



RETURN BIDS TO:

RETOURNER LES SOUMISSIONS À:

Travaux publics et Services gouvernementaux
Canada

Voir dans le document/
See herein

NA

Québec

NA

**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

Title - Sujet Demande de renseignements-CEVA	
Solicitation No. - N° de l'invitation T8127-200020/D	Date 2022-07-13
Client Reference No. - N° de référence du client T8127-200020	
GETS Reference No. - N° de référence de SEAG PW-\$MTP-555-16487	
File No. - N° de dossier MTP-0-43118 (555)	CCC No./N° CCC - FMS No./N° VME
Solicitation Closes - L'invitation prend fin at - à 02:00 PM Eastern Daylight Saving Time EDT on - le 2022-08-23 Heure Avancée de l'Est HAE	
F.O.B. - F.A.B. Plant-Usine: <input type="checkbox"/> Destination: <input type="checkbox"/> Other-Autre: <input type="checkbox"/>	
Address Enquiries to: - Adresser toutes questions à: Mirfatahi, Kaveh	Buyer Id - Id de l'acheteur mtp555
Telephone No. - N° de téléphone (514) 260-4106 ()	FAX No. - N° de FAX () -
Destination - of Goods, Services, and Construction: Destination - des biens, services et construction: Transports Canada 100 RUE DU LANDAIS BLAINVILLE Québec J7C5C9 Canada	

Instructions: See Herein

Instructions: Voir aux présentes

Vendor/Firm Name and Address

**Raison sociale et adresse du
fournisseur/de l'entrepreneur**

Issuing Office - Bureau de distribution

Travaux publics et Services gouvernementaux Canada
Place Bonaventure, portail Sud-Oue
800, rue de La Gauchetière Ouest
7e étage, suite 7300
Montréal
Québec
H5A 1L6

Delivery Required - Livraison exigée Voir doc.	Delivery Offered - Livraison proposée
Vendor/Firm Name and Address Raison sociale et adresse du fournisseur/de l'entrepreneur	
Telephone No. - N° de téléphone Facsimile No. - N° de télécopieur	
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

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**OPERATION AND TECHNICAL SERVICES FOR TRANSPORT CANADA
MOTOR VEHICLE TEST CENTER (MVTC)
BLAINVILLE, QUEBEC.**

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PART 1 - GENERAL INFORMATION

1.1 Introduction

The bid solicitation 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 and Additional Information: includes the certifications and additional information to be provided;

Part 6 Security, Financial and Other Requirements: includes specific requirements that must be addressed by Bidders; and

Part 7 Resulting Contract Clauses: includes the clauses and conditions that will apply to any resulting contract.

The Annexes include the Statement of Work, the Basis of Payment, the Security Requirements Checklist, the Electronic Payment Instruments, the Federal Contractors Program for Employment Equity - Certification, the Insurance Requirements, the Task Authorization Form 572 and any other annexes.

1.2 Summary

1.2.1 Summary of requirements

Public Services and Procurement Canada (PSPC) is seeking competitive bids to renew the contract for automotive testing, operation and maintenance expert services for Transport Canada's (TC) Motor Vehicle Test Centre (MVTC), which is located at 100 Du Landais Street, Blainville, Quebec, for a duration from the date of contract award until March 31, 2028, plus two optional five-year periods.

The scope of the work under the proposed contract includes, but is not limited to the following:

- Supply of reliable automotive testing services to support TC compliance and research programs;
- Operation and maintenance of the site;
- Recommendations and/or implementation of facility improvement projects;
- Marketing of the MVTC to attract third-party clients and generate revenues to partially offset operating and maintenance costs.

1.2.2 Security requirements

There are security requirements associated with this requirement. For additional information, consult Part 6 - Security, Financial and Other Requirements, and Part 7 - Resulting Contract Clauses. For more information on personnel and organization security screening or security clauses, Bidders should refer to the [Contract Security Program](http://www.tpsgc-pwgsc.gc.ca/esc-src/introduction-eng.html) of Public Works and Government Services Canada (<http://www.tpsgc-pwgsc.gc.ca/esc-src/introduction-eng.html>) website.

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1.2.3 The Federal Contractors Program (FCP)

The Federal Contractors Program (FCP) for employment equity applies to this procurement; refer to Part 5 – Certifications and Additional Information, Part 7 - Resulting Contract Clauses and the annex titled Federal Contractors Program for Employment Equity - Certification.

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](#) (2022-03-29) 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: **270 days**

2.2 Submission of Bids

Bids must be submitted only to Public Works and Government Services Canada (PWGSC) Bid Receiving Unit of Quebec Region, no later than the date and time indicated on page 1 of the bid solicitation.

Note: For bidders choosing to submit using the Canada Post Corporation (CPS) Connect service for bids closing at the Bid Receiving Unit, the email address is:

TPSGC.RQReceptionSoumissions-QRSupplyTendersReception.PWGSC@tpsgc-pwgsc.gc.ca

Note: Bids will not be accepted if emailed directly to this email address. This email address is to be used to open a CPC Connect conversation, as detailed in Standard Instructions [2003](#), or to send bids through a CPC Connect message if the bidder is using its own licensing agreement for CPC Connect service.

It is the Bidder's responsibility to ensure that the CPS Connect Conversation opening request is sent to the above email address at least six days prior to the bid solicitation closing date.

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

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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.

For the purposes of this clause,

Definition

"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.

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: 2019-01](#) and the [Guidelines on the Proactive Disclosure of Contracts](#).

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:

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- 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.

2.4 Enquiries - Bid Solicitation

All enquiries must be submitted in writing to the Contracting Authority Kaveh.Mirfatahi@tpsgc-pwgsc.gc.ca no later than **ten (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 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 Quebec Province.

2.5.1 Permits and licenses required - Engineers

1. The engineers who are members of the Bidder's team must be or be able to be accredited, certified or licensed to provide the necessary professional services, to the fullest extent prescribed by provincial or territorial laws, in the province or territory in which the works will take place.
2. By submitting a bid, the Bidder certifies that the engineers who are members of the proponent's team meet the requirements of paragraph 1 above. The bidder acknowledges that PWGSC reserves the right to verify all information in this regard and that a false or erroneous certification may result in the rejection of the bid, which will be declared not admissible.

2.6 Bidders' Conference

A bidders' conference will be held via Zoom on July 27, 2022. It will begin at 9:00 a.m. EDT. The conference will review the scope of the requirement and the selection criteria specified in the bid solicitation. It is recommended that bidders who intend to submit a bid attend the conference or send a representative.

Bidders are requested to communicate with the Contracting Authority prior to the conference to confirm attendance. They should provide the Contracting Authority, in writing, with a list of people who will attend the conference, their e-mail address and the questions they wish to be addressed, no later than July 21, 2022 at 4:00 p.m. EDT. The Zoom link will be sent directly to each registered participant.

Any clarifications or changes to the bid solicitation resulting from the bidders' conference will be included as an amendment to the bid solicitation. Bidders who do not attend will not be precluded from submitting a bid.

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2.7 Mandatory Registration for Site Visit

It is strongly recommended that the Bidder or a representative of the Bidder visit the work site. Arrangements have been made for the site visit to be held at 100, du Landais Blainville, Quebec, J7C 5C9 on **August 3rd, 2022. The site visit will begin at 13:00 EDT.** Meet at the guardhouse and you will be escorted into the building.

Bidders must communicate with the Contracting Authority no later than July 29 at 5:00 p.m. EDT, 2022 to confirm attendance and provide the name(s) of the person(s) who will attend. Bidders will be requested to sign an attendance sheet. Bidders who do not attend or do not send a representative will not be given an alternative appointment but they will not be precluded from submitting a bid. Any clarifications or changes to the bid solicitation resulting from the site visit will be included as an amendment to the bid solicitation.

Due to the pandemic, at all times during the visit, the sanitary measures in force at the MVTC site must be respected. The contracting authority could terminate the visit in the event of non-compliance with sanitary rules. Access to the site will not be permitted to anyone showing symptoms of COVID-19 or who has been in contact someone with a COVID-19 positive diagnostic. Due to the evolution of the pandemic, health measures could change and the conduct of the visit could be compromised. Any change concerning the site visit will be issued as an amendment to the bid solicitation.

The hygiene measures currently in force at CEVA are as follows:

In accordance with government guidelines, PMG Technologies may refuse access to the test center to anyone who has any of the following COVID-19 related symptoms:

- o Fever;
- o Muscle aches / pains;
- o Recent cough or sore throat;
- o Breathing difficulties;
- o General fatigue;
- o Unusual headaches;
- o Loss of smell or taste;
- o Nausea or diarrhea.

Procedure to Access the Test Center

You must bring your own personal protective equipment (masks, gloves, safety glasses and safety shoes). Please also allow extra time in your schedule to familiarize yourself with the revised safety and disinfection procedure.

- Park your vehicle in the visitor parking lot and proceed to the gatehouse (guard post);
- Wear your mask at all times in the gatehouse building;
- Wash your hands in the gatehouse building (upon your arrival and before leaving the site);
- Keep a physical distance of 2 meters (6.6 feet);
- Answer the questions regarding your health status and COVID-19 related symptoms asked by the security guard;
- Wait at the gatehouse building for your contact-person to escort you to the site.

Physical contacts with equipment and facilities must be limited and a 2 meters physical distancing must be respected. A floor marking indicates the physical distancing to respect. Alcohol-based disinfectant bottles and dispensers for all users will be provided.

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2.8 Improvements made to requirements during the bid solicitation

Bidders who believe they can improve the Statement of Work contained in the bid solicitation, to Appendix A, are invited to provide suggestions in writing to the Contracting Authority identified in the bid solicitation. Bidders must clearly indicate the suggested improvements and the reasons for them. Suggestions, which do not restrict competition or favor a particular bidder, will be given consideration provided they are received by the Contracting Authority no later than 15 calendar days before the bid solicitation closing date. Canada will have the right to accept or reject any or all of the suggestions made.

2.9 Bid Challenge and Recourse Mechanisms

- (a) Several mechanisms are available to potential suppliers to challenge aspects of the procurement process up to and including contract award.
- (b) Canada encourages suppliers to first bring their concerns to the attention of the Contracting Authority. Canada's [Buy and Sell](#) website, under the heading "[Bid Challenge and Recourse Mechanisms](#)" contains information on potential complaint bodies such as:
 - Office of the Procurement Ombudsman (OPO)
 - Canadian International Trade Tribunal (CITT)
- (c) Suppliers should note that there are **strict deadlines** for filing complaints, and the time periods vary depending on the complaint body in question. Suppliers should therefore act quickly when they want to challenge any aspect of the procurement process.

PART 3 - BID PREPARATION INSTRUCTIONS

3.1 Bid Preparation Instructions

If the Bidder chooses to submit its bid electronically, Canada requests that the Bidder submits its bid in accordance with section 08 of the 2003 standard instructions. The CPC Connect system has a limit of 1GB per single message posted and a limit of 20GB per conversation.

Canada requests that the Bidder submits its bid in separately bound sections as follows:

Section I: Technical Bid

Section II: Financial Bid

Section III: Certifications

Due to the nature of the bid solicitation, bids transmitted by paper will not be accepted.

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 hard copy of their bid:

- Sheet size: 216 mm x 279 mm (8.5" x 11")
- Font size, suggested – 10-point Arial or equivalent
- Margin width – 12 mm left, right, top and bottom
- One (1) "page" means one (1) side of a 216 mm x 279 mm (8.5" x 11") sheet of paper.

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- 279 mm x 432 mm (11" x 17") sheets for spreadsheets, organization charts, etc. will be counted as two pages.

The maximum number of pages (including text and graphics) to be submitted for the rated requirements under Annex F Selection Criteria, are stipulated in the Annex F.

The following pages are not part of the page limitation mentioned above:

- Covering letter
- Cover page
- Tabs/dividers used only to identify proposal sections, provided they are free of any other text or graphics
- Table of Contents
- Annex B: Basis of payment Identification form for team members;
- Annex D: Electronic Payment Instruments;
- integrity provisions - documentation required;
- first page of the bid solicitation.

Consequence of non-compliance: any pages which extend beyond the above page limitation and any other attachments will be withdrawn from the proposal and will not be forwarded to the PWGSC Evaluation Board.

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 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.

Section II: Financial Bid

Bidders must submit their financial bid in accordance with the "Financial Bid Presentation Sheet detailed in Basis of Payment in Annex "B".

3.1.2 Electronic Payment of Invoices – Bid

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

If Annex "D" 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.

3.1.3 Exchange Rate Fluctuation

The requirement does not offer exchange rate fluctuation risk mitigation. Requests for exchange rate fluctuation risk mitigation will not be considered. All bids including such provision will render the bid non-responsive.

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Section III: Certifications

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

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, in the presence of an independent fairness monitor.

4.1.2 Technical Evaluation

4.1.2.1. Point Rated Technical Criteria

Refer to Annex F, Point Rated Technical Criteria.

4.1.3 Financial Evaluation

4.1.3.1 Mandatory Financial Criteria

Bidders must present their financial bid in accordance with Part 3 – Bid Preparation Instruction at Section II: Financial Bid.

4.1.3.2 Price Evaluation

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

The total bid amount, shown in Annex B - Basis of Payment, of each responsive bid will be used to evaluate the pricing score, as set out in paragraph 4.2 *Basis of Selection*.

If only one bid is deemed responsive, the bid price will also be evaluated according to the Contract Cost Principles (2012-07-16): [Section 3.1031-2 - Contract Cost Principles - Buyandsell.gc.ca](#) and according to the Supply Manual, Chapter 10 - Costs and Profits, [Chapter 10 - Cost and Profit - Buyandsell.gc.ca](#)

4.2 Basis of Selection

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

1. To be declared responsive, a bid must:
 - a. comply with all the requirements of the bid solicitation; and
 - b. obtain the required minimum points for each technical criterion with a pass mark; and
 - c. obtain the required minimum points overall for all technical criteria with a pass mark. The rating is performed on a scale of 1000 points.
2. Bids not meeting (a), (b) and (c), of 4.2.1.1 above will be declared non-responsive.
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.

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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.
5. To establish the pricing score, each responsive bid will be prorated against the lowest evaluated price and the ratio of 30.
6. For each responsive bid, the technical merit score and the pricing score will be added to determine its combined rating.
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 all three bids are responsive and the selection of the contractor is determined by a 70/30 ratio of technical merit and price, respectively. The total available points equals 112 and the lowest evaluated price is \$2 816 759.59.

		Bidder 1	Bidder 2	Bidder 3
Overall Technical Score		90/112	100/112	110/112
Bid Evaluated Price		2 816 759,59 \$	3 008 378,68 \$	3 174 861,73 \$
Calculations	Technical Merite Score	$(90/112) * 70 = 56,25$	$(100/112) * 70 = 62,50$	$(110/112) * 70 = 68,75$
	Pricing Score	$(2\ 816\ 759,59 / 2\ 816\ 759,59) * 30 = 30$	$(2\ 816\ 759,59 / 3\ 008\ 378,68) * 30 = 28,09$	$(2\ 816\ 759,59 / 3\ 174\ 861,73) * 30 = 26,62$
Combined Rating		86,25	90,59	95,37
Overall Rating		3rd	2nd	1st

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

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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](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 specified 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/programs/employment-equity/federal-contractor-program.html#) 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.

Canada will also have the right to terminate the Contract for default if a Contractor, or any member of the Contractor if the Contractor is a Joint Venture, appears on the "[FCP Limited Eligibility to Bid](#)" list during the period of the Contract.

The Bidder must provide the Contracting Authority with a completed annex titled Federal Contractors Program for Employment Equity - Certification, before contract award. If the Bidder is a Joint Venture, the Bidder must provide the Contracting Authority with a completed annex Federal Contractors Program for Employment Equity - Certification, for each member of the Joint Venture.

5.2.3 Security requirements - Required Documentation

In accordance with the requirements of the Contract Security Program of Public Works and Government Services Canada (<https://www.tpsgc-pwgsc.gc.ca/esc-src/introduction-eng.html>), the bidder must provide:

- For Canadian legal entities: a completed Security Program registration application form (RAF) or;
- For non-Canadian legal entities: an initial international security screening form.

The form will be further reviewed in the procurement process.

Bidders are reminded to obtain the required security clearance and, if applicable, security capabilities promptly. As indicated above, Bidders who do not provide all the required information at bid closing will be given the opportunity to complete the missing information on the form within a time limit set by the Contracting Authority. If this information is not provided within the time period set by the Contracting Authority (including any extension granted by the Contracting Authority in its discretion), or if Canada

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requires further information from the Bidder within the assessment of the security clearance request (i.e. information not required by the form), the Bidder will be required to submit that information within the time period established by the Contracting Authority, which will not be less than 48 hours. If at any time the Bidder fails to provide the information required within the time frame set by the Contracting Authority, its bid will be declared non-compliant.

5.2.4 Additional Certifications Precedent to Contract Award

5.2.4.1 Certification – Contractor’s Impartiality

The bidder certifies having read the Contractor’s Impartiality Certification in Annex J and agrees to comply with it if awarded the contract.

5.2.4.2 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.

5.2.4.3 Education and Experience

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 term of the Contract. 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.

5.2.4.4 Language Capability

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

5.2.4.5 Key positions held by engineers

The bidder certifies that the individuals suggested for the following key positions are members of the Ordre des ingénieurs du Québec or have applied to the Ordre for a license to practice:

1. Engineering Manager
2. Crash Lab Manager
3. Vehicle Structures Lab (VTS) Manager
4. Crash Avoidance Research Lab Manager
5. Environmental Lab and Plant Manager
6. Sled Lab Manager

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The bidder acknowledges that PWGSC reserves the right to verify any information in this regard and that false or erroneous certification may result in the proposal being declared non-responsive.

PART 6 - SECURITY, FINANCIAL AND OTHER REQUIREMENTS

6.1 Security Requirements

1. Before award of a contract, the following conditions must be met:
 - (a) the Bidder must hold a valid organization security clearance as indicated in Part 7 - Resulting Contract Clauses;
2. Before providing access to sensitive information to the bidder, the following conditions must be met:
 - (a) Bidder's proposed individuals requiring access to sensitive information or assets or to restricted workplaces must meet the security requirements as indicated in Part 7 - Resulting Contract Clauses;
 - (b) the Bidder's security capabilities must be met as indicated in Part 7 - Resulting Contract Clauses.
3. For additional information on security requirements, Bidders should refer to the [Contract Security Program](http://www.tpsgc-pwgsc.gc.ca/esc-src/introduction-eng.html) of Public Works and Government Services Canada (<http://www.tpsgc-pwgsc.gc.ca/esc-src/introduction-eng.html>) website.

6.2 Financial Capability

SACC Manual clause [A9033T](#) (2012-07-16) Financial Capability

6.3 Insurance Requirements

The Bidder must provide a letter from an insurance broker or an insurance company licensed to operate in Canada stating that the Bidder, if awarded a contract as a result of the bid solicitation, can be insured in accordance with the Insurance Requirements specified in Annex G.

If the information is not provided in the bid, the Contracting Authority will so inform the Bidder and provide the Bidder with a time frame within which to meet the requirement. Failure to comply with the request of the Contracting Authority and meet the requirement within that time period will render the bid non-responsive.

PART 7 - RESULTING CONTRACT CLAUSES

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

7.1 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, dated _____.

7.1.1 Task Authorization

The Work or a portion of the Work to be performed under the Contract will be on an "as and when requested basis" using a Task Authorization (TA). The Work described in the TA must be in accordance with the scope of the Contract.

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7.1.1.1 Task Authorization Process

1. The Technical Authority will provide the Contractor with a description of the task using the "Task Authorization Form" 572 in Annex H.
2. The Task Authorization (TA) will contain the details of the activities to be performed, a description of the deliverables, and a schedule indicating completion dates for the major activities or submission dates for the deliverables. The TA will also include the applicable basis (bases) and methods of payment as specified in the Contract.
3. The Contractor must provide the Technical Authority, within 7 calendar days of its receipt, the proposed total estimated cost for performing the task and a breakdown of that cost, established in accordance with the Basis of Payment specified in the Contract.
4. For each resource proposed, the resources must have been pre-approved by the Technical Authority and the Contracting Authority.
5. The Contractor must not begin work until receipt of the TA authorized by the Contracting Authority. The Contractor acknowledges that, prior to receipt of a TA, the work performed will be at his own risk.

7.1.1.2 Canada's Obligation - Portion of the Work - Task Authorizations

Minimum Work Guarantee – all work performed under Task Authorizations for all programs: Compliance Program and Research Program: Collision Avoidance and Research Program: Crash Resistance.

1. In this clause,

"All Programs" means: Compliance Program and Research Program; Collision Avoidance and Research Program; Crash Resistance;

"Maximum Contract Value" means the amount specified in the "Limitation of Expenditure" clause set out in the Contract;

"minimum value for Compliance Program" means \$950,000.00 (before taxes);

"minimum value of all programs Research; Collision Avoidance and Research; Crash Resistance" means \$2,000,000.00 (before taxes);

"fiscal year": period from April 1 to March 31

2. Canada's obligation under the Contract is to request work under Task Authorizations for all Programs or, at Canada's option, to pay the Contractor at the end of each fiscal year, on the 31 March, pursuant to paragraphs 3 and 4. In consideration of this obligation, the Contractor agrees to stand ready, throughout the term of the Contract, to perform the Work described in the Contract. Canada's maximum liability for Work performed under the Contract must not exceed the Maximum Contract Value, unless an increase is authorized in writing by the Contracting Authority.
3. If Canada does not request work under Compliance Program Task Authorizations for an amount at least equal to the Compliance Program Minimum Value during the period of one Fiscal Year, or on a pro rata basis of 1 /12 of the minimum value for each month if the duration of the period is less than one fiscal year, Canada will pay the contractor the minimum value for the program.

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4. If Canada does not request work under Task Authorizations for the Research programs: Collision Avoidance and Research: Crash Resistance for an amount at least equal to the minimum value for all Research programs : collision avoidance and Research : crash resistance during the period of a fiscal year, or prorated to 1/12 of the minimum value for each of the months if the duration of the period is less than a fiscal year, Canada will pay the Contractor the minimum value of all Research programs: Collision Avoidance and Research: Crash Resistance.
5. If Canada terminates the Contract in whole or in part for default, Canada will have no obligation to the Contractor under this clause.
6. The minimum value of all programs will be adjusted annually on the start date of each new contract year according to the average percentage increase (or decrease) of the monthly index of the consumer price index for the Canada, all-items index, not seasonally adjusted, published by Statistics Canada for the province of Quebec, for the 12-month period (see example below) ending three (3) months before the start date of the new contract year.

Table 18-10-0004-01– Consumer Price Index, monthly, not seasonally adjusted:
https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1810000401&pickMembers%5B0%5D=1.11&request_locale=en

7.1.1.3 Periodic Usage Reports - Contracts with Task Authorizations

The Contractor must compile and maintain records on its provision of services to the federal government under authorized Task Authorizations issued under the Contract.

The Contractor must provide this data in accordance with the reporting requirements detailed below. If some data is not available, the reason must be indicated. If services are not provided during a given period, the Contractor must still provide a "nil" report.

The data must be submitted on a trimestrial basis to the Contracting Authority.

The data must be submitted to the Contracting Authority no later than 30 calendar days after the end of the reporting period.

Reporting Requirement- Details

A detailed and current record of all authorized tasks must be kept for each contract with a task authorization process. This record must contain (contracting authority to edit the text as applicable):

For each authorized task:

- i. the authorized task number or task revision number(s);
- ii. a title or a brief description of each authorized task;
- iii. the total estimated cost specified in the authorized Task Authorization (TA) of each task, exclusive of Applicable Taxes;
- iv. the total amount, exclusive of Applicable Taxes, expended to date against each authorized task;
- v. the start and completion date for each authorized task; and
- vi. the active status of each authorized task, as applicable.

For all authorized tasks:

- i. the amount (exclusive of Applicable Taxes) specified in the contract (as last amended, as applicable) as Canada's total liability to the contractor for all authorized TAs; and
- ii. the total amount, exclusive of Applicable Taxes, expended to date against all authorized TAs.

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7.2 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](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.

7.2.1 General Conditions

[2035](#) (2022-05-12), General Conditions - Higher Complexity - Services, apply to and form part of the Contract.

7.2.2 Supplemental General Conditions

[1031-2](#) (2012-07-16) Contract Cost Principles

[4002](#) (2010-08-16) Software Development or Modification Services

[4004](#) (2013-04-25) Maintenance and Support Services for Licensed Software

[4006](#) (2010-08-16) Contractor to Own Intellectual Property Rights in Foreground Information

[B7500C](#) (2006-06-16) Excess Goods;

apply to and form part of the Contract.

7.3 Security Requirements

7.3.1 The following security requirements (SRCL and related clauses provided by the Contract Security Program) apply and form part of the Contract.

SECURITY REQUIREMENT FOR CANADIAN SUPPLIER:

PWGSC FILE No. T8127-200020

1. The Contractor must, at all times during the performance of the Contract/Standing Offer, hold a valid Designated Organization Screening (DOS), issued by the Contract Security Program (CSP), **Public Works and Government Services Canada (PWGSC)**.
2. The Contractor personnel requiring access to PROTECTED information, assets or sensitive site(s) must EACH hold a valid RELIABILITY STATUS, granted or approved by the CSP, **PWGSC**.
3. The Contractor MUST NOT remove any PROTECTED information or assets from the identified site(s), and the Contractor must ensure that its personnel are made aware of and comply with this restriction.
4. Subcontracts which contain security requirements are NOT to be awarded without the prior written permission of the CSP, **PWGSC**.
5. The Contractor/Offeror must comply with the provisions of the:
 - a) Security Requirements Check List and security guide (if applicable), attached at Annex C;
 - b) *Contract Security Manual* (Latest Edition).

7.4 Term of Contract

The duration of the Contract is from the date of contract award until March 31, 2028.

Services must be starting on July 1, 2023.

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7.4.1 Option to Extend the Contract

The Contractor grants to Canada the revocable option to extend the term of the Contract by up to **two (2) additional periods of five (5) year each**, 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.

The revocable option may be exercised by Canada by sending written notice to the Contractor at least **365 calendar days before the expiry date of the Contract**.

The Contractor may accept or decline the option by sending a written notice to the Contracting Authority no later than 30 days after receiving the notice from Canada. If the Contractor fails to send a notice of acceptance or rejection to the Contracting Authority within the time period mentioned above, the Contractor will be deemed to have accepted the exercise of the option by Canada.

If exercised by Canada and accepted by the Contractor, the option will be confirmed by a contract amendment.

7.5 Delivery Points

Delivery of the requirement will be made to delivery point(s) at 100, du Landais Street, Blainville, Quebec, J1T 5C9.

7.6 Authorities

7.6.1 Contracting Authority

The Contracting Authority for the Contract is:

Name: Kaveh Mirfatahi
Title: Team Leader
Public Works and Government Services Canada
Acquisitions Branch
Directorate of Quebec Region
Address: 800, de la Gauchetière West, Montreal (Quebec), H5A 1L6

Telephone: 514-260-4106
E-mail address: kaveh.mirfatahi@tpsgc-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.

7.6.2 Technical Authority

(TO BE DETERMINED AT THE CONTRACT AWARD)

The Technical Authority for the Contract is:

Name: _____
Title: _____
Organization: _____
Address: _____

Telephone: ____-____-_____
Facsimile: ____-____-_____
E-mail address: _____

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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.

7.6.3 Contractor's Representative

(TO BE DETERMINED AT THE CONTRACT AWARD)

The Contractor's Representative for the Contract is:

Name: _____

Title: _____

Organization: _____

Address: _____

Telephone: ____-____-____

Facsimile: ____-____-____

E-mail address: _____

7.7 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.

7.8 Payment

7.8.1 Basis of Payment: Firm Monthly Price

For the Work described in Annex A – Statement of Work, Section 5.0 - Site Maintenance, Task no 1 and Section 6.0 – Management and Administration:

In consideration of the Contractor satisfactorily completing its obligations under the Contract, the Contractor will be paid firm monthly price for a cost or total amount of \$_____ (*insert the amount at contract award*). Customs duties are *included* and Applicable Taxes are extra.

For the firm price portion of the Work only, 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.

7.8.2 Basis of Payment: Cost reimbursable - Limitation of Expenditure

For the Work described in Annex A – Statement of Work - Section 5.0 - Site Maintenance, Tasks 5.6.2, 5.6.4 and 5.6.5:

The Contractor will be paid for its costs reasonably and properly incurred in the performance of the Work, plus the percentage bid for administration and profit in accordance with the Basis of payment in annex B, to a limitation of expenditure of \$_____ (*insert the amount at contract award*).

Customs duties are included and Applicable Taxes are extra.

7.8.3 Basis of Payment – Task Authorization

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One of the following Basis of payment will be part of the approved task authorization (TA). The price of the task will be established according to the Basis of Payment in Annex B.

(i) For the Work provided under a Task Authorization subject to a Firm Price:

In consideration of the Contractor satisfactorily completing all of its obligations under the authorized Task Authorization (TA), the Contractor will be paid a firm price in accordance with the basis of payment, in Annex B, as specified in the authorized TA. 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 authorized, in writing, by the Contracting Authority before their incorporation into the Work.

(ii) For the Work provided under a Task Authorization subject to a Ceiling Price:

The Contractor will be reimbursed its costs reasonably and properly incurred in the performance of the Work, plus a profit, as determined in accordance with the Basis of Payment in Annex B, to the ceiling price specified in the approved TA. Customs duties are included and Applicable Taxes are extra.

The ceiling price is subject to downward adjustment so as not to exceed the actual costs reasonably incurred in the performance of the Work and computed in accordance with the Basis of Payment.

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.

Ceiling price: *A ceiling price is the maximum amount of money that may be paid to a contractor. By establishing a ceiling price, the contractor must fulfill all of its contractual obligations relative to the work to which this basis of payment applies without additional payment whether or not the actual costs incurred exceed the ceiling price.*

(iii) For the Work provided under a Task Authorization subject to a Limitation of Expenditure:

The Contractor will be reimbursed for the costs reasonably and properly incurred in the performance of the Work specified in the authorized Task Authorization (TA), as determined in accordance with the Basis of Payment in Annex B, to the limitation of expenditure specified in the authorized TA.

Canada's liability to the Contractor under the authorized TA must not exceed the limitation of expenditure specified in the authorized TA. Customs duties are included and Applicable Taxes are extra.

No increase in the liability of Canada or in the price of the Work specified in the authorized TA resulting from any design changes, modifications or interpretations of the Work will be authorized or paid to the Contractor unless these design changes, modifications or interpretations have been authorized, in writing, by the Contracting Authority before their incorporation into the Work. The Contractor must not perform any work or provide any service that would result in Canada's liability to the Contractor under the authorized TA being exceeded before obtaining the written approval of the Contracting Authority.

(iv) Travel and Living Expenses:

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The Contractor will be reimbursed for the authorized travel and living expenses reasonably and properly incurred in the performance of the Work, at cost, without any allowance for overhead or profit, in accordance with the meal, private vehicle and incidental expense allowances specified in Appendices B, C and D of the *National Joint Council Directive*, and with the other provisions of the directive referring to "travellers", rather than those referring to "employees".

All travel must have the prior authorization of the Technical Authority.

7.8.4 Limitation of Expenditure for the contract

1. Canada's total liability to the Contractor under the Contract must not exceed \$ _____. (insert the amount at contract award). Customs duties are included, and Applicable Taxes are extra.
2. No increase in the total liability of Canada or in the price of the Work resulting from any design changes, modifications or interpretations of the Work, will be authorized or paid to the Contractor unless these design changes, modifications or interpretations have been approved, in writing, by the Contracting Authority before their incorporation into the Work. The Contractor must not perform any work or provide any service that would result in Canada's total liability being exceeded before obtaining the written approval of the Contracting Authority. The Contractor must notify the Contracting Authority in writing as to the adequacy of this sum:
 - a. when it is 75% committed, or
 - b. four months before the contract expiry date, or
 - c. as soon as the Contractor considers that the contract funds provided are inadequate for the completion of the Work,whichever comes first.
3. If the notification is for inadequate contract funds, the Contractor must provide to the Contracting Authority a written estimate for the additional funds required. Provision of such information by the Contractor does not increase Canada's liability.

7.8.5 Overtime - Fixed Time Rate

The Contractor must not perform any overtime under the Contract unless authorized in advance and in writing by the Technical Authority. Any request for payment must be accompanied by a copy of the overtime authorization and a report containing the details of the overtime performed pursuant to the written authorization. Payment for authorized overtime will be calculated as follows:

Overtime worked beyond the usual 40-hour work week is payable at one and a half times the firm hourly rate, without other mark-up.

7.8.6 Indexation of, firm hourly rates, firm prices per test and the monthly lump sums applicable to the two optional periods

From the first year of the optional period the firm hourly rates, firm prices per test and lump sums indicated in Annex B – Basis of Payment will be adjusted annually on the start date of each new contractual year and will be in effect for the duration of the added period.

The amounts will be adjusted in accordance with Contract Cost Principles 1031-2 or, failing an agreement between the Contractor and Canada, according to the consumer price index.

7.8.6.1 Contract Cost Principles

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1. The contractor will be required to complete the form [PWGSC-TPSGC 7953](#) (PDF 87KB) - ([Help on File Formats](#)), contractors Cost Submission, in electronic format and send it to the Contracting Authority. Costs will be calculated in accordance with Contract Cost Principles 1031-2.
2. The Cost Submission must include a breakdown of all applicable cost items described in the Contract and must be signed and certified as correct by the Contractor's Senior Financial Officer, unless the Contracting Authority has indicated something else in writing.
3. For each cost item, supporting information should be available in sufficient detail to allow an in-depth audit to be performed.

Or failing an agreement between the Contractor and Canada:

7.8.6.2 Consumer Price Index

The amounts will be adjusted based on the annual average percentage increase (decrease) in the monthly index of the Consumer Price Index for Canada, All-Items (Not Seasonally Adjusted), published by Statistics Canada for the Province of Quebec, for the 12-month (see example below) period ending three (3) months prior to the new Contract year start date.

Table : 18-10-004-01 Consumer Price Index, monthly, not seasonally adjusted :
[Consumer Price Index, monthly, not seasonally adjusted \(statcan.gc.ca\)](#)

For example, if the contract start date was April 10, 2022 then at the start of the first year of the optional period (i.e. April 10, 2027), the Contract year one (1) hourly rates would be increased by 1.3% based on the following assumptions:

% Change in index of the Consumer Price Index for Canada, All-Items (Not Seasonally Adjusted), published by Statistics Canada for the Province of Quebec

February 2026	1.1%
March 2026	1.2%
April 2026	0.9%
May 2026	0.9%
June 2026	1.1%
July 2026	1.0%
August 2026	1.4%
September 2026	1.6%
October 2026	1.6%
November 2026	1.7%
December 2026	1.5%
January 2027	1.7%

Average : 15.7% / 12 (month = 1.3%)

The adjustment of hourly rates and fixed test prices for the second year of the first optional period and subsequent contract years will be made from the adjusted hourly rates and fixed test prices used during the previous contract year. For example, for the third year of the first optional period, the adjustment of hourly rates and fixed test prices will be made from the hourly rates and adjusted fixed test prices used in the second year of the first optional period.

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Canada will make the adjustment, in accordance with the terms set out in paragraph 1, which will be effective on the anniversary date of the applicable contract, and will send a notice to the Contractor indicating the percentage adjustment of the hourly rates and fixed test prices before the anniversary date of the contract.

7.8.7 Monthly credit for use of equipment for commercial purposes

The monthly credit for use of equipment for commercial purposes (MC) is intended to recover the costs incurred by Canada for the use of MVTC's equipment and facilities in the course of the contractor's business activities, under the Financial Administration Act, more specifically in article 19 (2). <https://laws-lois.justice.gc.ca/eng/acts/f-11/page-4.html>.

For the purposes of commercialization and marketing, the capital expenditures have been categorized into four activity centers: test tracks, environmental chambers, collision laboratory and large laboratory.

Given the information available on the cost of using the four activity centers, two calculation methods are applicable, namely the cost of use per hour for the test tracks and environmental chambers, and the credit on the commercialization revenue for the collision laboratory and the large laboratory.

The Contractor must keep a record of the time of use and other information requested from each of the activity centers, in the course of its commercial activities.

