ENGINEERING SPECIALIST PRINCIPAL

KIND OF WORK

Advanced paraprofessional engineering work in a specialized field, including supervisory responsibility of employees or oversight of consultants’ and/or contractors’ work, for the MN Department of Transportation (MnDOT).

NATURE AND PURPOSE

Under administrative direction, an employee in this class is responsible for applying advanced para-professional civil engineering skills to perform project management of major or mega scale transportation construction projects; developing policies and procedures within the area(s) of expertise to ensure proper construction program execution and compliance with agency, state and federal procedures, practices, regulations, and standards; or effectively recommending expert-level para-professional civil engineering skills to multiple functional engineering areas. Work requires the independent selection of courses of action and the resolution of problems within the framework of broad engineering and administrative guidelines. Responsibility extends to withholding services and/or corrective action in cases of non-compliance and independently negotiating on behalf of the agency.

Engineering Specialist Principal: At the Principal level, incumbents apply expert level paraprofessional civil engineering skills, oversees many functional areas for major or mega scale projects and effectively recommends decisions within the framework of broad engineering and administrative guidelines; have independent responsibility for staff supervision or significant oversight of consultants and contractors; and make commitments on behalf of MnDOT with other agencies, contractors/consultants or the general public.

Engineering Specialist Senior: At the Senior level, incumbents apply civil engineering skills in many functional areas for moderate to major scale projects OR specialty engineering activities for review by professional staff who ensure proper program execution and compliance with agency, state and federal procedures; may or may not supervise staff; and serve as the liaison with other agencies, contractors/consultants and the general public.

Construction projects vary in size, scope, cost, risk and complexity. Using project management process requirements, project thresholds are defined as minor, moderate, major, and mega.

Minor project work types are defined as maintenance betterment projects, overlay projects, simple widening without right of way impact, and non-complex enhancement projects without new bridges (ex. bike trails). Minimal interaction with environmental or permitting agencies.
Moderate project work types are defined as resurfacing, reconstruction, bridge, culvert replacement, minor structures and utilities. Moderate projects typically require a Categorical Exclusion or an Environmental Assessment (EA) environmental document.

Major project work types are defined as reconstruction, new construction, major bridge, intelligent traffic systems (ITS), agreements, and railroad. Major projects typically require an Environmental Assessment (EA) or Environmental Impact Statement (EIS) environmental document.

Mega project work types are defined as major reconstruction or new construction on a large scale, major bridge projects between other states or Canada, statewide and or national notoriety; and adjustment to budget has statewide significance as these projects cost in the hundreds of million dollars.

**EXAMPLES OF WORK** (A position may not include all the work examples given, nor does the list include all that may be assigned.)

Manage all project management phases of complex major or mega multi-operational transportation construction projects to ensure all work is completed according to the contract, standard specification for construction, accepted plans/shop drawings, current critical path schedule, environmental permitting, EEO and DBE regulations, prevailing wage requirements, municipal agreements and approve contract changes and all issues, concerns, obstacles, and opportunities are resolved to deliver the project as efficiently and economically as possible.

Act as the primary project contact for other agencies and the general public regarding project activities; establish effective working relationships with local units of government; and provide overall direction and leadership to technical project teams in the application of knowledge, skills, tools, and techniques in managing project activities.

Develop and champion policies and procedures for administration and documentation of construction contracts to ensure contracts are administered in compliance with current agency, state and federal procedures, practices, regulations, and standards; payment is made to contractors in compliance with state law, and construction contracts are passed for payment and closed out in compliance with state and federal regulations; and to manage the termination process in the event that default and termination of a construction contract is eminent.

Oversee the structural fabrication of bridges and other structures to ensure approved welding and materials certification procedures are performed by fabricators of metal bridge components; develop and direct a welders certification program; develop specifications and special provisions for field and shop personnel; direct the inspection of fabricators of steel structures, suppliers of structural metal components, and firms performing work on metal components of structures; and resolve fabrication problems with existing structures.

Manage and supervise the design of transportation construction projects; coordinate the preparation, development and review of scoping documents, environmental documentation, geometric layouts, detailed construction plans, supplemental documents, and manage consultant contracts so that they are prepared in accordance with MnDOT specifications, standards, guidelines, policies and good engineering practice within established timeframes.
and budget; coordinate projects with other MnDOT sections and offices, external agencies and consultants so that all recommendations, data, and information are received or exchanged to avoid delays in design work to meet project schedules; manage consultant services activities; and provide guidance and instruction to others.

KNOWLEDGE, SKILLS, AND ABILITIES REQUIRED

Knowledge/skill of:

- Principles and practices of several functional areas of para-engineering.
- Roles, responsibilities, and authorities of local, regional and state units of government as it relates to transportation.
- Agency programs, policies, and applicable state and federal regulations.
- Project management principles, practices, tools, and techniques.
- All phases of program delivery including scoping, preliminary design, final design, and construction.
- The principles of effective supervision.

Ability to:

- Read and understand construction plans to determine code and specification compliance.
- Coordinate and direct the activities related to large engineering projects or programs of considerable complexity.
- Express ideas clearly and concisely, orally and in writing, and to speak effectively in explaining the agencies’ programs or projects.
- Establish and maintain effective working relationships with representatives of industry, local units of government, and citizen groups.
- Lead and direct the work of technical teams or staff assigned to a project.
- Plan, organize, set priorities, and delegate duties on multiple projects simultaneously.
- Ensure project or program is executed according to, and in compliance with, agency, state and federal procedures, practices, regulations, and standards.