Who we are:

Transportation is so basic that many of us overlook its overwhelming importance in our daily lives. Practically everything used in our homes, offices, or schools across Tennessee – from furniture to food items to clothing – requires a large and complex transportation network. The Tennessee Department of Transportation provides citizens of Tennessee and travelers with one of the best transportation systems in the country. TDOT is a multimodal agency with responsibilities in building and maintaining roads, aviation, public transit, waterways, railroads, cycling and walking. Our involvement ranges from airport improvements to funding transit buses to planning for river ports. The Department of Transportation has approximately 3,500 employees with four statewide region facilities in Knoxville, Chattanooga, Nashville, and Jackson.

Traffic Modeling Transportation Engineer
Traffic Design Division – Traffic Modeling Section
Nashville, TN
$99,348 annually

Job Overview

The Traffic Modeling Transportation Engineer provides expertise related to traffic analysis, modeling, calibration, and verification in support of investment decisions that impact the Department's transportation infrastructure. This position collaborates with TDOT Divisions, Regions, Project Teams, Federal Highway Administration (FHWA), and external stakeholders by evaluating data collection strategies, traffic modeling methodologies, design alternatives, and traffic operations concepts to assist in identifying potential risks to the Department.

The Traffic Modeling Transportation Engineer ensures Department policies, technical guidance, and procedures are incorporated into traffic modeling deliverables. This position assists in implementing the Quality Assurance Program as part of preconstruction activities related to traffic modeling to ensure the transportation infrastructure is accurately accounted for within recommended design solutions and that the design year traffic analysis is thorough and complete. This position must effectively articulate technical engineering concepts through training, mentoring, and collaborating as part of a matrix organization. The Traffic Modeling Transportation Engineer position requires a professional engineering license and is expected to sign and seal applicable deliverables.

Essential Job Responsibilities

Strengthen Traffic Design teams by providing technical expertise in matters related to complex or unique traffic modeling challenges to allow for Project Teams and Regions to perform their roles effectively and efficiently, optimizing the Team's ability to successfully address unanticipated challenges. Perform traffic modeling to address traffic-related concerns, including congestion, travel delays, and high crash locations; assess proposed modifications to the transportation network, including urban areas for which changes could impact interstate traffic; improve road safety; and reduce accident severity. Coordinate with Region Traffic Management Centers (TMCs) to assist in managing traffic congestion by independently evaluating data to determine underlying causes and recommend solutions to prevent recurrence.

Verify compliance with the TDOT Quality Management guidelines for traffic data collection, traffic modeling methodologies, analysis of design alternatives and traffic operations concepts, temporary traffic control design, and Traffic Impact Studies as part of Region Operations permitting. Assist the Quality Teams by providing reviews in alignment with the Project Delivery Network (PDN), identifying potential operational

concerns in proposed designs and making recommendations for proactive solutions with other disciplines to ensure the needs of the project are met. Ensure traffic models represent incidents and variations in travel demand; encompass a data-driven calibration process based on statistically derived objective criteria; and accurately represent bottleneck locations, onset times, and durations.

Routinely collaborate with HQ and other TDOT Divisions, including Environmental, Traffic Operations, and Planning to identify and document knowledge on industry best practices to avoid past errors and ensure TDOT project successes. Assist with modifying policies and procedures, design standards, specifications, and guidelines.

Contribute to Project Teams as part of a matrix organization by providing traffic modeling expertise, addressing potential areas of risk, defining critical goals and intended outcomes with respect to determining effective modeling methodologies that are tailored to the complexity of the project; confirming appropriate traffic data sources; verifying data quality; trouble-shooting calibration concerns; verifying traffic modeling results; reviewing traffic reports; attending public meetings as a Department representative to assist with addressing stakeholder concerns. Collaborate with Project Teams, Regions, and the Traffic Design Division to ensure consistent traffic models are being used by the Regions and design consultants. Assist in evaluating the cause and effect of implementing Alternative Technical Concepts related to the Request for Proposal (RFPs), project quality, and life-cycle implications for traffic design elements.

Provide exceptional customer service to both internal and external customers, including mentoring and providing technical guidance related to traffic modeling, coordinating with other disciplines as part of a matrix organization, exercising effective listening skills, providing prompt responses, maintaining complete and accurate documentation, and communicating effectively.

Remain current and engaged in revisions and updates to standards and guidelines for forecasting and analyzing traffic. Adapt new technologies and best practices that drive the Department's transportation projects forward and assist in implementing policies and procedures related to traffic modeling. Collaborate on innovative strategies used as best practices for statewide quality assurance needs.

Collaborate with the Traffic Modeling Manager to assist the TDOT Technical Training Director in the development of training, tools, and guidance that addresses acquired knowledge, including technical elements and emerging technologies related to Traffic Modeling for the purpose of improving team performance, creating a stronger understanding of traffic modeling as it relates to the transportation industry, inspiring new ideas, and developing skills.

Assist in the development of a Consultant Acquisition Plan (CAP) for Traffic Modeling services and assist in the oversight of external partners by serving on technical review committees, including assisting with RFP development, attending project-specific marketing meetings, assisting with determining scoring criteria, assisting with project information sessions when applicable, serving as a scorer as part of the consultant acquisition process, and attending de-briefs for consultants where usable feedback must be provided.

Assist in ensuring Traffic Modeling deliverables are consistent, predictable, and repeatable to maintain consistently high levels of achievement, mitigate risk, and establish a track record of success. Implement best practices and TDOT policy for traffic modeling elements and assist in ensuring statewide accessibility to acquired knowledge.

Qualifications

- Bachelor's degree in engineering
- Licensed Professional Engineer (PE)
- 4 years of demonstrated competency in developing and/or constructing transportation projects

Ideal Candidate

The Traffic Modeling Transportation Engineer is an expert in traffic modeling and adept at analyzing complex traffic data and advanced design alternatives. They excel at collaborating with stakeholders to identify risks and develop mitigation strategies. The Traffic Modeling Transportation Engineer has the keen ability to see issues at their core can identify fundamental inefficiencies in transportation systems, offering innovative, data-driven solutions that enhance mobility and safety. Exceptional analytical, problem-solving, and communication abilities are key to enhancing safety and performance within the Department's transportation system.