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## **ANNEX A**

### **STATEMENT OF WORK (SOW)**

**FOR**

**Asset Condition Assessment 2023**

## Contents

<b>1. Definitions and Acronyms .....</b>	<b>4</b>
<b>2. List of Appendices.....</b>	<b>7</b>
<b>3. Context.....</b>	<b>7</b>
<b>4. Objectives.....</b>	<b>8</b>
<b>5. Scope of Work .....</b>	<b>8</b>
<b>6. Project Requirements .....</b>	<b>9</b>
<b>7. General Requirements .....</b>	<b>9</b>
7.1. Kick Off Meeting.....	9
7.2. Detailed Work Plan.....	9
7.3. Supplier’s Lead Level of Authority Requirements.....	10
7.4. Project Management.....	11
7.5. Technical Leadership.....	11
7.6. Meetings and Communications .....	11
7.7. Parks Canada Agency Responsibilities .....	12
<b>8. Work Packages .....</b>	<b>12</b>
8.1. WP1: Project Initiation and Literature Review .....	12
8.2. WP2: Asset Assessment Plan .....	13
8.3. WP3: Asset Assessments and Reporting.....	14
8.4. WP4: Maintenance Schedule .....	17
8.5. WP5: Reporting and Recommendations.....	17
<b>9. Constraints and Risk Management .....</b>	<b>18</b>
9.1. PCA Operating Season.....	18
9.2. Limited Background Information .....	18
9.3. COVID-19 Prevention .....	18
9.4. Weather Conditions and Access to Sites.....	19
9.5. Risk Management.....	19
<b>10. Summary of Key Deliverables and Milestones .....</b>	<b>19</b>
10.1. Timelines .....	19
10.2. Deliverables .....	20
<b>11. Travel .....</b>	<b>21</b>
<b>12. Business Licenses and Park Access.....</b>	<b>21</b>
<b>13. Language Requirements.....</b>	<b>21</b>
<b>14. Applicable Reference Documents (available to the public).....</b>	<b>21</b>
<b>15. Supporting Information (available after Contract Award) .....</b>	<b>22</b>



## 1. Definitions and Acronyms

Following is a list of definitions and acronyms related to this Statement of Work (SOW) and all the associated Annexes, Appendices and Attachments.

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Agency	Parks Canada Agency (PCA)
Asset Category	Grouping of assets having common characteristics that distinguish those assets as a group or class.
Asset Metrics	Metrics or parameters used by PCA to inventory, track and report on PCA assets, including but not limited to, asset age, useful life, value, priority/criticality, level of service, condition, deferred work, and risk.
Built asset	Built assets are real property assets with a physical existence. They are fixed, durable in nature and have a lifespan greater than one year. Such assets are material in value and are managed within a specific category and type, and may include one or more components.
Capital	Capitalized expenditures exceeding \$10,000 related to the acquisition or construction of new assets and the betterment (renewal, improvement and/or replacement) of existing assets.
Component	A grouping of individual pieces of equipment work together to fulfill a common function. Each component type is part of a larger assembly that is part of the overall asset.
Confined Space	means a space that <ul style="list-style-type: none"><li>• is enclosed or partially enclosed;</li><li>• is not designed or intended for continuous human occupancy; and</li><li>• has a limited or restricted means of entry or exit or an internal configuration that could complicate provision of first aid, evacuation, rescue or other emergency response. (<i>espace clos</i>)</li></ul>
Consultant	Refer to definition for Supplier.
Contemporary asset	Built asset that has not been assessed as having heritage value.
Current Replacement Value (CRV)	The total estimated cost in current year dollars to replace or reconstruct an existing asset. For contemporary assets, CRV is the total estimated cost to replace or reconstruct an existing asset with a contemporary equivalent, according to applicable codes and standards. For heritage assets, CRV is the total estimated cost to reconstruct or replace the existing asset with a replica that conforms to the shape, material, and appearance of a specific period. CRV does not include a change in capacity or use, functional improvement or retrofit.

