

# 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:** Unmanned Aerial Systems (UAS) Engineering Program & Innovations Manager

**Position Numbers:** 80034, 80035      **Location:** Varied

**Department:** Transportation

**Division and Bureau:** Engineering Division/Construction Engineering Services Bureau

**Section and Unit:** Construction Review

**Job Overview:** This position is an Unmanned Aerial Systems (UAS) Program Manager and Innovation Manager for the Engineering Division's Construction Engineering Services Bureau of the Montana Department of Transportation. The position is tasked with creating and administering a formal UAS and Innovations program for the Engineering Division and is responsible for developmental tasks that affect statewide construction/preconstruction operating procedures. The position is also responsible for developing and evaluating policies, safety programs and plans, procedures, and specifications; providing engineering, contract administration, technical guidance and advice to districts, other bureaus, and legal staff; investigating and developing solutions to complex innovations, problems, and deficiencies.

The Innovation Manager is responsible for researching, developing, reviewing, implementing, and deploying new technologies (e.g. UAS), practices, tools, and methods that promote economical, efficient, and quality designs and construction practices, guidance, construction, and asset management activities. This position will coordinate with other Departmental sections and technical workgroups.

The incumbent reports to the Construction Engineering Services Construction Review Section Supervisor (position 80016).

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

#### **Program Management**

**60%**

Engineering Division UAS Program Development and Management

- Develop, manage, implement, and administer the Engineering Division's UAS Program protocols, processes, procedures, and guides and specifications; conduct annual analysis of UAS and implement lessons learned.
- Conduct UAS Training and develop training requirements.

- Monitor contracts and oversee active construction projects for conformance and consistency with the UAS protocols, Federal Aviation Administration (FAA) rules, laws, program, engineering, construction practices, policies, Federal Regulations (CFRs), Federal Oversight Agreement, procedures, contract language, and for adherence to specifications, policies, and construction practices.
- Develop, submit, and manage FAA UAS Waivers when needed.
- Develop, review, coordinate, and manage UAS flight plans and operations.
- Maintain and manage required UAS records, registrations, and licensing.
- Procure, inspect, maintain, and manage UAS equipment.
- Develop, review, and manage UAS consultant contracts.
- Analyze state-of-the-art UAS systems and available new technologies and develop the needed processes and procedures for the department's design, survey, and construction survey software systems and practices in UAS systems, data collection, and processing.
- Develop the Engineering Division's UAS Safety processes and procedures.
- Develop the UAS QA/QC processes and perform quality control of data outputs from systems to ensure achievement of department accuracies and appropriate configuration of data composition for downstream use.
- Utilize and incorporate UAS imagery and data into design, survey, and construction deliverables and workflows.
- Troubleshoot complex UAS system issues and develop solutions and lessons to solve problems.
- Continues development of knowledge, education, and trends in UAS operations and safety by attending formal training classes, participating in a variety of aviation conferences, and reading aviation safety materials.

#### UAS Program Support and Compliance with Laws and Safety Procedures

- Assess compliance with prescribed aviation safety standards and State and Federal Regulations.
- Prepare written correspondence and reports detailing UAS program status, findings of inspections, training, and recommends corrective actions and follow-up to ensure corrective action implementation.
- Provide technical guidance to Engineering Division and UAS operators concerning aviation safety, program management, and compliance with State and Federal Aviation Regulations.
- Review mission requests to determine suitability of mission parameters and type of flight activity.
- Maintain awareness of UAS accidents nationwide, conducts trend analysis, and, when requested, investigates aircraft accidents when State-owned UAS property is involved.

#### **Engineering Research, Development, and Innovations Implementation**

**25%**

- Research, develop, review, and implement strategies for new technology and advancements related to UAS, highways, bridges and structures that affect MDT Engineering operations.

