

New

Ministry

Transportation and Economic Corridors

Describe: Basic Job Details

Position

Position ID

Position Name (200 character maximum)

Infrastructure Engineer

Requested Class

Engineering & Related Level 2

Job Focus

Operations/Program

Supervisory Level

00 - No Supervision

Agency (ministry) code

Cost Centre

Program Code: (enter if required)

Employee

Employee Name (or Vacant)

Organizational Structure

Division, Branch/Unit

Construction & Maint/Central Region/Infrastructure

Current organizational chart attached?

Supervisor's Position ID

Supervisor's Position Name (30 characters)

Infrastructure Manager

Supervisor's Current Class

Design: Identify Job Duties and Value

Job Purpose and Organizational Context

Why the job exists:

This position reports to the Infrastructure Manager and is responsible for the delivery of project scoping assignments for all projects on the rehab and capital construction programs in the Central Region; programming for the regional 5- and 10-year rehabilitation and construction programs; regional planning activities (e.g. functional planning); and/or technical reviews for development applications. Project Scoping will include the administration of the regional surfacing strategy consultant contract. Completion of in house preliminary engineering/geometric assessments/safety assessments will also be required to support project scoping.

Responsibilities

Job outcomes (4-6 core results), and for each outcome, 4-6 corresponding activities:

Project Scoping:
What: Prepare overall project scoping document deliverable for hand off to the Construction team. Administer regional surfacing strategy consultant contract in support of scoping.
Within: Project scoping process developed by Alberta Transportation and Economic Corridors (TEC). And geometric, safety and surfacing standards developed by Transportation Association of Canada (TAC) and TEC.

End Result: Project scoping hand-off document signed off by Infrastructure Manager.

Activities:

- In collaboration with department staff, develop list of projects that need to be scoped.
- In collaboration with department staff, develop list of projects which need to be added to geometric assessment consultant contract and surfacing strategy consultant contract.
- Request surfacing strategies from Regional CoShelly Gangl.nsulants and provide direction and completion deadlines.
- Review completed surfacing strategy reports for consistency with department standards.
- Review completed geometric assessment reports for consistency with department standards.
- Review reports with consultant and other department staff to determine which improvements should be implemented.
- Follow project scoping process in gathering information from internal and external stakeholders.
- Draft the project scoping hand-off document.
- Organize and chair project hand-off meetings with the Construction team.
- Complete consultant evaluations and participate in the selection of new consultants as contracts expire.
- Authorize payments to consultants in accordance with the contracts.

Programming of Highway Upgrades:

What: Provide assistance to the department's programming staff as required. Identify projects resulting from planning activities for consideration in the development of the department's construction programs.

Within: Established programming projects definitions and division prioritization processes.

End Result: Regional 5 and 10-year rehabilitation and construction programs.

Activities:

- Identify improvements to the highway network to ensure the safe movement of people and goods.
- Review geometric assessments, safety assessments and planning studies to identify new projects or include improvements in the scope of existing projects.
- Consult with the regional sections to identify new projects and verify the scope and limits for implementation.
- Calculate project estimates and submit new projects for programming.
- Maintain and update project estimates to ensure they reflect current unit prices.
- Participate annually in the regional ranking of projects.

Planning:

What: Provide assistance to the department's planning staff as required. Identify highway network planning needs and administer planning projects as required.

Within: Appropriate planning horizons and department budgets, guidelines and priorities.

End Result: Completion of regional planning activities to support programming for future construction projects.

Activities:

- Represent the region on transportation planning projects which support the divisional Operational Plan.
- Ensure transportation safety objectives are achieved in all planning activities.
- Identification of regional needs, forecast and implement planning projects.
- Liaise with consultants, municipal authorities and the public on planning issues.
- Prepare Terms of Reference, liaise with Central Office resources, review consultant proposals and participate in consultant selection.
- Technical review of geometry, alignment, design configurations and suitability of proposals to location.
- Direct consultant toward best value alternatives.
- Administer consultant engineering agreements and initiate project progress payments.
- Assist consultants in administering public meetings.
- Review, provide correction, recommendation and accept consultant planning reports.
- Ensure planning documentation complies with department's current standards and specifications.
- Complete consultant evaluations.
- Carry out minor in-house planning studies.
- Provide recommendations to regional roadside development and planning staff to support the review of third party

development applications.

Technical review of Development Applications:

What: Provide assistance to the regional development staff as required.

Within: Highway Development & Protection Act & Alberta Transportation's Traffic Impact Assessment Guidelines

End Result: Accurate, timely response to development section. Approval or denial of development applications requested provincial highway access plus identification of required highway access upgrades to accommodate development.

