

**RETURN BIDS TO:
RETOURNER LES SOUMISSIONS À :**

annette.damour@tc.gc.ca

**REQUEST FOR PROPOSAL
DEMANDE DE PROPOSITION**

Comments – Commentaires

Proposal To: Transport 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 thereof.

On behalf of the bidder, by signing below, I confirm that I have read the entire bid solicitation including the documents incorporated by reference into the bid solicitation and I certify that:

1. The bidder considers itself and its products able to meet all the mandatory requirements described in the bid solicitation;
2. This bid is valid for the period requested in the bid solicitation;
3. All the information provided in the bid is complete, true and accurate; and
4. If the bidder is awarded a contract, it will accept all the terms and conditions Set out in the resulting contract clauses included in the bid solicitation.

Proposition à : Transports 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-annexées, au(x) prix indiqué(s).

En apposant ma signature ci-après, j'atteste, au nom du soumissionnaire, que j'ai lu la demande de propositions (DP) en entier, y compris les documents incorporés par renvoi dans la DP et que :

1. le soumissionnaire considère qu'il a les compétences et que ses produits sont en mesure de satisfaire les exigences obligatoires décrites dans la demande de soumissions;
2. cette soumission est valide pour la période exigée dans la demande de soumissions ;
3. tous les renseignements figurant dans la soumission sont complets, véridiques et exacts; et
4. si un contrat est attribué au soumissionnaire, ce dernier se conformera à toutes les modalités énoncées dans les clauses concernant le contrat subséquent et comprises dans la demande de soumissions.

Title – Sujet	
Challenges & Opportunities for Automation of Rail Operations in Canada / Défis & possibilités associés à l'automatisation des services de transport ferroviaire au Canada	
Solicitation No. – N° de l'invitation	Date
T8080-200101	June 23, 2020
Client Reference No. – N° référence du client	
T8080-200101	
GETS Reference No. – N° de référence de SEAG	
Solicitation Closes L'invitation prend fin	Time Zone Fuseau horaire
at – à 02 :00 PM – 14h00	Eastern Time (ET)
on – le August 4, 2020	Heure de l'Est (HE)
F.O.B. - F.A.B.	
Plant-Usine: <input type="checkbox"/>	Destination: <input checked="" type="checkbox"/> Other-Autre: <input type="checkbox"/>
Address inquiries to – Adresser toute demande de renseignements à :	
Annette D'Amour	
Area code and Telephone No. Code régional et N° de téléphone	Facsimile No. / e-mail N° de télécopieur / courriel
343-377-2041	annette.damour@tc.gc.ca
Destination – of Goods, Services, and Construction: Destination – des biens, services et construction	
National Capital Region	

Instructions: See Herein

Instructions : Voir aux présentes

Delivery required -Livraison exigée	Delivery offered -Livraison proposée
See Herein – Voir aux présentes	
Jurisdiction of Contract: Province in Canada the bidder wishes to be the legal jurisdiction applicable to any resulting contract (if other than as specified in solicitation) Compétence du contrat : Province du Canada choisie par le soumissionnaire et qui aura les compétences sur tout contrat subséquent (si différente de celle précisée dans la demande)	
Vendor/firm Name and Address Raison sociale et adresse du fournisseur/de l'entrepreneur	
Telephone No. - N° de téléphone	
e-mail - courriel	
Name and title of person authorized to sign on behalf of Vendor/firm (type or print) Nom et titre de la personne autorisée à signer au nom du fournisseur/de l'entrepreneur (taper ou écrire en caractères d'imprimerie)	
Signature	Date

TABLE OF CONTENTS

PART 1 - GENERAL INFORMATION	2
1.1 SECURITY REQUIREMENTS	2
1.2 STATEMENT OF WORK	2
1.3 DEBRIEFINGS	2
PART 2 - BIDDER INSTRUCTIONS	2
2.1 STANDARD INSTRUCTIONS, CLAUSES AND CONDITIONS	2
2.2 SUBMISSION OF BIDS	3
2.3 FORMER PUBLIC SERVANT	3
2.4 ENQUIRIES - BID SOLICITATION	3
2.5 APPLICABLE LAWS	3
PART 3 - BID PREPARATION INSTRUCTIONS	4
3.1 BID PREPARATION INSTRUCTIONS	4
PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION	5
4.1 EVALUATION PROCEDURES	5
ATTACHMENT 1 TO PART 4 – TECHNICAL EVALUATION CRITERIA	6
ATTACHMENT 2 TO PART 4 – FINANCIAL EVALUATION – PRICING SCHEDULE	13
ATTACHMENT 3 TO PART 4 – BASIS OF SELECTION	14
PART 5 – CERTIFICATIONS AND ADDITIONAL INFORMATION	15
5.1 CERTIFICATIONS REQUIRED WITH THE BID	15
5.2 CERTIFICATIONS PRECEDENT TO CONTRACT AWARD AND ADDITIONAL INFORMATION	15
PART 6 - RESULTING CONTRACT CLAUSES	16
6.1 SECURITY REQUIREMENTS	16
6.2 STATEMENT OF WORK	16
6.3 STANDARD CLAUSES AND CONDITIONS	16
6.4 TERM OF CONTRACT	16
6.5 AUTHORITIES	16
6.6 PROACTIVE DISCLOSURE OF CONTRACTS WITH FORMER PUBLIC SERVANTS	17
6.7 PAYMENT	17
6.8 INVOICING INSTRUCTIONS	18
6.9 CERTIFICATIONS AND ADDITIONAL INFORMATION	18
6.10 APPLICABLE LAWS	18
6.11 PRIORITY OF DOCUMENTS	19
ANNEX "A"	20
STATEMENT OF WORK	20
ANNEX "B"	30
BASIS OF PAYMENT	30
ANNEX "C" TO PART 3 OF THE BID SOLICITATION	32
ELECTRONIC PAYMENT INSTRUMENTS	32

PART 1 - GENERAL INFORMATION

1.1 Security Requirements

There are no security requirements for this project. Should the Contractor's resources require on site access to government facilities they will be escorted at all times.

1.2 Statement of Work

Transport Canada has a requirement for an exploratory study to identify the Challenges and Opportunities for Automation of Rail Operations in Canada: an exploratory study of the technical, operational, economic, environmental, and safety aspects of automation in the rail sector

The objective of this exploratory study is to better understand implications of, and to help prepare the railway industry and regulators for, automation technology deployment. This will be achieved by:

- Identifying current examples of non-urban and intercity railway automation from around the world and assessing their capabilities (e.g.: what part of the system is automated),
- Providing an understanding of lessons learned and best practices from implementation of existing systems from around the world, including urban light rail,
- Providing a better understanding of the technical, operational, economic, environmental and safety aspects of automation in the rail sector with consideration to the feasibility and opportunities and challenges of implementing railway automation in the Canadian context,
- Providing an understanding of how automation could support and enhance human performance in order to improve the efficiency and safety of Canadian passenger and freight railway operations (i.e.: human factors considerations),
- Providing an understanding of spectrum requirements and cybersecurity implications.

