

# 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 Operations Engineer      Position Number: 54150010      Location: Helena**

**Department: Transportation      Division and Bureau: Engineering, Bridge**

**Section and Unit: Bridge Management Section, Bridge Operations Unit**

### **Job Overview:**

This position serves as the Bridge Operations Engineer and supervisor of the Bridge Operations Unit which is responsible for bridge analysis and load rating, bridge overload permitting, and bridge maintenance for over 5000 bridges in-service statewide. This position is responsible for ensuring public safety; maintaining program compliance with Federal laws, policies and guidelines; developing and monitoring statewide operations and budget estimates; developing and managing engineering contracts for consultant services and construction of rehabilitation and repairs of bridges; supervising staff work and quality; and promoting efficient and cost effective use of Department resources and funds. This work directly affects public safety and commerce and an advanced level of professional engineering experience is needed to identify and evaluate bridge conditions, perform advanced structural analysis for the current conditions, and recommend load posting, traffic restrictions, or repair projects. This position reports to the Bridge Management Engineer.

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

#### **Program Development and Implementation 40%**

- Directs, plans and coordinates statewide Bridge Operations including load rating, bridge overload permitting, bridge maintenance, and asset analysis for program planning.
- Continually evaluates program needs considering public safety, engineering, commerce, data quality and operational requirements.
- Develops and implements program modifications to ensure that the program meets current State, Federal and Department guidelines and standards.

- Develops budget estimates and monitors expenditures for bridge operations
- Develops and administers consultant contracts for program engineering support and construction projects
- Develops requests for proposals and purchasing requests for program support, technology, equipment, and vehicles
- Oversees the development of manuals and guidance to support program objectives and functions.
- Determines staff training needs and certification requirements to ensure consistent, quality bridge operations that meet State, Federal and Department guidelines and standards.

### **Program Operations 35%**

- **Bridge Load Rating:** Provides oversight and technical support for advanced level structural analysis on existing structures having a broad range of complexity, and determining the Load Rating and safe operating capacity for each structure. Provides technical expertise on bridge analysis and load rating processes. Reviews analysis outputs and other methods and results to ensure technical accuracy, consistency, and practicality. Provides guidance and direction on software applications and data input issues to ensure bridge structural modeling and input is consistent and reasonable. Determines the need for consultants to support in-house personnel with bridge load rating tasks.
- **Bridge Overload Permitting:** Manages MDT's overweight vehicle permitting and route analysis program to ensure department policies and restrictions maximize safety and protect infrastructure, while accommodating transportation and commerce needs of motor carriers. Develops and revises policies, procedures and permit requirements to reflect changing dynamics (e.g., bridge inventory condition, engineering and safety standards, etc.). Coordinates with Motor Carrier Services Division staff and managers to continually evaluate customer service needs and permitting processes.
- **Bridge Maintenance:** Oversees the Bridge Maintenance program and maintenance engineers. Evaluates workload and acquires additional resources as needed. Helps prioritize work items, develops and administers contracts to support bridge rehabilitation and repair projects, and supports the development of exigency projects to address emergent bridge safety and performance issues. **Bridge Asset Analysis:** Supervises and directs bridge asset analysis. Identifies bridge reconstruction, rehabilitation and preservation project candidates and priorities for use by a variety of Department staff for planning, budgeting and program justification to the Legislature. Assists in developing and implementing software for use in modeling deterioration and trends. Coordinates with the Bridge Inspection Engineer to identify the underlying engineering issues on specific deficiencies identified during condition inspections. Coordinates with Bridge Design staff to prioritize bridge repair and replacement projects. Performs site visits to evaluate structure conditions and

capacities during emergencies, such as flooding and earthquake events. Initiates and supports research and special projects that advance program objectives.

### **Staff Supervision and Management 25%**

- Supervises the work of unit personnel to ensure public safety and that the program's goals and standards are being met. This includes reviewing and revising work plans, priorities, and procedures, and monitoring progress through meetings and consultations.
- Identifies staffing needs, assists with recruiting and hiring employees, and allocates staff to adequately support ongoing inspection operations and activities statewide. This involves ensuring compliance with State and federal employment and civil rights laws throughout the hiring process, participating on personnel screening and selection committees, reviewing results and making final recommendations for hiring, and ensuring proper training and orientation of new employees.
- Determines training needs of staff through analysis of program effectiveness; evaluating new policies, procedures, and standards; evolving technologies; and staff performance. Prepares, presents, or coordinates training through personnel specialists, training offices, or outside consultants to ensure that modern technologies and operational strategies are available.

### **Other Duties 5%**

Performs a variety of engineering, project management, and other activities as assigned by the Bridge Management Engineer and Bridge Bureau Chief in support of Department mission and Division objectives.

### **Supervision**

The number of employees supervised is: 7

The position number for each supervised employee is: 41008, 50009, 50014, 50029, 50054, 50056, 50060

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

- Light lifting (less than 20lbs)
- Walk over uneven terrain, or in water, walk on structures spanning significant heights (i.e., 100+ feet), and use safety equipment (e.g., ropes, hardhats, etc.)
- Travel within the state to project locations (less than 500 miles per month), and out-of-state travel by airline to national conferences and meetings.
- Remain seated for extended periods of time, with occasional walking, standing and bending.
- Operate a personal computer, laptop, and small handheld electronic devices

- Communicate in writing, in person, and over the phone
- Perform complex engineering analysis
- Apply sound engineering judgment
- Communicate complex engineering ideas and concepts to staff, local agencies, and the public with varying levels of knowledge and education
- Manage stress from the responsibility of making decisions that affect public health and safety
- Interpret complicated and complex technical papers, manuals, laws, and publications
- Multi-task and meet inflexible deadlines
- Meet demands for accuracy in all aspects of work

### **Knowledge, Skills and Abilities (Behaviors):**

#### **KNOWLEDGE:**

- 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 AASHTO Design and Load Rating Specifications and standards, MDT design and load rating standards and policies, industry guidelines and practices, and bridge and road construction methods.

#### **SKILLS:**

This position requires skill in effective team building techniques; effective written and verbal communications; organizing, directing and supervising professional and paraprofessional personnel; dealing tactfully with the public and with governmental officials; skill in project management, planning and organizing. This position must have demonstrated skills 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. Effective writing and verbal communication skills are necessary.

#### **ABILITIES:**

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 with employees, Districts, other agencies, 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 work unit services and processes; 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.

At least 4 years of bridge related load rating, condition inspection, design, or analysis experience.

This position requires a minimum of 1 year of supervision, team lead experience, or equivalent education in an approved management development course.

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. Incumbants with PE registration in another State that are eligible for PE registration in Montana through Comity will be considered.

### **Special Requirements:**

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Fingerprint check

☐

Background check

Union Code

☐

Other; Describe

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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.

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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.

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Employee	Title	Date
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**Human Resources Review**

**Job Code Title: Engineering Supervisor**

**Job Code Number: D2502M**

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**