



**RETURN BIDS TO:**  
**RETOURNER LES SOUMISSIONS À:**  
Bid Receiving - PWGSC / Réception des  
soumissions - TPSGC  
11 Laurier St. / 11, rue Laurier  
Place du Portage , Phase III  
Core 0B2 / Noyau 0B2  
Gatineau, Québec K1A 0S5  
Bid Fax: (819) 997-9776

**REQUEST FOR PROPOSAL**  
**DEMANDE DE PROPOSITION**

**Proposal To: Public Works and Government  
Services Canada**

We hereby offer to sell to Her Majesty the Queen in  
right of Canada, in accordance with the terms and  
conditions set out herein, referred to herein or attached  
hereto, the goods, services, and construction listed  
herein and on any attached sheets at the price(s) set  
out therefor.

**Proposition aux: Travaux Publics et Services  
Gouvernementaux Canada**

Nous offrons par la présente de vendre à Sa Majesté la  
Reine du chef du Canada, aux conditions énoncées ou  
incluses par référence dans la présente et aux annexes  
ci-jointes, les biens, services et construction énumérés  
ici sur toute feuille ci-annexée, au(x) prix indiqué(s).

**Comments - Commentaires**

**Vendor/Firm Name and Address**  
**Raison sociale et adresse du**  
**fournisseur/de l'entrepreneur**

**Issuing Office - Bureau de distribution**  
Science and Software Systems Procurement  
Directorate/Direction de l'approvisionnement  
en sciences et en systèmes logiciels  
11C1, Phase III  
Place du Portage  
11 Laurier St. / 11, rue Laurier  
Gatineau, Québec K1A 0S5

<b>Title-Sujet</b> INTEGRATED URBAN MODELING	
<b>Solicitation No. - N° de l'invitation</b> HT201-163731/A	<b>Date</b> September 27, 2017
<b>Client Reference No. - N° de référence du client</b> HT201-163731	
<b>GETS Reference No. - N° de référence de SEAG</b> PW-17-00796791	
<b>File No. - N° de dossier</b> 066ss. HT201-163731	<b>CCC No./N° CC - FMS NO. / N° VME</b>
<b>Solicitation Closes - L'invitation prend fin</b> <b>at - à 2:00 PM</b> <b>on - le 2017-11-06</b>	<b>Time Zone</b> <b>Fuseau horaire</b> Eastern Standard Time EST
<b>F.O.B. - F.A.B</b>  Plant-Usine : <input type="checkbox"/> Destination: <input checked="" type="checkbox"/> Other-Autre: <input type="checkbox"/>	
<b>Address Enquiries to: - Adresser toutes questions à:</b>  HEATHER WILSON	<b>Buyer Id - Id de</b> <b>l'acheteur</b> 066ss
<b>Telephone No. - N° de téléphone</b> 873-469-4791	<b>FAX No. - N° de FAX</b> 819-997-2229
<b>Destination of Goods, Services and Construction:</b> <b>Destinations des biens, services et construction :</b>  Specified Herein Précisé dans les présentes	

**Instructions : See Herein**

**Instructions : voir aux présentes**

<b>Delivery Required - Livraison exigée</b> See Herein	<b>Delivery Offered - Livraison proposée</b>
<b>Vendor/Firm Name and Address</b> <b>Raison sociale et adresse du fournisseur/de l'entrepreneur</b>    <b>Telephone No. - N° de telephone</b> <b>Facsimile No. - N° de télécopieur</b>	
<b>Name and title of person authorized to sign on behalf of Vendor/Firm</b> <b>(type or print)</b>  <b>Nom et titre de la personne autorisée à signer au nom du fournisseur/de</b> <b>l'entrepreneur (taper ou écrire en caractères d'imprimerie)</b>   <b>Signature</b>   <b>Date</b>	

## **TABLE OF CONTENTS**

### **PART 1 - GENERAL INFORMATION**

- 1.1 Introduction
- 1.2 Summary
- 1.3 Debriefings
- 1.4 Communications

### **PART 2 - BIDDER INSTRUCTIONS**

- 2.1 Standard Instructions, Clauses and Conditions
- 2.2 Submission of Bids
- 2.3 Former Public Servant
- 2.4 Communications - Solicitation Period
- 2.5 Applicable Laws
- 2.6 Maximum Funding

### **PART 3 - BID PREPARATION INSTRUCTIONS**

- 3.1 Bid Preparation Instructions:
  - Section I: Technical Bid
  - Section II: Financial Bid
  - Section III: Certifications

### **PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION**

- 4.1 Evaluation Procedures
- 4.2 Basis of Selection

### **PART 5 - CERTIFICATIONS**

- 5.1 Certifications Required with the Bid
- 5.2 Certifications Precedent to Contract Award and Additional Information

### **PART 6 - RESULTING CONTRACT CLAUSES**

- 6.1 Statement of Work
- 6.2 Standard Clauses and Conditions
- 6.3 Security Requirements
- 6.4 Term of Contract
- 6.5 Authorities
- 6.6 Proactive Disclosure of Contracts with Former Public Servants
- 6.7 Payment
- 6.8 Invoicing Instructions
- 6.9 Certifications
- 6.10 Applicable Laws
- 6.11 Priority of Documents
- 6.12 Foreign Nationals
- 6.13 Insurance - No Specific Requirement
- 6.14 Safeguarding Electronic Media

Solicitation No. - N° de l'invitation  
HT201-163731/A

Amd. No. - N° de la modif.

Buyer ID - Id de l'acheteur  
066SS

Client Ref. No. - N° de réf. du client  
HT201-163731

File No. - N° du dossier  
066SS.HT201-163731

CCC No./N° CCC - FMS No./N° VME

**List of Attachments:**

Attachment 1 Financial Bid Presentation Sheet  
Attachment 2 Evaluation Criteria  
Attachment 3 Study Description Form

**List of Annexes:**

Annex A Statement of Work  
Annex B Basis of Payment

## **PART 1 - GENERAL INFORMATION**

### **1.1. Introduction**

The bid solicitation document is divided into seven parts plus attachments and annexes as follows:

Part 1 General Information: provides a general description of the requirement;

Part 2 Bidder Instructions: provides the instructions, clauses and conditions applicable to the bid solicitation;

Part 3 Bid Preparation Instructions: provides bidders with instructions on how to prepare their bid;

Part 4 Evaluation Procedures and Basis of Selection: indicates how the evaluation will be conducted, the evaluation criteria that must be addressed in the bid, and the basis of selection;

Part 5 Certifications: includes the certifications to be provided;

Part 6 Resulting Contract Clauses: includes the clauses and conditions that will apply to any resulting contract.

#### **List of Attachments:**

Attachment 1 Financial Bid Presentation Sheet  
Attachment 2 Evaluation Criteria  
Attachment 3 Study Description Form

#### **List of Annexes:**

Annex A Statement of Work  
Annex B Basis of Payment

### **1.2. Summary**

- (i) Health Canada has a requirement for the development an Integrated Urban Modeling platform that is transferable across Canadian cities. The Work will focus on simulating the impacts of land use (e.g. built-environment) or transportation system changes (e.g. type of vehicle fuel, or route changes) on ambient air quality, exposure to air pollution, and associated economic, social, and health impacts, in an easily interpretable visual format.
- (ii) The period of the Contract will be from date of Contract to March 31, 2020 inclusive with an irrevocable option on the part of Canada to extend the contract period of any resultant contract by up to 1 additional 1 year periods.
- (iii) Bidders must provide a list of names, or other related information as needed, pursuant to section 01 of Standard Instructions 2003.
- (iv) Bidders in receipt of a pension or a lump sum payment must provide the required information as detailed in article 3, Former Public Servant of Part 2 of the bid solicitation.
- (v) The requirement is subject to the provisions of the Canadian Free Trade Agreement (CFTA).

### **1.3. Debriefings**

After contract award, bidders may request a debriefing on the results of the bid solicitation process. Bidders should make the request to the Contracting Authority within 15 working days of receipt of the results of the bid solicitation process. The debriefing may be in writing, by telephone or in person.

### **1.4. Communications**

As a courtesy and in order to coordinate any public announcements pertaining to this contract, the Government of Canada requests that successful Bidders notify the Contracting Authority 5 days in advance of their intention to make public an announcement related to the recommendation of a contract award, or any information related to the contract. The Government of Canada retains the right to make primary contract announcements.

## PART 2 - BIDDER INSTRUCTIONS

### 2.1. Standard Instructions, Clauses and Conditions

All instructions, clauses and conditions identified in the bid solicitation 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.

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.

The 2003 (2017-04-27) Standard Instructions - Goods or Services - Competitive Requirements, are incorporated by reference into and form part of the bid solicitation.

Subsection 5.4 of 2003, Standard Instructions - Goods or Services - Competitive Requirements, is amended as follows:

Delete: sixty (60) days  
Insert: 180 days

### 2.2. Submission of Bids

Bids must be submitted only to Public Works and Government Services Canada (PWGSC) Bid Receiving Unit by the date, time and place indicated on page 1 of the bid solicitation.

Due to the nature of the bid solicitation, bids transmitted by facsimile or email to PWGSC will not be accepted.

### 2.3. 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 FPSs, bidders must provide the information required below before contract award. If the answer to the questions and, as applicable the information required have not been received by the time the evaluation of bids is completed, Canada will inform the Bidder 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 bid non-responsive.

#### 2.3.1 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.

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

As per the above definitions, is the Bidder a FPS in receipt of a pension? **Yes ( ) No ( )**

If so, the Bidder must provide the following information, for all FPSs 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, Bidders agree that the successful Bidder'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: 2012-2](#) and the [Guidelines on the Proactive Disclosure of Contracts](#).

### 2.3.3 Work Force Adjustment Directive

Is the Bidder a FPS who received a lump sum payment pursuant to the terms of the Work Force Adjustment Directive? **Yes ( ) No ( )**

If so, the Bidder 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.

## 2.4. Communications - Solicitation Period

All enquiries must be submitted to the Contracting Authority no later than 10 calendar days before the bid closing date. Enquiries received after that time may not be answered.

Bidders should reference as accurately as possible the numbered item of the bid solicitation to which the enquiry relates. Care should be taken by bidders to explain each question in sufficient detail in order to enable Canada to provide an accurate answer. Technical enquiries that are of a "proprietary" nature must be clearly marked "proprietary" at each relevant item. Items identified as proprietary will be treated as such except where Canada determines that the enquiry is not of a proprietary nature. Canada may edit the question(s) or may request that the Bidder do so, so that the proprietary nature of the question(s) is

Solicitation No. - N° de l'invitation  
HT201-163731/A

Amd. No. - N° de la modif.

Buyer ID - Id de l'acheteur  
066SS

Client Ref. No. - N° de réf. du client  
HT201-163731

File No. - N° du dossier  
066SS.HT201-163731

CCC No./N° CCC - FMS No./N° VME

eliminated and the enquiry can be answered to all bidders. Enquiries not submitted in a form that can be distributed to all bidders may not be answered by Canada.

## **2.5. Applicable Laws**

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

Bidders may, at their discretion, substitute the applicable laws of a Canadian province or territory of their choice without affecting the validity of their bid, by deleting the name of the Canadian province or territory specified and inserting the name of the Canadian province or territory of their choice. If no change is made, it acknowledges that the applicable laws specified are acceptable to the bidders.

## **2.6. Maximum Funding**

The maximum funding available for the Contract resulting from the bid solicitation is \$504,000.00 (Applicable Taxes extra). Bids valued in excess of this amount will be considered non-responsive. This disclosure does not commit Canada to pay the maximum funding available.



## PART 3 - BID PREPARATION INSTRUCTIONS

### 3.1. Bid Preparation Instructions

Canada requests that bidders provide their bid in separately bound sections as follows:

- 3 USB keys, each with a single electronic copy of the Technical Bid (Section I)
- 1 hard copy of each of the following **and** 1 USB key with a single electronic copy of each of the following:
  - Section I: Technical Bid
  - Section II: Financial Bid
  - Section III: Certifications

If there is a discrepancy between the wording of the soft copy and the hard copy, the wording of the hard copy will have priority over the wording of the soft copy.

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

Canada requests that bidders follow the format instructions described below in the preparation of their bid:

- (a) use 8.5 x 11 inch (216 mm x 279 mm) paper; and
- (b) use a numbering system that corresponds to the bid solicitation.