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Deferred Work (DW)	Estimate of the total cost of the existing but unfulfilled requirement for maintenance and rehabilitation (recapitalization and/or refurbishment) on a given asset in current year dollars. The completion of the unfulfilled requirement results in the asset being returned to good condition. Deferred work does not include any improvements to the original function or capacity of the asset.
Field Unit	A geographically-based management unit that is responsible for the operation and maintenance of National Parks and National Historic Sites within its boundaries. There are 34 field units in Parks Canada.
Heritage asset	Built asset assessed to possess heritage value, where that value is directly associated with an important aspect or aspects of human history and culture. The heritage value is embodied in tangible and/or intangible character-defining elements.
Indicative Estimate	<p>An estimate of sufficient quality and reliability to support a request for project approval. An indicative estimate is expected to:</p> <ul style="list-style-type: none"> <li>• Reflect a reasonable preliminary definition of scope, performance objective(s), and schedule</li> <li>• Take into consideration preliminary consultations with stakeholders;</li> <li>• Identify assumptions that could have a significant impact on the financial requirements and explain the potential impacts;</li> <li>• Be based on a stated source of data that is reliable (such as industry standards or historical data); and</li> <li>• Include a preliminary assessment of risk and potential risk-mitigation strategies.</li> </ul> <p><a href="https://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=28007">https://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=28007</a></p>
Long Term Sustainability	Asset activities and resources required to meet asset service requirements for the next 30 years in the most cost effective way.
Maximo	Maximo is an enterprise asset management software (IBM product) that has been configured as Parks Canada's built asset portfolio database. It includes asset tombstone data, project information and asset work orders for operations, maintenance, improvement and rehabilitation.
Must	When the word “Must” is used in a requirement it indicates that the requirement is Mandatory, and the Supplier has to provide or meet the described requirement.
Operations & Maintenance (O&M)	Operating, Maintenance and Repair.

Maintenance	Work performed against assets to keep assets in an acceptable condition and to preserve their original serviceability and to reach the end of their useful life. Maintenance typically refers to activities aimed at retaining an asset’s functionality (e.g. replacement of components that have reached their useful life), while repair activities are aimed at restoring an asset’s functionality (e.g. replacement of damaged components so that the asset can be brought back to a normal operating condition). Maintenance expenditures are non-capitalized.
Operations	Work performed against assets during the normal course of an asset’s life cycle as the asset functions and performs as intended. Operating activities usually have a short term effect and are repeated in order to provide the defined level of service.
Repair	Work performed to repair and replace components at end of predicted useful life or to address damage caused by unpredicted events.
Overall Asset Condition (OAC)	Metric indicating physical condition of an asset. OAC ratings used by PCA are A (Good), B (Fair), C (Poor) or D (Very Poor). OAC ratings are related to four criteria: Health and Safety, Risk to Asset, Level of Service and Urgency.
PCA	Parks Canada Agency
Project Authority	PCA representative for whom the Work is being carried out under the contract and is responsible for all matters concerning the delivery of the services and resources under the contract.
Proponent	A person or entity that proposes the carrying out of a designated project.
Recapitalization	Major investment (relative to the value of the asset) that returns the asset to its original, “as new” condition and value, and extends the useful life of the asset.
Recapitalization Management Process (RMP) Manual	1994 Parks Canada manual that provides descriptions of OAC ratings and asset assessment procedures for each category of asset.
Refurbishment	Component repair or replacement, or stabilization that prevents the deterioration of an asset, but does not significantly extend the life of the asset as a whole.
Rehabilitation	The refurbishment, partial reconstruction, stabilization or major repairs, as well as replacement of an asset or component with another having the same function. Rehabilitation significantly extends the asset’s useful life and may result in an enduring increase to the value of an asset.
Should	When the word “Should” is used in a requirement it indicates that the requirement is not mandatory, and the Supplier does not have to meet or provide the described requirement.
SME	Subject matter expert: may include a Discipline Lead, other supplier team member, or PCA SME.

Substantive cost estimate	<p>An estimate of sufficiently high quality and reliability to warrant approval as a cost objective for the project-phase(s) under consideration. A substantive estimate is expected to:</p> <ul style="list-style-type: none"><li>• Reflect a fully defined scope, performance objective(s), and schedule;</li><li>• Take into consideration consultations with all key stakeholders;</li><li>• Identify assumptions that can have a significant impact on the financial requirements and explain the potential impacts;</li><li>• Be based on a stated source of data that is reliable (such as industry standards, or historical data);</li><li>• Reflect a comprehensive assessment of the risks; and include risk-mitigation strategies; and</li><li>• Be expressed in terms of a cost per deliverable to support the monitoring and management of costs.</li></ul> <p><a href="https://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=28007">https://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=28007</a></p>
Supplier	<p>The successful company that is awarded a Contract as a result of this procurement.</p>

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## 2. List of Appendices

The following appendices contain detailed information concerning the project and should be consulted to clarify requirements included in the Statement of Work.

