

New

Ministry

Transportation and Economic Corridors

Describe: Basic Job Details

Position

Position ID

Position Name (30 characters)

Pavement Management 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

CPGES, TSB/Pavement Engineering

☐ 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 purpose of this position is to provide engineering support in the areas of pavement management and associated project administrations. The position is also responsible for coordination and management of road surface condition and strength data collection in support of the department's pavement management system. The position will maintain the quality and integrity of pavement performance data and undertake detailed analysis of pavement response using computer systems in order to support the development of pavement rehabilitation programs, pavement design standards, processes and tools. All work is undertaken within the overall mandate of the Technical Standards Branch.

Responsibilities

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

1. Lead or participate in the management of the Falling Weight Deflectometer (FWD) testing program to support engineering standard development and evaluation of loadings to support load restriction and permitting;
 - a) Produce annual Falling Weight Deflectometer (FWD) testing program to meet the requirements for the network level tests, and liaise with regional representatives and the Pavement Engineering section staff for priority (project level) tests.
 - b) Ensure spring load ban FWD testing is conducted as required by liaising with Transport Engineering and FWD contractor.
 - c) Undertake specific pavement structural performance evaluations for the purposes of network pavement condition evaluation and supporting pavement design procedures.
- Assist in the development of the Terms of Reference (TOR) and request for proposals for department's pavement

deflection testing projects and manage the multi-year data collection program once the contract is in place.

2. Assist in updating of As-built cross sections
 - a) Attend/organize the contract review meetings and maintain a well-organized contract tracking list.
 - b) Work closely with Roadway Surface Data Coordinator and other members in the Pavement Management Group to make sure pavement construction data is entered in the PMS in time for annual analyses.
 - c) Assist in updating pavement as-built cross section drawings in the LiveLink.
3. Provide a key role in management and validation of IRI, rut and pavement distress data, and other data sources related to updating the PMS database
 - a) Coordinate and monitor the establishment of validation sites for confirming the accuracy of IRI, Rut, and pavement distress data during data collection process.
 - b) Perform quality checks on the data received to assure compliance to standards and reasonableness. Publish the processed data to the department's SharePoint and websites.
 - c) Maintain a well-organized documentation system of the QA records for the purposes of auditing.
 - d) Update the pavement network inventory in TIMS, and deal with any issues that may arise.
4. Participate in testing of PMS and TIMS software components as updates and enhancement are added;
 - a) Run set scripts to help assure data analysis is functioning to the described standard following software updates (1-2 per year).
 - b) Provide feedback on enhancements implemented or needed.
5. Participate as part of the Pavement Management Unit in maintaining, enhancing and operating the department's pavement management system and other relevant decision support systems and tools;
 - a) Perform all tasks related to data loading functions with the PMS, and between PMS and TIMS
 - b) Assist in development/update the pavement deterioration models and decision trees in the pavement management system.
 - c) Participate in reviews and decision making process related enhancements with the PMS and between PMS and TIMS, when needed.
6. Undertake project management role in handling consulting agreements and contracts;
 - a) Assist in development of terms of references, RFP's for related studies and projects.
 - b) Liaison with consultants and process project invoices upon verifying the amount of work and quality of data, this will include special, one-of-a-kind study projects.

Problem Solving

Typical problems solved:

- Works closely with the pavement management specialist, the TIMS group to resolve all data related issues in maintaining and up-keeping the integrity of the PMS database.
- Maintains close contact with the data collection coordinator and validate data for the section and confirms acceptance to the vendor.
- Maintain written records of verification and related communications for the purposes of auditing.
- Communicates and works with Transport Engineering on issues of mutual concern.
- Works closely with stakeholders such as senior engineers and specialists within the section/branch to provide supports and coordinate inputs on specific issues under evaluation.

Types of guidance available for problem solving:

Guidelines, specifications, supports from software developers for Pavement Management System (PMS) or Asset Management System (AMS), various stakeholders.

Direct or indirect impacts of decisions:

The quality and time-line of recommendations will have lasting impacts to the department's multi-year pavement asset management programs and decisions, for example,

- Lack of consistent and timely service life interventions can lead to inefficient use of limited capital funds.

- Unclear scope and standards in infrastructure rehabilitation planning can cause poorly defined projects, difficulties during design, and issues with construction changes.
- Inconsistent and inefficient pavement management tools and processes can result in ineffective use of department staff, delays in capital program development, and challenges in optimizing capital programs, performance measures, and reporting on the state of the assets.

Key Relationships

Major stakeholders and purpose of interactions:

The Pavement Management Engineer works closely with the the Pavement Management Specialist and the related groups department's head and regional offices.

- Pavement Management team (daily) - supporting this team as required with issues relating to technical guidelines, procedures and data.
- Other specialists in pavement engineering (as needed) - participate on section leadership issues including collaboration, resourcing, and priorities.
- Department asset managers including those in Geomeatic and Programming Sections, and Regions (as needed) - work collaboratively in the development of pavement rehabilitation candidates, capital plan development, and assessment of pavement performance measures.

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:

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

- Degree in civil engineering and registration with APEGA
- Advanced course work in materials pavement management and/or pavement engineering
- Knowledge of computer programming, skills in data analysis/processing with large data files using MS Access and MS Excel
- Knowledge of elastic layer and/or finite element basics for pavements is desirable
- Knowledge of highway construction/maintenance practices and standards
- Clear communicator both in written and verbal communications

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 checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Observes and understands larger impact of role: <ul style="list-style-type: none"> • Sees impact of work on organization; anticipates change in own area based on activities in other areas • Considers how own work impacts others and vice versa • Ask questions to understand broader goals • Aware of how organization adds value for clients and 	

		stakeholders	
Drive for Results	<input type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	<p>Works to exceed goals and partner with others to achieve objectives:</p> <ul style="list-style-type: none"> • Plans based on past experience • Holds self and others responsible for results • Partners with groups to achieve outcomes • Aims to exceed expectations 	
Creative Problem Solving	<input type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	<p>Focuses on continuous improvement and increasing breadth of insight:</p> <ul style="list-style-type: none"> • Asks questions to understand a problem • Looks for new ways to improve results and activities • Explores different work methods and what made projects successful; shares learning • Collects breadth of data and perspectives to make choices 	
Build Collaborative Environments	<input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	<p>Works in an open honest manner with colleagues:</p> <ul style="list-style-type: none"> • Creates sharing opportunities • Actively shares, accepts and listens to others • Recognizes conflict, respects and discusses opinions openly • Supports group even to learn from mistakes • Recognizes differing interpretations 	

Benchmarks

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