

DESCRIPTION: Under limited supervision of a Registered Professional Engineer, performs technical engineering tasks required to complete project engineering reviews and/or assists with corridor or other studies for Nebraska Department of Roads (NDOR) highway and transportation projects; performs related work as assigned.

DISTINGUISHING CHARACTERISTICS: (A position is assigned to this class based on the scope and level of work performed as outlined below.)

Positions in this single full performance classification level are assigned technical engineering work during early phases of the development of construction, improvement, and renovation projects or related studies. These projects or studies will vary in scope, complexity, and diversity. Their primary and predominant responsibility is to provide engineering services such as reviewing and evaluating plans, specifications, and other documents; evaluating requirements and issues/solutions for projects or studies; assembling data and preparing technical reports, letters, graphics, and other records; applying accepted engineering principles in standard situations or assisting professional engineers during major portions of complex engineering projects or studies. Contacts typically involve a wide range of professional and technical employees inside and outside the agency.

Positions at this level perform work at both the developmental and fully functioning levels where incumbents learn to perform the work assigned while developing and applying the knowledge of and skill in using work procedures and techniques, and computer systems and applications pertinent to engineering analysis of highway segments. Work is performed initially under close supervision, changing over time to limited supervision for most assignments. Initial assignments are well defined where guidelines and assistance are readily available from other Highway Project Engineering Review Analysts or the Engineer in charge of corridor studies. As the requisite knowledge, skills, and proficiency are developed, incumbents would typically be given progressively more advanced assignments and greater independence.

EXAMPLES OF WORK: (A position may not be assigned all the duties listed, nor do the listed examples include all the duties that may be assigned.)

Conducts engineering reviews and prepares technical reports for highway and bridge construction projects that involve replacement or resurfacing of existing roadway pavement, shoulder widening, culvert extension, bridge improvement/replacement, and/or geometric correction.

Reviews and analyzes pavement condition and other information about existing roadways, including typical cross section, structural, right-of-way information, and culvert data, and proximity of environmentally sensitive resources; requests improvement recommendations from engineers in other NDOR divisions; coordinates with agency employees and other State and/or federal agencies to ensure compliance with design standards and other applicable State and federal regulations.

Researches agency databases or consults with agency employees; analyzes existing roadway information and identifies needs or deficiencies; determines and recommends project scope definitions.

Develops detailed project cost estimates by calculating quantities in accordance with the Standard Specifications for Highway Construction.

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Develops preliminary alignments, cross sections, and other design information required to complete alternative analyses for highway capital improvement projects; prepares and compiles pertinent design information into location study reports; facilitates environmental documentation.

Determines preliminary construction limits and performs earthwork quantity calculations to establish approximate right-of-way needs and other impacts to adjacent properties.

Prepares typical cross sections and plots right-of-way and roadway alignments for project engineering reviews and location studies.

Creates computer-generated aerial mosaics, three-dimensional visualizations, and other specialized displays for reports and/or project public meetings.

Collects and organizes materials and data pertinent to projects assigned to consultant engineering firms.

Reviews consultant engineering firm proposals, plans, and other documentation for conformance to NDOR standards, policies, and generally accepted design principles.

Maintains communication between NDOR divisions and district offices concerning elements of project scope.

Updates and organizes computer files used in the project development phase of a design or construction/improvement project or study.

Manages multiple projects that are at various stages of completion simultaneously; maintains and updates project status and needs data; completes special projects as assigned.

Participates in NDOR meetings at all organizational levels and locations, as needed. Provides assistance to the corridor studies Engineer, as assigned.

KNOWLEDGE, SKILLS, AND ABILITIES REQUIRED: (These are needed to perform the work assigned.)

Knowledge of: activities, procedures, principles and terminology related to design and construction of highway and other transportation-related projects, including engineering and geometrics; methodology for calculating preliminary project costs; engineering review procedures; State and Federal guidelines, policies, and regulations governing highways, bridges, culverts, and other transportation-related projects; NDOR Roadway Design and Drainage Design manual; NDOR Roadway Design Standards and Specifications; American Association of State Highway and Transportation Officials Roadway Design Standards; Nebraska Board of Public Roads Classifications and Standards; NDOR business practices and organizational structure/functions; mathematics, including algebraic and geometric formulas and computations; basic highway planning and research study practices.

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Ability to: communicate, orally and in writing, with individuals at different levels of an organization and the public; facilitate meetings or discussions to resolve project issues; understand, interpret, and apply pertinent standards governing highways, bridges, culverts, and other transportation-related projects; identify specific information from substantial amounts of related data or information in such sources as survey notes, manuals, and standard specifications; anticipate, identify, and assess impacts of project scope upon project deliverability, cost, and schedule; compile relevant project information into clear and concise technical reports for administrative approval; organize, plan, prioritize, and coordinate multiple assignments and activities relating to project definition; communicate with all levels of professional and technical engineering and other workers in an organization; maintain work relationships with agency employees and representatives of other resource agencies; use Computer Aided Design (CAD) software applications to create preliminary alignments and/or cross sections, engineering reports, maps, and other graphics; perform mathematical calculations including geometry, algebra, and trigonometry; use mosaic aerial photos; query various databases and other applications for analysis and reporting; document/record information in project correspondence file.

Skill in: organizing project assignments; writing clear and concise technical reports and letters; communicating with others to determine project definitions; applying project management techniques; presenting technical information to a variety of groups; operating personal computers and CAD systems.

MINIMUM QUALIFICATIONS: (Applicants will be screened for possession of these qualifications. Applicants who need accommodation in the selection process should request this in advance.)

Experience in roadway design and/or highway construction and the use of personal computers to create design and/or civil engineering graphs, displays, maps, charts and drawings.

OR

Post high school coursework/training in civil engineering practices, and experience in operating personal computers to use various software applications and access computer databases to extract and prepare data and reports.

SPECIAL NOTES:

State agencies are responsible to evaluate each of their positions to determine their individual overtime eligibility status as required by the Fair Labor Standards Act (FLSA).