In April 2006, Canada issued a policy directing federal departments and agencies to take the necessary steps to incorporate environmental considerations into the procurement process Policy on Green Procurement (<http://www.tpsgc-pwgsc.gc.ca/ecologisation-greening/achats-procurement/politique-policy-eng.html>). To assist Canada in reaching its objectives, bidders should:

- (1) use paper containing fibre certified as originating from a sustainably-managed forest and containing minimum 30% recycled content; and
- (2) use an environmentally-preferable format including black and white printing instead of colour printing, print double sided/duplex, using staples or clips instead of cerlox, duotangs or binders.

### 3.2. Section I : Technical Bid

In their technical bid, Bidders should demonstrate their understanding of the requirements contained in the bid solicitation and explain how they will meet these requirements. Bidders should demonstrate their capability and describe their approach in a thorough, concise and clear manner for carrying out the work.

The technical bid should address clearly and in sufficient depth the points that are subject to the evaluation criteria against which the bid will be evaluated. Simply repeating the statement contained in the bid solicitation is not sufficient. In order to facilitate the evaluation of the bid, Canada requests that Bidders address and present topics in the order of the evaluation criteria under the same headings. To avoid duplication, Bidders may refer to different sections of their bids by identifying the specific paragraph and page number where the subject topic has already been addressed.

### **3.3. Section II : Financial Bid**

#### **3.3.1 Bidders must submit their financial bid in accordance with the following :**

- (a) A Total Firm All-inclusive Lot Price, which must not exceed the maximum funding specified in Part 2. The total amount of Applicable Taxes are to be shown separately, if applicable.

The information should be provided in accordance with the Financial Bid Presentation Sheet at Attachment 1.

- (b) For Canadian-based bidders, prices must be in Canadian funds, Applicable Taxes excluded, and Canadian customs duties and excise taxes included.

For foreign-based bidders, prices must be in Canadian funds, Applicable Taxes and Canadian customs duties and excise taxes excluded. Canadian customs duties and excise taxes payable by Canada will be added, for evaluation purposes only, to the rates and prices submitted by foreign-based bidders.

For the purpose of the bid solicitation, bidders with an address in Canada are considered Canadian-based bidders and bidders with an address outside of Canada are considered foreign-based bidders.

#### **3.3.2 Price Breakdown**

Bidders are requested to detail the following elements for each task of the Work, as applicable:

- (a) Labour : For each individual and (or) labour category to be assigned to the Work, indicate: i) the hourly rate, inclusive of overhead and profit; and ii) the estimated number of hours.
- (b) Equipment : Specify each item required to complete the Work and provide the pricing basis of each one, Canadian customs duty and excise taxes included, as applicable. These items will be deliverable to Canada upon completion of the contract.
- (c) Materials and Supplies : Identify each category of materials and supplies required to complete the Work and provide the pricing basis.
- (d) Subcontracts : Identify any proposed subcontractor and provide for each one the same price breakdown information as contained in this article.
- (e) Other Direct Charges : Identify any other direct charges anticipated, such as long distance communications and rentals, and provide the pricing basis .
- (f) Applicable Taxes : Identify any Applicable Taxes separately.

#### **3.3.3 Exchange Rate Fluctuation**

C3011T (2013-11-06), Exchange Rate Fluctuation

### **3.4. Section III : Certifications**

Bidders must submit the certifications required under Part 5.

## ATTACHMENT 1

### FINANCIAL BID PRESENTATION SHEET

The Bidder must respond to this pricing schedule by including in its financial bid for each of the items specified below its quoted Firm, all inclusive prices (in Canadian dollars), Applicable Tax extra.

#### 1. SCHEDULE OF MILESTONES

Milestone No.	Deliverables	Description	Firm Milestone Amount	Due Date
Deliverable 1: Year 1				
1	Draft Letter to Stakeholders.	Draft letter to stakeholder as described in Task 2.1.1.1 of the Statement of Work in Annex A	\$ _____	02-Feb-2017
	List of Indicators	Develop a comprehensive list of urban health and sustainability indicators as described in Task 2.1.1.1 of the Statement of Work in Annex A.		
	Summary of Feedback & Updated List of Indicators	Obtain feedback from stakeholders on indicators as described in Task 2.1.1.1 of the Statement of Work in Annex A.		
	Report 1 = I	Develop the IUM platform incorporating urban health and other sustainability indicators as described in Task 2.1.1.2 of the Statement of Work in Annex A		
2	Report 2 = A	Deliverable 1 - Operational IUM platform for Halifax and London including urban health and sustainability indicators as described in Task 2.1.1.3 of the Statement of Work in Annex A	\$ _____	02-Apr-2018
Deliverable 2: Year 2				
3	Report 3 = I	Extend the transportation model to simulate intra-urban commercial trips as described in Task 2.1.1.4 of the Statement of Work in Annex A	\$ _____	31-Aug-2018
4	Stakeholder Report	Report on the IUM platform simulation runs for Halifax and London as described in Task 2.1.1.5 of the Statement of Work in Annex A	\$ _____	01-Mar-2019
	Report 4 = A	Deliverable 2 □ Operational IUM platform for Vancouver as described in Task 2.1.1.6 of the Statement of Work in Annex A		

Deliverable 3: Year 3				
5	Stakeholder Report	Report on IUM platform simulation runs for Vancouver as described in Task 2.1.1.7 of the Statement of Work in Annex A	\$ _____	30-Aug-2019
	Report 5 = I	Develop a road link network editor for IUM platform for all cities as described in Task 2.1.1.8 of the Statement of Work in Annex A		
6	Report 6 = A	Deliverable 3 - Operational the IUM platform for Ottawa as described in Task 2.1.1.9 of the Statement of Work in Annex A	\$ _____	02-Mar-2020
Optional Deliverable 4 (Year 4)				
7	Stakeholder Report	Report on the IUM platform simulation runs for Ottawa as described in Task 2.1.2.1 of the Statement of Work in Annex A	\$ _____	30-Sep-2020
	Report 7 = I	Re-calibrate model parameters for Calgary as needed as described in Task 2.1.2.2-3 of the Statement of Work in Annex A		
8	Report 8 = A	Deliverable 4 <input type="checkbox"/> Operational IUM platform for Calgary as described in Task 2.1.2.2-3 of the Statement of Work in Annex A	\$ _____	01-Mar-2021
Optional Deliverable 5 (Year 4)				
9	IUM Web Portal	Create user-friendly IUM platform website portal accessible to Health Canada, multiple Health Canada stakeholders and their representatives as described in Task 2.1.2.4 of the Statement of Work in Annex A	\$ _____	29-Jan-2021
	Report 9 = User Manual	Develop and provide the IUM platform user manual as described in Task 2.1.2.4 of the Statement of Work in Annex A		
10	Workshop	Develop and run the IUM platform workshop for stakeholders as described in Task 2.1.2.4 of the Statement of Work in Annex A	\$ _____	01-Mar-2021
	Report 10 = F	Deliverable 5 <input type="checkbox"/> User-friendly IUM platform user manual and case studies, provided to Health Canada and multiple Health Canada stakeholders and their representatives; a minimum of one stakeholder workshop conducted via webinar by the Contractor as described in Task 2.1.2.4 of the Statement of Work in Annex A.		
<b>TOTAL FIRM ALL-INCLUSIVE LOT PRICE (APPLICABLE TAXES EXTRA):</b>			\$ _____	

## **PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION**

### **4.1. Evaluation Procedures**

- (a) Bids will be assessed in accordance with the entire requirement of the bid solicitation including the technical evaluation criteria.
- (b) An evaluation team composed of representatives of Canada will evaluate the bids.

### **4.2. Technical Evaluation**

#### **4.2.1 Supporting Information**

In the event that the Bidder fails to submit any supporting information pursuant to article 4.2.2.1 Mandatory Technical Evaluation Criteria and 4.2.2.2 Point Rated Technical Evaluation Criteria, the Contracting Authority may request it thereafter in writing, including after the closing date of the bid solicitation. It is mandatory that the Bidder provide the supporting information within 3 business days of the written request or within such period as specified or agreed to by the Contracting Authority in the written notice to the Bidder.

#### **4.2.2 Evaluation Criteria**

##### **4.2.2.1 Mandatory Technical Evaluation Criteria**

At bid closing time, Bids must meet all mandatory criteria identified in Attachment 2 to be in compliance with the request for proposal. Bids that fail to meet all mandatory criteria will be declared non-responsive.

Any element of the proposal solicitation identified with the words "must" or "mandatory" is a mandatory requirement.

##### **4.2.2.2 Point-Rated Technical Evaluation Criteria**

Each bid that meets all of the mandatory criteria will be evaluated and scored in accordance with the point-rated evaluation criteria identified in Attachment 2.

### **4.3. Financial Evaluation**

#### **4.3.1 Evaluation of Price**

The price of the bid will be evaluated in Canadian dollars, Applicable Taxes excluded, Canadian customs duties and excise taxes included.

For evaluation purposes only, the price of the bid will be the Total Firm All-Inclusive Lot Price (Applicable Taxes excluded) included in Attachment 1, Financial Bid Presentation Sheet.

#### **4.3.2 Basis of Selection - Highest Rated Within Budget**

1. To be declared responsive, a bid must:
  - a. comply with all the requirements of the bid solicitation; and
  - b. meet all mandatory technical evaluation criteria.
2. Bids not meeting (a) or (b) will be declared non responsive. The responsive bid with the highest number of points will be recommended for award of a contract, provided that the total evaluated price does not exceed the budget available for this requirement.
3. In the event of a tie, the Bidder whose proposed Principle Investigator has experience developing or modifying integrated urban models for the highest number of Canadian cities will be recommended for award of a contract.

**ATTACHMENT 2  
EVALUATION CRITERIA**

**SECTION 1**

**Attention Bidders: Write beside each of the criteria the relevant page number(s) from your proposal which addresses the requirement identified in the criteria.**

Experience requirements for M2 to M3 must be demonstrated by:

- peer reviewed journal articles; or,
- conference proceedings or book chapters; or,
- government reports (i.e., reports submitted to federal, provincial, or local governments under grants or contracts; or,
- a list of relevant projects including project timeline and description, as well as a description of the bidder's role in the project.

These experience items must be described by the bidder in sufficient detail to demonstrate that the bidder meets the requirement. The Bidder should utilize Study or Project Description Form provided in Attachment 3 of the Request for Proposal to demonstrate the required experience. In addition, the Bidder should provide electronic (pdf) copies of all publications (e.g., journal articles, abstracts, book chapters, and reports). If full text copies are not available, the bid will be evaluated solely based on the project description provided by the bidder.

Experience requirements for R1.1 to R1.4 should be demonstrated by:

- peer reviewed journal articles; or,
- conference proceedings or book chapters; or,
- government reports (i.e., reports submitted to federal, provincial, or local governments under grants or contracts; or,
- a list of relevant projects including project timeline and description, as well as a description of the bidder's role in the project.

