

# 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: Bituminous Material Specialist      Position Number: 40085      Location: HQ**

**Department: Transportation      Division and Bureau: Highways & Engineering/Materials Bureau**

**Section and Unit: Physical Test/Bituminous**

### **Job Overview:**

This position is responsible for the oversight of the Departments Bituminous Materials Program. Major duties include managing the Profiler Calibration program, coordination and oversight of bituminous materials and mix design testing protocols, project review, and aiding HQ, District, and Construction personnel in all matters related to bituminous materials and construction practices. This position is also responsible for conducting professional bituminous engineering research and analysis and developing processes to implement new technologies, materials, and construction practices into the program. The incumbent evaluates project plans and provisions; establishes guidelines, procedures, and parameters for evaluation of current bituminous quality assurance testing and mix design verification practices. Provides advanced technical assistance to a variety of individuals, contractors, and consultants involved with ongoing road construction and maintenance projects; and performs other duties as assigned in support of the Department goals and Division objectives. The incumbent reports to the Testing Operations Supervisor.

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

#### **Bituminous Material and Plant Mix Program Evaluation and Oversight - 55%**

This position is responsible for evaluating and overseeing various aspects of the Department's bituminous materials program as well as serving as the Departments subject matter expert related to bituminous materials. The incumbent is also responsible for evaluating paving and construction practices, testing procedures, acceptance criteria, plans and specifications, and based on that

information, incorporating best practices into the Department's plant mix materials program and ensuring statewide consistency.

- Designs, develops, and implements testing programs that ensure all components and processes affecting bituminous materials and mixtures meet industry standards and quality criteria.
- Reviews engineering designs, specifications, standards, and contract administration policies related to bituminous materials to develop recommendations to improve efficiency and effectiveness. Evaluates inspection practices to keep them current with material and industry standards.
- Provides engineering oversight and guidance to Districts and design staff on bituminous material requirements to identify how they relate to project needs and activities.
- Evaluates and analyzes test results, completed pavements, and other sources of information in an attempt to identify trends or areas to improve practices or improve quality relative to bituminous mixes or the component ingredients.
- Researches and develops specifications for various bituminous materials and related construction practices.
- Oversees and evaluates material testing and certifications while documenting pertinent information to ensure accuracy, completeness, and the required level of compliance with contract plans, specifications, and quality assurance measures.
- Coordinates and leads pavement industry meetings with contractors, consultants, MCA, and other industry professionals. Presents information to industry to keep them abreast of new technologies and changes the Department may consider implementing. Analyzes, compiles, and presents annual test data and disincentive/incentive information to industry. Acts a liaison between industry and MDT for all bituminous material related topics.
- Evaluates assigned projects through field reviews during bituminous operations and provides professional and technical assistance to department staff and contractors to ensure compliance with established policies, regulations, plans, and project specifications.
- Coordinates with construction personnel, district lab personnel, materials engineers and design personnel to conduct investigations of actual or potential construction materials deficiencies during bituminous surfacing phases as necessary to rectify deficiencies.
- Serves on and contributes to claims avoidance and claims teams when subject matter expertise is required related to bituminous materials.
- Serves on a variety of materials committees relative to bituminous materials to stay abreast of the latest research and technologies emerging nationwide. Provides feedback on MDT's experiences involving new technologies and communicates MDT's concerns with emerging technologies. Fosters effective communications and establishes critical contacts with leaders in developing technologies.
- Attends and reports on various national meetings relative to bituminous materials including Rocky Mountain Asphalt User/Producer group, Western Cooperative Test Group, Asphalt

Institute, etc. Works in close contact with nationally recognized experts within these groups to incorporate research, technology, best practices, specifications, etc. into MDT's bituminous materials program.

- Provide bituminous material related training to department personnel through different means such as hands-on instruction, presentations, contracting industry experts, etc. Ensure that all training objectives are proactively managed to meet compliance and regulatory requirements.