- i. Appendix 1 Built Asset Categories
- ii. Appendix 2 Asset Assessment Detail
- iii. Appendix 3 Asset Assessment List
- iv. Appendix 4 Recapitalization Management Process (RMP) Manual
- v. Appendix 5 Trails Condition Assessment Detail

## 3. Context

As one of the largest federal custodians, Parks Canada Agency (PCA) manages a variety of real property and infrastructure assets supporting 46 national parks, 1 national urban park, 4 national marine conservation areas, and 171 national historic sites including 9 historic canals. The current replacement value of Parks Canada’s over 18,000 built assets is currently valued at approximately \$26.5 billion. Parks Canada’s built asset portfolio is wide-ranging and includes assets such as highways, bridges, locks and dams; cultural (heritage) resources such as fortifications and historic buildings; and contemporary assets such as campgrounds, visitor centres, offices, and maintenance and operations compounds. The breadth in variety and widespread location of Parks Canada’s asset portfolio present unique management challenges.

Since 2014 Parks Canada has emphasised implementation of capital programs to address a substantial volume of deferred work that resulted from chronic under-investment. As the Agency approaches the sun-setting of its capital investment programs, it has established a program of initiatives to define resource requirements to ensure the long term sustainability of its assets. To this end Parks Canada completed a National Asset Review (NAR) in 2017/2018 and 2022 to assess a sample of the asset portfolio and develop models to estimate long term sustainable funding requirements for management of its assets. The resulting models have enabled the Agency to estimate overall funding requirements to maintain each segment of the asset portfolio in an acceptable condition. To further improve the efficacy of the models and asset management planning, Parks Canada has identified a need to improve and expand data for discrete asset management activities such as operations and maintenance.

As such, Parks Canada is now implementing a program of condition assessments based on the previous National Asset Review (NAR) 2022 format to continue to expand the Agency's knowledge base related to asset condition and operations and maintenance requirements associated with them. From this knowledge the solicitation has been taken with a more regional approach to create efficiencies and maximize relationships with local contractors and consultants. This project will generate 8 contracts. The regions are BC, Alberta, prairies, Ontario, Quebec, Atlantic, Nunavut and the North.

#### **4. Objectives**

Continue to build on the Agency's asset data condition knowledge base; help quantify long term funding requirements for the maintenance of the asset portfolio; and identify opportunities for greening and climate change adaptation. The resulting data must be formatted to be uploaded to the PCA asset management software Maximo by using the Parks Canada supplied assessment metrics in Appendix 2.

#### **5. Scope of Work**

Undertake asset assessments to update asset condition information and improve PCA's understanding of maintenance requirements necessary to ensure the long-term sustainability of PCA's assets and produce funding estimates to support efforts to plan resource allocations. Cost estimates will be based on visual non-destructive asset assessments and will consider:

1. Asset life cycle activities, including: inspection and testing, routine maintenance and repairs, reactive maintenance, and preventative maintenance including the replacement of asset components at end of service life;
2. Achievement of desired level of service including an asset's ability to meet functional requirements on an on-going basis<sup>1</sup>
3. Adapt to evolving operational requirements including PC Greening initiatives, code and life

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<sup>1</sup> "On-going basis" includes currently foreseeable changes in levels of service that may require operational alterations to an asset and its components as part of a regular maintenance program.



safety requirements, climate change adaptation and mitigation.

Resulting assessments will be used to enhance the PCA asset management program.

## 6. Project Requirements

PCA requires third party multi-disciplinary architectural, engineering and asset management services, including cost estimation, to complete the following:

1. Perform detailed non destructive asset assessments for a pre-selected list of assets as listed in Appendix 3 in each segment of PCA's built asset portfolio (*bridges, buildings, fortifications, grounds, marine assets, other structures, roadways, and utilities*), located in various geographic locations across Canada. Assessments will be comprised of visual onsite assessments and asset performance evaluations to inform recommendations to address deferred work, predicted repairs, anticipated operational improvements, end of service life replacement and rehabilitation, as well as on-going inspection, testing and maintenance requirements.
2. Perform Greening/Climate Change Assessments for the assets as listed in Appendix 3. Assessments will be done visually on site at the time of the condition assessments. These assessments are to help address Parks Canada Greening initiatives by identifying areas of concern in the Field Units that require intervention.
3. Develop 20-year maintenance schedules for the assets assessed (including cost estimates), based on data collected by the Supplier and data provided by PCA. Maintenance schedules will optimise scope and timing of interventions to reduce impacts to operations and minimise resource requirements.

## 7. General Requirements

The following general requirements are applicable to each of the Work Packages, and will be the responsibility of the Supplier, in collaboration with PCA.

### 7.1. Kick Off Meeting

- 7.1.1. The Supplier must initiate, for each Work Package, a kickoff meeting.
- 7.1.2. During the kickoff meeting the Supplier must confirm the scope of work and determine if there is any additional information and/or activities required.

