



Request for Proposals

Date: January 3, 2019

Performance-Based Decision Making: Lessons Learned and Practitioner Toolkit

Deadline: January 28, 2019

A. INTRODUCTION

Public agencies across Canada are developing processes and methodologies to evaluate and prioritize investments and optimize performance outcomes with available funds. A network infrastructure plan is different than a facility or building plan. A network involves moving people, goods, and services and is only as good as the weakest link. The investments in a roadway network involve not only bridges and pavements, but traffic control devices, roadside furniture and many other elements with different lifecycles. Most traditional asset management methods focus on individual asset classes (e.g. pavements, bridges, structural culverts) and do not have a method of prioritizing investments across classes. The investment in the state of good repair for a pavement segment is an output measure. The state of good repair of an entire roadway network supports outcome measures (e.g. support the economy, deliver public services etc.).

There has been a convergent evolution of practices in performance-based decision making across Canada, with a number of agencies developing different approaches to address the need for transparent, outcome-driven processes for allocating capital and operating budgets.

A key challenge of performance-based decision making is optimizing a portfolio of projects and programs involving different assets or asset classes across multiple modes of transportation. Transportation organizations are increasingly being asked to make investment allocations through the use of cross-asset trade-offs and optimization methods (e.g. probabilistic/deterministic-based models, multi-attribute utility theory and analytical hierarchy process) as a key step to improving transparency and credibility in the context of performance-based decision making.

B. SCOPE

The objectives of this project are:

- Synthesize practice in performance-based evaluation, optimization and decision processes and techniques.
- Identify lessons learned, provide recommendations and considerations for public agencies to improve evaluation and decision-making practices. The consultant shall demonstrate the basis for the recommendations made.
- Provide practical tools for agencies to share and improve evaluation processes and techniques. This would include, but not be limited to, a set of tools, techniques and recommended practices for cross-asset optimization.

Topics the consultant will address in this project include, but are not limited to:

- Why performance-based tools were developed; what issues were they intended to resolve?
- What challenges are public agencies facing in allocating and optimizing investment funds?
- What optimization methods can be deployed to effectively compare funding options and the impact of level of service on allocating funds between asset classes?

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- What are the key objectives for performance-based decision processes? How do they compare?
- What was implemented? What were the results or barriers? What are the examples of substantially different outcomes?
- What lessons were learned? What processes and methods were used?
- What are the recommendations for improving performance-based optimization and decision-making initiatives?

Key tasks the consultant will undertake include, but are not limited to:

- An international literature review highlighting key findings from research and analysis on performance-based processes, including typical objectives.
- Jurisdictional surveys and interviews with key agencies and practitioners using/developing performance frameworks considering lessons learned, challenges, and opportunities.
- Consideration of life cycle issues, sustainable development issues, operating and capital issues or priority setting between different program elements (e.g. modes, capital vs. operating projects, transportation vs. non-transportation projects etc.).
- Review of optimization techniques used in asset management programs within asset types and where available across asset types, including documentation of the effectiveness of the techniques. In particular, a comparison of how pavement optimization techniques have evolved versus bridge optimization techniques. In particular, a comparison of how pavement optimization techniques have evolved versus bridge optimization techniques.
- Identification and documentation of methods to assure that the optimization technique is working as intended. How were the optimization methods tested?
- Identification of quality management requirements for optimization techniques.
- Documented examples demonstrating meaningful application of proposed optimization methods.
- Identification of assets that have been transitioned from “worst first” asset management to an optimization method and how the optimization method was proven.
- Identification of cross-asset allocation decision models.
- Identification of best practices in establishing duration of cross-asset life-cycle analysis (i.e. 25 years, 30 years etc.) when design life is different. For example, the typical pavement analysis period is 25 years, which typically captures one or more treatment cycles. If the same period is used for structures, it may or may not capture a treatment cycle.

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C. DELIVERABLES

The consultant's major project deliverable will be a report with two key components: (a) synthesis of best practices and lessons learned (b) toolkit identifying possible approaches with examples of key elements of performance-based processes in Canada. The consultant will include, in the report, an executive summary, detailed findings, table of contents, list of figures, list of tables and references. TAC will publish the report.

