

Workforce Research

Research Premise:

Ensuring the nation's ability to successfully deliver and manage an efficient, safe, and environmentally sustainable transportation system is dependent on the knowledge, skills, and abilities of the transportation workforce.

Challenges:

- The future workforce will be highly interdisciplinary
- Technological and systems innovations will come at a rapid pace and workforce training and education will need to be continuous
- Other industries will compete for key workers needed to advance new mobility systems

Key research:



Attracting & Retaining the Future Workforce:
Employee Retention and Knowledge Management
Study (VT Agency of Transportation study and pilot)



Climate Adaptation Workforce Needs

- Climate Adaptation and Resiliency Planning: Agency Roles and Workforce Development Needs
- Career Pathways for Transportation Sector Climate Adaptation Professionals



Legislative Mandates & the Changing Workforce

- This project advances understanding on how fundamental changes from SB 375 and other legislative mandates have impacted MPOs from a workforce standpoint.

Legislative Mandates	Workforce Impacts
Assembly Bill 118: Alternative fuels and vehicle technologies: October 2007	• Workforce knowledge of emerging alternative fuel and vehicle technology. • Workforce ability to commercialize alternative fuel source.
Senate Bill 375: Sustainable Communities & Climate Protection Act: September 2008	• Workforce capable of performing long-range activity-based modeling. • Workforce capable of performing public outreach. • Workforce capacity in land use and air quality modeling.
Senate Bill 1204: California Clean Truck, Bus, and Off-Road Vehicle and Equipment Technology Program: September 2014	• Drafting Environmental Impact Reports (EIRs) with long range predictions. • Workforce knowledge of alternative fuel technology for heavy vehicles. • Project management skills for testing and quantifying pilot projects.
Governor Brown's Executive Order B-32-15: Sustainable Freight Action Plan: July 2016	• Workforce capacity to develop technology-led solutions for freight efficiency. • Workforce with knowledge of innovative digital tools to achieve efficiencies.
Senate Bill 1: The Road Repair and Accountability Act: April 2017	• Project management expertise capable of aligning state goals with departmental goals. • Use of modern software applied to active traffic management. • Workforce re-training with respect to latest software techniques.

Piloting Sustainable Transportation Workforce Training

GIS Training for Tribal – Road Safety and Resilience

The Southwest Transportation Workforce Center (SWTWC) is leading a Geographic Information Systems (GIS) training initiative for tribal populations. The training provides both educational and economic merit by fostering new career pipelines for both urban and rural youth and collecting data related to road safety, transportation, and cultural metrics within tribal lands.

National Transportation Career Pathway Initiative (NTCPI) GIS Pilot

The SWTWC team successfully piloted a first-of-its-kind GIS course based at a community college that was contextualized around the planning career pathway. Launched in the Spring of 2018 at partner college Los Angeles Trade Tech College (LATTC), 12 students—many dual-enrolled as part of the Los Angeles Unified School District's STEAM program—were introduced to GIS technology and how it serves transportation planners in practical, real-world applications like asset management, mobility planning, and data visualization. SWTWC further enriched this learning experience by deploying GIS-based story maps, data collection activities, and industry speakers, who offered students insight into the technologies and career opportunities that characterize this workforce. LATTC is now offering this course on an ongoing basis, and the SWTWC is scaling it out for other colleges around the nation.

ITS Professional Capacity Building (PCB) – NNTW Cooperative Program 2019

The ITS PCB program is seeking to enrich its interaction and partnership with academic institutions and programs to address the challenges they face in keeping pace with educating future transportation professionals about new ITS technologies and adapting their engineering and related curriculum to provide the multidisciplinary approach required for effective implementation of these solutions. The industry is challenged to create clear and compelling career pathway tools that attract a knowledgeable new generation of ITS workers, and guide them through career opportunity choices with positive stories and guides that increase their capacity to grow and expand organizational ability to retain new workers.