These experience items must be described by the bidder in sufficient detail to demonstrate that the bidder meets the requirement. The Bidder should utilize Study or Project Description Form provided in Attachment 3 of the Request for Proposal to demonstrate the required experience. In addition, the Bidder should provide electronic (pdf) copies of all publications (e.g., journal articles, abstracts, book chapters, and reports). If full text copies are not available, the bid will be evaluated solely based on the project description provided by the bidder

Criteria No.	Mandatory/ Rated Criteria	Description	Page #	Pass/Fail or Points Range
M1	Mandatory	The Bidder's proposed Principal Investigator must have at least a Doctorate with a specialization relevant to land use geography and/or traffic simulation modeling. <b>The Bidder must demonstrate that they meet this requirement by providing a copy of the Principal Investigator's doctoral diploma and thesis title, as well as either the thesis abstract or thesis summary.</b>		Pass/Fail

<b>M2</b>	<b>Mandatory</b>	<p>The Bidder's proposed Principal Investigator must have at least 2 years of experience within the last 10 years in publishing studies in peer reviewed journal articles describing the development and modification of integrated urban models (IUMs), for at least one Canadian city.</p> <p>The Bidder must demonstrate this experience by submitting copies of the peer reviewed journal articles.</p>		<b>Pass/Fail</b>
<b>R1.1</b>	<b>Rated Criteria</b>	<p>The Bidder should demonstrate the proposed Principal Investigator's previous experience, in addition to that provided under M2, developing integrated urban models (IUMs) for at least one Canadian city within the past 10 years.</p> <p><b>Point Rating Scale:</b> Refer to <b>Table 1</b>, Point Rating Scale for R1</p>		0-10
<b>M3</b>	<b>Mandatory</b>	<p>The Bidder's proposed Principal Investigator must have at least 2 years of experience within the past 10 years in modelling temporal and spatial estimates of the following at a fine spatial resolution for at least one Canadian city:</p> <ul style="list-style-type: none"> <li>- traffic flow,</li> <li>- traffic emissions, and</li> <li>- air pollution</li> </ul> <p>Fine spatial resolution is defined as:</p> <ul style="list-style-type: none"> <li>a) <b>road link level</b> or an equivalent spatial resolution for <b>traffic flow</b>; and</li> <li>b) <b>road link level, census tract level</b> or an equivalent spatial resolution for <b>traffic emissions and air pollution</b>.</li> </ul>		<b>Pass/Fail</b>



<p><b>R1.2</b></p>	<p><b>Rated Criteria</b></p>	<p>The Bidder should demonstrate the proposed Principal Investigator's previous experience, in addition to that provided under M3, modelling the following for at least one Canadian city within the past 10 years:</p> <ul style="list-style-type: none"> <li>- transportation impacts,</li> <li>- traffic flow,</li> <li>- traffic emissions, and</li> <li>- air pollution</li> </ul> <p>Fine spatial resolution is defined as:</p> <ul style="list-style-type: none"> <li>a) <b>road link level</b> or an equivalent spatial resolution for <b>traffic flow</b>; and</li> <li>b) <b>road link level, census tract level</b> or an equivalent spatial resolution for <b>transportation impacts, traffic emissions and air pollution</b>.</li> </ul> <p><b>Point Rating Scale:</b> Refer to <b>Table 1</b>, Point Rating Scale for R1</p>		<p>0-10</p>
<p><b>R1.3</b></p>	<p><b>Rated Criteria</b></p>	<p>The Bidder should demonstrate the proposed Principal Investigator's previous experience -- for at least one Canadian city within the past 10 years -- in modeling model land use, traffic, or air pollution using any of the following methods including:</p> <ul style="list-style-type: none"> <li>1) multiple linear regression modeling;</li> <li>2) temporal and spatial modeling;</li> <li>3) dispersion modeling;</li> <li>4) network analysis, machine learning modeling or artificial neural network (ANN) modeling;</li> <li>5) synthesis of micro-data in areas where input data are not available.</li> </ul> <p><b>Point Rating Scale:</b> Refer to <b>Table 1</b>, Point Rating Scale for R1</p>		<p>0-10</p>
<p><b>R1.4</b></p>	<p><b>Rated Criteria</b></p>	<p>The Bidder should demonstrate the proposed Principal Investigator's previous experience -- for at least one Canadian city within the past 10 years -- in modelling population growth, land use development, and sustainability indicators</p> <p><b>Point Rating Scale:</b> Refer to <b>Table 1</b>, Point Rating Scale for R1</p>		<p>0-10</p>

**TABLE 1 - POINT RATING SCALE FOR R1: This Point Rating Scale will be used to evaluate R1.1 to R1.4**

For previous experience that meets this requirement based on work done in one or more of the Canadian cities included in the Work, a maximum of 10 points are available as detailed in Part A below.

For previous experience that meets this requirement based on work done in other Canadian cities NOT included in the Work, a maximum of 5 points are available as detailed in Part B below.

**Bidders may combine experience that meets the requirements under Part A and Part B to a maximum total of 10 points. Experience in addition to the maximum will not be rated.**

Part A

For previous experience that meets this requirement based on work done in one or more of the Canadian cities included in the Work (i.e., Calgary AB, Halifax NS, London ON, Ottawa ON, and Vancouver BC). [Maximum of 10 points]

1. Experience based on peer reviewed publications: [Maximum of 10 points]
  - a. 5 points for each peer reviewed journal article in which the Principal Investigator was the first author or corresponding author;
  - b. 1 point each for peer reviewed journal article in which the Principal Investigator was co-author (excluding papers awarded points in part a – i.e., excluding papers already awarded points because the PI was first author or corresponding author).
2. Experience based on other works: [Maximum of 5 points]
  - a. 1 point for each conference proceedings, book chapter, or government report in which the Principal Investigator was co-author.
3. Experience based on descriptions of (unpublished) projects: [Maximum of 3 points]
  - a. 3 points if the PI has greater than 5 years of previous experience based on unpublished projects;
  - b. 1 points if the PI has greater than 1 year and less than 5 years of previous experience based on unpublished projects;
  - c. 0 points if the PI has equal to or less than 1 year of previous experience based on unpublished projects.

Part B

For previous experience that meets this requirement based on work done in other Canadian cities NOT included in the Work (i.e., for cities OTHER than Calgary AB, Halifax NS, London ON, Ottawa ON, and Vancouver BC). [Maximum of 5 points]

1. Experience based on peer reviewed publications: [Maximum of 5 points]
  - a. 3 points for each peer reviewed journal article in which the Principal Investigator was the first author or corresponding author;
  - b. 1 point each for peer reviewed journal article in which the Principal Investigator was co-author (excluding papers awarded points in part a – i.e., excluding papers already awarded points because the PI was first author or corresponding author).
2. Experience based on other works: [Maximum of 3 points]
  - a. 1 point for each conference proceedings, book chapter, or government report in which the Principal Investigator was co-author.

Solicitation No. - N° de l'invitation  
HT201-163731/A

Amd. No. - N° de la modif.

Buyer ID - Id de l'acheteur  
066SS

Client Ref. No. - N° de réf. du client  
HT201-163731

File No. - N° du dossier  
066SS.HT201-163731

CCC No./N° CCC - FMS No./N° VME

3. Experience based on descriptions of (unpublished) projects: [Maximum of 2 points]
- a. 2 points if the PI has greater than 5 years of previous experience based on unpublished projects;
  - b. 1 point if the PI has greater than 1 year and less than 5 years of previous experience based on unpublished projects;
  - c. 0 points if the PI has less than or equal to 1 year of previous experience based on unpublished projects.

## SECTION 2

**Attention Bidders: Write beside each of the criteria the relevant page number(s) from your proposal which addresses the requirement identified in the criteria.**

Experience requirements for M4 to M16 must be demonstrated by:

- peer reviewed journal articles; or,
- conference proceedings or book chapters; or,
- government reports (i.e., reports submitted to federal, provincial, or local governments under grants or contracts; or,
- a list of relevant projects including project timeline and description, as well as a description of the bidder's role in the project.

These experience items must be described by the bidder in sufficient detail to demonstrate that the bidder meets the requirement. The Bidder should utilize Study or Project Description Form provided in Attachment 3 of the Request for Proposal to demonstrate the required experience. In addition, the Bidder should provide electronic (pdf) copies of all publications (e.g., journal articles, abstracts, book chapters, and reports). If full text copies are not available, the bid will be evaluated solely based on the project description provided by the bidder.

Experience requirements for R2 (R2.1 to R2.15) should be demonstrated by:

- peer reviewed journal articles; or,
- conference proceedings or book chapters; or,
- government reports (i.e., reports submitted to federal, provincial, or local governments under grants or contracts; or,
- a list of relevant projects including project timeline and description, as well as a description of the bidder's role in the project.

These experience items should be described by the bidder in sufficient detail to demonstrate that the bidder meets the requirement. The Bidder should utilize Study or Project Description Form provided in Attachment 3 of the Request for Proposal to demonstrate the required experience. In addition, **the Bidder should provide electronic (pdf) copies of all publications (e.g., journal articles, abstracts, book chapters, and reports). If full text copies are not available, the bid will be evaluated solely based on the project description provided by the bidder.**

Criteria No.	Mandatory/ Point Rated	Description	Page #	Pass/Fail or Points Range
M4	Mandatory	The Bidder's proposed Principal Investigator must have developed and modified an IUM able to model interactions and feedback loops between the urban land use and transportation systems (including impacts of land use changes on transportation and impacts of transportation changes on land use) and utilize the outputs to estimate vehicular emissions and air pollution, for at least one Canadian city, within the past 10 years.		Pass/Fail

<b>R2.1</b>	<b>Rated Criteria</b>	<p>The Bidder should demonstrate the proposed Principal Investigator's previous experience, in addition to that provided under M4, in the development and modification of an IUM for at least one Canadian city within the past 10 years. able to model interactions and feedback loops between the urban land use and transportation systems (including, impacts of land use changes on transportation and impacts of transportation changes on land use) and use the outputs to estimate vehicular emissions and air pollution.</p> <p><b>Point Rating Scale:</b> Refer to <b>Table 2</b>, Point Rating Scale for R2</p>		0-10
<b>M5</b>	<b>Mandatory</b>	<p>The Bidder's proposed Principal Investigator must have developed and modified an IUM for at least one Canadian city, within the past 10 years that uses individual models or modules to explicitly predict output for each of following areas:</p> <ul style="list-style-type: none"> <li>- Demographics;</li> <li>- Economics;</li> <li>- Land use;</li> <li>- Transportation; and</li> <li>- Sustainability.</li> </ul>		<b>Pass/Fail</b>
<b>R2.2</b>	<b>Rated Criteria</b>	<p>The Bidder should demonstrate the proposed Principal Investigator's previous experience, in addition to that provided under M5, in the development and modification of an IUM for at least one Canadian city within the past 10 years that uses individual models or modules to explicitly predict output for each of following areas:</p> <ul style="list-style-type: none"> <li>- Demographics;</li> <li>- Economics;</li> <li>- Land use;</li> <li>- Transportation; and</li> <li>- Sustainability.</li> </ul> <p><b>Point Rating Scale:</b> Refer to <b>Table 2</b>, Point Rating Scale for R2</p>		0-10
<b>M6</b>	<b>Mandatory</b>	<p>The Bidder's proposed Principal Investigator must have developed and modified an IUM for at least one Canadian city within the past 10 years that uses an input-output economic model to predict the following indicators:</p> <ul style="list-style-type: none"> <li>- land prices;</li> <li>- amount of developed land by land use type; and</li> <li>- number of jobs and firms by industrial sector.</li> </ul>		<b>Pass/Fail</b>

<b>R2.3</b>	<b>Rated Criteria</b>	<p>The Bidder should demonstrate the proposed Principal Investigator's previous experience, in addition to that provided under M6, in the development and modification of an IUM for at least one Canadian city within the past 10 years that uses an input-output economic model to predict the following indicators:</p> <ul style="list-style-type: none"> <li>- land prices;</li> <li>- amount of developed land by land use type; and number of jobs and firms by industrial sector.</li> </ul> <p><b>Point Rating Scale:</b> Refer to <b>Table 2</b>, Point Rating Scale for R2</p>		0-10
<b>M7</b>	<b>Mandatory</b>	<p>The Bidder's proposed Principal Investigator must have developed and modified an IUM for at least one Canadian city within the past 10 years that is not constrained by a specific spatial resolution and is capable of modeling air pollution concentrations at a postal code, dissemination block, or dissemination area level.</p> <p>An IUM that is not constrained by a specific spatial resolution is defined as an IUM that is capable of predicting transportation, air quality, and other indicators at different spatial scales specified by the user or programmer.</p>		<b>Pass/Fail</b>
<b>R2.4</b>	<b>Rated Criteria</b>	<p>The Bidder should demonstrate the proposed Principal Investigator's previous experience, in addition to that provided under M7, in the development and modification of an IUM for at least one Canadian city within the past 10 years that is not constrained by a specific spatial resolution and is capable of modeling air pollution concentrations at a postal code, dissemination block, or dissemination area level.</p> <p>An IUM that is not constrained by a specific spatial resolution is defined as an IUM that is capable of predicting transportation, air quality, and other indicators at different spatial scales specified by the user or programmer.</p> <p><b>Point Rating Scale:</b> Refer to <b>Table 2</b>, Point Rating Scale for R2</p>		0-10
<b>M8</b>	<b>Mandatory</b>	<p>The Bidder's proposed Principal Investigator must have developed and modified an IUM for at least one Canadian city within the past 10 years that models travel demand using a conventional four-stage transportation model that predicts the following:</p> <ol style="list-style-type: none"> <li>1. Trip generation (number of trips);</li> <li>2. Trip distribution (where trips go);</li> <li>3. Mode choice (how trips are divided between available modes of travel); and</li> <li>4. Trip assignment (predicting the routes for each trip).</li> </ol>		<b>Pass/Fail</b>

