

Workforce Development Academy for Youth

Hassan Hashemian, PhD

Project 2460

January 2026



Introduction

The demand for qualified transportation engineers continues to grow as populations expand across major U.S. metropolitan areas. In Los Angeles, this need is especially critical as the region undergoes its most significant wave of transportation infrastructure expansion in history, with billions of dollars being invested in new and upgraded systems. Despite this, the transportation field currently faces challenges in maintaining a skilled workforce. Demographic trends show that women and ethnic minorities represent an increasing share of the labor force, yet these groups remain underrepresented in the transportation engineering field. To address this gap, the College of Engineering, Computer Science, and Technology at California State University, Los Angeles established the Workforce Development Academy for Youth (WDAY). The program aims to build a sustainable pipeline for future transportation professionals by engaging minority high school students through technical education, field experience, internships, and mentorship throughout the academic year.

Study Methods

The program engaged students through hands-on, inquiry-based learning that connects science and

engineering concepts to real-world applications. Participants explored transportation and engineering-related topics by conducting experiments, designing projects, and presenting their findings through presentations and written reports. Through these activities, students enhanced their critical thinking, problem-solving, and collaborative skills.

The participants were also taken on informative, interactive tours of the LA Metropolitan Transportation Authority (MTA) and Flabob Airport, offering direct insights into career opportunities in transportation engineering. During these tours, participants received a behind the-scenes perspective on real career opportunities, heard from professionals who occupy those roles, and engaged in exciting hands-on activities. In addition to technical learning, the program included a structured series of workforce readiness workshops to prepare students for college and/or future careers. These sessions covered resume and cover letter writing, as well as interview preparation. Students received personalized mentoring and guidance throughout, including assistance with scholarship searches and college admissions. Those interested in gaining further

experience were supported in applying for internships with local and state agencies, including Caltrans, the City of Los Angeles Board of Public Works, and the Los Angeles Department of Water and Power. Through these experiences, students built confidence, professional networks, and a clearer understanding of pathways into STEM and transportation careers.

Students who were exposed to the transportation industry through participation in the WDAY expressed significantly increased interest and confidence in pursuing careers in the field.

Findings

The program demonstrated measurable success in advancing workforce diversity and STEM engagement among underrepresented students in Los Angeles County. By integrating academic learning with career preparation, participants gained both technical knowledge and professional readiness skills aligned with transportation and infrastructure careers. Students reported increased awareness of engineering and transportation pathways, more substantial confidence in their academic abilities, and greater motivation to pursue higher education in related disciplines. The initiative also contributed to the broader goal of diversifying the regional workforce. Many participants expressed a new sense of belonging within the STEM community and developed a clearer understanding of how their skills could help solve real-world infrastructure challenges. Faculty and mentors observed notable improvements in students' communication, analytical, and teamwork abilities through their participation in project-based learning and internship experiences. Furthermore, partnerships established with industry and government agencies provided a foundation for continued collaboration and internship placements, creating a sustainable model for connecting education and workforce development. Overall, the study confirmed that targeted, hands-on programs such as the WDAY can effectively build a continuous, diverse pipeline of qualified individuals prepared to enter professional roles in transportation and engineering.

Policy Recommendations

Findings from the WDAY program highlight the importance of sustained partnerships between educational institutions and transportation agencies, ensuring that students gain hands-on experience and exposure to real-world infrastructure challenges early in their careers. Expanding internship opportunities and aligning high school curricula with emerging transportation technologies will undoubtedly strengthen the pipeline of future transportation professionals. The success of WDAY demonstrates that experiential learning and mentorship not only increase student engagement but also enhance diversity in the transportation workforce. Supporting and scaling similar initiatives can help build a more inclusive, innovative, and well prepared generation of transportation professionals.

About the Author

Hassan Hashemian, PhD

Dr. Hashemian has served as a Civil Engineering professor at California State University, Los Angeles for over 45 years, teaching courses in transportation engineering, planning, and traffic analysis. He has extensive experience managing federal and State-funded research and training programs. Dr. Hashemian earned his B.S. and M.S. degrees from the University of Wisconsin–Madison, and his PhD from the University of California, Berkeley.

To Learn More

For more details about the study, download the full report at transweb.sjsu.edu/research/2460



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.