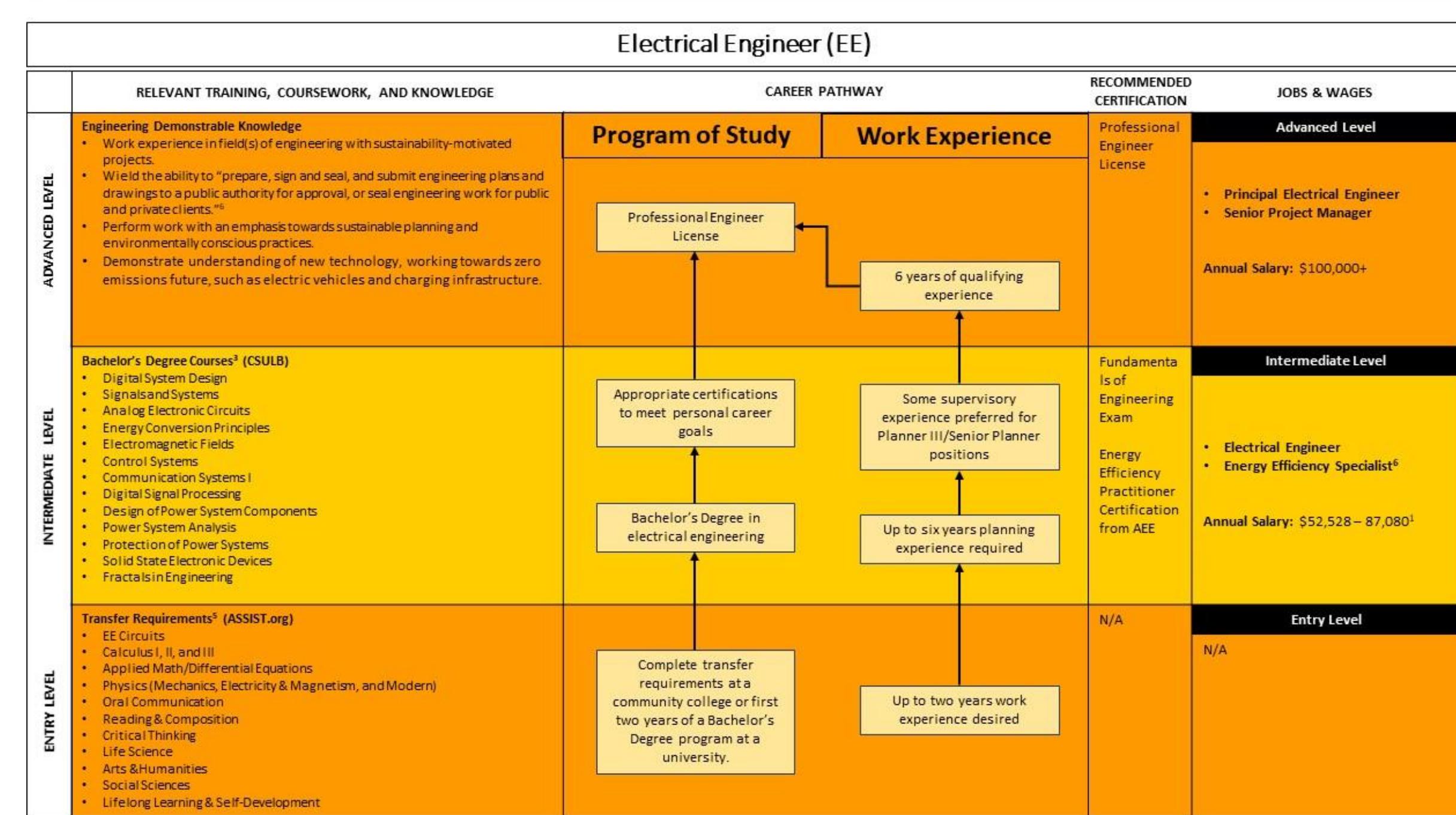
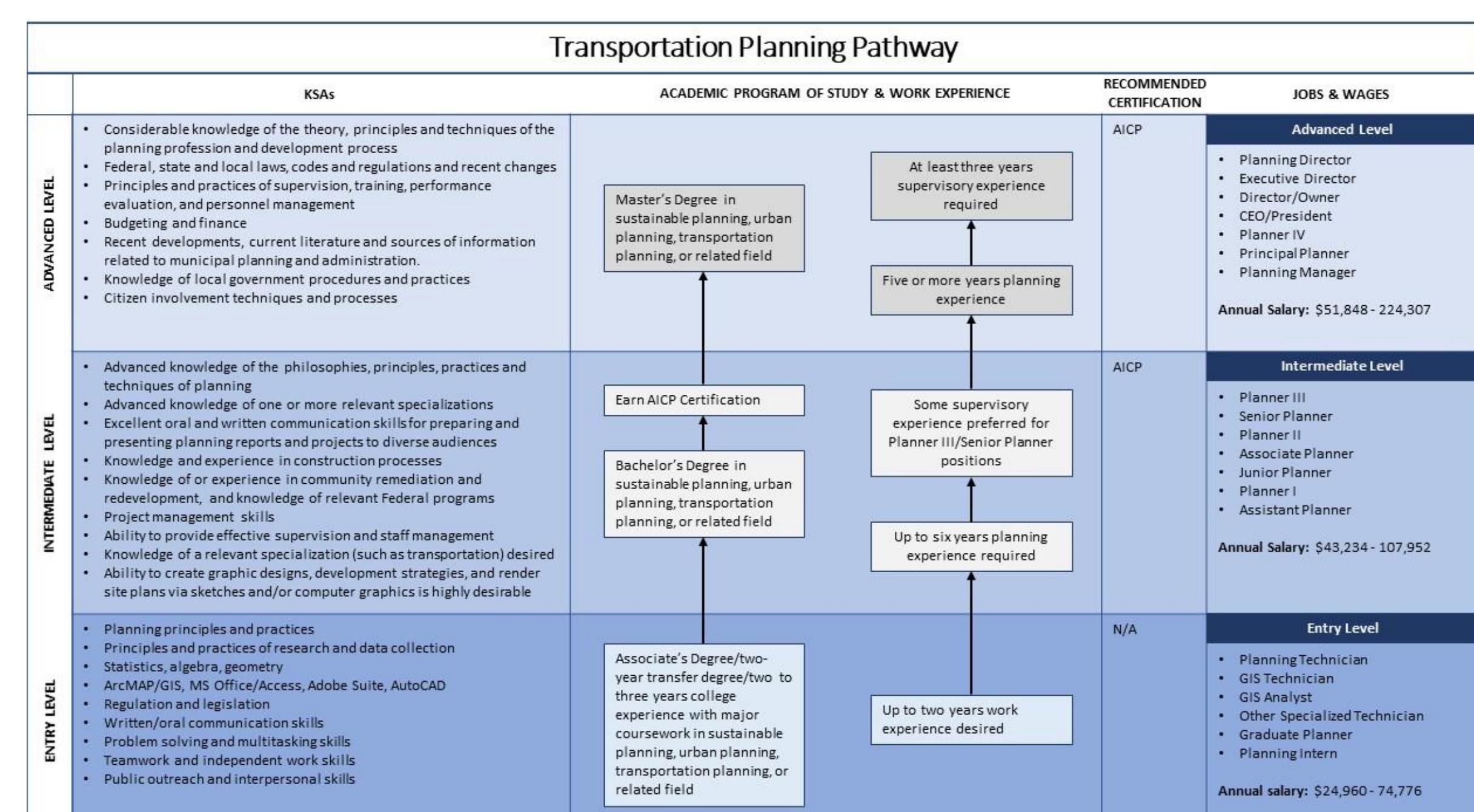
Southern California Regional Transit Training Consortium (SCRTTC) Volt Ohm Class