### 7.2. Detailed Work Plan

- 7.2.1. For each Work Package, the Supplier must develop a detailed work plan that at minimum includes deliverables, key milestones, planned human and financial resources, and internal PCA resources required to support the work.
- 7.2.2. The Supplier must work with PCA to update the overall work plan and obtain written approval from the Project Authority prior to commencing any work on a Work Package.

### 7.3. Supplier’s Lead Level of Authority Requirements

7.3.1. The Supplier must appoint, the following individuals with the authority to make decisions related to the delivery of the asset assessment project and associated resources:

- i. Project Executive - A senior executive position (Vice President level or above) with overall responsibility, on behalf of the Supplier, for all obligations under this Contract. The Project Executive is the escalation point for issues that cannot be resolved through lower level mechanisms.
- ii. Senior Project Manager - A senior project manager with responsibility, on behalf of the Supplier, for the execution of all requirements related to the delivery of the project deliverables. Their responsibility is to ensure the timely and efficient delivery of the services under the Contract.
- iii. Project Manager - A management position with responsibility, on behalf of the Supplier, for the delivery of the project deliverables and tasks. The Project Manager is responsible, at an operational level, for the delivery of all services under the Contract within established service levels and to resolve problematic issues in a timely manner that meet the needs and expectations of PCA. It is acceptable for the Senior Project Manager and the Project Manager to be the same individual.
- iv. Discipline Leads – Senior technical experts (Professional Engineer, Registered Architect / Landscape Architect, or other certified professional) with responsibility, on behalf of the supplier, to plan and oversee work in their respective fields including but not limited to asset assessments, maintenance planning, and cost estimation. The Discipline Lead will review, stamp and sign any deliverables for which they are responsible. The Supplier will provide, at minimum, the leads for the following Required Disciplines:
  - Building Envelope Architecture / Engineering
  - Mechanical / Electrical Engineering, including climate change mitigation
  - Civil Engineering
  - Structural Engineering, specializing in bridges and marine structures
  - Landscape Architecture
  - Cost Estimating
  - Code Review (building code, fire code, plumbing code, occupational health and safety, electrical code, accessibility)
  - Landscape Architect with experience in Trail Design / Trail Designer
  - Architect with heritage restoration experience

## 7.4. Project Management

7.4.1. Throughout each Work Package the Supplier must apply project management best practices which at minimum must include:

- i. Regular scheduled project meetings that include documented agendas and records of decisions & discussions.
- ii. Document and review of action items with due dates and responsibilities.
- iii. Mobilizing resources of necessary expertise and at appropriate times for all aspects of work.
- iv. Obtain necessary clarification and approval from the Project Authority in a timely manner.
- v. Plan and conduct work in a manner that does not impede public use of sites where access is permitted.
- vi. Established escalation procedures to address issues.
- vii. Coordination with others including other PCA contracts and internal services.

## 7.5. Technical Leadership

7.5.1. Throughout each Work Package the Supplier must ensure appropriate technical oversight to provide the Project Authority with confidence in the quality and accuracy of deliverables which at minimum must include:

- i. Ongoing technical leadership and oversight to teams undertaking the work.
- ii. Coordination within and across the technical disciplines.
- iii. Review work results to ensure quality and consistency.

## 7.6. Meetings and Communications

7.6.1. The Supplier will be required to attend and provide minutes for all meetings including kick-off meetings.

7.6.2. The supplier must develop a communication plan to ensure effective and efficient sharing of information to facilitate achievement of key milestones and deliverables. The following is a recommended list of meetings (dates subject to change based on actual project timelines):

- Contract Award: Start up meeting with the PCA Representative and team at project start-up to confirm project requirements within 14 days of award. To be conducted by video-conference.
- Bi-weekly or as required progress updates by video or tele-conference.

7.6.3. The Supplier must ensure proper knowledge transfer and provide appropriate documentation at the end of each Work Package to PCA subject-matter experts and leads who will be responsible for continuing the work upon project completion.

## 7.7. Parks Canada Agency Responsibilities

7.7.1. Provide supporting information and documents for review.

7.7.2. Coordinate Asset/Site selection and coordinate site visits.

7.7.3. Provide timely response to inquiries and feedback on draft deliverables.

## 8. Work Packages

### 8.1. WP1: Project Initiation and Literature Review

8.1.1. The Supplier will be required to meet with the PCA Representative and team at project start-up to confirm project requirements and overall approach by video-conference.

8.1.2. The Supplier will be required to review, at a minimum, the following PCA supplied supporting information in order to complete the requirements outlined in this Statement of Work. Documents from the list below should be reviewed **prior to the start-up meeting** to enhance discussions.

