

Connecting Career Pathways • Resources

Introduction to CTE Programs of Study



Helping the next generation move Texas forward

What is CCP?

The Texas Department of Transportation Civil Rights Division (TxDOT CIV) has designed the Connecting Career Pathways (CCP) Program to introduce and integrate transportation infrastructure career awareness and exploration experiences in K-12 classrooms to connect existing curriculum and skill-building to pathways into the industry through innovative and interactive initiatives.

This guide provides an overview of the Texas Education Agency's transportation-related career and technical education (CTE) programs of study available across Texas and how CCP supports educators, students, and families.



If you have any questions about the information in this resource, please contact CCP@txdot.gov.

Why Does CCP Matter?

Texas faces a critical workforce challenge: 94% of construction firms report staffing shortages, which can delay projects, raise costs, and impact safety statewide. CCP addresses this by building early awareness and engagement with transportation careers, creating a strong talent pipeline for the future.



For more information email: CCP@txdot.gov

Visit us online at www.txdot.gov/about/programs/civil-rights/connecting-career-pathways.html

How CCP Benefits Students and Schools

CCP engages K–12 students early through immersive experiences such as classroom visits, field trips, summer transportation camps, internships, and job shadowing to connect them to high-skill, high-wage, and in-demand career opportunities. CCP also promotes dual-credit courses, degrees, and industry-based certifications (IBCs) to ensure students are equipped for future success. For students enrolled in CTE, CCP offers immersive, hands-on experiences that spark interest and build skills:



- **Classroom Visits & Guest Speakers**—Industry professionals share insights and answer questions.
- **Field Trips & Job Site Tours**—Students see real-world careers in action through ‘living labs.’
- **Summer Transportation Camps**—Interactive learning beyond the classroom.
- **Internships & Job Shadowing**—Practical exposure to high-skill, high-wage careers.



CCP Goals for Educators

By partnering with schools and districts, CCP aims to:

- **Promote awareness** of transportation careers and post-secondary pathways.
- **Expand access** to exploration activities and interactive learning across all grade levels.
- **Reduce barriers** to participation and retention in CTE programs.
- **Empower students** with meaningful, future-focused career opportunities.

Transportation-Related Career Clusters

TxDOT collaborates with educators to deliver real-world instruction that prepares students for in-demand jobs. Career Clusters group related pathways, making exploration easier:

- **Transportation, Distribution & Logistics**
Careers in planning, managing, and moving people and goods—includes automotive mechanics, pilots, and logistics professionals.
- **Architecture & Construction**
Designing, building, and maintaining the built environment—includes architects, electricians, and construction managers.
- **Manufacturing**
Turning materials into products—includes industrial maintenance, welding, and advanced manufacturing.
- **Engineering**
Designing and maintaining machines, structures, and systems—includes civil engineers, drafters, and mapping technicians.



Table 1 - Programs of Study Transportation Infrastructure Careers

Programs of study offer a structured sequence of courses that guide students from foundational knowledge to specialized skills in transportation infrastructure careers, allowing students to build core concepts before moving into specialized coursework. Programs of study typically integrate academic content with technical training, industry-based certifications (IBCs), and work-based learning (WBL) opportunities to help students graduate career-ready, equipped with real-world skills and credentials. The following table lays out programs of study relevant to transportation infrastructure careers:

Transportation, Distribution and Logistics	Architecture and Construction	Manufacturing	Engineering
Automotive and Collision Repair	Architectural Drafting and Design	Industrial Maintenance	Civil Engineering
Aviation Maintenance	Carpentry	Manufacturing Technology	Drone (Unmanned Vehicle)
Aviation (Pilots)	Construction Management and Inspection	Robotics and Automation Technology	Engineering Foundations
Diesel and Heavy Equipment Maintenance and Commercial Drivers	Electrical	Welding	Mechanical and Aerospace Engineering
Distribution, Logistics, and Warehousing	Masonry		Geospatial Engineering and Land Surveying
Maritime			

Source: [CTE Programs of Study](#) (November 5, 2025), The Texas Education Agency

For a more detailed view of transportation infrastructure related programs of study, please refer to the appendix.

Best Practices and Sample Activities to Connect with Programs of Study

The following activities are designed to strengthen the connection between classroom instruction and real-world careers in transportation infrastructure. These examples reflect the CCP Program's commitment to providing students with meaningful, hands-on learning experiences that align with Texas CTE programs of study. Each strategy supports career exploration, skill development, and workforce readiness by linking academic content to industry practices and career pathways in transportation, engineering, and related fields. Bring careers to life with these CCP-supported strategies:

- **AASHTO STEM**—Hands-on kits covering bridge design, highway safety, and more.
- **Classroom Visits**—Invite professionals for interactive sessions.
- **Career Expos/Career Days**—Meet professionals and have interactive experiences.
- **Virtual Experiences**—Explore careers through virtual reality (VR), augmented reality (AR), and 360° tours.

Contact us at CCP@txdot.gov if you are interested in these experiences.

Why CCP Matters for Students and Families

CCP helps students discover pathways to earn credentials that open doors to high-paying, high-demand careers. Families gain confidence knowing their students are on a clear path to success.

Table 2 - Appendix

Career Cluster	Program of Study	Description
Architecture and Construction	Architectural Drafting and Design	Developing and designing building structures; includes blueprint reading and interpretation
Architecture and Construction	Carpentry	Construction and repair of wooden structures and fixtures; includes machinery installation
Architecture and Construction	Construction Management and Inspection	Cost estimation and inspection for compliance with codes and regulations
Architecture and Construction	Electrical	Installing, maintaining, and repairing electrical wiring, equipment and fixtures.
Architecture and Construction	Masonry	Laying and binding materials like brick and stone; includes structural frameworks
Engineering	Civil Engineering	Design, construction, and maintenance of infrastructure such as roads and bridges; includes inspections and cost estimates
Engineering	Drone (Unmanned Flight)	Operation and design of unmanned aircraft systems; includes communication systems for safety compliance
Engineering	Engineering Foundations	Design, testing, and evaluation of projects related to engines, machines, and structures
Engineering	Mechanical and Aerospace Engineering	Design, development, maintenance, and testing of engines, machines, and structures related to aircraft and spacecraft.
Engineering	Geospatial Engineering and Land Surveying	Surveying, GIS systems, remote sensing, and mapping technologies
Manufacturing	Industrial Maintenance	Maintenance and repair of manufacturing equipment and facilities; includes electrical and HVAC systems
Manufacturing	Manufacturing Technology	Use of automated machines and robots for metal/plastic work; includes precision part production
Manufacturing	Robotics and Automation Technology	Assembly, operation, maintenance, and repair of electromechanical equipment or devices
Manufacturing	Welding	Modification and repair of machine tools; includes welding and flame-cutting techniques
Transportation, Distribution & Logistics	Automotive and Collision Repair	Servicing, repairing, and refinishing various types of vehicles.
Transportation, Distribution & Logistics	Aviation Maintenance	Maintenance and repair of aircraft structures, systems, and components; includes compliance with federal safety regulations
Transportation, Distribution & Logistics	Aviation (Pilots)	Aviation engineering, air navigational aids, air traffic controls, and communications equipment
Transportation, Distribution & Logistics	Diesel and Heavy Equipment Maintenance and Commercial Drivers	Diagnosis and service of diesel and heavy equipment systems; includes vehicle inspection and repair
Transportation, Distribution & Logistics	Distribution, Logistics, and Warehousing	Business planning and management in logistics and warehousing; includes laws and practices in distribution systems
Transportation, Distribution & Logistics	Maritime	Operation and maintenance of water vessels; includes navigational aids and communication systems