

STATE OF MONTANA

JOB DESCRIPTION

Montana state government is an equal opportunity employer. The State shall, upon request, provide reasonable accommodations to otherwise qualified individuals with disabilities.

Job Title: Bridge Inspection QA Engineer Position Number: 54150071 Location: Helena

Department: Transportation

Program Area and Bureau: Project Development and Delivery/Bridge Bureau

Section and Unit: Bridge Inspection Section

Job Overview: This position is an experienced and licensed professional structural engineer that provides statewide technical leadership for bridge inspection and load rating. It is an expert in SNBI bridge inspection and one or more major types of bridges such as steel girders, trusses, timber, prestressed concrete, or others. This expertise and other engineering knowledge is used to provide leadership to the statewide bridge condition inspection program (SNBI). This position also administers the NBIS Quality Assurance (QA) program, coordinates bridge operations with Motor Carrier Services, and assists with the bridge maintenance and scour program. This position travels statewide approximately 20% of the time, to work with inspectors and review bridge inspections and repairs.

This position collaborates closely with the Load Rating QA Engineer to meet program objectives. The Bridge Inspection QA Engineer oversees quality assurance for bridge inspection activities and provides support on load rating matters, while the Load Rating QA Engineer leads quality assurance for load rating activities and assists with bridge inspection topics. These complementary roles work in tandem to strengthen and complete each other's QA efforts, providing seamless, statewide technical leadership to bridge inspectors and load rating engineers in support of Montana's SNBI Bridge Inspection and NTIS Tunnel Inspection programs.

Essential Functions (Major Duties or Responsibilities):

Coordinate NBIS and NTIS Programs 65%

This position provides technical leadership and oversight to the NBIS bridge condition inspection program and the NTIS tunnel condition inspection program. Works with the District Bridge Inspection Managers to identify the underlying engineering issues on specific deficiencies identified

during condition inspections and evaluates these issues for corrective action on individual bridges and for their implication to the statewide inventory of similar bridges. Works with NBIS inspectors to determine the significance of changed conditions noted during NBIS bridge inspections. Determines need for, and performs, structural analysis to determine bridge capacity based on changed conditions. Administers the NBIS Quality Assurance program. Conducts Quality Assurance reviews both in the office and the field. Coordinates cross-district reviews. Administers and modifies the QA program to ensure bridge conditions are coded uniformly across the State and inspections are meeting standards. Uses QA review results to design program changes to ensure data integrity and bridge safety. Scope for change includes actual bridge inspection activities, district inspection coordination, quality control/assurance, and program policies. Reviews and sets standards for the NBIS Bridge Condition Inspection program. Ensures MDT program procedures comply with latest FHWA guidelines. Monitors trends in bridge inspection, both within the state and nationwide. Incorporates best practices into the program. Works with the District Bridge Inspection Managers on ideas identified in the districts. Evaluates changes and implements them statewide. Develops policy changes for the MDT Bridge Inspection, Tunnel Inspection manual, and Load Rating manual. Provides leadership and coordination for statewide bridge inspector meetings. Uses results of various activities, such as engineering issues identified on individual bridges, QA reviews, and trends and changes in the NBIS inspection procedures, to help determine training needs and discussion topics for bridge condition inspector meetings. Coordinates and delegates topic presentations and provides technical oversight for all areas. Develops and provides expertise statewide on one or more areas of bridge condition, deterioration, or analysis. The areas may be items such as steel fatigue, timber deterioration and rehabilitation, concrete beam rehabilitation and repair, or others. Coordinates consultant selection processes with the Consultant Design Bureau for specialized bridge inspections. Manage consultant contracts for specialized bridge inspection services. Provides technical expertise to inspectors on data entry in the bridge database (AASHTO BrM). Assesses training needs and develops procedures and policies for use of the bridge database.

Bridge Load Rating Support Operations 20%

Provides technical expertise on bridge load rating processes in support of the Load Rating QA Engineer in the following areas:

- Supports the Load Rating QA Engineer in developing and implementing guidance and policy related to bridge load rating processes.
- Provides technical expertise to assist with automating bridge load rating through the AASHTOWare BrDR software suite.
- Offers guidance on data input issues to help ensure bridge structural input is consistent, accurate, and reasonable.
- Reviews load rating analyses, outputs, and results to support accuracy, consistency, and adherence to engineering standards.

- Contributes feedback and technical input to the national BrDR steering committee for consideration in future software updates.
- Provides recommendations and technical insights regarding BrDR development funding levels.
- Assists with the coordination of consultant selection processes with the Consultant Design Bureau for bridge load rating term contracts.
- Supports the management of consultant term contracts for bridge load rating services.
- Assists the Load Rating QA Engineer in managing and performing overweight vehicle and route analysis projects to align with department policies and ensure maximum safety, structural integrity, and operational efficiency. These efforts also support state goals to balance infrastructure protection with the transportation and commerce needs of motor carriers.
- Helps develop and revise policies and permit requirements to reflect evolving bridge conditions, engineering standards, and safety considerations.
- Coordinate with Motor Carrier Services Division staff and managers to evaluate permitting processes and ensure effective customer service.
- Supports the performance and review of overweight truck permit analyses for Motor Carrier Services, examining bridge capacities on designated routes and identifying appropriate restrictions or conditions based on current bridge condition data.

Bridge Maintenance Support 5%

Provides coordinated bridge condition inspection and bridge maintenance. Facilitates prioritization of routine maintenance activities to optimize bridge preservation. Provides information on trends, deterioration rates, and severity, to optimize maintenance strategies. Assists the Bridge Maintenance Engineers in planning, coordinating, and performing specific bridge maintenance operations. Provides technical expertise and assistance in developing and executing specific, technically demanding, repair strategies.