Usage time must be rounded up to the nearest 15 minutes. For example, a piece of equipment used for 3 hours and 7 minutes will be rounded up to 3 hours of use, or 3.0 h. On the other hand, a usage time of 3 hours and 8 minutes will be rounded up to 3 hours 15 minutes, or 3.25 hours.

Usage reports (appendix H to annex A) must be duly completed and accompany the monthly invoice.

However, Canada aims to standardize the method of calculating the MC towards a usage cost per hour for the four activity centers, in the event of the exercise of the first option to extend the contract. In doing so, Canada will take into account the information provided in the Usage Reports during the first three years of the contract or more, as deemed necessary by Canada. Canada may also consider any other information deemed relevant by itself or by the Contractor to enable Canada to calculate the cost of using of the two laboratories. The information collected will also be used to update the applicable rates for the use of test tracks and environmental chambers, should an option be exercised.

The Contractor must apply the MC to the monthly invoice.

7.8.7.1 Usage cost per hour

The methodology for calculating the costs of using the test tracks and environmental chambers is based on the actual value of capital investments over the last 15 years, in the amount of \$4,064,925.63 for the test tracks and \$3,074,873.31 for the environmental chambers (see Appendix K to Annex A – Statement of Work : 15-Year Historical Capital Expenditures (2007-2020/2021) by Activity Centre).

The amortization of each of the activity centers was calculated using the straight-line method over a period of 15 years. Then, the depreciation costs were calculated based on the theoretical capacities as follows:

- Test track: 4 test tracks X 40 hours X 50 weeks = 8,000 maximum productive hours per year;
- Environmental chambers: 2 rooms X 40 hours X 50 weeks = 4,000 maximum productive hours per year.

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For the purpose of calculating the theoretical capacity per year, the maximum number of hours per year for each equipment is calculated as follows:

- 5 days x 8 hours/day x 50 weeks = 2000 hours per year.

In order to obtain an hourly rate that reflects the cost of use as much as possible, overhead costs were also included. These were divided equally among the 4 activity centers (25% each). The overhead costs considered related to MVTC operations include: Maintenance and Repair, Security, Electricity/Heating and Taxes. The average for 2018 and 2019 was considered for an amount of \$83,735 per month.

Taking into account depreciation and overhead costs, the rate of use of the equipment, for the firm term of 5 years, with reference to the calculations above is:

- Test tracks: **\$89.71/hour**
- Environmental chambers: **\$153.15/hour**

7.8.7.2 Credit on commercialization revenues

The calculation method of the hourly usage cost of the collision laboratory and the large laboratory is based on gross commercialization revenues.

The contractor agrees to credit Transport Canada the following amount: the percentage of the contractor's gross commercial revenue listed in Annex B – Basis of Payment, Table 6-B, generated by the use of the two laboratories.

Revenues considered in the calculation include any gross revenues from parties other than Transport Canada. Gross revenue means total revenue as defined by generally accepted accounting principles. Gross revenues must be calculated by the Contractor or any other person that is a parent or affiliate of the Contractor or both in the performance of any of the services to be provided under the Contract.

The credit will be applied as a credit to each monthly invoice. The credit will be calculated on the commercial revenues received during the full month prior to the date of the invoice.

7.8.7.3 Calculation of the Monthly Credit applicable to optional periods

The usage cost per hour calculation method, as described in 7.8.7.1, will be applied to all activity centers. However, at Canada's discretion, in the event that the available information is insufficient or unreliable, the marketing revenue credit method may apply (see Annex B-Table 6B).

A calculation will be carried out again in order to take into consideration the investments in fixed assets of the last 15 years, from the date on which the calculation will be carried out.

The calculation of general expenses will be made in consideration of the average general expenses of the last 2 completed fiscal years, from the date on which the calculation is made.

The amortization period for capital investments exceeding \$5,000,000 will be determined by Canada taking into account the life of the capital asset.

If cost centers are added during the contract period, Canada will apply one of the two methods, taking into account the information available.

Supervision of marketing and transparency (refer to article 7.7 Authorized activities of Annex A)

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Canada reserves the right to ask the Contractor to cease all activities related to the marketing, if it damages the reputation of Canada.

7.8.8 Electronic Payment of Invoices – Contract

The Contractor accepts to be paid using any of the following Electronic Payment Instrument(s):

- a. Visa Acquisition Card;
- b. MasterCard Acquisition Card;
- c. Direct Deposit (Domestic and International);
- d. Electronic Data Interchange (EDI);
- e. Wire Transfer (International Only);
- f. Large Value Transfer System (LVTS) (Over \$25M)

7.8.9 Discretionary Audit

The Contractor's certification that the price or rate is not in excess of the lowest price or rate charged anyone else, including the Contractor's most favored customer, for the like quality and quantity of the goods, services or both, is subject to verification by government audit, at the discretion of Canada, before or after payment is made to the Contractor. Canada reserves the right to validate that the costs conform to the 1031-2 Contract Cost Principles.

If the audit demonstrates that the certification is in error after payment is made to the Contractor, the Contractor must, at the discretion of Canada, make repayment to Canada in the amount found to be in excess of the lowest price or rate or authorize the retention by Canada of that amount by way of deduction from any sum of money that may be due or payable to the Contractor pursuant to the Contract.

If the audit demonstrates that the certification is in error before payment is made, the Contractor agrees that any pending invoice will be adjusted by Canada in accordance with the results of the audit. It is further agreed that if the Contract is still in effect at the time of the verification, the price or rate will be lowered in accordance with the results of the audit.

7.8.10 Time Verification

Time charged and the accuracy of the Contractor's time recording system are subject to verification by Canada, before or after payment is made to the Contractor. If verification is done after payment, the Contractor must repay any overpayment, at Canada's request.

7.8.11 Optional Basis of Payment Conversion

1. In its sole and absolute discretion, Canada may, at any time, submit a request in writing to the Contractor, advising them of its interest in converting the basis of payment for cost reimbursable services to a basis of payment at firm price (or fixed price), for some or all of the work.
2. The terms of application of the Basis of Payment Conversion will be proposed by Canada and will accompany the written request to the Contractor. Upon receipt of the request, the Contractor must respond within 10 calendar days whether or not they agree to enter into negotiations with Canada to set a lump sum. Failure to respond will result in the Contractor being deemed to decline Canada's proposal.
3. The change in the Basis of payment will be applicable only on the condition that Canada and the Contractor agree on the terms and the lump sum price to the satisfaction of both parties.

7.8.12 Financial incentive for the repair of test equipment

With reference to Annex A - Statement of Work, Section 4.0 Maintenance, Improvement and Support of Fixed Test Equipment:

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In the event of test equipment failure, where the contractor has the capacity and expertise to repair the test equipment rather than entrusting the repair to the manufacturer or any other supplier, and the cost of repairs by the contractor is less than the estimated cost of the manufacturer and external suppliers, the savings made by Canada could be shared with the contractor according to the following calculation:

(Lower estimate from external suppliers - actual cost of repair by contractor) x 50% = financial incentive given to the contractor by Canada.

The contractor will have to demonstrate to the Technical Authority that they have the capacity and expertise to perform the repair and that Canada will benefit from the economy. The final decision on the procurement strategy will be at the sole discretion of the Technical Authority, regardless of the economy that Canada may benefit from.

7.9 Method of payment

7.9.1 Monthly Payment

For services payable at a firm monthly price:

Canada will pay the Contractor on a monthly basis for work performed during the month covered by the invoice in accordance with the payment provisions of the Contract if:

- a. an accurate and complete invoice and any other documents required by the Contract have been submitted in accordance with the invoicing instructions provided in the Contract;
- b. all such documents have been verified by Canada;
- c. the Work performed has been accepted by Canada.

7.9.2 Progress Payments

For services payable at reimbursable costs - limitation of expenses:

1. Canada will make progress payments in accordance with the payment provisions of the Contract, no more than once a month, for cost incurred in the performance of the Work, up to 100 percent of the amount claimed and approved by Canada if:
 - a. an accurate and complete claim for payment using form [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. the amount claimed is in accordance with the basis of payment;
 - c. the total amount for all progress payments paid by Canada does not exceed 100 percent of the total amount to be paid under the Contract;
 - d. all certificates appearing on form [PWGSC-TPSGC 1111](#) have been signed by the respective authorized representatives.
2. The balance of the amount payable will be paid in accordance with the payment provisions of the Task Authorization and the Contract upon completion and delivery of all work required under the Task Authorization if the Work has been accepted by Canada and a final claim for the payment is submitted.
3. Progress payments are interim payments only. Canada may conduct a government audit and interim time and cost verifications and reserves the rights to make adjustments to the Contract from time to time during the performance of the Work. Any overpayment resulting from progress payments or otherwise must be refunded promptly to Canada.

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7.9.3 Payment terms for Task Authorizations

Payments will be made once a month or more.

Each project, if applicable, requires a separate invoice.

Depending on the method of payment specified in the applicable TA, one of the following methods of payment clauses will apply.

7.9.3.1 Single Payment (For a Firm Price TA, for a TA subject to a Limitation of Expenditure or a Ceiling Price)

Canada will pay the Contractor upon completion and delivery of the Work associated with the Task Authorization in accordance with the payment provisions of the Contract if:

- (a) an accurate and complete claim for payment using PWGSC-TPSGC 1111, Claim for Progress Payment <https://www.tpsgc-pwgsc.gc.ca/app-acq/forms/1111-eng.html> and any other documents required by the Contract have been submitted in accordance with the invoicing instructions provided in the Contract;
- (b) all such documents have been verified by Canada;
- (c) the Work delivered has been accepted by Canada.

7.9.3.2 Milestone Payments (For a Firm Price TA)

For any task authorization issued under the Contract that includes a schedule of milestone payments to be made once specific portions of the work have been completed and accepted, Canada will make milestone payments in accordance with the Schedule of Milestones detailed in the Task Authorization and the payment provisions of the Contract if:

- (a) an accurate and complete claim for milestone payment using PWGSC-TPSGC 1111, Claim for Progress Payment, <https://www.tpsgc-pwgsc.gc.ca/app-acq/forms/1111-eng.html> 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.

7.9.3.3 Progress Payments (For a TA subject to a Limitation of Expenditure or a Ceiling Price)

- (a) Canada will make progress payments in accordance with the payment provisions of the Task Authorization and the Contract, no more than once a month, for costs incurred in the performance of the Work up to 100 percent of the amount claimed and approved by Canada if:
 - (i) an accurate and complete claim for payment using form PWGSC-TPSGC 1111, Claim for Progress Payment <https://www.tpsgc-pwgsc.gc.ca/app-acq/forms/1111-eng.html>, and any other document required by the Contract have been submitted in accordance with the invoicing instructions provided in the Contract;
 - (ii) the amount claimed is in accordance with the Basis of Payment and the Task Authorization;

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- (iii) the total amount for all progress payments paid by Canada does not exceed 90 percent of the total amount to be paid under the Task Authorization.
 - (iv) all certificates appearing on form PWGSC-TPSGC 1111 have been signed by the respective authorized representatives.
- (b) The balance of the amount payable will be paid in accordance with the payment provisions of the Task Authorization and the Contract upon completion and delivery of all work required under the Task Authorization if the Work has been accepted by Canada and a final claim for the payment is submitted.
- (c) Progress payments are interim payments only. Canada may conduct a government audit and interim time and cost verifications and reserves the right to make adjustments to the Contract from time to time during the performance of the Work. Any overpayment resulting from progress payments or otherwise must be refunded promptly to Canada.

7.10 Invoicing Instructions

7.10.1 Invoicing Instructions Excluding Task Authorizations

Payments will be done once a month or more.

Each project, if applicable, requires a separate invoice.

Payments – **(Annex B – Basis of Payment, Cost-reimbursable services at table 4-B: Section 5.0 – Site Maintenance – Tasks 5.6.2, 5.6.4 and 5.6.5 – Cost-reimbursable service and Table 5: Section 6.0 – Management and Administration – Fixed Monthly Rate)**

- a) 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.
- b) Applicable Taxes, must be calculated on the total amount of the claim before the holdback is applied. At the time the holdback is claimed, there will be no Applicable Taxes payable as it was claimed and payable under the previous claims for progress payments.
3. The Contractor must prepare and certify one original and two (2) copies of the claim on form PWGSC-TPSGC 1111, and forward it to the Technical Authority at the following email address:

TC.MVTC-TC.CEVA@tc.gc.ca

The Contractor must also submit a copy of the claim to the email address provided by the Contracting Authority.

The Technical Authority will then forward the claim to the Contracting Authority for appropriate certification after inspection and acceptance of the Work takes place, and onward submission to the Payment Office for the remaining certification and payment.

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

7.10.2 Task Authorization invoicing Instructions

1. The Contractor must submit a claim for payment using form PWGSC-TPGSC 1111 <https://www.tpsgc-pwgsc.gc.ca/app-acq/forms/1111-eng.html>

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) a list of all expenses, by nature;
- d) expenses plus percentage of administration and pro rata profit
- e) the Task Authorization (TA) number, if applicable;
- f) description of the invoiced step, if applicable.

Each request must be supported by:

- a) a copy of the timesheets to corroborate the time claimed;
- b) a copy of invoices, receipts, supporting documents for all direct expenses, travel and living expenses;
- c) a copy of the monthly progress report.

2. For Firm Price portion of the work, and TAs subject to a Limitation of Expenditure or a Ceiling Price, each invoice must be supported by:

- a) a list of all expenses, in accordance with the TA;
- b) a copy of time sheets to support the time claimed – for TA subject to limitation of expenditure or ceiling price only;
- c) a copy of the invoices, receipts, supporting documents for all direct expenses, travel and living expenses;
- d) a copy of the monthly progress report.

3. Applicable Taxes must be calculated on the total amount of the claim before the holdback is applied. At the time the holdback is claimed, there will be no Applicable Taxes payable as it was claimed and payable under the previous claims for progress payments.

4. The Contractor must prepare and certify one original and two (2) copies of the claim on form PWGSC-TPSGC 1111, and forward it to the Technical Authority at the following email address:

TC.MVTC-TC.CEVA@tc.gc.ca

The Contractor must also submit a copy of the claim to the email address provided by the Contracting Authority.

The Technical Authority will then forward the claim to the Contracting Authority for appropriate certification after inspection and acceptance of the Work takes place, and onward submission to the Payment Office for the remaining certification and payment.

5. The Contractor must not submit claims for the payment until all work identified on the Task Authorization claim is completed.

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7.11 Certifications and additional information

7.11.1 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.

7.11.2 Federal Contractors Program for Employment Equity - Default by the Contractor

The Contractor understands and agrees that, when an Agreement to Implement Employment Equity (AIEE) exists between the Contractor and Employment and Social Development Canada (ESDC)-Labour, the AIEE must remain valid during the entire period of the Contract. If the AIEE becomes invalid, the name of the Contractor will be added to the "[FCP Limited Eligibility to Bid](#)" list. The imposition of such a sanction by ESDC will constitute the Contractor in default as per the terms of the Contract.

7.11.3 Certification – Contractor's Impartiality

The Contractor certifies having read the Contractor's Impartiality Certification in Annex J and agrees to comply with it.

7.12 Applicable Laws

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

7.13 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:
 - [1031-2](#) (2012-07-16) Contract Cost Principles
 - [4002](#) (2010-08-16) Software Development or Modification Services
 - [4004](#) (2013-04-25) Maintenance and Support Services for Licensed Software
 - [4006](#) (2010-08-16) Contractor to Own Intellectual Property Rights in Foreground Information
 - [B7500C](#) (2006-06-16) Excess Goods;
- c. [2035](#) (2022-05-12) General Conditions - Higher Complexity Services
- d. Annex A, Statement of Work;
- e. Annex B, Basis of Payment;
- f. Annex C, Security Requirements Check List;
- g. Annex D, Electronic payment instruments;
- h. Annex E, Certifications
- i. Annex F, Selection Criteria
- j. Annex G, Insurance Requirements
- k. Annex H, 572 – Task Authorization Form
- l. Annex I, Purchase Procedure
- m. Annex J, Certification – Contractor's Impartiality
- n. Annex k, Form 471 – Registration Application for Canadian Legal Entities
- o. Annex L, International Security Initial Screening Form
- p. the signed Task Authorizations (including all of its annexes, if any);
- q. 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*

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date(s) of clarification(s) or amendment(s). (will be completed by Canada upon contract award)

7.14 Foreign Nationals (Canadian Contractor *OR* Foreign Contractor)

SACC Manual clause [A2000C](#) (2006-06-16) Foreign Nationals (Canadian Contractor, if applicable)

SACC Manual clause [A2001C](#) (2006-06-16) Foreign Nationals (Foreign Contractor), if applicable

7.15 Insurance Requirements

The Contractor must comply with the insurance requirements specified in Annex G. The Contractor must maintain the required insurance coverage for the duration of the Contract. Compliance with the insurance requirements does not release the Contractor from or reduce its liability under the Contract.

The Contractor is responsible for deciding if additional insurance coverage is necessary to fulfill its obligation under the Contract and to ensure compliance with any applicable law. Any additional insurance coverage is at the Contractor's expense, and for its own benefit and protection.

The Contractor must forward to the Contracting Authority within thirty (30) days after the date of award of the Contract, a Certificate of Insurance evidencing the insurance coverage and confirming that the insurance policy complying with the requirements is in force. For Canadian-based Contractors, coverage must be placed with an Insurer licensed to carry out business in Canada, however, for Foreign-based Contractors, coverage must be placed with an Insurer with an A.M. Best Rating no less than "A-". The Contractor must, if requested by the Contracting Authority, forward to Canada a certified true copy of all applicable insurance policies.

7.16 Contract Financial Security

7.16.1 Contract Financial Security

1. The Contractor must provide one of the following contract financial securities within **15 calendar days after the date of contract award**:
 - a. a performance bond form [PWGSC-TPSGC 505](#) in the amount of **\$2 000 000.00** and
 - b. a labour and material payment bond form [PWGSC-TPSGC 506](#) each in the amount of **\$1 940 000**

Any bond must be accepted as security by one of the bonding companies listed in [Treasury Board Contracting Policy, Appendix L](#), Acceptable Bonding Companies.

2. Security deposits in the form of government guaranteed bonds with coupons attached will be accepted only if all coupons that are unexpired, at the time the security deposit is provided, are attached to the bonds. The Contractor must provide written instructions concerning the action to be taken with respect to coupons that will mature while the bonds are pledged as security, when such coupons are in excess of the security deposit requirement.
3. If Canada does not receive the required financial security within the specified period, Canada may terminate the Contract for default pursuant to the Contract default provision.

7.16.2 SACC Manual clause

[E0008C](#) (2018-06-21) Security Deposit Definition – Contract

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7.17 Dispute Resolution

- (a) The parties agree to maintain open and honest communication about the Work throughout and after the performance of the contract.
- (b) The parties agree to consult and co-operate with each other in the furtherance of the contract and promptly notify the other party or parties and attempt to resolve problems or differences that may arise.
- (c) If the parties cannot resolve a dispute through consultation and cooperation, the parties agree to consult a neutral third party offering alternative dispute resolution services to attempt to address the dispute.
- (d) Options of alternative dispute resolution services can be found on Canada's Buy and Sell website under the heading "[Dispute Resolution](#)".

7.18 Aboriginal Internship

The Government of Canada's Procurement Strategy for Aboriginal Business (PSAB) is a growth tool that promotes the acquisition of experience, the development of skills and the creation of partnerships in the Aboriginal business sector, all while permitting the government's main objective to obtain goods and services at market prices. The PSAB is also supported by an Indigenous Participation Components (IPC) and the Aboriginal Workforce Participation Initiative.

You can find more information on the PSAB at:

<https://www.aadnc-aandc.gc.ca/eng/1354798736570/1354798836012>

The Aboriginal Workforce Participation Initiative offers advocacy activities aimed at informing and educating employers on the benefits of hiring Aboriginal people, supporting partnerships with various stakeholders to build employers' ability to recruit, promote and retain Aboriginal employees, and at bringing employers together with existing and potential Aboriginal employees as well as other parties.

In order to achieve the Government of Canada's goals of encouraging Aboriginal socio-economic development through federally funded opportunities, this project includes an IPC through the creation of a workplace internships during the contract.

Internship in engineering or technical services for an Aboriginal person:

Starting the second year of the contract, and for each subsequent year, the Contractor must make best efforts to provide a paid internship opportunity for a minimum duration of ten weeks to an Indigenous person Note 1.

Educational institutions' co-op placement internships are acceptable. Internships consistent with a Government of Canada program to increase the participation of Aboriginal youth in educational and labor market opportunities, including the First Nations and Inuit Summer Work Experience Program, the Canada Summer Jobs Program and the Skills Link Program are also acceptable. You can find more information on these programs at Canada.gc.ca

The internship environment must allow for the acquisition of experience in one of the Science, Technology, Engineering and Mathematics (STEM) fields, or any in other specialty associated with motor vehicle safety and security and applicable in the Contractor's mandate while rendering services for this project.

The rate of pay for the intern hired by the Contractor or one of its sub-consultants must equal or exceed the rate of pay for students, corresponding to the intern's level of education, as decreed by the Treasury Board of Canada Secretariat (<https://www.canada.ca/en/treasury-board-secretariat/topics/pay/rates-pay.html>) and may be accompanied by a scholarship.

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Working conditions must comply with all applicable legislation at the address where the internship will take place.

Each year, within 10 working days of the Contractor's fiscal year end, the Contractor must provide a report to the Technical Authority demonstrating and attesting to compliance with these requirements, listing the actions taken and summarizing the internship(s).

Note 1: Indigenous intern:

-Full-time or part-time student at a Canadian college or university during the previous and / or current semester and / or following the period of work placement;

-Member of the First Nations, Métis or Inuit attached to one of the northern communities and villages of Quebec, as specified by the Secrétariat aux affaires autochtones du Québec (https://www.autochtones.gouv.qc.ca/nations/liste_communautes_en.htm) or who have demonstrated to be in the process of obtaining status under Canadian law (Indian Act (RSC (1985), c. I-5)).

7.19 Woman in Science Internship

As per her mandate letter, the Minister of Public Services and Procurement Canada is responsible for "continu[ing] the modernization of procurement practices so that they are simpler, less administratively burdensome, user-friendly, deploy modern comptrollership, encourage greater competition and include practices that support our economic policy goals, including innovation, as well as green and social procurement."

In order to modernize procurement processes, the Government of Canada uses government procurement to advance other environmental, social, economic or innovation objectives.

The socio-economic pillar of procurement modernization is intended to develop initiatives to increase the diversity of bidders on government contracts and improve socio-economic outcomes, particularly for businesses owned or managed by Canadians from under-represented groups, such as women, persons with disabilities and visible minorities.

In order to achieve the Government of Canada's goals of promoting and facilitating the participation of women in science, technology, engineering and mathematics (STEM) fields, this contract includes the creation of a workplace internship during the contract.

Internship in engineering or technical services for woman:

Beginning with the second year, then each subsequent year, the Contractor must have provided a paid internship opportunity, of a minimum duration of ten weeks, to a woman in a STEM field.

Educational institutions' co-op placement internships are acceptable. Internships consistent with a Government of Canada program to increase the participation of women in educational and labor market opportunities, including the First Nations and Inuit Summer Work Experience Program, the Canada Summer Jobs Program and the Skills Link Program are also acceptable. You can find more information on these programs at Canada.gc.ca

The internship environment must allow for the acquisition of experience in one of the Science, Technology, Engineering and Mathematics (STEM) fields, or any in other specialty associated with motor vehicle safety and security and applicable in the Contractor's mandate while rendering services for this project.

The rate of pay for the intern hired by the Contractor must equal or exceed the rate of pay for students, corresponding to the intern's level of education, as decreed by the Treasury Board of Canada Secretariat

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(<https://www.canada.ca/en/treasury-board-secretariat/topics/pay/rates-pay.html>) and may be accompanied by a scholarship.

Working conditions must comply with all applicable legislation at the address where the internship will take place.

Each year, within 10 working days of the Contractor's fiscal year end, the Contractor must provide a report to the Technical Authority demonstrating and attesting to compliance with these requirements, listing the actions taken and summarizing the internship(s).

Note 1: Women in Science Internship

-Full time student or part time student at a Canadian college or university in the preceding semester and/or employment following the internship

7.20 Personnel

The Contractor must submit for the Contracting Authority's approval, the curriculum vitae, proposed labor category, title of position, and proof of license if applicable, for any employee hired by the contractor for the provision of services related to this contract. The Contractor must also submit any changes in this regard to the Technical Authority for approval.

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ANNEX A

STATEMENT OF WORK

(See attachment)

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ANNEX B

BASIS OF PAYMENT

(See attachment)

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ANNEX C

SECURITY REQUIREMENTS CHECK LIST

(See attachment)

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ANNEX D to PART 3 OF THE BID SOLICITATION

ELECTRONIC PAYMENT INSTRUMENTS

The Bidder accepts to be paid by 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);
- Large Value Transfer System (LVTS) (Over \$25M)

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ANNEX E to PART 5 OF THE BID SOLICITATION

FEDERAL CONTRACTORS PROGRAM FOR EMPLOYMENT EQUITY – CERTIFICATION

I, the Bidder, by submitting the present information to the Contracting Authority, certify that the information provided is true as of the date indicated below. The certifications provided to Canada are subject to verification at all times. I understand that Canada will declare a bid non-responsive, or will declare a contractor in default, if a certification is found to be untrue, whether during the bid evaluation period or during the contract period. Canada will have the right to ask for additional information to verify the Bidder's certifications. Failure to comply with any request or requirement imposed by Canada may render the bid non-responsive or constitute a default under the Contract.

For further information on the Federal Contractors Program for Employment Equity visit [Employment and Social Development Canada \(ESDC\) – Labour's](#) website.

Date: _____(YYYY/MM/DD) (If left blank, the date will be deemed to be the bid solicitation closing date.)

Complete both A and B.

d) Check only one of the following:

- A1. The Bidder certifies having no work force in Canada.
- A2. The Bidder certifies being a public sector employer.
- A3. The Bidder certifies being a [federally regulated employer](#) being subject to the [Employment Equity Act](#).
- A4. The Bidder certifies having a combined work force in Canada of less than 100 permanent full-time and/or permanent part-time employees.

A5. The Bidder has a combined workforce in Canada of 100 or more employees; and

- A5.1. The Bidder certifies already having a valid and current [Agreement to Implement Employment Equity](#) (AIEE) in place with ESDC-Labour.

OR

- A5.2. The Bidder certifies having submitted the [Agreement to Implement Employment Equity \(LAB1168\)](#) to ESDC-Labour. As this is a condition to contract award, proceed to completing the form [Agreement to Implement Employment Equity \(LAB1168\)](#), duly signing it, and transmit it to ESDC-Labour.

B. Check only one of the following:

- B1. The Bidder is not a Joint Venture.

OR

- B2. The Bidder is a Joint venture and each member of the Joint Venture must provide the Contracting Authority with a completed annex Federal Contractors Program for Employment Equity – Certification. (Refer to the Joint Venture section of the Standard Instructions)

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ANNEX F

SELECTION CRITERIA

(see attachment)

ANNEX G

INSURANCE REQUIREMENTS

e) Commercial General Liability Insurance

1. The Contractor must obtain Commercial General Liability Insurance, and maintain it in force throughout the duration of the Contract, in an amount usual for a contract of this nature, but for not less than \$10,000,000 per accident or occurrence and in the annual aggregate. The deductible must not exceed \$ 10,000 per accident or occurrence. The deductible is the responsibility of the contractor.
2. The Commercial General Liability policy must include the following:
 - a. Additional Insured: Canada is added as an additional insured, but only with respect to liability arising out of the Contractor's performance of the Contract. The interest of Canada should read as follows: Canada, as represented by Public Works and Government Services Canada.
 - b. Bodily Injury and Property Damage to third parties arising out of the operations of the Contractor.
 - c. Products and Completed Operations: Coverage for bodily injury or property damage arising out of goods or products manufactured, sold, handled, or distributed by the Contractor and/or arising out of operations that have been completed by the Contractor.
 - d. Personal Injury: While not limited to, the coverage must include Violation of Privacy, Libel and Slander, False Arrest, Detention or Imprisonment and Defamation of Character.
 - e. Cross Liability/Separation of Insureds: Without increasing the limit of liability, the policy must protect all insured parties to the full extent of coverage provided. Further, the policy must apply to each Insured in the same manner and to the same extent as if a separate policy had been issued to each.
 - f. Blanket Contractual Liability: The policy must, on a blanket basis or by specific reference to the Contract, extend to assumed liabilities with respect to contractual provisions.
 - g. Employees and, if applicable, Volunteers must be included as Additional Insured.
 - h. Employers' Liability (or confirmation that all employees are covered by Worker's compensation (WSIB) or similar program)
 - i. Broad Form Property Damage including Completed Operations: Expands the Property Damage coverage to include certain losses that would otherwise be excluded by the standard care, custody or control exclusion found in a standard policy.
 - j. Notice of Cancellation: The Contractor will provide the Contracting Authority thirty (30) days prior written notice of policy cancellation or any changes to the insurance policy.
 - k. If the policy is written on a claims-made basis, coverage must be in place for a period of at least 12 months after the completion or termination of the Contract.
 - l. Owners' or Contractors' Protective Liability: Covers the damages that the Contractor becomes legally obligated to pay arising out of the operations of a subcontractor.

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- m. Non-Owned Automobile Liability – Coverage for suits against the Contractor resulting from the use of hired or non-owned vehicles.
 - n. Advertising Injury: While not limited to, the endorsement must include coverage piracy or misappropriation of ideas, or infringement of copyright, trademark, title or slogan.
 - o. All Risks Tenants Legal Liability – to protect the Contractor for liabilities arising out of its occupancy of leased premises.
 - p. Amendment to the Watercraft Exclusion to extend to incidental repair operations on board watercraft.
 - q. Sudden and Accidental Pollution Liability (minimum 120 hours): To protect the Contractor for liabilities arising from damages caused by accidental pollution incidents.
 - r. Litigation Rights: Pursuant to subsection 5(d) of the [Department of Justice Act](#), S.C. 1993, c. J-2, s.1, if a suit is instituted for or against Canada which the Insurer would, but for this clause, have the right to pursue or defend on behalf of Canada as an Additional Named Insured under the insurance policy, the Insurer must promptly contact the Attorney General of Canada to agree on the legal strategies by sending a letter, by registered mail or by courier, with an acknowledgement of receipt.

For the province of Quebec, send to:

*Director Business Law Directorate,
Quebec Regional Office (Ottawa),
Department of Justice,
284 Wellington Street, Room SAT-6042,
Ottawa, Ontario, K1A 0H8*

For other provinces and territories, send to:

*Senior General Counsel,
Civil Litigation Section,
Department of Justice
234 Wellington Street, East Tower
Ottawa, Ontario K1A 0H8*

A copy of the letter must be sent to the Contracting Authority. Canada reserves the right to co-defend any action brought against Canada. All expenses incurred by Canada to co-defend such actions will be at Canada's expense. If Canada decides to co-defend any action brought against it, and Canada does not agree to a proposed settlement agreed to by the Contractor's insurer and the plaintiff(s) that would result in the settlement or dismissal of the action against Canada, then Canada will be responsible to the Contractor's insurer for any difference between the proposed settlement amount and the amount finally awarded or paid to the plaintiffs (inclusive of costs and interest) on behalf of Canada.

2 Errors and Omissions Liability Insurance

- 1. The Contractor must obtain Errors and Omissions Liability (a.k.a. Professional Liability) insurance, and maintain it in force throughout the duration of the Contract, in an amount usual for a contract of this nature but for not less than **\$10,000,000** per loss and in the annual aggregate, inclusive of defense costs. The deductible must not exceed \$ 50,000 per accident or occurrence. The deductible is the responsibility of the contractor.

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2. If the policy is written on a claims-made basis, coverage must be in place for a period of at least 12 months after the completion or termination of the Contract.
3. The following endorsement must be included:
Notice of Cancellation: The Contractor will provide the Contracting Authority thirty (30) days prior written notice of policy cancellation or any changes to the insurance policy.

3 Automobile Liability Insurance

1. The Contractor must obtain Automobile Liability Insurance, and maintain it in force throughout the duration of the Contract, in an amount usual for a contract of this nature, but for not less than **\$2,000,000** per accident or occurrence.
2. The policy must include the following:
 - a. Third Party Liability - \$2,000,000 Minimum Limit per Accident or Occurrence
 - b. Accident Benefits – all jurisdictional statutes
 - c. Uninsured Motorist Protection
 - d. Notice of Cancellation: The Contractor will provide the Contracting Authority thirty (30) days prior written notice of policy cancellation or any changes to the insurance policy.

4 All Risk Property Insurance

The Contractor must obtain All Risks Property insurance while the Government Property is under its care, custody or control, and maintain it in force throughout the duration of the Contract, in an amount of not less than **\$ 30 000 000**. The Government's Property must be insured on **replacement cost** basis. The deductible must not exceed \$ 100,000 per accident or occurrence.

1. Administration of Claims: The Contractor must notify Canada promptly about any losses or damages to Government Property and monitor, investigate and document losses of or damage to ensure that claims are properly made and paid.
2. The All Risks Property insurance policy must include the following:
 - a. Notice of Cancellation: The Contractor will provide the Contracting Authority at least thirty (30) days prior written notice of policy cancellation or any changes to the insurance policy.
 - b. Loss Payee: Canada as its interest may appear or as it may direct.
 - c. Waiver of Subrogation Rights: Contractor's Insurer to waive all rights of subrogation against Canada as represented by Transport Canada and Public Works and Government Services Canada for any and all loss of or damage to the property however caused.

5 Director's and Officer's Liability Insurance

1. Director's and Officer's Liability insurance shall be effected by the Contractor and maintained in force throughout the duration of the Contract, in an amount usual for a contract of this nature, but, in any case, for a limit of liability NOT LESS THAN **\$ 1,000,000.00** per loss and **\$ 2,000,000.00** in the aggregate. The deductible is the responsibility of the contractor.
2. If this is a claims made policy and the duration of the Contract exceeds the policy term; in the event of cancellation or non-renewal of the policy, an Extended Claims Reporting Endorsement, minimum twelve (12) months, must be secured by the Contractor.
3. The following endorsement must be included: Notice of Cancellation or Amendment: The Insurer agrees to provide the Contracting Authority thirty (30) days written notice of cancellation.

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ANNEX H

TASK AUTHORIZATION FORM PWGSC-TPSGC 572

(See attachment)

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ANNEX I

PURCHASE PROCEDURE

OBJECTIVE

The purpose of the procedure is to establish specific guidelines for all purchases of goods and services made by the contractor under this contract.

BACKGROUND

Purchases made on behalf of Canada are typically carried out by public servants and are governed by a number of acts, regulations, directives, policies, trade agreements, and other instruments.

This contract entrusts the contractor with the task of making certain publicly funded purchases. This is why Public Services and Procurement Canada provides a framework for the contractor's purchasing under this procedure and intends to monitor its application.

POLICY STATEMENT

The purchases made by the contractor under this contract need to:

- a. Stand the test of public scrutiny in matters of prudence and probity;
- b. Provide the best value for Canada;
- c. Be based on open, competitive, fair and transparent bidding, except as provided for in the *Government Contracts Regulations*, section 6; and
- d. Respect the spirit of the Directive on the management of procurement (see REFERENCES to find the link to the Directive) and *Government Contracts Regulations*.

SCOPE

This procedure applies to all purchases made by the contractor under this contract.

PROCEDURE REQUIREMENTS

1. The contractor needs to recommend one of the following four procurement strategies to the Technical Authority in accordance with the *Government Contracts Regulations*, the Contracting Policy and the Transaction Value Terms of Reference in Table 1:

- a) Public tender

The contractor must solicit bids on a public bidding site, such as Merx.

- b) Invited tenders

The contractor must invite potential suppliers to submit a bid based on the estimated value of the transaction.

- c) Negotiation with a supplier

It is always advisable to initiate a competitive process to get the best price. The contractor may, where it is not advantageous to do so

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d) Sole source

For the exceptions outlined in section 6 of the *Government Contracts Regulations*, the contractor negotiates directly with a single supplier.

The procurement strategy must be accompanied by a detailed cost estimate and a solicitation or tendering document.