The Digital Volt-Ohm Meter (DVOM) and ITS self-paced distance learning course is designed to improve technicians' understanding of basic DVOM functions. This course is designed to expose the students to the most commonly used capabilities of the DVOM. Students gain knowledge about the functions and usage of the DVOM by using the virtual meter in a controlled environment. Equipped with this training, technicians are prepared to test and maintain high voltage vehicles in the electric and hybrid system.



The Future Sustainable Transportation Professional

Preparing future sustainable transportation professionals requires the identification of emerging competencies and related occupations. The most inclusive strategy calls for collaborative career pathway formation informed by leaders in industry, education, and government. We cannot predict the future but we can ask the right predictive questions.

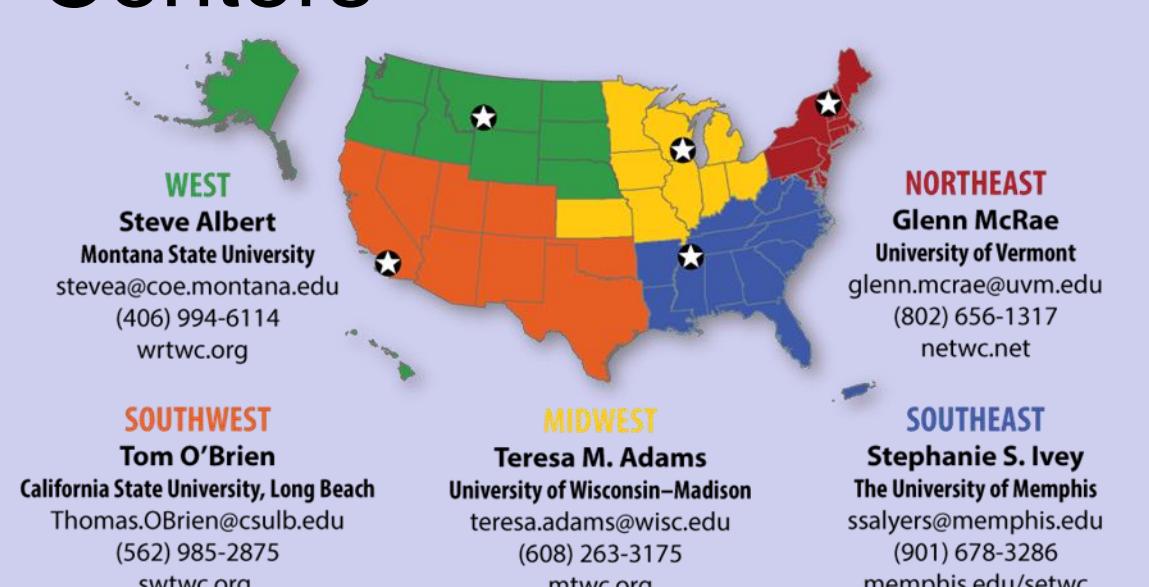


Growing a Sustainable Transportation Network for the Future

2007 - FHWA invests in five national Transportation Education Development Pilot Programs (*University of Vermont and California State University, Long Beach each host a program*).

2012- CUTC leads initiative to host a National Transportation Workforce Summit with USDOT to lay out a framework for action with Departments Of Labor and Education.

2014 – FHWA creates five regional Transportation Workforce Centers



2016 – FHWA funds the NNTW's National Transportation Career Pathways Initiative, developing pathway demonstrations addressing critical occupations in planning, engineering, safety, operations, and environment.



2017 – FHWA consolidates USDOT workforce programs in a new Center for Transportation Workforce Development.



2018 – USDOT ITS PCB program engaged NNTW in advancing ITS in the post-secondary educational continuum

United States Department of Transportation
Intelligent Transportation Systems Joint Program Office
ITS Professional Capacity Building Program

