

Click one of these links to see the Job Description for that class:

Job Code	Title
M56811	Highway Designer I
M56812	Highway Designer II
M56813	Highway Designer III

Highway Designer Series

M56811, M56812, M56813

DESCRIPTION OF OCCUPATIONAL WORK

Positions in this class series are responsible for technical engineering design work in the calculation and preparation of plans and/or projects for highways, and related civil or transportation engineering projects. Assignments within this series range from moderate scope and complexity to increasing broad scope, complexity, and diversity of assignments. Placement within the Highway Designer series is dependent on the scope, complexity, and diversity of assignments; the kind and level of work assigned; authority and responsibility delegated to the position, and the varying levels of oversight required of a position.

Highway Designer I

M56811

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

Under general supervision of a Registered Professional Engineer, performs technical engineering design work of moderate scope and complexity in the calculation and preparation of plans for minor projects or for portions of other projects for highways, 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 entire minor construction projects, which includes the design of resurfacing, restoration, and rehabilitation projects with minor roadway widening and culvert extensions; or minor new and reconstruction, which is the design of short segments of reconstructed roadway.

Performs design tasks on portions of major projects, as assigned, to assist the project designer(s).

Computes dimensions, curves, areas, volumes, profile grades, elevations, quantities, and distances to establish exact information upon which to determine locations, quantities, types and sizes of construction materials and land to be used in projects.

Revises diagrams, data and information on plans, design standards, and charts to correct errors, discrepancies, and obsolete portions of construction plans.

Completes plan-in-hand report forms.

Transfers survey data, sketches, and information to plans.

Draws property and right-of-way boundaries along existing and proposed highway centerlines and survey lines on plats, plans, and aerial photographs.

Cross-checks the calculations, detailed drawings, and finished plans prepared by co-workers to ensure completeness, accuracy, and adherence to standard specifications.

Communicates with co-workers to interpret plans or guidelines, solve problems, and obtain clarification of design concepts or survey data.

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

Knowledge of: Nebraska Department of Transportation (NDOT) Roadway Design Standards and AASHTO Roadway Design Standards; limited knowledge of Nebraska Standard Specifications for Highway Construction; very limited knowledge of hydraulics and hydrology; 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 or use on a variety of plans.

Skill in: perform mathematical calculations including geometry, algebra, and trigonometry manually or with the aid of a calculator or computer; 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

Ability to: use and care of assigned equipment.

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

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 drafting, engineering, or highway construction.

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Highway Designer II

M56812

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

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.

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

Knowledge of: Nebraska Department of Transportation (NDOT) 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.

Skill in: 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.

Ability to: operating the agency's computer 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.)

Coursework, training, or experience in design, drafting, engineering, highway construction, or other construction field using CADD applications and practices.

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Highway Designer III

M56813

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

Under limited supervision of a Registered Professional Engineer, is assigned own projects; is responsible for technical engineering design work of broad scope, complexity and diversity in the calculation and preparation of plans for very complex construction projects for highways, 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.)

Designs horizontal and vertical alignment of roadways.

Prepares design plans for new and reconstruction projects requiring additional lanes on new or existing horizontal alignment.

Prepares design plans for new or rebuilt highway interchanges.

Prepares design plans of complete new urban projects including associated storm sewer design and the utility rehabilitation coordination.

Prepares design plans for major rural new and reconstruction under traffic.

Review design plans for off-system urban reconstruction projects for compliance with federal and state Standards and Specifications.

Recommend solutions for solving problems at high accident areas, research accident history, coordinate with other divisions, and provide estimates to help determine cost-benefit ratio.

Prepares design plans for safety projects and oversee safety project designs done by local government agencies and consultants.

Attend standard plans, safety and other policy recommending committee meetings.

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

Knowledge of: extensive knowledge of Nebraska Department of Transportation (NDOT) Roadway Design Standards, AASHTO Roadway Design Standards; Nebraska Standard Specifications for Highway Construction; hydraulics and hydrology, advanced engineering principles related to design and construction of projects including engineering, surveying, hydrology, hydraulics and geometrics.

Skill in: applying design principles to the most complex design with limited direction.

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.

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

Three years of experience in highway civil engineering design, including CADD applications and practices OR post-high school coursework or training in the design field mentioned above may substitute for two of the five years of experience required on a year-for-year basis.

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SPECIAL NOTES APPLICABLE TO ALL LEVELS:

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).

Established: 12/95

Note: Classification-specification is subject to change. Please refer to the Nebraska State Personnel Job Specification website at <https://das.nebraska.gov/personnel/classcomp/jobspecs/jobspecs.html> to ensure this represents the most current copy of the description.

The following is a summary of changes made to this class specification.

Section	Change Description	Effective Date
Minimum Qualifications	HD II and HD III updated	3/20/24
Distinguishing Characteristics	Added	3/20/24