In the case of a sole source procurement strategy, the contractor must also attach a justification by answering the Treasury Board Questions for Sole Source: [Annex: Treasury Board questions for sole source – buyandsell.gc.ca](#), except in cases of emergency where delay would be injurious to the public interest, as provided for in Section 6 (a) of the *Government Contracts Regulations*. For example, when urgent work needs to be done to fix a water leak while awaiting approval to perform work to replace plumbing parts. In this case, the contractor can proceed with the purchase without first obtaining the approval of the contracting authority, but must provide the justification for the recourse of this exception as soon as possible.

2. The procurement strategy needs to be approved by the Technical Authority for the purchase of goods, services and construction under 750K\$ (including taxes), above this limit it will be approved by PWGSC's procurement authority **before** the contractor initiates any procurement action.
3. Once the procurement strategy is approved, the contractor may implement the PWGSC-approved strategy.
4. Bids received in response to a public or invited tender must be opened in the presence of at least two of the contractor's representatives. A representative of Canada may also be present at the opening, if requested by PWGSC's Contracting Authority.
5. The contractor must analyze the bids received and recommend the award to the Technical Authority. In particular, the contractor must justify the difference between the initial estimate and the recommended price for award in cases where the difference is 15% or more.
6. After receiving approval from the Technical Authority, the contractor may award the procurement contract.

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Table 1: Transaction Value Terms of Reference

Good/Service	Estimated transaction value	Procurement strategy	Number of invited suppliers
Good	\$0 to \$25,000	Invited tender Or	One to three
		Negotiation with a supplier	One
Good	Over \$25,000 to \$100,000	Invited tender	At least five
Service and Construction	\$0 to \$40,000	Invited tender Or	One to three
		Negotiation with a supplier	One
Service and Construction	Over \$40,000 to \$100,000	Invited tender	At least five
Good or Service or Construction	Over \$100,000	Public tender	Posting on a public tender site
Architecture and Engineering Services	All	PSPC's Responsibility	Posting on a public tender site
Good or Service or Construction	Good: over \$25,000 Service and Construction: over \$40,000	Sole source (justification to be provided)	One

OVERSIGHT

PWGSC may audit the process at any time at the sole discretion of the Department representative.

REFERENCES

Directive on the Management of Procurement : [Directive on the Management of Procurement- Canada.ca](https://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=14494)
: <https://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=14494>

Government Contracts Regulations: <https://laws-lois.justice.gc.ca/eng/Regulations/SOR-87-402/index.html>

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ANNEX J

CERTIFICATION – CONTRACTOR'S IMPARTIALITY

Whereas Transport Canada is responsible for the administration and enforcement of the *Motor Vehicle Safety Act*,

Whereas Transport Canada conducts post-market surveillance and oversight of the regulated community through programs of compliance inspection, testing, corporate audits, and the investigation of alleged safety-related defects.

Whereas the work to be performed under the Contract directly assists Transport Canada in such matters, it is therefore absolutely necessary that the Contractor perform its obligations under the Contract without either actual or appearance of conflict of interest.

Without restricting or limiting the generality of the Contractor's obligations under section 35 General Conditions 2035, the Contractor shall, for the term of this Contract and for a period of four (4) years after its completion,

- a. Not be involved in the following:
 - i. product development in the automotive sector or field,
 - ii. design or manufacture of vehicles or equipment,
 - iii. sale of vehicles or equipment as a business, or
 - iv. import of vehicles or equipment into Canada as a business;
- b. Not be directly or indirectly owned, controlled, affiliated, funded, or operated by
 - i. a person or entity conducting or engaging in the activities set out in sub-clause (a) above, or
 - ii. a foreign government;
- c. Not be a plaintiff in litigation or voluntarily give evidence on behalf of a plaintiff in matters concerning the regulated automotive industry;
- d. Not be engaged in, or have any interest in any entity engaged in, the provision of consulting services that include the provision of motor vehicle or component design recommendations for the purpose of meeting current or future regulatory requirements;

For the term of this Contract, the Contractor shall ensure that its employees shall not, in any capacity other than as employees of the Contractor, associate with any group or organization dealing with or making representations to any government or regulatory body in respect of the automotive sector or field.

For the purposes of this clause, the terms "**equipment**", "**vehicle**" and "**manufacture**" have the meanings assigned in section 2 of the the Motor Vehicle Safety Act, S.C. 1993, c.16, as amended from time to time.

This clause survives the completion or termination of the Contract.

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T8127-200020/D

Amd. No. - N° de la modif.

Buyer ID - Id de l'acheteur
MTB005

Client Ref. No. - N° de réf. du client
T8127-2-00020

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ANNEX K

FORM 471 – REGISTRATION APPLICATION FOR CANADIAN LEGAL ENTITIES

Solicitation No. - N° de l'invitation
T8127-200020/D

Amd. No. - N° de la modif.

Buyer ID - Id de l'acheteur
MTB005

Client Ref. No. - N° de réf. du client
T8127-2-00020

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ANNEX L

INTERNATIONAL SECURITY INITIAL SCREENING FORM

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1.0 GENERAL INFORMATION

1.1 INTRODUCTION

This statement of work describes the provision of expert professional services required by Transport Canada (TC) to execute compliance and research programs and to manage, operate, maintain and contribute to the future expansion of programs at the Motor Vehicle Test Centre (MVTC) located in Blainville, Quebec.

1.2 BACKGROUND

TC is a Canadian federal department responsible for promoting a safe, secure, efficient and environmentally responsible transportation system across Canada. Canada's *Motor Vehicle Safety Act* (MVSA) and its regulations regulate the manufacturing and importation of motor vehicles and motor vehicle equipment to reduce the risk of death, injury and damage to property and the environment. At the MVTC, TC conducts tests on motor vehicles and equipment to assess the compliance of vehicles and equipment with legislative requirements. The centre is also used to conduct research and development to better understand the negative impact of vehicle use and to promote measures to limit these impacts. This includes research projects in support of the development of regulations and standards and support for research into new innovative technologies for vehicles, such as connected and automated vehicles (CAVs), electric vehicles and vehicles powered by alternative fuels.

The MVTC was constructed in 1977 on land previously owned by the Department of National Defence; the MVTC is located on 546 Hectares of land and comprises numerous laboratories, environmental chambers and 25 km of test tracks. The MVTC was operated by TC personnel until 1996 when its operation was transferred to a private operator under the terms of a Government Owned Contractor Operated contract. Since 1996, the MVTC has evolved into a comprehensive, state-of-the-art facility recognized internationally for its cutting-edge research in motor vehicle safety.

As new safety technologies are introduced, TC must continue to be responsive to the emerging and often complex motor vehicle safety needs of Canadians. To achieve this, TC invests strategically in the MVTC.

1.3 TRANSPORT CANADA'S VISION FOR THE MVTC

Make Canada's transportation systems safer, more secure, and innovative through a world-class testing facility where government, industry and academia collaborate and share expertise, knowledge.

1.4 OBJECTIVES

The objective is the management and provision of engineering services at the MVTC located in Blainville, Quebec, for the following activities:

- Operation and maintenance of the MVTC;
- Engineering services for the research programs;
- Engineering services for the compliance test programs; and
- Marketing of the MVTC to private clients.

1.5 SCOPE OF WORK & RESPONSIBILITIES OF THE CONTRACTOR

In the contract, the responsibilities of the Contractor are the following:

- a) Provide expert technical services, management and administrative services that exemplify best value to support TC programs at the MVTC. This includes the supply of all labour, materials, equipment and services necessary to meet TC requirements that are in accordance with the provisions of this Statement of Work (SoW).
- b) Provide timely delivery of services within the requirements and funding allocated through the Task Authorization process. The Contractor is responsible for its Service Delivery Regime (SDR), including the program delivery, quality management and other systems, processes, procedures and performance management capabilities needed to fulfill the Contract requirements.
- c) Provide expert technical services for the safe and efficient delivery of regulatory and research test programs. This will include the planning, acquisition and integration of all equipment deemed necessary for current and future program delivery.

In the performance of the work, the Contractor shall have access to the assets provided by the Government under this Contract. Assets and material are intended for use by the Contractor in the performance of the Work and must not be transferred to other persons or locations.

- d) The Contractor is responsible for the recruitment, retention and professional development of qualified personnel to support program delivery and promote the growth of Canadian expertise in the field of motor vehicle testing, research and related road transportation fields. The Contractor is responsible to ensure compliance with all applicable Federal and Provincial employment laws including but not limited to the Federal Contractors Program (FCP) and the *Employment Equity Act*.
- e) Provide general maintenance services, repairs, and certain upgrades of the MVTC facility and grounds. These activities include but are not limited to providing a safe and secure workplace; preventive and corrective maintenance actions or repairs required to extend the life cycle, physical integrity, and functionality of all ancillary assets; planning, acquisition and integration of all assets deemed necessary to improve technical capacity or efficiency of the facility.
- f) Commercialize the MVTC under the terms and conditions of the contract, more precisely as described in Section 7.0 of the provisions of this SoW. Promote the utilization of the facility by offering commercial services to other Federal departments and industry clients.
- g) The Contractor must comply with all applicable regulations, manufacturer specifications, warranties, standards and codes, and policies.
- h) Provide all management, administrative, clerical services, and services to support the safe and efficient operation of the facility including but not limited to the production of reports, plans, and records; the provision of site security; and shipping and receiving.

1.6 LOCATION OF WORK

All work must be conducted at the MVTC located at 100 du Landais, Blainville, Québec unless otherwise specified in a Task Authorization.

1.7 LANGUAGE OF WORK

The MVTC is a federal site owned by Transport Canada and located in the province of Québec. The Contractor must communicate and provide services in either of Canada's official languages as required by Canada and must comply with all applicable laws.

Please keep in mind that French is the official language of the province of Québec.

1.8 ROLES AND RESPONSIBILITIES: CONTRACTING & TECHNICAL AUTHORITY

The Contracting Authority is responsible for the management of and for all modifications to the Contract; any modifications must be authorized in writing by the Contracting Authority. The Contractor shall not perform Work in excess of or outside the scope of this Contract based on verbal or written requests or instructions from any government personnel other than the Contracting Authority. Canada may designate a new Contracting Authority from time to time by giving written notice to the Contractor in the manner set out in the Contract.

The Technical Authority is responsible for all matters concerning the technical content of the Work under the Contract. The Technical Authority will act as the principal point of contact with the Contractor for all technical matters relating to the Contract, including the Work, reporting and administration. Changes in Work, within scope and budget, may be authorized by the Technical Authority. The Technical Authority must have access to the Work at all times during its execution and the Contractor must provide the Technical Authority with the necessary information and assistance to allow the Technical Authority to verify, assess or determine that the Work is executed in accordance with the Contract.

The Technical Program Manager is a technical expert who designs the work program described in a Task Authorization, monitors the progress, approves overtime if necessary and approves the timeline and deliverables identified in the Task Authorization.

1.9 TASK AUTHORIZATIONS

The Technical Authority will issue Task Authorizations describing the tasks to be undertaken, identifying the deliverables and the proposed schedule. The Contractor is responsible for confirming the fixed unit price if applicable, for confirming all-inclusive hourly rates for the tasks, and for confirming the schedule requested by TC. For all services for which a fixed price has not been previously approved by the Contracting Authority, the Contractor must identify the anticipated categories of labour skills that will be required to complete the requirements of the Task Authorization (categories are provided in Annex A, Appendix B), the maximum number of hours in each category, and the cost for material (consumable items). Work that will be conducted by sub-contractors, and equipment that needs to be purchased for the conduct of the project will also need to be specified. Where the Task Authorization is not sufficiently clear the Contractor must, without delay, advise the Technical Program Manager to obtain the necessary clarification.

- a) The Contractor must submit its cost proposal and availability of personnel, to the Technical Authority within seven (7) days of receipt of Task Authorization, unless otherwise agreed.
- b) Work must not commence until receipt by the Contractor of the Task Authorization, duly signed on behalf of the Technical Authority and the Contracting Authority.
- c) Overtime must be pre-authorized by the Technical Project Manager.
- d) The programs will occasionally require travel for members of Contractor personnel; these expenses will be reimbursed as per Treasury Board (TB) directives on travel. In all cases, travel must be pre-authorized in writing by the Technical Authority.
- e) The Contractor must seek clarifications as required and must notify the Technical Authority and the Technical Program Manager in writing of anticipated delays or cost overruns

1.10 TRANSPORT CANADA SPACE REQUIREMENTS

The Contractor must allocate office facilities acceptable to the Technical Authority for Government of Canada employees. In addition to the office space provided to Government of Canada employees, the Contractor must provide access to:

- a) A fenced and secured yard: 43 meters by 116 meters for the use of TC;
- b) A heated bunker 9 meters by 30.3 meters for the exclusive use of TC;
- c) Secure and heated storage area, accessible only to TC personnel, for records and equipment for the exclusive use of TC;
- d) Parking spaces adjacent to the administration building for TC; and
- e) Boardrooms on an as-required basis.

1.11 SERVICES IN SUPPORT OF CAPITAL PROJECTS

The Technical Authority may issue Task Authorizations that may require the Contractor to purchase goods/services in support of TC-funded capital projects. Examples of the kinds of goods and services acquired by the Contractor can be found in Appendix K: 15-Year Historical Capital Expenditures (2007-2020/21). The purchasing of goods and services must follow TB rules and comply with Annex I of this Request for Proposal. All proposed contracts with former public servants in receipt of a pension, whether competitive or sole sourced will require approval by the Technical Authority prior to proceeding with a contract award.

At any time, Canada may undertake a capital project (“TC Capital Project”) at the MVTC that requires work performed on site by a third party (“Capital Project Contractor”). Prior to the commencement of the TC Capital Project, Canada may issue a Task authorization to the Contractor to create a plan of construction operations (PCO). The objective of the PCO is to plan the coordination required to implement the construction with minimum interruptions and conflict with MVTC operations and to ensure that client confidentiality, MVTC security and safety are not compromised by the construction work.

The MVTC must be available for Capital Project Contractor construction work between the hours of 07:00 to 19:00 on a business day to any party and at any location necessary to complete the TC Capital Project. In cases where the work must be performed outside those hours, Canada will inform the Contractor as soon as possible of that requirement. In order to minimize disruptions during construction and to enable construction to be completed on schedule, Canada shall consult with the Contractor on the site access requirements of the TC Capital Project and shall provide written notice of at least ten (10) business days of site access required ("Capital Project Notice"). During the time a Capital Project Contractor is on site at the MVTC, the Contractor may appoint a representative to monitor the Capital Project Contractor and its work at the MVTC. The representative shall be entitled to charge the Capital Project Contractor(s) directly for time spent monitoring it by using the applicable labour rate set out in Annex B. The representative must provide proof through documentation (such as timesheets) in order to substantiate the charges associated with monitoring. Canada will review the charges before accepting or refusing them.

Notwithstanding the ten (10) business days written notice required under the Capital Project Notice, the Contracting Authority may deliver written notice waiving the notice period for urgent work required to be performed immediately for the purpose of reducing risk of death, serious bodily injury or severe property damage. For clarity, It is understood that the Contractor must grant access to the MVTC for any work related to this section if requested by Canada.

1.12 GLOSSARY

1.12.1 ACRONYMS

The following acronyms are used in the Statement of Work:

ABS	Anti-Lock Braking System
ADAS	Advanced Driving Assistance System
AI	Artificial Intelligence
ATD	Anthropomorphic Test Device
CAV	Connected/Automated Vehicles
CMMS	Computerized Maintenance Management System
CMVSS	Canada Motor Vehicle Safety Standards
DAS	Data Acquisition System
ESC	Electronic Stability Control
MVTC	Motor Vehicle Test Centre
NHTSA	U.S. National Highway Traffic Safety Administration
PCO	Plan of Construction Operations
PRM	Progress Review Meetings
PSPC	Public Services and Procurement Canada
RFP	Request for Proposal

TC	Transport Canada
VTS	Vehicle Test Structure

1.12.2 Definitions

The following terms are used in the Statement of Work:

Activity Centre	Fixed test equipment and technical work completed in the following areas of the MVTC: environmental chambers, test tracks, large laboratory and collision laboratory.
Best value for money	The most advantageous combination of cost, timeliness, quality and sustainability to meet program needs.
Capital Project Contractor	A contractor who is conducting work at the MVTC for the purposes of a TC Capital Project.
Capital Assets	Items that are purchased, manufactured or constructed with an initial value of \$10,000 or more.
Clients	Entities that are not a customer of TC, including entities affiliated with the Contractor.
Fixed test equipment	Permanently installed equipment and/or infrastructure necessary for the performance of a test and for the processing and protection of data.
Industry	Interested parties in the vehicle testing sector.
Installation	Infrastructure (buildings and roads) and land owned and controlled by the Government of Canada, excluding stationary test equipment.
Instruments	Devices used to measure a physical quantity.
Materials	Consumable items, including items that typically have a useful life of one year or less.
Operational start date or start date of operations	Date on which the Contractor becomes responsible for the delivery of all elements in the Statement of Work.
Technical Program Manager	Technical expert who designs the work program described in a Task Authorization, monitors the progress, approves overtime if necessary and approves the timeline and deliverables identified in the Task Authorization.
TC Capital Project	A capital project undertaken at the MVTC by a third-party contractor.

Work

The services, activities, and/or deliverables to be performed under this contract and required to meet the requirements of the Task Authorizations.

2.0 CONTRACT PHASE-IN AND COMPLETION

2.1 OBJECTIVE

The objective is to ensure the continuity of safe, timely and efficient delivery of services during contract phase-in and facilitate knowledge transfer at completion of the contract.

2.2 TIMELINE

- a) Phase-in: Six months starting on the Operational Start Date.
- b) Completion: All Completion deliverables as described in Section 2.5 must be received and accepted prior to the dates prescribed in the Task Authorizations.

2.3 SCOPE OF CONTRACTOR RESPONSIBILITIES

At Contract Phase-In, the Contractor is responsible for:

- a) Demonstrating to the Technical Authority that there are a sufficient number of adequately trained and skilled personnel able to carry out the services described in this SoW (see Appendix B) by the Operational Start Date; and
- b) Demonstrating to the Technical Authority that the personnel are able to operate the test equipment in a safe manner, that is compliant with all applicable regulations, manufacturer recommendations and policies on or before the end of the phase-in period.

At Contract Completion, the Contractor is responsible for:

- c) Transferring all data that was acquired for TC during the course of the contract back to TC. The database must be in an accessible and readable format. Transferring all equipment, instruments and software that were developed for TC during the course of the contract back to TC, and the completion of an inventory of equipment.

2.4 TASKS

2.4.1 Contract Phase-in

2.4.1.1 The Contractor must develop and submit an operational phase-in plan to TC. Weekly updates of progress must be communicated to the Technical Authority in writing. The scope of the plan will include the following elements:

- a) Transition organizational chart including the identification of a dedicated manager to act as point of contact to the Technical Authority and must notify the Technical Authority should the point of contact change;
- b) Staffing (resource plan, recruitment and on-boarding) and training plan;
- c) Timeline with milestone for staffing and training; and
- d) Interim health and safety program.

2.4.1.2 Upon request, and as described in a Task Authorization, the Contractor must develop and submit laboratory safety plans for the following activity areas:

- a) Environmental chambers
- b) VTS
- c) Test tracks
- d) Crash laboratory, assuming that vehicle test samples include alternative fuel (EV, HEV, Hydrogen) vehicles
 - barrier / pole crash tests
 - moving car-to-moving car crash tests
- e) Acceleration sled
- f) Pedestrian laboratory
- g) All laboratory safety plans must draw on the Contractor's past experience for comparable test applications and reflect sound management practices. Each plan should identify the risks and clearly describe the precautions that are needed to protect the health and safety of all personnel, the environment and Crown assets. These plans are to be revised and updated on a yearly basis as specified in the Task Authorizations.

2.4.1.3 The Contractor must, at the request of the Technical Authority, at a time agreed upon with Technical Authority, carry out a sample of commissioning tests to demonstrate that the personnel are able to operate the test equipment in a safe manner that is compliant with all applicable regulations, manufacturer recommendations and policies. The type and number of tests and acceptance criteria are to be determined by the Technical Authority. All tests related to this task must be witnessed by the Technical Authority and one other TC representative. Failure to satisfy the criteria will require that the Contractor repeats the commissioning test, at the Contractor's expense, until the Technical Authority is satisfied that the criteria have been met.

2.4.1.4 The Contractor must conduct a Baseline Inspection to assess the condition of the assets within six (6) weeks of the Operational Start Date. The inspection must be witnessed by the Technical Authority. To ensure that a complete and accurate baseline is documented, a time frame mutually agreed on between the Technical Authority, the Contract Authority and the Contractor must be arranged by the Contractor.

2.4.2 **Contract Completion**

2.4.2.1 The Contractor must upon request develop and submit a knowledge transfer plan and transfer all data and elements of the knowledge transfer plan. The Technical Authority will request the plan through a Task Authorization no later than eighteen (18) months prior to the expiry of the contract, and the plan must be provided to the Technical Authority no later than three (3) months prior to the expiry of the contract. The plan would include the following:

- a) Transition organizational chart identifying key resources that will be responsible to transfer knowledge;
- b) Objectives for the knowledge transfer required for each activity centre;
- c) A database of procedures associated with each activity centre;
- d) Description of database;
- e) Anticipated number and type of resources, timeline and milestones for in-person training of incumbent; and

- f) Information on current state, and how to safely operate, Fixed Test Equipment and the facility.

2.4.2.2 The Contractor must perform a final inventory of government furnished equipment prior to Contract completion, which must include capital assets. The inventory must be conducted by an accredited firm agreed to by the Technical Authority at least three (3) months prior to the expiry of the contract. The Contractor must participate in an inspection visit with the Technical Authority to verify the state of the facilities and equipment. In cases of non-conformity, the Contractor must take any necessary corrective action required.

2.5 DELIVERABLES

Table 1 Deliverables and acceptance criteria for contract phase-in and completion

Task	Description	Frequency	Acceptance Criteria
2.4.1.1	Operational Phase-in Plan	Once with weekly updates until approval of complete plan	<p>The Operational Initiation Plan must include all elements in Section 2.4.1.1, the requirements in the Task Authorization and be in a format identified in the Task Authorization.</p> <p>The complete plan, approved by Technical Authority, must be received within one (1) week of Operational Start Date.</p>
2.4.1.2	Laboratory Safety Plans	Once at contract onset with yearly updates	<p>The Laboratory Safety Plans must include all elements in Section 2.4.1.2, the requirements in the Task Authorization and be in a format identified in the Task Authorization.</p> <p>The Laboratory Safety Plans must identify the authors/contributors to the plans and references used to create the plans.</p> <p>The final Laboratory Safety Plans, approved by the Technical Authority and must be available electronically by the end of the phase-in.</p>
2.4.1.3	Demonstration of Capability: Commissioning Tests	Once unless a repeat is deemed necessary due to failure to meet criteria	<p>The Demonstration of Capability: Commissioning Tests must include all elements in Section 2.4.1.3, the requirements in the Task Authorization and be in a format identified in the Task Authorization.</p> <p>The Demonstration of Capability: Commissioning Tests must meet the criteria established by the TA</p>

Task	Description	Frequency	Acceptance Criteria
			for safety and accuracy in the Task Authorization.
2.4.1.4	Baseline Acceptance Report	Once	<p>The Baseline Acceptance Report must include all elements in Section 2.4.1.4, the requirements in the Task Authorization and be in a format identified in the Task Authorization.</p> <p>The Baseline Acceptance Report must contain an assessment of the condition of all Fixed Equipment.</p> <p>The Baseline Acceptance Report must be submitted and signed by the Technical Authority and the Contractor within six (6) weeks of the Operational Start Date.</p>
2.4.2.1	Knowledge Transfer Plan	No later than three (3) months prior to the expiry of the contract	<p>The Knowledge Transfer Plan must include all elements in Section 2.4.2.1, the requirements in the Task Authorization and be in a format identified in the Task Authorization.</p> <p>A Final Knowledge Transfer Plan, approved by the TA, must be received electronically three (3) months prior to contract end date.</p>
2.4.2.2	Final Capital Inventory	Six (6) months prior to contract end	The Final Capital Inventory must include all elements in Section 2.4.2.2, the requirements in the Task Authorization and be in a format identified in the Task Authorization.

3.0 COMPLIANCE AND RESEARCH TEST SERVICES

3.1 OBJECTIVES

- Provide valid, accurate and reliable compliance and research test services in accordance with Task Authorizations while prioritizing the health and safety of personnel, the protection of the facility and safeguarding the environment; and
- Promote program efficiencies, manage the testing capability and capacity for compliance and research programs to keep pace with emerging technologies and pursue Best Value for Money options for Canada.

3.2 DATA SECURITY

Tests conducted for TC may not be attended by third parties (visitors) without prior consent of the Technical Program Manager. Visitors are not permitted to photograph or record any part of a test without the prior written consent of the Technical Program Manager. Test data must not be released to a third party without the written consent of the Technical Project Manager. The Contractor must safeguard public sector data on the MVTC local network, must provide an electronic backup in the event that data is lost, and transfer the data to the Technical Program Manager in a manner acceptable to the Technical Program Manager. Given that the local network at the MVTC belongs to TC, data residing on the network may be subject to the Access to Information Act. The Contractor is responsible for the protection of any private sector data that is stored on the MVTC local network.

3.3 TASK AUTHORIZATIONS

Specific requirements for compliance and research programs will be defined in Task Authorizations issued to the Contractor on a yearly basis and updated as required. The Task Authorizations will include the program objectives, the test matrix, task descriptions, timeline for deliverables as well as other specific requirements related to the programs. The Technical Program Manager for each program or section thereof will be identified in the annual Task Authorization. The budgetary envelopes for compliance and research programs are not guaranteed, will fluctuate and may be allocated at any time during the fiscal year from April 1 to March 31. Funding allocations cannot extend beyond March 31 of the fiscal year. All deliverables must be received and approved by the Technical Program Manager by March 31 for payment to be issued.

3.4 SCOPE OF CONTRACTOR RESPONSIBILITIES

The responsibilities of the Contractor for Compliance and Research Test Services are the following:

- a) Management of all test samples delivered to the MVTC and intended for TC programs;

This includes:

- i. Receiving: inspection on delivery, assignment of identification number and registration in vehicle inventory
- ii. Storage: Protection from weather and or isolation from other vehicles at the request of the designated Technical Project Manager
- iii. Up to date inventory that includes the identification of status and location of vehicle and its components

- iv. Preparation for auction, deployment of airbags or other pyrotechnic devices
- v. Preparation for shipment of the vehicle or its components as requested by the Technical Project Manager
- b) Testing management to ensure the safe, repeatable, accurate and timely conduct of compliance and research tests;
- c) Data processing and management; software custom modification to meet test program requirements;
- d) Data quality control to detect erroneous measurements, and or instrument idiosyncrasies;
- e) Troubleshooting services and immediate corrective interventions for component, system and software malfunctions to minimize test program interruption; and
- f) Design and fabrication or development of tools to enhance the accuracy and or efficacy of test programs.

3.5 EXPERTISE AND KNOWLEDGE REQUIREMENTS

The Contractor must have an experienced and skilled team permanently located at the MVTC to deliver excellence-based crash avoidance, crashworthiness and compliance test services. Required key and baseline personnel are described in Appendix B. Extensive knowledge and experience in the following specialties is required:

3.5.1 Crash avoidance

- a) Development of test environments and software interfaces for the assessment of automated vehicle technologies and connectivity;
- b) Brake system (ABS) instrumentation and interfacing;
- c) Vehicle dynamics, electronic stability system testing instrumentation and interfacing;
- d) Data acquisition systems, troubleshooting and modifications to software as required;
- e) Data processing and management;
- f) Quality control requiring extensive knowledge to detect erroneous measurements, test, and instrument or software irregularities;
- g) Design and development of custom software or test instruments to meet specific test requirements;
- h) Driver training for compliance tests such as vehicle braking tests, motorcycle braking tests and Electronic Stability Control (ESC) tests;
- i) Instrumentation and interfacing for defroster and accelerator control tests at ambient and cold temperatures; and
- j) Vehicle preparation for bumper or Vehicle Test Structure (VTS) tests.

3.5.2 Crashworthiness

- a) Management of crash test teams to ensure the safe and efficient conduct of motor vehicle crash and sled tests;

- b) Motor vehicle preparation including instrumentation, camera and lighting installation, on-board data acquisition fixation, ballasting and or structural modifications to respect test mass. Qualified, experienced specialists must preserve the integrity of all vehicle systems while ensuring that the installed instruments and equipment will produce accurate results and withstand the crash;
- c) Pre and post-test 3-D measurement and documentation of the vehicle, the instrumentation and the dummies to assure reproducibility and repeatability;
- d) Safe, accurate and repeatable launch of test vehicles respecting requirements for the crash test. Parameters include but are not limited to the impact point, vehicle alignment, impact speed, and acceleration;
- e) Data acquisition and processing, data quality control to detect erroneous measurements, and or instrument idiosyncrasies software custom modification to meet test program requirements;
- f) Advanced Anthropomorphic Test Device (ATD) technologies and associated instrumentation including: installation, verification, and troubleshooting;
- g) In-dummy and on-board data acquisition systems (DAS) and related software: Installation, maintenance and troubleshooting of both;
- h) High-speed video and digital photography: standardisation of imagery for science analysis and archival purpose in the field of dummy kinematics and vehicle safety system performance. Knowledge and experience in: Image composition, lighting and color sensitivity and control, consistency in the position (perspective) and framing. Awareness of high-speed imagery technology developments and associated tools entering the market. Design and fabrication of custom camera fixtures, programming, customizing and troubleshooting of related software;
- i) On-board and external lighting systems, custom designs of systems to meet test program requirements; and
- j) Sled testing (acceleration and deceleration) with capability of matching and repeating required crash pulses. Design and fabrication of custom sled accessories and bucks to meet specific test program requirements.

3.6 LIMITATIONS AND ADDITIONAL REQUIREMENTS

The Contractor should note that the following may affect Task Authorizations and the associated deliverables for compliance, crash avoidance and crash worthiness research programs:

- TC budgetary allocations may be delayed or cancelled.
- Vehicle availability can vary, and accompanying documentation required for compliance can be delayed.
- Unexpected test results and possible non-compliances may require additional investigation or scheduling of additional testing to accommodate manufacturer(s).
- Long lead times for specialized parts and repairs may cause delays.
- TC reserves the right to loan out technical equipment to other organizations or laboratories for the purposes of research testing.

The Contractor is responsible to ensure that the test equipment and instrumentation required to complete the compliance program (requested in the Task Authorization) are

calibrated, operational and available for testing. This means that the test equipment and instrumentation:

- Must be inspected after each test; repairs and ordering of replacement parts must be carried out as soon as practicable.
- Repairs and yearly calibration must be planned in accordance with program usage and communicated in writing to the Technical Program Manager.
- Must remain at the MVTC at all times unless it is being sent out for repairs that cannot be carried out on site, or loaned out at the direction of the Technical Program Manager.
- The Contractor must obtain written authorization from the Technical Program Manager prior to any transfer, loan or rental of TC equipment to a third party for non-TC use that is off-site.
- The Contractor must document with the aid of digital photographs, the condition of dummy entities, components and the instrumentation upon each entry to the MVTC and prior to any expedition of the dummies, components and instrumentation external to the MVTC.
- Goods and services may require numerous months to procure. The Contractor is responsible to plan accordingly and ensure that the acquisition process be initiated as soon as practicable following the receipt of an approved Task Authorization.

3.7 COMPLIANCE PROGRAM

3.7.1 Overview

The Compliance Test Programs include a series of tests conducted upon new vehicles and child restraint systems to monitor their compliance with the CMVSS as established under the authority of the *Motor Vehicle Safety Act*. The test matrix includes a mix of vehicle dynamic testing, structural testing, component testing and crashworthiness testing. Vehicle samples and the child seats to be tested are supplied by TC and delivered to the MVTC. The vehicle sample can include passenger cars, light and heavy-duty trucks, buses, motorcycles and snowmobiles. Determination of non-compliance with the applicable standard is determined solely by TC.

3.7.2 Reference Data

Relevant legislation and regulation to support activities for the compliance program are available using the below hyperlinks:

- The *Motor Vehicle Safety Act (1996, ch 16)* is available at:
<https://tc.canada.ca/en/corporate-services/acts-regulations/motor-vehicle-safety-act-1993-c-16>
- The *Motor Vehicle Safety Regulations (C.R.C., c. 1038)* are available at:
[Motor Vehicle Safety Regulations \(justice.gc.ca\)](http://Motor Vehicle Safety Regulations (justice.gc.ca))
- All regulations amending the *Motor Vehicle Safety Regulations* are available following link:
[Motor Vehicle Safety Act \(1993, c. 16\) \(canada.ca\)](http://Motor Vehicle Safety Act (1993, c. 16) (canada.ca))

3.7.3 Tasks

- 3.7.3.1 The Contractor must conduct the compliance tests specified in the Task Authorization(s). Test programs may be shared with other programs, requiring additional ATD's, measurements and instrumentation. The tests requested in the Task Authorizations must be performed at the MVTC in accordance with the established CMVSS protocols as listed in Appendix C. New or additional test protocols (not included in Appendix C) must be performed at the MVTC in accordance with a protocol and reporting mechanism agreed upon with the Technical Program Manager for the program; as follows:
- a) The Contractor must produce a monthly test schedule and advise the concerned Technical Program Manager(s) in writing of any changes to the test schedule at least three days prior to the scheduled test date.
 - b) A French and English electronic report presented in a format that has been pre-approved by the Technical Program Manager for the program must be submitted by the Contractor within four (4) weeks of each vehicle test completion and prior to March 31 of each year unless otherwise specified.
 - i. The accuracy of any testing that is carried out by a sub-contractor is the responsibility of the Contractor. The sub-contractor report must be integrated into the test report; and
 - ii. The reports must be signed by the lead test engineer registered.
 - c) Should a test failure or a safety problem be identified during the tests, the Contractor must notify the Technical Program manager for the program within twenty-four (24) hours and provide a draft electronic test report as soon as practicable.

- d) The Contractor must produce electronic records within twenty-four (24) hours of test completion. These include but are not limited to:
 - i. Pre-test photographs, static measurements such as test vehicle weights, attitudes, coordinate system, and ATD positioning measurements;
 - ii. Any alteration made to a test vehicle during the installation of the test instrumentation and/or fixtures or deterioration of the vehicle or its components, due to testing, must be recorded photographically and saved with the electronic records;
 - iii. Videos, post-test photographs, and post-test documentation including but not limited to measurements of deformation, spillage, and damage; and
 - iv. Data recorded from all instrumentation.
 - e) The Contractor shall assume responsibility to receive child restraint systems at the MVTC, shipping of the child restraint systems to an alternative location as required, and storage of the seats until disposed.
 - i. The Contractor will maintain an up-to-date inventory list identifying the location of the child restraint, its test history and condition; and
 - ii. The Contractor shall destroy child restraints at the request of the Technical Project Manager. The disposal will be done in a way to ensure there is no possible future use or resale.
 - f) The Contractor must update laboratory safety procedures, on a yearly basis to protect the health and safety in each of the principal laboratories where compliance tests are conducted. The laboratories include the Crash areas, pedestrian lab, VTS, environmental chambers, and test tracks.
 - g) Upon written request from a Technical Program Manager, the Contractor must prepare a proposal for the implementation of new or additional regulatory test protocols. This may include the development of test protocols, the development of bilingual report templates and the development of new or revised safety procedures. The proposal must include a budgetary estimate for labour and material.
- 3.7.3.2 The Contractor must prepare a calibration schedule for all test equipment that is expected to be required for the compliance programs. The Contractor is responsible for ensuring that all test instrumentation required to conduct the compliance programs described in the Task Authorization(s) are calibrated, operational and available for testing as per the timeline requested in the Task Authorization(s).
- 3.7.3.3 The Contractor must produce a yearly plan with quarterly revisions, for the acquisition of the material required for the compliance programs. The plan must include anticipated consumable materials by category, identification of capital equipment acquisitions, intended acquisition strategy, timeline that is reflective of constraints associated with Annex I of this RFP and budgetary estimates (material and labour).
- 3.7.3.4 The Contractor must plan, recommend, design and fabricate new and/or improvements of test instruments. This includes the equipment, hardware and/or software deemed necessary for the delivery of compliance programs, to improve the accuracy, repeatability and/ or safety of existing test protocols and to meet requirements identified in a Task Authorization. The Contractor must:

- a) Provide a proposal for the in-house design and manufacture or improvement of test instruments, equipment, hardware or software including the expected schedule and material and labour costs for on-site manufacturing
- b) Communicate anticipated delays, the reason for the delay, and revised timelines to the Technical Project Manager as soon as they become known.
- c) Assign an inventory number, issued by the for all Items meeting the definition of capital equipment following acceptance of the item by the Technical Program Manager.

