

MICHIGAN CIVIL SERVICE COMMISSION
JOB SPECIFICATION
TRANSPORTATION TECHNICIAN

JOB DESCRIPTION

Employees in this position are engaged in a variety of tasks related to the design, construction and operation of transportation facilities (e.g. roadways, bridges), real estate and railroad activities.

There are five classifications in this job.

Position Code Title - Transportation Technician-E

Transportation Technician 8

This is the entry level. The employee works in a training capacity performing a range of assignments related to the design, construction and operation of transportation facilities (e.g. roadways, bridges) while receiving close supervision.

Transportation Technician 9

This is the intermediate level. The employee works in a developing capacity with increased responsibility performing a range of assignments related to the design, construction and operation of transportation facilities (e.g. roadways, bridges).

Transportation Technician E10

This is the experienced level. The employee performs a full range of assignments related to the design, construction and operation of transportation facilities (e.g. roadways, bridges) using considerable independent judgment in making decisions in order to apply guidelines with considerable latitude to a variety of work situations.

Position Code Title - Transportation Technician-A

Transportation Technician 11

This is the advanced level. The employee serves as a lead worker, assigning and directing the work of lower-level technicians, or as a senior worker, responsible for the most complex assignments related to the design, construction and operation of transportation facilities (e.g. roadways, bridges). Senior-level employees perform complex assignments beyond those expected at the experienced level which have been approved by Civil Service.

Position Code Title - Transportation Technician-SS

Transportation Technician 12

There are two distinct classification concepts at this level. In the first instance, the employee serves as the sole technical assistant to an engineer manager; or, the employee serves as a staff specialist utilizing specialized technical knowledge in performing highly complex transportation technician assignments involving authority for an assigned program. Staff specialist positions are one of a kind, have sole and full-time responsibility for an assigned program area, and are recognized by Civil Service.

NOTE: Employees generally progress through this series to the experienced level based on satisfactory performance and possession of the required experience.

JOB DUTIES

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

Supervise, monitor and inspect construction projects to maintain contract compliance. Inspects construction projects ensuring the work is completed according to specification, ensures proper certification of materials, maintaining records, preparing daily reports and project progress reports. Performs inspection on such construction items as culverts, sewers and drainage structures, base or surface course, placement of guardrail, sodding and seeding, erosion control, and pavement patching, inspects permit work. Inspect bridge deck forming, bridge repair, sandblast cleaning operation, inspects phases of bridge, grading and paving projects and painting operations. Prepares written inspection reports and records as required. Assist with inspection of utility installations, railroad bridges and culverts.

Prepares traffic plans for construction projects, including plans for both construction and permanent signs and markings. Reviews traffic control set-ups for safety and compliance.

Conducts field reviews/investigations on problem locations, takes measurements, traffic counts, determines the adequacy of signing and pavement markings and makes recommendations, reviews permit applications for encroachment; writes and issues permits.

Performs various laboratory and/or field tests; aggregate gradation testing, construction or right-of-way survey activities, concrete testing such as air content and slump, sampling on materials proposed for construction to determine compliance with specifications, concrete or bituminous paving materials to ensure quality control specifications are met.

Perform field surveys, taking pictures, video taping project areas, measuring and recording track characteristics and components.

Performs instrument work, such as computing and/or staking substructure lines and grades, foundation piles, structure excavation limits, curbs and gutters, sewers and underdrains, culverts, box culverts and major drainage structures, excavation and embankment grades, cross sections and slopes, rights-of-way for road or bridge layouts, vertical and horizontal alignments for roadways, and vertical controls for drainage.

Performs office technician work such as: reviewing and making out daily reports, plans, proposals, specifications, assisting with cost estimates, e-construction preparation, construction manuals, and contract documents; setting up, reducing and checking field books, drafting, plotting cross sections, computing areas and volumes, preparing field books and sketches for land clearings, organizing and maintaining engineering files and library, and making contractor's payments.

Reviews and processes permit applications from state agencies, private businesses, and the general public to construct within the highway right-of-way; including the identifying of adverse effects of proposed construction and preparing written responses to applicants.

Review and provide expertise on required design documentation. Advise staff on special letting requirements. Review final design plans for inclusion of legal and technical nomenclature.

Review construction plans, assist with bid process facilitation.

Review and maintain trunkline bridge projects. Prepare and submit advertising material to Finance for trunkline bridge projects.

Review contract bidding documentation on trunkline road projects.

Coordinates details leading to the issuance or denial of construction and utility permits.

Evaluates soils and surface materials and makes recommendations to project engineers for projects under construction. Conducts soil borings to determine soil classifications and other subsurface conditions.

Confers with personnel employed by contractors, public utilities, city and county engineering departments, or consultants regarding coordination of construction project activities.

Draws architectural and engineering details of roadways, buildings, structures, topographical features and more using computer generated techniques and programs.

Prepares detailed designs, drawings, or strip maps for roadway improvements and control devices.

Prepares charts and graphs for the presentation of statistical data.

