



## **Request for Proposal (RFP)**

**FOR THE PROVISION OF:**

**GEOSPATIAL DATA**

**CRC058492**

**FOR**

**COMMUNICATIONS RESEARCH CENTRE CANADA**

**DEPARTMENT OF INNOVATION, SCIENCE AND ECONOMIC  
DEVELOPMENT CANADA**

**Note:** Please read this request for proposal carefully for further details on the requirements and bid submission instructions.

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## PART 1 – GENERAL INFORMATION

### 1. Introduction

The bid solicitation and resulting contract document is divided into three parts plus appendices as follows:

- Part 1 General Information: includes submission instructions, clauses and conditions applicable to the bid solicitation, and information about the contract authority.
- Part 2 Evaluation Procedures and Basis of Selection: indicates how the evaluation will be conducted, the evaluation criteria that must be addressed in the bid, if applicable, and the basis of selection;
- Part 3 Resulting Contract Clauses: includes the clauses and conditions that will apply to any resulting contract.

### 2. Submission of Bids

#### 2.1 Instructions for Submitting a Proposal

Bidders must prepare their proposal in two (2) separately bound sections as follows:

##### **SECTION 1 – TECHNICAL SUBMISSION (1 copy) (with no reference to price)**

This section must include your response to the Mandatory Criteria as stated in Appendix C. To be considered responsive, a tender should also respond to the Essential Requirements of this solicitation as Precedent to Contract award. The responses to the essential requirements should be included in Section 1 of their technical tender.

##### **SECTION 2 – FINANCIAL SUBMISSION (1 copy)**

This section must include the duly completed and signed Bid and Acceptance Form provided in Appendix B of this RFP.

**Note:** Prices must appear in the financial bid only. No prices must be indicated in any other section of the bid.

Your tender may be submitted by the following delivery methods:

**By e-mail:**                      [crcbidreceiving-receptiondesoffrescrc@ised-isde.gc.ca](mailto:crcbidreceiving-receptiondesoffrescrc@ised-isde.gc.ca)

When using the e-mail method, bids must be submitted in one e-mail with two (2) separate attachments clearly identified as follows:

- i) Technical Bid; and
- ii) Financial Bid.

All attachments must contain RFP number **CRC058492**.

#### **IMPORTANT NOTICE TO BIDDERS**

**Tenders submitted to any e-mail address or mailing address other than that stated herein will not be considered. The Communications Research Centre Canada (CRC) will not assume responsibility for misdirected tenders. Tenders must be submitted before the specified tender closing date and time. The CRC will not assume responsibility for tenders received after the tender closing date and time.**

**Tenders must be submitted and received by January 19, 2022 on or before 2:00 p.m. Eastern Time.**

### 3. General Conditions and Clauses

The following terms and conditions will be part and parcel of this RFP and the resulting contract:

All clauses and conditions identified in the Contract by number, date and title are set out in the [Standard Acquisition Clauses and Conditions Manual](https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual) issued by Public Works and Government Services Canada (<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual>).

a. **General Conditions:**

2035 (2020-05-28) Section 3 - General Conditions - Higher Complexity

<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual/3/2035/18>

### 4. Enquiries – Solicitation Stage

To ensure the integrity of the competitive bid process, enquiries and other communications regarding the RFP, from the issue date of the solicitation up to the closing date, are to be directed ONLY to the Contracting Authority named below. Enquiries and other communications are NOT to be directed to any other government official(s). Failure to comply with this paragraph may (for that reason alone) result in the disqualification of the proposal. Enquiries must be IN WRITING. Enquiries must be received no less than five (5) working days prior to the RFP closing date to allow sufficient time to provide a response. Enquiries received after that time might not be answered prior to the RFP closing date.

### 5. Management of the Resulting Contract

<b>Contracting Authority</b>
Anne Nino Manager Procurement and Contracting Unit (CRC) Contracts & Material Management, Corporate Management Sector Innovation, Science and Economic Development Canada   Government of Canada <a href="mailto:Anne.Nino@ised-isde.gc.ca">Anne.Nino@ised-isde.gc.ca</a>   Tel: 343-572-8900

The Contracting Authority is responsible for the management of the Contract and any changes to the Contract must be authorized in writing by the Contracting Authority. The Contractor must not perform work in excess of or outside the scope of the Contract based on verbal or written requests or instructions from anybody other than the Contracting Authority.

