

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

Bridge Inspector 1

Definition

Performs trainee-level paraprofessional engineering work on a specialized team conducting detailed inspections of existing bridges; as a member of the office technical team, reviews/processes inspection data provided by the inspection teams; performs specialized maintenance activities on suspension bridges; 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 a team leader in planning, scheduling, and conducting various types of bridge inspections in accordance with the bridge inspection standards applicable for the individual situation and/or condition, including hands-on inspection of fracture-critical members in non-redundant structures.

Inspects various bridge components using visual inspection techniques and various mechanical and electronic devices; such as, magnetic particle and dye penetrant testing equipment, hand grinding tools used to find/evaluate fatigue cracks in steel members, calipers, increment borer and electronic depth finder.

Records the condition of various bridge components and enters bridge inspection data into an electronic records management system.

Prepares sketches and takes photographs showing conditions and/or deficiencies.

Makes and records measurements of dimensions, angles, distances, and/or vertical elevations using devices such as a transit, level, surveyor's chain, or tape.

Calculates steel areas for painting contracts.

Observes various components on suspension bridges and advises appropriate staff of any problems found.

Assists in preparing written reports describing bridge conditions and deficiencies.

Researches historical bridge information (e.g., design files, old plans, construction records, and past inspection data contained in microfiche files) for staff engineers.

Conducts quality assurance reviews and processes bridge inspection data provided by field inspection teams.

Designated positions perform 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, 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; may perform other maintenance duties as assigned.

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.
- Engineering and Technology – The practical application of engineering science and technology. This includes applying principles, techniques, procedures, and equipment to the design and production of various goods and services.
- Customer Service – Principles and processes for providing customer services, including customer needs assessment, meeting quality standards for services, and evaluating customer satisfaction.
- Law and Government – Laws, legal codes, court procedures, precedents, government regulations, executive orders, agency rules, and the democratic political process.
- English Language – The structure and content of the English language, including the meaning and spelling of words, rules of composition, and grammar.
- Mathematics – Arithmetic, algebra, geometry, calculus, statistics, and their applications.
- Mechanical – Machines and tools, including their designs, uses, repair, and maintenance.
- Design – Design techniques, tools, and principles involved in production of precision technical plans, blueprints, drawings, and models.

Abilities:

- 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.
- Near Vision – See details at close range (within a few feet of the observer).
- Far Vision – See details at a distance.
- Written Expression – Communicate information and ideas in writing so others will understand.
- 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.
- Visualization – Imagine how something will look after it is moved around or when its parts are moved or rearranged.
- Mathematical Reasoning – Choose the right mathematical methods or formulas to solve a problem.
- Extent Flexibility – Bend, stretch, twist, or reach with your body, arms, and/or legs.

Skills:

- Quality Control Analysis – Conducting tests and inspections of products, services, or processes to evaluate quality or performance.

- 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.
- Critical Thinking – Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
- Reading Comprehension – Understanding written sentences and paragraphs in work related documents.
- Speaking – Talking to others to convey information effectively.
- Writing – Communicating effectively in writing as appropriate for the needs of the audience.
- Judgment and Decision Making – Considering the relative costs and benefits of potential actions to choose the most appropriate one.
- Complex Problem Solving – Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions.

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 an accredited college or university with an associate's degree in civil or construction engineering technology, and experience equal to one year of full-time work in engineering survey, bridge safety inspection, bridge/road construction inspection, bridge/road maintenance, or bridge/road/building construction.
- 2) A total of three years of education and/or full-time experience (as described in number one), where thirty semester hours of accredited college or university course work in civil or construction engineering technology equals one year of full-time experience.
- 3) Current, continuous experience in the state executive branch that includes two years of full-time work in engineering survey, bridge safety inspection, bridge/road construction inspection, bridge/road maintenance, or bridge/road/building construction.

Notes

All positions in this class require successful completion of a Federal Highway Administration approved comprehensive bridge inspection training course required by the National Bridge Inspection Standards prior to appointment or within a period of time designated by the appointing authority.

All positions in this class are required to have and maintain a minimum of a valid Class C Non-Commercial Operator's License.

Designated 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 Commercial Driver's License with the required endorsements and applicable restrictions must be obtained and subsequently maintained to continue employment.

In conjunction with Title 49 of the Code of Federal Regulations (parts 40 and 382), designated positions in this job class require 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.

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 as 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, and may be required to work up to 16 consecutive hours.

Effective date: 06/19 SA