Maintain and enter data into data systems and programs. Perform computer data entry, run computer programs, create graphic files, create plan base sheets, update graphical base sheets, update and make changes to computer.

Operates Global Position System (GPS) and Electronic Distance Meter (EDM) equipment to take and check measurements.

Documents construction progress and activities in computerized record keeping programs by maintaining detailed project records and preparing periodic reports on project progress, including materials used, and test results.

Attend staff progress meetings and design meetings

Trains seasonal and other employees in activities related to the design, construction and operation of transportation facilities (e.g. roadways, bridges).

Operates heavy-duty dump trucks with snowplows, underbody blades, sand and salt spreaders, and liquid applications to remove ice and snow accumulation from highways and bridges.

Performs related work as assigned.

Additional Job Duties

Transportation Technician 9 - 12

Attend public meetings i.e. village, city, township meetings.

Transportation Technician E10 - 12

Perform reviews for DBE compliance.

Recommend changes for standards of work, policies and procedures.

Perform quality assurance and quality control activities.

Utility relocation permit activities.

Special detail activities.

Transportation Technician 11 (Lead Worker)

Oversees the work of other transportation technicians by scheduling and reviewing work assignments, establishing work priorities, coordinating activities in the work area, and resolving problems related to the work.

Oversees and assures the quantity and quality of the work by requiring strict adherence to established methods and procedures.

Explains work instructions and adapts, if necessary, pertinent general methods and procedures in order to meet required needs.

Trains lower level Transportation Technicians.

Transportation Technician 11 (Senior Worker)

Performs on a regular basis transportation technician activities which are recognized as the most complex.

Transportation Technician 12 (Staff Specialist)

Exercises independent authority and responsibility for assigned program area.

Serves as the recognized expert within a program area, and provides technical assistance and training to other departmental staff and local government agencies.

Performs technician assignments involving responsibility for coordinating an assigned program department area.

Transportation Technician 12 (Technical Assistant)

Serves as the sole technical assistant to an engineer manager.

Assists the engineer manager in staffing projects, determining equipment needs, and controlling costs.

Oversees the technical functions and daily activities of assigned projects.

Prepares work orders and contract modifications for work item changes.

Can serve as a final authority to stop work on a project when the work is not in compliance with department plans and specifications.

Reviews preliminary plans and contracts and makes recommendations to the Engineer Manager. Provides interpretation of formal contracts, proposals, project plans and specifications, etc.

Represents the department at meetings with the public, other agencies, utility companies, contractors, etc.

Reviews project documents and quality of work in order to support the payment or denial of payment to contractors.

Recommends fines for contract violations.

JOB QUALIFICATIONS

Knowledge, Skills, and Abilities

NOTE: Some knowledge in the area listed is required at the entry level, developing knowledge is required at the intermediate level, considerable knowledge is required at the experienced level, thorough knowledge is required at the advanced level, and extensive knowledge is required at the second, advanced level.

Knowledge of the function and operation of automated drafting equipment and computer graphics equipment.

Knowledge of nomenclature and conventional symbols of mapping, architectural, and engineering drawings.

Knowledge of design and commercial planning concepts and techniques, including design manuals, standard plans and specification, construction manuals and engineering and drafting practices.

Knowledge of source documents such as proposals, plans, specifications, standard plans, supplements, memorandums, and manuals.

Knowledge of proper use of survey equipment, grade and line, temperature corrections in chaining, survey accuracy requirements, documentation requirements, and field notes requirements.

Knowledge of highway maintenance, construction, traffic design and materials procedures, techniques, terminology and specifications.

Knowledgeable in the use of construction survey equipment.

Knowledge of and ability to perform hot mix asphalt and concrete materials testing.

Skill in operating computers and related software applications to record and receive data and make decisions regarding highway field work.

Skill in the use of a variety of testing equipment.

Skill in the use of surveying instruments and equipment.

Ability to read, interpret, or explain applicable standards, technical literature, regulations, plans, and specifications; ability to accurately and clearly complete required paperwork.

Ability to express ideas clearly and concisely, both orally and in writing in normal and stressful conditions; use of construction equipment, inspection and testing, knowledge of practices, principles, standards and guidelines as related to highway design, construction, traffic, materials testing, permitting, surveying, and highway construction; demonstrated ability to establish and maintain effective working relationships with associates and others.

Ability to inspect Portland concrete forming, density, joint sealing and finishing, foundation piling, concrete curb and gutter, bituminous surfacing, and shoulders.

Ability to prepare maps, drawings, and tracings neatly, accurately, and legibly.

Ability to operate automated drafting and computer graphics equipment.

Ability to make accurate drawings to scale from field notes, design drawings, sketches, and verbal instructions.

Ability to obtain or retain required technical certifications within three months of employment, and keep current for duration of employment.

Ability to read and interpret traffic design and construction plans and specifications.

Ability to maintain effective working relationships with private, public, local, state, and federal personnel as well as other department personnel.

Ability to work under extreme weather conditions and environmental conditions of work site.

Additional Knowledge, Skills, and Abilities

Transportation Technician 11 (Lead Worker)

Ability to determine work priorities and assign work to employees.

