

## Infrastructure Academy Transportation Program

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The need for transportation engineers is on the rise in many of the large population centers in the U.S. For example, Los Angeles is currently experiencing the largest growth of transportation-related construction in its history. Billions of federal, state, and local dollars are being spent to upgrade existing transportation facilities and install new forms of transportation for area citizens. However, recruiting and retaining an adequate workforce is a significant problem in both the public and private sectors. Recent demographic and employment trends indicate that ethnic minorities and women make up a growing proportion of the U.S. labor pool and of Los Angeles County yet, in the transportation industry, these two groups are significantly underrepresented. Furthermore, retention rates of ethnic minority transportation engineering students are poor and the supply of transportation engineers graduating from the university system remains far below the number needed by the industry.

In response to this predicament, the College of Engineering, Computer Science, and Technology at the California State University of Los Angeles created the Infrastructure Academy Transportation Program (IATP). The development of a rich pipeline of young people into infrastructure careers requires career and technical education lectures, field trips, internships, college preparation, guest speakers, and other activities. This program included all the above activities. The Infrastructure Academy was created to work with high schools and higher education to develop this pipeline. The target audience were minority high school students in Los Angeles County. The program recruited 30 high school students from 18 high schools to be trained in STEM- and transportation-related fields for the full year.

### Research Methods

In this program, students learned the science content by designing experiments, generating hypotheses, collecting and organizing data, representing data in tables and

graphs, analyzing the results, and communicating the findings. Through projects, students valued their learning since the activities they were performing were useful. This program provided students the ability to see real life application of the content.

The workshops planned and organized by the IATP succeeded in providing the students with exposure to several areas related to STEM as well as the transportation industry.

A structured series of workforce readiness activities prepared students for applications to internships and jobs. Activities included workshops on professionalism, getting a job, developing a resume and cover letter, and interviewing. Interested students applied to internship programs with agencies such as Caltrans as well as the City of Los Angeles Board of Public Works Student Internship program and the LA Department of Water and Power Student Worker program. Students also received one-on-one support and mentoring as they pursued higher education. They were connected to college resources and scholarships as they begin their college process.

### Findings

This project strengthened our effort to promote the full diversification of our work force by implementing programs and developing curricula dedicated to providing a continuous pool of qualified individuals to occupy professional position in the nation's workforce. This study also provided opportunities for students and individuals to enhance their knowledge and skills of the field of transportation.

### Policy/Practice Recommendations

The IATP workshops and internships sparked students' creativity and inspired them to view the transportation industry in a new light. The students have been well served by the partnership with several transportation agencies and they will undoubtedly continue to benefit from the skills they have acquired through the program as they pursue their educational and career goals.

### About the Author

Dr. Hashemian has been a professor of Civil Engineering at California State University, Los Angeles for forty years. He has been teaching undergraduate and graduate courses in transportation and traffic engineering, transportation planning, traffic flow analysis, engineering economics, and probability and statistics. Dr. Hashemian has extensive experience managing federal and State-funded research and training programs.

He has demonstrated success in many outreach projects including the Infrastructure Academy Transportation Program, the Summer Transportation Institute, the Garrett Morgan Education Program, and the Dwight D. Eisenhower Fellowship program. Dr. Hashemian is a highly respected educator. On January 11, 2018, at the Transportation Research Board meeting in Washington, D.C., he received the FHWA public service award for his outstanding dedication, leadership, and contributions to advancing transportation education, research, and workforce development. He has won a number of other awards for research and teaching, including the Exemplary Achievement Award from Secretary of Transportation Mr. Rodney Slater in 1988, ITE in 1995, FHWA in 2001 and 2002, and the Outstanding Professor Award at CSU LA in 2006, 2007, and 2012. Dr. Hashemian received his BS and MS from University of Wisconsin, Madison, and his PhD from University of California, Berkeley.

### To Learn More

For more details about the study, download the full report at [transweb.sjsu.edu/research/1919](https://transweb.sjsu.edu/research/1919)



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