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 Integration Transportation Engineer
Traffic Operations Division – TSMO Section
Nashville, TN
$99,348 annually

Job Overview

The Intelligent Transportation Systems (ITS) Integration 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 Integration challenges and implementing statewide acquired knowledge to ensure quality deliverables, minimize inconsistency, 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 Integration Transportation Engineer ensures Department policies, technical guidance, and procedures are incorporated into ITS Integration deliverables. This position will be involved in overseeing Quality Assurance and Quality Control of the ITS Integration programs and the implementation of best practices at HQ and in the regions in collaboration with IT partners. 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 Integration. The ITS Integration 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

Maintain awareness and foundational knowledge of traffic engineering studies and analyses, safety studies, incident crash reports, traffic data, congestion mitigation studies, and other technical engineering reports. Provide data-driven decisions regarding traffic management software and data management 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 Integration-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. Assist in the development and maintenance of software, systems, and data management tools that will improve the tracking 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 Integration 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 Integration.

Ensure compliance with the Quality Management policy related to ITS Integration elements to minimize plan errors, rework, permit and right-of-way delays, construction delays, and contractor claims. Support the 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, IT, and Asset Management to identify and document knowledge on industry best practices to avoid past errors and ensure TDOT project successes to document system requirements for future or enhancements to existing software, systems or data management tools. Assist and support with modifications and implementation of all applicable policies, procedures, standards, specifications, and guidelines related to ITS Integration elements; provide input to the Asset Management Division Data Systems Manager regarding ITS Integration performance measures and accomplishments. Ensure that any ITS Asset Management or Fiber Management system is interoperable with existing or future Data Systems Manager.

Contribute to Project Teams as part of a matrix organization by providing ITS Integration expertise in regards to future software or system needs based on ITS project design, 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 Integration elements; participating in Risk Management Assessments. Provide input at all applicable project milestones per the PDN; assisting in support of Project Management staff with respect to the ITS Integration Scope of Work in collaboration with TDOT Environment, Permits and Right-of-Way, Roadway, Maintenance, and Construction; applying multi-modal context-sensitive freeway modeling and methodologies; attending 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 Integration elements as part of the Functional Design Plans development per the PDN so that software needs are identified early in the design process; providing approvals on ITS Integration design-related products and deliverables, when applicable; and proactively assessing risk factors related to legal aspects, public relations and safety for ITS Integration elements.

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

Work with a variety of stakeholders including region staff and IT to ensure seamless interoperability across ITS technologies, platforms, and software. Develop integration strategies across regions and jurisdictions, collaborating with transportation entities at all levels. Manage integration and ongoing support for ITS software and systems that support ITS communication infrastructure, including fiber optics, wireless networks, and data links for real-time operations. Coordinate with IT specialists to effectively manage the integration and ongoing support for ITS software that will facilitate reliable data transmission between field devices and Traffic Management Centers (TMCs), ensuring continuous, accurate data flow. Collaborate with IT specialists to maintain secure integration to prevent cybersecurity threats, ensure compatibility with legacy systems, and minimize disruptions. Conduct integration testing and work closely with IT specialists to monitor system performance, troubleshooting issues that impact functionality. Collaborate with TMCs and IT teams to display travel times statewide on Dynamic Message Boards.

Collaborate with IT Specialists for ITS software and system maintenance and ongoing support, coordinating repairs, and installation schedules with contractors and vendors. Responsible for the ongoing support of key ITS software and systems such as the SmartWay Central Software (SWCS) and ancillary systems. Collaborate with a variety of stakeholders including ITS Design, the Regions, and IT to capture system requirements to be used in software development and enhancements and operational needs that can be met with new ITS software and systems. Work with Data Management partners in Traffic Design and Traffic Operations to manage ingestion external data sources. Work with IT to manage distribution of timely and accurate data to motorists.

Assist and coordinate with the software requirements gathering for implementation of new technologies and best practices to improve ITS Integration needs, 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. Collaborate with the ITS Design Section to ensure compliance with 23 CFR 940 regarding maintenance of Statewide ITS Architecture.

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 Integration for the purpose of improving team performance, creating a stronger understanding of ITS Integration elements as they relate to the transportation industry, inspiring new ideas, and developing skills.

Assist in ensuring ITS Integration 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 Integration 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 networking or software, developing and/or constructing traffic operations transportation projects

Ideal Candidate

The ITS Integration Transportation Engineer is an expert in all aspects of ITS Integration. They possess strong attention to detail and are committed to improving safety and performance of ITS Assets and software. With a wealth of technical expertise, they offer unique solutions to ITS Integration challenges. The ITS Integration 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 effectively communicate complex technical information with stakeholders at all levels.