

**New**

Ministry

**Describe: Basic Job Details****Position**

Position ID

Position Name (30 characters)

Requested Class

Job Focus

Supervisory Level

Agency (ministry) code

Cost Centre

Program Code: (enter if required)

**Employee**

Employee Name (or Vacant)

**Organizational Structure**

Division, Branch/Unit

 Current organizational chart attached?

Supervisor's Position ID

Supervisor's Position Name (30 characters)

Supervisor's Current Class

**Design: Identify Job Duties and Value****Job Purpose and Organizational Context**

Why the job exists:

The Roadside Design Engineer is part of a multidisciplinary technical team (engineers, technologists, and consultants, as required) involved in the development, monitoring, and updating of standards or guidelines for roadside design. This includes barrier systems, barrier end treatments, clear zone requirements, side slope design, signing and support structures, barrier connections with bridges, integrated safety features (e.g., rumble strips), and temporary work zone protection requirements. Roadside design is one of the primary considerations affecting the safety of vehicle occupants when unexpected conditions arise while using the provincial highway infrastructure. Due to the interconnected complexities, this position will support geometric design standards and associated policy development.

The position will provide technical support for projects by giving advice to staff in the department and external stakeholders such as consultants.

The position will work within an engineering framework to optimize the cost effectiveness of roadside design and construction practices in Alberta. The position will assist in identifying roadside safety deficiencies at a network level and developing a plan to address those deficiencies, including prioritizing projects to make improvements that enhance safety and reduce road user and agency costs.

The position will identify roadside design training opportunities and support the sharing of knowledge with

## Responsibilities

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

1. Support the Roadside Design Specialist in the development, maintenance, and dissemination of technical information related to roadside design in Alberta.
  - Conduct research and literature review for roadside design best practices and revise and update the Roadside Design Guide as needed.
  - Revise and update the Engineering Consultant Guidelines for highways and bridge projects as required.
  - Prepare and present content for courses or seminars to update staff and consultants regarding roadside design elements.
  - Develop design bulletins for supplementary or new information, standards, or practices.
  - Provide advice as required to consultants, department staff, and other stakeholders regarding projects with roadside design features.
2. Participate in the development of the department's construction programs related to roadside design.
  - Review collision records, collision monitoring locations (intersections, roundabouts, curves, and bridges), and existing roadside design features to identify deficiencies or areas of improvement.
  - Conduct field visits to identify roadside design deficiencies as needed.
3. Support the Roadside Design Specialist for the planning, design, and construction work on highways related to roadside items.
  - Assist in creating terms of reference for engineering activities.
  - Review the technical content and recommendations for roadside mitigation strategies, safety assessments, and barrier warrant review.
  - Review planning studies related to roadside items when requested by Regional staff.
  - As needed, review consultant proposals for design/construction projects and participate in contract selection processes.
  - Evaluate innovative roadside design solutions submitted by design consultants during the planning or design stages.
4. Monitor to ensure roadside design engineering standards are being met.
  - Review consultant engineering assignments such as barrier warrant, length-of-need calculation, selection of barrier type, rumble strips, and other roadside elements.
  - Complete in-service reviews of roadside design elements to ensure they function as intended.
  - From time to time, perform engineering audits of projects to ensure standards and guidelines are being met for design and construction.
5. Undertake special assignments related to roadside design elements, as directed by the Roadside Design Specialist.
  - Participate in value engineering exercises for major capital projects.
  - Participate in pre-construction engineering activities for design-build projects (e.g., working with stakeholders in the development of creative solutions to engineering issues or for cost effectiveness).
  - Participate in the review of department programs that affect roadside design matters (e.g., reviewing rumble strip practices, barrier warrant processes, and urban drainage practices).
6. Support the Roadside Design Specialist in the review and approval of roadside products as required.
  - participate in evaluation of new products, trial reviews, and final approval processes as needed.
  - Provide technical advice and meet with manufacturers and suppliers.
7. Support the review and update of highway geometric design standards, other associated guidelines, design bulletins, and design submissions as needed.

## Problem Solving

Typical problems solved:

Safety issues for roadside design elements including barriers, rumble strips, drainage features, and mitigation strategies for roadside hazards.

There are a variety of roadside hazards between the edge of the driving lane to the highway right-of-way, such as bridge piers and abutments, overhead sign posts, drainage facilities, watercourses, and steep side slopes. Installation of barrier is not always the only mitigation strategy to alleviate the safety impacts of roadside hazards. The presence of constraints including right-of-way restrictions, geotechnical features, environmentally sensitive areas, and utilities sometimes make barrier installation unfeasible.

The position requires someone able to evaluate various mitigation strategies and balance the need to protect road users while considering project constraints and economic factors. Roadside design requires knowledge of safety evaluation, traffic operation, collision assessment, benefits and trade-offs of individual mitigation strategies (e.g., hazard removal, hazard redesign and relocation, hazard shielding, or delineation). The outcome is a roadside that accommodates the required roadside features while posing minimum hazard to road users.

