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.

ITS Transportation Engineering Specialist 3 & 4
Traffic Design – ITS Section
Nashville, TN
$80,784 - $88,860 annually

Job Overview

The Intelligent Transportation Systems (ITS) Transportation Engineering Specialist 3 & 4 supports Project Teams, Technical Divisions, and Region Operations through the application of Department specifications, policies, technical guidance, and procedures into the design of ITS-related assets. This position collaborates with technical disciplines and Project Teams to prioritize safety and cohesiveness for ITS elements in support of TDOT's project delivery process.

The ITS Transportation Engineering Specialist 3 & 4 assists and supports in the planning, design, development, and deployment of Intelligent Transportation Systems (ITS) across Tennessee. This role supports the integration of advanced traffic technologies to improve safety, mobility, and operational efficiency on statewide transportation projects. This position works collaboratively with internal teams, consultants, contractors, and local partners to identify, coordinate, and implement ITS solutions that meet both federal and state standards. Responsibilities include providing technical guidance during design and implementation, ensuring quality control, and maintaining proficiency in emerging ITS technologies and best practices.

The ITS Transportation Engineering Specialist 3 & 4 maintains a strategic role in optimizing TDOT's infrastructure through proactive and predictive traffic management strategies. Collaborating with divisions including Traffic Operations and Asset Management, and Region Traffic Operations and Transportation Management Centers. This position supports ITS integration into initiatives like Active Traffic Management (ATM), Integrated Corridor Management (ICM), and Managed Lanes to enhance corridor performance. This position will engage in mentoring and training within a matrix organization, transforming project control activities into high-quality deliverables aligned with asset management goals. This position will assist and support ITS standards, systems engineering and architecture planning needs, assess device modernization and system risk management. This position continuously evaluates performance indicators to implement acquired knowledge into ITS elements, mitigating the Department's risk and increasing performance as part of fulfilling TDOT's strategic vision and objectives.

Essential Job Responsibilities of Transportation Engineering Specialist 3 and 4 include:

Serve as a resource to Project Teams by applying the Project Delivery Network (PDN) to define and guide the scope of ITS elements throughout all project stages, ensuring alignment with overall scope, schedule, and budget. Assist in the production and

design of ITS plans and other project deliverables. Provide technical expertise to Region Operations teams by conducting traffic and safety studies that identify congestion issues, analyze crash patterns, and support the justification for ITS deployments through targeted safety and mobility improvements. Support the Traffic Operations Division by developing ITS maintenance agreement mechanisms, tracking corridor performance metrics, and implementing real-time congestion mitigation strategies. Collaborate with multidisciplinary teams, including Statewide ITS and Emerging Technologies Engineers, as well as planning, roadway, traffic, and environmental staff to integrate ITS considerations throughout project development. Coordinate with regional teams to manage project schedules, align ITS with safety and mobility programs, and represent TDOT at public meetings. Proactively identify and communicate potential conflicts, such as utility impacts, ROW constraints, and work zone limitations, and assist in preparing ITS-related recommendations and alternatives based on project-specific conditions and best practices.

Integrate Quality Management into all deliverables to proactively address plan errors, prevent ROW delays, and reduce contractor claims while resolving comments from Quality Control reviews and ensuring compliance with Quality Management Guidelines for Traffic Operations. This includes safeguarding network performance, identifying operational and maintenance concerns post-deployment, and mitigating construction-related risks. Ensure ITS elements align with established standards, including the National ITS Architecture and TDOT guidelines, and support quality assurance by verifying project documentation such as ITS Project Identification Forms and Systems Engineering Analyses. Develop and review accurate ITS cost estimates to maintain budget alignment and minimize scope changes.

Assist and support the integration of ITS components such as fiber-optic networks, wireless communications, and operating systems while incorporating emerging technologies to improve safety, efficiency, and reliability across TDOT's multimodal network. Stay current on national best practices, assist in ITS corridor planning, and assist with the review of regulatory compliance. Integrate ITS strategies into TDOT initiatives like Active Traffic Management and emergency strategies, guide complex work zone scenarios, and address legislative and local ITS operational concerns. Promote innovative solutions, ensure ITS interoperability, and support continuous improvement through tracking mechanisms that ensures the traffic design program, software, and systems are continually evolving to meet TDOT's operational and technology ITS needs. Promote the integration of advanced and innovative technologies such as connected and autonomous vehicles, smart traffic signals, artificial intelligence, drone technology, and real-time data analytics tools into the TDOT's transportation network.

