

Transportation Engineering

THE UNIVERSITY OF
MEMPHIS

Intermodal Freight
Transportation Institute

What is Transportation Engineering?

Transportation engineering is the application of technology and scientific principles to the planning, functional design, operation and management of facilities for any mode of transportation in order to provide for the safe, efficient, rapid, comfortable, convenient, economical, and environmentally compatible movement of people and goods.⁴

Educational Opportunities

Transportation engineering requires at least a four year degree, typically in the **Civil Engineering** department of a university. You may opt to pursue further education such a **master's** degree in transportation engineering, sometimes followed by a **doctorate** degree.

Roles of a Transportation Engineer

Terminal design (for example: airport, marine, bus)
Intermodal facility operations (both passenger and freight)
Corridor design (roadway, rail, marine)
Bicycle/pedestrian facility design
Freight modeling/planning (road, rail, air, water)
Transportation planning/modeling
Transportation safety
Traffic operations (for example: traffic signals, HOV lanes, tolls)
Intelligent transportation system design/management
Risk management
Mass transit operations (for example: scheduling, pricing, routing)

Why Transportation Engineering?

The importance of transportation engineering within the civil and industrial engineering profession can be judged by the number of divisions in ASCE (American Society of Civil Engineers) that are directly related to transportation. There are six such divisions (Aerospace; Air Transportation; Highway; Pipeline; Waterway, Port, Coastal and Ocean; and Urban Transportation) representing one-third of the total 18 technical divisions within the ASCE.¹

- The median annual salary for entry-level TEs is \$48,896.
- With five to eight years of experience, TEs can expect an increase in salary to \$86,180.
- The top 10% of TEs earn more than \$96,450 per year (Salary.com).

For More Information

1. The American Society of Civil Engineers (ASCE)— asce.org
2. Go! Exploring the world of transportation— www.go-explore-trans.org
3. The Federal Highway Administration— www.fhwa.dot.gov
4. The Institute of Transportation Engineers— www.ite.org
5. Fast Forward: Enhancing Awareness of Transportation Careers— burl.co/20A7F01#.Ub83fbYT0t4.gmail