

STATE OF SOUTH DAKOTA CLASS SPECIFICATION

Class Title: Transportation Planning Engineer

Class Code: 40866

A. Purpose:

Identifies and develops potential transportation projects by compiling highway data into a central relational database and analyzing and prioritizing needs, combining prioritized needs into feasible projects, preparing detailed scopes of work and cost estimates for multiple project alternatives, and conducting cost/benefit analyses on options; and recommends priorities for project development in appropriate fiscal years based on efficiency, effectiveness, and economical advantage.

B. Distinguishing Feature:

The Transportation Planning Engineer guides development and ensures completeness of project scopes prior to scheduling and design.

C. Functions:

(These are examples only; any one position may not include all of the listed examples nor do the listed examples include all functions which may be found in positions of this class.)

1. Compiles available and supplemental data regarding the condition of highways into a central database; and analyzes the data to prioritize and combine needs into efficient transportation projects prior to programming and design.
 - a. Reviews data about traffic, pavement, structures, safety, materials, and other highway-related information that has been compiled from various databases, reviews previous construction plans, conducts on-site inspections, and seeks input on undocumented needs from region staff.
 - b. Maps needs with GIS to assist in evaluation by location, and discusses additional requests with those who submitted them to better understand their needs and to determine whether needs are immediate or may be deferred.
 - c. Identifies areas where additional information is necessary to conduct correct evaluation, develops processes to obtain further data, and coordinates with appropriate staff to do the work.
 - d. Compiles an initial list of candidate needs for potential projects and solicits public input to further evaluate status of needs.
 - e. Combines candidate needs into highway segments and recommends project priorities.

2. Combines candidate needs into potential projects and manages input from other resources and stakeholders to reach consensus on the range of work in the projects.
 - a. Combines associated needs into a proposed project and identifies the purpose and objectives of the project.
 - b. Assembles and leads a project scoping team to develop a plan specific to the project that defines scope, schedule, cost, resource needs, risk, and communication needs.
 - c. Creates a scope document that includes the work deemed necessary to plan and design the project and distributes it to the scoping team for review and concurrence.
 - d. Performs on-site inspections to confirm preliminary scope and to identify highway needs within or adjacent to a candidate project's highway segment(s).
 - e. Determines need for and secures department staff and consultants necessary to

- cover scope work load.
 - f. Analyzes multiple options and combinations of options to determine the most favorable choice based on benefit and cost analyses and customer demand.
 - g. Develops project scenarios with cost estimates and schedules to assist in decision-making.
 - h. Conducts public meetings to gather input on preferred options.
 - i. Approves the scope document based upon concurrence of the scoping team; and co-signs the document with the appropriate region engineer.
 - j. Reviews project plans to ensure scope does not change during design and construction; and alters scope by amendment if possible.
 - k. Provides design exceptions for approval by the Chief Engineer and the Federal Highway Administration (FHWA).
 - l. Oversees consultants' value engineering studies for selected candidate projects and reports cost savings to FHWA.
3. Recommends candidate projects for inclusion in the Statewide Transportation Improvement Program (STIP) based on analyses of multiple project options and costs and benefits.
- a. Advises optimum timing for projects' entrance into the STIP based on work involved and funding available from specific categories.
 - i. Proposes optional scenarios for different years with information on different results.
 - ii. Coordinates projects with one another for best timing and least interruption to the public.
 - b. Reviews preliminary recommendations with other staff to resolve questionable and controversial issues prior to the project programming meeting.
 - c. Evaluates projects and prepares required revisions that were not part of the programming meeting for inclusion into the STIP.
4. Performs administrative work to facilitate evaluation and decision-making processes.
- a. Develops and maintains a user manual for central database system (Maintain Candidate) users, and provides training.
 - b. Coordinates with consultants to fine-tune database system modules and enhance user capabilities.
 - c. Oversees organization of public meetings about project proposals, and makes presentations and answers questions about assigned projects.
 - d. Provides work direction to other permanent staff and seasonal employees who are conducting research to collect background data, those who are laying out options, and those who are working on more basic projects.
 - e. Reviews and revises policies as needed to facilitate conformance to new methods.
5. Performs other work as assigned.

D. Reporting Relationships:

Reports to a Division Director. Does not supervise but provides work direction to permanent and seasonal staff.

E. Challenges and Problems:

Challenged to fairly evaluate multiple needs for improvements to state highways and make the most efficient and economical decisions to determine the scope of projects prior to design and to prevent costly addendums because of added work during the design and construction phases. This is difficult because it requires extensive research into the status of each highway, comparisons with other segments of highway that may have equal or more pressing needs, thorough analyses and prioritization of all segments, facilitation of input from appropriate stakeholders, and a supportable recommendation for priority and programming of projects. Further challenged to introduce new methodologies into a complex system without interrupting the scheduled flow of work. This is challenging because it involves input from many other resources, understanding and addressing a broad range of planning and design issues, identifying voids in existing information, directing the work of others without the authority of supervision, and continuing evaluation of the effectiveness of the system being introduced.

Problems encountered include maintaining consistency in policy interpretation, being challenged by and responding credibly to differing opinions about recommendations, coordinating with designers to come to an understanding about what is to be included in the construction plans, gaining consensus on scope components from the scoping team, and staying up to date in all areas of civil engineering.

F. Decision-making Authority:

Decisions include whether highway needs should be combined or split, whether needs meet the criteria to become candidates for further detailed scoping and which needs may be deferred, whether or not additional data is needed and the method by which to attain it, which scenarios to prepare and analyze for optimum choices, recommendations for most effective timing for project inclusion into the STIP, and whether or not policies governing scoping need updating to provide foundation for new methods.

Decisions referred include resolution of conflicts over customers' needs, resolution of impasses on project scope, approval of policies and standards, approval of project scope, approval of project inclusion in the STIP, and approval of scope addendums.

G. Contact with Others:

Daily contact with department planning and engineering staff to compile applicable data into the central database; with Region and Area Engineers and Highway Maintenance Supervisors regarding additional highway needs information submitted via the manual needs module of the central database; with design engineers to share information and evaluation of project scoping needs; and with assistants to oversee layout of options and the collection of background data; weekly contact with scoping teams made up of staff experts to evaluate and select scope options; and with the public and other local stakeholders to share information and education regarding project scope; frequent contact with programmers to enhance the Maintain Candidate system; and with department managers to share information on new methods and the progress of project development, and to make recommendations for the priority of projects in STIP.

H. Working Conditions:

Typical office environment.

I. Knowledge, Skills, and Abilities:

Knowledge of:

- data analysis and planning;
- principles, theories, and practices of civil engineering;
- engineering economics and business practices;
- Geographic Information Systems (GIS);
- computer technology including mainframe systems.

Ability to:

- interpret, apply, and revise department policies and processes;
- organize and assess data from multiple resources and reach an effective conclusion;
- facilitate discussion and build consensus among divergent opinions;
- work independently and prioritize work to meet deadlines and timelines;
- establish and maintain effective working relationships with department managers, staff, other agencies' representatives, and the public;
- take a leadership role in establishing new technologies and methodologies;
- communicate information clearly and concisely.