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. TDOT Aeronautics is located near the John C. Tune Airport in Nashville, TN.

Bridge Performance Engineering Specialist
Structures Division – Bridge Performance Section
Nashville, TN
$80,784 - $88,860 annually

Job Overview

The Bridge Performance Engineering Specialist 3 and 4 assists in providing bridge performance technical expertise to the Structures Division. This position collaborates with Project Teams by helping to identify potential bridge performance challenges and implementing statewide acquired knowledge that focuses on ensuring quality deliverables, minimizing variability, and increasing the safety and performance of Tennessee's transportation system.

The Bridge Performance Engineering Specialist 3 and 4 ensures Department policies, technical guidance, and procedures are incorporated into bridge performance deliverables and assists in implementing the Quality Assurance Program.

This position will apply acquired knowledge to improve TDOT specifications, policies, and procedures that mitigate the Department's risk and increase performance as part of fulfilling TDOT's strategic vision. This position must effectively articulate technical engineering concepts through training, mentoring, and collaborating as part of a matrix organization.

Essential Job Duties of the TDOT Transportation Engineering Specialist 3 and 4 include:

Serve as a resource for Project Teams as part of a matrix organization by applying the Project Delivery Network (PDN) and TDOT's Quality Assurance Program, identifying potential capacity concerns in proposed designs and making recommendations for proactive solutions with other disciplines to ensure the project needs are met. Follow TDOT Quality Management processes for deliverables through all project phases supporting effective team Utilization Percentages.

Integrate Quality Management Guidelines into all deliverables, including policies, procedures, and manuals with respect to bridge performance in order to reduce rating errors and re-work, right-of-way delays, construction delays, and contractor claims.

Assist the Section by providing technical knowledge and support related to conventional or complex bridge performance matters in effectively and efficiently optimizing the Team's ability to successfully address project needs and unanticipated challenges.

Perform and review in-house load ratings and evaluations on bridges, ranging in complexity and risk from simple to highly complex. Analyze complex structures such as Nonredundant Steel Tension Members (NSTM) bridges, frames, curved steel structures, etc., using analysis methods or modeling software to determine structural demand and capacity. Recommend load postings for bridges that require restricted capacities. Assist with structural reviews and structural analyses as necessary when critical deficiencies are identified. Assist in the determination of scopes for the Bridge Repair Work Program with the Bridge Repair Section. Conduct field reviews to determine and verify appropriate bridge inspection practices, load rating postings, repair materials and methodologies, and rehabilitation projects. Assist with data management for load rating results in applicable bridge rating management software.

Routinely collaborate with Project, Region Bridge Teams, and Asset Management to identify and document knowledge on industry best practices to avoid past errors and ensure TDOT project successes. Assist with modifications to all applicable policies, procedures, standards, specifications, and special provisions. Maintain knowledge of applicable codes and any future changes relevant to the bridge discipline by participating in learning opportunities. Provide lessons learned on projects as improvements to leadership through formal and informal presentations. Collaborate on strategies used as best practices for statewide quality assurance needs. Continue to grow skills for design and modeling software tools for structures.

Responsible for providing bridge load rating analysis and posting results according to the AASHTO Manual for Bridge Evaluation (MBE), the Federal Highway Administration (FHWA) Specifications for the National Bridge Inventory (SNBI)/National Bridge Inspection Standards (NBIS), and TDOT policy, procedure, standards, specifications, and computerized program protocols. Collaborate with TDOT divisions, the FHWA, and other external stakeholders. Use critical thinking and engineering judgment to problem solve and make well-informed decisions that increase the safety, performance, sustainability, and efficient delivery of TDOT's transportation system.

Assist in ensuring Bridge Performance deliverables are accurate, consistent, predictable, and repeatable to provide consistently high levels of achievement, mitigation of risk, and an established track record of success. Assist the Structures Section as needed on various reviews and tasks within the team. Coordinate with the Bridge Performance Team regarding rating analysis outputs, load rating postings and repair needs.

Provide input with the development of a Consultant Acquisition Plan (CAP) for bridge performance services by serving on selection committees for professional engineering services as part of the Brooks Act, including assisting with Request For Proposal (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, negotiating contracts, attending de-briefs for consultants where usable feedback must be provided, and monitoring contract compliance.

Participate in the review of local program contracts and bid documents to ensure TDOT specifications, policies, and procedures are included to provide concurrence on bid packages. Assist in the preparation of project proposals and bid files. Assist in managing the handling and coordination of Bid Authorization Forms and Bid Conditioning Letters as appropriate. Support the execution final contracts through TDOT's awards process.

Provide exceptional customer service to both internal and external customers, including mentoring and technical guidance related to bridge performance, 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.

Additional Job Duties for the TDOT Transportation Engineering Specialist 4 include:

Coordinate with the TDOT Technical Training Director and assist in the development and presentation of training that addresses the bridge and structures performance training program, oversight of local programs, acquired knowledge,

risk management, TDOT performance metrics, governing rules and processes, reporting procedures, and emerging technologies related to transportation for the purpose of improving team performance, creating a stronger understanding of the transportation industry, inspiring new ideas, and developing skills.

Participate in the development, implementation, and maintenance of all State Specifications, Special Provisions, Circular Letters, and applicable standard guidance. Assist with shop drawing reviews.

Provide innovative recommendations and solutions utilizing technology such as drones and 3D modeling for Bridge Performance activities.

Qualifications

The Transportation Engineering Specialist 1 and 2 are part of the Graduate Transportation Engineer (GTE) Program.

Transportation Engineering Specialist 3:

- Bachelor's Degree in Civil Engineering or Structural Engineering
- 2 years of demonstrated competency in bridge performance or related field

OR

- Master's Degree in Civil Engineering or Structural Engineering
- 1 years of demonstrated competency in bridge performance or related field

Transportation Engineering Specialist 4:

- Bachelor's Degree in Civil Engineering or Structural Engineering
- 3 years of demonstrated competency in bridge performance or related field

OR

- Master's Degree in Civil Engineering or Structural Engineering
- 2 years of demonstrated competency in bridge performance or related field

Ideal Candidate

This position is a part of the career path series at TDOT. The Bridge Performance Engineering Specialist 3 and 4 possess exceptional problem-solving and communication skills, which enable them to effectively articulate bridge performance data and technical concepts to stakeholders. They have an analytical mindset and great attention to detail, which helps them identify inefficiencies and opportunities for improvement that contribute to the success of bridge performance projects. The Bridge Performance Engineering Specialist 3 and 4 understand that the best results are achieved through collective effort and effective communication.