### 6. Conditions Precedent to Contract Award

A Condition Precedent to Contract Award shall be construed as a requirement that must be met prior to contract award (as opposed to a mandatory requirement that must be met at the bid closing date and time Appendix C – Mandatory Requirements of this RFP), and the Contracting Authority may, before award of any contract, seek clarification from the Bidder and/or make verification to validate any information submitted by the Bidder in this regard.

If a tender is recommended for award of a contract, Innovation, Science and Economic Development Canada (ISED) reserves the right to request the Bidder to provide to the Contracting Authority, prior to contract award, the documents enumerated hereunder that may apply and be used in the performance of the work under any resulting contract. At contract award, the Contracting Authority may include these documents into the resulting contract. Failure to comply with the request of the Contracting Authority, within the timeframe provided in the request, will render the tender non-responsive.

Examples:

1. An example geospatial dataset covering an area of 1 km x 1 km within one of the mandatory areas specified in Appendix E and satisfying all requirements referred to in Appendix C.

If any of the required information/documents are not completed or submitted as requested, the Contracting Authority will so inform the Bidder and provide the Bidder with a time frame within which to meet the requirement. Failure to comply with the request of the Contracting Authority, within the timeframe provided in the request, will render the tender non-responsive.

Innovation, Science and Economic Development Canada reserves the right at its sole discretion to assess the adequacy and validity of the above specified documents prior to acceptance. Should any of these documents be found unacceptable, no further consideration shall be given and no contract shall be awarded to this Bidder. Innovation, Science and Economic Development Canada further reserves the right to proceed with the same process as above for the second-ranked lowest Bidder, etc., until a Bidder is found to have all of the requested documents acceptable to ISED.

## **PART 2 – EVALUATION PROCEDURES AND BASIS OF SELECTION**

### **1. Evaluation Procedures**

Proposals will be evaluated in two (2) separate steps as follows:

- a) Bids will be assessed in accordance with the entire requirement of the bid solicitation including the mandatory requirements;
- b) An evaluation team comprised of representatives of Innovation, Science and Economic Development Canada will evaluate the bid.

Note: Innovation, Science and Economic Development Canada may choose to terminate the evaluation of any proposal upon the first finding of non-compliance with the mandatory requirements.

Innovation, Science and Economic Development Canada reserves the right at its sole discretion to request certification, proof, references, substantiation, or any other information to support and validate the criteria enumerated below. Should the certification, proof, references, substantiation and/or any other information be found unacceptable for any reason as solely determined by Innovation, Science and Economic Development Canada, no further consideration shall be given and the Bidder will be declared non-compliant.

### **2. Basis of Selection**

The proposal that will be selected will have met all the mandatory requirements as laid out in Appendix C of the RFP and will have the lowest

- a) overall lump sum cost (applicable taxes included).

A bid must comply with the requirements of the bid solicitation and meet all mandatory technical evaluation criteria to be declared responsive. The responsive bid with the lowest evaluated price will be recommended for award of a contract (e.g. labor, materials, tools, equipment and rentals used to perform the work, local travel, travel time, delivery or shipping charges, profit and overhead costs, and any other expenses related to the performance of the work under any resulting contract including sales taxes, other taxes except HST).

Innovation, Science and Economic Development Canada in no way guarantees that a contract will be issued based on this bid process. Due to financial limitations, Innovation, Science and Economic Development Canada reserves the right to terminate this bid process at any time.

Any resulting contract must be interpreted and governed, and the relations between the parties determined, by the laws enforced in Ontario.

## **PART 3 – RESULTING CONTRACT CLAUSES**

### **1. Statement of Work**

The Contractor shall perform and complete the Work as per the statement of work at Appendix A. The Work must be conducted off site, i.e., outside CRC's Ottawa campus.

### **2. Standard Clauses and Conditions**

All conditions and clauses identified herein by title, number and date are set out in the [Standard Acquisition Clauses and Conditions](https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual) (SACC) Manual (<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual>), issued by Public Works Government Services Canada (PWGSC).

Bidders who submit a bid agree to be bound by the instructions, clauses, and conditions of the bid solicitation and accept the clauses and conditions of the resulting contract.

2035 (2020-05-28) Section 3 - General Conditions - Higher Complexity

<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual/3/2035/18>

### **3. General Conditions**

As per PART 1 - General Information, Item 3. - General Conditions and Clauses.