<b>R2.5</b>	<b>Rated Criteria</b>	<p>The Bidder should demonstrate the proposed Principal Investigator's previous experience, in addition to that provided under M8, in the development and modification of an IUM for at least one Canadian city within the past 10 years that models travel demand using a conventional four-stage transportation model that predicts the following:</p> <ol style="list-style-type: none"> <li>1. Trip generation (number of trips);</li> <li>2. Trip distribution (where trips go);</li> <li>3. Mode choice (how trips are divided between available modes of travel); and</li> <li>4. Trip assignment (predicting the routes for each trip).</li> </ol> <p><b>Point Rating Scale:</b> Refer to <b>Table 2</b>, Point Rating Scale for R2</p>		0-10
<b>M9</b>	<b>Mandatory</b>	<p>The Bidder's proposed Principal Investigator must have developed and modified an IUM for at least one Canadian city within the past 10 years that utilizes a Rogers' multiregional demographic model or an equivalent model for the demographic module.</p> <p>An equivalent model is defined as a multiregional demographic model that is able to forecast regional changes in population demography.</p>		<b>Pass/Fail</b>
<b>R2.6</b>	<b>Rated Criteria</b>	<p>The Bidder should demonstrate the proposed Principal Investigator's previous experience, in addition to that provided under M9, in the development and modification of an IUM for at least one Canadian city within the past 10 years that utilizes a Rogers' multiregional demographic model or an equivalent model for the demographic module.</p> <p>An equivalent model is defined as a multiregional demographic model that is able to forecast regional changes in population demography.</p> <p><b>Point Rating Scale:</b> Refer to <b>Table 2</b>, Point Rating Scale for R2</p>		0-10
<b>M10</b>	<b>Mandatory</b>	<p>The Bidder's proposed Principal Investigator must have developed and modified an IUM for at least one Canadian city, within the past 10 years that uses a bid-choice- or discrete-choice method to model land use and / or land development.</p>		<b>Pass/Fail</b>
<b>R2.7</b>	<b>Rated Criteria</b>	<p>The Bidder should demonstrate the proposed Principal Investigator's previous experience, in addition to that provided under M10, in the development and modification of an IUM for at least one Canadian city within the past 10 years that uses a bid-choice- or discrete-choice method to model land use and / or land development.</p> <p><b>Point Rating Scale:</b> Refer to <b>Table 2</b>, Point Rating Scale for R2</p>		0-10

<b>M11</b>	<b>Mandatory</b>	<p>The Bidder's proposed Principal Investigator must have developed and modified an IUM for at least one Canadian city within the past 10 years with a transportation module that predicts land use and transportation characteristic at a fine spatial resolution.</p> <p>Fine spatial resolution is defined as road link level, census tract level or an equivalent spatial resolution for transportation characteristics and land use characteristics.</p>		<b>Pass/Fail</b>
<b>R2.8</b>	<b>Rated Criteria</b>	<p>The Bidder should demonstrate the proposed Principal Investigator's previous experience, in addition to that provided under M11, in the development and modification of an IUM for at least one Canadian city within the past 10 years that predicts land use and transportation characteristic at a fine spatial resolution.</p> <p>Fine spatial resolution is defined as road link level, census tract level or an equivalent spatial resolution for transportation characteristics and land use characteristics.</p> <p><b>Point Rating Scale:</b> Refer to <b>Table 2</b>, Point Rating Scale for R2</p>		0-10
<b>M12</b>	<b>Mandatory</b>	<p>The Bidder's proposed Principal Investigator must have developed and modified an IUM for at least one Canadian city, within the past 10 years with model parameters that are not hard-coded in the software.</p>		<b>Pass/Fail</b>
<b>R2.9</b>	<b>Rated Criteria</b>	<p>The Bidder should demonstrate the proposed Principal Investigator's previous experience, in addition to that provided under M12, in the development and modification of an IUM for at least one Canadian city within the past 10 years with model parameters that are not hard-coded in the software.</p> <p><b>Point Rating Scale:</b> Refer to <b>Table 2</b>, Point Rating Scale for R2</p>		0-10
<b>M13</b>	<b>Mandatory</b>	<p>The Bidder's proposed Principal Investigator must have developed and modified an IUM for at least one Canadian city, within the past 10 years with a user friendly graphical interface</p> <p>User friendly is defined as a clearly labeled graphical interface that allows non-technical users with no experience in coding or programming to specify, change/configure, and update parameters pertaining to a specific module through the user interface.</p>		<b>Pass/Fail</b>



<b>R2.10</b>	<b>Rated Criteria</b>	<p>The Bidder should demonstrate the proposed Principal Investigator's previous experience, in addition to that provided under M13, in the development and modification of an IUM for at least one Canadian city within the past 10 years with a user friendly graphical interface.</p> <p>User friendly is defined as a clearly labeled graphical interface that allows non-technical users with no experience in coding or programming to specify, change/configure, and update parameters pertaining to a specific module through the user interface.</p> <p><b>Point Rating Scale:</b> Refer to <b>Table 2</b>, Point Rating Scale for R2</p>		0-10
<b>M14</b>	<b>Mandatory</b>	<p>The Bidder's proposed Principal Investigator must have developed and modified an IUM for at least one Canadian city, within the past 10 years that is a stand-alone software application.</p> <p>A stand-alone software application is defined as a software application that can be installed on its own without the need for integration with any commercialized software or commercialized software modules.</p>		<b>Pass/Fail</b>
<b>R2.11</b>	<b>Rated Criteria</b>	<p>The Bidder should demonstrate the proposed Principal Investigator's previous experience, in addition to that provided under M14, in the development and modification of an IUM for at least one Canadian city within the past 10 years that is a stand-alone software application.</p> <p>A stand-alone software application is defined as a software application that can be installed on its own without the need for integration with any commercialized software or commercialized software modules.</p> <p><b>Point Rating Scale:</b> Refer to <b>Table 2</b>, Point Rating Scale for R2</p>		0-10
<b>M15</b>	<b>Mandatory</b>	<p>The Bidder's proposed Principal Investigator must have developed and modified an IUM for at least one Canadian city, within the past 10 years that has Geographic Information System (GIS) capabilities to read and visualize spatial information while running simulations using an open-source GIS software and library.</p>		<b>Pass/Fail</b>

<b>R2.12</b>	<b>Rated Criteria</b>	<p>The Bidder should demonstrate the proposed Principal Investigator's previous experience, in addition to that provided under M15, in the development and modification of an IUM for at least one Canadian city within the past 10 years that has Geographic Information System (GIS) capabilities to read and visualize spatial information while running simulations using an open-source GIS software and library</p> <p><b>Point Rating Scale:</b> Refer to <b>Table 2</b>, Point Rating Scale for R2</p>		0-10
<b>M16</b>	<b>Mandatory</b>	<p>The Bidder's proposed Principal Investigator must have experience acquiring and using 1) travel/commuting activity data from municipal, provincial, federal or Statistics Canada surveys; and 2) demographic or vital statistics data from Statistics Canada or collected by municipal, provincial, or federal government sources in an IUM developed for at least one Canadian city, within the past 10 years.</p>		<b>Pass/Fail</b>
<b>R2.13</b>	<b>Rated Criteria</b>	<p>The Bidder should demonstrate the proposed Principal Investigator's previous experience, in addition to that provided under M16, in acquiring and using 1) travel/commuting activity data from municipal, provincial, federal or Statistics Canada surveys; and 2) demographic or vital statistics data from Statistics Canada or collected by municipal, provincial, or federal government sources in an IUM developed for at least one Canadian city within the past 10 years.</p> <p><b>Point Rating Scale:</b> Refer to <b>Table 2</b>, Point Rating Scale for R2</p>		0-10
<b>R2.14</b>	<b>Rated Criteria</b>	<p>The Bidder should demonstrate the proposed Principal Investigator's previous experience in the development and modification of an IUM for at least one Canadian city within the past 10 years that enables the inclusion and / or exclusion of various modules, processes, and scenarios depending on the simulation needs.</p> <p><b>Point Rating Scale:</b> Refer to <b>Table 2</b>, Point Rating Scale for R2</p>		0-10

<b>R2.15</b>	<b>Rated Criteria</b>	<p>The Bidder should demonstrate the proposed Principal Investigator's previous experience in the development and modification of an IUM for at least one Canadian city within the past 10 years that is capable of predicting changes in land use and transportation and their impact on urban sustainability, as well as social and economic indicators.</p> <p>To meet this requirement, the IUM must be capable of predicting economic indicators (costs associated with transportation infrastructure maintenance, commuter costs, and costs due to health impacts of transportation); social indicators (commute time, commute distance, congestion, accessibility of downtown core, accessibility of services, and land use mix), and sustainability (greenspace, fossil fuel consumption, and air pollution)</p> <p><b>Point Rating Scale:</b> Refer to <b>Table 2</b>, Point Rating Scale for R2</p>		0-10
--------------	-----------------------	---	--	------

**TABLE 2 - POINT RATING SCALE FOR R2: This Point Rating Scale will be used to evaluate R2.1 to R2.15**

For previous experience that meets this requirement based on work done in one or more of the Canadian cities included in the Work, a maximum of 10 points are available as detailed in Part 1 below.

For previous experience that meets this requirement based on work done in other Canadian cities NOT included in the Work, a maximum of 5 points are available as detailed in Part 2 below.

**Bidders may combine experience that meets the requirements under Part 1 and Part 2 to a total maximum of 10 points. Experience in addition to the maximum will not be rated.**

1. For previous experience developing an IUM that meets this requirement in one or more of the Canadian cities included in the Work (i.e., Calgary AB, Halifax NS, London ON, Ottawa ON, and Vancouver BC). [Maximum of 10 points]
  - a. 5 points for each city in which the PI has developed or modified an IUM described in a peer reviewed journal article in which the PI was first author or corresponding author;
  - b. 3 points for each city in which the PI has developed or modified an IUM described in a peer reviewed journal article in which the PI was a co-author **(excluding cities awarded points in part 1a)**;
  - c. 3 points for each city in which the PI has developed or modified an IUM described in conference proceedings, book chapter, or government report in which the PI was a co-author **(excluding cities awarded points in part 1a or 1b)**;
  - d. 1 point for each city in which the PI has developed or modified an IUM described in the list of relevant projects provided by the bidder **(excluding cities awarded points in part 1a, 1b, or 1c)**.

2. For previous experience developing an IUM that meets this requirement for other Canadian cities NOT included in the Work (i.e., for cities OTHER than Calgary AB, Halifax NS, London ON, Ottawa ON, and Vancouver BC). [Maximum of 5 points]
- a. 3 points for each city in which the PI has developed or modified an IUM described in a peer reviewed journal article in which the PI was first author or corresponding author;
  - b. 1 point for each city in which the PI has developed or modified an IUM described in a peer reviewed journal article in which the PI was a co-author **(excluding cities awarded points in part 2a)**
  - c. 1 point for each city in which the PI has developed or modified an IUM described in conference proceedings, book chapter, or government report in which the PI was a co-author **(excluding cities awarded points in part 2a or 2b)**.
  - d. 0.5 points for each city in which the PI has developed or modified an IUM described in the list of relevant projects provided by the bidder **(excluding cities awarded points in part 2a, 2b, or 2c)**.

