

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.



ITS Deployment Transportation Engineer

Traffic Operations Division - TSMO Section, ITS Deployment

Nashville, TN

\$99,348 annually

Job Overview

The Intelligent Transportation Systems (ITS) Deployment Transportation Engineer will work in a team setting that provides engineering support and expertise to the Transportation Systems Management and Operations (TSMO) Section. This position collaborates with Project Teams by identifying potential ITS Deployment challenges and implementing statewide acquired knowledge to ensure quality deliverables, minimize variability, and increase the safety and performance of Tennessee's transportation system. This position will also assist with planning and implementing the TSMO Section's performance metrics and plans, schedules and budgets, development of various technical reports, and assurance of continuity and consistency statewide.

The ITS Deployment Transportation Engineer ensures Department policies, technical guidance, and procedures are incorporated into ITS Deployment deliverables. This position will be involved in overseeing Quality Assurance and Quality Control of the ITS Deployment programs and the implementation of best practices at HQ and in the Regions. This position will assist the ITS Deployment Team Lead and the TSMO Manager with implementing statewide work plans, meeting the Section's strategic vision, and ensuring compliance with Federal and State laws and requirements pertaining to ITS Deployment. This position will collaborate with ITS Design Section, Region Traffic Operations, and Construction team members to effectively deploy and maintain ITS assets. The ITS Deployment Transportation Engineer will research national best practices to drive innovation and efficiency within each team setting as part of the TSMO Section. This position must effectively articulate technical engineering concepts through training, mentoring, and collaborating as part of a matrix organization.

Essential Job Responsibilities

Review complex traffic engineering studies and analyses, safety studies, incident crash reports, traffic data, congestion mitigation studies, and other engineering and technical studies to identify and recommend ITS Deployment needs and provide data-driven decisions that improve safety, reliability, and reduce congestion. Strengthen the TSMO teams by providing technical engineering expertise and support in matters related to complex and/or unique ITS Deployment-related challenges to allow the TSMO Section and Regional staff to perform their roles effectively and efficiently, optimizing the Team's ability to address unanticipated challenges successfully. This may include working closely with Region staff to manage Construction Engineering

Inspection (CEI) consultants to ensure that inspection and project management services are effective and meet the goal of deploying and managing ITS assets. Assist in the development and maintenance of corridor performance metrics that identify real-time congestion locations and the cause of recurring congestion, bottlenecks, incidents, work zones, weather events, and other operational deficiencies.

Assist in the development of Consultant Acquisition Plans (CAP) for ITS Deployment services and assist in the oversight of external partners by serving on technical review committees, 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, and attending de-briefs for consultants where usable feedback must be provided. Review consultant projects having a high degree of risk to the Department for compliance with TDOT's policies and procedures for ITS Deployments.

Ensure compliance with the Quality Management policy related to ITS Deployment elements to minimize plan errors, rework, permit and right-of-way delays, construction delays, and contractor claims. Support the ITS Design and Quality Teams by conducting reviews according to the Project Development Network (PDN) and TDOT's Quality Assurance Program, identifying potential operational and constructability concerns in proposed designs, and collaborating with other technical disciplines to recommend proactive solutions that meet project needs.

Routinely collaborate with HQ, Regions, and Asset Management to identify and document knowledge on industry best practices to avoid past errors and ensure TDOT project successes. Assist and support with compliance and modifications of all applicable policies, procedures, standards, specifications, and guidelines related to ITS Deployment elements; provide input to the Asset Management Division Data Systems Manager regarding ITS Deployment performance measures and accomplishments.

Contribute to Project Teams as part of a matrix organization by providing ITS Deployment expertise, defining expectations for how the Project Team manages risk; assisting in developing the project vision in alignment with Asset Management; assisting in defining critical goals and intended outcomes for the scope, schedule, budget, and quality in coordination with the Project Manager related to ITS Deployment and ITS Design elements; participating in Risk Management Assessments. Provide input at all applicable project milestones per the PDN; assist in support of Project Management staff with respect to the ITS Deployment and ITS Design Scope of Work in collaboration with TDOT Environment, Permits and Right-of-Way, Roadway, Maintenance, and Construction; apply multi-modal context-sensitive freeway modeling and methodologies; attend public meetings as a Department representative to assist with addressing stakeholder concerns. Effectively coordinate with other technical disciplines within TDOT to address all potential ITS Deployment and ITS Design elements as part of the Functional Design Plans development per the PDN; providing approvals on ITS Deployment design-related products and deliverables, when applicable; and proactively assessing risk factors related to legal aspects, public relations and safety for ITS Deployment elements.