1.3 Debriefings

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 from receipt of the results of the bid solicitation process. The debriefing may be in writing, by telephone or in person.

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) (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](#) (2020-05-28) 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: 60 days
Insert: 120 days

2.2 Submission of Bids

Unless specified otherwise in the RFP, bids must be received by the Contract Authority at the location identified by the date, time and place indicated on page 1 of the solicitation. If your bid is transmitted by electronic mail, Canada will not be responsible for late bids received at destination after the closing date and time, even if it was submitted before.

Bids must be sent by Electronic Submission to annette.damour@tc.gc.ca

Refer to Part 3, section 3.1 "Electronic Submissions".

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.

[A3025T](#) (2014-06-26), Competitive Bid, Instructions to Bidders, is incorporated by reference into and forms part of the bid solicitation.

2.4 Enquiries - Bid Solicitation

To ensure the integrity of the competitive bid process, enquiries and other communications regarding the bid solicitation must be directed only to the Contracting Authority identified in the bid solicitation. Failure to comply with this requirement may result in the bid being declared non-responsive.

To ensure consistency and quality of information provided to bidders, significant enquiries received and their replies will be answered in the form of written Addenda to the RFP and will be sent to all prospective bidders. For further information, consult subsection 3 of the Bid preparation instructions section.

All enquiries must be submitted in writing by e-mail (annette.damour@tc.gc.ca) to the Contracting Authority no later than seven (7) 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 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.

PART 3 - BID PREPARATION INSTRUCTIONS

3.1 Bid Preparation Instructions

The Bidder must submit its bid electronically. Canada requests that the Bidder submits its bid in separate documents as follows:

Section I: Technical Bid (One (1) soft copy, submitted by E-mail)

Section II: Financial Bid (One (1) soft copy, submitted by E-mail)

Section III: Certifications not included in the Technical Bid (One (1) soft copy, submitted by E-mail)

The bids must be sent by E-mail to: annette.damour@tc.gc

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

Canada requests that Bidders use a numbering system that corresponds to the bid solicitation in the preparation of their bid.

Section I: Technical Bid

In their technical bid, Bidders should explain and demonstrate how they propose to meet the requirements and how they will carry out the Work.

Section II: Financial Bid

Bidders must submit their financial bid in accordance with the Basis of Payment.

Section III: Certifications

Bidders must submit the certifications and additional information required under Part 5.

3.1.1 Electronic Submission

Interested Bidders are invited to submit a proposal, through Electronic Submissions at: annette.damour@tc.gc.ca.

Individual e-mails exceeding five megabytes (5MB), or that include other factors such as embedded macros and/or links may be rejected by the TC e-mail system and/or firewall(s) without notice to the Bidder or Contracting Authority. Larger bids may be submitted through more than one e-mail. The Contracting Authority will confirm receipt of documents. It is the Bidder's responsibility to ensure that the Contracting Authority has received the entire submission.

Bidders should not assume that all documents have been received unless the Contracting Authority confirms receipt of each document. In order to minimize the potential for technical issues, bidders are requested to allow sufficient time before the closing time and date to confirm receipt. Technical and financial documents received after the closing time and date will not be accepted.

3.1.2 Electronic Payment of Invoices – Bid

If you are willing to accept payment of invoices by Electronic Payment Instruments, complete Annex “C” Electronic Payment Instruments, to identify which ones are accepted.

If Annex “C” Electronic Payment Instruments is not completed, it will be considered as if Electronic Payment Instruments are not being accepted for payment of invoices.

Acceptance of Electronic Payment Instruments will not be considered as an evaluation criterion.

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 and financial evaluation criteria.
- (b) An evaluation team composed of representatives of Canada will evaluate the bids.

4.1.1.1 Mandatory Technical Criteria (Step 1)

Refer to Attachment 1 to Part 4: Technical Evaluation Criteria. If the proposal fails to meet any of the Mandatory Criteria of the RFP, the proposal shall not be given further consideration and it will be deemed non-responsive.

4.1.1.2 Point Rated Technical Criteria (Step 2)

Refer to Attachment 1 to Part 4: Technical Evaluation Criteria.
Point-rated technical criteria not addressed will be given a score of zero. If the proposal fails to meet the minimum required threshold of the Point Rated Technical Criteria, the proposal shall not be given further consideration and it will be deemed non-responsive.

4.1.2 Financial Evaluation

Refer to Attachment 2 to Part 4: Financial Evaluation - Pricing Schedule.
Only compliant proposals meeting all of the requirements detailed in Steps 1 and 2 will be considered at this point. Prices submitted will be evaluated to determine the bid evaluation price as defined in Attachment 2 to Part 4: Financial Evaluation - Pricing Schedule.

ATTACHMENT 1 TO PART 4 – TECHNICAL EVALUATION CRITERIA

4.1.1 Technical Evaluation

4.1.1.1 Mandatory Technical Criteria

The technical portion of bid should not exceed 15,000 words (excluding title, table of contents, and CVs).

For any *project summaries* provided in demonstration of mandatory or rated experience requirements, the resource must provide:

1. A description of the project, and the scope of services rendered and deliverables
2. The value of the project
3. If applicable: A solicitation reference number or award notice, with link to government tender site
4. The scale of the project (number of end users, if applicable).
5. The dates and duration of the project (indicating the years/months of engagement and the start and end dates of the work).
6. A brief description of the proposed resource(s) role in the project.
7. The name of the client organization (to whom the proposed resource services were provided), and contact person for verification.
8. If the services rendered and deliverables met client expectations for time, budget, and quality of work.

The bidder may use an individual *project summary* to meet one or more of the mandatory or rated criteria. The bidder may choose to provide *project summaries* early in their proposal, reference these when responding to individual criteria, while providing additional clarification if needed. This will help the bidder avoid repeating the same information multiple times.

Proposals will be evaluated in accordance with the mandatory evaluation criteria as detailed herein. Bidders' Proposals must clearly demonstrate that they meet all Mandatory Requirements for the proposal to be considered for further evaluation. Proposals not meeting the mandatory criteria will be excluded from further consideration.

The Bidder must include the following table in their proposal, indicating that their proposal meets the mandatory criteria, and providing the proposal page number or section that contains information to verify that the criteria has been met.

