



Investment, Science, and Technology Division

**REQUEST FOR INFORMATION: COST FOR
DELIVERY OF REMOTE SENSING DATA AND
SUPPORT SERVICES**

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TABLE OF CONTENTS

1. INTRODUCTION	1
2. PURPOSE	2
3. INSTRUCTIONS TO RESPONDENTS	3
4. QUESTIONS	4
REMOTE SENSING DATA	4
ARTIFICIAL INTELLIGENCE/MACHINE LEARNING	5
GENERAL	6
5. ACCESS AND TERMS OF USE	6

1. INTRODUCTION

Building construction investment statistics within the residential (singles, doubles, rows and apartments) and non-residential sectors (commercial, industrial and government/institutional, excluding expenditure on engineering work) are used extensively by internal and external clients, notably: the Canadian System of National Accounts, the Bank of Canada and Finance Canada, as well as economists and analysts from the public and private sectors. The statistics gathered for the residential and non-residential building construction sectors provide an invaluable image of this activity in Canada, at the provincial and local census metropolitan area (CMA) level.

An important component of this calculation is the **duration** of construction which is defined by the start/completion of construction for a given project. Over this time, work-put-in-place coefficients are used to allocate the total value of investment over the duration of a project. Currently the *Building Construction Investment Program* uses a historical model for delay and duration applied to monthly building permits, which is then adjusted to account for “hard” data on starts and completions provided by Canada Mortgage and Housing Corporation’s Market Analysis Center’s surveys for the residential portion.

A data gap which has always existed is market intelligence regarding housing development on native reserves, and the starts/completions for non-residential construction - commercial, industrial, institutional and other non-res spending covered by the capital expenditure program (infrastructure, mining, etc.).

Given these gaps, combined with the potential to use emerging technology to improve coverage and modernize the way data on construction starts and completions are collected for the residential sector, Statistics Canada proposes to use remote sensing data, in combination with machine learning (artificial intelligence) to fill this data gap and modernize collection.

The proposed new geospatial construction starts survey would cover the *start* and *completion* of construction for all building types across Canada (for areas with a population 50k+) on a monthly basis. All other areas, including remote communities and native reserves, would be covered on a quarterly basis.

2. PURPOSE

The purpose of this Request for Information (RFI) is to determine the market availability of products and services, as well as their cost, for use in the development of a project proposal for a new geospatial construction starts/completions program.

Information provided to this RFI may also be used in other Statistics Canada National Standing Offers, as the agency continues to pursue modernization through the use of non-survey data sources, big data, and machine learning for multiple applications (building investment, research data bases, and programs models, etc.).

All information provided will be reviewed by Statistics Canada to help determine the most efficient path forward for the development of this program.

This RFI is a market consultation document issued for the purposes of obtaining information to assist Statistics Canada in its procurement planning and is not intended to result in any contract awarded. This RFI is neither a call for tender nor a Request for Proposal (RFP). The issuing of this RFI is not to be considered in any way as authority to potential respondents to undertake any work that could be charged to Statistics Canada. This RFI is not to be considered as a commitment to issue a subsequent solicitation or award any contracts for the work described herein.

3. INSTRUCTIONS TO RESPONDENTS

Note: For price quotes, please consider that we will require the license use to cover sharing/use of the remote sensing data within the government of Canada as well as with CMHC.

Use of Responses: Responses will not be formally evaluated. However, the responses received may be used by Statistics Canada to develop, evaluate or modify plans towards the development of a Geospatial Construction Starts/Completions Program. Statistics Canada will review all responses received by the RFI closing date. Statistics Canada may, in its discretion, review responses received after the RFI closing date.

Review Team: A review team composed of representatives from Statistics Canada will review the responses. Statistics Canada reserves the right to hire any independent consultant, or use any government resources that it considers necessary to review any response. Not all members of the review team will necessarily review all responses.

