STATE OF MONTANA
JOB DESCRIPTION

Montana state government is an equal opportunity employer. The State shall, upon request, provide reasonable accommodation for otherwise qualified individuals with disabilities.

Job Title: Engineering Systems Section Supervisor   Position Number: 80014

Location: Helena   **Department: Transportation**

Division and Bureau: Engineering, Engineering Operations

Section and Unit: Engineering Systems

Job Overview: This position is the Engineering Systems Section Supervisor for the Engineering Operations Bureau. The position is responsible for overseeing and coordinating the development, management, maintenance and implementation of large and small-scale computer systems used for construction contract administration and preconstruction activities (e.g., AASHTOWare, computer-aided design and drafting (CADD), project scheduling, etc.); administering development and enhancement projects; overseeing server and client software upgrades and database upgrades; overseeing data analysis, user support, and technical assistance; and supervising the administrative operations and staff of the section. The position reports to the Engineering Operations Bureau Chief.

Essential Functions (Major Duties or Responsibilities):

System Development & Administration – 50%
Oversees and coordinates the development, management, maintenance, and implementation of large and small-scale computer systems used for construction contract administration and preconstruction activities.

- Evaluates subordinate's and client's recommendations regarding short and long-range plans for the installation, implementation and maintenance of all preconstruction computer-aided design and drafting, preconstruction project scheduling, construction contract administration and AASHTO-related systems to determine most effective and cost-efficient methods of enhancement and modification to existing system applications. This includes meeting with members of the user community; determining system requirements for enhancement or modification (e.g., database changes, file allocations, application processes, etc.); and assessing staff time and available resources to ensure that system enhancements, upgrades and modifications are feasible.
- Researches and continually evaluates new technologies, system development and maintenance technology and trends, and other issues related to system and application development, administration, and troubleshooting to maintain a high level of professional and

technical expertise, anticipate future technological needs, and determine how new methods and technologies may enhance future application development and maintenance activities.

- Develops and establishes section and bureau standards and procedures to ensure efficient and effective service delivery and the integrity and functionality of supported applications (e.g., AASHTOWare, computer-aided design and drafting (CADD), preconstruction project scheduling, and related system components). Evaluates agency business needs, statewide standards, information systems strategies, trends, and other issues related to application analysis, development, and maintenance to establish strategic plans and technology standards for future application development and maintenance activities.

- Develops, implements, and monitors development processes, documentation standards, tools, and policies to ensure bureau work is to the highest standard. This includes establishing testing policies and protocols and reviewing documentation and reports to ensure standards are being met and providing managerial guidance and coordination for the resolution of problems. Ensures the effective integration of testing results and project outcomes into future project development plans.

- Establishes section goals and objectives to develop a comprehensive annual work plan in conjunction with the Engineering Operations Bureau Chief. This involves assessing the impacts of changes in technology, state and federal requirements, and agency business needs on business processes and bureau operations, determining methods to increase efficiency, and establishing standards and service agreements to ensure excellent customer service.

- Uses the Help Desk to prioritize and develop application development and implementation sequences, monitor, and resolve in-progress problems, and provide periodic time and cost updates to end-user representatives and members of the project team. This involves assessing and determining changes in project plans; anticipating and resolving potential project problems and impediments; designing efficient schedules to sequence project phases, deadlines, and milestones; and apprising users and information systems specialists of project progress, design features, and new options and alternatives related to system development.

- Directs Engineering Division data sharing and integration of information systems including formulating plans for the development and integration of engineering, AASHTO, and related management systems, materials management systems, human resource systems, transportation planning systems, civil engineering systems, geographic information systems (GIS), cost accounting systems, decision support systems, etc. This includes researching and evaluating the business processes, environments, and objectives of users statewide; and developing sharing and integration initiatives to improve system functionality and enhance and streamline agency business processes and planning.