MANDATORY CRITERIA				
Item	Description	Met	Not Met	Reference to Proposal
M1	<p>The Principal Researcher must have a minimum of sixty (60) months experience completed within ten (10) years from the date of bid closing in conducting research related to transportation technology assessments and automation of transportation.</p> <p>To demonstrate compliance, the Bidder must provide a curriculum vitae for the proposed Principal Researcher that clearly demonstrates; where, the month and year commenced and completed, and how (through what activities and responsibilities) the stated experience was acquired.</p>			
M2	<p>The Project Manager, must not be the same individual as the Principle Researcher and must have a minimum of thirty-six (36) months experience completed within ten (10) years from the date of bid closing in conducting transportation technology assessments, which include consideration to technical, operational, economic, environmental, and safety aspects.</p> <p>To demonstrate compliance, the Bidder must provide a curriculum vitae for the proposed Project Manager that clearly demonstrates; where, the month and year commenced and completed, and how (through what activities and responsibilities) the stated experience was acquired.</p>			

4.1.1.2 Point Rated Technical Criteria

Proposals having successfully met ALL of the mandatory criteria will be evaluated against each of the following point-rated criteria, using the evaluation factors and weighing indicators indicated. Bids must achieve the minimum scores stated below.

Bids that do not meet this requirement will be declared non-responsive.

Each point rated technical criterion should be addressed separately.

<p>Rating guide:</p> <ul style="list-style-type: none"> • 0 Point – Not Addressed - The Bidder's proposed strategy is not relevant to the criterion or the Bidder failed to submit response. • 7 Points - Minimally Addressed -The Bidder's proposed strategy demonstrate little understanding of the requirements of the Statement of Work. The strategy has significant weaknesses, is not relevant to the scope of the criteria. • 10 Points - Partially Addressed - The Bidder's proposed strategy demonstrate some understanding of the requirements of the Statement of Work. The strategy has weaknesses, and does not address the breadth of the criteria. • 14 Points - Satisfactorily Addressed - The Bidder's proposed strategy demonstrate adequate understanding of the requirements of the Statement of Work. The strategy has minor weaknesses, but addresses the scope of the criteria. • 20 Points - Very Well Addressed - The Bidder's proposed strategy demonstrate a very good understanding of the requirements of the Statement of Work and addresses the technical approach and research strategy for the review of documentation, methodology used for consultation with relevant railway industry experts, methodology used to develop the classification of automated railway systems and technologies and methodology used to synthesize results and identify research gaps. The strategy has no significant weaknesses. • 25 Points - Excellently Addressed - The Bidder's proposed strategy demonstrate an excellent understanding of the requirements of the Statement of Work and addresses the technical approach and research strategy for the review of documentation, methodology used for consultation with relevant railway industry experts, methodology used to develop the classification of automated railway systems and technologies and methodology used to synthesize results and identify research gaps. The strategy has no apparent weaknesses, addresses the elements of the scope of work, as well as additional details and considerations. 			
<p><u>PR 1: QUALITY AND RESPONSIVENESS OF PROPOSAL</u></p> <p>Total Maximum – 35 Points Minimum required score is 60% - 21 Points</p>	<p>PR 1 - Total Points /35</p>		

<u>PR2. CORE PROJECT TEAM QUALIFICATIONS</u>			
<p>PR 2.1 Principal Researcher Education and Qualification (10 points)</p> <p>The Bidder should demonstrate the Qualifications and Education of the Principal Researcher, including Professional Qualifications, Diplomas, Certifications, or Degrees.</p> <p>To demonstrate this, the Bidder should clearly state where, when, and how the stated education and qualifications were acquired. Evidentiary documents demonstrating the education and/or qualifications should be provided. Only documents from a recognized Canadian university or college, or the equivalent as established by a recognized Canadian academic credentials assessment service*, if obtained outside Canada, will be considered.</p> <p>*The list of recognized organizations can be found under the Canadian Information Centre for International Credentials website, at the following internet link: http://www.cicic.ca/indexe.stm</p> <p>Rating guide:</p> <p>5 Points - Principal Researcher has a University Undergraduate Degree. 6 Points - Principal Researcher has a University Graduate Degree. 8 Points - Principal Researcher has a University Undergraduate Degree and a Professional Qualification (such as a member in a professional engineering order). 10 Points - Principal Researcher has a University Graduate Degree and Professional Qualifications.</p>	<p>Max. points:</p> <p>/10</p>	<p>Score</p>	<p>Reference to Proposal</p>
<p>PR2.2 Project Manager Education and Qualification (10 points)</p> <p>The Bidder should demonstrate the Qualifications and Education of the Project Manager, including Professional Qualifications, Diplomas, Certifications, or Degrees.</p> <p>To demonstrate this, the Bidder should clearly state: where, when, and how the stated education and qualifications were acquired. Evidentiary documents demonstrating the education and/or qualifications should be provided. Only documents from a recognized Canadian university or college, or the equivalent as established by a recognized Canadian academic credentials assessment service*, if obtained outside Canada, will be considered.</p>	<p>Max. points:</p> <p>/10</p>	<p>Score</p>	<p>Reference to Proposal</p>

<p>*The list of recognized organizations can be found under the Canadian Information Centre for International Credentials website, at the following internet link: http://www.cicic.ca/indexe.stm</p> <p>Rating guide:</p> <p>0 Points - Project Manager has a High school Diploma, or Post-Secondary Certification or College Diploma. 5 Points - Project Manager has a University Undergraduate Degree. 6 Points - Project Manager has a University Graduate Degree. 8 Points - Project Manager has a University Undergraduate Degree and a Professional Qualification 10 Points - Project Manager has a University Graduate Degree and Professional Qualifications.</p>			
<p>PR2.3 Project Manager Experience (5 points)</p> <p>The Bidder should demonstrate by project descriptions that the proposed resource as the Project Manager has experience within the past 10 years working on projects that consist of conducting research related to transportation, automation technology, railway operations and railway safety.</p> <p>Rating guide:</p> <p>0 Points - No projects 1 Points - Less than three projects 3 Points - Three projects 5 Points - Four or more relevant projects</p>	<p>Max. points:</p> <p>/5</p>	<p>Score</p>	<p>Reference to Proposal</p>
<p>PR2.4 Other Core Team Member's - experience in conducting research related to transportation and railway safety. (10 points)</p> <p>A) The Bidder should demonstrate using project descriptions that the proposed resources has previous work experience in conducting research related to transportation technology assessments with considerations to the technical, operational, economic, safety, and regulatory aspects.</p> <p>Rating guide:</p> <p>0 Points - No projects 1 Points – One project 3 Points – Two or three projects 5 Points - Four or more projects</p>	<p>Max. points:</p> <p>/5</p>	<p>Score</p>	<p>Reference to Proposal</p>

<p>B) The Bidder should demonstrate using project descriptions that the proposed resources has previous work experience in conducting research related to automation of transportation and impacts on human performance.</p> <p>Rating guide:</p> <p>0 Points - No projects 1 Point – One project 3 Points – Two or three projects 5 Points - Four or more projects</p>	/5		
<p><u>PR2. CORE PROJECT TEAM QUALIFICATIONS</u></p> <p>Total Maximum – 35 Points Minimum required score is 60% - 21 Points</p>	PR2 - Total Points /35		
<p>TOTAL RATED REQUIREMENT: PR1 + PR2 (MAX 70 Pts) PASS MARK (60% - 42 Pts)</p>	PR1 + PR2 – Total Points /70		

ATTACHMENT 2 TO PART 4 – FINANCIAL EVALUATION – PRICING SCHEDULE

4.1.2 Financial Evaluation

The price of bids will be evaluated in Canadian dollars, Goods and Services Tax (GST) excluded; FOB destination, Customs duties and Excise taxes included.

