

## Alternative Job Titles

Materials Engineer, Highway Materials Engineer, Geotechnical Engineer

## Job Description

A Pavement Engineer designs, evaluates and manages asphalt and concrete pavement systems. The Engineer determines the pavement layer thicknesses and material composition required based on the traffic load. The Engineer collects and reviews data on existing pavements to assess deterioration and remaining service life. They understand how external conditions change the rate of pavement degradation over time. The Pavement Engineer sets the immediate and long-term repair and maintenance strategies. Other duties include:

- Design pavements according to the AASHTO Mechanistic-Empirical Pavement Design Guide (MEPDG).
- Develop specifications for pavement construction projects.
- Observe pavement construction and collect material samples for quality testing.
- Test pavement materials to determine compliance to specifications or standards.
- Inspect completed roadways to ensure safety and compliance with applicable standards or regulations.
- Analyze nondestructive falling weight deflectometer (FWD) deflection measurements.
- Work with others to develop pavement rehabilitation plans and designs.
- Work with others to implement a pavement management system.
- Reviewing concrete and asphalt Superpave mix design data.
- Design drainage, erosion, or sedimentation control systems for transportation projects.
- Develop plans to deconstruct damaged or obsolete roadways or other transportation structures in a manner that is environmentally sound or prepares the land for sustainable development.

## Knowledge Requirements

- Civil and structural engineering
- Pavement mix design
- Pavement construction and equipment
- Mechanics of materials
- Quality assurance and control analysis
- Hydraulics
- Highway design
- Geotechnical engineering
- Laboratory testing
- Life-cycle Cost Analysis (LCCA)
- Life-cycle Analysis (LCA)

## Required Skills and Abilities

- Project planning and development
- Analyze pavement profiles
- Interpret quality and process-control data
- Materials specification
- Cost estimation
- Detail oriented
- Written and oral communication
- Technical ingenuity in solving design problems
- Work independently and as part of a team
- Adapt to new challenges and learn new concepts

## Technical Skills Requirements

- Pavement Condition Index (PCI)
- Operate manual and automated condition surveys tools such as for deflection and friction testing

## Typical Salary

- \$68,000 – \$99,700

*\*Sources: Burning Glass Labor Insights for salaries by experience and Glassdoor for upper and lower salary bounds.*

## Education and Work Experience

- Master's degree with emphasis in pavements and transportation materials.
- Three to five (3 to 5) years of engineering experience in pavement design.
- Licensed Professional Engineer (P.E.)