

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.



Engineering Concepts Transportation Engineering Specialist 3 & 4
Project Management Division – Engineering Concepts and Statewide Programs
Section
Nashville, TN
\$80,784 - \$88,860 annually

Job Overview

The Engineering Concepts Transportation Engineering Specialist 3 and 4 supports TDOT's Project Management Division by analyzing, developing, and refining transportation engineering concepts that guide early-stage project planning and decision-making. This position focuses on technical feasibility, project risk assessment, cost estimating, and quality assurance to ensure that projects meet State and Federal standards while addressing safety, efficiency, and sustainability goals.

The Engineering Concepts Transportation Engineering Specialist 3 and 4 is responsible for collaborating with both internal and external stakeholders, including TDOT Divisions, Project Teams, Federal Highway Administration (FHWA), and external stakeholders to develop and evaluate engineering concepts as early planning activities.

This position will continuously evaluate performance indicators to implement acquired knowledge into 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 Transportation Engineering Specialist 3 and 4 include:

Support the Program and Project Teams by effectively evaluating local transportation plans and local government approvals for alignment with critical goals, Asset Management target outcomes, purpose and need, access management, resource and regulatory restrictions, program eligibility, and TDOT policies. Deliver conceptual layouts, Bridge Concept Reports, and preliminary cost estimates that implement statewide innovative advancements, maximize the service life of transportation infrastructure and address potential effects on natural, physical, cultural, and community resources. Implement the FHWA/TDOT Standard Operating Procedure's (SOP) two-step process for all new or revised access points.

Integrate Quality Management into all deliverables, including policies, procedures, and manuals with respect to all engineering concepts work products to ensure the accuracy of design criteria, designs, cost estimates, applicable analyses,

documentation, and project controls. Ensure alignment with TDOT standards and policy and FHWA requirements, as applicable.

Provide conceptual layouts and analyses including Highway Safety Manual Predictive Crash Analysis, Crash Rate Analysis, and ancillary structure design using applicable engineering software. Determine project footprints in coordination with the TDOT Environment, Right-of-Way, and Traffic Operations Divisions. Assist in ensuring design decisions are focused on safety and risk mitigation by presenting potential context-sensitive design concepts and implementing strategies that improve road safety. Collect the most current traffic data for the agreed upon area of influence (AOI) for the project, including existing and historical AADT, turning counts and crash rates for the AOI, land use data, environmental data, and any planned or programmed projects within the AOI.

Remain current and engaged on transportation and contextual design best practices, economic and community development, applicable local regulations and requirements, program eligibility requirements, changes to specifications, and innovative construction practices. Research national best practices to optimize designs, methodologies, and safety considerations.

Provide exceptional customer service to project customers, including coordinating with other disciplines as part of a matrix organization, to ensure early involvement in the development of engineering concepts, coordinating with stakeholders, facilitating the sharing of acquired knowledge with Project Teams, mentoring and technical guidance related to the development and analysis of engineering concepts, exercising effective listening skills, providing prompt responses, maintaining complete and accurate documentation, and communicating effectively.

Mitigate potential areas of risk associated with early project planning documents, including Interstate Access Requests (IAR), Bridge Concept Reports, and Concept Reports through comprehensive investigation efforts, implementation of acquired knowledge, and contextually appropriate conceptual designs. Support the development of cost estimates, integrating factors such as design complexity, right-of-way constraints, and environmental considerations. Collaborate with the Project Team to proactively address environmental, constructability, maintenance, and risk factors in early project development. Monitor the effectiveness of implemented risk mitigation strategies and provide additional recommendations as needed.

Additional Job Duties for the Transportation Engineering Specialist 4 include:

Coordinate with the TDOT Technical Training Director and assist in the development and presentation of training that addresses engineering concept elements, including acquired knowledge, risk management, TDOT performance metrics, governing rules and processes, reporting procedures, and emerging technologies for the purpose of improving team performance, creating a stronger understanding of engineering concept deliverables, inspiring new ideas, and developing skills.

Assist Program and Project Teams by evaluating complex conceptual layouts supporting legislative projects, potential economic development projects, interstate connector projects, and TDOT and local government bridge replacement projects, and determining potential incompatibilities with other technical discipline requirements. Break down complex issues, including the identification of causes and their cause-and-effect relationships.

Develop Scope of Services documents for consultant Engineering Concept services.

Perform quality control reviews of engineering concept deliverables, focusing on proactively addressing context-sensitive design needs, mitigating constructability issues, and comprehensively addressing the purpose and need. Provide recommendations in response to identified risks related to the conceptual layout and applicable analyses. Verify the proposed design complies with the goals of Asset Management, the Scope of Work, applicable TDOT standards, federal and state policies and guidelines, and all other project-specific requirements.

Provide innovative recommendations and solutions for engineering concepts, encouraging Economic Project Teams to develop and implement innovative processes and design elements to improve the efficiency of TDOT's systems and programs.

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
- 2 years of demonstrated competency in transportation engineering

OR

- Master's Degree in Civil Engineering
- 1 year of demonstrated competency in transportation engineering

Transportation Engineering Specialist 4:

- Bachelor's Degree in Civil Engineering
- 3 years of demonstrated competency in transportation engineering

OR

- Master's Degree in Civil Engineering
- 2 years of demonstrated competency in transportation engineering

Ideal Candidate

This position is a part of the career path series at TDOT. The Engineering Concepts Transportation Engineering Specialist 3 and 4 possess exceptional problem-solving and communication skills, which enable them to effectively articulate 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 developing reliable engineering concepts. The Engineering Concepts Transportation Engineering Specialist 3 and 4 understand that the best results are achieved through collective effort and effective communication.