3.7.3.5 In the event that the Contractor can demonstrate that the material described in 3.7.3.3 should be acquired from an external supplier(s) the Contractor must:

- a) Define the specifications as a function of program needs and market availability.
- b) Prepare the recommended purchase process in compliance with Annex I of this RFP , including evaluation criteria,
- c) Conduct the commissioning and communicate potential delays to the Technical Project Manager as soon as they become known.
- d) Assign an inventory number, issued by the Technical Authority for all Items meeting the definition of capital equipment following acceptance of the item by the Technical Program Manager for the program.

3.7.4 Deliverables

Table 2 - Deliverables and acceptance criteria for compliance test programs

Task	Description	Frequency	Acceptance Criteria
3.7.3.1 a)	Test Schedule	Weekly unless otherwise agreed in writing	<p>The Test Schedule must include all elements in Section 3.7.3.1(a), the requirements in the Task Authorization and be in a format identified in the Task Authorization.</p> <p>The Test Schedule must include all test samples identified in the Task Authorization.</p>
3.7.3.1 b)	Signed, French and English Electronic Test Reports	Four (4) weeks following the test	<p>The signed French and English Electronic Test Report must include all elements in Section 3.7.3.1(b), the requirements in the Task Authorization and be in a format identified in the Task Authorization.</p> <p>The signed, French & English Electronic Test Report must contain all information required to determine compliance as per the applicable motor vehicle standard.</p>
3.7.3.1 c)	Draft Report Issued in Case of Test Failure or Safety Concern	Within twenty-four (24) hours of test completion	<p>The Draft Report Issued in Case of Test Failure or Safety Concern must include all elements in Section 3.7.3.1(c), the requirements in the Task Authorization and be in a format identified in the Task Authorization.</p> <p>The Draft Report Issued in Case of Test Failure or Safety Concern must contain all information to demonstrate test failure or safety concern.</p>
3.7.3.1 d)	Electronic Records	Upon request	<p>Electronic Records must include all elements in Section 3.7.3.1(d), requirements in the Task Authorization and be in a format identified in the Task Authorization.</p> <p>Electronic Records will be subject to quality control by the Technical Project Manager.</p>

Task	Description	Frequency	Acceptance Criteria
3.7.3.1 e)	Inventory of child restraint systems	Upon request	The inventory of child restraint systems must include all elements in Section 3.7.3.1(e-), the requirements in the Task Authorization and be in a format identified in the Task Authorization.
3.7.3.1 f)	Laboratory Safety Procedures	Yearly (revisions as required)	Laboratory Safety Procedures must include all elements in Section 3.7.3.1(f) and be in a format identified in the Task Authorization Laboratory Safety Procedures must be clear, sequential and reflective of risks imposed by technologies entering the labs.
3.7.3.1 g)	Proposals for Implementation of New Regulatory Test Protocols	As required	Proposals for Implementation of New Regulatory Test Protocols must include all elements in Section 3.7.3.1(g), the requirements in the Task Authorization and be in a format identified in the Task Authorization. Proposals for Implementation of New Regulatory Test Protocols must demonstrate an understanding of the regulatory text and intent.
3.7.3.2	Calibration Schedule Calibration Certificates	Yearly at an agreed period; quarterly updates On request	The Calibration Schedule must include all elements in Section 3.7.3.2, the requirements in the Task Authorization and be in a format identified in the Task Authorization. The Calibration Schedule must include budgetary estimates for labour, material, shipping and calibration outsourcing, if applicable. The Calibration Schedule must demonstrate measures to minimize program interruptions. Equipment must be calibrated as per the manufacturer recommendation, Task Authorization and the frequency specified in Appendix D.

Task	Description	Frequency	Acceptance Criteria
3.7.3.3	Plan for Consumable Material Purchase by Category and Capital Acquisitions	Yearly, quarterly updates	<p>The Plan for Consumable Material Purchases by Category and Capital Acquisitions must include all elements in Section 3.7.3.3, the requirements in the Task Authorization and be in a format identified in the Task Authorization.</p> <p>The Plan for Consumable Material Purchases by Category and Capital Acquisitions must include budgetary cost estimates, acquisition strategy and justification.</p> <p>The Plan for Consumable Material Purchases by Category and Capital Acquisition must comply with Government Contract Regulations</p>
3.7.3.4 a)	Proposal(s) for the In-house Design, Fabrication or Modification of Test Instruments, Equipment, Hardware and/or Software	On request	The Proposal for the In-house Design, Fabrication or Modification of Test Instruments, Equipment, Hardware and/or Software must include all elements in Section 3.7.3.4(a), the requirements in the Task Authorization and be in a format identified in the Task Authorization.
3.7.3.4 b)	Written Notification of Potential Delay in Project Completion	On request	<p>Written Notification of Potential Delay in Project Completion must include all elements in Section 3.7.3.4(b), the requirements in the Task Authorization and be in a format identified in the Task Authorization.</p> <p>Must include reason for delay and revised timeline to deliver.</p>

Task	Description	Frequency	Acceptance Criteria
3.7.3.4 c)	Assignment of Inventory Number	On completion unless otherwise agreed	<p>The Assignment of Inventory Number must include all elements in Section 3.7.3.4(c), the requirements in the Task Authorization and be in a format identified in the Task Authorization.</p> <p>The identified equipment must operate as intended and be approved by the Technical Program Manager.</p>
3.7.3.5 a)	Specifications for Acquisition	Upon request	<p>Specifications for Acquisition must include all elements in Section 3.7.3.5(a), the requirements in the Task Authorization and be in a format identified in the Task Authorization.</p> <p>Specifications for Acquisition must address program requirements, be compatible with existing equipment and software and consistent with Task Authorization.</p>
3.7.3.5 b)	Purchase process	Upon request	<p>The purchase process must comply with Annex I of this RFP and Section 3.7.3.5, the requirements in the Task Authorization and be in a format identified in the Task Authorization.</p>
3.7.3.5 c)	Acceptance Report and Assignment of Inventory Number	Fourteen (14) days after delivery unless otherwise agreed	<p>The Acceptance Report and Assignment of Inventory Number must include all elements in Section 3.7.3.5(c), the requirements in the Task Authorization and be in a format identified in the Task Authorization.</p> <p>The Acceptance Report must provide confirmation that the item meets the specifications and requirements defined in the Task Authorization.</p> <p>The Contractor must demonstrate that the material operates as intended.</p>

3.8 RESEARCH PROGRAMS: CRASH AVOIDANCE

3.8.1 Overview

The crash avoidance research includes the development of test methodologies and tools for the evaluation of connected and automated vehicle (CAV) technologies, advanced driver assistance systems (ADAS), and vehicle dynamics. Accurate and reliable data are essential for the division's research and for the development of effective performance-based guidelines, standards, and regulations related to the safety of road user.

The scope of the research programs depends on yearly budget allocations as well as test samples and instrumentation availability. TC provides all test samples and will re-use test samples or share tests with other compliance and research programs to augment cost effectiveness. Vehicle samples can include passenger cars, multi-purpose passenger vehicles, heavy trucks, buses of all types and/or other motor vehicle products not sold in Canada. The technology evaluated can be offered on a vehicle as standard/optional accessories or added on as third-party hardware/software. The evaluation can be conducted from the vehicle's perspective or its peripheral components such as emitting or receiving information from the surrounding infrastructure.

3.8.2 Tasks

- 3.8.2.1 The Contractor must prepare a calibration schedule for all test equipment that is expected to be required for crash avoidance programs. The Contractor must ensure that all test instrumentation required to conduct the crash avoidance programs described in the Task Authorization(s) are calibrated as per the frequency specified in the calibration schedule in Appendix D, are operational and available for testing. For example, the Contractor must provide troubleshooting services and immediate corrective interventions for component, system and software malfunctions to minimize test program interruption.
- 3.8.2.2 The Contractor must conduct the advanced driver assistance systems (ADAS) testing at the MVTC as specified in the Task Authorization(s). This may include but is not limited to the evaluation of ADAS and CAV technologies through the incremental development and implementation of test scenarios and programming of driving robots, targets and onboard/roadside units; the development of test environments and software interfaces for the assessment ADAS and CAV: The Contractor must:
- a) Prepare a test plan for each program as specified in the Task Authorization. The plan must be supplemented with weekly updates to the Technical Program Manager during test execution periods. Test plans and modifications thereof must be done in consultation with the Technical Program Manager for the affected program.
 - b) Submit a test report accompanied by all supporting data identified in the Task Authorization for each vehicle undergoing ADAS or CAV testing.
 - c) Develop a safety plan, and provide updates on a yearly basis to maximize safety related to crash avoidance testing on the test tracks.
- 3.8.2.3 The Contractor must conduct directed program testing at the MVTC. Targeted programs are aimed at evaluating emerging technologies and/or test methodologies by testing and examining aggregate data as specified in the Task Authorizations. Examples of directed

programs may include but are not limited to Vehicle-to-Vehicle communications and platooning. The Contractor must:

- a) Prepare a test plan for each program as specified by the Task Authorization. The plan must be supplemented by weekly updates during test execution periods. Test plans and modifications thereof must be done in consultation with the Technical Program Manager for the program.
- b) Transfer data records on a monthly basis during the execution of the programs unless otherwise stated in the Task Authorization.
- c) Submit a draft paper presenting the goal of directed program, methods, equipment used, results, and overall findings following the completion of each directed program.
- d) Develop a safety plan, and provide updates on a yearly basis to maximize safety related to crash avoidance testing on the test tracks.

3.8.2.4 The Contractor is responsible for tracking and documenting revisions announced by manufacturers and suppliers of crash avoidance instrumentation, equipment, hardware and/or software. Tracking must be done by:

- a) Recording service bulletins and announcements; and
- b) Preparing a summary of participation in international working groups or international technical conferences as specified in the Task Authorization.

3.8.2.5 The Contractor must prepare a yearly plan with quarterly revisions, for the acquisition of material required for the crash avoidance programs. The plan must include anticipated consumable materials by category; hardware and software acquisitions and upgrades; identification of capital equipment acquisitions; budgetary estimates (material and labour); the intended acquisition strategy and timeline consistent with Annex I of this RFP.

3.8.2.6 The Contractor must propose, design and fabricate new and/or improvements of test instruments. This includes the equipment, hardware and/or software deemed necessary for the delivery of crash avoidance research programs, to improve the accuracy, repeatability and/ or safety of existing test protocols and to meet requirements identified in a Task Authorization. When conducting these activities, the Contractor must:

- a) Prepare a proposal that includes the anticipated timeline, labour and material costs for on-site fabrication.
- b) Communicate all anticipated delays to the Technical Program Manager as soon as they become known.
- c) Assign an inventory number, issued by the Technical Project Manager for all items meeting the definition of capital equipment following acceptance of the item by the Technical Program Manager for the program.

3.8.2.7 In the event that the Contractor can demonstrate to the Technical Program Manager that the material described in 3.8.2.5 should be acquired from an external supplier(s) the Contractor must:

- a) Define the specifications as a function of program needs and market availability
- b) Prepare the recommended purchase process in compliance with Annex I of this RFP including evaluation criteria, conduct the commissioning and

communicate potential delays to the Technical Program Manager as soon as they become known.

- c) Assign an inventory number, issued by the Technical Authority for all Items meeting the definition of capital equipment following acceptance of the item by the Technical Program Manager for the program.

3.8.3 Deliverables

Table 3- Deliverables and acceptance criteria for crash avoidance research programs

Task	Description	Frequency	Acceptance Criteria
3.8.2.1	Calibration Schedule	Yearly at an agreed period	Calibration Schedule must include all elements in Section 3.8.2.1, the requirements in the Task Authorization and be in a format identified in the Task Authorization. The Calibration Schedule must include budget estimates for labour, material, shipping and calibration outsourcing, if applicable. The Calibration Schedule must demonstrate measures to minimize program interruptions.
	Calibration Certificates	On request	Equipment must be calibrated as per manufacturer recommendation, the Task Authorization and the frequency specified in Appendix D.
3.8.2.2 a)	Test Plan with Updates	Once, with weekly updates	The Test Plan with Updates must include all elements in Section 3.8.3.2(a), the requirements in the Task Authorization and be in a format identified in the Task Authorization.

Task	Description	Frequency	Acceptance Criteria
3.8.2.2 b)	French & English electronic Test Reports	Four (4) weeks following the completion of the test series for a vehicle	<p>French and English electronic Test Report must include all elements in Section 3.8.3.2(b), the requirements in the Task Authorization and be in a format identified in the Task Authorization.</p> <p>All Signed, French and English Electronic Test Reports for the current fiscal year must be delivered prior to March 31 of each year.</p> <p>Quality control to be approved by Technical Project Manager.</p>
3.8.2.2 c)	Safety Plan for Test Tracks	Yearly (revisions as required)	<p>The Safety Plan for Test Tracks must include all elements in Section 3.8.3.2(c), the requirements in the Task Authorization and be in a format identified in the Task Authorization.</p> <p>The Safety Plan for Test Tracks must be clear, sequential and reflective of safety risks imposed by the technology being tested.</p>
3.8.2.3 a)	Test Plan with Updates	Once; with weekly updates	<p>The Test Plan must include all elements in Section 3.8.3.3(a), the requirements in the Task Authorization and be in a format identified in the Task Authorization.</p> <p>The Test Plan must be updated weekly during test execution periods, unless otherwise stated in the Task Authorization.</p>
3.8.2.3 b)	Interim Data Transfer	Monthly or on request	Interim Data Transfer must include all elements in Section 3.8.3.3(b), the requirements in the Task Authorization and be in a format identified in the Task Authorization.

Task	Description	Frequency	Acceptance Criteria
3.8.2.3 c)	Directed Program Draft Paper	Yearly, before March 1 st	<p>The Directed Program Draft Paper must include all elements in Section 3.8.3.3(c), the requirements in the Task Authorization and be in a format identified in the Task Authorization.</p> <p>The Directed Program Draft Paper must be draft publication quality.</p>
3.8.2.3 d)	Safety Plan for Test Tracks	Yearly (revisions as required)	<p>The Safety Plan for Test Tracks must include all elements in Section 3.8.3.3(d), the requirements in the Task Authorization and be in a format identified in the Task Authorization.</p> <p>The Safety Plan for Test Tracks must be clear, sequential and reflective of safety risks imposed by the technology being tested.</p>
3.8.2.4 a)	Compendium of Service Bulletins and Announcements	On request	<p>The Compendium of Service Bulletins and Announcements must include all elements in Section 3.8.3.4(a), the requirements in the Task Authorization and be in a format identified in the Task Authorization.</p> <p>The Compendium of Service Bulletins and Announcements must be current and include the suite of instruments/ equipment used for crash avoidance research.</p>
2.8.2.4 b)	Summary of Participation in International Working Groups or International Technical Conferences	As required	<p>The Summary of Participation in International Working Groups or International Technical Conferences must include all elements in Section 3.8.3.4(b), the requirements in the Task Authorization and be in a format identified in the Task Authorization.</p>

Task	Description	Frequency	Acceptance Criteria
3.8.2.5	Plan for Material Purchase by Category and Capital Acquisition	Yearly, quarterly updates	<p>The Plan for Material Purchase by Category and Capital Acquisition must include all elements in Section 3.8.2.5, the requirements in the Task Authorization and be in a format identified in the Task Authorization.</p> <p>The Plan for Material Purchase by Category and Capital Acquisition must reflect research program requirements identified in the Task Authorization.</p>
3.8.2.6 a)	Proposal(s) for the In-house Design and Fabrication or Improvement of Test Instruments, Equipment, Hardware and/or Software	As required	<p>The Proposal for the In-house Design and Fabrication or Improvement of Test Instruments, Equipment, Hardware and/or Software must include all elements in Section 3.8.2.6(a), the requirements in the Task Authorization and be in a format identified in the Task Authorization.</p> <p>The Proposal for the In-house Design and Fabrication or Improvement of Test Instruments, Equipment, Hardware and/or Software must explain how the project will improve the accuracy, repeatability and/or safety.</p>
3.8.2.6 b)	Written Notification of Potential Delay in Project Completion	As required	<p>The Written Notification of Potential Delay in Project Completion must include all elements in Section 3.8.3.6(b), the requirements in the Task Authorization and be in a format identified in the Task Authorization.</p> <p>The Written Notification of Potential Delay in Project Completion must include the reason for delay and revised timeline.</p>

Task	Description	Frequency	Acceptance Criteria
3.8.2.6 c)	Acceptance and Assignment of Inventory Number	On completion unless otherwise agreed	<p>The Acceptance and Assignment of Inventory Number must include all elements in Section 3.8.2.6 (c), the requirements in the Task Authorization and be in a format identified in the Task Authorization</p> <p>The Contractor must demonstrate that the material operates as intended, and that is has been approved by the Technical Program Manager, prior to it being assigned an inventory number.</p>
3.8.2.7 a)	Specifications for Acquisition	Upon request	Specifications for Acquisition must address program requirement, be compatible with existing equipment and software, and consistent with Task Authorization.
3.8.2.7 b)	Purchase process	As required	The purchase process must comply with Annex I of this RFP and Section 3.8.2.7 (b), the requirements in the Task Authorization and be in a format identified in the Task Authorization.
3.8.2.7 c)	Acceptance Report and Assignment of Inventory Number	Fourteen (14) days after delivery unless otherwise agreed	<p>The Assignment of Inventory Number must include all elements in Section 3.8.2.7(c), the requirements in the Task Authorization and be in a format identified in the Task Authorization.</p> <p>The Acceptance Report must provide confirmation that the item meets the defined specifications and requirements and be in a format identified in the Task Authorization.</p> <p>The Contractor must demonstrate that the material operates as identified in the Task Authorization.</p>

3.9 RESEARCH PROGRAMS: CRASHWORTHINESS

3.9.1 Overview

Motor vehicle crashworthiness is the level of protection provided to vehicle occupants during a crash. TC is mandated to reduce the number of Canadians injured or killed in traffic-related crashes. The MVTC supports this mandate by providing the necessary scientific basis for the development of effective regulatory initiatives.

The Crashworthiness Program operates within a framework of planned studies designed to address issues arising from in-house research, international working group participation and communications with industry research groups. The effectiveness of the regulatory initiatives, the establishment of partnerships with industry and ultimately the sustainability of the research programs are all contingent upon scientific rigour.

The scope of the research programs depends on yearly budget allocations as well as test sample availability. The programs must be completed within the fiscal year. TC purchases all test samples and will re-use test samples or share tests with other compliance or research programs to augment cost effectiveness. Vehicle samples can include new or used passenger cars, multi-purpose vehicles and heavy-duty trucks, buses of all types and/or motor vehicle products not sold in Canada.

3.9.2 Tasks

- 3.9.2.1 The Contractor must conduct the crash testing at the MVTC as specified in the Task Authorizations. Crash tests may include but are not limited to: moving car to moving car frontal, side, oblique or rear impacts; side impact pole, narrow offset frontal rigid or deformable barrier; or dynamic rollover. The Technical Project Manager reserves the right to modify test configurations, including but not limited to ATD selection, ATD placement, positioning and/or child seat selection and installation method as indicated by interim findings obtained during the course of the program. Test programs may be shared with compliance. When conducting the activities, the Contractor must:
- a) Prepare a planned test schedule for each program described in the Task Authorization(s). The plan must be supplemented by weekly updates during test execution periods.
 - b) Develop a pre-launch safety checklist, revised and updated on a yearly basis to maximize safety related to vehicle crash testing.
 - c) Process the ATD and vehicle response data within four (4) hours of the crash test. The Contractor must:
 - i. Demonstrate that the accuracy specified in the Task Authorization has been achieved; for example, impact velocity, vehicle alignment and impact point; and
 - ii. Provide data time history traces for ATDs and vehicle in PDF format and measurement data to demonstrate that the repeatability specified in the Task Authorization has been achieved. Priorities for repeatability include but are not limited to: ATD positioning landmarks, accelerometer placements, video images and vehicle dynamics.
 - d) Produce broadcast quality video images suitable for scientific analysis and archival purposes within twelve (12) hours of each crash test. Views of all ATD

motions and safety systems must be unobstructed and have optimal lighting and color sensitivity. Custom fixtures must be fabricated to protect the cameras and lighting without interfering with the structural integrity or safety systems of the test vehicle.

- 3.9.2.2 The Contractor must conduct sled testing (acceleration and/or deceleration) at the MVTC as specified in the Task Authorizations. Programs require matched comparisons respecting a tight tolerance in the positioning of key ATD targets, and the ability to match the pulses within the corridor specified in the Task Authorization.

The Contractor must:

- a) Prepare a test schedule for each sled program described in the Task Authorizations. The plan must be supplemented by weekly updates during test execution periods.
 - b) Develop a pre-launch safety checklist, updated on a yearly basis to maximize safety related to acceleration and deceleration sled testing as applicable.
 - c) Process the ATD and sled response data within four (4) hours of the sled tests.
 - d) Demonstrate that the repeatability specified in the Task Authorization has been achieved. Priorities for repeatability include but are not limited to: dummy positioning landmarks, accelerometer placements, video images and sled pulses.
 - e) Produce broadcast quality video images suitable for scientific analysis and archival purposes within twelve (12) hours of each sled test series. Views of all ATD motions and safety systems must be unobstructed and have optimal lighting and color sensitivity. Custom fixtures must be fabricated to protect the cameras and lighting as specified in the Task Authorization.
- 3.9.2.3 The Contractor must ensure that all test instrumentation required to conduct the crashworthiness programs described in the Task Authorization(s) are calibrated as per the frequency specified in the calibration schedule in Appendix D, are operational and available for testing. For example, the Contractor must provide troubleshooting services and immediate corrective interventions for component, system and software malfunctions to minimize test program interruption.
- 3.9.2.4 The Contractor must track and document revisions announced by ATD manufacturers and associated suppliers. Tracking must be done by:
- a) Recording service bulletins in an electronic format accessible to the Technical Project Manager; and
 - b) Participating in International working groups as specified in the Task Authorization.
- 3.9.2.5 The Contractor must submit a yearly plan with quarterly revisions for the acquisition of equipment, instrumentation, hardware and software, and proposed activities required to support crashworthiness programs. The plan must include, but is not limited to: anticipated consumable materials (listed by category), that are not included in the material list associated with fixed price compliance or research test protocols; identification of ATD replacement parts and upgrades; identification of instrumentation that requires replacement or upgrade; new instrumentation to improve capability or accuracy; equipment to protect or extend the life of instruments; and capital acquisition such as cameras, lighting, ATDs, data acquisition systems and other new technologies deemed necessary to keep pace with international occupant protection research and evaluation activities. Examples of evaluation activities could include proposed New Car Assessment Program requirements, activities related to Global Technical Regulation

changes, and/or International Standards Organization working group activities. The plan must include a justification, a timeline, the recommended acquisition strategy, that complies with Annex I of this RFP; budgetary estimates (material and labour) and delivery lead time.

3.9.2.6 The Contractor must plan, propose, design and fabricate new and/or improvements of test instruments. This includes the equipment, hardware and/or software deemed necessary for the delivery of crashworthiness research programs, to improve the accuracy, repeatability and/ or safety of existing test protocols and to meet requirements identified in a Task Authorization. The Contractor must :

- a) Provide the anticipated timeline, labour and material costs for on-site fabrication.
- b) Communicate anticipated delays to the Technical Project Manager as soon as they become known.
- c) Assign an inventory number that will be issued by the Technical Project Manager to items meeting the definition of capital equipment following acceptance by the Technical Program Manager.

3.9.2.7 In the event that the Contractor can demonstrate to the Technical Program Manager that the material described in 3.9.2.5 should be acquired from an external supplier(s) the Contractor must:

- a) Define the specifications as a function of program needs and market availability.
- b) Prepare the recommended purchase process in compliance with Annex I of this RFP and communicate potential delays to the Technical Program Manager as soon as they become known.
- c) Assign an inventory number, issued by the Technical Authority for all Items meeting the definition of capital equipment following acceptance of the item by the Technical Program Manager for the program.

3.9.3 Deliverables

Table 3 Deliverables and acceptance criteria for crashworthiness research programs

Task	Description	Frequency	Acceptance Criteria
3.9.2.1 a)	Test Schedule	On request; weekly updates unless otherwise agreed to in writing	The Test Schedule must include all elements in Section 3.9.2.1(a), the requirements in the Task Authorization and be in a format identified in the Task Authorization. The Test Schedule must be accurate and up to date to include the complete program as specified in Task Authorization(s).

Task	Description	Frequency	Acceptance Criteria
3.9.2.1 b)	Pre-launch Safety Checklist	Once (1), with yearly updates	<p>The Pre-launch Safety Checklist must include all elements in Section 3.9.2.1(b), the requirements in the Task Authorization and be in a format identified in the Task Authorization.</p> <p>The Pre-launch Safety Checklist must be point-form, clear, sequential and comprehensive, must include all vehicle technologies referenced in the Task Authorization(s).</p>
3.9.2.1 c)	Data Traces for ATDs and Vehicle	Within four (4) hours of test completion	<p>Data Traces must include all elements in Section 3.9.2.1(c), the requirements in the Task Authorization and be in a format identified in the Task Authorization.</p> <p>The graphs must be error free; aberrant signals must be identified.</p>
3.9.2.1 d)	Videos	Within twelve (12) hours of test completion	<p>Videos must include all elements in Section 3.9.2.1(d), the requirements in the Task Authorization and be in a format identified in the Task Authorization.</p>
3.9.2.2 a)	Test Schedule	On request; weekly updates unless otherwise agreed to in writing	<p>The Test Schedule must include all elements in Section 3.9.2.2 (a), the requirements in the Task Authorization and be in a format identified in the Task Authorization.</p> <p>The Test Schedule must be accurate and up to date include complete program as specified in Task Authorization.</p>
3.9.2.2 b)	Pre-launch Safety Checklist	Once (1) with yearly updates	<p>The Pre-launch Safety Checklist must include all elements in Section 3.9.2.2(b), the requirements in the Task Authorization and be in a format identified in the Task Authorization.</p> <p>The Pre-launch Safety Checklist must be point-form, clear, sequential and comprehensive,</p>

Task	Description	Frequency	Acceptance Criteria
3.9.2.4 b)	Written Account of Meeting	On request	<p>The Written Account of Meeting must include all elements in Section 3.9.2.4 (b), the requirements in the Task Authorization and be in a format identified in the Task Authorization.</p> <p>The Written Account of Meeting must summarize planned action items and issues affecting the instrument.</p>
3.9.2.5	Material and Capital Acquisition Plan	Yearly, quarterly updates	<p>The Material and Capital Acquisition Plan must include all elements in Section 3.9.2.5, the requirements in the Task Authorization and be in a format identified in the Task Authorization.</p> <p>The Material and Capital Acquisition Plan must reflect research program requirements identified in the Task Authorization.</p>
3.9.2.6 a)	Proposal(s) for the In-house Design and Fabrication or Improvement of Test Instruments, Equipment, Hardware and/or Software	As required	<p>Proposal(s) for the In-house Design and Fabrication or Improvement of Test Instruments, Equipment, Hardware and/or Software must include all elements in Section 3.9.2.6 (a), the requirements in the Task Authorization and be in a format identified in the Task Authorization.</p> <p>Proposals must explain how the project will improve the accuracy, repeatability and/ or safety.</p>
3.9.2.6 b)	Written Notification of Potential Delay	As required	<p>Written Notification of Potential Delay Section 3.9.2.6 (b), the requirements in the Task Authorization and be in a format identified in the Task Authorization.</p> <p>Written Notification must include reason for delay and revised timeline.</p>

Task	Description	Frequency	Acceptance Criteria
3.9.2.6 c)	Acceptance and Assignment of Inventory Number	On completion unless otherwise agreed	<p>The Acceptance Assignment of Inventory Number must include all elements in Section 3.9.2.6 (c), the requirements in the Task Authorization and be in a format identified in the Task Authorization.</p> <p>The Contractor must demonstrate that the material operates as intended, and that it has been approved by the Technical Program Manager, prior to it being assigned an inventory number.</p>
3.9.2.7 a)	Specifications for Acquisition	Upon request	Specifications for Acquisition must address program requirement, be compatible with existing equipment and software, and consistent with Task Authorization.
3.9.2.7 b)	Purchase process	As required	The purchase process must comply with Annex I of this RFP and Section 3.9.2.7 (b), the requirements in the Task Authorization and be in a format identified in the Task Authorization.
3.9.2.7 c)	Acceptance Report and Assignment of Inventory Number	Fourteen (14) days after delivery unless otherwise agreed	<p>The Assignment of Inventory Number must include all elements in Section 3.9.2.7 (c), the requirements in the Task Authorization and be in a format identified in the Task Authorization.</p> <p>The Acceptance Report must provide confirmation that the item meets the defined specifications and requirements and be in a format identified in the Task Authorization.</p> <p>The Contractor must demonstrate that the material operates as intended.</p>

4.0 MAINTENANCE, IMPROVEMENT AND REPAIR OF FIXED TEST EQUIPMENT

4.1 OVERVIEW

TC invests strategically in the MVTC and relies on the highly specialized expertise of the Contractor to operate and extend the life cycle of the test equipment. As technologies are continuously evolving, TC relies on the cumulative and incremental expert knowledge and technical skills of the Contractor to plan and execute capital investment projects. These projects aim to increase the capacity, capability, efficiency and safety of the MVTC while integrating seamlessly with the operations of the facility. Capital Assets are presented in Appendix M.

The local area network (LAN) controls the performance, and the safe operation of the data acquisition systems and the test equipment. Therefore, uninterrupted communication within the LAN is critical. There are numerous data acquisition systems, all with different applications and from different suppliers. The maintenance, support, and improvement of the LAN is required for: the control of existing data acquisition systems/test equipment; the integration of future systems; and the efficient transfer and storage of increasingly large data files being generated by programs and advanced technologies. The LAN must be protected through the continuous monitoring of system vulnerabilities to prevent unauthorized access to the control of test equipment and the data that are produced.

4.2 OBJECTIVES

The objectives are :

- Operate, maintain, repair and improve all fixed test equipment to minimize test program interruption and extend the life cycle of the asset; improve accuracy, repeatability and/or safety; keep pace with emerging program needs and pursue Best Value for Money options for Canada. This will include planning, recommending, and effecting acquisitions and integration. Some acquisitions may require executing the design and fabrication of new test equipment or the modification of existing test equipment in accordance with Task Authorizations.
- Maintain, support, protect, and improve the computer network, including all associated software and hardware that controls or interfaces with the test equipment to ensure the reliable, uninterrupted, and safe operation of test equipment.
-
- Provide expert consulting services to assist in the planning, sourcing, acquisition, oversight, and integration of major infrastructure projects identified as test equipment or of specialized services.

4.3 TASK AUTHORIZATIONS

Specific requirements for the maintenance, improvement and support of the fixed test equipment will be defined in Task Authorizations issued to the Contractor on a yearly basis and updated as required. The Task Authorizations will include the program objectives, task descriptions, timeline for deliverables as well as other specific requirements related to the program. The budgetary envelope for this program is not guaranteed and may fluctuate during the fiscal year from April 1 to March 31. Funding allocations cannot extend beyond March 31. All deliverables must be received and approved by the Technical Authority by March 31 for payment to be issued.

4.4 SCOPE OF CONTRACTOR RESPONSIBILITIES

The Contractor is responsible for troubleshooting, maintenance, tuning to optimize performance and/ or repair of specialized equipment used in the execution of tests. The Contractor is responsible to ensure that repairs and upgrades are carried out in a timely and cost-effective manner to minimize program interruption; and to ensure that all said activities are carried out by qualified resources and in accordance with applicable regulations, warranties and manufacturer recommendations. The Contractor is also responsible for the acquisition and integration and/or the design and fabrication or modification of fixed test equipment to enhance the accuracy and or efficacy of test programs.

To maximize program efficiency and to substantiate budgetary requests, the Contractor is responsible for planning and identifying anticipated maintenance, improvement, repair, and/or acquisition of Fixed Test Equipment approximately six (6) months prior to the start of each fiscal year. The responsibilities of the Contractor as they relate to specific activity centres include but are not limited to:

- a) LAN: The Contractor is responsible for ensuring the secure and uninterrupted communication and control of all data acquisition systems/test equipment. The Contractor is responsible for the maintenance, support, integration and improvement of the LAN. The Contractor is responsible for safeguarding the network and data.
- b) Environmental chambers: The Contractor is responsible for the safe operation and maintenance to prevent environmental and health and safety risks. This includes, but is not limited to the inspection, maintenance and continuous (24/7) monitoring of refrigeration compressors; and the inspection and maintenance of pumps, motors, valves, heat exchangers, accumulators, plumbing and vessels, air circulation and ventilation components, water towers, electrical distribution systems, pneumatic, electrical, electronic and computerized control systems, sensors, actuators, safety monitoring systems, environmental chamber shell and structure, dynamometers and associated systems.
- c) Test tracks: The Contractor is responsible to ensure that the tracks are free of hazards and are maintained in accordance with the operational needs of the test programs as well as to prevent degradation. The Contractor is responsible for proposing improvements that will extend the life, increase the test accuracy and/or increase the capability of the test tracks.
- d) Crash lab: The Contractor is responsible for the safe, reliable, and accurate operation and maintenance of all fixed equipment in the crash lab including but not limited to the pneumatic and hydraulic sleds, multi-track vehicle propulsion system, servo-hydraulic launcher, and HMI lighting systems and power supplies. The Contractor is responsible

for the design and fabrication of accessories, upgrades or modifications to the systems.

- e) VTS: The Contractor is responsible for the safe, reliable, and accurate operation and maintenance of the VTS system including the controlling software. The Contractor is responsible for proposing improvements that will extend the life, increase the test accuracy and/or increase the capability.
- f) ADAS and CAV lab: The Contractor is responsible for the safe, reliable, and accurate operation and maintenance of the urban intersection. The Contractor is responsible for proposing improvements to meet emerging program needs.
- g) Machine shop: The Contractor is responsible for the safe, reliable, and accurate operation and maintenance of all equipment in the machine shop. This includes ensuring that the operation and maintenance are carried out by qualified personnel and in accordance with applicable regulations, warranties, and manufacturer recommendations.

4.5 SPECIALTIES AND KNOWLEDGE REQUIREMENTS

The Contractor must have an experienced and skilled team permanently located at the MVTC to deliver excellence-based test services, key and baseline personnel are described in Appendix B. Extensive knowledge and experience in the following specialties is required:

- a) Experience and in-depth knowledge of data acquisition systems in combination with network experience to provide troubleshooting services and immediate corrective interventions for network, system, wireless communications, and software malfunctions to minimize test program interruption.
- b) On site licensed refrigeration technician(s) with extensive experience in the operation and maintenance of cascade systems. The services must include continuous (24/7) monitoring.
- c) Experience in the repair, rehabilitation or construction of motor vehicle test tracks including high speed and compliance test surfaces. Experience in sourcing expert consulting services related to test tracks.
- d) Experience in the operation, inspection, maintenance and repair of electric vehicle propulsion systems, pneumatic sleds, servo-hydraulic systems.
- e) Experience in the operation and maintenance of a machine shop including a five (5)-axis CNC milling machine.

4.6 LIMITATIONS AND ADDITIONAL REQUIREMENTS

The following may affect task deliverables for the maintenance, improvement and support of the fixed test equipment:

- TC budgetary allocations may be delayed or cancelled. The process needed to increase a budgetary envelope in cases of cost overruns is lengthy and is subject to other TC priorities. Detailed monitoring of budgets is critical to ensure that tasks can be completed within the allocated budget.
- A large proportion of the Fixed Test Equipment is specialized and manufactured outside of Canada. This means that servicing costs and time delays are significantly greater if the Contractor relies on the manufacturer for servicing. The Contractor should endeavour to optimize program efficiencies including cost savings, by having

qualified expert personnel on site to perform the maintenance, troubleshooting, and repair of the equipment.