### **4. Contract Period**

The proposed contract is from the date of contract award for one year.

### **5. Contracting Authority**

The Contracting Authority for this RFP and any resulting contract is Anne Nino.

The Contracting Authority is responsible for the management of the Contract and any changes to the Contract must be authorized in writing by the Contracting Authority. The Contractor must not perform work in excess of or outside the scope of the Contract based on verbal or written requests or instructions from anybody other than the Contracting Authority.

### **6. Project Authority**

(To be entered at contract award)

### **7. Contractor's Representative**

(To be entered at contract award)

### **8. Basis of Payment – Limitation of Expenditure**

The Bidder offers to Her Majesty the Queen in right of Canada to perform and complete the Work for the above named project in accordance with the Request for Proposal (RFP).

### **9. Applicable Laws**

Any resulting contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in the Province of Ontario and the relations between parties will be determined by these laws.

## 10. Priority of Documents

The documents listed below form part of and are incorporated into this Contract. If there is a discrepancy between the wording of one document and the wording of any other document, which appears on the list, the wording of the document, which first appears on the list, shall prevail over the wording of any document which subsequently appears on the list:

- a) The Contract document including appendices;
- b) General Conditions as per point #3;
- c) Appendix A, Statement of Work;
- d) The supplier proposal dated \_\_\_\_\_ (to be entered at contract award).

## APPENDIX A – STATEMENT OF WORK

### 1. Purpose

The Communications Research Centre Canada (CRC), a branch of the Spectrum and Telecommunications Sector (STS), Department of Innovation, Science and Economic Development Canada (ISED), has a requirement to obtain high resolution geospatial data from across Canada.

### 2. Title of Project

Geospatial Data

### 3. Background

Geospatial data for a diverse range of simulation scenarios and landscapes throughout the country is of interest to the CRC Canada. Such geospatial data is relevant to simulation or modelling work that requires 3D models of terrain, buildings, and foliage layers. Example applications include the evaluation of potential interference caused by new spectrum license applications and the assessment of deployments in mmWave frequency bands.

### 4. Project Requirements / Objectives

CRC is seeking to establish a contract to increase the size and scope of its geospatial data catalogue.

### 5. Scope of Work

The main requirements for the geospatial data covered under this contract can be summarized as:

- High resolution, 3D models of terrain, buildings, and foliage for a wide range of regions and landscapes across Canada.

#### 5.1 Timing and Deliverables

The contractor must provide geospatial data meeting the specifications and regions outlined in the data parameter requirements in Appendix C.

Each layer of geospatial data must be compatible (loadable as is) with the following propagation simulation toolsets:

- Wireless InSite from Remcom
- Atoll from Forsk
- Mentum Planet from Infovista
- Mapinfo from precisely

The geospatial data must contain, at a minimum, the following data layers:

- a. Building Polygons
- b. Vegetation Polygons
- c. Digital Terrain Model (DTM)
- d. Clutter (See table 1.3 in Appendix E for example clutter for reference)
- e. Clutter Heights Digital Height Model (DHM)
- f. Linear Vectors (See table 1.3 in Appendix E for example linear vectors for reference)

g. Ortho-Imagery

The geospatial data must contain, at a minimum, all data layers listed above, at the required resolutions and accuracies in table 1.2 and 1.3 in Appendix E, for all areas and vintages listed in table 1.1 in Appendix E.

The geospatial data must be delivered within 8 weeks of the contract start date, also including the date of any contract amendments.

## **6. Contract and Schedule Changes**

The Project Authority is responsible for approving any modifications to the work schedule or to the technical content of the Work.

The Contractor will not implement any changes to the Work in the Contract before the Project Authority has authorized a Change Order. The Change Order will specify the nature of the change, the time frame in which it must be carried out and any additional cost associated to the change.

A copy of the approved Change Order will be provided to the Contractor and to the Project Authority by the Contracting Authority.

## **7. Invoicing and Estimates**

Begin work only after receiving a work order or instruction issued by the CRC Project Authority. This work order or instruction, which shall be issued only after the CRC Project Authority and the Contractor have agreed on the cost of work, confirms that the CRC Project Authority has approved the order. The Contractor must advise CRC Project Authority if the cost of the work will exceed the amount of the work order issued before continuing any work which exceeds the approved order. A revised work order will be issued confirming approval to proceed.

If such approval is not received in writing by the CRC Project Authority confirming the revised work order amount, CRC will not be responsible to pay any amount exceeding the initial cost of work.

