

Iowa Department of Administrative Services – Human Resources Enterprise  
Job Classification Description

## Highway Technician Senior

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### Definition

Performs complex material testing, sampling, and inspection work; performs district bridge maintenance and repair work; or exercises lead-work responsibility over specialized highway maintenance, materials, inspection, and survey services; during construction season, participates/leads a team of employees that performs routine technical (e.g., inspecting/testing construction materials) and survey, field/lab tests and inspection duties; performs related work as required.

*The work examples and competencies listed below are for illustrative purposes only and not intended to be the primary basis for position classification decisions.*

### Work Examples

Assists supervisor by performing such duties as instructing employees, answering questions, distributing and balancing the workload, and checking work; may make suggestions on selection, promotions, and reassignments.

Performs technical engineering support and construction trades related work, including responsibility for inspection of small to moderately complex construction projects or construction survey projects.

Performs a variety of sampling, testing, and/or inspection procedures on various materials to ensure production quality and compliance with contract requirements.

Reviews traffic control set-ups for safety and compliance.

Performs duties related to snow and ice removal, which include: accessing the Roadway Weather Information System (RWIS), weather reports, and other related computer software applications to record and receive data and make decisions regarding times, temperatures, weather conditions, and material usage to operate snow and ice removal equipment, such as, but not limited to: single or tandem axle dump trucks that may be equipped with tailgate or hopper spreader, straight blades, or V-plows, wing plows, and underside ice blades; includes preparing and spreading abrasives and de-icing chemicals on the roadway by using a loader for mixing abrasives and chemicals.

Performs survey work which includes recovering survey markers, converting ancient terms of measurement to modern terms, and determining and excavating land/lot corners.

Performs and restores control points, stake proposed permanent easement points, compile and record information for use in final surveys, and prepare acquisition plats and legal descriptions.

Operates Global Positioning System (GPS) and Electronic Distance Meter (EDM) equipment to take and check measurements resulting in a positional accuracy as prescribed in the Code of Iowa.

Operates various highway maintenance equipment such as, but not limited to, tractors, dozers, loaders, trucks, graders, and snowplows for performing highway maintenance duties; oversees material usage crew operations and properly maintains appropriate records.

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

Inspects small to moderately complex construction projects to ensure the work is completed according to specification, which includes: sampling and testing materials to be used, ensuring proper certification of materials, coordinating and reviewing the activities of inspectors, maintaining records, preparing authorization for vouchers and project progress reports, and informing supervisor of problems.

Visually inspects the various fabrication processes of metal or concrete structures by observing manufacturing and testing on a daily basis; inspects the production/fabrication processes for other products on a periodic basis.

Visually inspects, measures, and sketches various bridge elements and performs district bridge maintenance and repair.

Samples, inspects, and monitors the quality control processes and materials of the manufacturer/producer/fabricator to ensure conformance with accepted practices and specifications. Observes testing and documentation of quality control personnel.

Works and communicates with internal and external clients and customers – such as contractors, suppliers, property owners, motorists, and law enforcement – to provide information and address issues.

Assists supervisor with evaluating roadway condition and determining work needs.

Assists with surveying of highway construction projects.

Responds as directed to roadway emergency situations.

## **Competencies Required**

### Knowledge:

- Building and Construction – Materials, methods, and the tools involved in the construction or repair of houses, buildings, or other structures such as highways and roads.
- Mechanical – Machines and tools, including their designs, uses, repair, and maintenance.
- Transportation – Principles and methods for moving people or goods by air, rail, sea, or road, including the relative costs and benefits.
- English Language – The structure and content of the English language, including the meaning and spelling of words, rules of composition, and grammar.
- Public Safety and Security – Relevant equipment, policies, procedures, and strategies to promote effective local, state, or national security operations for the protection of people, data, property, and institutions.
- Design – Design techniques, tools, and principles involved in production of precision technical plans, blueprints, drawings, and models
- Basic Arithmetic – Addition, subtraction, multiplication, and division.

### Abilities:

- Control Precision – Quickly and repeatedly adjust the controls of a machine or a vehicle to exact positions.