TABLE A - Bidders shall provide a breakdown of the all-inclusive price quoted in accordance with the following grid:

Milestone Payment - Phase of Work	% of Contract Value		
<u>Phase 1</u> Following completion of: • Task 1 - Kick Off Meeting • Task 2 - Review of documentation	25%	=	\$ _____
<u>Phase 2</u> Following completion of: • Task 3 - Consultation with relevant railway industry experts • Task 4 - Classification of automated railway systems and technologies	35%	=	\$ _____
<u>Phase 3</u> Following completion of: • Task 5 – Synthesis of results and research gap analysis	25%	=	\$ _____
<u>Phase 4</u> Following completion of: • Task 6 - Delivery of Draft Report • Task 7 - Delivery of Final Report	15%	=	\$ _____
TABLE A TOTAL =			\$ _____

TABLE B – Travel and Living Expenses for evaluation purposes only

Estimated Travel and Living expenses at actual cost without mark-up*:	\$4,000.00
--	-------------------

*The amount estimated for travel and living expenses is for financial evaluation purposes only and is estimated for the entire period of the contract.

TOTAL EVALUATED PRICE (TABLE A + TABLE B) \$ _____

The Contractor will be reimbursed its authorized travel and living expenses reasonably and properly incurred in the performance of the Work as authorized under a task authorization, at cost, without any allowance for profit and/or administrative overhead, in accordance with the meal, private vehicle and incidental expenses provided in Appendices B,C and D of the Treasury Board Travel Directive (http://www.tbs-sct.gc.ca/pubs_pol/hrpubs/TBM_113/td-dv_e.asp), and with the other provisions of the directive referring to "travellers", rather than those referring to "employees".

NOTE: Prices must only appear in the Financial Bid and in no other part of the bid.

ATTACHMENT 3 TO PART 4 – BASIS OF SELECTION

4.2 Basis of Selection

4.2.1 Basis of Selection – Highest Combined Rating of Technical Merit (70%) and Price (30%)

- 4.2.1.1 To be declared responsive, a bid must:
- (a) comply with all the requirements of the bid solicitation;
 - (b) meet all mandatory criteria specified in Attachment 1 to Part 4; and
 - (c) obtain the required minimum points specified in Attachment 1 to Part 4 for the points rated technical criteria;
- 4.2.1.2 Bids not meeting either (a), (b) or (c) above will be declared non-responsive.
- 4.2.1.3 The selection will be based on the highest responsive combined rating of technical merit and price. The ratio will be 70% for the technical merit and 30% for the price.
- 4.2.1.4 To establish the technical merit score, the overall technical score for each responsive bid will be determined as follows: total number of points obtained / maximum number of points available multiplied by the ratio of 70%.
- 4.2.1.5 To establish the pricing score, each responsive bid will be prorated against the lowest evaluated price and the ratio of 30%.
- 4.2.1.6 For each responsive bid, the technical merit score and the pricing score will be added to determine its combined rating.
- 4.2.1.7 Neither the responsive bid obtaining the highest technical score nor the one with the lowest evaluated price will necessarily be accepted. The responsive bid with the highest combined rating of technical merit and price will be recommended for award of a contract.

The table below illustrates an example where the selection of the contractor is determined by a 70/30 ratio of the technical merit and price, respectively.

Basis of Selection - Highest Combined Rating of Technical Merit (70%) and Price (30%)			
Bidder	Bidder 1	Bidder 2	Bidder 3
Overall Technical Score	88	82	92
Bid Evaluated Price	C\$60,000	C\$55,000	C\$50,000
Calculations	Technical Merit Points	Price Points	Total Score
Bidder 1	$88 / 100 \times 70 = 61.6$	$50,000 / 60,000 \times 30 = 25$	86.6
Bidder 2	$82 / 100 \times 70 = 57.4$	$50,000^* / 55,000 \times 30 = 27.3$	84.7
Bidder 3	$92 / 100 \times 70 = 64.4$	$50,000^* / 50,000 \times 30 = 30$	94.4

* represents the lowest evaluated price

**represents the bidder who will be recommended for award of a contract

PART 5 – CERTIFICATIONS AND ADDITIONAL INFORMATION

Bidders must provide the required certifications and additional information 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 will 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 declaration form available on the [Forms for the Integrity Regime](http://www.tpsgc-pwgsc.gc.ca/ci-if/declaration-eng.html) 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 provided will render the bid non-responsive.

5.2.1 Integrity Provisions – Required Documentation

In accordance with the section titled Information to be provided when bidding, contracting or entering into a real property agreement of the [Ineligibility and Suspension Policy](http://www.tpsgc-pwgsc.gc.ca/ci-if/politique-policy-eng.html) (<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](https://www.canada.ca/en/employment-social-development/canada/esdc-labour) 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. Status and Availability of Resources

SACC Manual clause [A3005T](#) (2010-08-16), Status and Availability of Resources.

5.2.4 Education and Experience

SACC *Manual* clause [A3010T](#) (2010-08-16) Education and Experience

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 Security Requirements

6.1.1 There is no security requirement applicable to the Contract. Should the Contractor's resources require on site access to government facilities they will be escorted at all times.

6.2 Statement of Work

The Contractor must perform the Work in accordance with the Statement of Work at Annex "A".

6.3 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](#) (<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual>) issued by Public Works and Government Services Canada.

6.3.1 General Conditions

[2010B \(2018-06-21\) General Conditions - Professional Services \(Medium Complexity\) apply to and form part of the Contract.](#)

6.3.2 Supplemental General Conditions

[4007](#) (2010-08-16) Canada to Own Intellectual Property Rights in Foreground Information, apply to and form part of the Contract.

6.4 Term of Contract

6.4.1 Period of the Contract

The period of the Contract is from date of Contract Award to April 30, 2021.