Assist in ensuring design decisions are prioritized and focused on safety and risk mitigation by presenting potential context-sensitive design concepts and implementing strategies that improve road safety, including the collaboration of roadway safety features with Traffic Operations, the development of work zone impact management strategies, and traffic control concepts based on input from Region Traffic Operations, and the implementation of acquired knowledge. Ensure the reliable operation of managed lanes, optimizing safety and efficiency across TDOT's transportation network.

Provide exceptional customer service to both internal and external customers by mentoring and providing technical guidance related to traffic operations, 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 on revisions to design codes, standards, and guidelines related to traffic design ITS elements, adopt new innovative technologies and best practices that increase traffic throughput, reliability, and safety for TDOT's transportation network; assist in implementing policies and procedures related to ITS traffic design. Research national best practices to optimize designs, methodologies, and safety considerations.

Coordinate and mitigate potential areas of risk with Project Teams, Asset Management, Region Construction, Region Maintenance, and Traffic Operations throughout the project delivery process. Assist in ensuring ITS deliverables are

consistent, predictable, and repeatable to maintain consistently high levels of achievement, mitigate risk, and establish a track record of success by assisting and supporting the implementation of statewide policy, data collection, specifications, and direction. Utilize best practices and TDOT policy for the incorporation of maintenance and operation of ITS elements, including access to acquired knowledge across the Regions. Monitor the effectiveness of implemented risk mitigation strategies and provide additional recommendations as needed.

Additional Job Responsibilities 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 ITS elements, including acquired knowledge, risk management, TDOT performance metrics, governing rules and processes, reporting procedures, and emerging technologies related to ITS design for the purpose of improving team performance, creating a stronger understanding of the ITS elements, inspiring new ideas, and developing skills.

Assist Project Teams by evaluating complex ITS studies, planning, and designs to determine potential incompatibility with other technical discipline requirements. Break down complex issues, including the identification of causes and their cause-and-effect relationships.

Assist and support with developing Scope of Services documents for consultant ITS studies and design services. Assist and support in the development of a Consultant Acquisition Plan (CAP) for Region Traffic Operations 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.

Verify compliance with the Quality Management Guidelines for ITS elements by ensuring the performance of the transportation network is safeguarded, operational and maintenance concerns are addressed, and construction delays and contractor claims are mitigated. Assist the Quality Teams by conducting reviews in alignment with the Project Delivery Network (PDN) and TDOT's Quality Assurance Guidelines while identifying potential constructability and maintenance concerns in proposed designs. Perform quality control reviews of ITS design elements, proactively addressing plan errors and constructability issues. Provide recommendations to mitigate risks and ensure that designs align with Asset Management goals, the Scope of Work, TDOT standards, and federal and state policies, ensuring all project-specific requirements are met.

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 Engineering
- 2 Years of demonstrated competency in developing and/or designing transportation projects

OR

- Master's Degree in Engineering
- 1 year of demonstrated competency in developing and/or designing transportation projects

Transportation Engineering Specialist 4:

- Bachelor's Degree in Engineering
- 3 years of demonstrated competency in developing and/or designing transportation projects

OR

- Master's Degree in Engineering
- 2 years of demonstrated competency in developing and/or designing transportation projects

Ideal Candidate

The ITS Engineering Specialist 3 & 4 has a proven track record in traffic engineering and ITS, fostering collaboration and ensuring the successful execution of both simple and complex projects. Committed to public safety, they serve as strong communicators who bridge the gap between technical experts and stakeholders while mentoring and supporting team members in their growth and development. As a mobility leader, they are passionate about improving safety, reducing congestion, and enhancing travel reliability. Detail-oriented and adept at balancing multiple priorities, they apply problem-solving skills and industry best practices to assess challenges and implement solutions that improve project outcomes. Through effective communication, training, and mentorship, they make complex concepts understandable, working collaboratively with internal and external stakeholders to drive TDOT's mission forward.