Activities:

- Assist Development Techs with the review of Development Applications and/or referrals.
- Review Traffic Impact Assessments.
- Review of technical reports produced for municipalities in order to determine eligibility and suitability of projects.
- Provide direction and recommendations to development section based on long range planning requirements.
- Preparation of municipal funding agreements and/or memorandum of agreements.
- Liaise with municipalities and explain assessment decisions.

Issues management:

What: Providing responses to transportation infrastructure issues raised by municipalities, special interest groups, or the general public.

Within: Government policies and department objectives.

End Result: Accurate, timely response to infrastructure related requests.

Activities:

- Review issues raised by various stakeholders and provide either written or verbal response that is consistent with the department's objectives. Responses can be for the Minister or MLA's through an action request, or for internal employees such as the Regional Director or Infrastructure Manager.
- Issues are often unique and require creative solutions that support the department's objectives.
- Negotiation skills are often required to promote the department's position or to negotiate cost-sharing solutions.
- Preparation of briefing notes for meetings with the Minister or MLA regarding transportation issues.
- Recognition of sensitive issues is required in order to effectively deal with some issues such as transportation safety.
- Attend meetings with municipalities or other stakeholders to present the department's position and plan of action for issues such as sustainable grant funding, recent traffic collisions on a provincial highway, future highway upgrades and other transportation related issues.

Problem Solving

Typical problems solved:

The Infrastructure Engineer will be responsible for the delivery of project scoping documents to Project Delivery Branch.

The Project Scoping Guidelines outlines the following:

The purpose of project scoping is to enable the department to better define the components of projects before a consultant is engaged.

It is desirable to involve all interested parties within the Region at an early stage in a project because it will help to minimize the amount of unanticipated issues and scope changes, which can subsequently cause delays in delivery schedules, as well as impact costs. Identification of risks to a project can help anticipate where problems may be likely to arise. An additional goal is to ensure that project components provide good overall value. With continuing budgetary pressures and constraints, it is important to ensure that we focus on high value components in our projects, and reduce the amount of scope creep. This way we can deliver a larger number of projects and continue to make valuable improvements to our highways within our available budgets.

Fully scoped projects may still experience the addition of major work components that are identified by

project consultants during the design stage. However, the decision on whether to include additional work items must consider whether the expenditure is justified by the overall functional improvement expected. A review of the roadway safety performance related to particular features should be a consideration in making decisions, both during the scoping process and when reviewing additional work components identified during the design stage.

The Infrastructure Engineer will administer the regional consultant in the completion of the surfacing strategies needed to enable the Infrastructure Engineer to complete the project scoping hand-off document. Internal project scoping will be conducted by the Infrastructure Engineer as required.

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The typical project scoping process includes:

- Send blank Background Checklist document to internal stakeholders
- Collect supporting data.
 - NESS geometric reports
 - Traffic info
 - Map data
 - Previous or current planning studies
 - Surfacing strategy
 - Previous strategy, or
 - New surfacing strategy by regional consultant
- Review Infrastructure Needs
 - Geometric Assessment (old or new as administered by regional contract)
 - Previous assessment, or
 - New assessment by regional consultant, or
 - New assessment completed internally by Infrastructure section
- Scoping Hand-off meeting
- Complete Project Scoping Hand-off document for sign-off by Infrastructure Manager.

The Infrastructure Engineer will also be responsible for assisting the Development section with technical review requirements of various Development applications including:

- Review Traffic Impact Assessments (TIA) and provide developers with guidance on what is required from a TIA.
- Support Development Techs at various meetings with Developers or municipalities.
- Review various Municipal submissions including ASP's MDP's, Lands use plans from the highway planning perspective.
- Provide direction and recommendations on roadside development issues where developments affect long range highway improvement plans.

In addition to the Project Scoping and Development tasks the Infrastructure Engineer will also be involved

with the day to day Infrastructure section duties which may include the following:

- The Infrastructure Engineer is a common contact person for municipalities and the public to discuss transportation planning issues. Creativity, problem solving and excellent communication skills are required in order to provide the Department's position on infrastructure issues.
- The Infrastructure Engineer deals with a very broad range of issues including geometric design, transportation safety, land use and area structure planning, pavement management and design, review of water/wastewater treatment plant alternatives, funding responsibilities and preparing written responses for the Minister on any of the above issues. A thorough knowledge of the organization of the Department and available external resources is essential in order to resolve these issues.
- The Infrastructure Engineer is involved in coordinating activities with other functional areas (construction, operations, property and bridges). As projects move from the planning/ programming phase to implementation, the issues and decisions addressed must be clearly communicated and explained to these groups.
- Because of the broad range of involvement in Regional activities, the Infrastructure Engineer is often asked to provide Regional input in various departmental committees and task groups.