6.5 Authorities

6.5.1 Contracting Authority

The Contracting Authority for the Contract is:

Annette D'Amour
Procurement Specialist
Transport Canada
95 Foundry Street
Moncton, NB E1C 5H7
Telephone: 506-377-2041
E-mail: annette.damour@tc.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 Project Authority

The Project Authority for the Contract is: **(To be provided upon contract award)**

Name: _____
Title: _____
Organization: _____
Address: _____
Telephone: ____-____-_____
E-mail address: _____

The Project 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 Project Authority, however the Project 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 **(TBD)**

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: 2019-01](#) of the Treasury Board Secretariat of Canada.

6.7 Payment

6.7.1 Basis of Payment

In consideration of the Contractor satisfactorily completing all of its obligations under this Contract, the Contractor will be paid in accordance with Annex B, Basis of Payment.

6.7.2 Method of Payment

For the work detailed under this contract, Canada will make milestone payments in accordance with the Milestone Payment Schedule detailed in the following Table below, and the payment provisions of the Contract:

- following receipt of an accurate and complete claim for payment using Contractor's invoice and any other document required by the Contract, submitted in accordance with the payment provisions of the Contract, and containing the description and value of the Milestone claimed, and
- following completion and acceptance of the corresponding deliverable, to the satisfaction of the Technical Authority.

Tasks and Project Milestones	Estimated Timeline From Contract Award Date	Payment
<p><u>Phase 1</u></p> <p>Following completion of:</p> <ul style="list-style-type: none"> • Task 1 - Kick Off Meeting • Task 2 - Review of documentation 	<ul style="list-style-type: none"> • Within 10 days • Within 1 month 	25%
<p><u>Phase 2</u></p> <p>Following completion of:</p> <ul style="list-style-type: none"> • Task 3 - Consultation with relevant railway industry experts • Task 4 - Classification of automated railway systems and technologies 	<ul style="list-style-type: none"> • Within 3 months • Within 5 months 	35%
<p><u>Phase 3</u></p> <p>Following completion of:</p> <ul style="list-style-type: none"> • Task 5 – Synthesis of results and research gap analysis 	<ul style="list-style-type: none"> • Within 6 months 	25%
<p><u>Phase 4</u></p> <p>Following completion of:</p> <ul style="list-style-type: none"> • Task 6 - Delivery of Draft Report • Task 7 - Delivery of Final Report 	<ul style="list-style-type: none"> • Within 7 months 	15%

6.8 Invoicing Instructions

SACC Manual clause [H5001C](#) (2008-12-12) Invoicing Instructions

6.9 Certifications and Additional Information

6.9.1 Compliance

Unless specified otherwise, the continuous compliance with the certifications provided by the Contractor in its bid or precedent to contract award, and the ongoing cooperation in providing additional information are conditions of the Contract and failure to comply will constitute the Contractor in default. Certifications are subject to verification by Canada during the entire period of the Contract.

6.10 Applicable Laws

The Contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in Ontario.

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 supplemental general conditions _____ (*insert number, date and title*);
- (c) the general conditions _____ (*insert number, date and title*);
- (d) Annex X, Statement of Work **OR** Requirement;
- (e) Annex X, Security Requirements Check List (*if applicable*);
- (f) the Contractor's bid dated _____ (*insert date of bid*) (*If the bid was clarified or amended, insert at the time of contract award: “, as clarified on _____” or “, as amended on _____” and insert date(s) of clarification(s) or amendment(s)*)

ANNEX "A"

STATEMENT OF WORK

CHALLENGES AND OPPORTUNITIES FOR AUTOMATION OF RAIL OPERATIONS IN CANADA

1. TITLE

Challenges and Opportunities for Automation of Rail Operations in Canada: an exploratory study of the technical, operational, economic, environmental and safety aspects of automation in the rail sector

2. INTRODUCTION

Automation is becoming increasingly prevalent in many transport sectors and rail transportation is not excluded. In the rail mode automation has made the most progress in urban transit applications, but it is emerging in freight rail transport as well (e.g.: the fully automated AutoHaul railway owned and operated by RioTinto in Australia). Analyses on railway automation have been carried out in the urban passenger rail environment, but to date little research has been carried out in a non-urban (e.g.: resource to port) or intercity passenger or freight rail context.

As automation technologies and their deployment continue to evolve, the Department would like to undertake an exploratory study to better understand the potential technical, operational, economic, environmental, and safety aspects of automation in the rail sector. This exploratory study seeks to inform Transport Canada on the current stage and development of automated railway operations and help assess safety, reliability (e.g.: on-time performance), and capacity considerations for railway transportation in Canada. Furthermore the study should identify opportunities and challenges related to the deployment of rail automation technology in Canada.





3. BACKGROUND

Broadly, automation in the rail sector can be described as the replacement or execution of manual tasks, processes or functions using technological solutions or machine agents. In the case of a locomotive operating crew, this means responsibility for operation and management of the train is transferred from the crew to a train control system (Hansen, Tugrul et al. 2016).

In rail, automation includes different elements, which are described below:

- **Automatic train operation (ATO)** is an operational safety enhancement device used to help automate operations of trains. ATO insures partial or complete automatic train piloting and driverless functionalities (International Association of Public Transit 2016). ATO covers a range of levels of automation and can be widely differentiated in **semiautomatic train operation (STO)**, **driverless train operation (DTO)** and **unattended train operation (UTO)** (Fischer 2011).
- **Automatic Train Protection (ATP)** is the system and all equipment responsible for basic safety; it avoids collisions, red signal overrunning and exceeding speed limits by applying brakes automatically (International Association of Public Transit 2016).
- **Automatic Train Control (ATC)** performs automatically normal signaller operations such as route setting and train regulation (International Association of Public Transit 2016).

The International Association of Public Transport (UITP) has develop a classification systems for automated urban railway systems similar to the SAE (Society of Automotive Engineers) International Level of Driving Automation (J3016) to create a better understanding of the types of automated railway systems. UITP's five grades of automation presented in the image below and further described:

Grade of automation	Type of train operation	Setting train in motion	Stopping train	Door closure	Operation in the event of disruption
GoA.1 	ATP with driver	Driver	Driver	Driver	Driver
GoA.2 	ATP and ATO with driver	Automatic	Automatic	Driver	Driver
GoA.3 	Driverless	Automatic	Automatic	Train attendant	Train attendant
GoA.4 	UTO	Automatic	Automatic	Automatic	Automatic

ATP: Automatic Train Protection ATO: Automatic Train Operation

Image from UITP

- **Grade of Automation 0:** is on-sight train operation, similar to a tram running in street traffic.
- **Grade of Automation 1** is manual train operation where a train driver controls starting and stopping, operation of doors and handling of emergencies or sudden diversions.
- **Grade of Automation 2** is semi-automatic train operation (STO) where starting and stopping is automated, but a driver is in the cab, with responsibility for door closing, obstacle detection on the track in front of the train and handling of emergency situations. Many ATO systems are GoA 2.
- **Grade of Automation 3** is driverless train operation (DTO) where starting and stopping are automated but a staff member is always in the train, with responsibility for handling of emergency situation.
- **Grade of Automation 4** is unattended train operation (UTO) where starting and stopping, operation of doors and handling of emergencies are fully automated without any on-train staff (International Association of Public Transit 2016).

