

# 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 Maintenance Engineer   Position Number: 41008 & 50054   Location: Helena**

**Department: Transportation**

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

**Section and Unit: Bridge Management Section**

**Job Overview:** This position serves as the Bridge Maintenance Engineer and is responsible for ensuring that bridges and other transportation structures under MDT's jurisdiction remain safe for the traveling public. The role involves evaluating the structural vulnerability of these facilities by reviewing NBIS bridge inspection reports, performing field assessments or remote evaluations, recommending repair and mitigation strategies, and overseeing the maintenance and repair of structurally or safety-deficient bridges and structures statewide.

Key responsibilities include responding to emergencies, assessing options and required actions, designing in-house bridge repairs, and overseeing their implementation. The Bridge Maintenance Engineer acts as a subject matter expert in structural engineering for District and Maintenance personnel on technical and procedural issues related to bridge maintenance.

**Essential Functions (Major Duties or Responsibilities):**

**District and Maintenance Resource 45%**

This position serves as the primary contact and resource for District Maintenance and NBI Bridge Inspection personnel, including internal MDT staff and consultant term contracts regarding structural issues. This position conducts bridge site visits to assess and evaluate structural and safety conditions using both visual and non-destructive testing methods. The role includes presenting repair options, estimating costs and resources needed, determining the expected service life of repairs, and recommending preferred alternatives. The position is responsible for preparing work plans, establishing schedules, coordinating resources and permits, and procuring necessary materials for approved repairs. In addition, this position serves as on-site project manager and bridge

and structures professional engineer of record for in-house repairs carried out by Maintenance personnel. Repairs are documented through Maintenance Action Reports, updated load ratings, and recorded details such as photos and technical notes in MDT's bridge database BrM. As an NBI Inspection Team Leader, the incumbent completes Damage, Repair, Special, Overload, Natural Disaster, and other inspections as required. The position also acts as a liaison between Maintenance and the Bridge Bureau for issues exceeding the scope of maintenance repairs and requiring Federal Aid Projects, providing input on preferred materials, design details, and specifications, while identifying non-performing bridge design features and recommending updates to improve long-term performance and reduce costs.

### **Maintenance Repair Design 15%**

This role includes serving as project manager and structural design engineer for bridge repair projects that are beyond the capabilities of in-house Maintenance personnel and equipment. The engineer prepares plans and special provisions for these projects. The position coordinates with District Maintenance to schedule projects, with Environmental Services to secure permits, with other Engineering Bureaus for non-bridge elements, and with contractors or fabricators to obtain preliminary cost estimates and discuss constructability.

### **Emergency Response 20%**

This position typically leads emergency response teams during bridge-related emergencies. These teams may include District Bridge Inspectors, Field Maintenance personnel, multi-discipline design engineers, and representatives from other state and local agencies. Responsibilities include conducting site visits to inspect damage, assess severity, declare Critical Findings, and recommend bridge closures or load restrictions to protect public safety. The position also recommends and facilitates emergency repairs, including selecting or designing temporary bridge structures or Bailey Bridge configurations. In doing so, the engineer takes responsibility for planning, facilitating, transporting, and overseeing the logistics, staging, and installation of temporary structures.

### **Mentoring Staff 10%**

This position serves as a mentor to Civil Engineering Specialist staff, assigning and overseeing bridge maintenance-related activities such as bridge design, load ratings, and inspections. The role includes providing guidance on technical issues, ensuring quality control of work products, and serving as a resource for staff questions. The engineer recommends training opportunities and helps define development needs to strengthen bridge maintenance expertise throughout the department.

### **Other Duties 10%**

The position performs additional activities as assigned by the Bureau Chief in support of MDT's mission and division objectives. These responsibilities include managing MDT's Bailey Bridge

inventory and logistics, 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 NBI 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: N/A

### **Physical and Environmental Demands:**

- Must be able to perform physical activity in lifting (greater than 50 pounds), carrying, and/or operating the tools, equipment and materials required for highway maintenance and operations. Must work in all types of weather conditions, dirt, dust, moisture, temperature, and fumes.
- 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, hardhats, steel toe boots, etc.)
- Work in close proximity to 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):**

- Thorough 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.
- Familiarity 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 of team leadership, management concepts, and oversight of technicians.
- Skill in effective written and verbal communications; project management, planning and organizing.
- Skilled at performing 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 consults with the Districts (and others) to develop an understanding of needs, problems, and progress; keeps in touch in order 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 Management 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):**

The required knowledge and skills are typically acquired through a combination of education and experience equivalent to Bachelor’s Degree 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.

- **Certifications, licensures, or other credentials include:** 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, or successful course completion and certification within 6 months of hire.
- 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*

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|--|--|
| <input type="checkbox"/> Fingerprint check | <input checked="" type="checkbox"/> Valid driver’s license |
| <input type="checkbox"/> Background check  | <input type="checkbox"/> Other; Describe                   |
| Union Code                                 | 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.

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

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<b>Employee</b>	<b>Title</b>	<b>Date</b>
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**Human Resources Review**

**Job Code Title: Professional Engineer 1**

**Job Code Number: D25021**

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

FLSA Exempt

FLSA Non-Exempt

Telework Available

Telework Not Available

Classification Complete

Organizational Chart attached

**Human Resources:**

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**Signature**

**Title**

**Date**