

TRANSPORTATION CAREERS ACADEMY PROGRAM

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The education and training of tomorrow's transportation workforce begins today. The information age has brought changes in the global economic environment that reflect an increasing use of both information and the associated advanced technology. The American workplace has kept pace by adopting a high-performance culture in which workers are required to perform complex tasks that incorporate critical thinking and technical expertise. The multimodal transportation industry is an integral part of this evolution. Considering that 7 of every 10 jobs in the United States are in some way transportation related, the implications of these trends are immense.

In line with these new trends are increasing pressures on the educational system to provide the workforce of tomorrow with the necessary knowledge and skills. The Los Angeles County Metropolitan Transportation Authority (MTA) has taken a proactive approach to meeting this need. In connection with the Los Angeles Unified School District and the Los Angeles Community College District, the authority created the Transportation Careers Academy Program (TCAP)—an ongoing industry-education partnership designed to prepare future workers and retrain and upgrade the skills of the current workforce. The program also enhances the educational system by creating transportation industry support for teachers and real-world learning environments for students.

TCAP is designed to provide a high-quality educational experience to all students interested in careers in the transportation industry. The only requirement for entry into the program is commitment to its high-performance goals. Students are required to maintain a "C" grade point average and to complete all program requirements. The overall aim of the program is to strengthen the relationship between industry and education by integrating best practices from both academic and vocational education, thus ensuring that leading-edge education and training will be aligned with future workforce needs.

In addition to an enhanced curriculum, integral

elements of the Academy model include job shadowing, mentoring, and internships. Teachers partner with industry professionals to learn from hands-on experience the basic skills and knowledge employers will be seeking from their students. Lessons learned are incorporated into the curriculum, enabling teachers to teach from a position of experience, not just theory. Students benefit from a more relevant academic/vocational program that encourages them to make the connection between their current education and their future career goals. In these ways, TCAP has served as a model for other industry-education alliances in Southern California, including the Entertainment and Multi-media Career Academies.

Los Angeles County MTA's Transportation Careers Program

Los Angeles County MTA's Transportation Careers Program has four basic, interrelated components: the Transportation Occupations Program (TOP); TCAP, the primary program; the Transportation Teaching Institute (TTI); and the Advanced Transportation Industry Consortium (ATIC). To date, thousands of students have participated in the Transportation Careers Program.

Transportation Occupations Program

TOP is a long-standing training program. Begun in 1986, the program has provided job training after school and on weekends to more than 1,000 Los Angeles County students interested in transportation-related careers. Students participate in 2 years of instruction in drafting, computer-aided design (CAD), technical math, graphic design, and architectural model building. TOP served as the foundation for TCAP, and most of the schools that originally participated in TOP have now become Transportation Careers Academies.

By design, TOP offers a variety of career-related experiences, including exposure to major transportation projects. Local engineering firms, construction companies, and public agencies actively

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TCAP students tour Metro Red Line Subway construction sites in Los Angeles to learn about environmental and community issues related to tunneling.

support students by providing internship opportunities. TOP students have been employed by more than 30 companies in such jobs as surveyor, CAD operator, data entry clerk, draft person, field inspector, and clerical staff. More than 90 percent of those who successfully complete the program enter postsecondary educational programs. Los Angeles County MTA awards scholarships to TOP graduates attending a number of colleges, universities, and trade schools.

Transportation Careers Academy Program

The groundwork for TCAP was laid in 1988 with a series of discussions focused on ensuring that the future workforce of Los Angeles County would meet workplace demands. These efforts were part of a larger national effort in which educators, employers, and policy makers were evaluating the quality of public education and examining whether it can meet the needs of a more technologically advanced global economy. The original vision of TCAP was to transform education in ways that would fill the gap between school and work. Building on the strengths of TOP, TCAP was designed to provide a more comprehensive educational and training experience—a school-within-a-school academy.