- Monitor and assess national trends to identify opportunities for improvement or adoption of new technologies or applications.
- Develop solutions and identify new approaches and developments to construction/engineering problems to ensure that effective practices are implemented in MDT's Engineering Division.
- Select and champion UAS research projects in cooperation with MDT research section.
  - Develop and direct technical oversight committees.
  - Create and actively participate on multi-disciplinary deployment teams.
  - Conduct pilot programs or studies to develop innovations and new technologies to optimize resources and support continuous process improvements.
  - Regularly inform the Engineering Division, MDT staff, and external partners (AASHTO and State DOTs, consultants, contractors, academia, etc.) of ongoing research progress and disseminate research results in an appropriate and timely manner.
  - Develop guidance and deployment strategies to ensure research and experimental features are applied and practiced appropriately.
- Determine equipment, computing, and software procurement needs to support the implementation of innovations.
- Identify and pursue grants, favorable shares, and other funding opportunities.
- Regularly assess and conduct critical post-implementation reviews of innovations to determine if gaps exist in effectiveness, understanding, support, or training, and develop solutions to address needed changes to meet expectations and support continuous improvements.

**UAS Operation**

**10%**

- Performs UAS mission planning, pilots UAVs, and collects imagery, video, LIDAR, or other data.
- Exports UAS collected data to designers, surveyors, construction, management.
- Completes necessary documentation of flight information such as flight and maintenance logs.

**Other Duties as Assigned**

**5%**

Performs a variety of other engineering, project management, and public relations activities, along with additional assignments from the Bureau Chief, Construction Engineer, or Administration Engineer in support of the department mission and division objectives.

**Supervision**

- The number of employees supervised is: N/A
- The position number for each supervised employee is: N/A

**Physical and Environmental Demands:** Predominant work is performed in an office and in a field environment.

- Physical:
  - Operate a motor vehicle.
  - Ability to operate an unmanned remote aircraft.
  - Work requires walking and standing on backslopes, inslopes, and structures under various stages of construction.

- Field work conducted in all kinds of weather conditions, in and around heavy traffic, construction equipment, and facilities with extensive noise, dust, smoke, fumes, high temperatures, and hazardous materials.
- Travel throughout the state (20-30% of time) to highway project locations to oversee multiple sites and out of state by airline to national conferences and meetings. May be called out on short notice to investigate or develop solutions within short and inflexible time frames.
- Loading, hauling, delivering, and unloading traffic control devices, equipment, and construction materials weighing up to 60 pounds.

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

This position requires highly specialized technical skills and expert knowledge over a wide range of aeronautics, Unmanned Aerial Systems (UAS) Operations, Remote Piloted Aircraft (RPA), and work practices to complete broad, multi-faceted assignments.

Thorough knowledge of the concepts and theories of UAS or RPA operations and project management; skilled in drawing conclusions and making recommendations, assessing construction plans and projects, reading and interpreting plans, specifications, and contract documents, design and project layout and surveying, communication and negotiation, resolving conflicts, conducting presentations and training, developing and administering a variety of diverse projects and functions, developing ideas and solutions for complex problems, finding innovative, unique solutions to transportation construction and engineering problems using principles and practices of innovations, engineering, and technology.

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

The required knowledge and skills are typically acquired through a combination of education and experience equivalent to a Bachelor’s degree in Unmanned Aircraft Systems (UAS), Operations or Remote Piloted Aircraft (RPA), business, engineering, planning, public administration, or a closely related field and two (2) years’ experience with UAS or RPA program management, planning, and/or policy development.

Alternative qualifications include any combination of additional related work experience and education equivalent to the minimum qualifications:

- A two-year degree (i.e., an Associate’s of Science degree or two-year certificate) in a UAS Operations/Management, engineering, surveying, or related field and four (4) years progressively responsible experience in UAS or RPA operations.
- Six (6) years progressive experience in UAS or RPA operations/management.

**Certifications:**

- FAA Part 107 Remote Pilot Certificate is required.

**Special Requirements:**

- Fingerprint check
- Background check
- 035 Union Code
- Valid driver’s license
- Other; Describe
- 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: Project Management Specialist 3 Job Code Number: B1J033**

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
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