## **8. Management of the Project – Roles and Responsibilities**

### **8.1 Project Authority**

The Project Authority (or assigned departmental representative) has overall responsibility for the progress of the project, including management, administration and coordination of the activities as set out in this document. The Project Authority (or assigned departmental representative) is responsible for all matters concerning the technical content of the Work under this requirement.

Any proposed changes to the Scope of Work are to be discussed with the Project Authority or his assigned departmental representative.

### **8.2 Contractor**

The Contractor shall establish and maintain, throughout the duration of the contract, a team capable of effectively delivering the services described in this document and in keeping with the Project Schedule.

The Contractor shall deliver the work within the time frame and assigned budget in accordance with the approved plan agreed to by the Project Authority.

### **8.3 Coordination with CRC**

Upon contract award, the Contractor shall:

- a. Carry out services in accordance with this RFP, with directions given by the Project Authority.
- b. Correspond only with the Project Authority at the times and in the manner dictated by the Project Authority. The Contractor shall not communicate with the client department unless so authorized in writing by the Project Authority.
- c. Advise the Project Authority of any changes that may affect schedule or budget or are inconsistent with instructions or written approvals previously given. The Contractor shall detail the extent and reasons for the changes and obtain written approval before proceeding.

## **9. Security**

There are no security requirements associated with this requirement.

## **10. Basis for Ownership of Intellectual Property**

### **4006 07 (2008-05-12) License to Intellectual Property Rights to Canada's Information**

1. Any information supplied by Canada to the Contractor for the performance of the Work remains the property of Canada. The Contractor must use Canada's Information only to perform the Contract.
2. If the Contractor wants to use any information owned by Canada for the commercial exploitation or further development of the Foreground Information, the Contractor must obtain a license from the department or agency for which the Contract is performed. In its request for a license to that department or agency, the Contractor must explain why the license is required and how the Contractor intends to use the information. If the department or agency agrees to grant a license, conditions will be negotiated between the Contractor and that department or agency and may include the payment of a compensation to Canada.



**Optional Deliverables (non-evaluated)**

Bidders should specify below the lump sum cost for the performance of the work under any resulting contract. It is not mandatory to fill out all pricing requirements listed below of this optional section as it will not be evaluated.

<i><b>Urban Region</b></i>	<i><b>Scenario Type</b></i>	<i><b>All-inclusive Cost (\$) CAD</b></i>	<i><b>Applicable GST/HST Amount (\$) CAD</b></i>	<i><b>Total Lump Sum cost (\$) CAD</b></i>	<i><b>Vintage of Data Being Proposed (Year)</b></i>
Hamilton	Downtown / harbour (NE01)				
Québec	Airport and Industrial (NE02)				
Waterloo	Border crossing (NE03)				
Niagara Falls	Downtown / Industry (NE04)				
Kelowna	Downtown / Industry (NE05)				
Lloydminster	Industry / Residential (NE06)				
Etobicoke	Downtown / Residential (NE07)				
Sarnia	Border Crossing (NE08)				

Note: This is an optional financial portion and will not be evaluated as part of this bid submission. Canada has an option to action all or any non-evaluated options (non-evaluated optional requirements) within a 12-month period through one or multiple contract amendments.

**Optional Services**

The Contractor grants to Canada the irrevocable option to acquire the services described at Annex B (Non-evaluated optional deliverables) of the Contract under the same conditions and at the prices and/or rates stated in the Contract. The option may only be exercised by the Contracting Authority and will be evidenced, for administrative purposes only, in whole or in part, through a contract amendment.

The Contracting Authority may exercise any of the non-evaluated options listed within twelve (12) months after contract award by sending a written notice to the Contractor.

**4. Method of Payment – Resulting Contract**

Monthly invoices will be submitted for payment based on value of work done contingent upon Innovation, Science and Economic Development Canada's satisfaction with the Work subject to the Project Authority's approval.

**5. Insufficient Funding**

In the event that the lowest compliant bid exceeds the amount of funding allocated to the Work, Innovation, Science and Economic Development Canada in its sole discretion may:



- a. cancel the solicitation; or
- b. obtain additional funding and award the Contract to the Bidder submitting the lowest compliant bid; and/or
- c. Negotiate a reduction in the bid price and/or scope of work of not more than 25% with the Bidder submitting the lowest compliant bid. Should an agreement satisfactory to Innovation, Science and Economic Development Canada not be reached, Innovation, Science and Economic Development Canada shall exercise option (a) or (b).

