

HIGHWAY DESIGNER II

DESCRIPTION: Under limited supervision of a Registered Professional Engineer, is assigned own projects; performs technical engineering design work of broad scope and complexity in the calculation and preparation of plans for difficult to complex highway projects and related civil or transportation engineering projects; performs related work as required.

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.)

Prepares design plans for rural improvements on existing or new horizontal and vertical alignment which may require minor phasing to maintain traffic.

Prepares design plans for resurfacing, restoration and rehabilitation (3R) projects that may have short areas of horizontal or vertical realignment as well as minor phasing to maintain traffic.

Prepares design plans for minor urban segments in connection with rural, new and reconstruction.

Prepares minor traffic phasing plans (i.e. shoo-fly) for short temporary detours around construction of culverts and bridges.

Determines specific design details and notes to be used in a project by analyzing available project file information and applying appropriate design standards from design manuals.

Attends and participates in public hearings and meetings on project design to answer questions and explain design plans.

Writes plan-in-hand reports.

Verifies the calculations, detailed drawings, aerial photographs, survey data, finished plans and utility line drawings, that have been prepared by co-workers, consultants, and others, to ensure completeness, accuracy, and adherence to standard specifications or special contract provisions.

Communicates with co-workers and personnel in various federal, state, and local agencies to interpret plans or guidelines, secure services, make recommendations, solve problems, and obtain clarification of design concepts or survey data.

Assembles, files, and maintains reports, manuals, parcels and project files, aerial photographs, plans, and maps.

Reviews off-system rural new and reconstruction projects.

HIGHWAY DESIGNER II (continued)

FULL PERFORMANCE KNOWLEDGE, ABILITIES AND SKILLS REQUIRED: (These may be acquired on the job and are needed to perform the work assigned.)

Knowledge of: basic engineering principles related to design and construction of projects including engineering, surveying, hydrology, and geometrics; agency, state, and federal guidelines, policies, and regulations regarding the design and construction of highways, bridges, culverts, and other transportation-related projects.

Ability to: respond to inquiries at public hearings and meetings; plan and coordinate multiple sections/divisions activities relating to project completion; identify specific information from a substantial amount of related data or information in such sources as legal property descriptions, reports, survey notes, manuals, and standard specifications.

ENTRY KNOWLEDGE, ABILITIES, AND SKILLS REQUIRED: (Applicants will be screened for possession of these through written, oral, performance, and/or other evaluations.)

Knowledge of: Nebraska Department of Roads (NDOR) Roadway Design Standards, AASHTO Roadway Design Standards; Nebraska Standard Specifications for Highway Construction; hydraulics and hydrology; mathematics including algebra, geometry, and trigonometry; basic engineering terminology; the development process of a complete set of plans including how to prepare designs, utilize standard specifications, and tabulate data in chart form; format, contents, and use of plans, manuals, and project files including appropriate lettering styles, widths, and sizes required for use on a variety of plans.

Ability to: perform mathematical calculations including geometry, algebra, and trigonometry manually or with the aid of a calculator; read, understand, and interpret the terminology and symbols used in survey notes, plans, and aerial photographs; detect errors, discrepancies, and omissions through examination of detailed drawings, tabulations, calculations, and notes; accurately transfer information in numerical, written, or sketched form from sources such as legal descriptions, survey notes, aerial photographs, and preliminary sketch sheets to plans; understand land descriptions including units of measure and bearings.

Skill in: operating the agency's computer and CAD systems.

JOB PREPARATION GUIDELINES: (Entry knowledge, abilities, and/or skills may be acquired through, BUT ARE NOT LIMITED TO, the following coursework/training and/or experience.)

Any combination of training and/or experience that will enable the incumbent to possess the required knowledge, skills, and abilities. A general qualification guideline for positions in this class is a high school education or the equivalent AND education or experience in design, drafting, engineering, or highway construction.