TCAP officially began operation in 1994 with the support of the Los Angeles County MTA; the U.S. Department of Education; and the Federal Transit Administration, U.S. Department of Transportation. The program's mandate was to serve comprehensive high schools in Los Angeles, where there is a growing transportation industry and an increasing demand for skilled professionals. While the program was not purposely designed to serve at-risk students, the majority of TCAP schools are located in economically disadvantaged areas of Los Angeles.

Presently, Los Angeles County MTA sponsors TCAP programs at five high schools. More than 1,500 students have participated in TCAP. Last year the program had 668 students, and it is anticipating a 10 percent increase this year.

The TCAP curriculum and teaching goals include integrated, high-quality academic instruction; activity-based learning; performance assessment; and increased use of technology. These elements are strengthened by continued industry support for both teachers and students. By design, academy students and teachers stay together for 4 years (grades 9–12), providing a small nurturing environment. Each student team is required to complete a senior project demonstrating competence in the areas of computer technology, public speaking, multimedia presentations, CAD, and engineering or model building. Each school differs to some extent in the way it achieves its program goals. For example, all schools have invested in some form of computer technology, but their specific choices have differed according to their area of emphasis, whether engineering, transportation technology, urban planning, or architecture. Each school also has unique qualities based on its access to technology and resources, as well as teaching techniques and project assignments; however, fundamental themes are reinforced throughout the program. In addition, TCAP promotes and models essential employability skills, such as a strong work ethic, professionalism, proper dress, good writing skills, and teamwork.

Transportation Teaching Institute

TTI comprises industry professionals who volunteer their time and service to assist teachers and students in both TOP and TCAP. Designed as a support network, TTI is organized into six volunteer groups: training for teachers, curriculum writing, mentors for students, mentors for teachers, information and resources, and lectures and tours.

Mentors assist students in learning about and understanding career choices in the transportation industry by providing them with information and referrals for classroom projects. In addition, teachers have the opportunity to attend a month-long summer program that provides training, tours, and research time with mentors. Training workshops focus on engineering, rail construction, urban planning, maintenance, and operations, to name a few. The design of TTI is flexible, allowing for volunteers to provide whatever assistance they can. Volunteering can be as simple as providing a resource telephone number, a tour idea, or a business contact for the summer internship program.

Advanced Transportation Industry Consortium

ATIC is an informal network of public and private transportation industry employers, education and training institutions, and regional/state and government agencies concerned with educating, training, and employing quality workers for the Southern California region at large. The Consortium provides counsel and support to the Transportation Careers Academies, serving as their link to the broader multimodal transportation industry and providing an employer-focused forecast of workforce needs based on emerging technological advances. ATIC also provides a network of potential employers for TCAP students.

College and University Connections

The work of TCAP is continued through strong connections with local colleges and universities. A key emphasis of the program is on strengthening the relationship between participating high schools and postsecondary educational institutions to ease the transition for students. One such effort includes the adoption of a "tech-prep" model that emphasizes articulation agreements between high schools and colleges so students can earn college credit for some of their high school classes. Each TCAP high school is linked with a local community college. The success of these relationships requires determined participation on the part of both the TCAP schools and the community colleges. In addition, competitive scholarships are available to many students who choose to pursue higher education.

An example of a successful collaboration is the Geographic Information Systems (GIS) Program. In partnership with the Los Angeles Trade Technical College, the GIS Program teaches students to combine data and spatial features for display and analysis. Up to 20 TCAP students participate in this program each summer. Final projects are presented to MTA employees, consultants, and GIS experts.

RAND Corporation Program Evaluation

In 1994 the Los Angeles County MTA commissioned the RAND Corporation to evaluate the development and implementation of TCAP as part of a grant agreement with the U.S. Department of Education. A follow-up evaluation was conducted in 1998. Three schools were the focus of this evaluation.

Overall, school staff spoke proudly of their

achievements. Teachers reported a higher degree of independence and teamwork among TCAP students. The Los Angeles Unified School District created integrated math and integrated science programs that expanded traditional curricula to include relevant learning activities. Student attendance rates increased. At one school, TCAP students had an 87.5 percent attendance rate as compared with the schoolwide attendance rate of 72 percent. The same school also reported that 73 percent of Academy students passed their courses with a grade of "C" or better, as compared with 47 percent of the total school population.