Types of guidance available for problem solving:

The position will draw upon department resources including the Roadside Design Guide, Highway Geometric Design Guide, Benefit Cost Model, and associated Acts and Regulations for input in formulating solutions.

This position will also draw on technical experts within the department; other department guidelines; the Transportation Association of Canada guidelines; guidance from other transportation jurisdictions and organizations such as the American Association of State Highway and Transportation Officials, the Transportation Research Board, and other provincial transportation departments; consultants; and Regional staff.

Direct or indirect impacts of decisions:

Roadside hazards pose significant safety concerns to road users if not mitigated appropriately. Well designed roadside elements improve the overall safety performance and traffic operation along the provincial highway network. The safety and cost effectiveness of the highway network is impacted by decisions and recommendations from this position. This position will assist in meeting the department's business goals of reducing fatalities and injury collisions.

## Key Relationships

Major stakeholders and purpose of interactions:

- Department Project Sponsors and Administrators - to provide guidance in planning, design, and delivery of projects.
- Other technical experts in the department - to provide guidance in planning and design of projects and the interactions with other groups (e.g., Highway Planning, Bridges, Geotechnical and Utilities, Environment, and Pavement Engineering).
- Consultants - to provide guidance in planning, design, and delivery of roadside design projects.
- Municipalities and developers - to provide guidance in planning, design, and delivery of roadside design projects.
- Senior leadership in the department - as directed by the Roadside Design Specialist, provide assistance with action requests in planning, design, and delivery of roadside design projects.
- Public - responding with advice about roadside design questions.

## Required Education, Experience and Technical Competencies

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

If other, specify:

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

- B.Sc. in Civil Engineering is required.

- Professional membership with APEGA is required.
- A current Alberta Driver's Licence is required.
- Minimum of 5 years experience in roadside design, roadway design, and planning.
- Knowledge of roadside design, geometric design, and traffic control to advise on improvements that can be made to enhance safety, level-of-service, and cost effectiveness is required.
- Knowledge of highway roadside design standards, warrants, practices, specifications, and guidelines currently in use in Alberta is required.
- Knowledge of roadside design practices followed in other jurisdictions such as other Provinces and States is an asset.
- Knowledge of practices in roadside construction, and planning and development control is an asset.
- Knowledge of highway capacity, level-of-service, weaving analysis, and collision prediction models is an asset.
- Knowledge of the province's highway construction, rehabilitation, and maintenance programs, as well as long range planning, functional planning, and programming processes is an asset.
- Excellent communication and interpersonal skills (verbal and written) are critical due to the highly interactive nature of the role with internal and external stakeholders.
- Technical writing and presentation skills are essential with an aptitude for research, analysis, and documentation.
- Computer skills to manipulate data in spreadsheets, databases, and text documents are required; those for highway capacity and economic analysis are an asset.

### 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	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<p>Takes a long-term view towards organization's objectives and how to achieve them:</p> <ul style="list-style-type: none"> <li>• Takes holistic long-term view of challenges and opportunities</li> <li>• Anticipates outcomes and potential impacts, seeks stakeholder perspectives</li> <li>• Works towards actions and plans aligned with APS values</li> <li>• Works with others to identify areas for collaboration</li> </ul>	<p>Decisions and advice provided by this position must anticipate long-term impacts and stakeholder perspectives as projects can have a large impact over a long time period.</p>
Creative Problem Solving	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<p>Engages the community and resources at hand to address issues:</p> <ul style="list-style-type: none"> <li>• Engages perspective to seek root causes</li> <li>• Finds ways to improve complex systems</li> <li>• Employs resources from other areas to solve problems</li> <li>• Engages others and encourages debate and idea generation to solve</li> </ul>	<p>The position must utilize various problem solving techniques and must collaborate effectively with multi-disciplinary teams to create solutions.</p>

		problems while addressing risks	
Agility	<input type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	<p>Works in a changing environment and takes initiative to change:</p> <ul style="list-style-type: none"> <li>• Takes opportunities to improve work processes</li> <li>• Anticipates and adjusts behaviour to change</li> <li>• Remains optimistic, calm and composed in stressful situations</li> <li>• Seeks advice and support to change appropriately</li> <li>• Works creatively within guidelines</li> </ul>	<p>When problem solving, the position identifies alternative approaches and supports others in doing the same to ensure the best outcomes for safety and cost effectiveness.</p>
Drive for Results	<input type="radio"/> <input type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/>	<p>Takes and delegates responsibility for outcomes:</p> <ul style="list-style-type: none"> <li>• Uses variety of resources to monitor own performance standards</li> <li>• Acknowledges even indirect responsibility</li> <li>• Commits to what is good for Albertans even if not immediately accepted</li> <li>• Reaches goals consistent with APS direction</li> </ul>	<p>The role supports the Ministry's business plan and reaches goals consistent with APS direction. The position may not agree with the appropriate solution to an engineering issue, but accepts it is best for Albertans.</p>

**Benchmarks**

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