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- Oral Comprehension – Listen to and understand information and ideas presented through spoken words and sentences.
  - Manual Dexterity – Quickly move your hand, your hand together with your arm, or your two hands to grasp, manipulate, or assemble objects
  - Static Strength – Exert maximum muscle force to lift, push, pull, or carry objects.
  - Trunk Strength – Use your abdominal and lower back muscles to support part of the body repeatedly or continuously over time without 'giving out' or fatiguing.
  - Extent Flexibility – Bend, stretch, twist, or reach with your body, arms, and/or legs.
  - Arm-Hand Steadiness – Keep your hand and arm steady while moving your arm or while holding your arm and hand in one position.
  - Multilimb Coordination – Coordinate two or more limbs (for example, two arms, two legs, or one leg and one arm) while sitting, standing, or lying down. It does not involve performing the activities while the whole body is in motion.
  - Problem Sensitivity – Tell when something is wrong or is likely to go wrong. It does not involve solving the problem, only recognizing there is a problem.
  - Deductive Reasoning – Apply general rules to specific problems to produce answers that make sense.
  - Inductive Reasoning – Combine pieces of information to form general rules or conclusions (includes finding a relationship among seemingly unrelated events).
  - Near Vision – See details at close range (within a few feet of the observer).

**Skills:**

- Operation and Control – Controlling operations of equipment or systems.
- Coordination – Adjusting actions in relation to others' actions.
- Quality Control Analysis – Conducting tests and inspections of products, services, or processes to evaluate quality or performance.
- Monitoring – Monitoring/Assessing performance of yourself, other individuals, or organizations to make improvements or take corrective action.
- Operation Monitoring – Watching gauges, dials, or other indicators to make sure a machine is working properly.
- Active Listening – Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.
- Mathematics – Using mathematics to solve problems.
- Critical Thinking – Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.

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## Minimum Qualification Requirements

Applicants must meet at least one of the following minimum requirements to qualify for positions in this job classification:

- 1) Graduation from high school, GED, or equivalency, and experience equal to four years of full-time work in highway maintenance, equipment operation, construction inspection, field work in engineering survey, or materials inspection and testing.
- 2) A total of four years of education and/or full-time experience (as described in number one), where thirty semester hours of post-high-school education in highway maintenance, equipment operation, construction inspection, field work in engineering survey, or materials inspection and testing equals one year of full-time experience.
- 3) Current, continuous experience in the state executive branch that includes eighteen months of full-time work as a Highway Technician or Construction Technician.

## Notes

Positions in this class require possession of a valid Commercial Learner's Permit upon hire. Within a timeframe determined by the appointing authority, a valid Class A Commercial Driver's License with the required endorsements and applicable restrictions must be obtained and subsequently maintained in order to continue employment.

In conjunction with Title 49 of the Code of Federal Regulations (parts 40 and 382), this job requires a pre-employment drug screen and will require ongoing participation in the employer's random drug and alcohol testing program and will be subject to the regulations regarding the Federal drug and alcohol testing program.

Prior to starting employment, all persons are required to have a post offer, pre-employment physical verifying the physical ability to perform the duties described.

Within a period of time after hire, as determined by the appointing authority, employees in this class may be required to obtain and maintain Herbicide Applicator certification from the Department of Agriculture and Land Stewardship.

Positions require certification for testing materials and operating specialized equipment as required by the Iowa Department of Transportation's Technical Training and Certification Program for Highway Materials and Construction; and/or other certifications as required.

Within a period of time after hire, as determined by the appointing authority, employees in this class may be required to attend a comprehensive bridge inspection course required by the National Bridge Inspection Standards.

Travel, including overnight travel, may be required for positions in this class. Employees must arrange transportation to and from assigned work areas.

Within a timeframe determined by the appointing authority, employees in designated positions are required to reside within 30 minutes driving time, during normal conditions, from the assigned work location.

Employees must respond to emergency situations as required.

Employees must be able to work up to 16 consecutive hours.

*Effective date: 08/18 SA*