



# TDOT Engineering Technician I, II, or III

## AGENCY OVERVIEW AND PROGRAM FOCUS

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.

## SUMMARY

TDOT Engineering Technicians are responsible for driving the daily transportation operation functions within the department including participation in surveying, materials sampling, materials testing, construction inspection, and documentation of daily activities.

Employees in this classification series are eligible to promote to the next level in the career path series upon successful mastery of the classification's required skills blocks as laid out in the TDOT Engineering Technician Proficiency Program.

## GENERAL POSITION DESCRIPTION

### TDOT Engineering Technician 1

This is the entry level. The employee will work in a training capacity under the direct supervision of a foreman. This position will be expected to work in a team setting to learn the required foundational level skills to perform assigned routine pre-construction, construction, and material duties and to become certified in the work elements required to promote to the TDOT Engineering Technician 2 classification.

### TDOT Engineering Technician 2

This is the intermediate level. The employee will work under general supervision of a foreman. This position will be expected to work in a team setting with increased responsibility to perform moderately complex pre-construction, construction, and material duties and to become certified in the work elements required to promote to the TDOT Engineering Technician 3 classification.

### TDOT Engineering Technician 3

This is the experienced level. The employee will work under the general, indirect supervision of a foreman, with the authority for direct oversight in certain complex decision-making situations. The employee will be expected to work both independently, and in a team-setting, to perform highly



complex pre-construction, construction, and material duties. This position will assist with field/laboratory training and serve as a mentor to junior staff, with all unusual issues being reported to a supervisory level.

## RESPONSIBILITIES

**NOTE:** The job responsibilities listed are typical examples of the work performed by positions in these job classifications. Not all duties assigned to every position are included, nor is it expected that all positions will be assigned every duty.

The essential duties for TDOT Engineering Technician I, II and III include:

- Performing preventive maintenance and repairs on assigned equipment, including calibrating lab and mobile testing and/or survey equipment to ensure proper functioning and performing operator-level maintenance such as topping off fluid levels, greasing service points, and maintaining tire pressure
- Judging whether a sample is appropriate for testing and conducting testing and calculations in the areas such as aggregate, soils, asphalt, concrete, density, field measurements, and manufactured products
- Performing instrument work in conjunction with various laboratory and field tests, surveys, and inspections
- Reading, interpreting, and applying contract documents, legal documents, and project design plans as part of daily inspection activities
- Monitoring and inspecting producers' facilities, processes, and equipment, as well as sites, bridges, and materials to maintain contract compliance, ensuring the work is completed according to applicable specification and standards and ensuring proper certification of materials
- Maintaining records, preparing daily reports, project progress reports, test reports, and inspection reports as required
- Conducts field reviews and investigations on construction issues for proposed mitigation; regularly monitoring highway assets to determine the need for replacement, repair, or changes in conditions
- Operating computer hardware and software, testing equipment, data collectors, and other equipment to generate and/or complete reports, document, and present collected statistical data, and communicate with others to capture and maintain project information
- Operating light duty vehicles and other equipment, including operating equipment to remove snow and ice from highways and bridges
- Performing other job responsibilities as assigned
- Communicating with internal and external customers, including local businesses, local governments, contractors, and first responders



Additional duties for TDOT Engineering Technician II and III include:

- Inspecting traffic control during construction operations, during events to maximize system operations, and in assistance to law enforcement officers after a traffic related event to ensure traffic flow and system operations
- Ensuring the quality of pre-cast and pre-stressed construction components for acceptance of usage

Additional duties for TDOT Engineering Technician III include:

- Assisting in the training of employees by providing on-the-job training and guidance as needed to facilitate learning and development.
- Providing feedback to preconstruction units on project design elements that resulted in change orders, schedule delays, and construction quality issues
- Providing feedback to Headquarters Divisions on improvements for project development, processes, and programs
- Leading crews of technical staff by equitably assigning tasks to team members to ensure timely completion of all work assignments

## QUALIFICATIONS

**Education and Experience:** High school diploma; General Educational Development diploma.

**The Tennessee Department of Transportation reserves the sole right in determining the level of position based on the applicant's work experience, education, skill level, and all other appropriate factors, and based on business need. Within 6 months of hire, employees must demonstrate successful mastery of corresponding work competencies and skill blocks of the Technician Proficiency Program for the level of worker to which they were hired. If skills and competencies are not met during that period, the employee can be demoted to the level of worker for which he/she is qualified.**

**TDOT Engineering Technician 1:** Entry level Engineering Technician. No prerequisites other than High School Education or equivalent. Eligible for promotion to TDOT Engineering Technician 2 upon satisfactory review and completion of the required skills and competency elements\* of the TDOT Engineering Technician 1 level, including having obtained the appropriate level of Commercial Driver's License based on the employee's age (see Necessary Special Qualifications) and job location.