Bridge Design 5%

Assists Bridge Design personnel in identifying bridges in need of repair, rehabilitation, and/or replacement. Provides technical assistance in producing final load ratings for newly designed bridges. Expert consultant for design crews on areas of expertise. These expertise areas are bridge design areas such as steel girder fatigue, pin and hanger design, concrete rehabilitation and detailing, timber condition and rehabilitation, or others.

Other Duties 5%

The position performs additional activities as assigned by the Bridge Inspection Program Manager in support of MDT's mission and division objectives. These responsibilities include participating in interdepartmental task forces, directing special projects, and pursuing ongoing training and

professional development. The position also develops training guides and manuals for internal MDT staff and consultant NBIS inspectors on a variety of topics related to bridge maintenance and structure management.

Supervision

The number of employees supervised is: 0

The position number for each supervised employee is: not applicable

Physical and Environmental Demands:

- Light lifting (less than 50lbs)
- Walk over uneven terrain, or in water, walk on structures spanning significant heights (i.e., 100+ feet), and use safety equipment (e.g., fall protection, hard hats, steel toe boots, etc.)
- Work near others in field and office situations
- Travel within the state to project locations (varies between 500 and 2500 miles per month), and out-of-state travel by airline to national conferences and meetings

Knowledge, Skills, and Abilities (Behaviors):

- This position requires a thorough and extensive knowledge of the theory, principles, methods and techniques of Civil Engineering and the associated mathematics and physical sciences, especially the methods and practices of bridge structural analysis.
- This position must be familiar with industry standards and specifications, bridge design and load rating standards, bridge and tunnel inspection standards, bridge and road construction methods and policies, industry guidelines and practices.
- Knowledge of the practices and regulations of personnel management; administrative and management concepts and practices.
- This position requires skill in effective written and verbal communications; organizing, directing and supervising professional and paraprofessional personnel; skill in project management, planning and organizing.
- This position must have demonstrated skills at performing structural engineering analyses and applying engineering concepts, techniques, and procedures to a variety of situations and circumstances. This position must be skilled at evaluating structural problems by examining evidence, discussions with peers and inspection personnel, reviewing calculations and contract documents to determine proper course of action; and skill in drawing conclusions and making recommendations based on ambiguous or conflicting information.
- This position requires skill in applying engineering judgment when interpreting design guidelines and standards, preparing calculations, reports, and other documentation necessary to complete inspection, repair, maintenance, and design projects.
- Communication: Initiates contact and regularly counsels the Districts (and others) to develop an understanding of needs, problems, and progress; keeps in touch to avoid or solve problems and clarify misunderstandings. Communicates effectively in a high stress and multi-task environment.

- **Leadership:** Demonstrates a consistent pattern of being able to recognize and initiate activities that need to be done to accomplish an objective; motivates associates and peers; creates a positive work climate; energizes subordinates by coaching and mentoring.
- **Relationship Building:** Establishes and maintains effective working relationships by utilizing a “customer service mindset” with fellow employees, Districts, other agencies, NBI inspectors (both internal and MDT term Consultants), and the public. Develops on-going internal and external relationships that are important for the continuation of current services and practices; obtains organizational short-term and long-term goals by negotiating with others; develops customer success and growth.
- **Teamwork:** Displays leadership by focusing on the desired results and work products; acknowledges and celebrates team efforts and accomplishments; identifies and pursues solutions in which all parties can benefit; supports team decisions and outcomes through actions and communication.
- **Self-Starter:** Recognizes opportunities and takes effective action to achieve results without being told; frequently re-examines the status quo and responds to both obstacles and opportunities; willingly accepts more responsibility or more work.
- **Problem Solving:** Develops ideas that are unique contributions to the Department, the Bridge Bureau and Bridge Inspection Section; identifies root causes of problems and thinks of alternative solutions; challenges the status quo by experimenting with new ideas.

Minimum Qualifications (Education and Experience):

- A bachelor’s degree in engineering from an ABET accredited engineering program that includes civil structural engineering courses in structural analysis, steel design, and reinforced concrete design.
- Graduate degrees with concentrations in structural analysis and design will be evaluated on a case-by-case basis.
- Registration as a Professional Engineer (PE) in Montana. Incumbents with PE registration in another State that are eligible for PE registration in Montana through Comity will be considered.
- Proof of successful completion (minimum 70% passing score) of a Federal Highway Administration (FHWA) approved comprehensive NBIS bridge inspection training course and certification as an NBIS Team Leader.
- Alternative qualifications include: Any combination of additional related work experience and education equivalent to the minimum qualifications.

Special Requirements:

List any other special required information for this position

Fingerprint check

Background check

Revision Date: 09/2025

Union Code

Other; Describe

Valid driver's license

Safety Responsibilities

The specific statements shown in each section of this description are not intended to be all inclusive. They represent typical elements and criteria considered necessary to perform the job successfully.

Signatures

My signature below indicates the statements in the job description are accurate and complete.

Immediate Supervisor	Title	Date
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Administrative Review	Title	Date
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My signature below indicates that I have read this job description.

Employee	Title	Date
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Human Resources Review

Job Code Title: Professional Engineer Job Code Number: D25021

My signature below indicates that Human Resources has reviewed this job description for completeness and has made the following determinations:

- | | |
|---|--|
| <input type="checkbox"/> FLSA Exempt | <input checked="" type="checkbox"/> FLSA Non-Exempt |
| <input checked="" type="checkbox"/> Telework Available | <input type="checkbox"/> Telework Not Available |
| <input checked="" type="checkbox"/> Classification Complete | <input type="checkbox"/> Organizational Chart attached |

Human Resources:

Signature	Title	Date
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