- i. List of target sites/assets from Asset Information System (Maximo), including site locations;
- ii. Treasury Board of Canada Directive on the Management of Real Property (effective May 13, 2021)
- iii. Treasury Board of Canada Fire Protection Standard (date modified 2019-04-11)
- iv. Parks Canada Recapitalization Management Process (RMP) Manual, 1994;
- v. National Asset Review 2022 Final Report;
- vi. Achieving a Sustainable Future – Parks Canada Agency Departmental Sustainable Development Strategy 2020 to 2023.
- vii. Trail inspection Manual (Draft)
- viii. Parks Canada Agency Trails Infrastructure Standard
- ix. PCA Asset Assessment Data Collection Template

8.1.3. The following additional supporting information must be reviewed prior to the start of Work Package 2.

- i. National Building Code of Canada (2020)
- ii. National Fire Code of Canada (2020)
- iii. National Plumbing Code of Canada (2020)

- iv. National Energy Code of Canada for Buildings (2020)
- v. Canada Labour Code, Part II (R.S.C., 1985, c. L-2)
- vi. Canada Occupational Health and Safety Regulations (SOR/86-304)
- vii. Canadian Electrical Code, Part I (CSA C22.1:21)
- viii. Treasury Board of Canada Greening Government Strategy: A Government of Canada Directive (ISSN: 978-0-660-24164-7)

8.1.4. The Supplier will be required to produce a draft initial project plan and schedule for discussion and agreement by PCA prior to the start up meeting.

## 8.2. WP2: Asset Assessment Plan

8.2.1. The following work package involves development of a detailed asset assessment plan including appropriate templates. The plan must address the following:

- i. **Validate the list of assets to be assessed.** A summary of the number of assets per category and location is included in Appendix 3, and a detailed list of the specific assets selected will be provided to the Supplier upon award of contract. The asset sample has been selected by PCA to provide diversity in geography, asset category and condition.

PCA reserves the right to modify the list of selected assets due to unforeseen complications, as detailed in Appendix 3. If required, any changes to the list by PCA post-award will be identified and negotiated with the Supplier.

The Supplier must seek agreement from PCA on any amendments to the list of selected assets. Justification for changes will need to be provided such as feasibility challenges or anticipated improvement to confidence in the assessment results.

- ii. **Review of existing asset data.** For each asset to be assessed, complete a prerequisite advance review of the available asset specific information (provided by PCA) for each asset. The available information may include the following:
  - Existing information and cost estimates for current replacement value and deferred work;
  - Overall asset condition rating;
  - Existing engineering or other inspection reports (if available); and
  - Recent asset maintenance and recapitalization project information (if available).
- iii. **Confirm asset assessment methodology.** Familiarization with, and confirmation of, the asset assessment methodology to be used, based on the Agency's RMP Manual. The Supplier may propose the use of alternative benchmarks and methods (based on accepted industry practices) other than those used by Parks Canada, however these will need to be approved by the Project Authority. Assessment methodology must include a proposed list of individuals to be interviewed during asset assessments to ensure a strong understanding of an asset's

operational environment and required level of service.

- iv. **Development of asset assessment tool.** A Microsoft Excel-based reporting template will be provided to the Supplier, which will contain the minimum data fields to be reported on, complete with instructions for use. The Supplier may choose to develop a field note reporting tool based on this template, or to use the template as provided. These short (2-5 page) reports and accompanying tables and/or checklists will be used for each asset assessment. Reports must include all pertinent information and observations collected during the assessments, along with recommended operational improvements to address deficiencies. Refer to Appendix 2 for a description of the minimum condition assessment metrics to be included in the report.

In developing a reporting tool, the Supplier should consider:

- Ease of recording assessment data onsite efficiently in a variety of weather conditions, in locations that may or may not have wireless / cellular connectivity;
  - Methodology for collecting and organizing site data in a format that can be accurately mapped to the specific asset assessed during later desktop analysis;
  - All necessary information should be collected in one site visit to ensure cost effective execution of the work and minimize the burden of follow-up information gathering by PCA staff;
  - Ability to compile, group, sort and compare asset information in categories and datasets that are compatible with existing PCA data for the overall asset portfolio;
  - Compiled data must be able to be exported to Microsoft Excel format.
- v. **Development of a 20-year maintenance schedule template.** The development and subsequent PCA approval of a tabular maintenance schedule. The maintenance schedule will report annual recommended interventions and associated cost estimates for each of the asset’s key components. A single template is necessary to enable analysis of maintenance requirements for PCA built asset portfolio and to facilitate integration with PCA asset information management systems.
- vi. **Development of preliminary asset assessment schedule.** The development and subsequent PCA approval of a preliminary schedule for the completion of asset assessments. Due to the geographic dispersion of PCA assets, planning for site visits<sup>2</sup> must be complete prior to starting Work Package 3.