- Negotiates service level agreements (SLA) with division customers for application analysis, development, maintenance, user support, and other services supported by the Bureau. This includes developing SLA's with ISD, managers, and other divisions. Negotiates service levels, timeframes, and related requirements including prioritizing system support activities and evaluating business cycles and processes.

- Conducts business process analyses of possible information technology alternatives to determine the most effective method of acquiring data or establishing links to new data sources and secure access. This requires the assessment of interrelationships between available databases and data sources and users' intended use of the data. Identifies approaches for combining information from multiple data sources to enhance the utility and value of the information (i.e., adding value through data integration).
- Develops and implements system security strategies, policies, and procedures for the AASHTOWare Project, computer-aided design and drafting (CADD) and preconstruction project scheduling software systems to ensure appropriate system access by authorized users and protect the integrity of stored data against system failures, viruses, security breaches, and other problems. This involves assessing changing user access needs and security requirements, new methods, and technologies, and changing system capabilities and limitations. Establishes restricted user access or other measures to mitigate immediate security concerns. Monitors and recovers from system failures as necessary.
- Plans and directs the installation and implementation of system upgrades and enhancements (e.g., when AASHTO has major upgrades) to implement system improvements while mitigating disruption to user business processes. This includes assessing client vs. server upgrade and rollouts; scheduling to provide customer continuity of service; improving system functionality through enhancements; and customizing systems functions to meet unique AASHTO and Engineering Division client needs.
- Monitors and assesses ongoing system resource and performance standards for the AASHTOWare Project, computer-aided design and drafting (CADD) and preconstruction project scheduling software systems to determine usage trends, identify performance deficiencies, and anticipate the need for additional operational resources. Conducts need assessments as warranted and proposes solutions according to changing time, cost, and performance parameters.
- Represents the agency on inter-agency, interstate and national conferences and committees to exchange information and advice related to system development strategies, refinements, and ongoing assessments.

Systems Development Project Management – 25%
Develops and administers systems (application, network, database, Internet) development and enhancement projects to ensure effective use of agency and external resources in meeting user needs and regulatory mandates.

- Conducts research and analysis to establish and implement project plans including schedules, required tasks, and resources needed to complete quality projects within operational, time, and budgetary constraints. Predicts changes and potential impacts of new applications and application modifications for a broad range of variables statewide, such as data sharing, system integration, and application interfaces with external entities. Ensures appropriate lead time is provided for users to minimize effects of application changes; directs the preparation

of implementation and backup plans; and schedules and assigns the work of section staff and contractors based on specific areas of expertise and project requirements.

- Directs business case development for application development and enhancement projects to document proposed solutions, the selected option and why it is the most cost-effective alternative; and to market technological solutions to users, policy-makers, and the Department of Administration (D of A) through ISD. Explains and justifies project requirements and alternatives to agency management, and guides and directs meetings with users, and D of A's Information Technology Services Division (S-ITSD) through ISD to explore available options for meeting objectives. Negotiates changes to proposed applications and/or business processes as necessary to integrate essential system and business requirements.

- Directs requirement analysis and system definition work to ensure that systems analysts accurately determine enhancement or modification requirements and proper methods of implementing project mandates with limited resources. Identifies project requirements to determine which issues are most critical to project feasibility and prioritizes and allocates limited resources. Assesses existing system resources and applications to determine what can be used, determines internal and external software and hardware coordination needed, and assesses available external resources.

- Oversees section project management to ensure the bureau and section is meeting client expectations with respect to deadlines and work progress. This includes developing or reviewing project plans and charts, establishing milestones and deadlines, and ensuring staff meets their targets. Ensures staff keeps clients informed on progress and provides oversight to project architecture and processes.

- Evaluates the work of project leaders and subordinate computer system analysts and the effectiveness of projects and management plans to ensure compliance with development standards and plans. Monitors project development and implementation processes and examines user difficulties to ensure project objectives and user needs are met. Provides technical assistance in unprecedented areas and/or on project components that affect other agencies or systems.