Provide exceptional customer service to both internal and external customers, including mentoring and providing technical guidance related to ITS Deployment, 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.

Prepare reports, summaries, and presentations for TDOT leadership and stakeholders on ITS performance and trends. Assist in the review of project plans, engineering designs, and installation work for constructability and ITS Deployment strategies in compliance with TDOT and federal guidelines. Coordinate with Transportation Management Centers (TMCs), Information Technology (IT), and other technical disciplines to establish route destination travel times on Dynamic Message Boards statewide. Develop maintenance life cycle replacement schedules that assess system performance and device modernization needs. Assist with the ITS infrastructure maintenance, coordinating regular inspections, repairs, and updates. Provide ITS deployment coordination with ITS

expansion projects, ITS maintenance, roadway projects that add ITS, and/or relocate existing ITS. Work with contractors, vendors, and other teams to manage installation schedules and troubleshoot any deployment issues.

Assist and coordinate with related TDOT operational technical disciplines for the implementation of new technologies and best practices to improve TSMO and Freeway Management strategies, such as managed and choice lanes, TMCs, Highway Emergency Local Patrol (HELP), High Occupancy Vehicle (HOV), High-Occupancy Toll (HOT), traffic incident management (TIM), ramp metering, Integrated Corridor Management (ICM), connected vehicle technologies, and advanced traffic management systems; integrate statutory and regulatory requirements into all TSMO elements and tasks. Provide assistance and support for future updates and developments to the TDOT ITS Strategic Plan and planning requirements of the TDOT Deployment Plan, Fiber Deployment Plan, and ITS Architecture plan.

Work with a variety of stakeholders including region staff and IT, ensure seamless interoperability across ITS technologies, platforms, and software and develop integration strategies with local, regional, and federal partners and assist with communications infrastructure like fiber optics and wireless networks for real-time operations. Collaborate with IT specialists to establish reliable data transmission between field devices and Transportation Management Centers (TMCs), troubleshooting to maintain consistent, secure, and accurate data flow. Collaborate with IT specialists to ensure cybersecurity and compatibility with legacy systems while minimizing disruptions. Participate in contractor ITS site systems burn-in testing as needed to confirm new systems function within the ITS architecture and continuously monitor performance, coordinating maintenance, inspections, and updates as needed.

Collaborate with the TDOT Technical Training Director and assist in the development of training that addresses acquired knowledge, including technical elements and emerging technologies related to ITS Deployment for the purpose of improving team performance, creating a stronger understanding of ITS Deployment elements as they relate to the transportation industry, inspiring new ideas, and developing skills.

Assist in ensuring ITS Deployment deliverables are consistent, predictable, and repeatable to maintain consistently high levels of achievement, mitigate risk, and establish a history of success by implementing statewide policy, data collection, processing standards, specifications, and direction. Utilize best practices and TDOT policy for the incorporation of ITS Deployment elements, including access to acquired knowledge across the Regions.

Qualifications

- Bachelor's Degree in Engineering
- Licensed Professional Engineer (PE)
- 4 years of demonstrated competency in developing and/or constructing traffic operations transportation projects

Ideal Candidate

The ITS Deployment Transportation Engineer is an expert in all aspects of ITS Deployment. They possess strong attention to detail and are committed to improving the safety and performance of ITS Assets. With a wealth of technical expertise, they offer unique solutions to ITS Deployment challenges. The ITS Deployment Transportation Engineer's analytical skills allow them to predict and prevent issues before they become problematic, ensuring ITS sustainability and performance that improves safety and travel reliability. They possess excellent communication and collaboration skills, which enable them to communicate complex technical information with stakeholders at all levels effectively.