- Goods and services may require numerous months to procure. The Contractor is responsible to plan accordingly and ensure that the acquisition process be initiated as soon as practicable following the receipt of an approved Task Authorization.
- All tasks need be completed by March 31 of every year.

The Contractor is responsible to ensure that the test equipment and instrumentation required to complete the test programs (requested in the Task Authorization) are calibrated, operational and available for testing. This means that the Fixed Test Equipment:

- Must be inspected after each test. Repairs and ordering of replacement parts must be carried out as soon as practicable.
- Repairs and yearly calibration must be planned in accordance with program usage and communicated to the Technical Project Manager.

4.7 TASKS

The Contractor must:

- 4.7.1 Develop a plan proposing network improvements for data transmission and storage as well as proposed service agreements to provide up-to-date cybersecurity. The Contractor must provide a security solution and remote backup solution acceptable to the TA that offers continuous protection of the network and data from evolving cybersecurity risks. The plan must propose any required acquisitions or services required to meet obligations in the TA. If approved by the TA, the Contractor must implement the plan.
- 4.7.2 Maintain refrigerant volumes in the environmental chambers and must operate, maintain, troubleshoot, repair and recommend improvements for the environmental chambers. These activities and the monitoring of the system must be performed and documented in accordance with all applicable regulations, warranties and/or manufacturer recommendations and policies. The Contractor must calibrate all equipment used to measure or sensors to detect emissions and seepage in accordance with applicable regulations, warranties or manufacturer recommendations. All work must be carried out by a certified/ qualified resources as specified by applicable regulations, warranties and manufacturer recommendations.
- 4.7.3 Develop, maintain, and carry out a preventive maintenance program using Computerized Maintenance Management System (CMMS) software. The CMMS must include all Fixed Test Equipment and up-to-date lock out procedures. The program and all related activities must be in compliance with all applicable regulations, manufacturer specifications, warranties, standards and codes, and policies. The program shall include, but is not limited to:
 - a) Operation and maintenance activities, including evidence that repairs will be carried out by qualified resources;

- b) Inspections, deficiencies found and repair history that must be logged and stored in a directory and communicated to the Technical Project Manager in a readable report format such as PDF; and
 - c) A maintenance plan and lock out procedures that must be updated monthly to include any newly acquired fixed test equipment and/or equipment that has been modified.
- 4.7.4 Submit a yearly plan each September with quarterly revisions, for the acquisition of new fixed test equipment, to modify, or to replace/upgrade existing fixed test equipment. The plan must include the identification of each capital test equipment acquisition project in order of priority; an explanation of how each planned acquisition is expected to improve the accuracy, repeatability, life cycle and/ or safety of the fixed equipment; proposed acquisition strategies; budgetary estimates (material and labour, timeframe) and delivery lead times.
- 4.7.5 Propose, design and fabricate fixed test equipment deemed necessary for the delivery of TC programs, to improve the accuracy, repeatability and/ or safety of existing test protocols and to meet requirements identified in a Task Authorization. The Contractor must :
- a) Provide proposals that include the anticipated timeline, labour and material costs for on-site fabrication.
 - b) Communicate anticipated delays to the Technical Program Manager as soon as they become known.
 - c) Assign an inventory number, issued by the Technical Project Manager for all Items meeting the definition of capital equipment following acceptance of the item by the Technical Program Manager for the program.
- 4.7.6 In the event that the Contractor can demonstrate that the material described in 4.7.4 should be acquired from an external supplier(s) the Contractor must:
- a) Define the specifications as a function of program needs and market availability.
 - b) Prepare the recommended purchase process in compliance with Annex I of this RFP including evaluation criteria, conduct the commissioning, and communicate potential delays to the Technical Project Manager as soon as they become known.
 - c) Assign an inventory number, issued by the Technical Authority for all Items meeting the definition of capital equipment following acceptance of the item by the Technical Program Manager for the program.
- 4.7.7 The Contractor must maintain and repair fixed test equipment to ensure that test programs can proceed with minimal interruptions. In the event that the Contractor can demonstrate that the specialized services should be acquired by an external supplier(s) to ensure best value; reduce downtime of a fixed test equipment; and/or to ensure that the work is carried out by qualified experts, the Contractor must:
- a) Define the service requirements as a function of program needs and manufacturer recommendations.

- b) Prepare the recommended purchase process in compliance with Annex I of this RFP, including evaluation criteria, conduct the commissioning, and communicate potential delays to the Technical Program Manager as soon as they become known.
- c) The Acceptance Report must provide confirmation that the service rendered meets the requirements and be in a format identified in the Task Authorization. The Contractor must demonstrate that the fixed test equipment operates as intended.

4.8 DELIVERABLES

Table 5- Deliverables and acceptance criteria for maintenance of fixed test equipment

Task	Description	Frequency	Acceptance Criteria
4.7.1	Network and Cybersecurity Plan	Yearly	<p>The Network and Cybersecurity Plan must include all elements in Section 4.7.1, the requirements in the Task Authorization and be in a format identified in the Task Authorization.</p> <p>The Network and Cybersecurity Plan must follow current industry practice and demonstrate an understanding of program priorities; current operations of the facility and identification of risks.</p>
4.7.2	Records of Environmental Chamber Operation and Maintenance	Once, with yearly updates	<p>Records of Environmental Chamber Operation and Maintenance must include all elements in Section 4.7.2, the requirements in the Task Authorization and be in a format identified in the Task Authorization.</p> <p>Records of Environmental Chamber Operation and Maintenance must demonstrate how data and records will be recorded, displayed and monitored in accordance with applicable regulations.</p>

Task	Description	Frequency	Acceptance Criteria
4.7.3	Preventive Maintenance Program, Including Equipment Repair History	On request	<p>The Preventive Maintenance Program, Including Equipment Repair History must include all elements in Section 4.7.3, the requirements in the Task Authorization, and be in a format identified in the Task Authorization.</p> <p>CCMS in the Plan must be accessible to the Technical Project Manager and updated monthly; and include</p> <ul style="list-style-type: none"> • all fixed test equipment identified in the register • lock out procedures <p>The Preventive Maintenance Program, including Equipment Repair History must identify equipment covered by warranty/ extended warranty and service agreements.</p> <p>The Preventive Maintenance Program, including Equipment Repair History, must be in accordance with applicable manufacturer recommendations, warranties, codes, laws, and policies; Provincial and Federal requirements; and follow industry best practices.</p>
4.7.4	Acquisition Plan for Fixed Test Equipment, Components, and or Material to Repair or Upgrade	Yearly, quarterly updates	<p>The Acquisition Plan for Fixed Test Equipment, Components, and or Material to Repair or Upgrade must include all elements in Section 4.7.4, the requirements in the Task Authorization and be in a format identified in the Task Authorization.</p> <p>The Acquisition Plan for Fixed Test Equipment, Components, and or Material to Repair or Upgrade must indicate priorities; justification for the acquisition, repair or upgrade; include budgetary cost estimates; acquisition strategy and timelines.</p>

Task	Description	Frequency	Acceptance Criteria
4.7.5 a)	Proposal(s) for the in-house design and fabrication or improvement of fixed test equipment, hardware and/or software	On request	<p>The Proposal for the In-house Design, Fabrication or Modification of Test Instruments, Equipment, Hardware and/or Software must include all elements in Section 4.7.5 (a), the requirements in the Task Authorization and be in a format identified in the Task Authorization.</p> <p>The Proposal must explain how the project will improve accuracy, repeatability, life cycle and/ or safety.</p>
4.7.5 b)	Written Notification of Potential Delay in Project Completion	As required	<p>Written Notification of Potential Delay in Project Completion must include all elements in Section 4.7.5 (b), the requirements in the Task Authorization and be in a format identified in the Task Authorization.</p> <p>Must include reason for delay and revised timeline.</p>
4.7.5 c)	Assignment of Inventory Number	On completion unless otherwise agreed	<p>The Assignment of Inventory Number must include all elements in Section 4.7.5 (c), the requirements in the Task Authorization and be in a format identified in the Task Authorization.</p> <p>The Identified equipment must operate as intended and be approved by the Technical Program Manager.</p>
4.7.6 a)	Specifications for Acquisition	Upon request	<p>Specifications for Acquisition must include all elements in Section 4.7.6 (a), the requirements in the Task Authorization and be in a format identified in the Task Authorization.</p> <p>Specifications for Acquisition must address program requirements, be compatible with existing equipment and software and consistent with Task Authorization.</p>

Task	Description	Frequency	Acceptance Criteria
4.7.6 b)	Purchase process	Upon request	The purchase process must comply with Annex I of this RFP and Section 4.7.6 (b), the requirements in the Task Authorization and be in a format identified in the Task Authorization.
4.7.6 c)	Acceptance Report and Assignment of Inventory Number	Fourteen (14) days after delivery unless otherwise agreed	<p>The Acceptance Report and Assignment of Inventory Number must include all elements in Section 4.7.6 (c), the requirements in the Task Authorization and be in a format identified in the Task Authorization.</p> <p>The Acceptance Report must provide confirmation that the item meets the defined specifications and requirements and be in a format identified in the Task Authorization.</p> <p>The Contractor must demonstrate that the material operates as intended.</p>
4.7.7 a)	Specifications for Service	Upon request	The Specifications for Service must include all elements in Section 4.7.7 (a), the requirements in the Task Authorization and be in a format identified in the Task Authorization
4.7.7 b)	Purchase process	As required	The purchase process must include all elements in Section 4.7.7 (b), the requirements in the Task Authorization and be in a format identified in the Task Authorization
4.7.7c)	Acceptance Report	Upon completion of servicing	The Acceptance Report must include all elements in Section 4.7.7(c), the requirements in the Task Authorization and be in a format identified in the Task Authorization.

5.0 SITE MAINTENANCE

5.1 OVERVIEW

This section describes the tasks required to support the continued safe and efficient operation, and future expansion of the Facility. The Facility includes the buildings, mechanical and electrical systems, and other building services; the grounds, access roadways, parking areas and walkways; and all assets that are not directly used in performing tests. These tasks include but are not limited to preventive and corrective maintenance actions or repairs required to extend the life cycle, physical integrity, and functionality of all assets that are not directly used in the delivery of test services.

Recognizing that the transportation industry is evolving quickly, TC anticipates that there will be a need to expand the capabilities of the MVTC. Since the Contractor operates the site, he will have to propose new projects that offer Canadians best value and optimize the efficiency of the site. Major infrastructure projects will require that the Contractor have a good understanding of the operational site requirements and knowledge of existing buildings for the duration of the Contract, to optimize integration of new projects with existing operations and obtain best value.

To this end the Contractor may retain the services of an Engineering, Architectural or other expert consultant to define project scope, develop preliminary drawings, conduct feasibility studies and/or to provide advice on specifications and considerations.

For all real property projects (excludes all test-related equipment) requiring stamped and sealed Engineering or Architectural plans of the facility, PSPC will be responsible for the final design, the preparation of stamped and sealed drawings, the preparation of the call for tender package as well as the management, oversight and commissioning.

5.2 OBJECTIVE

The principal objectives are :

- The facility is maintained in a safe, clean and usable condition; ensuring compliance with all Federal, Provincial and Municipal laws and regulations including, but not limited to, environmental protection and occupational health and safety standards.
- Deliver solutions that provide Best Value for Money to Canadians, based on the optimal use of allocated labour, financial and other resources, in a manner consistent with the TB Policy on Management of Real Property and the TB Guide to the Management of Real Property.
- New projects and/or investments are proposed to extend the useful life, increase efficiencies, capability, and capacity or cost effectiveness.

5.3 SCOPE OF CONTRACTOR RESPONSIBILITIES

The Contractor is responsible for the maintenance of the site including the following:

- a) The inspection, maintenance, troubleshooting and repair of the facilities. The Contractor is responsible for ensuring that these services are coordinated and/or integrated with the operation and maintenance of fixed test equipment to maximize service delivery and to optimize cost efficiencies.

- b) Ensuring that all activities are carried out by qualified and experienced resources and in accordance with applicable regulations, warranties and manufacturer recommendations.
- c) Recommending replacement of equipment and/or or improvements to the facility. This may require that the services of an Engineering, Architectural or other expert consultant be retained to define project scope, develop preliminary drawings, conduct feasibility studies and/or to provide advice on specifications and considerations for the preparation of preliminary designs/plans and the preparation of budgetary estimates.
- d) For projects that are managed by PSPC, the Contractor is responsible for:
 - i. the creation of a Plan of Construction Operations (PCO); and
 - ii. for providing TC and PSPC with technical consulting services during the planning, construction, integration and final acceptance of the project. Final commissioning and acceptance of projects that are managed by PSPC will not be the responsibility of the Contractor.
- e) The Contractor is responsible for the safekeeping of as built drawings for all construction projects completed at the facility and transmitted to them by the Technical Authority.

5.4 Specialties and Knowledge Requirements

The Contractor must have an experienced and skilled team permanently located on-site to deliver excellence-based and timely services. Key and baseline personnel are described in Appendix B. The following trades are required to provide technical support for site maintenance, Fixed Test Equipment maintenance, as well as customized support for test programs.

- a) Electrician(s)
- b) Machinists(s)
- c) Refrigeration specialist(s)
- d) Heavy duty mechanic

5.5 Limitations and Additional Requirements

The site is surrounded by a residential community and the presence of a fence may not deter intrusions. Unauthorized or uncontrolled movement on the site may lead to health and safety risks, material loss, data loss or environmental damage. The Contractor is responsible for ensuring security at the site 24/7.

The MVTC is located on unceded Indigenous land. The planning of new construction projects may require consultations and interdepartmental assistance. Though some construction projects will be managed by PSPC, the process should nevertheless be taken into consideration during initial planning.

The absence of factual justifications may delay budgetary allocations in the following instances:

- Improperly documenting maintenance records that fail to demonstrate compliance with legislation.

- Failure to demonstrate effective facility management in accordance with TB obligations for Real Property Management.
- Inaccuracies in defining project priority, scope and/ or budgetary estimates.

Goods and services may require numerous months to procure. The Contractor is responsible to plan accordingly and ensure that the acquisition process be initiated as soon as practicable following the receipt of an approved Task Authorization.

5.6 Tasks

The Contractor must:

5.6.1 Provide the following baseline services which include:

- a) Operation and/or maintenance tasks described in Appendix F: Baseline Preventative Maintenance Services and keeping records of maintenance and repairs. The operation and maintenance, including repairs must be carried out in accordance with applicable regulations, manufacturer specifications, standards and codes.
- b) The implementation and maintenance of a Preventive Maintenance Program using CMMS software that includes lock-out procedures. The CMMS reports of maintenance and repair history by sector must be stored in a directory and a format that is accessible to the Technical Project Manager.
- c) The preparation and submission of a plan for anticipated consumable material required to support maintenance activities that are not included in Appendix F. The plan must include material costs, with shipping and receiving, and labour for material management.
- d) The preparation and submission of an annual Building Performance Review report to the Technical Project Manager. The report must include a log of visual inspections and report on the condition of all facility equipment. The report must also include equipment condition and document deficiencies, corrective actions that were taken or are required.
- e) The preparation and submission of an annual asset repair, improvement or replacement plan that describes the need, identifies budgetary estimates, timelines and risk factors.
- f) The preparation, update and implementation of a Building Emergency Plan for the facility, in cooperation with the fire department, other applicable regulatory authorities and a representative from the occupational health and safety committee. The plan must include:
 - i. Emergency procedures to be used in the event of a fire and includes, for example, sounding the fire alarm, notifying the fire department, instructing Building Occupants on procedures when the alarm sounds, evacuating Building Occupants including those requiring special assistance, and controlling the spread of the fire.
 - ii. Appointment and organization of the Contractor's staff to carry out fire safety duties.

- iii. Training of the Contractor's staff and other Building Occupant on their responsibilities for fire safety in accordance with the fire safety plan.
 - iv. Documents including diagrams complete with the information required in section 2.8 of the National Fire Code entitled "Emergency Planning".
 - v. Requirements and frequency for holding fire drills.
- g) Under the *Emergency Preparedness Act*, the Contractor is required to have plans to provide continuity of services to TC in the event of an emergency. Examples of past emergencies include the ice storm of 1998 and the 2020 pandemic. An important component of emergency planning for the MVTC is a Building Infrastructure Continuity Plan. The Plan is intended to maintain or restore building operations in the event of an emergency or a system failure to protect the health safety of staff and visitors, the environment, and Crown assets.

5.6.2 For projects that do not require stamped and sealed Engineering or Architectural plans of the facility: The Contractor must develop proposals and recommendations for new projects to improve efficiencies, increase capacity and capability or as described in the Task Authorization. The proposal must identify the requirement(s), required specialties, constraints, and include a budgetary estimate for the project. These projects must be implemented and managed by the Contractor. The Contractor may retain the services of an Engineering, Architectural or other expert consultant to define project scope, develop preliminary drawings, conduct feasibility studies and/or to provide advice on specifications and considerations for the preparation of preliminary designs/plans and the preparation of budgetary estimates.

5.6.3 Upon receipt of a Contractor a Capital Project Notice issued for real property capital projects managed by PSPC the Contractor must provide the following services:

- a) Prior to project approval the Contractor must:
 - Prepare a Plan of Construction Operations (PCO). The objective of the PCO is to plan the coordination required to implement the construction with minimum interruptions or conflict with MVTC operations and to ensure that client confidentiality, MVTC security and safety are not compromised by the construction work.
- b) During project planning by PSPC the Contractor must:
 - Provide consulting services to TC, PSPC and their agents to ensure that program needs and objectives are met.
- c) During project execution, the Contractor must:
 - i. Provide site access and traffic control during construction work between the hours of 07:00 to 19:00 Monday-Friday to any party and at any location necessary to complete the TC Capital Project. The Contractor may assign a representative to monitor the Capital Project Contractor and its work at the MVTC.
 - ii. Provide the Technical Authority with weekly updates of observed activity and progress
 - iii. Report incidents, accidents

- iv. Update the maintenance plan which is affected by the completed modifications
 - d) Upon project completion the Contractor must:
 - i. Update the technical documentation which is affected by the completed modifications and/ or replacements
 - ii. Provide technical assistance for commissioning
- 5.6.4 The Contractor must provide security at the entrance to the site at all times; and provide security for the buildings and grounds (including without limitation, perimeter security) during non-operating hours. This includes:
- a) Administering and managing contracts with the Canadian Corps of Commissionaires and abiding by their right-of-first refusal granted to them in the PSPC Standing Offer:
 - i. Security Protection Services Personnel qualified in accordance with the Uniformed Security Guards Standard (CAN/CGSB-133.1-M87) as approved by the Canadian General Standards Board.
 - ii. Security Protection Services Supervisory Personnel qualified in accordance with the Uniformed Security Guards Supervisors Standard (CAN/CGSB-133.2-92) as approved by the Canadian General Standards Board.
 - iii. Consideration may be given to waive the training excluding the First Aid training in the above mentioned CAN/CGSB standards based on significant related security/police qualifications, education or training.
 - b) Controlling and logging the removal of TC assets from the facility.
 - c) Reporting deficiencies that could affect the security of the facility to TC within twenty-four (24) hours of detection.
 - d) Reporting security incidents and losses to TC within forty-eight (48) hours of occurrence.
- 5.6.5 In the event that the Contractor can demonstrate that the specialized services should be acquired by an external supplier(s) to ensure best value; reduce downtime of a system; and/or to ensure that the work is carried out by qualified experts, the Contractor must:
- a) Define the service requirements as a function of program needs and manufacturer recommendations;
 - b) Prepare the recommended purchase process in compliance with Annex I of this RFP including evaluation criteria, conduct the commissioning, and communicate potential delays to the Technical Authority as soon as they become known; and
 - c) Prepare an Acceptance Report that provides confirmation that the service rendered meets the requirements and is in a format identified in the Task Authorization. The Contractor must demonstrate that the Fixed Test Equipment operates as intended.

5.7 Deliverables

Table 6 -Deliverables and acceptance criteria for Site Maintenance

Task	Description	Frequency	Acceptance Criteria
5.6.1 a)	Records of Maintenance and Repairs	On request	<p>Records of Maintenance and Repairs must include all elements in Section 5. 6.1 (a), the requirements in the Task Authorization and be in a format identified in the Task Authorization.</p> <p>Records of Maintenance and Repairs must demonstrate that maintenance and repairs are conducted in accordance with applicable warranties, codes, laws, and policies.</p>
5.6.1 b)	CMMS Maintenance Plan	On request	<p>CMMS Maintenance Plan must include all elements in Section 5. 6.1 (b), the requirements in the Task Authorization and be in a format identified in the Task Authorization.</p> <p>Maintenance plans, work orders and repair history comply with or exceed current Occupational Health and Safety (OHS) standards and other applicable legislation, demonstrates that work was completed by qualified personnel.</p> <p>CMMS Maintenance Plan reports must be in a readable format and stored in a database accessible to the Technical Authority.</p>
5.6.1 c)	Plan for Anticipated Purchases of Consumable Materials	Yearly	<p>The Plan for Anticipated Purchases of Consumable Materials must include all elements in Section 5.6.1(c) the requirements in the Task Authorization and be in a format identified in the Task Authorization.</p> <p>Plan for Anticipated Purchases of Consumable Materials must include material costs, with shipping and receiving, and labour for material management as per sample template in Appendix G.</p>

Task	Description	Frequency	Acceptance Criteria
5.6.1 d)	Building Performance Review	Yearly	<p>The Building Performance Review must include all elements in Section 5.6.1 (d), the requirements in the Task Authorization and be in a format identified in the Task Authorization.</p> <p>Building Performance Review must include includes a list of equipment, type of inspection conducted, dates of inspections, and brief description of observations as per sample template in Appendix G.</p>
5.6.1 e)	Asset Repair, Improvement or Replacement Plan	Yearly	<p>The Asset Repair, Improvement or Replacement Plan must include all elements in Section 5. 6.1 (e), the requirements in the Task Authorization and be in a format identified in the Task Authorization.</p> <p>The Asset Repair, Improvement or Replacement Plan must describe the requirement(s), required specialties, constraints, and includes a budgetary estimate for the activities of the Contractor including labour, material, specialized services, timeline and risks as per sample template in Appendix G.</p>
5.6.1 f)	Building Emergency Plan	Yearly	<p>The Building Emergency Plan must include all elements in Section 5. 6.1 (f), the requirements in the Task Authorization and be in a format identified in the Task Authorization.</p> <p>The Building Emergency Plan must meet the minimum requirements set out by the National, Provincial and Municipal Fire Codes.</p>
5.6.1 g)	Continuity of Services Plan	Yearly	<p>The Continuity of Services Plan must include all elements in Section 5.6.1 (g), the requirements in the Task Authorization and be in a format identified in the Task Authorization.</p>

Task	Description	Frequency	Acceptance Criteria
			The Continuity of Services Plan must be updated yearly and include, at a minimum: Identification of major building systems; Critical contact list including sub-contractor call list and back-up and recovery procedures.
5.6.2	Management of projects that do not require stamped and sealed Engineering or Architectural plans of the facility:	On request	Proposals for the management of projects managed by the Contractor must include all elements in Section 5.6.2, the requirements in the Task Authorization and be in a format identified in the Task Authorization. Proposals must demonstrate best value for money and measures to ensure the proposal will be on time, on budget, and successfully deliver the proposal.
5.6.3	Consulting Services for projects that require stamped and sealed Engineering or Architectural plans of the facility	On request	Plan of Construction Operations and projects that are managed by PSPC must include all elements in Section 5.6.3, the requirements in the Task Authorization and be in a format identified in the Task Authorization. The Plan of Construction Operations and Consulting services must ensure that safety is prioritized and the integration of the project is optimized with operational efficiencies and program delivery.
5.6.4	Security Services	On request	Security Services must include all elements in Section 5.6.4, the requirements in the Task Authorization and be in a format identified in the Task Authorization.
5.6.5 a)	Specifications for Service	Upon request	must include all elements in Section 5.6.5 (a), the requirements in the Task Authorization and be in a format identified in the Task Authorization
5.6.5 b)	Purchase process	As required	The purchase process must include all elements in Section 5.6.5 (b), the requirements in the Task

Task	Description	Frequency	Acceptance Criteria
			Authorization and be in a format identified in the Task Authorization
5.6.5 c)	Acceptance Report	Upon completion of servicing	The Acceptance Report must include all elements in Section 5.1.6.5 (c), the requirements in the Task Authorization and be in a format identified in the Task Authorization.

6.0 MANAGEMENT AND ADMINISTRATION

6.1 Overview

This section describes the tasks required to support the documentation and record keeping of the contract while facilitating the flow of communications between the Contractor, the Technical Authority of TC, and the Contract Authority at PSPC.

6.2 Objectives

The principal objectives are:

- The Contractor will demonstrate compliance with its legislative and contractual obligations, establish cost traceability and quantify facility usage by industry, and maintain the necessary information, through the preparation of reports and/or records.
- Establish processes for communications to document recommendations, decisions, in support of planning and efficiency.

6.3 Scope of Contractor Responsibilities

The Contractor is responsible for the provision of all management, administrative, clerical services, and services to support the safe and efficient operation of the facility including but not limited to the Contract administration, production and transmission of reports, plans, and records; organization of meetings; and shipping, receiving, and safekeeping of material and test samples. The Contractor is responsible for the provision of these services for the duration of the contract.

The Contractor is responsible for materiel management to provide timely, efficient and cost effective support of activities at the facility. This includes but is not limited to the administration and management of:

- procurement;
- shipping and receiving including packaging, customs brokerage;
- storage; and
- storeroom management including documentation, periodic stocktaking and disposal when required.

The Contractor is responsible for the planning and preparation of preliminary office floor plans to accommodate personnel (TC and Contract) and/or visitors working at the site. For the execution of projects managed by PSPC the Contractor is responsible for facilitating safe access to the site; for providing TC and PSPC with assistance during the planning, integration and final acceptance of the project. Final commissioning and acceptance of projects that are managed by PSPC will not be the responsibility of the Contractor.

The Contractor is responsible for the acquisition, maintenance and support of all office equipment including cell phones, furniture, photocopiers, and the provision of all office supplies and stationary.

6.4 Specialties and Knowledge Requirements

The Contractor must maintain the following highly qualified personnel:

- a) Accountant(s) certified to work in Quebec
- b) Having appropriate training and holding a completion of training certificate in accordance with this Part 6 of the Transportation of Dangerous Goods Regulations for the handling, offering for transport or transporting dangerous goods of Classes 1, 2, 3 and 9; and
- c) Health and safety resource with a valid basic qualification in first response and first aid,

6.5 Limitations and Additional Requirements

The MVTC building designs were intended to serve as a motor vehicle laboratory operated by a small number federal employees. As such, there is limited office space to accommodate personnel and limited options to convert existing work areas into confidential work spaces. The Contractor will be expected to assist TC by proposing preliminary floor plans to meet the needs of the evolving workforce and visitors to the site.

6.6 Tasks

The Contractor must:

- 6.6.1 Coordinate and provide secretarial support, including meeting minutes and action items, for contract Progress Review Meetings (PRM). The first PRM must be held within ten (10) working days of the Contract Award. Thereafter, there must be one (1) PRM per month for the first year of the contract and every six (6) months thereafter, unless otherwise requested by PSPC, TC or the Contractor. These PRMs are to be held at the MVTC and will be chaired jointly by TC and PSPC.
- 6.6.2 Submit an organizational chart supported by CV's; evidence of security clearance; required qualifications to meet employment classification being sought and proof of license or accreditation where applicable, for all personnel. The Contractor must notify the Technical Authority of any changes within ten (10) working days.
- 6.6.3 Provide and maintain an Enterprise Management System capable of logging all activities and providing reports for accounts payable and accounts receivable. The system must include accounting for all labour, consumed materials and services associated with the performance of this SOW. The system must be in accordance with generally accepted accounting principles.
- 6.6.4 Establish a secure file transfer mechanism that provides the Technical Authority and designated project managers access to a directory containing contract deliverables. The Contractor must assign the management of the file transfer mechanism to a designated employee who is qualified to:
 - a) control access, i.e. through the assignment of usernames and passwords;
 - b) design and maintain a file architecture that facilitates retrieval;
 - c) upload deliverables to the appropriate folder as directed in the Task Authorizations;
 - d) provide a current register of the contents.
- 6.6.5 Submit an annual purchase plan for the acquisition of new office equipment and the replenishment of supplies in support of management and administration.

- 6.6.6 Maintain an up-to-date inventory of all assets that have an original purchase value of \$10,000 or more. TC assets, which are no longer used, no longer functional, or whose use or operation is determined to be a risk to safety shall be identified to the Technical Authority. The Contractor shall put into storage or dispose of the asset as directed by the Technical Authority. The Contractor must identify Fixed Test Equipment assets, which are no longer used, no longer functional, or whose use or operation is determined to be a risk to safety. The Contractor must put into storage or dispose of the asset as directed by the Technical Authority. The inventory must be updated to reflect such changes.
- 6.6.7 Develop and implement an OHS Management Plan that complies with statutory OHS requirements and that conforms with applicable legislative requirements as they relate to workplace health and safety.

6.7 Deliverables

Table 7- Deliverables and acceptance criteria for management and administration.

Task	Description	Frequency	Acceptance Criteria
6.6.1	Progress Review Meetings	Monthly for year one (1), then every six (6) months or as requested	<p>Progress Review Meetings must include all elements in Section 6.6.1, the requirements in the Task Authorization and be in a format identified in the Task Authorization.</p> <p>Minutes of Progress Review Meetings must include date, attendance, actions and be circulated for secretarial approval within one (1) week of the meeting.</p>
6.6.2	Organization chart, CV's, security clearance and proof of license or accreditation	At onset and updated within ten (10) days of change	<p>An Organization chart, CV's, security clearance and proof of license or accreditation must include all elements in Section 6.6.2, the requirements in the Task Authorization and be in a format identified in the Task Authorization.</p> <p>Documentation must include name, position occupied, CV's must present experience in chronological order and include relevant education and training.</p>
6.6.3	Enterprise Management System	On request	<p>The Enterprise Management System must include all elements in Section 6.6.3, the requirements in the Task Authorization and be in a format identified in the Task Authorization.</p> <p>System to be accurate, complete and current within ten (10) working days of receipt of invoice(s) from suppliers.</p> <p>Data must be readily accessible and in a readable format.</p>
6.6.4	Data Transfer Platform	On request	<p>The Data Transfer Platform must include all elements in Section 6.6.4, the requirements in the Task Authorization and be in a format identified in the Task Authorization.</p>
6.6.5	Purchase Plan for Office Equipment and Supplies	Yearly	<p>The Purchase Plan for Office Equipment and Supplies must</p>

			<p>include all elements in Section 6.6.5, the requirements in the Task Authorization and be in a format identified in the Task Authorization.</p> <p>The Plan must include budgetary estimates, justification and priorities.</p>
6.6.6	Inventory of all Assets (that have an original purchase value of \$10,000 or more)	On request	<p>Inventory of all Assets (that have an original purchase value of \$10,000 or more) must include all elements in Section 6.6.6, the requirements in the Task Authorization and be in a format identified in the Task Authorization.</p>
6.6.7	OHS Management Plan and Activities	On request	<p>OHS Management Plan and Activities must include all elements in Section 6.6.7, the requirements in the Task Authorization and be in a format identified in the Task Authorization.</p> <p>The Management Plan must include evidence of regular meetings and implementation of corrective actions.</p>

7.0 MARKETING AND COMMERCIALIZATION

7.1 Overview

The MVTC is located in the Greater Montreal area, a strategic North American location for the mobility and smart transportation industry. As part of its long standing commitment to the advancement of motor vehicle safety, the Government of Canada has made significant investments to acquire leading edge test equipment. In accordance with this commitment to the transportation system, TC would like Industry, other government departments, academia and other orders of government to benefit from the facilities and services available at the MVTC. The sustainability of the MVTC will depend in large part on the Contractor's ability to attract private clients to use the site.

7.2 Requirement

The Contractor is required to actively market the services of the facility to private clients so as to utilize the excess capacity.

7.3 Objective

Commercialization of the MVTC is a priority of TC as it enables TC to achieve the following high-level objectives:

- a) Generate revenue to offset operation and maintenance costs; and
- b) Maximize utilization of a world-class facility

In order to achieve these objectives, TC will grant the privilege of commercializing the MVTC to the Contractor for private client commercial activities within the parameters and in accordance with the obligations described in this section.

Optimizing the use of the MVTC through private client activities will continue to progress the MVTC as an internationally recognized center of excellence for research and development that supports Canadian innovation and the commercial development of solutions for safe, green and intelligent mobility.

7.4 Commercial Services

Commercial Services are the products and services, or any part thereof, that are sold or provided by the Contractor to any person other than TC using any of the TC resources.

The Contractor shall provide Commercial Services consistent with those listed in the Permitted Activities described in section 7.7 to private clients (including, but not limited to, other federal government departments, Canadian and international private industry, academia, and non-federal public institutions and organizations).

7.5 Privileges

In order to achieve the objectives described in section 7.3 above, TC will grant the Contractor certain privileges to facilitate commercial opportunities between the Contractor and private clients. These privileges include:

- a) The use of the MVTC facilities, grounds, parking, office space, IT network and equipment, including the transfer of possession of assets as described in Appendix

M: Capital Inventory List and the Activity Centres comprised of the test equipment in Appendix N: Description of the Facility; Utilities costs will be paid by TC.

- b) The ability to make the MVTC facilities, grounds and equipment available to private clients for a fee, and to provide engineering and related services to those clients. The Contractor is responsible for its own marketing and promotional activities. TC will not reimburse these costs. The Contractor will be acting on its own behalf and not as an agent of Canada;
- c) The ability of the Contractor to choose which of its own services to offer at the MVTC to private clients so long as such services fall within the definition of 'Permitted Activities' outlined in Section 7.7 below. In all these activities, the Contractor will be acting on its own behalf and not as an agent of Canada;
- d) The ability of the Contractor to set the fees that it will charge private clients for such services;
- e) The use of the three signs on the roadways leading up to the MVTC to identify the Contractor's operation. Any signs not on MVTC property are paid for by the Contractor; and
- f) The ability of the Contractor to identify all operational and maintenance vehicles transferred to the Contractor (including those listed in Appendix N: Vehicle Fleet) with its name and logo.

7.6 Obligations

In return for being granted the privilege of commercializing the Contractor's services using the MVTC facilities and equipment to generate revenue from private clients, the Contractor has the following obligations:

- a) The Contractor must undertake marketing and promotion efforts to attract private client users to the site, as identified in a Commercialization Plan, and make the facilities available to those private clients and provide engineering and related services for a fee. The Contractor is responsible for all client relations, scheduling, billing and administration related to its commercialization activities. TC will not reimburse the Contractor for any of the Contractor's expenses related to the commercialization of the site.
- b) The Contractor must organize and allocate its work to provide the highest priority to TC projects and programs. The Contractor shall provide services to private clients in a way that does not interfere with the TC testing requirements. In the event TC's request for Priority Access conflicts with a booking by the Contractor for an External Client, the Contractor must propose an alternate arrangement to TC in writing and without delay, which TC may, at its sole discretion, accept or reject.
- c) The Contractor must present an annual Commercialization Plan detailing the strategies for the coming year to develop the private client base. The plan must be submitted to the Technical Authority by the Contractor each year by a date agreed upon by the Technical Authority, and must include, as a minimum:
 - i. Review of the previous year's commercial activities, revenues and utilization rates
 - ii. Forecast MVTC utilization rates per Activity Area (i.e. test tracks, cold rooms, crash lab, large lab);

- iii. Forecast revenues per Activity Area (i.e. test tracks, cold rooms, crash laboratory, large laboratory);
 - iv. Suggested TC investments that could result in increased revenues;
 - v. Planned Permitted Activities;
 - vi. Description of promotional activities planned by the Contractor related to its commercial service offerings at the MVTC; and
 - vii. Planned Contractor attendance at technical conferences during the upcoming year, for promotional purposes.
- d) The Contractor must submit to the Technical Authority the results of a Customer Satisfaction survey conducted by an external research firm that is acceptable to the Technical Authority and has an appropriate background in such work. The survey must include quality of service, cost of service, timeliness of service, quality of technical expertise, and overall satisfaction of the services and be conducted before the end of contract years three (3), eight (8) and thirteen (13), and include a representative sample of TC, Government and industry clients. The consultant must be mandated to send a copy of the report directly to the Technical Authority before the end of the years specified. In the event that the Contractor receives recurrent unsatisfactory responses, TC reserves the right to request that a plan outlining corrective measures be submitted to TC for approval.
- e) The Contractor must credit TC on a monthly basis as calculated in the RFP Annex B: Basis of Payment, Table 6-B. This amount will be net of returns and refunds.
- f) The Contractor will provide upon request, in the context of an audit or otherwise, all financial records and copies of invoices necessary to establish and support the calculation of the credit remitted to TC. The details of confidential commercial activities (e.g., prototype testing) will not be subject to disclosure to TC.
- g) Within five working days of the end of each month, the Contractor must provide a monthly utilization report for each of the Activity Areas as per the template provided in Appendix H. Additional categories may be added to the template by the Technical Authority as new Activity Areas are introduced to the MVTC.
- h) As per section 1.10, TC has exclusive use of certain dedicated space. These spaces are not available to the Contractor for its commercial goals.
- i) In all its activities, the Contractor must comply with all Federal, Provincial and Municipal laws, regulations and standards, as applicable.
- j) The Contractor is responsible for acquiring International Organization for Standardization (ISO) Certification at the MVTC.
- k) The Contractor is responsible, at its own cost, for the repair of any equipment malfunction during a test program for a private client.
- l) Any photos or videos of tests conducted for TC must not be used by the Contractor for promotional purposes without the written permission of the Technical Authority.
- m) The status of the Contractor with respect to TC must be described using the following text in any records referring to the facility or the test equipment that is owned by TC.