As automation of rail is more prevalent in urban transit, a similar classification framework for non-urban passenger or freight rail has not yet been developed. Research carried out at the University of Alberta included the development of a 4-tiered hierarchy classification for enhanced train control (ETC) to clearly define the functionality of ETC systems, but this was not developed to classify railway automation (Canadian Rail Research Laboratory 2018).

Research to date has shown that rail automation is implemented at different levels in the rail industry with different operating conditions. For long-distance trains, single processes have been automated, such as rail signaling and logistic scheduling. For public transport applications, such as metro trains, whole systems are fully automated (Hansen, Tugrul et al. 2016). Similar operating condition variations for automation are found in the on-road vehicle sector, where manufacturers and operators must put certain Operational Design Domain (ODD) restrictions in place to mitigate system and/or vehicle limitations. These ODD restrictions can include geography, road type, speed, and weather conditions; as well as system capability for ensuring safe operation (Voegel and Zhivov 2016). For the rail mode, restrictions on operating environments that permit testing of automation will have to be formulated. The dominant challenge for railways and technology proponents will then be to demonstrate convincingly that their technology has reached a level of maturity that it is capable of operating safely in a shared (unprotected) ODD without human operator supervision.

Literature suggests that a number of advantages for automating rail operations. These advantages could include potential safety benefits from automated and computerized failure detection and

response, as well as efficiency benefits, which include more predictable running times, optimized distances between trains, reduced conflicts at junctions and energy optimization. (Fischer 2011), (Hansen, Tugrul et al. 2016).

While automation is increasingly introduced into the operating environment for the purpose of improving safety and efficiency, it can at times have adverse effects on the operating crews. Automated control or monitoring systems provide specific advantages – such as increased reliability. However, these systems can also introduce other potential weaknesses related to design and usability. These weaknesses include distraction, high workload, potential detrimental reliance, human-machine communication challenges, poor display design, and challenges in the assignment of final decision making authority (Zimmermann 2015). In order for these systems to operate effectively design principles for situation awareness, using intelligent user interface principles and other recognized ergonomic best practices must be established. It is recommended that implementation guidance from operator perspective be developed to ensure their effective adoption (Banbury and Baker 2015).

In addition to human factors considerations, risks related to cybersecurity needs to be taken into account. Railways have recognized the importance of cybersecurity as a factor in implementing a complex technology requiring potentially sensitive information and they are working on sophisticated encryption keys that will ensure that the communications between railroads, as well as sensitive data, are secure (Association of American Railroads). However, an article posted in March 2019 by Railway Age noted that the rail sector appears to be lagging in terms of cyber resiliency, even as they increasingly rely on expanded digital systems and connectivity (Mee, Prentice et al. 2019). Much like in the on-road sector, railways and technology proponents should follow a robust product development process based on a systems-engineering approach to minimize risks to safety, including those due to cybersecurity threats and vulnerabilities. While knowledge of cybersecurity for rail automation may be nascent, best practices and design principles have been published by National Institute for Standards and Technology (NIST), the National Highway Traffic Safety Administration, SAE, the Alliance of Automobile Manufacturers, the Association of Global Automakers, the Automotive Information Sharing and Analysis Center and other relevant organizations and could be used as resources or applied (National Highway Traffic Safety Administration 2016).

As automation becomes more prevalent in all aspects of transportation, from systems assisting operators to full automation, there will undoubtedly be implications for non-urban and intercity passenger and freight rail in Canada. The objective of the present exploratory study is to better understand these implications and to help prepare the railway industry and regulators for automation technology deployment.

4. OBJECTIVES

The objective of this exploratory study is to better understand implications of, and to help prepare the railway industry and regulators for, automation technology deployment. This will be achieved by:

- Identifying current examples of non-urban and intercity railway automation from around the world and assessing their capabilities (e.g.: what part of the system is automated),
- Providing an understanding of lessons learned and best practices from implementation of existing systems from around the world, including urban light rail,
- Providing a better understanding of the technical, operational, economic, environmental and safety aspects of automation in the rail sector with consideration to the feasibility and opportunities and challenges of implementing railway automation in the Canadian context,
- Providing an understanding of how automation could support and enhance human performance in order to improve the efficiency and safety of Canadian passenger and freight railway operations (i.e.: human factors considerations),
- Providing an understanding of spectrum requirements and cybersecurity implications.

5. SCOPE OF WORK

To achieve the objective stated above, the scope of work will include the following principal components:

1. A thorough review and a scan of documentation related to automation in transportation and emerging and existing automated rail systems and technologies internationally.
2. Consultation with relevant railway industry experts in Canada and abroad on the technical, operational, economic, environmental and safety aspects of automation in the rail sector with consideration to the feasibility and opportunities and challenges of implementing railway automation in the Canadian context.
3. Development of a classification framework of automated non-urban and intercity railway systems and technologies.
4. A synthesis of results and research gap analysis with a focus on the challenges and opportunities for further deployment of automation in Canadian non-urban and intercity freight and passenger rail operations.
5. A final report and presentation of the findings of the study.

5.1 Review and scan of documentation related to automation in transportation and emerging and existing automated rail systems and technologies internationally

5.1.1 Conduct a review of documentation related to automation in transportation and emerging and existing automated rail systems and technologies internationally. The Review should include:

- Description of types of automated rail systems and clarification of nomenclature related to automation technology
- Examples of automated train systems in operation or in development in both freight and passenger rail (including light rail), including details concerning the operating conditions that exist where automated train control has been or is being implemented along with contrasting those conditions with the Canadian rail network.
- Review and summary of relevant research, government documents, working group reports, white papers, certification requirements and product specifications (where available).
- Review and summary of results of field tests, pilot studies, safety assessment frameworks or other results from operational use.
- Identification of phases of technological development of automated rail systems
 - Existing in use – evidence that suppliers have delivered equipment orders to end users, those systems have been commissioned and demonstrated to work according to their specifications.
 - Current state-of-the-art (SoA)/ Off-the-shelf – systems developed and tested, not yet certified for use, orders may or may not have been delivered (i.e. type approval development).
 - Emerging – Systems under development with or without associated development contracts with end users.

5.1.2 Prepare summary report for Task 5.1

- The Project Advisory Committee (PAC) will review and will recommend to approve Task 5.1.1 and 5.1.2.
- The Project Authority will give the contractor authorization to proceed to Task 5.2. Task 5.2 may be amended to adapt to results and findings of previous work.

