

Ministry

Transportation and Economic Corridors

Describe: Basic Job Details

Position

Position ID

Position Name (200 character maximum)

Junior Bridge Engineer

Current Class

Requested Class

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&Maintenance/Southern Region/Bridges

☐ Current organizational chart attached?

Supervisor's Position ID

Supervisor's Position Name (30 characters)

Supervisor's Current Class

Design: Identify Job Duties and Value

Changes Since Last Reviewed

Date yyyy-mm-dd

Responsibilities Added:

Assistant project manager duties to support Senior Bridge Engineers (Engineer 2's) in the completion of duties related to delivering bridge projects in the Southern Region.
Assist in the development of long range bridge capital programs by reviewing and assessing various bridge structures to determine optimal timing of capital interventions.
Get involved in engineering assignments from other sections to gain a broad understanding of more Transportation project processes.

Responsibilities Removed:

Senior Engineer (Engineer 2) duties related to managing projects on their own. Duties related to the delivery of very large and complex bridge projects.

Job Purpose and Organizational Context

Why the job exists:

Reporting to the Bridge Manager, this junior level Bridge Engineer position will support the Region's Senior Bridge Engineers in the coordination and delivery of the design and construction of the Region's bridge rehabilitation and bridge construction projects. The Bridge Engineer 1 provides support senior staff to ensure the safe, efficient, timely and fiscally responsible delivery of projects by consultants and contractors. This will include working with various internal and external project stakeholders to achieve results using good project management principles and knowledge of current Department bridge engineering practices and and specifications.

The Bridge Engineer 1 will assist in the selection, assessment and evaluation of consultants. In addition this position will help senior staff ensure that all engineering work done by consultants is reviewed throughout all phases of the work and that construction phases of the assigned project is adequately monitored by the Department to ensure the work is completed safely and in accordance with department requirements and contract specifications.

The Bridge Engineer 1 position will also support the bridge sections senior staff in developing long term Bridge Capital program.

As experience is gained more independent work on projects will be assigned giving the position more responsibility. When enough experience has been gained the incumbent will be encouraged to compete on higher classification positions within the Government.

Responsibilities

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

1. Assist Senior Engineers to engage and manage engineering consultants to provide a full range of engineering services for the delivery of the Region's bridge construction and rehabilitation programs.

- Assist in the completion of project scoping for bridge and road projects.
- Assist in the development of engineering terms of reference within the required schedule
- Assist in the review and evaluation of engineering consultant proposals and help with consultant selection meetings
- Assist in the review and evaluation of the services provided by engineering consultants by providing input into the Department's consultant evaluation process.
- Assist with regular communication and coordination with engineering consultants to ensure project schedules/costs are on track and to resolve issues.

2. Assist Senior Engineers to ensure that bridge construction and rehabilitation projects are constructed in accordance with Department standards and specifications.

- Represent the Department at pre-construction meetings to ensure the Department's guidelines and standards will be met.
- Assist in monitoring the progress of construction to ensure the work of consultants and contractors is in accordance with department guidelines, standards, policies, specifications and contract requirements.
- Complete construction site inspections and attend project site meetings to monitor the progress of the work and ensure that regulatory permits, traffic accommodation and requirements of the contract are being met.
- Review Field design changes and provide comments and recommendations.
- Assist in solving problems and challenges that arise during construction while following Department authorities matrices and ensuring the best outcome for projects.
- Assist in the resolution of disputes between contractors, consultants, landowners, municipalities and other stakeholders.
- Assist in attending final inspection and with review of project final details to ensure that all work and final information for projects are completed as required.

3. Assist Senior Engineers to ensure the engineering services provided by consultants are in accordance with department guidelines, standards and policies.

- Review and comment on engineering consultant submissions for conceptual design, preliminary design, choose design, detailed design and tender package to ensure quality, good value and completeness.
- Assist in the review of applicable permits, approvals, authorizations, licenses, First Nation Consultation, right of way etc. to ensure all necessary approvals and agreements are in place before projects are tendered.
- Assist in the review of designs to ensure that the work is within scope, meets Department requirements and is practical, constructible, maintainable and cost effective.
- Assist in communication with stakeholders such as Transport Engineering, Technical Standard Branch, municipalities, members of the public, businesses and First Nations as required to ensure projects are delivered smoothly.
- Assist in the administration of Engineering Consultant agreements by reviewing staff change requests, change of scope requests and provide recommendations to the Bridge Engineer/Bridge Manager
- Collaborate with consultants, department staff and other stakeholders to ensure that project expectations are met and concerns are addressed.

4. Assist the Senior Bridge Engineers to ensure the regional bridge projects are administered and delivered effectively, on schedule and on budget.

- Assist in the administration and coordination of the delivery of bridge projects from project inception to final completion.
- Ensure project cost estimates and forecasts are accurate and up to date.
- Review and provide comments on Traffic Accommodation Strategies, Eco-plans and other contractor submissions.
- Assist in the tracking of project milestone schedules to ensure they are met or adjusted as required.
- Assist in the review and tracking of all project expenditures including consultant invoices, contractor progress payments
- Assist in the review and evaluation of the need and cost of extra work orders and provide recommendation to the Bridge Manager.
- Approve verified payments as an Expenditure Officer

5. Assist the Bridge Manager to develop and maintain the bridge capital and maintenance programs.

- Learn the bridge inspection and maintenance system
- Assist the bridge Manager in the review and evaluation of various types of bridge inspections (Level 1, Level 1.5, Ultrasonic, Deck Testing, etc.) and assessments prepared by consultants.
- Recommend rehabilitation and replacement times for various bridge structure types for review by the Bridge Manager
- Support the Bridge Manager in identifying long term bridge rehabilitation, replacement and maintenance needs.
- Assist the Bridge Manager in planning and prioritization of bridge projects.