## SECTION 3

**Attention Bidders : The point rated criteria below will be used to evaluate the Project Proposal submitted by the Bidder. Write beside each of the criteria the relevant page number(s) from your proposal which addresses the requirement identified in the criteria.**

Criteria No.	Rated Criteria	Point Rating Scale	Max Score	Page No.
R3.1	<p>The Bidder should submit a Project Proposal demonstrating the bidder's Project and Task Management Plan. The Project and Task Management Plan should be consistent with the SOW and should include the following items:</p> <p>R3.1.1) Break down of the work into separate tasks, including a high level summary of each task, and a timeline for completion of all project milestones.</p> <p>R3.1.2) Personnel allocation including background and / or expertise and expected role in the project, as well as Curricula Vitae for all key personnel.</p> <p>R3.1.3) Level of effort including total effort and a breakdown of anticipated effort for each task broken down by the personnel allocated to each task.</p> <p>R3.1.4) Identification of risks and challenges including areas identification of risks and challenges not included in the posted SOW.</p> <p>R3.1.5) Mitigation strategies for risks and challenges to ensure successful completion of the project.</p>	<p>0 points: No response</p> <p>1 point: The proposal does not address 5 of the 5 sub-elements (R3.1.1-5), or includes all of the sub-elements but with major deficiencies in the content, clarity, or scientific soundness for 5 of the 5 sub-elements of the proposal.</p> <p>2 points: The proposal does not address 4 of the 5 sub-elements (R3.1.1-5), or includes all of the sub-elements but with major deficiencies in the content, clarity, or scientific soundness for 4 of the 5 sub-elements of the proposal, and with minor deficiencies in the sub-element that does not have major deficiencies.</p> <p>3 points: The proposal does not address 4 of the 5 sub-elements (R3.1.1-5), or includes all of the sub-elements but with major deficiencies in the content, clarity, or scientific soundness for 4 of the 5 sub-elements of the proposal.</p> <p>4 points: The proposal does not address 3 of the 5 sub-elements (R3.1.1-5), or includes all of the sub-elements but with major deficiencies in the content, clarity, or scientific soundness for 3 of the 5 sub-elements of the proposal, and with minor deficiencies in any of the sub-elements that do not have major deficiencies.</p> <p>5 points: The proposal does not address 3 of the 5 sub-elements (R3.1.1-5), or includes all of the sub-elements but with major deficiencies in the content, clarity, or scientific soundness for 3 of the 5 sub-elements of the proposal.</p>	15	

		<p>6 points: The proposal does not address 2 of the 5 sub-elements (R3.1.1-5), or includes all of the sub-elements but with major deficiencies in the content, clarity, or scientific soundness for 2 of the 5 sub-elements of the proposal, and with minor deficiencies in any of the sub-elements that do not have major deficiencies.</p> <p>7 points: The proposal does not address 2 of the sub-elements (R3.1.1-5), or includes all of the sub-elements but with major deficiencies in the content, clarity, or scientific soundness for 2 of the 5 sub-elements of the proposal.</p> <p>8 points: The proposal does not address 1 of the 5 sub-elements (R3.1.1-5), or includes all of the sub-elements but with major deficiencies in the content, clarity, or scientific soundness for 2 of the 5 sub-elements of the proposal, and with minor deficiencies in the sub-element that does not have major deficiencies.</p> <p>9 points: The proposal does not address 1 of the sub-elements (R3.1.1-5), or includes all of the sub-elements but with major deficiencies in the content, clarity, or scientific soundness for 1 of the 5 sub-elements of the proposal.</p> <p>10 points: The proposal addresses all of the required sub-elements (R3.1.1-5) with no major deficiencies; however there are minor deficiencies in the content, clarity, or scientific soundness for 5 of the 5 sub-elements of the proposal.</p> <p>11 points: The proposal addresses all of the required sub-elements (R3.1.1-5) with no major deficiencies; however there are minor deficiencies in the content, clarity, or scientific soundness for 4 of the 5 sub-elements of the proposal.</p> <p>12 points: The proposal addresses all of the required sub-elements (R3.1.1-5) with no major deficiencies; however there are minor deficiencies in the content, clarity, or scientific soundness for 3 of the 5 sub-elements of the proposal.</p> <p>13 points: The proposal addresses all of the required sub-elements (R3.1.1-5) with no major deficiencies; however there are</p>		
--	--	--	--	--

		<p>minor deficiencies in the content, clarity, or scientific soundness for 2 of the 5 sub-elements of the proposal.</p> <p>14 points: The proposal addresses all of the required sub-elements (R3.1.1-5) with no major deficiencies; however there are minor deficiencies in the content, clarity, or scientific soundness for 1 of the 5 sub-elements of the proposal.</p> <p>15 points: The proposal addresses all of the required sub-elements (R3.1.1-5) clearly and comprehensively, and is scientifically sound, with no major or minor deficiencies in any of the sub-elements of the proposal.</p>		
<p><b>R3.2</b></p>	<p>The Bidder should submit a Project Proposal clearly outlining its proposed Technical Approach and Research Strategy as it relates to the requirements of the Statement of Work. Sufficient detail should be provided to demonstrate the Bidder's grasp of the requirement and the Bidder's ability to meet it. The Technical Approach and Research Strategy should include, but not be limited to the following;</p> <p>R3.2.1) Description of background information on IUM methodologies that will be used in this work (i.e., a brief IUM literature review that provides context for the bidder's proposed strategy for completing the Work). [2 points]</p> <p>R3.2.2) Description of specific methodologies that will be used to carry out the work including:</p> <p>a) acquisition of input and evaluation data (provide data type and sources); [2 points]</p> <p>b) development of IUMs consistent with the SOW provided for this Work including description of the previously developed IUM model(s) that the bidder plans to adapt for</p>	<p>Proposals will be evaluated with respect to the clarity, completeness or scientific soundness of the proposed methodologies / technical approach and research strategy; and how well the proposal demonstrates the Bidder's grasp of the requirement and the Bidder's ability to meet it.</p> <p><b>R3.2.1: 2 points total</b></p> <ul style="list-style-type: none"> <li>• 0 points: No response or major deficiencies in R3.2.1</li> <li>• 1 point: Minor deficiencies in R3.2.1</li> <li>• 2 points: No deficiencies in R3.2.1</li> </ul> <p><b>R3.2.2: 10 points total</b></p> <ul style="list-style-type: none"> <li>• <b>R3.2.2a: 2 points total</b></li> <li>• 0 points: No response or major deficiencies in R3.2.2a</li> <li>• 1 point: Minor deficiencies in R3.2.2a</li> <li>• 2 points: No deficiencies in R3.2.2a</li> <li>• <b>R3.2.2b: 3 points total</b></li> <li>• 0 points: No response or major deficiencies in R3.2.2b</li> <li>• 1 point: Minor deficiencies in R3.2.2b</li> <li>• 2 points: No deficiencies in R3.2.2b</li> </ul>	<p>15</p>	

	<p>this work, or an alternative strategy for developing an IUM that meets the specifications in the SOW within the project budget; [3 points]</p> <p>c) evaluation of IUM's consistent with the SOW provided for this Work; [3 points]</p> <p>d) interaction with stakeholders (i.e., plan for initial engagement as well as planning of educational webinar). [2 points]</p> <p>R3.2.3) The Bidder should submit a Project Proposal with a description of the reports and deliverables to be provided to Health Canada. [3 points]</p>	<ul style="list-style-type: none"> <li>• 3 points: Exemplary description of element required for R3.2.2b</li> <li>• <b>R3.2.2c: 3 points total</b></li> <li>• 0 points: No response or major deficiencies in R3.2.2c</li> <li>• 1 point: Minor deficiencies in R3.2.2c</li> <li>• 2 points: No deficiencies in R3.2.2c</li> <li>• 3 points: Exemplary description of element required for R3.2.2c</li> <li>• <b>R3.2.2d: 2 points total</b></li> <li>• 0 points: No response or major deficiencies in R3.2.2d</li> <li>• 1 point: Minor deficiencies in R3.2.2d</li> <li>• 2 points: No deficiencies in R3.2.2d</li> <li>• <b>R3.2.3: 3 points total</b></li> <li>• 0 points: No response or major deficiencies in R3.2.3</li> <li>• 1 point: Minor deficiencies in R3.2.3</li> <li>• 2 points: No deficiencies in R3.2.3</li> <li>• 3 points: Exemplary description of element required for R3.2.3</li> </ul>		
--	---	--	--	--



**ATTACHMENT 3**

**STUDY OR PROJECT DESCRIPTION FORMS**

**1. Study or Project Description Form**

In the format outlined below, the bidder should provide a description of the relevant study(ies) or project(s), as applicable, identified to in response to the Mandatory Technical Criteria and Point Rated Technical Criteria. The Bidder should submit one form per study/project and add space as necessary to fully describe the required information.

<b>Bidder's Name:</b>			
<b>Study or Project Title:</b>			
<b>Study or Project Duration (Date: yyyy/mm/dd)</b>	<b>Commencement Date:</b>	<b>Completion Date:</b>	
<b>Client (if applicable):</b>		<b>Study or Project Total Dollar Value:</b>	\$
<b>Location of the Study or Project:</b>			
<b>Description of the Study or Project:</b>			
<b>Objectives:</b>			
<b>Scope and Tasks:</b>			
<b>Outcome or Result:</b>			
<b>Citation:</b>			

## PART 5 - CERTIFICATIONS

Bidders must provide the required certifications and documentation to be awarded a contract.

The certifications provided by bidders to Canada are subject to verification by Canada at all times. Unless specified otherwise, Canada will declare a bid non-responsive, or will declare a contractor in default, if any certification made by the Bidder is found to be untrue, whether made knowingly or unknowingly, during the bid evaluation period or during the contract period.

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

### 5.1. Certifications Required with the Bid

Bidders must submit the following duly completed certifications as part of their bid.

#### 5.1.1 Integrity Provisions - Declaration of Convicted Offences

In accordance with the Integrity Provisions of the Standard Instructions, all bidders must provide with their bid, if applicable, the Integrity declaration form available on the Forms for the Integrity Regime website (<http://www.tpsgc-pwgsc.gc.ca/ci-if/declaration-eng.html>), to be given further consideration in the procurement process.

### 5.2. Certifications Precedent to Contract Award and Additional Information

The certifications and additional information listed below should be submitted with the bid but may be submitted afterwards. If any of these required certifications or additional information is not completed and submitted as requested, the Contracting Authority will inform the Bidder of a time frame within which to provide the information. Failure to provide the certifications or the additional information listed below within the time frame specified will render the bid non-responsive.

#### 5.2.1 Integrity Provisions – Required Documentation

In accordance with the Ineligibility and Suspension Policy, the Bidder must provide the required documentation, as applicable. Consult sections 4.21, 5.16 and 8.70.2 of the Supply Manual for additional information.

In accordance with the section titled Information to be provided when bidding, contracting or entering into a real procurement agreement of the Ineligibility and Suspension Policy (<http://www.tpsgc-pwgsc.gc.ca/ci-if/politique-policy-eng.html>), the Bidder must provide the required documentation, as applicable, to be given further consideration in the procurement process.

#### 5.2.2 Federal Contractors Program for Employment Equity - Bid Certification

By submitting a bid, the Bidder certifies that the Bidder, and any of the Bidder's members if the Bidder is a Joint Venture, is not named on the Federal Contractors Program (FCP) for employment equity "FCP Limited Eligibility to Bid" list available at the bottom of the page of the Employment and Social Development Canada (ESDC) - Labour's website (<https://www.canada.ca/en/employment-social-development/programs/employment-equity/federal-contractor-program.html#>).

Canada will have the right to declare a bid non-responsive if the Bidder, or any member of the Bidder if the Bidder is a Joint Venture, appears on the "FCP Limited Eligibility to Bid list at the time of contract award.

## **5.2.3 Additional Certifications Required Precedent to Contract Award**

### **5.2.3.1 Language Capability**

The Bidder certifies that it has the language capability required to perform the Work, as stipulated in the Statement of Work.

### **5.2.3.2 Status and Availability of Resources**

The Bidder certifies that, should it be awarded a contract as a result of the bid solicitation, every individual proposed in its bid will be available to perform the Work as required by Canada's representatives and at the time specified in the bid solicitation or agreed to with Canada's representatives. If for reasons beyond its control, the Bidder is unable to provide the services of an individual named in its bid, the Bidder may propose a substitute with similar qualifications and experience. The Bidder must advise the Contracting Authority of the reason for the substitution and provide the name, qualifications and experience of the proposed replacement. For the purposes of this clause, only the following reasons will be considered as beyond the control of the Bidder: death, sickness, maternity and parental leave, retirement, resignation, dismissal for cause or termination of an agreement for default.

If the Bidder has proposed any individual who is not an employee of the Bidder, the Bidder certifies that it has the permission from that individual to propose his/her services in relation to the Work to be performed and to submit his/her résumé to Canada. The Bidder must, upon request from the Contracting Authority, provide a written confirmation, signed by the individual, of the permission given to the Bidder and of his/her availability. Failure to comply with the request may result in the bid being declared non-responsive.

### **5.2.3.3 Education and Experience**

The Bidder certifies that all the information provided in the résumés and supporting material submitted with its bid, particularly the information pertaining to education, achievements, experience and work history, has been verified by the Bidder to be true and accurate. Furthermore, the Bidder warrants that every individual proposed by the Bidder for the requirement is capable of performing the Work described in the resulting contract.

## PART 6 - RESULTING CONTRACT CLAUSES

The following clauses and conditions apply to and form part of any contract resulting from the bid solicitation.

### 6.1. Statement of Work

The Contractor must perform the Work in accordance with the Statement of Work at Annex A and the Contractor's technical bid entitled TBD, dated TBD.