“ABC inc. gère le Centre d’Essais de Véhicules Automobiles, propriété de Transports Canada.”

“ABC Inc. manages the Motor Vehicle Test Center owned by TC”.

- n) The Contractor shall not use any symbol, mark or words that could convey the sense that the Contractor is acting as an agent of Canada, specifically including: "TC", "Transports Canada", or any Department thereof, "CEVA", "MVTC", without the written permission of the Technical Authority. The Contractor shall cause to be inserted the same condition regarding use of symbol, mark or words, in any contract it enters into.
- o) The sign located between the guard-house and du Landais street will be used to identify the operation according to the Federal Identity Program (FIP)



7.7 Permitted Activities

Permitted Activities for private client use at the MVTC are limited to commercial activities related to motor vehicle safety, security, testing, research, and regulatory compliance. In addition, activities related to another area of federal responsibility may be permitted, following a consultation with the Technical Authority. For example, the following list of activities are permitted:

- a) Collision tests on vehicles and pedestrian impact tests;
- b) Research or tests related to vehicle use, vehicle performance, driver behaviour, the configuration of traffic lanes, safety, energy savings, or the environment;
- c) Driving courses or training related to the safety or security of vehicles and the transportation system;
- d) Research, tests or demonstrations of on-road, off-road, military, agricultural, rail or air vehicles including remotely piloted aircraft systems;
- e) Research or tests related to climate change;
- f) Research and development of new means of transport; and
- g) Any additional activities necessary for the accomplishment of any of the activities mentioned above.

If the Contractor undertakes any activities at the MVTC that are not consistent with the Permitted Activities identified above, they will be considered in Default.

TC encourages the Contractor to maximize the use of the MVTC and will not act in such a way as to unreasonably limit private client use of the MVTC. To this end, the Contractor is encouraged to engage the Technical Authority as required to confirm the Contractor's understanding of what constitutes a Permitted Activity and/or clarify whether any activity in question would be permitted, including activities not previously executed at the MVTC but not materially different than those that have taken place at the MVTC.

The Contractor and TC will cooperate in the process of reviewing Permitted Activities. Notwithstanding such cooperation and any review or comment, any such review or comment shall not (a) constitute acceptance of the Contractor's activities, and (b) any review by TC of any activities is for general conformity to the obligations and requirements of the Contract, and shall not relieve the Contractor of the risk and responsibility for the Work, and for meeting all of its obligations under and requirements of the Contract, and (c) shall not create any new or additional obligations or liabilities for the Crown. Without limiting the generality of the foregoing any and all errors or omissions of any review and comment shall not exclude or limit the Contractor's obligations or liabilities under the Contract in respect of matters related to the Commercial Services performed or exclude or limit the Crown's rights under the Contract in respect of matters related to Commercial Services.

7.8 Commercialization Plan Review Process

The Contractor is responsible for deciding the content of each Commercialization Plan, provided that each such Commercialization Plan shall at a minimum include the information specified in section 7.6 c).

On receipt of a Commercialization Plan, the Technical Authority shall review the Plan and meet with the Contractor within 30 days of receipt of the Plan to discuss its contents.

The Contractor and the Technical Authority will together determine whether a) the Plan conforms with the requirements of section 7.6, and b) is consistent with the list of Permitted Activities. Where it is determined by the Technical Authority that the Plan does not conform with the requirements, the Contractor will revise the Plan to bring it into compliance and provide a revised version to the Technical Authority within ten (10) business days of the meeting. Once the Technical Authority has advised the Contractor that the revised Plan conforms with the requirements, the Contractor may then proceed to implement the Plan without further guidance from the Technical Authority.

7.9 Deliverables

Table 8 - Deliverables and acceptance criteria for marketing and commercialization.

Obligation	Description	Frequency	Acceptance Criteria
7.6 c)	Commercialization Plan	Yearly	The Commercialization Plan must satisfy the requirements of Section 7.6 (c).
7.6 d)	Customer Satisfaction Survey	End of years three (3), eight (8) and thirteen (13)	Customer Satisfaction Survey must satisfy the requirements of Section 7.6 (d) and be sent directly to TC.
7.6 e)	Credit Calculation and Application	Monthly	Credit Calculation and Application must include all elements in Section 7.6 (e).

Obligation	Description	Frequency	Acceptance Criteria
7.6 f)	Financial records and copies of invoices	Monthly	Financial records and copies of invoices necessary to establish and justify the calculation of the credit issued, including the declaration of revenue and revenue amounts by invoices to private clients for the Large Lab and the Collision Lab, to TC in accordance with section 7.6 (f). The content and format of the records must be acceptable to the auditor.
7.6 g)	Utilization report	Monthly	Utilization report must include all elements in Section 7.6 (g) as per grid provided in Appendix H or as requested by the Technical Authority.

7.10 Transport Canada Property

TC unilaterally reserves the right to, at any time during the contract, sell or lease to a third party any portion of land mass which it determines does not intervene with the primary intent of the contract. In the possible event of a sale or leasing of a portion of the land mass by TC, the Contractor may be compensated for any loss of revenue. Should there be any extraordinary costs to the Contractor proved to be directly associated in a sale or leasing of Canada land, the Contractor shall be reimbursed by TC at cost.

TC reserves the right to assign use of parts of the facilities to other parties with the understanding that there will be only one Contractor to operate, maintain and commercialize the facilities. In such case, the conditions of use by third parties would be the subject of negotiations between the Contractor, the third party and TC.

The Contractor does not have the legal capacity to enter into any “long-term real property leasing agreements”. Long-term in this specific context is any period exceeding twelve (12) months or extending beyond conclusion of the contract. In the event of a short term lease, the lessee may not sub lease.

7.11 Use of the MVTC

The “use of the MVTC” means use of the land, plant and facilities, infrastructures, equipment, for the provision of services and all related activities exercised directly or indirectly through the creation of the Contractor’s Organization pursuant to the contract.

All material and plant purchased, used or consumed by the Contractor for TC projects shall, after the time of their purchase, use or consumption be the property of TC for the purposes of the work and they shall continue to be the property of TC, as follows:

- a) In the case of material, until the Technical Authority is satisfied that it will not be required for the work; and
- b) In the case of plant, until the Technical Authority is satisfied that the interest vested in TC therein is no longer required for the purposes of the work.

Material or plant that is the property of TC by virtue of 7.11 shall not be taken away from the work site or sold, or used or disposed of except for the purposes of TC work or with the written consent of the Technical Authority.

Should TC's Material and Plant be modified by the Contractor for the purposes other than a specific written request made by the Technical Project Manager for the contract, TC reserves the right to unilaterally determine what is required by the Contractor to bring the Material and Plant to an acceptable working order condition. Six (6) months prior to conclusion of the contract, the Contractor must ensure at its expense that TC's Material and Plant shall be brought to an acceptable working order condition.

Any modifications made to TC's existing Material and Plant requires the prior written approval of the Technical Authority. Consideration will be given to TC present and future requirements as well as the feasibility to return the facility in its original condition at the end of the project.

7.12 Material and Plant Becoming Property of Transport Canada

The Contractor's private clients may wish to install equipment on the site for the private client's own use. Terms of the installation and use of the equipment will be established between the Contractor and the private client. The Contractor remains responsible for the safety and environmental protection of the site, and the private client's equipment may not interfere with TC work.

Any Capital asset purchased by the Contractor and installed on MVTC property on behalf of the Contractor's private client shall become the property of TC in consideration of "use of the MVTC" except in the following circumstances:

- a) The Contractor's invoices to his client exceed \$100,000, including all capital costs associated in the construction of third-party investments, invoiced at actual cost (with no invoice mark-up), excluding all taxes, interest fees, transportation and customs/brokerage fees/duties, personal costs, and professional services fees. Ownership of the investment will remain with the third party who is a client of the Contractor; or
- b) It is deemed not in the Public Interest by the Technical Authority.

APPENDIX A: SAMPLE TASK AUTHORIZATION- COMPLIANCE PROGRAM

Appendix A is provided for illustrative purposes to show, using an example, the information to be submitted by the Contractor as part of the submission of a Task Authorization. For the duration of the contract, Task Authorizations will be submitted in accordance with the Task Authorization form provided in Appendix H: Contract Task Authorization.

OVERVIEW

The Compliance Engineering, Vehicle and Equipment Testing Division provides oversight of the Canada Motor Vehicle Safety Standards (CMVSS) and to that end, monitors the self-certification program of major motor vehicle manufacturers and importers to verify that their products comply with the *Canadian Motor Vehicle Safety Act* and its Regulations.

To carry out this mandate, tests will be conducted to verify the compliance of vehicles to the requirements of the following standards:

- CMVSS 126 – Electronic Stability Control Systems for Light Vehicles
- CMVSS 135 – Light Vehicle Brake Systems
- CMVSS 105 – Hydraulic and Electric Brake Systems
- CMVSS 305 HSR – Electrolyte Spillage and Electrical Shock Protection, specifically in a high speed rear impact
- CMVSS 217 – Bus window Retention, Release and Emergency Exits
- CMVSS 222 – School Bus Passenger Seating and Crash Protection
- CMVSS 220 – Rollover Protection
- CMVSS 208 – Occupant Protection in Frontal Impacts
- CMVSS 212 – Windshield Mounting
- CMVSS 301F – Fuel System Integrity, specifically in a frontal impact
- CMVSS 301HSR – Fuel System Integrity, specifically in a high speed rear impact
- CMVSS 305F – Electrolyte Spillage and Electrical Shock Protection, specifically in a frontal impact
- CMVSS 214Pole – Side Door Strength, specifically pole test
- CMVSS 1201 – Snowmobile Standards
- CMVSS 121 – Air Brake Systems
- CMVSS 111 – Rear Visibility
- CMVSS 136 – ESC for Heavy Vehicles
- CMVSS 208LRD – Low risk and suppression
- CMVSS 223 – Rear Impact Guard
- CMVSS 226 - Ejection Mitigation

OBJECTIVE

Provide TC with testing services and test data in order to permit verification of compliance.

TASKS

1. ESTABLISHED CMVSS COMPLIANCE (COST INCLUDED IN CONTRACT)

Conduct the following compliance tests as per established protocols. The tests must be performed in accordance with CMVSS listed below to test the identified vehicles, as per section 5, TECHNICAL DOCUMENTS. Established CMVSS Compliance (cost included in contract)

CMVSS	Description of Protocol	Quantity
126	TSD No. 126, Revision 2 (Test procedure based on US TP-126-03) or Annex 9 of ECE No. 13H	
135	TSD No. 135, Revision 3 (Test procedure based on US TP-135-01)	
105	TSD No. 105, Revision 5 (Test procedure based on US TP-105-03)	
305R	MDB @ 80 km/h TSD No. 305, Revision 5 (Test procedure based on US TP-305-01)	
217	Test procedure based on US TP-217-06	
222	Test procedure based on US TP-222-05	
220	TSD No. 220, Revision 0 (Test procedure based on US TP-220-02)	
208	FFRB @ 56 km/h TSD No. 208, Revision 0 (Test procedure based on US TP-208-14)	
212	FFRB @ 56 km/h TSD No. 212, Revision 0 (Test procedure based on US TP-301-04) <i>performed in combination with 208</i>	
301F	FFRB @ 56 km/h TSD No. 301, Revision 2 (Test procedure based on US TP-301-04) <i>performed in combination with 208</i>	
301R	MDB @ 80 km/h, TSD No. 301, Revision 2 (Test procedure based on US TP-301-04)	
305F	FFRB @ 56km/h TSD No. 305, Revision 5 (Test procedure based on US TP-305-01) <i>performed in combination with 208</i>	
214P	POLE @ 32 km/h TSD No. 214, Revision 0 (Test procedure based on US TP-214P-01) <i>shared with research</i>	

1201	SSCC/11 Supplement	
121	TSD No. 121, Revision 4 (Test procedure based on US TP-121V-05)	

2. CMVSS 208 SUPPRESSION/LOW RISK

Conduct up to ** deployment or suppression tests, based on the manufacturer’s certification, on each of the six (6) vehicles in accordance with the requirements of sections 19, 21, 23 and 25 of CMVSS 208, and test procedure based on US TP 208-14 Sections 1-14.

- a. Repair vehicle per manufacturer’s procedures between test iterations.
- b. Document anticipated labour and material for subsequent tests.
- c. Purchase material required to perform the test with approval of the Technical Program Manager.

3. CMVSS 226 Ejection Mitigation

Conduct up to ** impacts on each of the eight (8) vehicles in accordance with the requirements of CMVSS 226, as per the test procedure based on US TP 226-00.

- a. For the first row, two tests, impact a primary target location at 20 km/h.
- b. Replace parts damaged during testing as per manufacturer instructions prior to additional testing on the same side.
- c. Between two and four additional tests may be conducted per vehicle. Specification of locations and impact speeds to be confirmed with the Technical Program Manager.

4. CMVSS 111 Back-Up Cameras

Conduct up to ** durability (environmental) tests in accordance with the rear visibility requirements of FMVSS 111 as specified in CMVSS 111, as per the test procedure based on US TP-111-V-01-final. Each test must be conducted without interruption. If the work is to be carried out by a sub-contractor it must be supervised intermittently by the test engineer of the Contractor. Coordination with the Technical Program Manager for oversight of the environmental tests is required.

5. CMVSS 136 Heavy Truck

Perform up to ** tests in accordance with F/CMVSS 136, as per the test procedure based on US TP-136-00. Location of test sensors/ instrumentation must be documented with photographs and included in the test report. Document anticipated labour and material for subsequent tests. Restore vehicles to pre-test condition as directed by the Technical Program Manager.

6. CMVSS 223 Under ride Guard

Perform ** developmental test(s) in accordance with F/CMVSS 223 sections (9) and (10).

- a. Purchase material and fabricate the test fixture required to secure the test sample.
- b. Document anticipated labour and material for subsequent tests.
- c. Prepare a new test report template (see note 4 in general requirements) in consultation with the Technical Program Manager.

7. Additional tasks

An amount of \$** will be allocated for technical assistance charged at the hourly rate when requested by the Technical Program Manager in the case of compliance test follow-up/ investigation or when required to assist visiting manufacturer(s) in preparations that are above and beyond the standard vehicle compliance protocol.

Re-install bumpers following the CMVSS 126 tests for the following vehicles: ABC, DEF

An amount of no more than \$** will be allocated to material purchase with approval from the Technical Program Manager (includes 208 low risk/ suppression and 226 ejection mitigation).

GENERAL REQUIREMENTS

1. The Contractor must submit a monthly test schedule and advise the Technical Program Manager of any changes to the test schedule.
2. An electronic report must be submitted within four (4) weeks of each vehicle test completion. Should a test failure or a safety problem be identified during the tests, an electronic test report must be provided as soon as practicable.
3. Any indication of noncompliance, test protocol or test uncertainties must be reported immediately to the Technical Program Manager
4. New test report templates must be in a bilingual format and mutually agreed upon with the Technical Program Manager,.
5. Any alteration made to a test vehicle during the installation of the test equipment or deterioration of the vehicle or its components, due to testing, must be recorded photographically and saved with the electronic records.

DELIVERABLES

Task	CMVSS	Description	Quantity	Date completed
1	126	Electronic reports		15-07-20
	135	Electronic reports		15-07-20
	105	Electronic reports		15-09-20
	305HSR	Electronic reports		28-02-21
	217	Electronic reports		28-02-21
	222	Electronic reports		28-02-21
	220	Electronic reports		28-02-21
	208	Electronic reports		28-02-21
	212	Electronic reports		28-02-21
	301F	Electronic reports		28-02-21
	301R	Electronic reports		28-02-21
	305F	Electronic reports		28-02-21
	214P	Electronic reports		28-02-21
	1201	Electronic reports		28-02-21
	121	Electronic reports		28-02-21
2	208 sup/low risk	Electronic reports		28-02-21
3	226	Electronic reports		28-02-21
4	111	Electronic reports		15-11-20
5	136	Electronic reports		15-11-20
6	223	Electronic reports		28-02-21
7		Material purchase	No more than ** as pre-approved by project manager	

TECHNICAL DOCUMENTS

- Vehicles list: RDIMS-#16212073-2020_2021_VEHICLE_PROGRAMS, as per the latest version provided by the Technical Program Manager.
- CMVSS description: <https://www.tc.gc.ca/eng/acts-regulations/regulations-crc-c1038.htm>

RISK ASSESSMENT

Task #	Risk Description	Risk Response and Justification of Response (Mitigate)
Track testing	Testing is weather dependent.	<i>Schedule must reflect the need to take advantage of the weather conducive to the specific testing.</i>
all	Vehicle availability can vary, deliveries can be delayed.	<i>Schedule must be sufficiently flexible to accommodate the possibility of delayed vehicle deliveries.</i>
all	Vehicle documentation	<i>Documentation required to conduct testing will be requested by TC as soon as a vehicle has been identified for testing.</i>
all	Unexpected results, possible non-compliances requiring additional investigation or testing	<i>Schedule must be flexible enough so as to permit repeat/exploratory tests to be conducted</i>

Limitation of expenses

As per the contract #*****

Terms of payment – multiple delivery

As per the contract #*****

APPENDIX B: PERSONNEL and LABOUR CATEGORIES

B1. KEY PERSONNEL

1. Engineering Manager

Must be licensed to provide the necessary engineering services to the full extent that may be required by law in the Province of Quebec.

The engineering manager must have relevant education and a minimum of 10 years of experience in the general and engineering management of a major test facility; Experience should include:

- a) Management of capital acquisitions and the planning and integration of major infrastructure projects;
- b) identification, planning and integration of facilities improvement projects;
- c) management of team assignments to optimize safety, accuracy and efficiency; and
- d) management of material and financial resources.

Labour category: Senior engineering manager/ expert.

2. Crash Lab Manager

Must be licensed to provide the necessary engineering services to the full extent that may be required by law in the Province of Quebec.

The crash lab manager must have relevant education and a minimum of 10 years of experience in the engineering management of a crash laboratory, the resource must be bilingual (French and English). Experience should include:

- a) Management of material acquisitions projects and crash laboratory improvements;
- b) light and heavy vehicle crash testing, in multiple crash configurations;
- c) vehicle propulsion system operation including, troubleshooting, repair, and improvement;
- d) acceleration sled operation including, troubleshooting, repair, and improvement;
- e) preparation of safety protocols for all areas of the crash lab (ie; propulsion system, sled, impact simulator, vehicle preparation);
- f) preparation of test procedures for all areas of the crash lab (ie; propulsion system, sled, impact simulator, vehicle preparation);
- g) management of team assignments to optimize safety, accuracy and efficiency; and
- h) development and implementation of a quality control system.

Labour category: Senior engineering manager/ expert.

3. Crashworthiness Instrumentation lab Manager

The Crashworthiness Instrumentation lab manager must have a college degree in electronics and a minimum of five (5) years of experience in the management of an ATD lab. The resource must be bilingual (French and English). Experience should include:

- a) Troubleshooting, repair, and improvement of ATD instrumentation, in dummy and off-board data acquisition technologies and associated software;
- b) overseeing the integration of emerging or prototype technologies into the existing suite of instruments to ensure reliable, accurate and repeatable data;
- c) maintaining and tracking an inventory;
- d) planning and maintaining a preventive maintenance and calibration program;
- e) participation in user group workshops/ meetings of ATD and related instrumentation technology developments and associated tools;
- f) the preparation of tender calls and commissioning of capital acquisitions;
- g) management of team assignments to optimize safety, accuracy and efficiency; and
- h) development and implementation of a quality control system.

Research labour category: Technologist Type II or III.

4. Vehicle Test Structures Lab (VTS) Manager

Must be licensed to provide the necessary engineering services to the full extent that may be required by law in the Province of Quebec.

The structures lab manager must have relevant education and a minimum of five (5) years of experience in the engineering management of a vehicle test laboratory. Experience should include:

- a) Test sample preparation for vehicle structures;
- b) vehicle instrumentation for dynamic testing;
- c) programming of lab software for related VTS applications and quality control of data.
- d) troubleshooting, repair, and improvement of a VTS;
- e) planning and maintaining a preventive maintenance and calibration program;
- f) management of team assignments to optimize safety, accuracy and efficiency; and
- g) development and implementation of a quality control system.

Labour category: Senior engineer or senior engineering manager/ expert .

5. Crash Avoidance Research Lab Manager

Must be licensed to provide the necessary engineering services to the full extent that may be required by law in the Province of Quebec.

The crash avoidance lab manager must have relevant education and a minimum of three (3) years of experience in the engineering management of crash avoidance research programs. Demonstrated experience should include:

- a) The development of test methodologies for connected and automated vehicle (CAV), advanced driving systems (ADAS);
- b) identifying, sourcing and acquisition of test equipment/ instruments for the evaluation of CAV technologies, advanced driving systems (ADAS) and vehicle dynamics programs;
- c) vehicle instrumentation and track preparation for crash avoidance testing;
- d) development of lab software for related applications;

- e) data recording, reduction, processing, analysis, and quality control;
- f) planning and maintaining a preventive maintenance and calibration program;
- g) preparation of safety protocols for all crash avoidance programs;
- h) planning of tests and preparation of test procedures for all crash avoidance programs;
- i) management of team assignments to optimize safety, accuracy and efficiency; and
- j) development and implementation of a quality control system.

Labour category: Senior engineer or senior engineering manager/ expert .

6. Crash Avoidance Test Development Specialist

The Crash Avoidance specialist must have a college degree in electronics or telecommunications and a minimum of five (5) years of experience in the design, programming, and implementation of crash avoidance scenarios. The resource must be bilingual (French and English). Experience should include:

- a) Creating test paths for test vehicles and targets, including programming and implementing specifications for speed, trajectory, and impact points as prescribed by Euro NCAP test protocols;
- b) configuration of Road-Side Units and On-Board Units for Vehicle-to-Everything (V2X) communications;
- c) design of Time Tolerance Triggers (TTT);
- d) configuration and integration of new equipment with existing test suite; and
- e) troubleshooting of test equipment.

Labour category: Technologist Type II or III.

7. Environmental Lab and Plant Manager

Must be licensed to provide the necessary engineering services to the full extent that may be required by law in the Province of Quebec.

The environmental lab and plant manager must have relevant education and minimum of five (5) years of experience in plant management and in the management of large environmental chambers and mechanical rooms. Experience should include:

- a) Planning, management and integration of upgrades to complex refrigeration systems and major infrastructure and/or plant projects;
- b) sourcing, overseeing and inspecting specialized services for improvements to fixed test equipment for example the refrigeration system;
- c) sourcing, overseeing and inspecting specialized services for improvements to building systems for example the HVAC system and building envelope;
- d) management of team assignments to optimize safety, accuracy and efficiency; and
- e) planning and maintaining a preventive maintenance program.

Labour category: Senior engineer or senior engineering manager/ expert .

8. Sled Manager

Must be licensed to provide the necessary engineering services to the full extent that may be required by law in the Province of Quebec.

The sled manager must have relevant education and minimum of three (3) years of experience in operating an acceleration and deceleration sled. Experience should include:

- a) The test set-up and testing to the F/CMVSS 213 test protocols as well as experience in conducting research test protocols;
- b) data analysis;
- c) test report production ;
- d) test procedure development; and
- e) troubleshooting, problem solving and the development of plans for the improvement of test method, test equipment and associated instrumentation.

Labour category: Project engineer or Senior engineer or senior engineering manager/ expert .

8. High speed-video specialist

The high-speed video specialist must have college degree with a minimum of two (2) years of experience in high-speed photography. Knowledge and experience should include:

- a) The standardisation of imagery for science analysis and archival purpose in the field of ATD kinematics and vehicle safety system performance;
- b) image composition, lighting and color sensitivity and control, consistency in the position (perspective) and framing.
- c) programming, customizing and troubleshooting of related photographic software;
- d) experience in preparing specifications for the design and fabrication of custom camera fixtures,.

Labour category: Technologist Type I, II or III or technician I.

9. Refrigeration systems specialist (two)

Must be licensed to provide the necessary refrigeration services to the full extent that may be required by law in the Province of Quebec.

The licensed refrigeration systems specialist should have relevant education and a minimum of three (3) years of experience in the operation, maintenance, and troubleshooting of industrial HVAC systems. The refrigeration specialists should also have experience in planning and overseeing system upgrades to improve system performance and to comply with applicable regulations as well as experience in the operation and maintenance cascade systems.

Labour categories: Senior specialized technologist or specialized technologist or technologist Type II or III.

B2. BASELINE PERSONNEL

The Contractor is responsible for the recruitment, training and retention of the baseline personnel described below.

1. Test Engineer(s)

Must be licensed to provide the necessary engineering services to the full extent that may be required by law in the Province of Quebec. Each test engineer should have relevant education and or experience in the respective activity centre for which they are being proposed.

Each test engineer should demonstrate an ability to troubleshoot, problem solve and propose improvements to the test methods, test equipment and associated instrumentation. Experiences of each engineering resource proposed for the activity centres are as follows:

- a) For non-destructive compliance testing: should have a minimum two (2) years of experience that includes the test set-up, test conduct, data reduction and report production for non-destructive compliance tests.
- b) For the Crash Lab: should have a minimum three (3) years of experience that includes crash and impact simulation testing. Experience should include the test set-up, conduct, data reduction and report production for compliance tests including but not limited to F/CMVSS 208/212/301, F/CMVSS 226; Experience in the test set-up, conduct, and data reduction of research tests.
- c) For the VTS lab: should have a minimum two (2) years of experience that includes the test set-up, test conduct, data reduction and report production for non-destructive compliance tests.
- d) For Crash Avoidance: should have a minimum two (2) years of experience that includes the design of test protocols, test conduct, data reduction and analysis and report preparation for crash avoidance.

Labour category: Intermediate or senior Engineer.

2. Programmer(s)

The programmer must have a college degree in computer science, software engineering or computer programming. A minimum of one (1) year of combined experience in the design and development of web applications in JAVA, using a MYSQL database and/or in programming in LabView for real time data acquisition. Each programmer should have experience in the respective activity centre for which they are being proposed as well as a demonstrated ability to problem solve improve capability and performance.

Labour category: Technologist Type I, II, or III or technician I

3. ATD Positioning Specialist

The ATD positioning specialist must have at a minimum a vocational diploma and a minimum of two (2) years of experience in the positioning and measurement of ATDs in vehicles for research and compliance programs.

Labour category: Technologist Type I , II or III , or technician I or II.

4. ATD Preparation Specialist(s)

The ATD specialists must have at a minimum a vocational diploma and a minimum of three (3) years of experience in the installation of ATD instrumentation as well as the verification of and

troubleshooting of ATDs through visual inspection and data output review. Knowledge of ATD technology developments and associated measurement and calibration tools entering the market.

Labour category: Technologist Type I, II or III or technician I or II.

5. Data Acquisition Specialist(s)

The senior data acquisition specialists must have at a minimum a college degree in electronics/instrumentation and a minimum of five (5) years of experience in data acquisition and processing technologies combined with programming experience in associated software. The specialist must be bilingual (French and English).

- a) For the Crash lab: experience with on-board and in-dummy DAS
- b) For the Crash avoidance lab: experience in connected vehicle testing and advanced driver systems, conducting quality control, data processing and safeguarding.

Labour category: Technologist Type I, II, or technician I.

6. Vehicle Preparation Specialist(s) Mechanical

The vehicle preparation specialists must have at a minimum a vocational diploma and a minimum of two (2) years of experience in vehicle preparation to ensure appropriate expertise for mechanical, structural modifications and instrumentation of test vehicles for compliance, crashworthiness or structural testing.

Labour categories: Technologist Type I or II or III; Technician Type I or II;

7. Vehicle Preparation Specialist(s) Electronic

The vehicle preparation specialists must have college degree and must have a minimum of two (2) years of experience in the instrumentation of test vehicles. Specifically, the experiences of each resource proposed for the respective activity centres should include:

- a) Compliance lab: experience in the preparation and instrumentation of vehicles for compliance testing.
- b) Crash lab: experience in the preparation and measurement of electric vehicles pre and post-test.
- c) Crash avoidance lab: knowledge and experience in connected vehicle testing and advanced driver systems, vehicle telecommunications.
- d) VTS: knowledge and experience in the installation of instrumentation, programming MTS software and control of hydraulic systems.

Labour categories: Technologist Type I, II or technician I.

8. Network Specialist(s)

The network specialist must have a college degree in computer science with network training, and a minimum of three (3) years of experience in the management of a computer network. The specialist must be bilingual (French and English).

Labour category: Technologist Type I, II, or technician I.

9. Accounting Specialist(s)

The accounting specialists must be licensed, certified or otherwise authorized to provide the necessary professional services to the full extent that may be required by law in the Province of Quebec. The accounting specialist must have relevant education and minimum of five (5) years of experience in accounting and financial management of a service-oriented organization including experience in the management of materiel inventories valued at \$5 million or greater.

Labour category: Senior professional or professional

10. Electrician

The electrician must be licensed, certified or otherwise authorized to provide the necessary professional services to the full extent that may be required by law in the Province of Quebec.

The licensed electrician should have relevant education and a minimum of two (2) years of experience in light industrial or laboratory distribution systems as well as experience in the operation, maintenance, troubleshooting and repair of electrical systems.

Labour category: Senior specialized technologist or specialized technologist or technologist Type II or III.

11. Machinist

The machinist must be licensed to provide the necessary machinist services to the full extent that may be required by law in the Province of Quebec.

The machinist should have minimum of three (3) years of experience in the fabrication, repair and design improvements and prototyping of test fixtures as well as experience in the management, safe operation and maintenance of a machine shop including a 5-axis milling. The machinist should have experience in precision welding of various metals and alloys.

Labour categories: Senior specialized technologist or specialized technologist or technologist Type II or III or technician I or II.

12. Manager of Safety and Security

The manager of safety and security must have relevant education and a minimum of three (3) years of experience in the management of a safety and security program and must be bilingual (French and English). The manager should have:

- a) Experience in the safety management of test tracks, safety in the work-place for all activities including, security, environmental protection, quality control system management, and fire protection;
- b) proven experience in the safe handling of electric vehicles immediately following a crash test as well as post- crash storage; and
- c) proven experience in the storage and safe handling of dangerous goods.

Research labour category: Technologist Type I or II.

B3. LABOUR CATEGORIES

1.0 SENIOR SCIENTIST

Type I

- a) PhD or Master's degree in pure or applied sciences from a recognized university; and
- b) Five (5) years of experience or more in a technical field or in a specialized field in which the services are provided.

Type II

- a) Undergraduate degree in pure or applied sciences from a recognized university; and
- b) 10 years of experience or more in a technical field or in a specialized field in which the services are provided.

2.0 SCIENTIST

- a) Undergraduate degree in pure or applied sciences from a recognized university; and
- b) Three (3) years of experience or more in a technical field or in a specialized field in which the services are provided.

3.0 JUNIOR SCIENTIST

- a) Undergraduate degree in pure or applied sciences from a recognized university; and
- b) One (1) year of experience in any field.

4.0 SENIOR ENGINEERING MANAGER/ EXPERT

- a) Graduation from a recognized engineering university program and recognized as a Professional Engineer by l'Ordre des ingénieurs du Québec;
- b) 10 years of experience or more in the area of motor vehicle or in a specialized field in which the services are provided; and
- c) Five (5) years of experience or more in a supervisory capacity

5.0 SENIOR ENGINEER

- a) Graduation from a recognized engineering university program and recognized as a Professional Engineer by l'Ordre des ingénieurs du Québec;
- b) Five (5) years of experience or more in the area of motor vehicle or in a specialized field in which the services are provided; and
- c) Two (2) years of experience or more in a supervisory capacity.

6.0 PROJECT ENGINEER

- a) Graduation from a recognized engineering university program and recognized as a Professional Engineer by l'Ordre des ingénieurs du Québec; and
- b) Two (2) years of experience or more in the area of motor vehicle or in a specialized field in which the services are provided .

7.0 ENGINEER IN TRAINING

- a) Graduation from a recognized engineering university program and registered to become a Professional Engineer or recognized as a Professional Engineer by l'Ordre des ingénieurs du Québec.

8.0 SPECIALIZED TECHNOLOGIST (REFRIGERATION, ELECTRICIAN, OR MACHINIST)

- a) Graduation from a recognized college technology program;
- b) Trade license to practice in Quebec; and
- c) At least three (3) years of experience in the specialized field in which the services are provided.

9.0 SENIOR SPECIALIZED TECHNOLOGIST (REFRIGERATION, ELECTRICIAN, OR MACHINIST)

- a) Graduation from a recognized college technology program;
- b) Trade license to practice in Quebec; and
- c) At least 10 years of experience in the specialized field in which the services are provided.

10.0 TECHNOLOGIST

Type I

- a) Graduation from a recognized university technical program;
- b) Two (2) years minimum relevant experience in the area of motor vehicle or in a specialized field in which the services are provided; and
- c) Relevant trade license to practice in Quebec if applicable.

Type II

- a) Graduation from a recognized college technology program;
- b) Five (5) years minimum relevant experience in the area of motor vehicle or related motor vehicle equipment testing or in a specialized field in which the services are provided; and
- c) Relevant trade license to practice in Quebec if applicable.

Type III

- a) High school diploma or trade school diploma;
- b) 10 years minimum relevant experience in the area of vehicle testing or in a specialized field in which the services are provided and
- c) Relevant trade license to practice in Quebec if applicable.

11.0 TECHNICIAN

Type I

- a) Graduation from a recognized college technology program or university technical program; and
- b) Relevant trade license to practice in Quebec if applicable.

Type II

- a) Graduation from a recognized high school or trade school program;
- b) Five (5) years minimum relevant experience in the area of vehicle testing or in a specialized field in which the services are provided; and
- c) Relevant trade license to practice in Quebec if applicable.

12.0 TECHNICAL WRITER/ EDITOR

- a) Graduation from a recognized university program; and
- b) Two (2) years or more of experience in the preparation of reports for technical subjects such as medicine, science or engineering.

13.0 SKILLED WORKER

- a) Graduation from a trade school in the areas of automotive mechanics, welding or machining;

- b) Relevant trade license to practice in Quebec if applicable; and
- c) Minimum one (1) year relevant experience.

14.0 SENIOR PROFESSIONAL

- a) Graduation from a recognized university program and active Member of a professional order in Québec;
- b) Five (5) years of work experience or more in the related field; and
- c) Two (2) years of experience or more in a supervisory capacity.

15.0 PROFESSIONAL

- a) Graduation from a recognized university program and active Member of a professional order in Québec; and
- b) Three (3) years of work experience or more in the related field.