## **6. Bid Validity Period**

It is understood that your proposal will remain open for acceptance for a period of not less than sixty (60) days from the closing date of the RFP.

## **7. Acceptance and Resulting Contract**

Upon acceptance of the Bidder's offer by Canada, a Contract shall be awarded to the Contractor. The resulting Contract shall constitute the entire and only agreement between the Parties and supersedes all previous negotiations, communications and other agreements, whether written or oral, unless they are incorporated by reference into the Contract.

## **8. Period of the Resulting Contract**

The proposed contract is from the date of contract award for one year.

## **9. Acknowledgement and Certifications of the Bidder**

By submitting a proposal, the Bidder agrees, acknowledges and certifies that:

1. All statements and information specified in their proposal are accurate and factual, and we (the Bidder) are aware that Innovation, Science and Economic Development Canada reserves the right to verify any information provided in this regard and that untrue statements may result in the proposal being declared non-responsive. In the event that the Contractor does not comply with any statement or that it is determined that any statement made by the Contractor in its proposal is untrue, whether made knowingly or unknowingly, the Minister shall have the right, pursuant to the default provisions of the Contract, to terminate the Contract for default.
2. By submitting a formal proposal in response to this RFP, the Bidder's signature indicates acceptance of the terms and conditions applicable to this RFP and any resulting Contract. ISED reserves the right to reject any proposal including any condition proposed by the Bidder that would not be, in the opinion of the Contracting Authority, in Canada's interest.

## 10. Signature(s)

I declare that I have the authority to bind the Bidder for all applicable purposes under this Bid and Acceptance Form.

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(Signature of the authorized representative)

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(Print name and title)

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(Print company name)

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(Date)

## APPENDIX C – MANDATORY REQUIREMENTS

### 1. Mandatory Requirements (Must be submitted at Proposal Closing Date and Time)

To be considered for responsive, a proposal must respond to the following mandatory requirements of this solicitation as Precedent to Contract award. The responses to the mandatory requirements below should be included in Section 1 of their technical proposal.

	YES	NO
<b>Mandatory Requirements</b>		
The interested supplier must attest that it has at least one (1) year of experience in collecting Canadian Geospatial data within the last three (3) years.		
The interested supplier must attest that it can deliver geospatial data containing, at a minimum, all data layers for each tool listed in section 5.1 of Appendix A, at the required resolutions and accuracies in table 1.2 and 1.3 in Appendix E, for all areas and vintages listed in table 1.1 in Appendix E.		

## APPENDIX D – ADDITIONAL INFORMATION

Bidders must provide the required additional information to be awarded a contract.

The Contracting Authority will have the right to ask for additional information to verify the Bidder's information. Failure to comply and to cooperate with any request or requirement imposed by the Contracting Authority will render the bid non-responsive or constitute a default under the Contract.

### 1. Legal Entity and Corporate Name

1. The bidder hereby certifies that it is a (circle one):
  - a. sole proprietorship;
  - b. partnership; or
  - c. corporate entity.
2. It was registered or formed under the laws of \_\_\_\_\_
3. Controlling interest/ownership (name if applicable) of the organization is held in the country of \_\_\_\_\_
4. Any resulting Supply Arrangement or Contract may be executed under the following corporate full legal name and at the following place of business:  
\_\_\_\_\_

#### 1.1 Attestation – Former Public Servant

Contracts awarded to former public servants (FPS) in receipt of a pension or of a lump sum payment must bear the closest public scrutiny, and reflect fairness in the spending of public funds. In order to comply with Treasury Board policies and directives on contracts awarded to FPS, offerors must provide the information required below before the issuance of a standing offer. If the answer to the questions and, as applicable the information required have not been received by the time the evaluation of offers is completed, Canada will inform the Offeror of a time frame within which to provide the information. Failure to comply with Canada's request and meet the requirement within the prescribed time frame will render the offer non-responsive.

##### 1.1.1 Definitions

For the purposes of this clause,

"former public servant" is any former member of a department as defined in the [Financial Administration Act](#), R.S., 1985, c. F-11, a former member of the Canadian Armed Forces or a former member of the Royal Canadian Mounted Police. A former public servant may be:

- a. an individual;
- b. an individual who has incorporated;
- c. a partnership made of former public servants; or
- d. a sole proprietorship or entity where the affected individual has a controlling or major interest in the entity.

