

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 Department's 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, Physical Test Engineer and Materials Engineer.

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 Department's subject matter expert related to bituminous materials. This program includes materials such as asphalt binders, aggregates, emulsified asphalts, plant mix additives, recycled materials, etc., and also finished products such as microsurfacing, plant mix surfacing, seal coats, and cold and hot in-place recycled pavements. 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. This includes developing and implementing complex sampling and testing protocols statewide for various bituminous materials. The position:

1. Designs, develops, and implements testing programs that ensure all components and processes affecting bituminous materials and mixtures meet industry standards and quality criteria. This includes testing protocol for mix design and project level quality assurance.
2. Reviews engineering designs, specifications, standards, and contract administration policies related to bituminous materials to develop recommendations to improve efficiency and effectiveness. Also, the position evaluates inspection practices to keep them current with material and industry standards. This involves research and assessment of professional standards and industry developments, assessing past project experience and contractor input, and developing new standards based on input from a broad range of MDT, Federal Highway Administration (FHWA), and national experts.
3. Provides engineering oversight and guidance to Districts and design staff on bituminous material requirements to identify how they relate to project needs and activities. This involves conducting research into project alternatives and requirements to develop responses and identify suitable product or service alternatives that may be more cost-effective.
4. 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.
5. Researches and develops specifications for various bituminous materials and related construction practices. Works closely with Construction and Specifications sections to develop and implement new specifications. The position also relies on nationwide contacts through the FHWA, other state agencies, and industry to develop and implement mixture design and acceptance processes or refinements.
6. 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.
7. 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.
8. 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.
9. 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. This includes coordinating forensic analysis/testing, reporting on findings, and recommending corrective and/or acceptance actions.
10. Serves on and contributes to claims avoidance and claims teams when subject matter expertise is required related to bituminous materials.
11. 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.

12. 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.
13. 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 includes gathering, compiling, reviewing, analyzing, and distributing important information related to MDT's bituminous materials program. It is done in a concerted effort to document and ensure applicable, accurate, time sensitive, and project critical information is made available to all parties involved through the life of a project. This position:

1. Ensures all necessary documentation and materials are submitted for detailed mix design review and verification. This includes close coordination and communication with contractors and field, district/area, and HQ staff to ensure chain of custody, proper line of communication, and representative materials all meet established Department policies, plans, and specifications.
2. 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. The incumbent is responsible for all coordination and communication related to mix design testing, acceptance/rejection, and related information including relaying appropriate timelines and test results to project staff and industry.
3. Coordinates, oversees, and, evaluates assigned research projects. This includes working with various laboratories within the Department to execute a testing regime efficiently and effectively in order to produce accurate and dependable results.
4. 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. The incumbent must possess thorough knowledge of MDT's specifications related to bituminous mix design and acceptance protocols including specified deadlines.
5. Identifies, troubleshoots, and communicates any possible testing deficiencies within the program including sampling, preparing, and testing bituminous materials.
6. 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.
7. Oversees and evaluates overall work flow, priorities, and procedures related to bituminous materials and monitors progress through meetings and consultations. Conducts meetings, disseminates data, and promotes information exchange to support and advance the goals and objectives of the laboratories.

Manage MDT's Ride/Profiler Program

20%

This position manages, coordinates, and oversees administration of MDT's ride program. This program effects contractors pay through incentive/disincentive in the interest of providing the traveling public with superior riding surfaces. 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:

1. Requires thorough knowledge of Inertial Profiler equipment, reference standards (Surpro), software, and specifications related to ride quality. The incumbent requires the ability to train District staff calibration and maintenance procedures, proficiency in software operation, proper interpretation of data, and proper execution of applicable specifications.
2. Coordinates and schedules venue and dates for equipment calibration and operator certification. Requires communication with all 5 districts in order to efficiently and cost effectively calibrate equipment and certify operators. The incumbent must also coordinate with MDT Survey, maintenance staff, and calibration site owners to properly prepare and maintain calibration surface.
3. Works with equipment manufacturers routinely to troubleshoot, diagnose, and repair any malfunctioning equipment and/or software. Requires working with reference standard manufacturers to establish calibration master curves.
4. Oversees purchases and is the point of contact for all parts and services needed to properly maintain equipment and calibration site. Records and reports expenses in order to properly project a budget for the program year to year. This requires working in conjunction with District Supervisors to determine where fiscal responsibility falls.
5. 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. This includes exchanging information with contractors, agency staff, and the public; providing training, education, and professional and technical assistance; directing special projects, planning, scheduling and directing meetings, committees, panels; and attending on going education and training as directed. This position:

1. Directs, plans, and schedules various meetings, technical panels, hiring processes, and other committees to help reach the Department's goals and objectives. Serves on team panels such as post construction reviews and project value analysis committees. Research value engineering proposals submitted by contractors. Develops reports to summarize findings and distribute lessons learned to applicable Department team members to maximize quality and cost effectiveness. Explore innovative technologies to increase efficiencies and to maximize productivity and strengthen credibility.

Supervision

The number of employees supervised is: 0

The position number for each supervised employee is:

Physical and Environmental Demands:

Physical

- This position is required to carry up to 70lbs.
- Carry light items (papers, books, small parts)
- Remaining seated for extended periods of time, with occasional walking; standing; bending
- Travel within the state to project location, and out of state travel by air to national conferences and meetings
- Operating a personal computer
- Communicate in writing, in person, and over the phone

Mental

- Deal with public on a regular basis
- Ability to multi-task
- Demands for accuracy in all aspects of work
- Ability to meet inflexible deadlines
- Decision making that affects the public health and safety
- Computing arithmetic operations
- Comparing data
- Compiling information
- Analyzing
- Coordinating
- Synthesizing
- Negotiating
- Instructing

Knowledge, Skills and Abilities (Behaviors):

Knowledge

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.

Skills

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):

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

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: Fundamentals of Engineering certificate (FE) is required. Registration as a Professional Engineer in Montana is preferred.

Alternative qualifications include: A Master's degree may be considered as a partial substitute for work experience on a case-by-case basis.

Special Requirements:

List any other special required information for this position

Human Resources Review

Job Code Title:

Job Code Number:

Pay Band:

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:

Signature

Title

Date