16.0 ADMINISTRATIVE SUPPORT WORKER

Type I

- a) Graduation from a recognized college or university program.

Type II

- a) High school diploma or trade school diploma; and
- b) Two (2) years minimum relevant experience.

17.0 STUDENT

- a) Enrolled in a recognized college or university program.

Note: The term vehicle is used as defined by the *Motor Vehicle Safety Act*.

APPENDIX C: COMPLIANCE TEST PROTOCOLS

CMVSS	Description of Protocol	Category
103	<i>Windshield Defrosting and Defogging</i> CMVSS 103; and <i>Passenger Car Windshield Defrosting Systems</i> , SAE J902 (1964)	FP
104	<i>Windshield Wiping and Washing System</i> CMVSS 104; and <i>Passenger Car Windshield Wiper Systems</i> , SAE J903 (1966); and <i>Passenger Car Windshield Washer Systems</i> , SAE J942 (1965)	FP
105	<i>Hydraulic and Electric Brake Systems</i> , CMVSS 105; and TSD No. 105, Revision 5 (Test procedure based on US TP-105-03)	FP
110	<i>Tire Selection and Rims for Motor Vehicles With a GVWR of 4536 kg or Less</i> , CMVSS 110; and TSD No. 110, Revision 1R (Test procedure based on US TP-110P-04 and TP-110T-03)	FP
111	<i>Mirrors and Rear Visibility Systems</i> F/CMVSS 111 (Test procedure based on US TP-111-V-01-final, TP-111-SB0, TP-111-V00) Each test must be conducted without interruption. Document measurements	FP
118	<i>Power-Operated Window, Partition, and Roof Panel Systems</i> , TSD No. 118, Revision 1R (Test procedure based on US TP-118-06)	FP
121	<i>Air Brake Systems</i> , CMVSS 121; and TSD No. 121, Revision 4R (Test procedure based on US TP-121-V05)	FP
122	<i>Motorcycle Brake Systems</i> , TSD No. 122, Revision 3 (Test procedure based on US TP-122-03); or Paragraphs 5 and 6 and Annex 3 of <i>Uniform Provisions Concerning the Approval of Vehicles of Categories L₁, L₂, L₃, L₄, and L₅ with Regard to Braking</i> , United Nations Regulation No. 78 Revision 1, in the version in effect on June 24, 2008, as amended by any subsequent amendments in the 03 series of amendments	FP
124	<i>Accelerator Control Systems</i> , TSD No. 124, Revision 0R (Test procedure based on US TP-124-06)	FP
126	<i>Electronic Stability Control Systems for Light Vehicles</i> , TSD No. 126, Revision 2 (Test procedure based on US TP-126-03); or Annex 9 of <i>Uniform Provisions Concerning the Approval of Passenger Cars with Regard to Braking</i> , United Nations Regulation No. 13H, as amended by any amendment prior to the 01 series of amendments	FP
135	<i>Light Vehicle Brake Systems</i> , CMVSS 135; and TSD No. 135, Revision 3 (Test procedure based on US TP-135-01)	FP
136	<i>Electronic Stability Control Systems for Heavy Vehicles</i> , F/CMVSS 136 (Test procedure based on US TP-136-01) Restore vehicles to pre-test condition	FP
207	<i>Anchorage of Seats</i> , CMVSS 207; and TSD No. 207, Revision 0R (Test procedure based on US TP-207-09)	

208	<i>Occupant Protection in Frontal Impacts</i> CMVSS 208; and <i>Occupant Crash Protection</i> TSD No. 208, Revision 1R (Test procedure based on US TP-208-1)	FP
208 LRD	Suppression/Low Risk test in accordance with Sections 19, 21, 23 and 25 of <i>Occupant Protection in Frontal Impacts</i> CMVSS 208; and <i>Occupant Crash Protection</i> TSD No. 208, Revision 1R (Test procedure based on US TP-208-14) <ul style="list-style-type: none"> • Document 3D-measurements • Repair vehicle per manufacturer's procedures between test iterations. • Purchase material required to perform the test with approval of the PTM. 	FP
210	<i>Seat Belt Anchorages</i> CMVSS 210; and TSD No. 210, Revision 0 (Test procedure based on US TP-210-09) <i>Test Method 210 – Seat Belt Anchorages</i> (January 2010), TM 210	FP
210.1	<i>User-ready Tether Anchorages for Restraint Systems and Booster Seats</i> , F/CMVSS 210.1	FP
210.2	<i>Lower Universal Anchorage Systems for Restraint Systems and Booster Seats</i> , F/CMVSS 210.2; and <i>Windshield Mounting</i> , TSD No. 212, Revision 0 (Test procedure based on US TP-301-04)	FP
212	Full-frontal rigid barrier test at 56 km/h in accordance with <i>Windshield Mounting</i> , TSD No. 212, Revision 0 (Test procedure based on US TP-301-04) <i>Performed in combination with 208</i>	FP
213 D	Dynamic testing in accordance with <i>Child Restraint Systems</i> , CMVSS 213; and <i>Infant Restraint Systems</i> CMVSS 213.1; and <i>Booster Seats</i> CMVSS 213.2; and Test Method 213 – May 2012; and Test Method 213.1 – May 2012; and Test Method 213.2 – May 2012; and Test Method 213.2 Error Letter US TP-213-10 Excludes user manual compliance verification	FP
213	Quasi-static test in accordance with section 408 of <i>Booster Seats</i> , CMVSS 213.2; and Section 4 of Test Method 213.2 – May 2012; and Test method 213.2 Error Letter	FP
214 QS	Quasi-static: Side door strength test in accordance with <i>Side Impact Protection</i> , CMVSS 214; and TSD No. 214, Revision 0 (Test procedure based on US TP-214-S05)	FP
214 D	Dynamic: Moving deformable barrier in accordance with <i>Side Impact Protection</i> , CMVSS 214; and TSD No. 214, Revision 0 (Test procedure based on US TP-214-S05)	FP
214 P	Side impact pole test at 32 km/h in accordance with <i>Side Impact Protection</i> , CMVSS 214; and TSD No. 214, Revision 0 (Test procedure based on US TP-214-S05)	FP

215	<i>Bumpers F/CMVSS 215</i> (Test procedures based on US TP-581-01) Repair vehicle per manufacturer's procedures between test iterations where indicated	FP
217	<i>Bus window Retention, Release and Emergency Exits CMVSS 217</i> (Test procedure based on US TP-217-06)	FP
219	<i>Windshield Zone Intrusion</i> , TSD No. 219, Revision 0R (Test procedure based on US TP-301-04)	
220	<i>Rollover Protection</i> , TSD No. 220, Revision 0R (Test procedure based on US TP-220-02)	FP
222	<i>School Bus Passenger Seating and Crash Protection Test Procedure</i> , CMVSS 222; and TSD No. 222, Revision 0 (Test procedure based on US TP-222-05); and <i>Test Method 222 – School Bus Passenger Seating and Crash Protection</i>	FP
223	Rear Impact Under Ride Guard test in accordance with Sections (9) and (10) of <i>Rear Impact Guards F/CMVSS 223</i> ; and <i>Test Method 223 – Rear Impact Guard</i> (December 2003) (Test procedure based on US TP-223-00)	FP
226	<i>Ejection Mitigation</i> , TSD No. 226, Revision 0 (Test procedure based on US TP-226-00) 1. Document 3D-measurements 2. Multiple tests may be conducted on each vehicle. 3. Replace parts damaged during testing as per manufacturer instructions prior to additional testing as required.	FP
301F	Fuel System Integrity, specifically in a frontal impact FFRB test at 56 km/h in accordance with <i>Fuel System Integrity</i> TSD No. 301, Revision 2R (Test procedure based on US TP-301-04) Performed in combination with 208 Document 3D-measurements	FP
301HSR	Fuel System Integrity, specifically in a high speed rear impact test in accordance with <i>Fuel System Integrity</i> TSD No. 301, Revision 2R (Test procedure based on US TP-301-04)	FP
301R	Moving deformable barrier test at 80 km/h in accordance with <i>Fuel System Integrity</i> TSD No. 301, Revision 2R (Test procedure based on US TP-301-04 and US TP-301R-02) Document 3D-measurements	FP
305F	Electrolyte Spillage and Electrical Shock Protection, specifically in a full-frontal rigid barrier test at 56km/h in accordance with <i>Electrolyte Spillage and Electrical Shock Protection</i> TSD No. 305, Revision 5 (Test procedure based on US TP-305-01) Performed in combination with 208 Document 3D-measurements	FP
305HSR	Electrolyte Spillage and Electrical Shock Protection, specifically in a high speed rear impact in accordance with <i>Electrolyte Spillage and Electrical Shock Protection</i> TSD No. 305, Revision 5 (Test procedure based on US TP-305-01)	FP

305R	Moving deformable barrier test at 80 km/h in accordance with <i>Electrolyte Spillage and Electrical Shock Protection</i> TSD No. 305, Revision 5 (Test procedure based on US TP-305-01) Document 3D-measurements	FP
1106	<i>Noise Emissions</i> CMVSS 1201	FP
1201	<i>Snowmobiles</i> CMVSS 1201; and <i>Detailed Standards and Testing Specifications and Procedures</i> SSCC/11 Supplement	FP

APPENDIX D: CALIBRATION SCHEDULE FOR COMPLIANCE PROGRAMS

COMPLIANCE - CRASHWORTHINESS				
		FREQUENCY	CALIBRATION	
			In-house	Manufacturer
HYBRID III 50 TH (2)				
head		prior to start of program	X	
Accelerometers & potentiometer				
chest				
knees				
femur load cells		12 months		X
HYBRID III 5 TH (2)				
head		prior to start of program	X	
Accelerometers & potentiometer				
chest				
torso flex				
upper neck load cells		12 months	X	X
femur load cells				
HYBRID III 6-YR-OLD (2)				
head		prior to start of program	X	
Accelerometers & potentiometer				
chest				
torso flex				
upper neck load cells		12 months		X
HYBRID III 6-YR-OLD -W (1)				
HYBRID III 3-YR-OLD (2)				
head		prior to start of program	X	
Accelerometers & potentiometer				
chest				
torso flex				
upper neck load cells		12 months		X
12-MONTH CRABBI (2)				
head		prior to start of program	X	
accelerometers				
chest				
upper neck load cells		12 months		X
SIDIIs (2)				
head		prior to start of program	X	
accelerometers				
chest				

iliac, acetabulum load cells		12 months		X
ES2 (1)				
head		prior to start of program	X	
accelerometers				
chest				
INTRACC				
abdomen, pubic, load cells		12 months		X
OTHER				
226 position sensors				
213 foam compression				

COMPLIANCE & RESEARCH - CRASH AVOIDANCE				
	QTY	FREQUENCY	CALIBRATION	
			In-house	Manufacturer
GNSS & Robots				
Oxford Technical Solutions RT3000/3002/4002/4003	13	Every 2 years		OxTS
AB Dynamics SR60 Tours-S (encoder and torque)	7	Yearly		AB Dynamics
AB Dynamics CBAR500/600 (load cells)	7	Yearly		AB Dynamics
AB Dynamics SPT20S (ADC and DAC)	1	Yearly		AB Dynamics
AB Dynamics Power PMAC (DAQ)	9	Yearly		AB Dynamics
Weather station				
Campbell Scientific CR6 Data logger	1	Every 2 years		Campbell Scientific
Vaisala PTB110 Barometer	1	Yearly, prior to start of program		Primo
RM Young 5305 Wind Monitor	1			Campbell Scientific
Rotronic HC2-S3 Temp/RH Probe	1			Campbell Scientific
RM Young SR50A Sonic Snow Depth	1			Campbell Scientific
RM Young 52202-L Tipping Bucket Precipitation Gauge	1			Campbell Scientific
Apogee SE-215 (light sensor)	1	Every 2 years		Apogee
Sensors				
Ashcroft K1-5-F02-16-B6-00150 (Pneumatic pressure sensors)	12	Every 2 years		Ashcroft
Ashcroft K1-5-F02-16-B6-05000 (Hydraulic pressure sensors)	6	Every 2 years		Ashcroft
Apogee SE-215 (light sensors)	8	Every 2 years		Apogee
Dewetron CPAD2-TH8-K (thermocouple acquisition)	2	Yearly		Dewetron

APPENDIX E: CRASHWORTHINESS TEST PROTOCOLS

TYPE I: Research Frontal Crash (no compliance)

Option A: The test vehicle is accelerated into a rigid barrier.

Option B: A moving barrier (MDB) is accelerated into the test vehicle.

The level of effort required to prepare either of these test options is based on a CMVSS 208 test with the following *additional* tasks and requirements:

1. On-board cameras (up to 10):

Cameras views to include up to 3 rows of seating; windows shall be taped or removed to improve camera views; and rear doors will be removed to obtain lateral camera views. Mounting brackets will be installed, modified or fabricated to obtain requested camera views and be sufficiently rugged so as to protect the stability of the cameras during the crash event.

2. Off-board cameras (up to 8):

Cameras views to include left and right side, plan and camera pit.

3. On-board lighting:

Installation of on-board lighting when necessary

4. ATD positioning and installation (up to 7):

THOR50, THOR5, Hybrid III 50th or 5th percentile installed as per respective procedures for the designated front outboard seating positions; Hybrid III 5th percentile, Hybrid III child series, Q series or Crabi installed in second and or third row seating positions with or without child restraint installation.

5. 3D measurements:

Up to 200 points as requested by the designated Technical Program Manager.

6. Inspection and verification tests of ATDs (up to 7):

THOR ATD verification before and after each crash test to ensure proper status of IR-TRACCS/ RibEye, and proper functioning of all instrumentation; visual checks of rib geometry and material, sternum, shoulder complex shall also be conducted. Qualification of the THOR shall be completed following the NHTSA "Qualification Procedures" at the request of the Technical Program Manager.

All remaining ATDs must be visually inspected between tests to ensure the instrumentation is functional and that there is no physical damage to the ATD that could interfere with results. Verification tests shall be conducted as per the SAE, ISO or other lab protocol approved by the Technical Program Manager.

The cost of repairs is not included.

7. Vehicle preparation:

Installation of sensors to monitor vehicle dynamics which includes at a minimum atri-axial accelerometer at the CG of the vehicle, a uni-axial accelerometer at the base of each B-pillar. Recording in 3D of the sensor placements. Ballasting to comply with matched pair protocol; (addition of mass or the removal of vehicle components).

8. Vehicle alignment:

Installation of impact lines on the test vehicles (where applicable), recording in 3D of the impact lines and alignment of the MDB to the test vehicle or the vehicle to vehicle.

9. Photography

Pre and post-test photography of vehicle interior and exterior including vehicle position relative to barrier, documentation of intrusion, restraint systems and seats; ATD pre and post-test positions. Pre and post-test photography and documentation of all child restraints used in the test.

10. Safety defect follow-up:

Complete documentation of potential safety concerns affecting the vehicle, or the child restraints as required.

11. Vehicle post-test inspection:

Evaluation of vehicle structure to determine what repairs are needed to re-use the vehicle in a subsequent test.

12. Data processing:

Data processing including calculations and identification of channel errors. Production of comparative data traces as requested by the Technical Program Manager.

TYPE II: Frontal Research Crash Test SHARED with Compliance

Definition: The vehicle is accelerated into a rigid barrier. The test is cost shared, compliance pays for the CMVSS 208/212/301F negotiated rate portion and research pays the supplementary amount to cover additional research requirements. The level of effort required to prepare the research component is based on a CMVSS 208 test (Appendix C) with the following *additional* tasks and requirements:

1. On-board cameras (up to 10):

Cameras views to include up to 3 rows of seating; windows shall be taped or removed to improve camera views; and rear doors will be removed to obtain lateral camera views. Necessary mounting brackets will be fabricated to obtain requested camera views and be sufficiently rugged so as to protect the stability of the cameras during the crash event.

2. Off-board cameras (up to 8):

Cameras views to include left and right side, plan and camera pit upon request.

3. On-board lighting:

Installation of on-board lighting when necessary

4. Anthropometric test device positioning and installation (up to 5 more ATDs):

THOR50, THOR5, Hybrid III 50th, 5th percentile, Hybrid III child series, Q frontal series or Crabi installed in 2nd and or 3rd row seating positions (up to four) with or without child restraint installation.

5. 3D measurements:

Up to 200 points as requested by Technical Project Manager.

6. Inspection and verification tests of ATDs (up to 5 more ATDs):

THOR ATD verification before and after each crash test to ensure proper status of IR-TRACCS/ RibEye, and proper functioning of all instrumentation; visual checks of rib geometry and material, sternum, shoulder complex shall also be conducted. Qualification of the THOR shall be completed following the NHTSA "Qualification Procedures" at the request of the Technical Program Manager.

All remaining ATDs will be visually inspected between tests to ensure the instrumentation is functional and that there is no physical damage to the ATD that could interfere with results. Verification tests shall be conducted as per the SAE, ISO or other lab protocol approved by the Technical Program Manager.

The cost of repairs is not included.

7. Vehicle preparation:

Installation of sensors to monitor vehicle dynamics, which includes at a minimum a tri-axial accelerometer at the CG of the vehicle, a uni-axial accelerometer at the base of each B-pillar. Recording in 3D of the sensor placements. Ballasting to comply with matched pair protocol; (addition of mass or the removal of vehicle components).

8. Photography

Pre and post-test photography of vehicle interior and exterior including vehicle position relative to barrier, documentation of intrusion, restraint systems and seats; ATD pre and post-test positions. Pre and post-test photography and documentation of all child restraints used in test.

9. Safety defect follow-up:

Complete documentation of potential safety concerns affecting the vehicle or the child restraints that as required.

10. Vehicle post-test inspection:

Evaluation of vehicle structure to determine what repairs are needed to re-use the vehicle in a subsequent test.

11. Data processing:

Production of data traces including calculations and identification of channel errors; comparative data traces as requested by the Technical Program Manager.

TYPE III: MDB/ Pole/ Dynamic Rollover Test

Definition: The test vehicle is positioned on a moving platform and accelerated into a rigid pole or the test vehicle is accelerated and forced to rollover or a moving deformable barrier is accelerated into the side or rear of the vehicle. Based on CMVSS 214 MDB or pole, with the following tasks and requirements:

1. On-board cameras (Up to 8):

Cages are installed to protect the cameras where necessary. Removal of rear doors when required; Necessary mounting brackets will be installed, modified or fabricated to obtain requested camera views and be sufficiently rugged so as to protect the stability of the cameras during the crash event.

2. Off-board cameras (up to 8):

Cameras views to include oblique, left and right side, rear and or front, and plan.

3. On-board lighting:

Installation of on-board lighting when necessary.

4. Anthropometric test device positioning and installation (4 ATDs):

ATD positioning and installation: WorldSID 50th positioned as per ISO procedure for the driver seat; WorldSID 50th or 5th positioned as per ISO procedure for the right front passenger seat; WorldSID 50th or 5th, SIDIIIS, Q series or Crabi installed in second and or third row seating positions with or without child restraint installation.

5. 3D measurements:

Recording of 3D measurements for all dummies as requested by the Technical Program Manager.

Recording of dummy streamlines for driver and or passenger profile: inboard and outboard as requested by the Technical Program Manager.

Recording of pre and post test vehicle profile to quantify residual deformation as requested by the Technical Program Manager.

6. Inspection and verification tests of ATDs:

WorldSID dummy verification between each test to ensure proper status of multi-point sensing system, rib geometry and rib damping material, DAS and instrumentation wiring.

Inspection and verification tests of all other dummies installed in rear seats. Verification tests shall be conducted as per the SAE, ISO or other lab protocol approved by the Technical Program Manager.

The cost of repairs is not included.

7. Vehicle preparation:

Installation of sensors to monitor vehicle dynamics, which includes at a minimum a tri-axial accelerometer at the CG of the vehicle, and a uni-axial accelerometer at the base of the non-struck side B-pillar. Recording in 3D of the sensor placements. Ballasting to comply with matched pair protocol; (addition of mass or the removal of vehicle components).

8. For electric vehicles:

Installation of sensors to monitor battery pack and other components related to power train as directed by the Technical Program Manager. Conduct supplementary measures to evaluate the robustness of the standard (CMVSS 305 & 301) as indicated. For example, cycling power to measure isolation.

9. Photography

Pre and post-test photography of vehicle interior and exterior including vehicle position relative to barrier, documentation of intrusion, restraint systems and seats; test dummy pre and post-test positions. Pre and post-test photography and documentation of all child restraints used in test.

10. Safety defect follow-up:

Complete documentation of potential safety concerns affecting the vehicle or the child restraints that could potentially require a defect investigation.

11. Data processing:

Production of data traces including calculations and identification of channel errors; comparative data traces as requested by the designated Technical Program Manager.

12. Inspection of flying floor

Inspection of the flying floor and all components. Replacement of compression tubes following test.

TYPE IV: Moving Car to Moving Car or Moving Car to Stationary Car

Definition: Two test vehicles are impacted in either a frontal, lateral or rear configuration. The level of effort required to conduct a car to car crash test is equivalent to two (2) separate frontal barrier CMVSS 208 compliance. The additional tasks and requirements are as follows:

TARGET VEHICLE

1. On-board cameras (up to 8):

Front and rear passenger views, windows shall be taped or removed to improve camera views; Removal of rear doors when required; Necessary mounting brackets will be installed, modified or fabricated to obtain requested camera views and be sufficiently rugged so as to protect the stability of the cameras during the crash event.

2. Off-board cameras (up to 8):

Cameras views to include oblique, left and right side, plan and camera pit on request.

3. On-board lighting:

Installation of on-board lighting when necessary.

4. Anthropometric test device positioning and installation (up to 4 additional ATDs):

ATD positioning and installation: THOR50, THOR5, WorldSID, Hybrid III 50th or 5th percentile as per respective positioning procedure for the designated front outboard positions; Hybrid III 50th or 5th percentile, Hybrid III child series, Q frontal series or Crabi installed in second or third row seating positions (up to two) with or without child restraint installation.

5. 3D measurements:

Recording of 3D measurements for all dummies as requested by the designated Technical Program Manager. Recording of ATD streamlines for driver and or passenger profile: inboard and outboard as requested by designated Technical Program Manager

Recording of pre and post test vehicle profile to quantify residual deformation

6. Inspection and verification tests of ATDs:

THOR ATD verification before and after each crash test to ensure proper status of IR-TRACCs, and proper functioning of all instrumentation; visual checks of rib geometry and material, sternum, shoulder complex shall also be conducted. Qualification of the THOR must be completed following the NHTSA "Qualification Procedures" at the request of the Technical Program Manager.

All remaining ATDs must be visually inspected between tests to ensure the instrumentation is functional and that there is no physical damage to the ATD that could interfere with results. Verification tests must be conducted as per the SAE, ISO or other lab protocol approved by the Technical Program Manager.

The cost of repairs is not included.

7. Vehicle preparation:

Installation of sensors to monitor vehicle dynamics, which includes at a minimum a tri-axial accelerometer at the CG of the vehicle, and a uni-axial accelerometer at the base of each B-pillar. Recording in 3D of the sensor placements. Ballasting to comply with matched pair protocol; (addition of mass or the removal of vehicle components).

8. Vehicle alignment:

Installation of impact lines on the test vehicles (where applicable), Recording in 3D of the impact lines and alignment of the target and bullet vehicle. Documentation of calculations used to determine vehicle alignment.

9. Installation of on-board braking system.

Pre and post-test inspection of on-board braking system, installation and verification of timing prior to impact.

The cost of repairs and replacement parts are not included.

10. Photography

Pre and post-test photography of vehicle interior and exterior including relative vehicle position, documentation of intrusion, restraint systems and seats; ATD pre and post-test positions. Pre and post-test photography and documentation of all child restraints used in test.

11. Safety defect follow-up:

Complete documentation of potential safety concerns affecting the vehicle, or the child restraints as required.

12. Vehicle post-test inspection:

Evaluation of vehicle structure to determine what repairs are needed to re-use the vehicle in a subsequent test if required.

13. Data processing:

Production of data traces including calculations and identification of channel errors; comparative data traces as requested by the Technical Program Manager.

BULLET VEHICLE (same for side impact and frontal configurations)

1. On-board camera (up to 8):

Front and rear passenger views, windows shall be taped or removed to improve camera views; Removal of rear doors when required; Necessary mounting brackets will be installed, modified or fabricated to obtain requested camera views and be sufficiently rugged so as to protect the stability of the cameras during the crash event.

2. Off-board cameras (up to 8):

Cameras views to include oblique, left and right side, plan and camera pit on request.

3. On-board lighting:

Installation of on-board lighting when necessary.

4. Anthropometric test device positioning and installation (up to 4 ATDs):

ATD positioning and installation: THOR50, THOR5, Hybrid III 50th or 5th percentile as per respective positioning procedure for the designated front outboard positions ; Hybrid III 50th or 5th percentile, Hybrid III child series, Q frontal series or Crabi installed in second and/or third row seating positions with or without child restraint installation.

5. 3D measurements:

Recording of 3D measurements for all ATDs as requested by Technical Program Manager
Recording of pre and post test vehicle profile to quantify residual deformation

6. Inspection and verification tests of ATDs:

WorldSID verification between each test to ensure proper status of multi-point sensing system, rib geometry and rib damping material, DAS and instrumentation wiring.

THOR verification before and after each crash test to ensure proper status of IR-TRACCs/ RibEye, and proper functioning of all instrumentation; visual checks of rib geometry and material, sternum, shoulder complex shall also be conducted. Qualification of the THOR must be completed following the NHTSA “Qualification Procedures” at the request of the Technical Program Manager .

All remaining ATDs must be visually inspected between tests to ensure the instrumentation is functional and that there is no physical damage to the ATD that could interfere with results. Verification tests shall be conducted as per the SAE, ISO or other lab protocol approved by the designated by of the Technical Program Manager.

The cost of repairs is not included.

7. Vehicle preparation:

Installation of sensors to monitor vehicle dynamics, which includes at a minimum a tri-axial accelerometer at the CG of the vehicle, and a uni-axial accelerometer at the base of each B-pillar. Recording in 3D of the sensor placements. Ballasting to comply with matched pair protocol; (addition of mass or the removal of vehicle components).

8. Vehicle alignment:

Installation of impact lines on the test vehicles (where applicable), recording in 3D of the impact lines and alignment of the target and bullet vehicle.

9. Installation of on-board braking system.

Pre and post-test inspection of on-board braking system, installation, and verification of timing prior to impact.

The cost of repairs and replacement parts is not included.

10. Photography

Pre and post-test photography of the vehicle; pre and post- test photography of test dummies and vehicle interior; pre and post-test photography and documentation of all child restraints used in test.

11. Safety defect follow-up:

Complete documentation of potential safety concerns affecting the vehicle, or the child restraints as required.

12. Vehicle post-test inspection:

Evaluation of vehicle structure to determine what repairs are needed to re-use the vehicle in a subsequent test.

13. Data processing:

Production of data traces including calculations and identification of channel errors; comparative data traces as requested by the designated Technical Project Manager.

GENERAL TASKS (common for side impact and frontal configurations)

1. Conduct dry-run pre-trials to synchronize the propulsion system and to ensure accuracy in meeting target speeds and target impact point.
2. Adjustment and setting of the HMI lighting and off- board camera views to capture high quality exterior images of crash and rebound of vehicles.

3. Preparation of the crash area to protect crown assets from secondary collisions during rebound.
4. For vehicles selected to undergo additional testing; the cost of repairs and parts such as airbags, sensors and seatbelt systems as well as the computer reset of the vehicle by the dealer are not included.

APPENDIX F: BASELINE PREVENTIVE MAINTENANCE SERVICES

Sector	Description	Frequency	Certificate	Reference
Maintenance plan CMMS		On-going		
Building Performance Review		yearly		
Building Emergency Plan		yearly		
Infrastructure Continuity Plan		yearly		
Service vehicles	tire change, inspection and maintenance as per manufacturer recommendations	6 months		
Heating & ventilation (1)	monitoring of operating parameters, temperature	daily		
Heating & ventilation (2)	inspection of HVAC units for leaks	monthly		
Gas detection sensors	inspection, calibration	yearly	X	
Fire protection system	inspection, calibration of detection system and inspection of hydrants and their power supply	yearly		
Emergency power	inspection start & run generator	weekly		
Electrical	hot spot detection in electrical panels	yearly		
Pressurized vessels	inspection of vessels, valves	yearly	X	
Roof integrity	thermographic inspection & drains for rain (frequency of visual inspection increased during heavy rain periods)	yearly		
Doors, garage doors, door hardware & windows	inspection and repair	monthly		
Lighting	inspection and tube/ballast replacement	yearly		
Fuel station and Stoddard pump systems	inspection of fuel, Stoddard, spent oil, propane vessels & valves	yearly	X	
Underground tanks	monitoring for leaks	monthly		
Electrically driven machinery	inspection of batteries	yearly		
Trees & shrubbery	trimming along fence perimeter, pruning to protect electrical wires, ditches and test tracks	yearly		
Ditches	keep ditches clear of weeds and excess sediment	yearly		
Wild life control	surveillance	yearly		
Pest control	By licensed operator	monthly		
Conveying systems, vehicle lifts	Inspection as per manufacturer recommendation	yearly	X	
Signage, flag activities	inspection, cleaning, visibility			
Cleaning	washrooms, floors	Semi-weekly		
Garbage/ recycling	paper/carton, plastic, metal			
Access roads, parking & walkways	inspect for hazards and spills, carry out corrective actions, clear of snow and ice.	daily		
Grounds	grass cutting	weekly		
Track sweeping		6 months		

APPENDIX G: REPORT TEMPLATE MAINTENANCE

Qualifier		Prior year Actuals 2023-24	Budget requested through the IFP process 2023-24	Budget received through the IFP process 2023-24	Current year P6 Forecast 2023-24	Curr yr budget vs forecast %	Planning Year 2024-25	Plan Yr vs Curr Yr budget %	2025-26	2026-27	2027-28	Notes (not to print)
Cleaning												
1A	Labour											
1C	Supplies/Materials											
1D	Waste Removal											
Summary Qualifier 1												
Preventive Maintenance, Troubleshooting & Minor Repairs												
2A	Labour											
2B	Fleet vehicles											
2C	Conveying systems											
2D	HVAC											
2E	Electrical											
2F	Emergency power											
2G	Gas detection systems											
2H	Pressurized vessels											
2I	Structural / Roof/ Doors/ Windows											
2J	Plumbing											
2K	Fire protection system											
2L	Additional supplies/materials											
Summary Qualifier 2												
Utilities												
3A	Electricity											
3C	Fuel Oil											
3F	Water and Sewage											
Summary Qualifier 3												
Roads/Grounds and Security												
4A	Labour											
4B	Grounds - Lawns, trees, shrubbery & ditches											
4C	Roads snow clearing & minor Repairs											
4D	Wildlife control											
4E	Pest control											
4F	Security - Service Contracts											
4G	Security - Other Expenses											
Summary Qualifier 4												
Administration												
5A	Consultant fees											
5B	Management Fees											
5C	Professional Fees											
5D	Other Administration Expenses											
Summary Qualifier 5												
Total expenses												
Fixed Expenses - Information Only												
6A	PILT											
6B	Other Fixed Expenses											
Summary Qualifier 6												

APPENDIX H: UTILIZATION REPORT

MONTH : _____

ACTIVITY CENTRE:

<u>Line No</u>	<u>Activity Centre</u> <u>(a)</u>	<u>Cost of Utilization</u> <u>(b)</u>	<u>Hours of Utilization</u> <u>(c)</u>	<u>Total Amount</u> <u>= b x c</u> <u>(d)</u>
1	Test Tracks	\$89.71/hour	_____ hours	_____ \$
2	Environmental Chambers	\$153.15/hour	_____ hours	_____ \$

FIXED TEST EQUIPMENT:

<u>Fixed Test Equipment</u>		<u>Utilization Frequency</u>	
<u>SLEDS</u>	<u>< 50g</u>	<u>> 50g</u>	
Pneumatic sled			
Hydraulic sled			
Hydraulic sled with pre-braking			
<u>PROPULSION SYSTEM</u>	<u>< 64 km/h</u>	<u>> 64 km/h</u>	
Track 1			
Track 2			
Track 3			
<u>ACCESSORIES</u>			
Rigid barrier (<i>impact energy > 8000 kN</i>)			
Mobile barrier			
Instrumented barrier			
Instrumented pole			
Quasi-Static rollover			
<u>SERVO-HYDRAULIC LAUNCHER</u>			
linear impactor			
FLEX-PLI			
Other			
<u>VTS</u>			
Certification tests			
Developmental tests			
<u>ATD</u>	<u>QUASI STATIC</u>	<u>COLLISION</u>	<u>SLED</u>
Hybrid III adult			
Hybrid III child			
ES2			
SIDIIs			
THOR M			

THOR F			
WorldSID			
Q series			
<u>AUTOMATED DRIVING SYSTEMS</u>	<u>Utilization (Number of Tests)</u>		
Test target			
Driving robots			
Audio and visual alert detector			
GNSS DAS			
TOTAL Number of Tests			
	<u>Utilization (hours)</u>		
<u>CNC MILLING MACHINE</u>			
Repairs			
Prototype development			
TOTAL Number of Hours			

APPENDIX I: HISTORICAL OVERVIEW OF COMPLIANCE PROGRAM

CMVSS	FY 16/17	FY 17/18	FY 18/19	FY 19/20	FY 20/21
103		6			
105					2
110	14				
111			6	6	6
118		5			
121			1	1	3
122		6			
124		6			
126	14		7	9	8
135	14		7	9	8
136			1	1	4
210	1 (partial re-test)	11		6	
210.1		11		6	
210.2	1 (partial re-test)	11		6	
215		6			
216	10	10	8		
217	1	1	1		2
220	1	1			2
222	1	1	1		2
223					1
226			8	8	8
214P			8	8	8
208ST		1	7	6	6
1106		6			
1201		4	2	2	2
301F		1			
301HSR	12	10			4
301SB			1		
305S			1		
305HSR	3		4	1	3
208/212/301F	15	14	11	7	6
212/301F			1		
208/301F					1
208/212/305F				2	1
208/212/301F/305F				2	2

305HSR/301HSR		3		2	1
213	50	69	80	77	68
213.1	28	26	15	20	19
213.2	43	30	31	23	33
213.2 (Compression)	19	11	15	17	18

APPENDIX J: 10-year Historical Financials

TRANSPORT CANADA EXPENDITURES						PMG TECHNOLOGIES
PERIOD	MAINTENANCE & OPERATIONS	COMPLIANCE	CAPITAL	RESEARCH	TOTAL	REVENUES FROM PRIVATE CLIENTS
2011-2012	\$2,687,247	\$892,581	\$1,698,179	\$1,559,981	\$6,837,988	\$1,886,611
2012-2013	\$2,746,849	\$807,958	\$2,770,391	\$1,236,328	\$7,561,526	\$2,132,683
2013-2014	\$2,803,876	\$1,224,575	\$4,418,338	\$2,183,229	\$10,630,018	\$2,630,290
2014-2015	\$2,838,097	\$1,157,206	\$3,679,963	\$1,917,064	\$9,592,330	\$2,423,500
2015-2016	\$2,864,575	\$1,287,433	\$2,452,301	\$2,016,722	\$8,621,031	\$2,836,142
2016-2017	\$2,898,094	\$863,697	\$2,144,687	\$2,265,261	\$8,171,739	\$3,972,568
2017-2018	\$2,927,621	\$879,688	\$3,103,444	\$2,746,337	\$9,657,090	\$5,034,521
2018-2019	\$2,961,480	\$1,004,960	\$4,031,742	\$2,869,588	\$10,867,770	\$3,032,316
2019-2020	\$3,006,507	\$991,688	\$7,512,963	\$3,523,664	\$15,034,822	\$4,121,637
2020-2021	\$3,060,526	\$1,157,222	\$8,162,692	\$4,611,050	\$16,991,490	\$3,194,800
TOTAL	\$28,794,872	\$10,267,008	\$39,974,700	\$24,929,224	\$103,965,804	\$31,265,068

APPENDIX K: 15-Year Historical Capital Expenditures (2007-2020/2021) by Activity Centre

