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: Electrical Civil Engineering Specialist Position Number: 36047 and 36015
Location: Helena

Department: Transportation

Division and Bureau: Project Development & Delivery - Traffic & Safety

Section and Unit: Traffic Design Section

Job Overview:
This position performs professional Traffic Engineering work involving the location and design of projects that incorporate the use of electrical devices on transportation facilities under the jurisdiction of the Department of Transportation. This position also performs professional Traffic Engineering work involving construction management of projects incorporating the use of electrical devices on transportation facilities statewide. This position assists with the maintenance of all electrical traffic control devices on roadways under the jurisdiction of the Department of Transportation.

Essential Functions (Major Duties or Responsibilities):

Traffic Signal and Lighting Design - 75%

- Design and prepare plans for traffic signals, signal interconnection systems, roadway lighting, flashers, vehicle detection, and other related electrical and traffic work. Prepares details and cost estimates for various types of traffic signal equipment, traffic controllers, roadway lighting, and other traffic control devices involving electrical and electronic components. Writes special provisions to assist manufacturers, contractors, and field inspectors in the construction of the designed facilities.
- Coordinates design efforts with other units within the Traffic Engineering Section and other sections in the Department to assure compatibility and progress during the preconstruction phase of each project assigned. Coordinates design with utilities to minimize conflicts and/or relocations and to ensure proper power supply. Reviews compatibility with terrain, right-of-way, utilities, and proposed roadway geometry. Provides technical assistance to others often not familiar with the traffic equipment capabilities and constraints.

- Reviews the electrical plans for consultant design and developer projects to ensure compliance with applicable MDT, federal, state, and local standards and to ensure designs are cost-effective, constructible, biddable, and accurate. Presents comments to MDT design managers or consultants directly to bring plan packages into compliance with standards. Provides detailed design information in the form of CADD files and special provision when necessary for correction of plans.
- Reviews Traffic Engineering analyses involving warrants based on the Manual on Uniform Traffic Control Devices (MUTCD), which justify the need for the proposed installation. Identifies the proper type of electrical equipment to be installed. This involves evaluating traffic volumes, levels of service, site conditions, possible alternatives, capacity, longevity, and equipment operating parameters. For the various alternatives, perform technical evaluations and calculations, such as voltage drops, conduit fills, inductance, and connected loads.
- Attends preliminary field reviews and plan-in-hands to identify project work scopes and ensures constructible design plans. Write associated reports to document comments and decisions generated from the meetings.
- Prepares project-related correspondence such as requests for information, requests from other offices to carry out their part in project-related activities (i.e. Environmental Document), and plan transmittals.

Other Duties as Assigned - 20%

- Perform a variety of other duties as assigned by the Traffic Design Engineer or Traffic Project Engineer including project design and assistance with project management on design projects with electrical components. Write project reports, survey requests and other technical memos involving electrical, signing, geometric and safety design components and other related duties as assigned.

Traffic Signal Operations, Construction, and Maintenance - 5%

- Prepares state furnished traffic equipment for installation in the field. Preparation includes testing all features of the signal equipment to ensure it has been built to specifications. Upon completion of the testing, configures state furnished electrical equipment for the specific project by enabling and disabling elements according to project plans and intended operation.

Supervision

The number of employees directly supervised is: 0

Physical and Environmental Demands:

Working conditions involve primarily office-oriented activities with some occasional outside field activities. Travel is required on average once a month, with occasional overnight stay. The employee must understand the potential hazards working with electrical and electronic equipment. Field inspections typically take place within an active roadway environment.

Knowledge, Skills and Abilities (Behaviors):
The position requires considerable knowledge of the theories, principles, methods, and techniques of Traffic Engineering and Electrical/Electronic Engineering with emphasis on traffic signals, signal systems & communication, and roadway lighting; knowledge of Department and Section procedures and policies, as well as Federal, State, and local laws and regulations that may affect the use of electrical devices; knowledge of standards, techniques, and engineering alternatives offered in the Manual on Uniform Traffic Control Devices, AASHTO policies, and the Highway Capacity Manual.

The position requires skill in organizing work, resolving complex design constraints, exercising sound engineering judgment; skill in the use of engineering instruments in the field and office (computers and traffic signal control equipment); skill in the use of computer software (Civil 3D, MicroStation CADD software, AASHTOWare, Word, Excel, and AGI 32).

Minimum Qualifications (Education and Experience):
The required knowledge, skills, and abilities are typically acquired through a combination of education and experience equivalent to a Bachelor's Degree in Electrical/Electronic Engineering, Mechanical Engineering, Civil Engineering, or another related field plus at least one (1) year of experience in the field of traffic engineering as it relates to the design, operation, and maintenance of traffic signals. Two (2) years of Highways engineering experience in project planning, design, construction, or maintenance is also required.

Certifications, licensure, or other credentials include: Engineer-in-Training license is required. Registration as a Professional Engineer (PE) is preferred.

Alternative Qualifications:
Post-secondary education and work experience involving various software programs including Microsoft products may be credited toward work experience for this position.

Special Requirements:

☐	Fingerprint check	☒	Valid driver's license
☐	Background check	☐	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.

Immediate Supervisor **Title** **Date**

Administrative Review **Title** **Date**

My signature below indicates that I have read this job description.

Employee **Title** **Date**

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:

☐ FLSA Exempt ☐ FLSA Non-Exempt

☐ Telework Available ☐ Telework Not Available

☐ Classification Complete ☐ Organizational Chart attached

Human Resources:

Signature **Title** **Date**