

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 Technical Specialist
Traffic Design Division – Traffic Modeling Section
Nashville, TN
\$59,700 - \$69,636 annually

Job Overview

The Traffic Modeling Technical Specialist will provide traffic analysis, modeling, calibration, and verification in support of investment decisions that impact TDOT's transportation infrastructure. This position will leverage emerging technologies, data sources, and innovative strategies to effectively predict system performance.

The Traffic Modeling Technical Specialist will collaborate with Project Management, Regions, TDOT Divisions, and Metropolitan Planning Organizations (MPOs) to address operational concerns stemming from population growth, land use, economic activity, and transportation infrastructure by identifying opportunities for improvement, analyzing effects, and providing a statistically objective analysis. This position must effectively communicate traffic modeling concepts through training, mentoring, and collaboration as part of a matrix organization.

Essential Job Duties of the Traffic Modeling Technical Specialist I, II, and III include:

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 or arterial traffic; improve road safety and reduce accident severity. Coordinate with Region Traffic Management Centers to assist in managing traffic congestion by independently evaluating data to determine underlying causes and recommend solutions to prevent reoccurrence.

Ensure all Traffic Modeling deliverables are accomplished in alignment with TDOT's Quality Management guidelines to deliver consistently high levels of quality and achievement, reduce errors, mitigate risk to the Department, and establish a track record of success. 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. Provide Quality Assurance for Traffic Impact Studies.

Provide a framework for accurate modeling and informed decision-making by proactively coordinating the collection of traffic data to ensure the methods used to obtain traffic data are pertinent to the specific project and include traffic flow patterns, public transit ridership, freight movement, and input from local stakeholders.

Remain current and engaged on revisions to the Project Delivery Network (PDN), Federal and State regulations, TDOT Performance Metrics, local planning and land use regulations, and standards related to traffic modeling elements. Adapt new technologies and best practices that drive TDOT's transportation projects forward.

Provide exceptional customer service to internal and external customers, exercise effective listening skills, assist in the implementation of policies and procedures related to traffic modeling, provide prompt responses, maintain complete and accurate documentation, and communicate effectively.

Additional Job Duties for the TDOT Technical Specialist II and III include:

Collaborate with Project Teams and internal project stakeholders to evaluate alternative operational strategies that address congestion concerns, including identification of critical project control activities that impact the critical path for which traffic modeling is applicable. Update Project Teams regarding acquired knowledge and the status of traffic modeling, forecasting, and analysis coordination efforts. Collaborate with Project Teams, Regions, and the Traffic Design Division to ensure consistent traffic models are being used by Regions and design consultants.

Address potential areas of risk with Project Teams by determining modeling methodologies that are tailored to the complexity of the project; identify appropriate traffic data sources; verify data quality; perform calibration of the model; verify results; and complete traffic reports. Address project control issues related to turning movement counts, data collection, traffic forecasting and analysis, missing or malfunctioning nodes, links or connections, and financial commitments with the Project Team.

Additional Job Duties for the TDOT Technical Specialist III include:

Coordinate with the Traffic Modeling Manager in providing assistance to the TDOT Technical Training Director for the development and delivery of Traffic Forecasting Models and Analysis training that addresses project and program specific modeling and analysis guidance, creating statewide transparency and consistency, inspiring new ideas, and developing skills. Provide mentoring to TDOT staff and consultants with respect to Traffic Design Modeling, Forecasting and Analysis.

Perform quality assurance reviews of Traffic Design Models and Forecasts, ensuring the modeling accurately depicts the performance of alternatives under congestion conditions and all subjective criteria has been removed. Ensure all data-related activities and critical documents are saved and follow a consistent set of rules and procedures statewide and are in alignment with TDOT performance objectives.

Qualifications

TDOT Technical Specialist I

- Bachelor's Degree in engineering, planning, or related field

TDOT Technical Specialist II

- Bachelor's Degree in engineering, planning, or related field
- 1 year of demonstrated competency in traffic modeling theories and practice.

TDOT Technical Specialist III

- Bachelor's Degree in engineering, planning, or related field
- 2 years of demonstrated competency in traffic modeling theories and practice.

The Tennessee Department of Transportation reserves the sole right in determining the level of position based on the applicant's work experience, education, skill level, and all other appropriate factors, including business needs. Within 6 months of hire, employees must demonstrate successful mastery of corresponding work competencies and skill blocks of the Technical Specialist Competency Program for the level of worker for which they were hired. If skills and competencies are not met during that period, the employee can be demoted to the level of worker for which he/she is qualified.

Ideal Candidate

This position is a career path series within TDOT. The Traffic Modeling Technical Specialist I, II, or III demonstrates a combination of technical expertise, analytical skills, and effective communication abilities. They not only possess technical capabilities, but also have a truly visionary approach to using data-driven insights to shape future transportation systems. They possess a collaborative spirit and can work effectively within a matrix organization, always willing to continuously update their knowledge as technology and data analytics advance.