thankful for the opportunity to participate in something like this! thank you so much:)
- No everything was great!

Additional comments made by parents via email

(Note that reference to specific students were removed.)

- Thank you so much. This was a fantastic program and it was wonderful each day to hear how excited [student] was about what she learned. This was a really valuable growth experience for the students, and I'm so glad that [student] had this opportunity.
- I was very impressed with the class and while the workload was more than [student] had expected, she did learn a lot and was glad to have had the opportunity.
- Thank you so much for all your help with getting [student] set up with the learning accommodations. With that little extra help he was able to keep up with his classmates and really got a lot out of the program. Listening to these kids talk, I am in awe and have Great expectations for a better tomorrow!

About the Author

Alverina Weinardy first joined MTI as a graduate student research assistant in 2017. As Public Programs Coordinator, she manages the institute's online presence through newsletters, social media campaigns, press releases, blogs, and web content creation. She also develops graphic design and video materials for public engagement. Alverina holds a BFA in Interior Architect and Design from the Academy of Art University and a Master of Urban and Regional Planning, with a focus on Affordable Housing and Community Development Finance, from San José State University.

This report can be accessed at transweb.sjsu.edu/research/2250



MTI is a University Transportation Center sponsored by the U.S. Department of Transportation's Office of the Assistant Secretary for Research and Technology and by Caltrans. The Institute is located within San José State University's Lucas Graduate School of Business.

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This free program introduces students to careers in transportation and tech while earning three transferable college credits in Environmental Studies. Students come away understanding career opportunities in the transportation industry, such as airline pilots, bus drivers, train engineers, supply-chain managers, and many more. Students are also encouraged to pursue degrees that prepare them for transportation careers. MSTI's partnerships with local industry leaders, like Google, Mineta San Jose International Airport, VTA, and many others, makes this program a unique and valuable opportunity for those ready to make the most of it!

*On specific occasions—and with notice—students may be required to arrive earlier or may be released later due to field trip travel constraints.

SJSU requires students to be vaccinated. Participants will be asked to provide proof of vaccination to attend classes.

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Mineta Summer Transportation Institute 2022
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Lunes Viernes
Grades 9-12

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Este programa gratuito introduce a los estudiantes a carreras en transporte y tecnología mientras obtienen tres créditos universitarios transferibles en estudios ambientales. Los estudiantes salen comprendiendo la carrera oportunidades en la industria del transporte, como pilotos de líneas aéreas, conductores de autobuses, ingenieros de trenes, gerentes de la cadena de suministro y muchos más. También se alienta a los estudiantes a obtener títulos que los preparen para carreras de transporte. Las asociaciones de MSTI con líderes de la industria local, como Google, Mineta San Jose International Airport, VTA, y muchos otros, hacen de este programa una oportunidad única y valiosa para aquellos que estén listos para aprovecharlo al máximo.

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Mineta Summer Transportation Institute 2022
7月18號 - 8月5號
早上9點 - 下午3點*
週一 - 週五
9-12年級

請在此申請 tinyurl.com/vljbjczu
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本免費課程能讓學生了解關於交通與科技行業的資訊，以及獲取3個環境科學專業的大學學分。學生能了解到交通行業中不同的就業崗位，如飛機師、公共車車長、火車車長、供應鏈經理以及其他。亦鼓勵學生選取能為就職交通行業預備的專業。MSTI更有與本地業內領軍公司如 Google、峰田聖荷西國際機場、VTA以及其他公司的合作關係。對於有充足預備的你們來說，這是一個獨特以及不容錯失的機會。

*在個別情況下，如需要外出學習和參觀，學生們有可能會被要求提早到達或推遲下課時間，我們會提早發放通知。

SJSU要求學生必需接種疫苗。課程參加者要先提供疫苗接種紀錄證明。

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Mineta Summer Transportation Institute 2022
18 de julio - 5 de agosto
9AM - 3PM*
Martes - Viernes
Grados 9-12

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