"lump sum payment period" means the period measured in weeks of salary, for which payment has been made to facilitate the transition to retirement or to other employment as a result of the implementation of various programs to reduce the size of the Public Service. The lump sum payment period does not include the period of severance pay, which is measured in a like manner.

"pension" means a pension or annual allowance paid under the [Public Service Superannuation Act](#) (PSSA), R.S., 1985, c. P-36, and any increases paid pursuant to the [Supplementary Retirement Benefits Act](#), R.S., 1985, c. S-24 as it affects the PSSA. It does not include pensions payable pursuant to the [Canadian Forces Superannuation Act](#), R.S., 1985, c. C-17, the [Defence Services Pension Continuation Act](#), 1970, c. D-3, the [Royal Canadian Mounted Police Pension Continuation Act](#), 1970, c. R-10, and the [Royal Canadian Mounted Police Superannuation](#)

[Act](#), R.S., 1985, c. R-11, the [Members of Parliament Retiring Allowances Act](#), R.S. 1985, c. M-5, and that portion of pension payable to the [Canada Pension Plan Act](#), R.S., 1985, c. C-8.

### 1.1.2 Former Public Servant in Receipt of a Pension

As per the above definitions, is the Offeror a FPS in receipt of a pension? **YES ( ) NO ( )**  
If so, the Offeror must provide the following information, for all FPS in receipt of a pension, as applicable:

- a. name of former public servant;
- b. date of termination of employment or retirement from the Public Service.

By providing this information, Offerors agree that the successful Offeror's status, with respect to being a former public servant in receipt of a pension, will be reported on departmental websites as part of the published proactive disclosure reports in accordance with [Contracting Policy Notice: 2019-01](#) and the [Guidelines on the Proactive Disclosure of Contracts](#).

### 1.1.3 Work Force Reduction Program

Is the Offeror a FPS who received a lump sum payment pursuant to the terms of the Work Force Adjustment Directive? **YES ( ) NO ( )**

If so, the Offeror must provide the following information:

- a. name of former public servant;
- b. conditions of the lump sum payment incentive;
- c. date of termination of employment;
- d. amount of lump sum payment;
- e. rate of pay on which lump sum payment is based;
- f. period of lump sum payment including start date, end date and number of weeks;
- g. number and amount (professional fees) of other contracts subject to the restrictions of a work force adjustment program.

For all contracts awarded during the lump sum payment period, the total amount of fees that may be paid to a FPS who received a lump sum payment is \$5,000, including Applicable Taxes.

## 2. Attestation

By submitting a bid, the Bidder certifies that the information submitted by the Bidder in response to the above requirements is accurate and complete.

## **ATTESTATION SIGNATURE**

We hereby certify compliance with the above noted certification requirements for:

- A. FEDERAL CONTRACTORS PROGRAM FOR EMPLOYMENT EQUITY – BID CERTIFICATION;
- B. LEGAL ENTITY AND CORPORATE NAME;
- C. CODE OF CONDUCT FOR PROCUREMENT;
- D. ATTESTATION – FORMER PUBLIC SERVANT.

## **SIGNATURE**

\_\_\_\_\_  
**Name and title of person authorized to sign on behalf of Bidder (Type or print)**