5.2 Consultation with relevant railway industry experts in Canada and abroad on the technical, operational, economic, environmental and safety aspects of automation in the rail sector with

consideration to the feasibility and opportunities and challenges of implementing railway automation in the Canadian context.

5.2.1 Work with the Project Authority to identify relevant railway industry experts in Canada and abroad and compile a list of contacts.

5.2.2 Develop a consultation framework/strategy that will support obtaining expert information on the technical, operational, economic, environmental, and safety aspects of automation in the rail sector with consideration to the feasibility and opportunities and challenges of implementing railway automation in the Canadian context.

The Project Advisory Committee (PAC) will review and will recommend to approve Task 5.2.1 and 5.2.2.

5.2.3 Implement consultation framework/strategy.

5.2.4 Prepare summary report for Task 5.2

The Project Advisory Committee (PAC) will review and will recommend to approve Task 5.2.4

The Project Authority will give the contractor authorization to proceed to Task 5.3. Task 5.3 may be amended to adapt to results and findings of previous work.

5.3 Classification of automated railway systems and technologies

UITP developed a classification systems for automated railway systems similar to SAE International's Level of Driving Automation (J3016) to create a better understanding of the types of automated railway systems in operation. As automation of rail is more prevalent in urban transit, a similar classification framework for non-urban and intercity passenger freight railways has not been developed.

5.3.1 Identify or propose a classification system for automated non-urban and intercity passenger and freight railway systems similar to the framework developed by UITP. The classification system should provide descriptions of the technical specifications and functionalities of existing and future automation technologies.

5.3.2 Prepare summary report for Task 5.3

The Project Advisory Committee (PAC) will review and will recommend to approve Task 5.3.1 and 5.3.2.

The Project Authority will give the contractor authorization to proceed to Task 5.4. Task 5.4 may be amended to adapt to results and findings of previous work.

5.4 Synthesis of results and research gap analysis with a focus on the challenges and opportunities for further deployment of automation into Canadian rail operations

5.4.1 Based on the information gathered in the previous tasks, develop a synthesis paper that will:

- identify the technical, operational, economic and safety aspects of automation in the rail sector
- consider the feasibility and opportunities and challenges of implementing railway automation in the Canadian context

Examples of elements to be considered for discussion include (but are not limited to):

- impacts for highly qualified personnel required to develop and maintain complex automation systems;
- cyber- and physical-security for unattended systems and supporting infrastructure;
- spectrum requirements;
- certification requirements;
- public acceptance;
- safety assessment frameworks for testing and deployment of automated systems;
- impact of automation on operator alertness;
- evaluation of the potential for ATO to impact ETC implementation on the Canadian rail network; - etc.

5.4.2 Identify research gaps that will help to guide Transport Canada's future work in this area.

5.4.3 Prepare summary report for Task 5.4

The Project Advisory Committee (PAC) will review and will recommend to approve Task 5.4.1 to 5.4.3.

The Project Authority will give the contractor authorization to proceed to Task 5.5. Task 5.5 may be amended to adapt to results and findings of previous work.

5.5 Prepare Final Report and present results

A final report will be developed that will include all the results of the work outlines in tasks 5.1 to 5.5.

An annotated PowerPoint presentation that will be used for general project dissemination will also be prepared to accompany the final report.

The Project Advisory Committee (PAC) will review and will recommend to approve the final report and presentation.

6. IMPLEMENTATION APPROACH

6.1 Tasks

The project will be implemented by the Consultant in seven phases with the completion of the following tasks:

- Task 1- Project Kick-Off;
- Task 2- Review of documentation;
- Task 3- Consultation with relevant railway industry experts
- Task 4- Classification of automated railway systems and technologies;
- Task 5- Synthesis of results;
- Task 6- Delivery of Draft Report and presentation;
- Task 7- Delivery of Final Report presentation;

6.2 Meetings and Work Plan

After contract award, a project kick-off meeting will be held through teleconference with the Project Advisory Committee to review and confirm the project tasks and schedule, and introduce the project participants and their roles. Additional teleconference meetings will be held upon completion of project milestones. For each meeting, the consultant will present the progress made and will prepare minutes. These minutes will be prepared in electronic format and emailed to the Transport Canada Project Authority.

The consultant will produce an overall work plan and activity schedule within 10 working days of the effective contract commencement date. These are to be submitted to the Transport Canada Project Authority for review and approval. The work plan is to include the dates for submission and review of milestones and the draft and final reports.

7. METHODOLOGY AND INVESTIGATION TEAM

7.1 Methodology

The bidder will submit a methodology in his/her proposal that will describe how the following research phases will be conducted:

Task 2- Review of documentation;

Task 3- Consultation with relevant railway industry experts

Task 4- Classification of automated railway systems and technologies;

Task 5- Synthesis of results;

7.2 Research Project Team

The bidder is required to assemble a multi-disciplinary team of researchers possessing the technical expertise to perform: a review of documentation, consultations with relevant railway industry experts, a classification of automated railway systems, a synthesis of results.

The core team ideally will be composed of three to five researchers. It will be led by a Project Manager whose education, professional engineering certification, and experience will be sufficient to direct and manage this project. Supplementing them will be at least three to five other core members: one or two other engineers; one or two experts in transportation safety regulations; and one or two experts in estimating capital and operating costs in transportation systems. The composition of this core group will be evaluated. Additional team members may be drawn in to provide supplemental specialized expertise. If the bidder proposes to include these additional resources, these team members must be identified and their accreditations, education, and experience presented.

8. INTELLECTUAL PROPERTY

The Crown will own the foreground intellectual property arising from work under this contract in accordance with Appendix C:

Section 4.1 of the federal policy on Title to Intellectual Property Arising from Crown Procurement Contracts on the grounds that the main purpose of the Crown procurement Contract, or of the deliverables contracted for, is to generate knowledge and information for public dissemination.

9. CONSULTANT PROJECT CONTROL

The Consultant must employ a critical scheduling method to monitor the project timelines, cost and resources. Budgets for each project element must be prepared at the start of the project and monitored to ensure that the resources available are compatible with the estimates of what is required to complete the work.

10. TRANSPORT CANADA SUPPORT

Transport Canada will be responsible for the following during the course of the work:

- (i) Creating the Project Advisory Committee that will include, among others, project sponsors and principal stakeholders. Other organizations, including those providing specialized expertise, may be invited to join the Committee.
- (ii) Convening Project Advisory Committee meetings for each phase.

- (iii) Distributing to the Committee members necessary reports or other materials delivered by the Consultant.
- (iv) Providing feedback, as required, to the Consultant, and accepting and approving Consultant deliverables.