#### 6.1.1 Optional Goods or Services

The Contractor grants to Canada the irrevocable option to acquire the goods, services or both described at article 2.1.4.1 and 2.1.4.2 of the Statement in Work in Annex A 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, through a contract amendment.

The Contracting Authority may exercise the option at any time before the expiry of the Contract by sending a written notice to the Contractor.

### 6.2. Standard Clauses and Conditions

All clauses and conditions identified in the Contract by number, date and title are set out in the *Standard Acquisition Clauses and Conditions* Manual issued by Public Works and Government Services Canada (PWGSC). The Manual is available on the PWGSC Website: <http://sacc.pwgsc.gc.ca/sacc/index-e.jsp>.

#### 6.2.1 General Conditions

2040 (2016-04-04), General Conditions – Research and Development, apply to and form part of the Contract.

#### 6.2.2 Supplemental General Conditions

4002 (2010-08-16), Supplemental General Conditions - Software Development or Modification Services.

### 6.3. Security Requirement

There is no security requirement associated with this contract.

### 6.4. Term of Contract

#### 6.4.1 Period of Contract

The period of the Contract is from date of Contract award up to and including March 31, 2020.

#### 6.4.2 Option to Extend the Contract

The Contractor grants to Canada the irrevocable option to extend the term of the Contract by up to 1 additional 1 year period under the same conditions. The Contractor agrees that, during the extended period of the Contract, it will be paid in accordance with the applicable provisions as set out in the Basis of Payment.

Canada may exercise this option at any time by sending a written notice to the Contractor prior to the Contract expiry date. The option may only be exercised by the Contracting Authority, and will be evidenced for administrative purposes only, through a contract amendment.

## **6.5. Authorities**

### **6.5.1 Contracting Authority**

The Contracting Authority for the Contract is:

Heather Wilson  
Supply Team Leader  
Public Works and Government Services Canada  
Acquisitions Branch  
Life and Earth Sciences Division  
Place du Portage, Phase III, 11C1  
11 Laurier Street  
Gatineau, Quebec, K1A 0S5

Telephone: 873-469-4791  
E-mail address: [heather.wilson@pwgsc.gc.ca](mailto:heather.wilson@pwgsc.gc.ca)

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.

### **6.5.2 Technical Authority**

The Technical Authority for the Contract is:

*To be identified upon contract award*

The Technical Authority is the representative of the department or agency for whom the Work is being carried out under the Contract and is responsible for all matters concerning the technical content of the Work under the Contract. Technical matters may be discussed with the Technical Authority; however, the Technical Authority has no authority to authorize changes to the scope of the Work. Changes to the scope of the Work can only be made through a contract amendment issued by the Contracting Authority.

### **6.5.3 Contractor's Representative**

*To be identified upon contract award*

## **6.6. Proactive Disclosure of Contracts with Former Public Servants**

By providing information on its status, with respect to being a former public servant in receipt of a [Public Service Superannuation Act](#) (PSSA) pension, the Contractor has agreed that this information will be reported on departmental websites as part of the published proactive disclosure reports, in accordance with [Contracting Policy Notice: 2012-2](#) of the Treasury Board Secretariat of Canada.

## **6.7. Payment**

### **6.7.1 Basis of Payment – Firm Price**

In consideration of the Contractor satisfactorily completing all of its obligations under the Contract, the Contractor will be paid firm all-inclusive lot prices as specified in Annex B, Basis of Payment for a total cost of \$\_\_\_\_\_ (**amount to be inserted at contract award**). Customs duties are included and Applicable Taxes are extra.

Canada will not pay the Contractor for any design changes, modifications or interpretations of the Work, unless they have been approved, in writing, by the Contracting Authority before their incorporation into the Work.

## **6.7.2 Method of Payment**

### **6.7.2.1 Milestone Payments**

Canada will make milestone payments in accordance with Annex B, Basis of Payment of the Contract and the payment provisions of the Contract if:

- (a) an accurate and complete claim for payment using PWGSC-TPSGC 1111, Claim for Progress Payment, and any other document required by the Contract have been submitted in accordance with the invoicing instructions provided in the Contract;
- (b) all the certificates appearing on form PWGSC-TPSGC 1111 have been signed by the respective authorized representatives;
- (c) all work associated with the milestone and as applicable any deliverable required has been completed and accepted by Canada.

### **6.7.3 SACC Manual Clauses**

A9117C (2007-11-30), T1204 - Direct Request by Customer  
C2000C (2007-11-30), Taxes - Foreign-based Contractor  
H4500C (2010-01-11), Lien - Section 427 of the Bank Act

## **6.8. Invoicing Instructions - Progress Claim**

1. The Contractor must submit a claim for payment using form PWGSC-TPSGC 1111, Claim for Progress Payment.

Each claim must show:

- (a) all information required on form PWGSC-TPSGC 1111;
- (b) all applicable information detailed under the section entitled "Invoice Submission" of the general conditions;
- (c) the description and value of the milestone claimed as detailed in the Contract.

Each claim must be supported by:

- (a) a copy of the applicable report(s).
2. The Contractor must prepare and certify one original and 2 copies of the claim on form PWGSC-TPSGC 1111, and forward it to the Contracting Authority identified under the section entitled "Authorities" of the Contract for appropriate certification after inspection and acceptance of the Work takes place.

The Contracting Authority will then forward the original and 2 copies of the claim to the Technical Authority for certification and onward submission to the Payment Office for the remaining certification and payment action.

3. The Contractor must not submit claims until all work identified in the claim is completed.

## **6.9. Certifications**

### **6.9.1 Compliance**

Compliance with the certifications provided by the Contractor in its bid is a condition of the Contract and subject to verification by Canada during the entire contract period. If the Contractor does not comply with any certification or it is determined that any certification made by the Contractor in its bid is untrue, whether made knowingly or unknowingly, Canada has the right, pursuant to the default provision of the Contract, to terminate the Contract for default.

### **6.10. Applicable Laws**

The Contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in \_\_\_\_\_ **(to be inserted at contract award)**.

### **6.11. Priority of Documents**

If there is a discrepancy between the wording of any documents that appear on the list, the wording of the document that first appears on the list has priority over the wording of any document that subsequently appears on the list.

- (a) the Articles of Agreement;
- (b) the general conditions 2040 (2016-04-04) General Conditions – Research and Development;
- (c) Annex A, Statement of Work;
- (d) Annex B, Basis of Payment;
- (e) the Contractor's bid dated \_\_\_\_\_.

### **6.12. Foreign Nationals**

SACC Manual clause A2000C (2006-06-16), Foreign Nationals (Canadian Contractor)

-OR-

SACC Manual clause A2001C (2006-06-16), Foreign Nationals (Foreign Contractor)

### **6.13. Insurance - No Specific Requirement**

The Contractor is responsible for deciding if insurance coverage is necessary to fulfill its obligation under the Contract and to ensure compliance with any applicable law. Any insurance acquired or maintained by the Contractor is at its own expense and for its own benefit and protection. It does not release the Contractor from or reduce its liability under the Contract.

### **6.14. Safeguarding Electronic Media**

- (a) Before using them on Canada's equipment or sending them to Canada, the Contractor must use a regularly updated product to scan electronically all electronic media used to perform the Work for computer viruses and other coding intended to cause malfunctions. The Contractor must notify Canada if any electronic media used for the Work are found to contain computer viruses or other coding intended to cause malfunctions.
- (b) If magnetically recorded information or documentation is damaged or lost while in the Contractor's care or at any time before it is delivered to Canada in accordance with the Contract, including accidental erasure, the Contractor must immediately replace it at its own expense.

## ANNEX A

### STATEMENT OF WORK

#### 1.Scope

##### 1.1. Title

Integrated Urban Modeling (IUM) For Decision-Making and Policy Guidance: Extensions and Application of a Simulation Tool for Urban Change, Air Quality and Associated Health Impacts

##### 1.2. Introduction

In support of the federal government's Budget 2016 announcement of plans to take action to address air pollution in Canada, Health Canada provides health science and health-based guidance which underpins actions to reduce air pollution. In the context of new transportation initiatives also announced in the budget, and the significant contribution that transportation emissions make to air pollution in Canada, Health Canada is responsible for conducting risk assessments of emissions from vehicle transport, and for providing guidance to Environment and Climate Change Canada (ECCC) and Transport Canada (TC) on optimum approaches to reducing the health impact of air pollution. HC is also responsible for providing information to provinces and their delegates through the Air Quality Management System and the Mobile Source Working Group.

In order to fulfil these functions, Health Canada requires analysis of the impacts of changes in land use and transportation systems in Canadian cities on exposure to air pollution, as a means to calculating the relevant health impacts on the Canadian population. The Integrated Urban Modeling (IUM) platform must meet Health Canada specifications for local transportation, land use, economic and travel activity, as well as air pollution, health, and economic indicators, to provide local scale scenario modeling that will complement other tools Health Canada has previously developed related to health benefits. The platform will be an accessible, user friendly tool for evaluating alternate urban planning, policy, transportation, and public health decisions that Health Canada will use to support evidence based decision making on transportation by ECCC, TC and the Mobiles Sources Working Group.

##### *(i) Background*

Planning modern cities requires complex models that integrate socio-economic, traffic and land use data that create a comprehensive framework to understand the inter-dependencies between land use and transportation systems. Integrated urban models (IUMs) operate as a well-established virtual laboratory to tease out the impacts of land use policies on transportation and vice versa. IUMs can also be coupled with environmental emission models to determine vehicle emissions across the transportation network. This Work will develop an IUM that can estimate air pollution impacts in the context of a comprehensive set of urban exposure, health and economic indicators.

While previous IUMs are specific to individual municipalities, this Work will develop an IUM platform that is transferable across Canadian cities. The Work will focus on simulating the impacts of land use (e.g. built-environment) or transportation system changes (e.g. type of vehicle fuel, or route changes) on ambient air quality, exposure to air pollution, and associated economic, social, and health impacts, in an easily interpretable visual format. The IUM platform will facilitate decision making that accounts for vulnerable demographics (e.g., children and the elderly) and at-risk neighborhoods. Additional efforts will focus on testing the impacts of land use and transportation changes in a series of diverse Canadian cities to ensure the transferability of the IUM platform.



### 1.3. Objectives of the Requirement

The following goals are sought:

1. Advance the current state of knowledge on the efficacy of various land use and transportation policies to achieve progress towards sustainable outcomes in Canadian cities.
2. Promote application of the IUM platform in cities across Canada by identifying default model parameters that can be used by city planners to achieve reliable predictions when simulating different land use and transportation processes, and examining the transferability of model parameters from one city to another, allowing HC to use these models to run simulations for various cities.
3. Develop the sustainability model of the IUM platform to allow it to calculate a variety of urban sustainability indicators, including air pollution exposure and health indicators that have not been used in previous IUMs.
4. Support local decision making and policy development by providing provincial and municipal agencies with an IUM platform and training to provide input into, and participate in the development of action to address air pollution through the simulations of land use and transportation scenarios.

### 1.4. Background

The sharp growth in travel demand over the past 60 years has been associated with a number of negative outcomes that affect the quality of life in urban areas.

In Canada, many cities are experiencing traffic congestion problems, noise pollution and degradation of air quality due to the large number of vehicles using the roads on a daily basis. Ongoing suburbanization, sprawl and noticeably longer commuting patterns in many cities are the outcomes of several complex and dynamic processes. These complexities increase the challenge of urban planning. One approach to gain insights into the complexities of urban systems has been to develop and apply IUMs (Kanaroglou and Scott, 2002; Miller et al., 2004). Such models are sophisticated computer simulation programs that act as a virtual laboratory to imitate the dynamics of urban land use activities and travel patterns.

IUMs have the ability to characterize feedback loops between land use and transportation systems allowing them to answer specific what-if questions through scenario simulations. IUMs enable the analyst to evaluate the impacts of alternative urban growth and/or transportation infrastructure scenarios relative to a baseline scenario. This is done by altering the factor(s) representing the policy while holding other characteristics of the city constant. Traditionally, outputs from the simulated scenarios represented basic measures such as vehicle kilometres traveled (VKT), vehicle minutes traveled (VMT) and road congestion (i.e. volume to capacity ratio).

Since the 1990s, there have been a few notable efforts to extend IUM outputs to evaluate urban sustainability. The purpose is to assess which land use and/or transport policies will maximize social and economic benefits and minimize negative environmental impacts. These extensions focused on devising tools that considered a variety of themes including:

- 1) climate change, air pollution, consumption of natural resources and environmental quality to represent the environmental pillar;
- 2) health, equity, opportunity, accessibility and traffic to represent the social pillar; and
- 3) total net benefits to represent the economic pillar (Spiekermann and Wegener, 2004; Lautso and Toivanen 1999). The generated indicators were standardized to allow the decision maker to perform meaningful comparisons across various alternative scenarios.