### 8.3. WP3: Asset Assessments and Reporting

- 8.3.1. This work package requires the Supplier to assess a sample of built assets through a combination of on-site assessments and data reviews. The Supplier will conduct

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<sup>2</sup> Note: The Supplier will be responsible for all of its travel and accommodation requirements. Any requirement for PCA to provide travel support, e.g. within a PCA site, will be identified by the Supplier in advance of any site visit for agreement and coordination by PCA.

investigations to support analysis to assess requirements for the following, as detailed in Appendix 2:

- Asset and Component Condition
- Code Review
- Climate Change Resiliency Green House Gas Profile Information

Note that adequate information must be collected to address all requirements of Appendix 2 and Appendix 5 in a single site visit. Multiple or follow-up site visits should be avoided except when unforeseen site conditions are encountered.

The tasks to plan and complete the asset assessments include but are not limited to the following:

- i. Finalise site visit schedule: coordinate site visits for each asset in the sample in coordination with local representatives;
- ii. Additional information requirements: prior to site visits, identify gaps in existing information to be addressed by local operations teams such as:
  - As-built drawings and specifications;
  - Operations and maintenance manuals; and
  - Operational and performance records.
- iii. Conduct on-site asset assessments; including updating supplied asset component list if incomplete at time of inspection.
- iv. Meet with site representative(s) to review maintenance records and interview site representatives, as necessary, regarding requested GHG information, asset maintenance and performance; and
- v. Under the guidance of certified professionals, prepare a basic assessment report (2-5 pages) for each sample asset as agreed to in WP2 above.

### 8.3.2. Asset and Component Condition

The assessment includes the assessment of the condition of the asset and its key components in accordance with the methodology described in the RMP Manual and the supplied assessment reporting template. The assessment must be sufficient to enable PCA to plan and estimate maintenance requirements (including repairs, replacements and improvements) within a 20-year horizon unless otherwise specified.

A description of the asset categories, types and key components to be assessed is included in Appendix 1. A description of the locations and assets to be assessed is included in Appendix 3. Assessments are to be conducted by skilled multi-disciplinary teams. The assessments will include, but are not limited to the information requirements listed in Appendix 2 and Appendix 5 as summarized below:

- i. The current replacement value of the asset.

- ii. The current condition of key asset components (e.g. civil, architectural, structural, mechanical, electrical, and grounds) and determine overall asset condition rating;
- iii. The presence of confined spaces as defined in the Definitions
- iv. Remaining service life of components and the asset overall;
- v. Identify any maintenance, including deferred work, to return the asset to good condition and/or prevent the condition of the asset and its components to become very poor.

### 8.3.3. Code and Life Safety Assessment

The assessment includes a code review for compliance with federal acts, regulations, codes, policies and standards related to the management of real property, materiel and life safety including but not limited to:

- Treasury Board of Canada Directive on the Management of Real Property (effective May 13, 2021)
- National Building Code of Canada (2020)
- National Fire Code of Canada (2020)
- National Plumbing Code of Canada (2020)
- Canada Labour Code, Part II (R.S.C., 1985, c. L-2)
- Canada Occupational Health and Safety Regulations (SOR/86-304)
- Canadian Electrical Code, Part I (CSA C22.1:21)

The code review will identify all deficiencies where the asset does not meet the **current code** in force on January 1, 2023, and identify minimum interventions to comply with mandatory requirements of the applicable code(s). An itemized Indicative cost estimate for identified interventions will be developed for each asset. Refer to Appendix 2 for further information.

### 8.3.4. Climate Change Resiliency and Greenhouse Gas Assessment

The asset assessment includes an assessment of the asset's existing design and construction, including key components, against changes in environmental parameters resulting from local and regional climate change. The purpose of the assessment is to identify risks and vulnerabilities based on available climate change information.

- i. **Climate change information and context.** PCA's built assets are vulnerable to a wide range of climate change impacts due to the variety of environments in which they are located. The Agency has begun to identify the scope of climate change impacts that are predicted in each of the 8 regions across the country, but work remains to understand the risks of climate change for specific assets, and to identify how the assets could be adapted to better prevent, withstand, respond to and recover from climate change-related risks and impacts. The Supplier will use the climate change information provided by PCA in conjunction with published climate change data to assess risks and vulnerabilities.
- ii. **Risk and vulnerability assessment.** Through analysis of site characteristics identified in the



supplied assessment reporting template, identify the potential exposure of the asset to a selection of pre-determined climate hazards.