The RAND evaluation noted that improvements in performance among TCAP students were "substantial." Transportation Careers Academy students appear to be similar to magnet school students in the areas of credits earned, credit pace, and atten-

TCAP Student Update

In a unique opportunity, two Transportation Careers Academy Program students were honored by the Transportation Research Board at the National Conference on Intermodal Transportation Education and Training in November 1997 (as reported in *TR News* 197, July–August 1998). The two students were the winners of a student essay contest open to high school seniors participating in TCAP. The winners, Ana Martinez and Maalik Russell, both students at North Hollywood High, were flown to Washington, D.C., to participate in the conference. They read their essays at the opening dinner and were presented with award certificates by Mortimer Downey, Deputy U.S. Secretary of Transportation. In addition to meeting a number of college and university representatives who were attending the conference, the students spent a day visiting Capitol Hill and the U.S. Department of Transportation. Their activities included meeting with U.S. Secretary of Transportation Rodney E. Slater and job shadowing with Gloria Jeff, Deputy Administrator, Federal Highway Administration.



Maalik Russell and Ana Martinez receive awards from Rodney E. Slater, U.S. Secretary of Transportation.

Many of those who met Ana and Maalik have inquired about what these two exceptional students did after graduating from high school. Today Ana is a first-year student at the University of California-Los Angeles and is employed with LTK, Inc., in an entry-level administrative position. Maalik completed his graduation requirements and plans to enlist in the U.S. Air Force in the near future.

As part of an annual project for TCAP, urban planning students from North Hollywood enter data obtained from a survey of citizens regarding pedestrian and vehicular traffic in downtown Los Angeles.



dance. TCAP students have higher test scores than students in the general population. Teachers report that they believe TCAP students are more focused, better at solving problems, and more motivated, and they also have higher self-esteem. Thus while challenges still exist in the areas of communication, relationship building, and alignment of high schools with colleges, TCAP has enjoyed a great deal of success.

Conclusion

Sustained industry involvement in the education process is the key to TCAP's success. The Transportation Careers Program has created an academic learning environment whose central theme is acquiring the knowledge and skills students need to be successful. The efforts of thousands of industry mentors and business partners bring critical information and support to the program, strengthening the curriculum and providing the students with an increased level of attention. Students are not anonymous in this program. Those who are committed to its goals are not turned away.

TCAP highlights one way in which the transportation industry can guide and support the educational system in ensuring that the knowledge and skills of students are in alignment with the needs of industry. Continued work on the part of industry professionals, educators, and policy makers is critical to transforming today's students into the educated, skilled workforce of the future. The Transportation Careers Program provides a solid framework for the participation of all transportation-related industries in the development of that future workforce.

For more information on TCAP, contact Naomi Nightingale, Los Angeles County Metropolitan Transportation Authority (telephone 213-922-5256) or Holly Johnston, Los Angeles Unified School District (telephone 213-922-5260).

Some TCAP Learning Experiences

The Transportation Careers Academy Program incorporates a variety of practical, work-based learning experiences for student participants. The following are but a few examples:

- ◆ An annual Career Day matches hundreds of students in TCAP and the Transportation Occupations Program with industry mentors, and gives the students an opportunity to assist, observe, and participate in day-to-day work activities.

- ◆ A day trip to the San Francisco/Oakland area allows students to study the history of rapid transit and the BART system. Visits to construction sites also allow students to view first-hand the development of major transportation projects.

- ◆ Students from North Hollywood examined the life of Balboa Lake, testing for pH levels, turbidity, nitrate concentration, dissolved oxygen, temperature, and potentially toxic copper levels.

- ◆ A group of students from Locke High School participated in a Popsicle-stick bridge construction contest. One TCAP student placed seventh among 300 of Los Angeles County's brightest physics students.