

## 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.



### **Statewide ITS Transportation Engineer** Traffic Design Division – ITS Section \$118,500 annually

#### **Job Overview**

The Statewide ITS Engineer is a statewide transportation engineer position that will manage all aspects of TDOT's ITS processes and systems as part of a Project Team directly responsible for delivering projects for all phases of the Project Delivery Network (PDN) in accordance with the project's scope, budget, risk, and the TDOT Strategic Plan. These projects will range in complexity and risk from simple to highly complex. The ITS role requires collaboration with multiple TDOT Divisions, project team members, contractors, consultants, and other external stakeholders. It requires 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.

The Statewide ITS Engineer ensures Department policies, technical guidance, procedures, software, and systems related to ITS are current and accurate for incorporation into the project delivery process. Assists in implementing the Quality Assurance Program as part of the State Traffic Design Division's activities to reduce errors, delays, and contractor claims. Assist the Director of Traffic Design in the development of ITS Architecture for both stand-alone projects and in support of larger roadway design projects. The Statewide ITS Engineer assists with monitoring and managing the scope, permitting, schedule, and budgets of all ITS projects and working with the Project Management Division to make the required adjustments as necessary to ensure that the work completed is in alignment with the Department's Asset Management and Strategic goals.

#### **Essential Job Responsibilities**

Serve on Project Teams as part of a matrix organization as the ITS Subject Matter Expert (SME) that supports transportation design elements; developing the project vision in alignment with Asset Management objectives and funding allocation; defining critical goals and intended outcomes for the scope, schedule, budget, and quality in coordination with the Project Manager; applying context-sensitive design strategies; implementing innovative concepts; proactively assessing risk factors; and, for Project Teams associated with Alternative Delivery Contracts, forecasting the cause and effect of implementing Alternative Technical Concepts related to the Request for Proposal (RFPs), project cost, and construction timing. Optimize the Project Team's ability to mitigate risk and address unanticipated challenges while meeting the project's scope, schedule, and budget.

Participate in the development and implementation of an ITS Deployment Plan. Ensure alignment with the organizational TDOT Strategic Plan and the Transportation Systems

Management and Operations (TSMO) Strategic Plan including the application of emerging technologies. This includes but not limited to; safety, signals, TMCs, congestion/reoccurring management, work zones, TIM, current and legacy maintenance needs/costs, device modernization, systems architecture expansion, communications, funding needs, multi-modal integration, data backhaul and utilization, software programs, and other technologies that may impact current and future ITS operational needs. Collaborate with the Unmanned Aircraft Systems (UAS) Program staff to develop and implement policy, procedures, and ITS-related initiatives related to the use of UAS within the ITS Section.

Collaborate with HQ and Asset Management to learn from past successes and mistakes. Lead an ITS process improvement team, developing strategies and recommendations to ensure ITS deployment meets regional needs. Integrate Quality Management to reduce errors and delays and assist Project Teams with reviews as part of TDOT's Quality Assurance Program.

Assist in the development of Consultant Acquisition Plans (CAP) and oversight of external partners by serving on selection committees for professional engineering services as part of the Brooks Act. Provide support in the development of the Request for Proposal (RFP), attending project-specific marketing meetings, determining scoring criteria, participating in project information sessions, serving as a scorer as part of the consultant acquisition process, and attending de-briefs with consultants. Conduct independent reviews of the engineer's cost estimate at project milestones during pre-construction activities and provide the final cost estimate that encompasses relevant factors related to the scope of a project, the cost of resources, and national and global market trends.

Assist with integrating various components and systems related to ITS, such as fiber-optic and wireless networking, radio communications, and operating systems. Stay up-to-date with national best practices for traffic technology placement and assist with developing plans to improve mobility for TDOT employees and the public. Incorporate emerging technologies into transportation projects for greater efficiency, reliability, and safety. Ensure compliance with statutory and regulatory requirements. Take a multi-modal approach to all ITS concepts and initiatives, including highways, transit, bicycles, pedestrians, freight, aeronautics, and rail.