#### 8.3.5. Climate Change Mitigation Assessment

The asset assessment includes an assessment of opportunities to mitigate climate change by reducing and/or avoiding greenhouse gas (GHG) emissions, and removing greenhouse gases from the atmosphere.

- i. **Climate change mitigation context.** In PCA’s built assets, climate change mitigations will mainly consist of improving energy efficiency and readying energy systems for carbon neutral implementation.
- ii. **Climate change mitigation assessment.** The assessment includes information requested by PCA on the current GHG output (if applicable) of assets listed in Appendix 2. The assessment will include, but is not limited to:
  - Heating source, including fuel type
  - Water heating source, including fuel type
  - Renewable energy sources
  - Grid access

#### 8.4. WP4: Maintenance Schedule

8.4.1. Concurrent with Work Package 3 - *Asset Assessments and Reporting*, the Supplier will use observations made during condition assessments, existing information, industry best practices, and recommended manufacturer’s operating procedures to develop a maintenance schedule for each asset, as detailed in Appendix 2. The maintenance schedule will identify required maintenance activities for the asset over a 20-year period, with increased levels of detail for years 0-5, as follows:

- Recommended regular asset reviews and condition assessments;
- Mandatory code compliance inspections and testing;
- Deferred work;
- Preventative maintenance;
- Predictive maintenance; and
- Code compliance improvements; and
- GHG emission reduction strategies.

8.4.2. The maintenance schedule will include annual maintenance cost estimates for each of the asset’s key components, as detailed in Appendix 2.

#### 8.5. WP5: Reporting and Recommendations

- 8.5.1. This work package involves the delivery of a report that presents information pertaining to the outputs of all work packages including, but not limited to: executive summary, background, scope, assumptions, methodology, results, observations and recommendations.
- 8.5.2. The report will include general observations and recommendations related to the results that are based on the Supplier’s knowledge and expertise. The conclusions and qualitative judgements must be evidence-based such that a prudent, informed expert would reach the same conclusions as the Supplier. The Supplier should specify their level of confidence in their conclusions (e.g., if they have a high, moderate or low level of confidence). It is acknowledged that level of confidence is a function of the amount and type of evidence gathered; therefore, the types and extent of evidence to be assessed and the level of confidence to be achieved is to be determined in conjunction with PCA.
- 8.5.3. The Supplier will prepare a PDF report for each asset assessed, a consolidated spreadsheet in Microsoft Excel format for each field unit visited, and a table of data in Microsoft Excel format to be uploaded to Maximo for each field unit visit.

## **9. Constraints and Risk Management**

### **9.1. PCA Operating Season**

- 9.1.1. From May 1 through September 30, PCA field units are focused on preparing sites for the summer visitor season, accommodating visitors, and executing projects that require warmer weather conditions. Field unit personnel may have limited ability to provide information, accompany the Supplier on site visits, and provide other support during this time. In addition, accommodations near many PCA sites become more difficult and expensive to procure during the visitor season. For this reason, site assessments should be completed during the shoulder seasons (April – May and September – November) or winter, where feasible.

### **9.2. Limited Background Information**

- 9.2.1. Record-keeping practices and onsite expertise vary greatly throughout the PCA network, and staff turnover rates may be high for some locations. While existing documents such as record drawings, specifications and maintenance logs will be provided where possible, the Supplier should not rely on or assume the availability of this information, or experienced subject matter experts, at all of the targeted asset assessment locations.

### **9.3. COVID-19 Prevention**

- 9.3.1. The Government of Canada and provincial government COVID-19 pandemic responses are constantly evolving and may be difficult to predict. The Supplier is required to comply with

PCA’s COVID-19 health and safety requirements as described in the Contract Documents. Should additional federal or provincial restrictions come into force during the execution of the contract which affect the Supplier’s ability to travel to assessment sites or access PCA work places, it may be necessary to alter the work plan, with approval from the Project Authority. The Supplier will review and comply with all federal and provincial public health orders upon executing the asset assessments. If it is not possible to meet the approved project schedule due to changes in public health orders, the Supplier will inform the Project Authority to discuss a mitigation strategy.

#### 9.4. Weather Conditions and Access to Sites

9.4.1. The majority of Parks Canada’s sites are generally accessible by personal vehicle. In the event that additional transportation modes (e.g. boat or helicopter) are required, transportation of the Supplier personnel to the asset will be coordinated through the Project Authority. Should weather conditions necessitate alternate modes of transportation or postponement of asset assessments, as advised by field unit personnel, transportation accommodations and/or adjustments to the project schedule must be coordinated with and approved by the Project Authority.

