



Transportation Engineer

Job Description

Transportation Engineers plan, design, and maintain transportation infrastructure in the built environment. They design infrastructure for highways, sidewalks, streets, bridges, and public transit through 3D computer models. The main focus of their work is to provide and maintain safe infrastructure for people, while also aligning built environments with local and state policies. Transportation Engineers identify issues in urban systems, analyze data, and solve problems with innovative solutions.

Salary

Entry — \$60,000

Middle — \$71,000

Top — \$91,000+

Core Tasks

- Check construction plans, calculations, and cost estimations for accuracy or conformity to engineering standards
- Consult with contractors, utility companies, and government agencies
- Investigate problems and recommend methods to improve traffic flow
- Plan modifications for existing structures to improve safety or function
- Prepare plans for new transportation systems such as airports, commuter trains, highways, and bridges

Workplace / Environment

- **Work hours**
Approx. 40 hours/week
(At key milestones overtime work may be required to meet deadlines)
- **Environment**
Varies on a day-to-day basis, but work often takes place in the **office**. **Fieldwork** includes checking on the progress of **construction** and **advising workers** on next design steps
- **Travel**
Occasional attendance at **city hall meetings**, **outdoor construction sites**, and various **out-of-state regions** to work on transportation projects

Education / Prerequisites

Education Level

4-6 year Bachelor's degree in Civil Engineering and/or a graduate specialty degree in Transportation Engineering

Licensing

Required, can be obtained through an ABET-accredited program that leads to a Professional Engineer (PE) license

Pre-Job Preparation

Advanced courses in STEM, such as calculus, physics, and chemistry, as well as real-world intern experience

Experience

Soft Skills

- Complex Problem Solving
- Systems Analysis
- Collaboration

Technical Skills

- Office Suite Software
- CAD Software
- Analytical or Scientific Software



Career Path: Tinotenda Jonga

About Me

Transportation Engineer/ Planner at Fehr & Peers

Civil Engineering Graduate Degree from Tennessee State University

Early Life

"My inclination towards sciences in general dates back to when I was in primary school. I was fascinated by **nature** and **light bulbs**. I had a lot of **unanswered questions**, so I ended up joining the **science club**. I signed up for classes in high school so that for two straight years I was just doing **math, physics, and chemistry**."



"What was really pivotal was the **Soccer World Cup** in 2010 that was hosted in South Africa, which made me realize how the built infrastructure significantly improved the overall welfare of South Africa. In preparation for the Soccer World cup, numerous **freeways** and **interchanges** were built, and as a kid, I witnessed that. Around the same time, the country also had its first **high-speed urban train** just in time for the soccer games. All of that honed me in towards my career path."



College Choices

"I pursued my undergraduate degree in **Civil Engineering** at the **University of Pretoria in South Africa**. After I completed my undergraduate studies in South Africa, I **immigrated to the U.S.** to reunite with my family. I also thought that this would be a great opportunity to kickstart my career."

"I faced some **hurdles** with employment because my qualifications didn't exactly align with local requirements. So, I then opted to go to graduate school to try and bridge my **educational background** to the **U.S. environment**. I had to switch my mind from thinking in meters to thinking in feet, and from thinking in liters to gallons. This was quite fascinating."

Into the Real World

"As a transportation professional, I play a significant role in building and improving our built infrastructure. The fact that I moved to the U.S. in 2016 directed me towards transportation specifically, because before I just wanted to be a do-it-all civil engineer. Now, I'm more focused on transportation because of the **various opportunities** that I came across in the U.S."

"My first full time and current job is in Seattle. I work for Fehr & Peers as a **transportation engineer-planner**, so that means my job involves both transportation engineering and transportation planning. I typically perform various types of **technical analyses** to develop effective and innovative transportation solutions that help improve communities. This can range from working on transit plans to improving **traffic operations** at intersections."

About My Job

"Transportation plays a significant role in our daily lives"

Pros

- "Transportation plays a significant role in our daily lives. I get to see most of the **transportation solutions** that we come up with come to fruition."
- "Work is never really monotonous. Every day is a new challenge — it's an **adventure**. There's always something different to do."

Fieldwork

- "We sometimes perform **field investigations** for signal, lighting and intersection designs."
- "There's nothing more satisfying than **going outside** and seeing a road or intersection improvement."

Cons

- "The complexity of work can sometimes be **overwhelming**. A hobby is a must! I often go on photography excursions to look for some cool views, take a couple of pictures and just relax because that's a hobby that detaches me from work."

Office Work

- "I typically perform various types of **technical analyses** to develop effective and innovative transportation solutions that help improve communities."
- "I do **almost everything in the office**. I spend time **collaborating** with both engineers and planners, like coming up to a whiteboard and brainstorming ideas and solutions."

Skills

- "You constantly need to **ask yourself questions** like 'Why?' 'What if?' and 'How?' Those questions will help give the answers that you need to provide to different communities."
- "A lot of work we do is dependent on intense collaboration meaning great **communication skills** are very important. Over-communication is way better than under-communication."
- "You have to be actively motivated to grow and invest in yourself. Any career requires you to have a **growth mindset** because there's always room to learn new things. There's always room for improvement."
- "People will tell you that it's very important to have a strong educational background. But, when it comes to a project at work, I personally believe educational background only plays a role in the sense that you have the fundamentals. **Enthusiasm and love for transportation** are more important aspects."

Education/Experience

- "Pursue your degree in **Civil Engineering, Urban Planning or Transportation Engineering.**"
- "It's important to seek out **internships**, or some level of involvement in various **transportation projects**, to figure out if that's where your passion is. If you're passionate about something, do it. **No matter what age you are, there's room for you to be involved** in any transportation project. In the Puget Sound area there are a lot of transportation projects going on. If you **reach out** to most of those folks, they'll be more than happy to get you involved."
- "I think it's important to go to **grad school** because that will help grow your mind. Grad school helped me think outside of the box as I worked through my thesis."

The Future of **Transportation Engineering**

"There is a continuous need for transportation engineering"

"Transportation is a key aspect to everyone's life. Transportation engineering and planning will always be relevant. For example, if you opt to walk or bike, then a transportation engineer has to provide you with a comfortable and safe built environment to accommodate that. Another important item to consider is that **populations will continue to grow** — more people will need to move from point A to point B. Therefore, there is a **continuous need** for transportation engineering and planning to cater to that."