**TDOT Engineering Technician 2:** Intermediate level Engineering Technician. Must have successfully completed the required skills and competency elements\* of the TDOT Engineering Technician 1 level. Eligible for promotion to TDOT Engineering Technician 3 upon satisfactory review and completion of the required skills and competency elements\* of the TDOT Engineering Technician 2 level.

**TDOT Engineering Technician 3:** Experienced level Engineering Technician. Must have successfully completed the required skills and competency elements\* at the TDOT Engineering Technician 2



level.

\*Each level of the TDOT Engineering Technician Series will have a defined Work Element Plan that details a set number of hours of core and elective skills and competencies and the corresponding exam and demonstration requirements that must be completed for eligibility to move forward to the next level of the series.

### **Knowledge, Skills, Abilities, and Competencies**

The required KSACs for TDOT Engineering Technicians I, II and III include:

- Knowledgeable in basic report and form writing
- Knowledge of applicable industry standards
- Knowledgeable in street and highway traffic rules and regulations, and temporary signing and safety precautions to be observed while working on or near highways and construction sites
- Knowledgeable in laboratory and field testing and inspection safety procedures
- Knowledgeable in applicable hand and power tools, equipment, and mechanical devices of the trade
- Knowledgeable in reading and interpreting contract documents
- Skilled in basic math
- Ability to operate light and heavy highway equipment
- Ability to use computers and applicable programs, applications, and systems
- Ability to recognize and take precaution for potential hazards
- Ability to communicate effectively
- Ability to follow verbal and written instructions
- Ability to maintain effective work relationships with individual and groups, both internal and external

Additional KSACs for TDOT Engineering Technician II and III include:

- Skilled in street and highway traffic rules and regulations, and temporary signing and safety precautions to be observed while working on or near highways and construction sites
- Skilled in laboratory and field testing and inspection safety procedures
- Ability to train individuals – recognizing applicable teaching and learning methods and how to communicate curriculum respectively
- Ability to analyze a process and offer actionable feedback on how to improve the process effectiveness, quality, and efficiency
- Ability to read and interpret contract documents

Additional KSACs for TDOT Engineering Technician III include:

- Skilled in training individuals – recognizing applicable teaching and learning methods and how to communicate curriculum respectively
- Skilled in analyzing a process and offering actionable feedback on how to improve the process effectiveness, quality, and efficiency
- Skilled in reading and interpreting contract documents



### **Necessary Special Qualifications for TDOT Engineering Technicians**

*Some positions in these classifications are assigned job duties that may require the following to operate a designated state vehicle:*

- Possess and maintain a Class D driver's license valid to operate vehicles in the State of Tennessee.
- If under age 21, employees must, at their own expense and within eleven months, obtain a Class A Commercial Driver's License that is valid in the State of Tennessee (a Code O, Code K, and Code 52 restriction is allowable); Code L restriction is not allowable, testing must be completed in a manual transmission vehicle.
- If you are currently a TDOT employee in possession of Class A Commercial Driver's License when you reach the age of 21, you must possess and maintain, or obtain at your own expense and within 3 months of your 21<sup>st</sup> birthday, a Class-A Commercial Driver's License with an N endorsement that is valid in the State of Tennessee.
- If age 21 or older and not currently employed with TDOT, you must possess and maintain, or obtain at your own expense within eleven months of hire, a Class-A Commercial Driver's License with an N endorsement that is valid in the State of Tennessee. Employees will have five months from hire or promotion into this classification to obtain the applicable permits leading to eligibility for the specific required license. Code L restriction is not allowable, testing must be completed in a manual transmission vehicle.

### **Conditions of Employment**

- Must pass a drug test prior to employment for commercial driver and safety impact positions. Commercial drivers and safety impact employees will be subject to additional drug and alcohol testing during employment
- Incorporating overtime, weekends, and night shifts into their schedules as work schedules dictate; specific positions may require on-call schedules
- Extended durations outdoors in extreme weather conditions
- Working in and around construction and vehicular traffic
- Walking on uneven terrain
- Climbing ladders and construction scaffolding
- Carrying equipment and samples in excess of 25 pounds
- Driving long distances are required as part of daily duties
- Performing work in which personal protective equipment will be required to be worn