## 2. Requirements

### 2.1. Tasks, Activities, Deliverables and Milestones

#### 2.1.1.Tasks

To meet Health Canada's specifications for the IUM platform, the following tasks must be completed:

2.1.1.1 The Contractor must draft a letter to stakeholders introducing the project and soliciting input from state holders in all cities covered by the work. Stakeholders must include municipal planning offices, as well as municipal air quality offices, air zone managers and public health officials, if feasible. Input solicited via the draft letter must include feedback on IUM indicators. Further input may be solicited by other means – i.e., in person, by phone, or via email; all input must be documented in email and confirmed by the stakeholders. The Contractor must provide the draft letter to Health Canada for review and approval of content and stakeholder distribution list prior to circulation.

2.1.1.2 The Contractor must enable the IUM platform to generate a comprehensive set of urban health indicators and use data from land use regression (LUR) models to create air pollution exposure surfaces. The Contractor must include all the sustainability indicators reported in Tables 1 and 2 below in the IUM platform. The Contractor must, if feasible, add new indicators based on stakeholder feedback to the list from Table 1a-b and 2. The contractor must provide the list of revised indicators to Health Canada for review and approval.

**Table 1a. List of Sustainability Indicators to Include in the IUM\***

THEME	INDICATOR	DEFINITION
Transportation and Mobility	Vehicle kilometers traveled (VKT)	Total VKT per 1000 residents
	Vehicle minutes traveled (VMT)	Total VMT per 1000 residents
	Accessibility to CBD	Average travel time to city centre
	Congestion index	Average level of congestion in the city
Air Quality	Fine particulate matter (PM <sub>2.5</sub> )	Dissemination Block average (µg/m <sup>3</sup> ) and total level per 1000 residents (kg)
	Ozone (O <sub>3</sub> )	Dissemination Block average (µg/m <sup>3</sup> ) and total level per 1000 residents (kg)
	Volatile organic compounds (VOC)	Dissemination Block average (µg/m <sup>3</sup> ) and total level per 1000 residents (kg)
	Nitrogen oxides (NO <sub>x</sub> )	Dissemination Block average (µg/m <sup>3</sup> ) and total level per 1000 residents (kg)
	Sulphur dioxide (SO <sub>2</sub> )	Dissemination Block average (µg/m <sup>3</sup> ) and total level per 1000 residents (kg)
Environment	Greenhouse gases	Total level of carbon dioxide emissions
	Energy use from fossil fuels	Liters of gasoline and diesel consumed per 1000 residents
	Consumption of greenspace	Arable land (km <sup>2</sup> ) converted for urban land uses
Health and Wellbeing	Air Quality Health Index (AQHI)	Total exposed to air pollution levels with moderate, high and very high levels of risk per 1000 residents
	Vulnerability AQHI	Risk estimates weighted geographically by number of children and elderly

	AQBAT health effects	Health outcomes estimated with concentration response functions from Air Quality Benefits Assessment Tool
	Walkability index	Average and area specific levels of walkability from land use
	Traffic injuries	Number of traffic injures per 1000 residents
	Traffic deaths	Number of deaths per 1000 residents
	Accessibility to health services	Average potential accessibility
Economic	Transport commuting costs	Overall costs of commuting
	Transport external costs	Total dollars due to externalities associated with health (traffic injuries and death, as well as air pollution morbidity and mortality)
	AQBAT health valuations (Table 2)	Economic costs of air quality associated with health care utilization and lost productivity based on outcomes in Table 2

\*The IUM must calculate travel demand predictions for three periods: AM Peak, Day, and PM Peak.

**Table 1b. List of Other Indicators to Include in the IUM\***

<ul style="list-style-type: none"> <li>- traffic volumes</li> <li>- road link emission levels of CO, O3, SO2, NOx, HC, PM<sub>2.5</sub> and PM<sub>10</sub></li> <li>- the amount of gasoline consumed due to passenger traffic</li> <li>- consumption of green space due to urban development.</li> <li>- the number of people exposed to harmful levels of NOx and CO</li> <li>- traffic injuries and deaths</li> <li>- land use mix (broken down by area)</li> <li>- accessibility to downtown</li> <li>- accessibility to services</li> <li>- total dollars spent on building or maintaining road infrastructure</li> <li>- total amount (in dollars) associated with traffic injuries and deaths</li> <li>- total amount (in dollars) associated with air pollution health impacts</li> <li>- land prices</li> <li>- amount of developed land by land use type</li> <li>- population size by age and sex</li> <li>- number of jobs by industrial sector</li> </ul>
---

\*The IUM must calculate travel demand predictions for three periods: AM Peak, Day, and PM Peak.

**Table 2: Health Endpoints in AQBAT**

Health Indicators	Time Period	Contributing Pollutants and Annual Averaging Times
Acute Exposure Mortality	Acute	24-hr NO <sub>x</sub> , 1- hr O <sub>3</sub> , 24-hr SO <sub>2</sub>
Chronic Exposure Mortality	Chronic	24-hr PM <sub>2.5</sub>
Cardiovascular Mortality	Chronic	24-hr PM <sub>2.5</sub>
Respiratory Mortality	Chronic	24-hr PM <sub>2.5</sub>
Cerebrovascular Mortality	Chronic	24-hr PM <sub>2.5</sub>
Ischemic Heart Disease Mortality	Chronic	24-hr PM <sub>2.5</sub>
Lung Cancer Mortality	Chronic	24-hr PM <sub>2.5</sub>
Acute Respiratory Symptom Days	Acute	1-hr O <sub>3</sub> (May-Sep), 24-hr PM <sub>2.5</sub>

Minor Restricted Activity Days	Acute	1-hr O <sub>3</sub> (May-Sep)
Restricted Activity Days	Acute	24-hr PM <sub>2.5</sub>
Cardiac Emergency Room Visits	Acute	24-hr PM <sub>2.5</sub>
Cardiac Hospital Admissions	Acute	24-hr PM <sub>2.5</sub>
Elderly Cardiac Hospital Admissions	Acute	24-hr PM <sub>2.5</sub>
Respiratory Emergency Room Visits	Acute	1-hr O <sub>3</sub> (May-Sep), 24-hr PM <sub>2.5</sub>
Respiratory Hospital Admissions	Acute	1-hr O <sub>3</sub> (May-Sep), 24-hr PM <sub>2.5</sub>
Adult Chronic Bronchitis Cases	Chronic	24-hr PM <sub>2.5</sub>
Asthma Symptom Days	Acute	1-hr O <sub>3</sub> (May-Sep), 24-hr PM <sub>2.5</sub>
Child Acute Bronchitis Episodes	Chronic	24-hr PM <sub>2.5</sub>

- 2.1.1.3 The Contractor must configure the IUM platform (version 1.0) for Halifax and London by transferring, validating and re-calibrating the land use model of Halifax to London and the transportation model of London to Halifax. For the latter task, the Contractor must simulate passenger trips on the road network. For both tasks, validation must be conducted using data specific to the destination city, and must be conducted in accordance with previously published methods or another method approved by Health Canada.
- 2.1.1.4 The Contractor must upgrade the IUM platform (from version 1.0 to version 2.0) by enabling IUM platform to generate air pollution exposure surfaces using an Artificial Neural Network (ANN) extension and integrating a micro-population synthesis extension. The Contractor must also extend the transportation model in the IUM platform (version 2.0) to simulate intra-urban commercial vehicle trips on the road network.
- 2.1.1.5 The contractor must solicit input from stakeholders in London and Halifax on scenarios of interest with respect to policy and land use development. This input must be documented in email and confirmed by the stakeholders. The contractor must use the IUM platform (version 1.0) to simulate two land use and transportation scenarios defined based on the solicited stakeholder's input. The Contractor must analyze and report the results from those simulations. The report must include the following:
- 1) full description of the modelling methods;
  - 2) background on the issues under consideration;
  - 3) summary of the alternative scenarios modelled;
  - 4) summary of the assumptions and corresponding parameter values;
  - 5) full results for each alternate scenario -- i.e., tables describing the values for each indicator for each alternate scenario and text describing those results; and
  - 6) interpretation of the results, including a comparison of results across alternate scenarios and the relative importance of those differences.
- 2.1.1.6 The Contractor must transfer, validate and re-calibrate the parameters used to configure the London and Halifax models for Vancouver. Validation must be conducted using data specific to Vancouver, and must be conducted in accordance with previously published methods or another method approved by Health Canada.
- 2.1.1.7 The contractor must solicit input from stakeholders in Vancouver on scenarios of interest with respect to policy and land use development. This input must be documented in email and confirmed by the stakeholders. The Contractor must use the IUM platform (version 2.0) to simulate a number of scenarios for Vancouver based on that input. The Contractor must analyze and report the results from those simulations. The report must include the following:
- 1) full description of the modelling methods;

- 2) background on the issues under consideration;
- 3) summary of the alternative scenarios modelled;
- 4) summary of the assumptions and corresponding parameter values;
- 5) full results for each alternate scenario -- i.e., tables describing the values for each indicator for each alternate scenario and text describing those results; and
- 6) interpretation of the results, including a comparison of results across alternate scenarios and the relative importance of those differences.

2.1.1.8 The Contractor must upgrade the IUM platform (from version 2.0 to version 3.0) by extending the transportation model to allow users to edit the road network (i.e. adding and/or deleting road links) through a GIS mapping interface. The upgraded network editor must be interactive and enable the software to rebuild the network topology information required to perform traffic assignments.

2.1.1.9 The Contractor must configure the IUM platform (version 3.0) for Ottawa by transferring, validating and re-calibrating the models from the Halifax, London and Vancouver.

## 2.1.2 Optional Tasks

2.1.2.1 The contractor must solicit input from stakeholders in Ottawa on scenarios of interest with respect to policy and land use development. This input must be documented in email and confirmed by the stakeholders. The Contractor must use the IUM platform to simulate a number of scenarios for Ottawa based on that input. The Contractor must analyze and report the results from those simulations. The report must include the following:

- 1) full description of the modelling methods;
- 2) background on the issues under consideration;
- 3) summary of the alternative scenarios modelled;
- 4) summary of the assumptions and corresponding parameter values;
- 5) full results for each alternate scenario -- i.e., tables describing the values for each indicator for each alternate scenario and text describing those results; and
- 6) interpretation of the results, including a comparison of results across alternate scenarios and the relative importance of those differences.

2.1.2.2 The Contractor must configure the IUM platform (version 3.0) for Calgary by transferring, validating and re-calibrating the parameters from Ottawa. Validation must be conducted using data specific to Ottawa, and must be conducted in accordance with previously published methods or another method approved by Health Canada.

2.1.2.3 The contractor must solicit input from stakeholders in Calgary on scenarios of interest with respect to policy and land use development and conduct. This input must be documented in email and confirmed by the stakeholders. The contractor must use the IUM (version 3.0) to simulate two land use and transportation scenarios defined based on the solicited stakeholder's input. The Contractor must also simulate the same scenarios tested in Ottawa using the Calgary configured model. The Contractor must analyze and report the results from those simulations.

2.1.2.4 The Contractor must establish a password protected internet portal hosted by the contractor to allow Health Canada to provide internal and external collaborators and stakeholders with access to the operational version of the IUM platform (version 3.0) software and usage of it in both applied studies, research and teaching. In addition to the software, the website will include a user manual with examples and demo scenarios for a variety of case studies focusing on sustainable air quality and health risk outcomes. Finally, the Contractor must hold two workshops, in the form of online webinars, to provide training for stakeholders.

### 2.1.3 Deliverables

The deliverables are described in detail below.

2.1.3.1 For Deliverable 1, products provided to Health Canada must include:

- Draft letter to stakeholder;
- Comprehensive list of urban health and sustainability indicators;
- Summary of feedback from stakeholders on indicators;
- Development of the IUM platform to incorporate urban health and other sustainability indicators; and
- Transfer, validation and re-calibration of the land use models for London and Halifax.

These items must be provided in draft form via email, and must be formally summarized in reports 1 and 2, which must be provided electronically in Microsoft Word documents. The interim report (report 1) will describe the work to date. The annual report (2) will describe the work for the whole year, including the work done prior to and described in, report 1, as well as the work done between the submission of report 1 and the end of year 1. Each report must detail the methods used, analysis strategy, and presentation of results. In addition to these reports, the Contractor must provide an operational version of the IUM for Halifax and London including urban health and sustainability indicators.