\_\_\_\_\_  
**Signature**

\_\_\_\_\_  
**Date**

## APPENDIX E – DATA PARAMETER REQUIREMENTS

### 1. Mandatory Requirements

#### 1.1 Geospatial Areas – Mandatory (Evaluated)

<i>Urban Region</i>	<i>Scenario Type</i>	<i>Vintage of Data Being Proposed (Year)</i>	<i>Boundaries (lat/lon)</i>	
Halifax	Downtown/ harbour (E01)	2019 or newer	44.61793936321969°	-63.57267279562476°
			44.655919604895665°	-63.52673967333366°
			44.6815626362901°	-63.538675163660805°
			44.70747838636189°	-63.592367209952975°
			44.658521233409154°	-63.63998907215898°
Québec	Downtown (E02)	2021	46.83608016862844°	- 71.18684262855275°
			46.85987998189466°	- 71.20922656276001°
			46.82248100655837°	- 71.28913684763445°
			46.77775820439556°	- 71.24059972316675°
			46.80193059876015°	- 71.1988380100744°
Montreal	Downtown / Hill (E03)	2021	45.4826811192416°	-73.64299292881692°
			45.44374069006827°	-73.55654481447898°
			45.44876878768668°	-73.54551845662444°
			45.46849606006683°	-73.5310459504054°
			45.53164352172646°	-73.52835820201355°
			45.55017200241433°	-73.5790134871868°
	Laval (E04)	2021	45.61660582899471°	-73.74049065952326°
			45.57949292846919°	-73.79605253415804°
			45.53848759993054°	-73.74751037978396°
			45.57025363501759°	-73.69051786912452°
	Airport and Industrial (E05)	2021	45.44565396303534°	-73.80944046261696°
			45.44632280771334°	-73.70723778982884°
			45.50986355410438°	-73.68503886818826°
45.51139595829898°			-73.83092773082666°	
Ottawa – Gatineau	Downtown / River / Industrial (E06)	2021	45.38200511453416°	-75.72430962461743°
			45.39451634712123°	-75.68787140108843°
			45.34912504419944°	-75.65766213319185°
			45.37767011424919°	-75.58502965398216°
			45.42454612438567°	-75.61425125324411°
			45.40993048184642°	-75.66029329457517°
			45.45300005141468°	-75.68788179654736°
			45.43253834560046°	-75.75419857281125°
	Suburban / Industrial (E07)	2021	45.27549715082841°	-75.92197774018027°
			45.30384103614626°	-75.87328831838731°
			45.33755207116145°	-75.89185660026087°
			45.3479496453863°	-75.8680260770326°
			45.37397170302118°	-75.87914012970344°
			45.33332534654215°	-75.96270431365031°
Toronto	Downtown (E08)	2021	43.62669225697569°	-79.4262929859587°
			43.622287051676°	-79.4009472707818°
			43.63787899700201°	-79.35430300045641°
			43.63068239385145°	-79.34787895788851°



			43.63766145370897°	-79.31980743864487°
			43.66890977824078°	-79.3087754239956°
			43.66078632233458°	-79.34368642106726°
			43.69055959486305°	-79.35481799187215°
			43.67423431631229°	-79.44347694125628°
			43.62669225697569°	-79.4262929859587°
			43.6758076305322°	-79.67766006250712°
Airport (E09)	2021	43.63624521321323°	-79.62240469424924°	
		43.67640297397919°	-79.5750616645491°	
		43.71986997900173°	-79.62811935797106°	
Windsor – Detroit	Border crossing (E10)	2021	42.28150295120965°	-83.07896157138471°
			42.30625893292487°	-83.01285760567546°
			42.35477030195207°	-83.03817390274858°
			42.32624281961758°	-83.10946075348085°
Calgary	Downtown / Urban Residential (E11)	2021	51.01902521359558°	-114.1084391885299°
			51.01852815161926°	-114.0246179717449°
			51.073543395847°	-114.0234790054584°
			51.07363082005009°	-114.1087786179921°
	Airport (E12)	2021	51.08291292912012°	-114.0525072219618°
			51.08330981721874°	-113.952217375633°
			51.16548086672735°	-113.952855927198°
			51.16518722026493°	-114.0544202874081°
	Industrial (E13)	2021	50.94970683727735°	-114.0097840109488°
			50.94879389430943°	-113.9280587784928°
			51.01606656868945°	-113.9268146522543°
			51.01592859924957°	-114.0116178440951°
Vancouver	Downtown (E14)	2021	49.29209221141795°	-123.147329058361°
			49.28287249039867°	-123.157455767674°
			49.26487659845929°	-123.175598305611°
			49.26428062955581°	-123.1287856017154°
			49.26376080230312°	-123.0856677859276°
			49.285422508322°	-123.0852832039217°
			49.28603571867145°	-123.1019000627765°
			49.29631978465024°	-123.136426589556°
	University campus / residential / wooded area (E15)	2021	49.24824873193647°	-123.2518965972067°
			49.23943828111925°	-123.229434658893°
			49.24386716732878°	-123.2225457012337°
			49.25835080471942°	-123.2263847868854°
			49.28279945818618°	-123.2418509472643°
			49.26777218581302°	-123.2710263551555°
	Airport (E16)	2021	49.16711243792417°	-123.2004112987335°
			49.16674567865343°	-123.1305657308781°
			49.21863900677363°	-123.118449121804°
			49.21784767392182°	-123.1687079864599°
			49.21523874033004°	-123.2039926472932°
49.18636549727476°			-123.2111522089954°	