Confidentiality: Respondents should mark any portions of their response that they consider proprietary or confidential. Statistics Canada and its consultants will treat those portions of the responses as confidential to the extent permitted by the Access to Information Act.

Post-Submission Review Meetings: Statistics Canada may request individual Post-Submission Review Meetings with respondents to provide clarity on information provided. If required, these will be held at the most appropriate location, to be determined at a later date. The intent of these meetings will be to provide an opportunity for a face-to-face discussion with respondents. Although respondents may request a meeting, and their request will be considered, Statistics Canada will determine whether it requires additional information from any given respondent and will schedule meetings accordingly. All such requests, by respondents, should be addressed to the Contracting Authority.

Respondents are requested to submit one softcopy, in PDF format, of their response.

Section 4 contains specific questions that are consecutively numbered. Respondents are asked to submit responses indexed by the specific RFI question number. Respondents are asked to repeat the question prior to their response for reviewer convenience.

Statistics Canada is also looking to solicit comments, concerns and where applicable, alternative recommendations from interested parties regarding how the requirements or objectives described in this RFI could be satisfied.

The Crown retains the right to negotiate with suppliers on any procurement.

Documents may be submitted in either official language of Canada.

4. QUESTIONS

REMOTE SENSING DATA

Q1: What is the spatial resolution/image pixel size required to accurately determine the start of building construction/completion for a given project (Single family home, semi-detached home, row home, etc.).

Q2: What is the spatial extent of a high resolution image (pixel size/spatial resolution less than one meter) that has been identified as being suitable for building construction starts and completions detection and object extraction?

Q3: What is the estimated cost of a single high spatial resolution (less than one meter) image acquisition? How does the single image acquisition cost change with volume purchasing?

Q4: What is the quality guarantee of the imagery provided, given that this program is envisioned to run for all areas of Canada on a monthly/quarterly basis and will need to run without interruption (regardless of weather/cloud cover)?

Q5: What is the estimated cost of acquiring remotely-sensed data appropriate for detecting and extracting object features for building construction starts and completions for:

- a) areas with a population of 50,000 or greater on a monthly basis;
- b) areas with a population of 50,000 or less on a quarterly basis?

Q6: What is the estimated cost of the acquisition and delivery of radar imagery for the land mass of Canada on a quarterly basis?

Q7: How are the images accessed? Are they delivered to us or maintained by the service provider? Is access to the images provided in perpetuity?

Q8: Is there a proprietary software that is required to access/view/process the imagery? Is the use of this software provided together with the purchase of your remote sensing data?

Q9: What cost estimate(s) would you provide for the storage of the imagery and software required to access it? Please indicate if the cost of these services is included in the cost of the image acquisition, as well as any other general terms that are typically included.

Q10: If a “point of interest” remote sensing data model is used for the program, please describe the type of data that would be required for tasking collection.

Q11: What cost estimate would you provide for the purchase of a building polygon product that covers the land mass of Canada?

ARTIFICIAL INTELLIGENCE/MACHINE LEARNING

Q12: What parameters would you use to detect and extract building construction activity (demolition/excavation, foundation, framing/roofing, etc.).

Q13: What is the overall accuracy and accuracy of individual object classes for your AI/ML methodology for building construction starts and completions product?

Q14: What types of supporting documentation would be provided to Statistics Canada to evaluate the success of the AI model (should this work be added to the contract)?

Q15: What is the estimated cost of a production version of an AI model to extract building construction starts and completions from high resolution imagery?

Q16: How long would putting a program like this into production take?

GENERAL

Q17: Is there an alternative model for remote sensing data acquisition that could be considered (i.e. licencing, packaged/bundled pricing)? Please provide details on what products/services would be included for a given price estimate.

5. ACCESS AND TERMS OF USE

Government of Canada (GC) tender notices and awards, solicitation documents and tender attachments are available free of charge and without registration on Buyandsell.gc.ca/tenders, the authoritative location for GC tenders.

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