Attend and facilitate public meetings as a representative of TDOT. Assist the Region Traffic ITS Program Engineer with coordinating project production according to the Department's ITS Work Program. This includes coordinating with the region's Work Program Unit so that project schedule and control can be efficiently managed. Assist and support collaborative integration to advance ITS with traffic reliability and safety programs, TMCs, work zones, traffic incident management (TIM), signals, road weather management/maintenance, and sensory technologies that align and add value to TDOT and the ITS Mission and Vision (TBD).

Assist in the development of training, mentoring, and technical guidance to TDOT internal and external stakeholders that addresses acquired knowledge, risk management, technical design elements, and emerging technologies related to ITS for the purpose of improving team performance, creating a stronger understanding of the transportation industry, inspiring new ideas, and developing skills. Participate in regional/national working groups and training opportunities related to ITS. Administer and manage TDOT's estimating program and software.

Provide exceptional customer service to both internal and external customers, exercising effective listening skills, providing prompt responses, maintaining complete and accurate documentation, coordinating with other disciplines as part of a matrix organization, and communicating effectively.

### **Qualifications**

- Bachelor's degree in engineering
- 12 years of demonstrated competency in developing and/or constructing transportation projects.

### **Necessary Special Qualifications**

- Licensed Professional Engineer (PE)

### **Ideal Candidate**

The ITS Engineer brings the team a wealth of expertise in emerging technologies. They are a skillful problem solver and communicator, ensuring the successful execution of simple and complex projects. The ITS Engineer is committed to public safety in every aspect of their work. They are a critical team who can assist with bridging the gap between technical experts and stakeholders. They readily share their expertise and passion with their team and keep an eye on the future from a transportation system perspective. As an ITS and innovation leader, they are passionate about ensuring the agency's projects increase safety, mobility, and leverage technology to fulfill TDOT's mission.

## General Work Conditions

Yes / No

- Is this position generally performed in an office environment?
- Will work for this position be frequently performed in a field environment and may sometimes require working in inclement weather, working in a construction site, being exposed to heavy construction equipment, and doing extensive walking?
- Is this position a combination of office and field environment?
- Is an alternative work schedule including work from home eligible for this position? If yes, how many days will it be work from home and how many days in office?  
 -Days from home: up to 2 days  
 -Days from office: up to 3 days
- Is this position required to work under exposure to inclement weather and environmental conditions?
- Will this position require travel including overnight?

<b>Physical Requirements</b>		<i>Select the frequency of each physical activity. The activity must be related to the position and consistent with business necessity.</i>			
Physical Activity Required	None	Occasional (less than 1/3)	Frequent (1/3 to 2/3)	Regular (more than 2/3)	
Standing	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Walking	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Bending	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Reaching/stretching overhead	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Crouching or stooping	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Balancing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Pushing or pulling	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Repetitive use of hands/arms	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Repetitive use of legs	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Grasping	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Lifting – check the frequency for each weight range below. If the job doesn't require any lifting activities, check "None" on each line below.</b>					
Up to 20 pounds	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
21 - 50 pounds	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
51 – 75 pounds	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Carrying - check the frequency for each weight range below. If the job doesn't require any carrying activities, check "None" on each line below.</b>					
Up to 20 pounds	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
21 - 50 pounds	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
51 - 75 pounds	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Eye/hand coordination	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

<b>Speaking</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>Hearing</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>Seeing (with correction)</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>Close vision</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>Distance vision</b> - ability to see objects clearly from a distance, usually from 20 feet or more.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Color vision/perception</b> - ability to distinguish colors.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Peripheral vision</b> - what is seen on the side by the eye when looking straight ahead.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Depth perception</b> - ability to judge the distance of objects and the spatial relationship of objects at different distances.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<b>Position Description Team Members</b>	<i>Provide a list of SMEs who helped develop the position description. Include name and work area.</i>
Andy Barlow	TDOT – Director Traffic Design
Steve Cook	RIC
Mark Geib	RIC
Alicia McConnell	RIC