Other deliverables will include:

- Status reports and presentations delivered by the consultant's lead team member at face-to-face meetings of the Project Steering Committee (PSC) during TAC's spring and fall technical meetings, and at other PSC meetings held by teleconference.
- Table summarizing comments received during PSC review of deliverables, tracking who submitted the comment and specifying how the comment was addressed. This table would be updated after each subsequent commenting period.
- Monthly progress reports including information on study progress, task status, schedule tracking, task completion, decision register, issues and risk register noting of any perceived challenges and corresponding mitigations.
- Once the draft report is 100% complete, a PowerPoint deck describing the work undertaken, results, and an overview of the 100% draft report. The deck will be presented in person by the consultant's lead team member to the Project Steering Committee, Soils and Materials Standing Committee, Pavements Standing Committee, Chief Engineers' and Urban Transportation Council.
- A five-page primer summarizing and providing an overview of the report, to be published by TAC
- Learning materials (PowerPoint presentation and speaking notes) suitable for a 1-2 hour webinar to be delivered by the consultant through TAC's webinar platform after the project is completed and given to TAC for its own use.

The consultant will provide electronic files for all text, tables and figures, including:

- Microsoft Word version of all deliverables.
- PDF version of the complete final draft report inclusive of text, graphics, appendices, etc.
- All report graphics (e.g. tables, figures, photos) must be in a format (i.e. not embedded in Word) that enables all associated text to be editable by TAC to facilitate translation.
- Spreadsheets in Microsoft Excel format.
- Three colour photographs in TIF, JPG or EPS format, no less than 2400 pixels wide by 1800 pixels high, for use on the publication cover. The consultant should provide credit for each photo, and evidence of appropriate permissions for publication.

Deliverables must adhere to the guidelines outlined in TAC's *Project Handbook*.¹ The Handbook contains an electronic template, pre-set with TAC format standards including fonts, headers, footers and

¹ <http://tac-atc.ca/sites/tac-atc.ca/files/site/doc/projects/docs/handbook-authors.pdf>



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references. Consultants must adhere to the template standards, and variations will be subject to TAC approval. Moreover, the selected proponent must adhere to the publication guidelines, and to the TAC pooled-fund project guidelines.

D. SCHEDULE

The consultant should propose a project schedule that will deliver a high-quality, comprehensive report in a reasonable timeframe. It is expected that a contract will be signed and work will begin in early February 2019. Complete draft deliverables will be submitted to TAC for PSC review no later than June 2020, and related presentations would occur during TAC Fall Technical Meetings in September 2020.

The initial meeting with PSC (teleconference) will include confirmation of the project plan to ensure mutual understanding of project processes, timelines and deliverables.

Milestone	Date
Contract award	Early February 2019
Initial meeting with PSC (teleconference)	Early February 2019
Initial literature review status deliverable	End of March 2019
In-person meeting with PSC during TAC 2019 Spring Technical Meetings (Ottawa)	April 2019
Literature and Jurisdictional interview results deliverable	August 2019
In-person meeting with PSC during TAC 2019 Fall Technical Meetings (Halifax)	September 2019
Submission of 50% draft report	January 2020
In-person meeting with PSC during TAC 2020 Spring Technical Meetings (Ottawa)	April 2020
Submission of 100% draft report	June 2020
Submission of revised 100% draft report and primer with PowerPoint deck	August 2020
Presentation of final draft report to the PSC, two Standing Committees and two Councils during the TAC 2020 Fall Technical Meetings (Vancouver)	September 2020
Approval by Chief Engineers' and Urban Transportation Councils	October-November 2020
Submission of final deliverables	January 2021