Ability to explain instructions and guidelines to others effectively.

Ability to organize and coordinate the support activities of a specific work area.

Transportation Technician 11 (Senior Worker)

Ability to perform the most complex transportation technician assignments.

Transportation Technician 12 (Staff Specialist)

Knowledge of the programmatic and developmental aspects of assigned program area.

Ability to organize and operate assigned program.

Ability to adapt new technology and methods to increase program effectiveness.

Transportation Technician 12 (Technical Assistant)

Knowledge of contract administration.

Ability to explain instructions and guidelines to others effectively.

Ability to organize and coordinate the work of multiple projects.

Ability to advise and assist the engineer manager in relation to on-going or proposed construction projects.

Ability to evaluate consultants and contractors.

Ability to negotiate contract amendments and changes to plans.

Ability to interpret and provide guidance on construction standards and practices.

Working Conditions

Work is performed in field locations, office settings, and may require movement from one location to another, as well as exposure to work along busy highways, in adverse weather conditions, and on a variety of uneven or slippery surfaces.

Some jobs require work on high structures, exposure to hazardous work environments, travel, and work in tunnels and crawl spaces.

Working after hours, on weekends, and holidays is required of some jobs.

Physical Requirements

The job duties require an employee to: stand, bend and reach for extended periods of time, bend or stoop in confined spaces, climb ladders, walk for extended periods of time, work under stressful conditions, and move heavy objects.

Education

Possession of an Associate's degree in concrete technology, civil technology, construction technology, surveying technology, construction management, mathematics, or computer science.

Experience

Transportation Technician 8

No specific type or amount is required.

Transportation Technician 9

One year of experience equivalent to a Transportation Technician 8.

Transportation Technician E10

Two years of experience equivalent to a Transportation Technician, including one year equivalent to a Transportation Technician 9.

Transportation Technician 11

Three years of experience equivalent to a Transportation Technician, including one year equivalent to a Transportation Technician E10.

Transportation Technician 12

Four years of experience equivalent to a Transportation Technician, including two years equivalent to a Transportation Technician E10 or one year equivalent to a Transportation Technician 11.

Alternate Education and Experience

Transportation Technician 8 - 12

Possession of a Bachelor's degree or higher in an Applied Science or Science with 16 semester hours (24 term) credits in job specific or related course work qualifies for the Transportation Technician E10 level.

OR

Completion of 60 semester (90 term) credits including 24 semester (36 term) credits in any combination of course work in the following areas: structures, materials, soils, hydrology, surveying, design, drafting, bituminous, concrete, aggregate, chemistry, physics, geology, environmental science, computer science, highway or traffic technology, construction management, engineering, or mathematics may be substituted for the associate's degree.

OR

Four years of technician level experience consisting of quality control inspections, drafting, materials and testing, surveying, or traffic may be substituted for the Associate's degree.

OR

Current certification in bituminous (hot mix), concrete, density testing, or aggregate gradation and one year of technician level field experience may be substituted for the associate's degree.

OR

Current certification in bituminous (hot mix), concrete, density testing, or aggregate gradation and three years experience equivalent to a Transportation Maintenance Worker 9 may be substituted for the associate's degree.

OR

Current certification in bituminous (hot mix), concrete, density testing, or aggregate gradation and two years experience equivalent to an Engineering Assistant may be substituted for the associate's degree.

OR

Current certification in bituminous (hot mix), concrete, density testing, or aggregate gradation and completion of 16 semester (24 term) credits in any combination of course work in the following areas: structures, materials, soils, hydrology, surveying, design, drafting, bituminous, concrete, aggregate, chemistry, physics, geology, environmental science, computer science, highway or traffic technology, construction management, engineering, or mathematics may be substituted for the Associate's degree.

Special Requirements, Licenses, and Certifications

Some positions may require current certification in Comprehensive Soil Erosion and Sedimentation Control. Any positions performing sampling and testing of highway materials for federal-aid projects on the National Highway System (NHS), subsequent to June 29, 2000, must be performed by qualified technicians, certified in the requisite Bituminous (Hot Mix), Concrete, Density Testing or Aggregate Gradation per a Civil Technician qualification program to ensure compliance with the Quality Assurance Procedures for Construction

23 CFR 637, dated June 29, 1995.

Some positions are assigned job duties that may require possession of a Commercial Driver's License (CDL) issued by the Secretary of State as required by Public Act 346 of 1988 to operate a designated state vehicle.

Some positions are assigned job duties that may require Industry certifications in density, aggregate, concrete, and bituminous.

NOTE: Equivalent combinations of education and experience that provide the required knowledge, skills, and abilities will be evaluated on an individual basis.

JOB CODE, POSITION TITLES AND CODES, AND COMPENSATION INFORMATION

Job Code

TRANSTECH

Job Code Description

TRANSPORTATION TECHNICIAN

Position Title

Transportation Technician-E

Transportation Technician-A

Transportation Technician-SS

Position Code

TRNSTCHE

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TRNTCHSS

Pay Schedule

L32-006

L32-012

L32-013

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