- Directs the preparation of activity and progress reports to evaluate the work of project leaders and staff and evaluates the effectiveness of projects and management plans to ensure compliance with bureau and section standards and plans. Monitors project development and implementation processes and examines user difficulties to ensure project objectives and user needs are met. Provides technical assistance in unprecedented areas and/or on project components affecting other bureaus or systems.

- Oversees testing and quality assurance to ensure projects meet user and system requirements and specifications and that projects are implemented in time to meet agency requirements. This includes directing the development of testing and implementation schedules, determining and approving release of systems to production, evaluating outcomes, problems, and solutions, and ensuring this information is incorporated into future project planning activities. Directs unit testing to ensure that changes in portions of programs do not affect program capabilities; directs integration testing to ensure that programs function properly when multiple programs are integrated into the new system; and directs system testing when all intended changes have been made to ensure that the system functions as required. Directs the release of applications to users for testing. Responds to reports of problems encountered by users and makes necessary changes to ensure proper system functioning.

- Assesses requests to move programs into production after user approval. This involves ensuring that all potential impacts to other applications are documented, assessing time and resource requirements, coordinating with systems analysts and users to minimize disruption of business process, database changes and conversions, and ensuring that no one is using the system during program installation. Directs the movement of test modules into production when testing is complete.

- Works with contractors from a project management perspective to develop scope of work and cost estimates, define resource costs, and the roles and responsibilities of personnel, and to develop business cases and negotiate contracts as needed.

- Monitors project expenditures to ensure that money is allocated as designated and tracks funding levels through review of financial reports and approval of expenditures. Reviews and approves all requisitions, payrolls, expense claims, vendor claims, etc. for the Section to ensure budgets are not exceeded and Department resources are used in the most efficient manner possible.

Analysis, User Support and Technical Assistance – 10%
Oversees data reporting and analysis, user support, and technical assistance services for all Engineering Operations Bureau supported systems (e.g., AASHTOWare Project, computer-aided design and drafting (CADD) and preconstruction project scheduling software systems), and AASHTO system users (including clients in other divisions and districts) on information system functions and operations.

- Actively monitors and continually evaluates new technologies, system management strategies, trends, and other issues related to system development, administration, and troubleshooting to maintain a high level of professional and technical expertise, anticipates future technological needs, and determines how new methods and technologies may enhance

future system development and maintenance activities. Researches and integrates appropriate new information into management plans.

- Oversees the development and maintenance of technical system documentation to provide accurate and complete information and data related to system design, user training, technical programming, database models and related diagrams, and other system specifications. Establishes policies, procedures, and documentation requirements for individual projects to ensure that system design, testing, implementation, and training activities are appropriately recorded throughout the course of development projects.

- Coordinates with the development of application user manuals, procedures, and training to ensure proficiency and proper operation of new system functions and the accuracy of content. This involves reviewing and evaluating manuals and training curricula based upon new and modified system applications, and assessing user needs, new procedures and technologies, and other factors. Monitors the delivery of training by systems analysts to user groups and provides technical assistance as needed to users to ensure user proficiency and competency.

- Responds to advanced technical problems referred by agency management or other users regarding microcomputer, hardware, peripheral devices, network, mainframe, and software problems. Resolves user problems by applying diagnostic tools and methods to isolate problems, analyzing hardware and software configurations, network components, and communication issues; and develops solutions to correct problems.

Supervision – 10%
Supervises section staff and administrative resources.

- Directly supervises the professional staff (10.0 FTE) of the Section by reviewing and revising overall work plans, priorities, and procedures and monitoring progress through meetings and consultations. Conducts staff meetings, disseminates data, and promotes information exchange for support and advancement of Bureau, Division, and Department goals.
- Establishes and approves overall responsibilities and allocation of positions within programs of the Section. Recommends and justifies requests for additional personnel as necessary.
- Determines training needs of Section staff through analysis of program effectiveness, new standards, specifications, technologies and policies, and staff performance. Prepares, presents, and/or coordinates training for staff through personnel specialists, training offices, or outside consultants to ensure that modern technologies and operational strategies are available.
- Identifies staffing needs, recruits, and hires employees, and allocates human resources to adequately support the ongoing operations and activities of the Section. This involves ensuring compliance with State and federal employment and civil rights laws throughout the hiring process, assigning personnel screening and selection committees, reviewing results,

and making recommendations for hiring, and ensuring proper training and orientation of new employees.