The PSC wishes to be an active participant in the project development, and will be interested in the scheduled interactions with the consultant. PSC teleconferences will be scheduled throughout the project, and the PSC may review draft deliverables at several points with the consultant expected to address all comments. A minimum of 15 working days should be allocated for PSC members to review interim drafts prior to meetings or teleconferences. At least four weeks should be provided for PSC and Standing Committee members to review and provide comments on the 100% draft report. It is expected that the consultant Team Lead (i.e. Consultant Project Manager) will be present in the room for the spring and fall project meetings. The consultant team is responsible to give the final presentations by a consultant team member in person to the listed committees. These committee meetings will take place over multiple days during the technical meetings. Teleconference meetings are to be scheduled between in-person meetings as required surrounding discussion and deliverable schedules. The



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consultant shall allow for a minimum of four teleconferences to be held, one between each in person meeting, with allowance for additional teleconference meetings as required

E. LEVEL OF EFFORT

This project's maximum budget is \$173,000, for all fees and expenses, plus applicable taxes. A detailed cost breakdown will be requested at the beginning of the project. Work of a minimum \$25,000 value must be completed by March 31, 2019. Invoices will be processed only for completed and approved items, with 10% of each invoice payment to be held back until final deliverables have been accepted by the Project Steering Committee and approved by the Chief Engineers' and Urban Transportation Councils.

F. PROPOSAL REQUIREMENTS AND EVALUATION

The following are key proposal elements, which are reflected in the Evaluation Criteria shown in Appendix A.

Project understanding – Proposals will demonstrate a clear understanding of the project's objective/scope and describe challenges that might be encountered in its execution.

Methodology – Proposals will describe an approach to satisfy key objectives and create deliverables, including major tasks, resources to be applied, major sources of information, planned analyses, and means for developing recommendations.

Project schedule and resources – Proposals will show person-hours budgeted for each team member by task, and a schedule with key milestones enabling required approvals. Proposals will identify a total cost with fees broken down by task and team member, as well as travel or other expenses.

Consultant team – Proposals will identify a project leader and supporting team members (including subconsultants), and will include résumés (no more than four pages each) showing experience on similar projects. Proposals will highlight the project team's experience with TAC projects and processes.

References – Proposals will identify three organizations for which the proponent has completed projects of a similar scope and/or size, including the organization's address and the name and telephone number of an individual familiar with the proponent's work.

Conflict of interest declaration – Proposals will include a disclosure statement including information on possible sources of significant financial or organizational conflicts of interest in conducting the project. For example, under certain conditions, ownership of the proposing organization, other organizational relationships, or proprietary rights and interests could be perceived as jeopardizing an objective approach to the project. Proponents are asked to disclose any such circumstances and identify effective mitigating strategies.



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Submissions will be evaluated and scored on the basis of the key elements provided in the consultant's response. The consultant with highest score, subject to consensus among PSC members, will be selected to enter into a contract with TAC.

G. PROPOSAL SUBMISSION

One **electronic copy** of the proposal (ideally in PDF format) shall be delivered to the undersigned **no later than January 28, 2019**. One **printed copy** of the proposal shall be delivered to the undersigned within five business days after that deadline. TAC reserves the right to interview any or all candidates prior to selection of a preferred consultant.

The proposal's main body should not exceed 10 single-sided pages using one-inch margins, single-spaced text and 12-point type. Proposals may include additional pages for a covering letter, detailed pricing form, project schedule chart, conflict of interest declaration, organizational diagram, and résumés.

H. PROJECT ADMINISTRATION

TAC's Project Manager will act as liaison between the PSC and the consultant for this project. Together with the PSC, the Project Manager will be responsible for reviewing project deliverables and ensuring that the consultant successfully accomplishes the objectives set out herein. All technical and administrative enquiries should be addressed to the undersigned.

TAC will administer an online collaborative platform to enable documentation sharing for this project. Although the working language for this project is English, the consultant is expected to review French literature and conduct interviews in French (as needed) as part of the study.

A contract for consulting services must be established with the consultant before work can begin.

For more information, contact:

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Appendix A: Evaluation Criteria for Project Proposals

Evaluation Criteria	Weight
Understanding of project's scope and desired deliverables	25
General approach and methodology	20
Adequacy of work plan and resources to ensure quality and meet required timeframes	20
Qualifications and experience of consultant team and project coordinator, and their proven competence in related work	25
Experience with TAC projects and/or processes	10
TOTAL >	100