

# 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: Civil Engineering Specialist    Position Number: Career Ladder-multiple**  
**Location: Helena**

**Department: Transportation    Division and Bureau: Highways and Engineering**

**Section and Unit:**

### **Job Overview:**

Positions in the assigned bureau or district are responsible for conducting in-depth engineering and analysis, administer contracts, oversee projects and project design, and may serve as a lead worker. Work is assigned through instruction on specific engineering objectives and direction and the incumbent determines the best solution based on established engineering guidelines, knowledge and skills. Completed work is reviewed for application of sound professional judgment.

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

#### **Entry level:**

Applies prescribed engineering techniques and engineering procedures in accordance with established criteria in order to perform assigned tasks. The work is routine and technical therefore does not require previous experience. Collects data, gathers information or documents, performs standard computations or analysis and prepare drawings and visual aids. Possesses basic oral and written communication skills and interacts with other staff. The employee acquires an understanding of professional and ethical responsibilities and develops basic skills.

#### **Mid level:**

Acquires basic engineering knowledge and develops skills in a specific assigned work area. Applies standard engineering techniques, procedures, and criteria to perform assigned tasks as part of a wide-ranging assignment. Exercises limited judgment on details of work and in application of

standard methods for conventional work. Performs basic engineering design tasks and provides assistance to other tasks such as; preparation of permit applications, material testing, drawings, and computer-aided design (CAD) work. Receives close supervision on unusual or difficult problems, and general review of all aspects of work and interacts with staff, general public, officials, and contractors.

**Top level:**

Performs routine engineering tasks in the assigned area with little or no supervision. Acquired engineering competence in a specific work area should reasonably transfer to other work areas at the same level.

**Performs engineering design tasks under a variety of circumstances in accordance with the assigned bureau or district. The setting may range from a traditional office environment to on-site environments that require engineering design activities which can be developed and varied. - 35%**

Highways Bureau

- Assesses data from a variety of internal and external sources. Determines how to address the overall design process. Coordinates work with other disciplines, federal and state agencies and tribal or local governments. Prepares a design package that is accurate, constructible and cost effective. Adjusts standards and practices to fit routine encounters of conflicting information, views or interests .
- Prepares design packages incorporating the following :
  - General layout/plan and profiles
  - Design details
  - Avoidance and mitigation measures
  - Quantities and cost estimates
  - Special provisions
- Prepared to conduct dynamic engineering design activities in field and on-site environments, providing problem resolution.

**Prepares or participates in preparing project documents, and other engineering reports. - 35%**

Highways Bureau

- Prepares documentation of reviews and decisions on project related issues. The documentation includes milestone reports (e.g. Preliminary Field Review Report, Scope of Work Report, Plan-In-Hand Report etc.), meeting minutes and other project-related decisions. Documentation involves proposed solutions, the evaluation process and the basis for the final decisions

## **Prepares and edits specifications. – 10%**

### Construction Bureau – Specifications Specialist

- Writes, edits and maintains portions of the Standard Specifications for Road and Bridge Construction. Understands and provides resolution to conflicting issues involving several sub-disciplines such as material science, construction techniques, and design requirements.

### Bridge Bureau or Highways Bureau

- Prepares draft special provisions to address unique situations, materials and construction practices. Ensures that the method of measurement and basis of payment correspond to the project plans and that the special provisions do not conflict with MDT's Standard Specifications.

## Performs research and investigations. – 10%

### Materials Bureau – Pavement Analysis Unit

- Investigates product failure or trend. Gathers various information from multiple sources such as surfacing design information, materials information, materials testing results, construction reports and interviews. Determines solution based on judgment of the quality and accuracy of what is available, and draws conclusions or recommends actions based on findings.

### Highways Bureau

- Collects and analyzes data within a given set of parameters to determine the following
  - Measures that may be needed to address changes in traffic volumes and characteristics
  - Impacts to existing systems or corridors
  - Compatibility with existing plans or environmental documents
  - Effects of changes in design practices
- Participates in larger studies such as corridor studies or Value Analysis studies as needed.

## **Assigns tasks to and coordinates work with entry-level engineers, technicians, or administrative staff. - 5%**

### All Areas

- Assesses the capabilities of entry level engineers, technicians or administrative staff and provides appropriate assignments. Reviews work for accuracy and provides technical guidance as needed.

**Assists in determining schedule, cost estimating, forecast progress or budget requirements. - 5%**

District Construction

- May be assigned to evaluate the contractor's Critical Path Method Diagram (CPM) for accuracy, reasonableness, constructability and inclusion of all major work activities on large, complex construction projects. Reviews CPM diagrams on a regular basis to insure projects are built on schedule and potential delays or claims are assessed timely. Forecasts project progress and completion, schedules project crews and cash flow forecasting based on Information from the CPM diagram.

Highways Bureau

- Meets project schedules and keeps projects on budget. Identifies issues that may require additional time as well as areas where the allotted time can be reduced. Considers other factors such as scheduling and seeks out cost savings or minimizing cost increases.

**Supervision**

*If this incumbent supervises others, please list each employee supervised and the position number:*

The number of employees supervised is: 0

The position number for each supervised employee is: n/a

**Physical and Environmental Demands:**

PHYSICAL

- Work is performed in an office setting or in the field on construction projects depending upon work location and assignment.
- Travel is required and can vary from a few times per year, with one or more overnight stays to extensive overnight travel that may occur on short notice, weekends and holidays and working outdoors in all types of weather.
- Duties may be performed on active construction sites in close proximity of heavy equipment, hot asphalt and high speed traffic.
- The work environment can involve harsh or caustic fumes, dust, extreme temperatures, wind, rain and snow.

MENTAL

- Motivation to accomplish goals
- Ability to deal with complexity

- Emotional Intelligence
- Attitude toward change
- Focus on results

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

**KNOWLEDGE:** Develops sufficient engineering knowledge, skill and judgment in a specific practice area to perform the routine engineering tasks in the assigned area. Although the knowledge acquired is in a specific work area, that knowledge and competence should reasonably transfer to other work areas at the same level.

Broad knowledge of engineering practices and principles and construction methods, processes and procedures, computer-assisted drafting and design software, and engineering techniques are required for projects of moderate complexity. A journey level knowledge of federal guidelines and procedures regarding road design and construction is also required.

**SKILLS:** Possesses effective oral and written communication skills in order to assist with client, customer, or official contacts and communication pertaining to specific assignment or meetings.

### **Minimum Qualifications (Education and Experience):**

*List the required education and experience required for the first day of work, including alternative methods of acquiring minimum qualifications*

#### **Entry Level**

The required knowledge and skills are typically acquired through a combination of education and experience equivalent to Bachelor's Degree in Civil Engineering or a related field.

#### **Mid Level**

This position also requires a minimum of 2 years of related work experience.

#### **Top Level**

This position also requires a minimum of 3 years related work experience.

Certifications, licensure, or other credentials include: Top level Engineers are required to have an engineering intern certification or is a licensed Professional Engineer.

**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                   |
| MFPE or Non-Union 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: Engineering Analyst 1 Job Code Number: D25011**

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

**Human Resources:**

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<b>Signature</b>	<b>Title</b>	<b>Date</b>
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