11. DELIVERABLES

11.1 Interim Reports

The interim reports must be submitted in electronic Microsoft Word format to the Project Authority for review and acceptance. The interim reports will be submitted following the completion of each of the following activities:

- Task 2- Review of documentation;
- Task 3- Consultation with relevant railway industry experts
- Task 4- Classification of automated railway systems and technologies;
- Task 5- Synthesis of results;
- Task 6- Delivery of Draft Report and presentation;
- Task 7- Delivery of Final Report presentation;

The interim reports must include methodology, data, results, conclusions, references, and recommendations.

11.2 Progress Reports

Monthly Progress Reports must be submitted to the Project Authority electronically, no later than the 14th day of each month. A monthly progress meeting may also be held either by telephone or at a location to be specified by the Project Authority.

11.3 Final Report

The Consultant must produce and submit a professionally written and edited Final Report that summarizes the findings of the work described in Section 7.1, "Methodology", to the Project Authority.

The Consultant must also prepare and submit with the Final Report a Power Point presentation summarizing the contents of the Final Report that will be used for general project dissemination. On acceptance of the Final Report, the Consultant will present the findings of the report to Transport Canada in Ottawa.

Two electronic versions of the report are required by email or flash drive. The first must be produced as or converted to a Microsoft Word (version 2013) document. The second must be an Adobe portable document format (pdf) file.

11.4 Delivery Schedule for Final Report

The Consultant must submit the draft Final Report to the Project Authority, who will submit it to the Committee for review. Feedback and comments will be provided to the Consultant by the Project Authority. The Final Report submission and review schedule will be as follows:

- (i) The Consultant must provide one printed copy and one copy in Microsoft Word of the draft Final Report, including the presentation summary, a PDF abstract and key words.
- (ii) Technical comments on the draft Final Report will be given to the Consultant three (3) weeks after receipt.
- (iii) The Consultant will provide a revised version of the draft Final Report within three (3) weeks of receipt of technical comments.
- (iv) Comments on the revised draft Final Report will be provided electronically to the Consultant

- (v) within three (3) weeks of submission of the revised draft Final Report following the a second technical review.
- (vi) The Consultant must provide a final version of the draft Final Report within three (3) weeks of receipt of the second set of editorial comments.
- (vii) The Consultant must provide two copies of the Final Report within two (2) weeks of receipt from the Project Authority of written authorization to proceed with printing of the Final Report.

12 SCHEDULE

The duration and schedule for each phase of the project, including startup, are projected as follows:

Tasks and Project Milestones	Estimated Timeline From Contract Award
Task 1 - Project Kick-Off <input type="checkbox"/> Kick Off Meeting	10 days
Task 2 – Review of documentation	1 st month
Task 3 – Consultation with relevant railway industry experts	3 rd month
Task 4 – Classification of automated railway systems and technologies	5 th month
Task 5 – Synthesis of results and research gap analysis	6 th month
Presentation of Findings Results and Analysis 9. Task 6 - Delivery of Draft Report 10. Task 7 - Delivery of Final Report	7 th month

13 CONSULTANT PROJECT MANAGER

The consultant will appoint a senior staff member to assume project management responsibilities. That person will be the principal contact person with the Transport Canada Project Authority.

14 TRAVEL AND LIVING EXPENSES

There is no requirement for travel during the investigation of the report. It is expected that the consultant will present the report findings to Transport Canada at headquarters in Ottawa.

15 MISCELLANEOUS CONDITIONS

The Consultant must provide all deliverables to the Project Authority in English.

15.1 – Security Requirement

There are no security considerations for this project.

15.2 - Place of work

All work is to be undertaken at the Consultant's premises with the exception of the final report presentation to take place in Ottawa.

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ANNEX "B"

BASIS OF PAYMENT

1. BASIS OF PAYMENT

Payment for services rendered under the Contract will be based on the following:

Professional Services

An all-inclusive fixed price of:

Amount Entered at Contract Award

Travel Expenses

Authorized travel and living expenses will be reimbursed without any allowance for overhead or profit in accordance with the National Joint Council Travel Directive in effect at the time that the travel expenses are incurred (http://www.tbs-sct.gc.ca/hr-rh/gtla-vgcl/index_e.asp)

Provisional allowance for authorized travel and living expenses not to exceed: **\$ 4,000.00**

2. MILESTONE PAYMENTS

Milestones and Payments	Payments
Payment 1 – Following completion of: <ul style="list-style-type: none">Task 1 Kick Off MeetingTask 2 Review of documentation	25% of contract value
Payment 2 – Following completion of: <ul style="list-style-type: none">Task 3 – Consultation with relevant railway industry expertsTask 4 – Classification of automated railway systems and technologies	35% of contract value
Payment 3 – Following completion of: <ul style="list-style-type: none">Task 5 – Synthesis of results and research gap analysis	25% of contract value
Payment 4 – Following completion of: <ul style="list-style-type: none">Task 6 - Delivery of Draft ReportTask 7 - Delivery of Final Report	15% of contract value

3. METHOD OF PAYMENT

Payment for the professional services rendered to the satisfaction of the Departmental Authority shall be made in the following upon receipt and acceptance of detailed invoices submitted in accordance with the instructions provided in Section 4.

Total Estimated Contract Cost Not to Exceed:

Amount Entered at Contract Award (GST/HST extra)

4. INVOICING INSTRUCTIONS

Detailed invoices quoting Contract No. **T8080-200101**, and the Contractor's GST/HST Registration No. are to be submitted to the "Bill To" address indicated on Page 1 of this Contract.

For each invoice, the Contractor shall:

- Submit an accurate and complete claim for payment using Contractor's invoice and any other document required by the Contract, submitted in accordance with the payment provisions of the Contract, and containing the description and value of the Milestone claimed, and
- Upon completion and acceptance of the corresponding deliverable, to the satisfaction of the Technical Authority.

5. PROVINCIAL SALES TAX

The Contractor shall not invoice or collect any ad valorem sales tax levied by the province in which the taxable goods or services are delivered to federal government departments and agencies under authority of the following provincial sales tax license(s):

Ontario 11708174G

The Contractor is not relieved of any obligation to pay provincial sales tax on taxable goods or services used or consumed in the performance of the work."

6. GOODS AND SERVICES TAX (GST) AND HARMONIZED SALES TAX (HST)

Any amount to be levied against Her Majesty in respect of the GST/HST is to be shown separately on all invoices for goods supplied or services provided for payment by the Government of Canada. The Contractor agrees to remit any GST/HST paid or due to Revenue Canada.

ANNEX "C" to PART 3 OF THE BID SOLICITATION

ELECTRONIC PAYMENT INSTRUMENTS

The Bidder accepts any of the following Electronic Payment Instrument(s):

- VISA Acquisition Card;
- MasterCard Acquisition Card;
- Direct Deposit (Domestic and International);
- Electronic Data Interchange (EDI);
- Wire Transfer (International Only);