9.4.2. It is important to be aware that many of the sites selected for the project are located in high alpine or backcountry areas that can be snowbound until well into the summer months. Access roads may not be opened until avalanche risk has ended, and trails and service roads may not be passable until snow has melted and/or wet conditions have improved. The Supplier shall coordinate with the Project Authority and field unit staff to identify appropriate windows for planning condition assessments.

#### 9.5. Risk Management

9.5.1. The Supplier’s proposal will include a risk management plan, which will outline proposed mitigations to reduce the impact of the risks/constraints listed above, as well as any other risks that the Supplier has identified in reviewing the Statement of Work.

### 10. Summary of Key Deliverables and Milestones

#### 10.1. Timelines

10.1.1. Project milestones and estimated timelines are as follows (may be adjusted based on Contract Award date):

**Contract Award +2 weeks, 2023 (WP 1 & WP2)**

- Project start-up; meet with Project Authority and team
- Literature review

- Establish the Assessment Plan

**Contract Award +2 weeks – December 15, 2023 (WP3 & WP4)**

- Gathering and reviewing relevant information
- Site visits and asset assessments
- Preliminary results of asset assessments and maintenance schedules
- Presentation of preliminary asset assessment results

**–December 15, 2023 – February 5, 2024, 2024 (WP5)**

- Prepare draft report

**–February 5, 2024 – March 4, 2024 (WP5)**

- Review PCA comments with Project Authority
- Submit and present Final Report

## 10.2. Deliverables

### 10.2.1. The deliverables expected from the Supplier are:

- i. WP1: Project Initiation and Literature Review
  - Initial project plan and schedule
- ii. WP2: Asset Assessment Plan
  - Validated list of assets
  - Asset assessment reporting tool
- iii. WP3: Asset Assessments and Reporting
  - Preliminary asset assessment reports including GHG information collected
  - Presentation of preliminary asset assessment results
- iv. WP4: Maintenance Schedule
  - Preliminary maintenance schedules
  - Presentation of preliminary maintenance schedules
- v. WP5: Reporting and Recommendations
  - Draft Report and presentation
  - Final report and presentation
  - PDF asset assessment report for each asset assessed (from draft reports in WP3)
  - Asset data spreadsheet consolidated by field unit

- Maximo data upload table consolidated by field unit
- vi. Meeting minutes for all meetings
  - vii. Bi-weekly progress updates (to be conducted by video-conference)

## **11. Travel**

The travel requirements for this project are limited to the site visits for Asset Assessments – see Appendix 3 for complete list of sites.

## **12. Business Licenses and Park Access**

Upon award of contract, the Supplier will be required to obtain a business license for each park or site the Supplier will be conducting asset assessments in, as required by that park or site's regulations. PCA will provide a list of contact information for the business license office associated with each site. After securing the necessary business licenses, the Supplier must apply to each park or site for passes to access the site for the purpose of conducting the work of the contract. One pass will be required for each vehicle accessing the site. Any costs associated with acquiring business licenses and/or park passes will be the responsibility of the Supplier.

## **13. Language Requirements**

The language requirement for this project is the predominant written and spoken language in the location of the work. For sites located in Quebec, Ontario and New Brunswick, the Supplier will be prepared to undertake all planning, execution, and reporting of the work in French or English, as determined by the local field unit. For work in other provinces, English is assumed to be the predominant language.

## **14. Applicable Reference Documents (available to the public)**

Below is a list of on-line documents that can provide additional background information regarding the project context.

- a) Treasury Board of Canada Directive on the Management of Real Property (effective May 13, 2021)
- b) National Building Code of Canada (2020)
- c) National Fire Code of Canada (2020)
- d) National Plumbing Code of Canada (2020)
- e) Canada Labour Code, Part II (R.S.C., 1985, c. L-2)
- f) Canada Occupational Health and Safety Regulations (SOR/86-304)
- g) Canadian Electrical Code, Part I (CSA C22.1:21)
- h) Treasury Board of Canada Greening Government Strategy: A Government of Canada

Directive

## **15. Supporting Information (available after Contract Award)**

In addition to all documents listed herein, below is a list of additional documents that PCA can provide the Supplier upon request after contract award.

- a) National Asset Review 2022 Final Report;
- b) Additional asset data, as managed within PCA's Asset Information Management System (Maximo) and the Highway Engineering Services Branch;
- c) Recapitalization Management Process: Operations Manual, Parks Canada, 1994;
- d) Climate Change Assessment Series: Let's Talk about Climate Change, Parks Canada, 2017 (total of 8 region-specific reports);
- e) PCA Directive for Design, Construction, and Inspection of Vehicular and Pedestrian Bridges, 2008;
- f) Parks Canada Maintenance Standards, 1986.