- Evaluates the performance of positions directly supervised and completes performance evaluations. Recommends, implements, and monitors incentives and corrective actions. Enforces disciplinary policies to ensure consistent application.
- Ensures that section staff complies with State and Department personnel rules, regulations, and policies. Resolves grievances at the lowest level whenever possible.
- Works with the Information Services Division to develop and implement section workforce development, staffing, succession planning, career ladder, and professional development plans, policies, and systems to ensure adequate staffing, expertise and skills are available to meet current and future agency business needs and to provide employee development and advancement opportunities and enhance bureau recruitment and retention efforts. This includes identifying and documenting critical technical and behavioral competencies, developing performance and competency management and evaluation tools and systems, establishing advancement criteria, creating, and implementing cross-training and professional development opportunities for staff, and related staffing and employee development activities.
- Determines and fulfills equipment procurement needs of the Section including responsibility for developing specifications, ensuring compliance with Department procurement practices, developing budget justifications, and submitting requests, and integrating equipment into Section practices to ensure maximization of resources.

Other Duties as Assigned – 5%

Performs a variety of other duties as assigned by supervisors to support ongoing system development, administration, and maintenance goals and objectives. This includes directing special projects, attending ongoing training and education, and performing a variety of other duties as assigned.

Supervision

The number of employees supervised is: 10.

The position number for each supervised employee is: 80011, 40056, 46018, 80017, 40089, 07003, 19005, 36091, 19004, 19902

Physical and Environmental Demands:

- Works within typical office environment
- Carry light items (papers, books, small parts).
- Light lifting (less than 10 lbs.)
- Remaining seated for extended periods of time, with occasional walking; standing; bending

- Travel within the state to project locations, and out of state travel to national conferences and meetings. Light lifting (less than 10 lbs.)

Knowledge, Skills, and Abilities (Behaviors):

- Prefer knowledge and understanding of AASHTOWare, preconstruction design and project scheduling systems and workflows
- Knowledge of the concepts and theories of computer science including database administration, network architecture, application development, and project management
- Knowledge of the software development lifecycle, continuous integration & delivery, and associated task tracking tooling (Jira preferred)
- Proficiency with version control systems and platforms (Git and Gitlab preferred)
- Working knowledge with relational databases, full-stack web development, and reporting tools; preferably: Oracle, Java, JavaScript, and Jasper Reports
- Systems analysis, design, testing, and documentation techniques and procedures
- Computer operating systems, equipment, and software
- User and application security
- Business process and requirements analysis
- Managing complex and varied system development and management projects
- Planning and organizing the work of others
- Knowledge of supervisory methods and techniques
- Customer service standards
- Project planning, budgeting, and management
- Research methods and techniques
- Advanced problem resolution and user support for technical problems.
- Negotiation and persuasion.
- Ability to communicate efficiently and effectively both in writing and verbal communication
- Ability to multi-task and meet inflexible deadlines

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 computer science, engineering, construction engineering technology, or a related field.

This position requires a minimum of 6 years of experience in information technology development/management and 4 years of experience in project management or business analysis, of which at least 2 years is IT or engineering related.

This position requires a minimum of one (1) year of supervisory experience. One (1) year of management development training course work will be considered in lieu of the one (1) year of direct supervisory experience.

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

Special Requirements:

List any other special required information for this position.

☐   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.

<u>**Signatures**</u>

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

<u>**Human Resources Review**</u>

Job Code Title: **Job Code Number:**

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**