Types of guidance available for problem solving:

For project scoping, engineers regularly refer to Transportation and Economic Corridors Highway Geometric Design Guide. In addition the Transportation Association of Canada's design guide can be used when information is not available from the departments guide. In addition there are various best practices that can be referenced for specific needs.

Direct or indirect impacts of decisions:

Scoping decisions have impacts on the next 25+ years of a highway as we typically overlay projects every 20 -25 years depending on condition. For example, safety improvements are a big factor in decision making and if there is no perceived safety issue an improvement will typically not be required, so that we can stretch budgets every year. These type of decisions though can have impact to municipalities who expect TEC to conduct upgrades to local road intersections as we pave through. This impacts development potential at these locations.

Key Relationships

Major stakeholders and purpose of interactions:

Internal, Infrastructure section, Project Delivery staff (Construction and Project Management Office), Property Section, Bridge Section, Operations section, Interdepartmental/Twin Atria: Technical Standards Branch, Network and Capital Planning, Professional Services, Engineering Consultants, Public or elected officials, Print, television and radio media

Required Education, Experience and Technical Competencies

Education Level	Focus/Major	2nd Major/Minor if applicable	Designation
Bachelor's Degree (4 year)	Engineering		

If other, specify:

Additional related education considered in lieu of experience on a one-for-one basis

Job-specific experience, technical competencies, certification and/or training:

- Sound engineering background in transportation safety, construction and planning.
- Problem solving and mediation.
- Excellent written and verbal communication.
- Excellent interpersonal skills.
- Creativity and ingenuity are required in managing consultants for practical and viable solutions to complex issues.
- In-depth knowledge of geographic features, locality and Regional culture is required to administer assignments.
- Expertise in transportation safety is required in order to identify and evaluate potential improvements at problem locations on the highway network through the Region.
- Technical expertise in pavement management and life cycle cost analysis is desirable in order to evaluate alternative highway alignments and construction methods.

- Financial management and administration.
- Value engineering skills.
- Ability to explain contents of technical reports to lay people.
- Proficiency in computer software applications - Word, Excel & applicable decision support systems (NESS, GIS, etc). Technical traffic analysis software experience with Synchro and or Sidra would be considered an asset. Experience with AutoCad or Microstation would also be considered an asset.
- Department business functions, policies, procedures and specifications.
- Political issues, government mechanisms, processes and levels of authority.
- Legislation, policies, guidelines, standards and technical manuals.
- Engineering principles.
- Economic principles.
- Department design manual, road classification system, pavement design guide, contract administration manual, consultant evaluation and selection criteria.
- Organizational structure.
- B.Sc. in Civil Engineering with professional membership in APEGA, **or** equivalent Technical Diploma in Civil Engineering with professional membership in ASET or APEGA (as applicable).
- Valid Class 5 driver's license.

Behavioral Competencies

Pick 4-5 representative behavioral competencies and their level.

Competency	Level					Level Definition	Examples of how this level best represents the job
	A	B	C	D	E		
Drive for Results	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Actively sets goals and remains open to advice on reaching them: <ul style="list-style-type: none"> • Sets goals and prioritizes work • Identifies and corrects areas for improvement • Suggests actions; asks for advice when lacking information or multiple priorities • Operates within APS value system 	Recognize the need to scope projects in a timely manner to meet the needs of the Construction section and deliver the construction program
Develop Networks	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Maintains collegial internal relationships and understands external network: <ul style="list-style-type: none"> • Seeks to understand perspectives and needs of others • Follows through, has integrity and respect for others • Helps and follows through • Keeps key stakeholders informed; is professional and respectful 	Big part of the scoping process is getting input from other sections and to make decisions on what to include in the final scope to make sure everyone's needs have been addressed.
Creative Problem Solving	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Is open to new ideas and breaks problems down to identify solutions: <ul style="list-style-type: none"> • Breaks down problems into small parts 	Must review the issues with all project sand make decisions on what should be included from a safety and budget

		<ul style="list-style-type: none"> • Constructively questions and challenges the norm • Open to other's perspectives and aware of own • Contributes ideas for improving processes, and adapts existing practice to address problems 	<p>perspective. Maybe there are more options that the standard design guide options.</p>
Develop Self and Others	<input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	<p>Develops own career and reduces barriers for others:</p> <ul style="list-style-type: none"> • Creates development plan with supervisor and seeks feedback • Reflects on performance to identify areas of improvement • Offers knowledge and insight to others • Supports career development of direct reports 	<p>Always opportunity to develop your own career with the GOA. Create a performance plan as soon as possible to identify your development goals and show where you can assist by helping train others.</p>

Benchmarks

List 1-2 potential comparable Government of Alberta: [Benchmark](#)

Infrastructure Engineer

Assign