1.2 Technical Requirements

Technical Specification	Requirement
Resolution	< 2m (Unless otherwise specified in section 1.3 of this appendix)
Relative Planimetric Accuracy (x,y)	< 3m (RMSE)
Relative Altimetric Accuracy (z)	< 3m (RMSE) (Unless otherwise specified in section 1.3 of this appendix)
Data Layers	Building Polygons, Vegetation Polygons, DTM, Clutter, Clutter Heights (DHM), Linear Vectors, Ortho-Imagery
Minimum Mapping Unit	5m x 5m or smaller

1.3 Data Layers

Data Layers	Specifications
Digital Terrain Model (DTM)	1m
Building Polygons	Above-ground and sea level elevation measurements of buildings and building part structures
Vegetation Polygons	Above-ground and sea level elevation measurements of tree canopy vegetation.  Relative Planimetric Accuracy (x,y): < 3m Relative Altimetric Accuracy (z): < 5m
Clutter	1m
Clutter examples – for reference	Inland Water, Low Vegetation, Forest, Village, Dense Residential, Urban, Building Blocks, Commercial/Industrial, Airport
Linear Vector examples – for reference	Coastline, Double River, Inland Water, Highways, Main Roads, Secondary Roads, Railways, Streets
Orthoimage	1m

2. Optional Geospatial Areas - Non-Mandatory (Unevaluated)

2.1 Geospatial Areas – Non-Evaluated, Non-Mandatory Options

Urban Region	Scenario Type	Boundaries (lon/lat)	
Hamilton	Downtown / harbour (NE01)	43.23255854496079°	-79.90755852857458°
		43.21128555245036°	-79.81707804629148°
		43.28259018449418°	-79.78730621450038°
		43.29331828124978°	-79.83059848120048°
		43.27882582575013°	-79.83807677835242°
		43.28783691664594°	-79.88191451415501°
Québec	Airport and Industrial (NE02)	46.7339722297821°	-71.36453268777819°
		46.74646083489004°	-71.3301718200629°
		46.74756552107598°	-71.28959438082012°

		46.77003792255228°	-71.2323280807384°
		46.77775820439556°	-71.24059972316675°
		46.82248100655837°	-71.28913684763445°
		46.83436387983514°	-71.30098598240448°
		46.78770260966235°	-71.41787449853256°
Waterloo	Downtown / Industry (NE03)	43.43288739863765°	-80.533065946173°
		43.45213356439984°	-80.46553648635849°
		43.50513086908683°	-80.52536782558344°
		43.47383258092517°	-80.57322967908652°
Niagara Falls	Downtown / Industry (NE04)	43.07478986639087°	-79.124411770351°
		43.07502545122826°	-79.04322723213485°
		43.12395209278201°	-79.04381000280857°
		43.12273726300256°	-79.12716008273954°
Kelowna	Downtown / Industry (NE05)	49.85170988826769°	-119.5055731698149°
		49.85214848222665°	-119.4555114257001°
		49.90820063326798°	-119.4573630293229°
		49.90848539993546°	-119.5064247844393°
Lloydminster	Industry / Residential (NE06)	53.24785843401826°	-110.0559432077316°
		53.24773444121455°	-109.976625986799°
		53.30853875857656°	-109.9755063746883°
		53.30887979818812°	-110.0562521163789°
Etobicoke	Downtown / Residential (NE07)	43.64485992680611°	-79.50067475786112°
		43.62974278597305°	-79.5751952013085°
		43.57938207763174°	-79.5533737083922°
		43.59636076603628°	-79.48051171735203°
Samia	Border Crossing (NE08)	42.9508510396796°	-82.43293956707359°
		42.95027001769464°	-82.36682341593867°
		43.01113371841048°	-82.36716923239869°
		43.01155200055367°	-82.43080873712556°

### 3. Additional Information

All of the data fields listed in section 1 of this appendix must meet the following requirements:

- a) the data field must be collected to the best of the contractor's ability, barring any cases where the field is clearly not applicable, and
- b) the data field must match the corresponding description.

“To the best of the contractor’s ability” means that the contractor has taken proper measures to ensure the accuracy and validity of the data and its compatibility with the listed tools.

A “required” data field must be provided to CRC as a part of 5.1 Appendix A.

Additional relevant data layers can be provided to CRC as a part of 5.1 Appendix A.