2.1.3.2 For Deliverable 2, products provided to Health Canada must include:

- Integration of population synthesis and ANN predictive extensions with the IUM platform;
- Extension of the transportation model to simulate intra-urban commercial trips;
- Report on the IUM platform simulation runs for Halifax and London; and
- Transfer, validation and re-calibration the transportation and land use models for Vancouver.

This information must be formally summarized in reports 3 and 4, which must be provided electronically in Microsoft Word documents. The interim report (report 3) will describe the work to date. The annual report (4) will describe the work for the whole year, including the work done prior to and described in, report 1, as well as the work done between the submission of report 3 and the end of year 2. Each report must detail the methods used, analysis strategy, and presentation of results. In addition to these reports, the Contractor must provide an operational version of the IUM platform for Vancouver including urban health and sustainability indicators.

2.1.3.3 For Deliverable 3, products provided to Health Canada must include:

- Report on the IUM platform simulation runs for Vancouver
- Develop a road link network editor for the IUM platform for all cities
- Transfer, validation and re-calibration the transportation and land use models for Ottawa

This information must be formally summarized in reports 5 and 6, which must be provided electronically in Microsoft Word documents. The interim report (report 5) will describe the work to date. The annual report (6) will describe the work for the whole year, including the work done prior to and described in, report 1, as well as the work done between the submission of report 5 and the end of year 3. Each report must detail the methods used, analysis strategy, and presentation of results. In addition to these reports, the Contractor must provide an operational version of the IUM platform for Ottawa including urban health and sustainability indicators.

## 2.1.4 Optional Deliverables

### 2.1.4.1 For Deliverable 4: IUM platform (Ver. 3) for Calgary (Option Year), products provided to Health Canada must include:

- Report on the IUM platform simulation runs for Ottawa
- Transfer of the IUM platform to Calgary and evaluate model performance
- Re-calibration of model parameters for Calgary as needed
- Report on the IUM platform simulation runs for Calgary

This information must be formally summarized in reports 7 and 8, which must be provided electronically in Microsoft Word documents. The interim report (report 7) will describe the work to date. The annual report (8) will describe the work for the whole year, including the work done prior to and described in, report 1, as well as the work done between the submission of report 7 and the end of year 4. Each report must detail the methods used, analysis strategy, and presentation of results. In addition to these reports, the Contractor must provide an operational version of the IUM platform for Calgary including urban health and sustainability indicators.

### 2.1.4.2 Deliverable 5 (Option Year), products provided to Health Canada must include:

- User-friendly IUM platform user manual and case studies, available electronically at no cost to multiple Health Canada stakeholders and their representatives
- At least one stakeholder workshops (conducted via webinar)

This information must be formally summarized in report 9, which must be provided electronically in Microsoft Word documents.

## 2.1.5 Schedule

Timeline and deliverables are outlined in the table below.

Task No.	Description	Completion Date	Deliverables*
<b>Deliverable 1: Year 1</b>			
2.1.1.1	Draft letter to stakeholder	01-Dec-2017	Draft Letter to Stakeholders
2.1.1.1	Develop a comprehensive list of urban health and sustainability indicators	22-Dec-2017	List of Indicators
2.1.1.1	Obtain feedback from stakeholders on indicators	05-Jan-2018	Summary of Feedback; Updated List of Indicators
2.1.1.2	Develop the IUM platform incorporating urban health and other sustainability indicators	02-Feb-2018	Report 1 = I
2.1.1.3	<b>Deliverable 1</b> → Operational IUM platform for Halifax and London including urban health and sustainability indicators	02-Apr-2018	Report 2 = A
<b>Deliverable 2: Year 2</b>			
2.1.1.4	Extend the transportation model to simulate intra-urban commercial trips	31-Aug-2018	Report 3 = I
2.1.1.5	Report on the IUM platform simulation runs for Halifax and London	28-Sep-2018	Stakeholder Report

2.1.1.6	<b>Deliverable 2</b> → Operational IUM platform for Vancouver	01-Mar-2019	Report 4 = A
<b>Deliverable 3: Year 3</b>			
2.1.1.7	Report on IUM platform simulation runs for Vancouver	31-Jul-2019	Stakeholder Report
2.1.1.8	Develop a road link network editor for IUM platform for all cities	30-Aug-2019	Report 5 = I
2.1.1.9	<b>Deliverable 3</b> → Operational IUM platform for Ottawa	02-Mar-2020	Report 6 = A
<b>OPTIONAL WORK</b>			
<b>Optional Deliverable 4 (Year 4)</b>			
2.1.2.1	Report on the IUM platform simulation runs for Ottawa	31-Jul-2020	Stakeholder Report
2.1.2.2-3	Re-calibrate model parameters for Calgary as needed	30-Sep-2020	Report 7 = I
2.1.2.2	<b>Deliverable 4</b> → Operational IUM platform for Calgary	01-Mar-2021	Report 8 = A
<b>Optional Deliverable 5 (Year 4)</b>			
2.1.2.4	Create user-friendly IUM platform website portal accessible to Health Canada, multiple Health Canada stakeholders and their representatives	29-Jan-2021	IUM Web Portal
2.1.2.4	Develop and provide the IUM platform user manual	29-Jan-2021	Report 9 = User Manual
2.1.2.4	Develop and run the IUM platform workshop for stakeholders	01-Mar-2021	Workshop
2.1.2.4	<b>Deliverable 5</b> → Case studies, provided to Health Canada and a minimum of one stakeholder workshop conducted via webinar by the Contractor.	01-Mar-2021	Report 10 = F

I: Interim, A: Annual, F: Final

Where:

Interim reports summarize progress to date;

Annual reports summarize annual progress; and the

Final report provides a summary of the work in its entirety.

\* Note: details on the deliverables are provided in Section 2.1.1 and 2.1.2

## 2.2 Technical, Operational and Organizational Environment

The work will be conducted at the Contractor's location.

Unscreened Contractors must be escorted by an employee or Commissionaire at all times when visiting GoC facilities.

No Protected or Classified information is to be made available to the Contractor, to be used in the production of the Work, or produced as a result of this Work.



## **2.3 Method and Source of Acceptance**

The Technical Authority will assess the work in terms of the quality of model development, the nature and presentation of analyses, and the appropriateness of the interpretation of results. Feedback on quality and any gaps will be provided, and amendments will be required prior to accepting any invoice.

## **2.4 Reporting Requirements**

The Contractor must provide nine written reports, a stakeholder training workshop given via webinar, and operational versions of the IUM platform for London, Halifax, Vancouver, Ottawa, and Calgary in accordance with table 1 in section 2.1 above. Operational versions of the IUM platform will be made available via a password protected web portal, which will be hosted by University of Windsor for a duration of 5 years from the end date of this contract. The IUM platform models must also be provided to Health Canada in the form of an installation disk containing the models and simulation data for London, Halifax, Vancouver, Ottawa, and Calgary. The installation disk provided to Health Canada must allow for multiple installations of the software. As a final deliverable, the Contractor must provide a user manual, which must provide instructions for installation and use of the model.

## **2.5 Project Management Control Procedures**

The individual identified in the proposal as the Project Authority or Technical Authority will: coordinate and conduct reviews of the received deliverables and provide comments to the team within thirty (30) days of receipt of deliverables.

The Technical Authority will meet bi-monthly with the Contractor to review progress.

## **3 Additional Information**

### **3.1 Canada's Obligations**

Canada will not be providing any physical materials to the Contractor. While the Contractor must perform all functions and conduct the work, the Technical Authority will provide advice and direction as needed. The Technical Authority will review all reports submitted under the Work and provide feedback as warranted. The Contractor will have access to the Technical Authority to coordinate activities, provide comments on draft reports and any other required assistance

### **3.2 Contractor's Obligations**

Unless otherwise specified, the Contractor must use its own equipment and software for the performance of this Statement of Work.

There are no other obligations of the Contractor that have not been previously specified.

### **3.3 Location of Work, Work site and Delivery Point**

The Contractor is expected to work at a site of their choosing and not on any government site. All products will be delivered to Health Canada in Ottawa Ontario, to the Technical Authority identified above.

### **3.4 Language of Work**

English

### **3.5 Special Requirements**

There are no special requirements associated with this requirement.

### **3.6 Travel and Living**

There is no travel associated with this requirement.

**ANNEX B****BASIS OF PAYMENT****1. SCHEDULE OF MILESTONES**

<b>Milestone No.</b>	<b>Deliverables</b>	<b>Description</b>	<b>Firm Milestone Amount</b>	<b>Due Date</b>
<b>Deliverable 1: Year 1</b>				
1	Draft Letter to Stakeholders.	Draft letter to stakeholder as described in Task 2.1.1.1 of the Statement of Work in Annex A	\$ _____	02-Feb-2018
	List of Indicators	Develop a comprehensive list of urban health and sustainability indicators as described in Task 2.1.1.1 of the Statement of Work in Annex A.		
	Summary of Feedback & Updated List of Indicators	Obtain feedback from stakeholders on indicators as described in Task 2.1.1.1 of the Statement of Work in Annex A.		
	Report 1 = I	Develop the IUM platform incorporating urban health and other sustainability indicators as described in Task 2.1.1.2 of the Statement of Work in Annex A		
2	Report 2 = A	Deliverable 1 - Operational IUM platform for Halifax and London including urban health and sustainability indicators as described in Task 2.1.1.3 of the Statement of Work in Annex A	\$ _____	02-Apr-2018
<b>Deliverable 2: Year 2</b>				
3	Report 3 = I	Extend the transportation model to simulate intra-urban commercial trips as described in Task 2.1.1.4 of the Statement of Work in Annex A	\$ _____	31-Aug-2018
4	Stakeholder Report	Report on the IUM platform simulation runs for Halifax and London as described in Task 2.1.1.5 of the Statement of Work in Annex A	\$ _____	01-Mar-2019
	Report 4 = A	Deliverable 2 □ Operational IUM platform for Vancouver as described in Task 2.1.1.6 of the Statement of Work in Annex A		
<b>Deliverable 3: Year 3</b>				
5	Stakeholder Report	Report on IUM platform simulation runs for Vancouver as described in Task 2.1.1.7 of the Statement of Work in Annex A	\$ _____	30-Aug-2019
	Report 5 = I	Develop a road link network editor for IUM platform for all cities as described in Task 2.1.1.8 of the Statement of Work in Annex A		

Milestone No.	Deliverables	Description	Firm Milestone Amount	Due Date
6	Report 6 = A	Deliverable 3 - Operational the IUM platform for Ottawa as described in Task 2.1.1.9 of the Statement of Work in Annex A	\$ _____	02-Mar-2020
Optional Deliverable 4 (Year 4)				
7	Stakeholder Report	Report on the IUM platform simulation runs for Ottawa as described in Task 2.1.2.1 of the Statement of Work in Annex A	\$ _____	30-Sep-2020
	Report 7 = I	Re-calibrate model parameters for Calgary as needed as described in Task 2.1.2.2-3 of the Statement of Work in Annex A		
8	Report 8 = A	Deliverable 4 <input type="checkbox"/> Operational IUM platform for Calgary as described in Task 2.1.2.2-3 of the Statement of Work in Annex A	\$ _____	01-Mar-2021
Optional Deliverable 5 (Year 4)				
9	IUM Web Portal	Create user-friendly IUM platform website portal accessible to Health Canada, multiple Health Canada stakeholders and their representatives as described in Task 2.1.2.4 of the Statement of Work in Annex A	\$ _____	29-Jan-2021
	Report 9 = User Manual	Develop and provide the IUM platform user manual as described in Task 2.1.2.4 of the Statement of Work in Annex A		
10	Workshop	Develop and run the IUM platform workshop for stakeholders as described in Task 2.1.2.4 of the Statement of Work in Annex A	\$ _____	01-Mar-2021
	Report 10 = F	Deliverable 5 <input type="checkbox"/> User-friendly IUM platform user manual and case studies, provided to Health Canada and multiple Health Canada stakeholders and their representatives; a minimum of one stakeholder workshop conducted via webinar by the Contractor as described in Task 2.1.2.4 of the Statement of Work in Annex A.		
<b>TOTAL FIRM ALL-INCLUSIVE LOT PRICE (APPLICABLE TAXES EXTRA):</b>			\$ _____	