6. Learn and integrate processes from other sections including Construction, Operations and Infrastructure:

- Liaise with Infrastructure, Operations and Construction Section staff regarding Project Identification, Planning, Scoping and Programming to learn how all sections interact with bridges and get a good understanding of regional work.
- Participate in engineering assignments from the Bridge, Operations and Infrastructure Sections to gain a general understanding of how Alberta Transportation and Economic Corridors delivers our work.

Problem Solving

Typical problems solved:

This position will assist the Senior Bridge Engineer staff in identifying and delivering bridge projects in the Southern Region. Identifying bridge projects will involve making recommendations on when to structures should be rehabilitated or replaced when reviewing our long term plans for structures. Delivering bridge project designs will involve reviewing consultant reports and making recommendations and small decisions on the details of the structures we are rehabilitating or replacing. Delivering bridge projects during construction will involve reviewing challenges that come up during construction, making recommendations and decisions on changes that may need to be done during construction while following applicable

department guidelines. Both technical and financial decision making will be required. As the Bridge Engineer 1 gains experience they will have more authority to make decisions, but they will still be consulting more senior staff.

Types of guidance available for problem solving:

The Bridge Engineer 1 position will rely on various Department manuals and guidelines to solve problems and challenges. These include: the Project Administration Manual, Engineering Consultant Guidelines, various road and bridge design guidelines, road and bridge construction specifications, Bridge Inspection Manual, Expenditure Officer Guidelines, Project Management Principles and others. In addition to these manuals, decision making will be supported by more Senior Bridge Engineers, Technical Standard Branch and the Bridge Manager.

Direct or indirect impacts of decisions:

This position has the ability to make decisions to influence the outcome of the direction of the projects they are working on. This includes impacts to public safety, long term infrastructure asset management, stakeholder relations, costs, long term durability of bridge structures

Key Relationships

Major stakeholders and purpose of interactions:

Daily Interaction with bridge staff to review project details and discuss issues that come up during design and construction. Daily interaction with engineering consultants to get information to provide sound recommendations to senior staff. Weekly interaction with contractors during construction work to insure site issues are resolved quickly and effectively. Monthly interaction with other external stakeholders such as municipal staff, other government departments, utility companies, railways, local landowners and the general public to solve issues that may arise during bridge projects.

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:

Must be eligible to be an Engineer-in-Training (EIT) through APEGA

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

- Bachelor Degree in Engineering (Civil Engineering Preferred) or related technical diploma and eligibility for membership with APEGA.
- Basic knowledge of structures and/or hydrotechnical engineering.
- Basic understanding of roadway design and construction
- Basic understanding of bridge and bridge culvert design and construction
- Basic understanding of construction contracts and interpreting these documents
- Basic knowledge of Alberta Transportation and Economic Corridors engineering guidelines, standards and specifications
- Basic understanding of the roles and responsibilities of department staff, consultants and contractors on transportation projects.
- Basic understanding of environmental requirements and how construction activities could affect the environment
- Basic understanding of construction safety, including traffic safety on highway and bridge construction projects
- Strong and effective analytical and problem solving skills.
- Strong and effective written and verbal communication skills.
- Strong and effective interpersonal, leadership and conflict resolution skills.
- Strong and effective organizational, time management and project management skills.
- General computer software application skills including the Microsoft Office suite of programs.

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		

Systems Thinking	○ ○ ○ ● ○	<p>Integrates broader context into planning:</p> <ul style="list-style-type: none"> • Plans for how current situation is affected by broader trends • Integrates issues, political environment and risks when considering possible actions • Supports organization vision and goals through strategy • Addresses behaviours that challenge progress 	While dealing with issues on individual projects, this position must be able to step back to ensure outcomes align with overall Department values and objectives.
Creative Problem Solving	○ ○ ○ ● ○	<p>Works in open teams to share ideas and process issues:</p> <ul style="list-style-type: none"> • Uses wide range of techniques to break down problems • Allows others to think creatively and voice ideas • Brings the right people together to solve issues • Identifies new solutions for the organization 	This position works with other department staff, engineering consultants and construction contractors to pro-actively solve problems and challenges that arise with bridge and road projects.
Develop Networks	○ ○ ○ ● ○	<p>Makes working with a wide range of parties an imperative:</p> <ul style="list-style-type: none"> • Creates impactful relationships with the right people • Ensures needs of varying groups are represented <ul style="list-style-type: none"> • Goes beyond to meet stakeholder needs • Ensures all needs are heard and understood 	This position will need to develop relationships with both internal and external stakeholders to ensure that Department bridge projects meet the technical needs of the Department while also addressing the concerns of key external stakeholders.
Drive for Results	○ ○ ○ ● ○	<p>Works to remove barriers to outcomes, sticking to principles:</p> <ul style="list-style-type: none"> • Forecasts and proactively addresses project challenges • Removes barriers to collaboration and achievement of outcomes • Upholds principles and confronts problems directly • Considers complex factors and aligns solutions with broader 	This position must work with external stakeholders to ensure that their concerns are addressed as best as possible. The position must support the on time delivery of projects within approved budgets by working through challenges that arise during design and construction.

		organization mission	
Agility	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input checked="" type="radio"/> <input type="radio"/>	Proactively incorporates change into processes: <ul style="list-style-type: none"> • Creates opportunities for improvement • Is aware of and adapts to changing priorities • Remains objective under pressure and supports others to manage their emotions • Proactively explains impact of change on roles, and integrates change in existing work • Readily adapts plans and practices 	This position must apply "lessons learned" on individual projects and must be able to adapt to the ever changing procedures and work within Transportation and Economic Corridors.

Benchmarks