### **Bituminous Material and Plant Mix Testing Program Coordination - 20%**

This position coordinates efforts of laboratory testing throughout the state including district/area labs and multiple labs within the Helena Materials Bureau. This position:

- Ensures all necessary documentation and materials are submitted for detailed mix design review and verification.
- Reviews documentation, test results, and materials certifications related to mix design submittals to verify all material and design properties conform to applicable project plans and specifications.
- Coordinates, oversees, and, evaluates assigned research projects.
- Coordinates and oversees laboratory mix design and quality assurance/acceptance testing (Hamburg) based on a multitude of factors including, effect on traveling public, project criticality, intended use, arrival date, etc.
- Identifies, troubleshoots, and communicates any possible testing deficiencies within the program including sampling, preparing, and testing bituminous materials.
- Serves as the main point of contact for all questions and communication of test results originating from the Mix Design laboratory for field and district personnel such as consensus properties, production Hamburg's, and forensic analysis's.
- Oversees and evaluates overall work flow, priorities, and procedures related to bituminous materials and monitors progress through meetings and consultations.

### **Manage MDT's Ride/Profiler Program - 20%**

This position manages, coordinates, and oversees administration of MDT's ride program. Managing this program involves researching current technologies and specifications, coordinating profiler equipment calibration and operator training, and identifying and implementing program, test method, and specification revisions. The position:

- Trains District staff on calibration and maintenance procedures, proficiency in software operation, proper interpretation of data, and proper execution of applicable specifications.
- Coordinates and schedules venue and dates for equipment calibration and operator certification.

- Works with equipment manufacturers routinely to troubleshoot, diagnose, and repair any malfunctioning equipment and/or software.
- Oversees purchases and is the point of contact for all parts and services needed to properly maintain equipment and calibration site.
- Routinely works with District staff to analyze and validate quality assurance test results and troubleshoot any encountered issues. Aides in communicating and recording any anomalies in test results to ensure quality assurance incentive/disincentive is properly applied to contracts.

### **Other Duties as Assigned - 5%**

Performs a variety of other engineering activities as assigned by the Testing Operations Engineer, Testing Engineer, or Materials Engineer in support of the department mission and division objectives.

### **Supervision**

The number of employees supervised is: 0

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

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

This position functions in a typical office environment.

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

This position requires extensive knowledge of materials inspection, sampling, testing, and analysis protocols and procedures; associated mathematical and scientific principles; advanced research methods and techniques; and adult education and training principles. This position also requires knowledge of state, federal, AASHTO, WAQTC, and ASTM testing standards, procedures, and specifications; FHWA specifications and procedures; methods and techniques of highway construction; and safety practices and procedures. A progressively responsible knowledge of specialized sampling and testing equipment, software, and other technologies is also required.

Requires advanced application of civil engineering principles including mathematics and physical sciences especially in materials engineering and requires extensive experience in bituminous mixes, both the design and construction practices regarding placing and control of asphalt pavements.

Requires considerable knowledge of research methods and techniques, design and highway construction processes; field applications of highway engineering and construction, and construction methods and practices.

This position requires extensive skills in the translating of technical information to varied audiences; training others through instruction, demonstration, and constructive feedback; application of laboratory instruments and the operation of specialized equipment; developing, testing, and implementing new methods, standards, procedures; and technologies; ensuring compliance with state and federal requirements; managing multiple projects simultaneously; and written and verbal communication skills. Requires advanced skill in reading and interpreting complex plans and contract documents, interpreting and writing specifications as well as the ability to use logical and understandable approaches to analyzing issues affecting bituminous features of highway construction and maintenance projects.

**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 in Engineering, Construction Technology, or an applicable Science related degree.

This position requires a minimum of 4 years of progressively responsible experience in materials lab testing, highway or pavement design, or roadway construction with at least 2 years involving testing, mix design, or construction of plant mix or bituminous materials.

Certifications, licensure, or other credentials include: Registration as a Professional Engineer in Montana is preferred.

Alternative qualifications include: Directly related experience may substitute for education on a year-for-year basis.

**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: Engineering Analyst 2    Job Code Number: D25012**

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 type="checkbox"/> FLSA Non-Exempt               |
| <input type="checkbox"/> Telework Available      | <input type="checkbox"/> Telework Not Available        |
| <input 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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