<u>Years</u>	<u>Capital</u>	<u>Expenditures</u>
TEST TRACKS		
2007-08	REPAIR OF BRAVO TRACK JOINTS, GOLF INTERSECTION, ACOTTEMENT, TOP OF TRACK JOINTS	\$142,340
2009-10	REPAVING OF THE BRAKING TEST TRACK	\$926,535
2013-14	REPLACE ELECTRICAL AND CONTROL TO THE ENTRANCE OF THE TRACKS	\$49,650
2010-11	REPAVING OF THE BRAKING TEST TRACK	\$44,892
2010-11	INSTALLATION OF A PIT FOR WATERING THE BRAKING TRACK	\$105,537
2014-15	DELTA RUNWAY PAVING	\$1,232,334
2017-18	REPAVING OF DELTA R	\$50,818.76
2018-19	REPAIR OF BRAVO TRACK	\$21,000
2019-20	REPAIR OF BRAVO TRACK	\$50,600
2020-21	TRACKS	\$176,735
2020-21	URBAN INTERSECTION	\$1,264,484
	SUB TOTAL TRACKS	\$4,064,926
ENVIRONMENTAL CHAMBERS		
2007-08	CHANGE TO ISCEON-89: SYSTEMS 2, 3 and 4 INSERT HFC-245fa	\$165,194
2008-09	GALVANIZATION OF THE FLOOR OF THE ROOMS AND REPAINTING OF THE STRUCTURE WITH ELECTROSTATIC PAINT	\$58,107
2008-09	CHANGES TO ISCEON-89: SYSTEMS 2, 3 and 4 INSERTION HFC-245fa	\$372,748
2009-10	CHANGES TO ISCEON -89: SYSTEMS 2, 3 and 4 INSERTION HFC-245fa	\$173,558
2010-11	CHANGE THE GENERAL AND LOW TEMPERATURE BENCH CONTROL SYSTEMS	\$351,834
2010-11	INSTALL EXHAUST REELS AND PAINT ENVIRONMENTAL CHAMBERS	\$25,470
2011-12	CHANGE THE GENERAL AND LOW TEMPERATURE BENCH CONTROL SYSTEMS	\$-19
2012-13	CHANGE THE CONTROL SYSTEM OF THE LOW TEMPERATURE COMPRESSORS	\$28,221
2012-13	REPLACE SUCTION ACCUMULATORS AND HEAT EXCHANGERS	\$25,055
2013-14	INSTALL EXHAUST REELS AND PAINT ENVIRONMENTAL CHAMBERS	\$115,475
2013-14	CHANGE THE CONTROL SYSTEM OF THE LOW TEMPERATURE COMPRESSORS	\$14,358
2013-14	REPLACE SUCTION ACCUMULATORS AND HEAT EXCHANGERS	\$210,571

2014-15	REPLACE LOW TEMPERATURE COMPRESSOR CONTROL SYSTEM	\$248,806
2014-15	REPLACE SUCTION ACCUMULATORS AND HEAT EXCHANGERS AND RE-INSULATE LT	\$242,154
2015-16	REFURBISH WATER TOWERS IN ENVIRONMENTAL CHAMBERS	\$75,326
2018-19	REPLACEMENT OF TEMPERATURE CONTROL VALVES IN ENVIRONMENTAL CHAMBERS	\$22,229
2020-21	REPLACEMENT OF TEMPERATURE CONTROL VALVES IN ENVIRONMENTAL CHAMBERS	\$945,786
	SUBTOTAL ENVIRONMENTAL CHAMBERS	\$3,074,873
CRASH LABORATORY		
	(CRASH TEST) DUMMIES	
2007-08	PURCHASE OF TWO 12-MONTH DUMMIES	\$28,389
2007-08	DUMMY 5% F with integrated Kayser system	\$378,446
2008-09	DUMMY 5% F with integrated Kayser system	\$8,327
2008-09	WorldSID Multipoint detection	\$135,152
2008-09	SID IIS	\$270,245
2008-09	Rib Eye WS5%	\$107,399
2009-10	ACQUISITION OF ATD	\$-3,758
2009-10	SIDE IMPACT ATDS (CRASH TEST DUMMIES) AND UPGRADE	\$103,018
2010-11	ACQUISITION OF ATD	\$-1,157
2010-11	SIDE IMPACT LATERAL ATD AND UPGRADES	\$88,337
2010-11	FRONTAL INSTRUMENTATION	\$125,368
2011-12	FRONTAL INSTRUMENTATION	\$130,042
2014-15	SIDE IMPACT ATDS (CRASH TEST DUMMIES) AND UPGRADE	\$248,542
2012-13	SIDE IMPACT ATDS (CRASH TEST DUMMIES) AND UPGRADE	\$209,246
2012-13	ACQUISITION OF FRONTAL ATD INSTRUMENTATION	\$131,693
2012-13	ANTHROPOMORPHIC TEST DEVICE (ATD) Q SERIES AND BIO RID	\$157,690
2013-14	ATD Q SERIES AND BIO RID	\$126,036
2013-14	ACQUISITION OF FRONTAL DUMMY INSTRUMENTATION	\$127,663
2014-15	ACQUISITION OF FRONTAL DUMMY INSTRUMENTATION	\$489
2014-15	ATD THOR MALE	\$610,597
2014-15	ATD SERIES Q AND BIO RID	\$-2,149
2015-16	LATERAL IMPACT ATD AND UPDATES	\$-10,836
2015-16	ATD THOR MALE	\$651,709
2016-17	ACQUISITION OF FRONTAL ATD INSTRUMENTATION	\$160,837
2017-18	THOR UPGRADE	\$168,789
2017-18	SIDE IMPACT ATDS (CRASH DUMMIES) AND UPGRADE	\$29,436
2017-18	ACQUISITION OF FRONTAL ATD INSTRUMENTATION	\$132,070

2018-19	ATD SERIES Q AND BIO RID	\$190,397
2018-19	FRONTAL INSTRUMENTATION	\$157,984
2020-21	SIDE IMPACT ATDS (CRASH TEST DUMMIES) AND UPGRADES - Q10	\$269,397
2020-21	FRONTAL INSTRUMENTATION	\$399,108
2020-21	ADULT ATD	\$920,456
	SUB TOTAL ATD	\$6,048,965
	<u>DATA ACQUISITION SYSTEM (DAS)</u>	
2007-08	24-BIT DATA ACQUISITION SYSTEM (DAS)	\$58,600
2016-17	DAS REPLACEMENT	\$45,994
2017-18	DAS REPLACEMENT	\$72,944
2017-18	DAS REPLACEMENT	\$642,644
2018-19	DAS REPLACEMENT	\$479,649
	SOUS TOTAL DAS	\$1,299,831
	<u>CATAPULT</u>	
2007-08	ADDITIONAL TANKS FOR THE CATAPULT	\$36,645
2007-08	PURCHASE AND INSTALLATION OF HI-G SLED	\$124,418
2007-08	SAFETY SYSTEM FOR THE CATAPULT - SLED	\$129,102
2007-08	ADDITION TO THE LIGHTING SYSTEM - SLED	\$143,423
2007-08	HIGH SPEED DIGITAL CAMERAS - SLED	\$173,034
2008-09	CATAPULT SAFETY SYSTEM- SLED	\$112,521
2008-09	SLED SYSTEM DEVELOPMENT, SIDE/FRONT IMPACT FOR CHILD RESTRAINT	\$206,991
2011-12	SLED SYSTEM DEVELOPMENT, SIDE/FRONT IMPACT FOR CHILD RESTRAINT	\$199,984
2012-13	SLED SYSTEM DEVELOPMENT, SIDE/FRONT IMPACT FOR CHILD RESTRAINT	\$199,962
2013-14	SLED SYSTEM DEVELOPMENT, SIDE/FRONT IMPACT FOR CHILD RESTRAINT	\$219,336
2013-14	SLED SLOWDOWN SYSTEM	\$1,445,946
2014-15	SLED SYSTEM DEVELOPMENT, SIDE/FRONT IMPACT FOR CHILD RESTRAINT	\$394,867
2014-15	ACQUISITION OF A HYDRAULIC DECELERATION CATAPULT	\$-36,872
2015-16	SLED SYSTEM DEVELOPMENT, SIDE/FRONT IMPACT FOR CHILD RESTRAINT	\$225,243
2016-17	SLED SYSTEM DEVELOPMENT SIDE/FRONTAL IMPACT FOR CHILD	\$33,683
2017-18	SLED SYSTEM DEVELOPMENT, SIDE/FRONT IMPACT FOR CHILD RESTRAINT	\$199,594
2019-20	SLED UPGRADE	\$184,291
2020-21	SLED UPGRADE	\$888,049
	SUB TOTAL SLED	\$4,880,218
	<u>PEDESTRIAN LABORATORY</u>	
2010-11	VELVETY ROAD SAFETY USER LAB	\$9,657,381
2010-11	PEDESTRIAN TESTING LABORATORY - TO EVALUATE THE PROTECTION OF VULNERABLE ROAD USERS.	\$211,922

2011-12	PEDESTRIAN TESTING LABORATORY - TO EVALUATE THE PROTECTION OF VULNERABLE ROAD USERS.	\$264,410
2009-10	VELVETY ROAD USER LABORATORY FOR ROAD SAFETY	\$4,533,563
2012-13	PEDESTRIAN TESTING LABORATORY - TO EVALUATE THE PROTECTION OF VULNERABLE ROAD USERS.	\$1,251,649
2014-15	PEDESTRIAN TESTING LABORATORY - TO EVALUATE THE PROTECTION OF VULNERABLE ROAD USERS	\$2,797
2013-14	PEDESTRIAN TESTING LABORATORY - TO EVALUATE THE PROTECTION OF VULNERABLE ROAD USERS	\$282,654
	SUB TOTAL PEDESTRIAN LABORATORY	\$16,204,376
	<u>CAMERAS</u>	
2007-08	High speed cameras with high resolution and sensitivity	\$283,609
2016-17	HIGH-SPEED CAMERA AND LIGHTNING UPGRADE	\$599,929
2017-18	HIGH-SPEED CAMERA AND LIGHTNING UPGRADE	\$300,300
2019-20	CAMERAS AND LIGHTNING BOLTS FOR THE IMPACT RESISTANCE PROGRAM	\$337,000
	SUB TOTAL CAMERAS	\$1,520,837
	<u>GENERARL COLLISION</u>	
2007-08	Computers for collision laboratory	\$65,294
2007-08	Optical speed sensors	\$34,145
2007-08	Covered propulsion ramp	\$296,723
2008-09	Extension of the range of the mobile high speed lighting system.	\$101,065
2008-09	Replacement of the instrumentation (3D measuring arm) and data storage disks	\$177,650
2008-09	New skid guiding vehicle moving below the ground surface.	\$346,215
2010-11	COLLISION RAMP AND SKID	\$399,173
2010-11	COLLISION AREA PERIMETER SAFETY	\$69,900
2011-12	COLLISION AREA PERIMETER SECURITY	\$199,904
2011-12	WIRELESS COMPUTER NETWORK FOR CRASH LAB	\$96,006
2011-12	PROPULSION SYSTEM ACCESSORIES	\$200,036
2011-12	CENTRALE CENTRAL CAMERA PIT INSTRUMENTATION	\$239,663
2011-12	THREE OVERHEAD CRANES FOR COLLISION AREAS	\$50,580
2012-13	PROPULSION SYSTEM ACCESSORIES	\$70,878
2013-14	PROPULSION SYSTEM ACCESSORIES	\$134,919
2013-14	THREE OVERHEAD CRANES FOR COLLISION AREA	\$134,275
2013-14	INSTRUMENTATION FOR ELECTRIC VEHICLE / ALTERNATIVE FUEL TESTING	\$75,469
2013-14	GEAR BOX REPLACEMENT FOR ROLLOVER DEVICE	\$50,486
2014-15	INSTRUMENTATION FOR ELECTRIC/ALTERNATIVE FUEL VEHICLE TESTING	\$-60
2015-16	SPECIALIZED EQUIPMENT FOR TECHNOLOGICAL VEHICLES (HYBRID, HYDROGEN, CANBUS, ETC.)	\$104,518
2015-16	MANUFACTURING OF CONTAINMENT BARRIERS	\$238,057

2016-17	SPECIALIZED EQUIPMENT FOR TECHNOLOGY VEHICLES (HYBRID, HYDROGEN, CANBUS, ETC.)	\$82,172
2016-17	MANUFACTURING OF CONTAINMENT BARRIERS	\$90,629
2018-19	MOBILE BARRIER RACKING	\$19,739
2018-19	ACCIDENT ACCESSORIES	\$206,364
2018-19	BARRIER INSTRUMENTATION	\$340,808
2019-20	BARRIER INSTRUMENTATION	\$347,131
2019-20	INSTRUMENTATION FOR THE CRASHWORTHINESS PROGRAM	\$289,892
	SUB TOTAL GENERAL COLLISION GENERALE	\$4,461,631
	SUB TOTAL CRASH LAB	\$34,415,859
MAIN LABORATORY		
	Automatic Emergency Braking (AEB)	
2013-14	ACQUISITION OF EURO NCAP VEHICLE TARGET V1 (EVT)	\$112,741
2013-14	ACQUISITION OF STRIKEABLE SURROGATE VEHICLE	\$36,196
2014-15	ACQUISITION OF STRIKEABLE SURROGATE VEHICLE	\$-1,950
2014-15	ACQUISITION OF EURO NCAP VEHICLE TARGET V1 (EVT)	\$-4,583
2014-15	ACCELERATION/BRAKING ROBOT FOR CRASH AVOIDANCE TECHNOLOGY	\$301,170
2015-16	PEDESTRIAN TARGET FOR CRASH AVOIDANCE TECHNOLOGY TESTING	\$226,438
2015-16	ACCELERATION/BRAKING ROBOT FOR CRASH AVOIDANCE TECHNOLOGY	\$-9,046
2018-19	CRASH AVOIDANCE - ROBOTIC TEST EQUIPMENT	\$491,371
2018-19	CRASH AVOIDANCE - TEST TARGETS	\$112,597
2018-19	CRASH AVOIDANCE - PORTABLE EQUIPMENT	\$193,775
2018-19	CRASH AVOIDANCE - ANALYSIS INSTRUMENT PACKAGE PRE-BRAKE	\$172,801
2018-19	PRE-BRAKING DECELERATION SLED OPTION	\$583,549
2018-19	PURCHASE OF KIT FOR STANDARD CMVSS 223 (REAR IMPACT GUARD)	\$246,593
2018-19	V2V TEST EQUIPMENT 2018-19	\$306,130
2019-20	CONNECTED AND AUTOMATED VEHICLE TEST EQUIPMENT	\$1,842,445
2019-20	PURCHASE OF TEST EQUIPMENT – A5 TRUCK PLATOONING	\$599,819
2020-21	TEST EQUIPMENT FOR CONNECTED AND AUTOMATED VEHICLES	\$1,275,369
2020-21	PURCHASE OF TEST EQUIPMENT - FLAT BED TRUCK PLATOON 5	\$203,730
2007-08	Internal guidance and navigation system by GPS	\$194,331
2016-17	PEDESTRIAN TARGET FOR COLLISION AVOIDANCE TECHNOLOGY TESTING	\$-11,986
	SUB TOTAL AEB	\$6,871,490
	CMVSS TEST EQUIPMENT	
2008-09	Test System CMVSS 206 - Test apparatus	\$86,308

2009-10	Test equipment – Purchases and upgrades - MVTC Blainville	\$-2,453
2009-10	Replacement of instrumentation	\$4,862
2009-10	Test System CMVSS 206 - Test apparatus	\$19,696
2009-10	CMVSS 215	\$51,286
2009-10	CMVSS 216	\$23,551
2010-11	CMVSS TEST EQUIPMENT	\$314,412
2010-11	PURCHASE OF 2 RT_3002 SYSTEMS FOR NEW CMVSS 126 STANDARD	\$73,029
2010-11	REPLACEMENT OF VARIOUS ELECTRONIC EQUIPMENT DIVERS	\$25,000
2010-11	PURCHASE OF NEW SYSTEMS FOR CMVSS 122 STANDARD	\$57,773
2010-11	PURCHASE OF NEW SYSTEM FOR CMVSS 135-ESC STANDARD	\$52,591
2010-11	PURCHASE OF A ROBOT DRIVER FOR ESC TESTS	\$119,804
2010-11	IMPROVE THE ERGONOMICS OF THE NSVAC 222 STATIC AND DYNAMIC SYSTEM	\$19,737
2010-11	ANTI-ROLL BARS FOR ESC (VUS) TESTING	\$42,072
2010-11	UPGRADE OF TEST EQUIPMENT 216 NSVAC 6.0 TEST EQUIPMENT	\$56,006
2011-12	CMVSS TEST EQUIPMENT	\$25,697
6.0 2011-12	PURCHASE OF 2 RT_3002 SYSTEMS FOR NEW NSVAC STANDARD 126	\$73,423
2011-12	REPLACEMENT OF MISCELLANEOUS ELECTRONIC EQUIPMENT DIVERS	\$23,144
2011-12	PURCHASE OF NEW SYSTEMS FOR CMVSS STANDARD 122	\$30,904
2011-12	PURCHASE OF NEW SYSTEM FOR CMVSS 135-ESC STANDARD	\$19,954
2011-12	ANTI-ROLLOVER BARS FOR ESC TESTS (VUS)	\$-1,938
2011-12	PURCHASE OF 4 GPS SYSTEMS (VBOX) TO REPLACE OPTICAL READERS	\$55,413
2012-13	PURCHASE OF 4 GPS SYSTEMS (VBOX) TO REPLACE OPTICAL SCANNERS	\$-1,307
2012-13	PURCHASE OF 2 RT_3002 SYSTEMS FOR NEW CMVSS 126 STANDARD	\$-556
2013-14	CMVSS TEST EQUIPMENT	\$80,248
2013-14	DAS REPLACEMENT	\$100,282
2014-15	CMVSS TEST EQUIPMENT	\$91,995
2015-16	CMVSS TEST EQUIPMENT	\$-2,053
2016-17	HEAVY DUTY STABILIZERS FOR ESC AND FMVSS 136	\$6,800
2017-18	HEAVY-DUTY VEHICLE STABILIZERS	\$152,030
2017-18	BALLAST DUMMIES AND CARTS	\$19,219
	SUB TOTAL CMVSS	\$1,616,929
	VEHICLE TEST STRUCTURE (VTS)	
2015-16	IMPROVEMENT OF VEHICLE TEST STRUCTURES (VTS)	\$93,460
2016-17	VTS IMPROVEMENTS	\$65,412

2017-18	REPLACEMENT OF HYDRAULIC CYLINDERS ON THE VTS	\$38,324
2020-21	REPLACEMENT OF LARGE LAB CYLINDER	\$11,388
	SUB TOTAL STV	\$208,584
	GENERAL GRAND LAB	
	REPAINTING THE LARGE LABORATORY, CHANGING THE LIGHTING AND CARPETS AND REDOING THE FLOORS OF THE GANTRIES 3D COLLISION AVOIDANCE SYSTEM \$798,700 Data acquisition system with paper recorder Data acquisition system for thermocouples	\$384,527
2010-11		
2015-16	REPLACEMENT OF DAS	\$44,723
2016-17	OVERHEAD CRAME (PENDULUM)	\$22,500
2017-18	OVERHEAD CRAME (PENDULUM)	\$24,980
2017-18	3D CRASH AVOIDANCE TARGET	\$798,700
2007-08	DAS PAPER RECORDER	\$78,953
2007-08	DAS THERMOCOUPLES	\$16,139
	SUB TOTAL GENERAL GRAND LAB	\$1,370,522
	SUB TOTAL GRAND LAB	\$10,067,525
	SITE	
2007-08	SQL Server \$23,910	\$23,910
2007-08	Fire extinguisher system - Server room	\$39,496
	Replacement of doors and sills \$15,729	
2007-08	2007-08	\$15,729
2007-08	Collision lab air conditioner	\$27,782
	CORRECTION OF A GROUND SLIDE NORTH OF THE ALPHA RUNWAY	
2010-11		\$71,438
2007-08	Lighting replacement - (ballasts)	\$148,188
2007-08	Fire protection system improvements	\$84,503
2007-08	Exhaust and fresh air system	\$27,250
2007-08	Machining equipment	\$76,266
2007-08	Replacement of mower and small blower (\$65K)	\$49,894
2007-08	NRC Garage: Forklift replacement	\$55,995
	NRC Garage: Tensioning device / Compression testing machine	
2007-08		\$19,975
2008-09	2nd floor lab ceiling	\$63,755
	Installation of evacuation of fire station, south side lab and others	
2008-09		\$32,392
2008-09	Demolition of rooms 5, 9, 10 & 11	\$80,330
2008-09	Extendable scraper for backhoe	\$14,745
2008-09	Machine shop improvements	\$63,975
2008-09	Concrete floor and doors for a covered parking space	\$94,583
2008-09	Machining equipment	\$8,759
2008-09	Exhaust and fresh air system	\$4,753
2008-09	Snow removal truck/scaler	\$215,125
2008-09	Replace triple mower	\$11,500
2009-10	Re-roof premises 1 & 4	\$180,082

2009-10	Ditch correction	\$716,811
2009-10	Overhead crane	\$19,646
2009-10	Addition and replacement of safety gates	\$82,465
2009-10	Service vehicle / Machinery	\$42,745
2009-10	Milling machine	\$49,513
2011-12	SERVICE VEHICLE / MACHINERY	\$24,830
2010-11	SERVICE VEHICLE / MACHINERY	\$15,378
2011-12	COORDINATION AND ARC FAULT STUDY OF ELECTRICAL BREAKERS IN BUILDINGS	\$49,961
2011-12	ELECTRICITY IN THE PUMPING STATION	\$16,186
2012-13	ENVIRONMENTAL COMPENSATION (FOR THE PROJECT: ROAD SAFETY LABORATORY OF VULNERABLE ROAD USER)S	\$11,500
2012-13	SERVICE VEHICLE / MACHINERY	\$100,000
2012-13	ROOFING, MEMBRANE REPLACEMENT	\$38,723
2012-13	COORDINATION AND ARCING FAULT STUDY OF ELECTRICAL BREAKERS IN BUILDINGS	\$247,236
2012-13	INSTALLATION OF SNOW STOPS ON ROOFS AND RAILINGS	\$282,499
2012-13	AIR COMPRESSOR FOR PLANT	\$17,900
2013-14	ENVIRONMENTAL OFFSET (FOR PROJECT: VULNERABLE ROAD USER LAB SAFETY)	\$28,646
2013-14	ELECTRIC/PROPANE TRUCK	\$94,980
2013-14	SERVICE VEHICLE / MACHINERY	\$16,000
2013-14	BUILD A NEW SALT STORAGE ROOM	\$43,574
2013-14	ROOFING, MEMBRANE REPLACEMENT	\$517,366
2013-14	REPLACEMENT OF LIGHT DUTY TRUCKS	\$54,001
2013-14	REPLACE 4 FUEL PUMPS (SERVICE STATION)	\$169,568
2013-14	MODIFICATION OF THE MOBILE WORKSHOP	\$24,550
2013-14	INSTALLATION OF SNOW STOPS ON ROOFS AND RAILINGS	\$9,326
2013-14	REPAINTING THE MECHANICAL ROOM AND REDOING THE FLOOR	\$32,389
2013-14	SERVICE VEHICLE / MACHINERY (PART II)	\$101,835
2014-15	LABORATORY MAINTENANCE - MOTOR VEHICLE TEST CENTRE (MVTC) (ENVIRONMENTAL OFFSET)	\$15,730
2014-15	SERVICE VEHICLE / MACHINERY	\$197,747
2014-15	ROOFING, MEMBRANE REPLACEMENT	\$10,961
2014-15	REPLACE THE FOUR (4) FUEL PUMPS (SERVICE STATION)	\$3,425
2014-15	SCRAPER, MOWER AND SNOWBLOWER – MVTC IN BLAINVILLE	\$10,190
2014-15	MACHINE SHOP EQUIPMENT	\$82,202
2014-15	MACHINE SHOP EQUIPMENT	\$31,571
2015-16	REDOING THE LAND HEAD FENCE 14 KM	\$41,024
2015-16	ROOFING, MEMBRANE REPLACEMENT	\$594,040
2015-16	REPLACEMENT OF LIGHT DUTY TRUCKS	\$86,626

2015-16	REPAINTING THE MECHANICAL ROOM AND REDOING THE FLOOR	\$24,000
2015-16	SCRAPER, MOWER, BLOWER (MVTC IN BLAINVILLE)	\$69,070
2016-17	REDO THE LAND HEAD FENCE 14 KM	\$944,571
2016-17	ROOFING, MEMBRANE REPLACEMENT	\$6,439
2016-17	REPLACEMENT OF LIGHT DUTY TRUCKS	\$1,745
2016-17	REPLACE AIR CONDITIONING UNITS AT MVTC	\$29,047
2017-18	RE-FENCE PERIMETER 14 KM	\$57,588.55
2017-18	ROOFING, MEMBRANE REPLACEMENT	\$37,712.48
2017-18	UPGRADING THE ROOF OF THE COLLISION LABORATORY EXTENSIONS	\$38,705.35
2017-18	EXTRICATION TOOLS (MVTC BLAINVILLE)	\$27,126.00
2017-18	SALT SPREADER PURCHASE FOR PICKUP TRUCK	\$11,505.00
2017-18	REPLACEMENT OF LIGHT DUTY TRUCKS	\$49,958.00
2017-18	SERVICE VEHICLE / MACHINERY	\$158,422.00
2017-18	STREET SWEEPER FOR THE TRACKS	\$30,040.00
2017-18	REPLACE CARPORT GARAGE DOOR	\$13,127.00
2017-18	FIRE PUMPS	\$30,741.76
2018-19	MODERNIZATION OF THE BIO-DISC	\$40,221
2018-19	FIRE PUMPS	\$54,512
2018-19	TELEPHONE SYSTEM	\$211,685
2018-19	REPLACEMENT OF AIR CONDITIONING IN MVTC UNITS	\$47,650
2018-19	REPLACEMENT OF FLOOR SCRUBBERS	\$38,071
2018-19	FIRE ALARM CONTROL SYSTEM	\$29,609
2018-19	TRANSFER CASE	\$25,195
2019-20	MODERNIZATION OF THE BIO-DISC	\$106,163
2019-20	FIRE PUMPS	\$1,183,820
2019-20	REPLACEMENT OF AIR CONDITIONING IN MVTC UNITS	\$1, 873,716
2019-20	RAIL CAR CONTAINERS ACQUISITION	\$98,087
2020-21	MODERNIZATION OF THE BIO-DISC	\$798,513
2020-21	MOBILE EQUIPMENT	\$465,849
2020-21	REPLACEMENT OF IDENTIFIED MVTC DOORS AND VALVES	\$17,710
	SUB TOTAL SITE	\$11,812,165
RESEARCH		
2007-08	Test structures for catapult	\$169,183
2010-11	Catapult accessories	\$199,465
2009-10	Catapult accessories	\$209,962
	SUB TOTAL RESEARCH	\$578,610
GRAND TOTAL CAPITAL		\$65,350,018

APPENDIX L: 5-year Capital Investment Plan

* Note: This 5-year plan is subjected to yearly revision

Project	2021-22	2022-23	2023-24	2024-25	2025-26
THOR UPGRADES	\$1,200,000		\$1,300,000	\$300,000	
AUTOMATED VEHICLE TEST EQUIPMENT	\$771,420				
SIDE IMPACT ATD'S (CRASH TEST DUMMIES) AND UPGRADES	\$300,000		\$300,000	\$300,000	
INSTRUMENTATION FOR CRASHWORTHINESS PROGRAM	\$400,000	\$200,000	\$400,000	\$400,000	\$400,000
REPAIR OF THE BRAVO TRACK	\$600,000	\$1,000,000			
CONSTRUCTION OF FENCE AT THE MVTC BLAINVILLE	\$300,000	\$2,000,000			
ALPHA TRACK REPAVING	\$250,000	\$50,000	\$3,300,000		
CARPORT CLOSURE AND INSULATION	\$50,000				
MVTC SPECIALIZED VEHICLES REPLACEMENT	\$616,497	\$220,000	\$250,000	\$280,000	\$350,000
INSTALLATION OF A FUME EXTRACTOR FOR THE SLED	\$20,000				
R245FA ENVIRONMENTAL IMPACT STUDY	\$50,000				\$2,000,000
EMERGENCY POWER SUPPLY OF THE MVTC BUILDINGS	\$50,000				
VTS CONTROL UPGRADE	\$50,000		\$300,000	\$500,000	\$50,000
TEST EQUIPMENT & INSTRUMENTATION FOR ALTERNATE FUEL VEHICLE	\$100,000		\$100,000	\$100,000	\$100,000
VARIOUS MVTC BUILDING UPGRADES (LOCAL 1 & 4)	\$150,000	\$150,000	\$150,000		
CONSTRUCTION OF AN URBAN INTERSECTION	\$2,500,000			\$1,500,000	
COMMERCIAL VEHICLE AND BUS SAFETY RESEARCH LABORATORY	\$24,076,000				
REPAINTING ENVIRONMENTAL CHAMBER STRUCTURE		\$75,000			

REPLACE CARPET & REPAINT WALLS OF THE ADMINISTRATION BUILDING		\$50,000			
REPLACEMENT OF THE TEMPERATURE CONTROL SYSTEM IN MVTC BUILDINGS		\$75,000			
ELECTRICAL POWER AROUND THE TRACK		\$200,000	\$1,754,448		
ISO 10844 TEST TRACK FOR NOISE		\$105,000	\$500,000		
MVTC PLANS ON AUTOCAD			\$150,000		
REPLACEMENT OF LIGHTNING SYSTEM BY LED AND REPLACEMENT OF HEATERS			\$250,000		
REPLACEMENT OF GARAGE DOORS & DOOR SECURITY			\$375,000	\$150,000	
MVTC WINDOWS REPLACEMENT			\$200,000	\$200,000	
PAINTING MVTC BUILDINGS AND DOORS			\$500,000	\$500,000	
GAS DETECTION & FIRE ALARM SYSTEM			\$400,000		
PAVE THE ROAD AROUND THE TRACKS (GOLF, INDIA, LOCAL 7, DELTA)			\$75,000	\$500,000	\$500,000
ANTHROPOMORPHIC TEST DEVICE THOR FEMALE			\$900,000	\$1,200,000	
PROTOTYPE CHILD DUMMY ACQUISITION			\$700,000		\$1,000,000
CAMERAS & LIGHTING			\$600,000	\$600,000	\$600,000
SMART CITY			\$1,000,000	\$21,000,000	\$21,000,000
PLUMBING SYSTEM REPLACEMENT				\$500,000	
COMPARTIMENTING THE MAIN LABORATORY				\$200,000	
DYNAMOMETERS				\$2,000,000	\$2,000,000
PEDESTRIAN LAB UPGRADE				\$1,200,000	\$600,000
SYSTEM FOR CAPTURING GPS SIGNAL IN A BUILDING					\$700,000
	\$31,483,917	\$4,125,000	\$13,504,448	\$31,430,000	\$29,300,000

APPENDIX M: Capital Inventory List

DATE	DESCRIPTION	FABRICANT / MANUFACTURER	MODÈLE / MODEL	VALEUR / COST
N/A	MOTOR ALIGNMENT SYSTEM	MMS	HA-1	\$8,750
1979	MOBILE TILT BARRIER		PLAN TST-116	\$5,828
1988	LIFT ACCESSORY	ROTARY	4648807042	\$11,047
1988	LIFT ACCESSORY	ROTARY	4648807042	\$11,047
1988	LIFT ACCESSORY	ROTARY	4648807042	\$11,047
1988	LIFT ACCESSORY	ROTARY	4648807042	\$11,047
1978	MOBILE LADDER WITH 8' RAMP		H3208	\$6,820
1979	MOBILE LADDER WITH 8' RAMP		H3208	\$6,820
N/A	PNEUMATIC PROPULSION SYSTEM CMVSS 203			\$10,760
N/A	WHEEL TORQUEMETER			\$25,000
1991	HYDRA DATA ACQUISITION SYSTEM	FLUKE	2635A	\$6,286
1990	HYDRA DATA ACQUISITION SYSTEM	FLUKE	2635A	\$5,875
1994	CRABI INSTRUMENTATION (6 LOAD CELLS)	DENTON	2789 ETC	\$37,180
1979	LOAD CELL	DENTON	1716A	\$10,140
1978	LOAD CELL	DENTON	1716A	\$10,140
1978	LOAD CELL	DENTON	1716A	\$10,140
1978	LOAD CELL	DENTON	1716A	\$10,140
1987	LOAD CELL	DENTON	2430	\$11,440
1996	HYBRID DUMMY 5% FEMALE	FIRST TECHNOLOGY	880105-000	\$92,434

DATE	DESCRIPTION	FABRICANT / MANUFACTURER	MODÈLE / MODEL	VALEUR / COST
1997	DUMMY SID II'S	FIRST TECHNOLOGY	180-0000	\$106,013
1997	DUMMY SID II'S	FIRST TECHNOLOGY	180-0000	\$109,673
1988	HYDRA DATA ACQUISITION SYSTEM	FLUKE	2635A	\$5,030
1980	HYDRA DATA ACQUISITION SYSTEM	FLUKE	2635A	\$5,030
1984	ELECTRONIC FILING CABINET	LEKTRIEVER	2075500-001-110	\$10,681
1994	PERSONNAL COMPUTER MACINTOSH	APPLE	QUADRA 800	\$5,033
1980	WORK BENCH			\$6,000
1996	BATTERY K36854	KAYSER-THREDE	K36854	\$9,700
1996	BATTERY K36854	KAYSER-THREDE	K36854	\$9,700
1996	POWER SUPPLY	KAYSER-THREDE	K3680.A-2	\$8,300
1996	POWER SUPPLY	KAYSER-THREDE	K3680.A-2	\$8,300
2005	HYBRID III DUMMY 5% FEMALE	DENTON	H-III5F	\$120,156
2006	HIGH SPEED CAMERA VISARIO 1S	WEINBERGER	VISARIO 1S	\$27,144
2006	HIGH SPEED CAMERA VISARIO 1S	WEINBERGER	VISARIO 1S	\$27,144
2006	WORLDSID DUMMY 5% FEMALE	FIRST TECHNOLOGY	WORLDSID 5% F	\$355,175
2006	WORLDSID DUMMY 5% FEMALE	FIRST TECHNOLOGY	WORLDSID 5% F	\$685,384
2006	CLAVICLE LINK LOAD CELL	DENTON	6805J	\$15,721
2006	MODULE TDAS G5 DAS	DTS	TDAS G5 DAS	\$48,065
2006	RPM-8000-PRO + RPM-LASER-CAL	KMT	RPM-8000-PRO	\$7,580
2006	CORREVIT	CORRSYS-DATRON	H-CE	\$14,744
2006	CORREVIT	CORRSYS-DATRON	H-CE	\$14,744

DATE	DESCRIPTION	FABRICANT / MANUFACTURER	MODÈLE / MODEL	VALEUR / COST
2006	RIB-EYE MULTIPOINT DEFLECTION MEASUREMENT SYSTEM	DENTON	RIB-EYE	\$28,250
2006	CLAVICLE LINK LOAD CELL	DENTON	6810 & 6915	\$11,256
2007	50 ACCELEROMETERS 62-2000-10-360-XY	MEASUREMENT SPECIALTIES	62	\$19,768
2007	PRINTER XEROX PHASER	XEROX	PHASER 7760	\$7,340
2007	FARO PLATINUM ARM	FARO TECHNOLOGIES	PLATINUM	\$50,776
2004	DESKTOP COMPUTER	DELL	DIMENSION 8400	\$5,400
2007	FLOOR SCRUBBER	TENNANT	T5	\$11,633
2008	LAPTOP COMPUTER	DELL	XPS M1330	\$3,001
2008	SHREDDING MACHINE	FELLOWES	POWERSHRED 4800CC	\$1,599
2007	CRABI DUMMY 12 MONTHS OLD	FIRST TECHNOLOGY	CRABI	\$14,195
2007	CRABI DUMMY 12 MONTHS OLD	FIRST TECHNOLOGY	CRABI	\$14,195
2008	LAPTOP COMPUTER	LENOVO	THINKPAD T61P	\$3,328
2008	LAPTOP COMPUTER	DELL	XPS M1730	\$3,356
2007	FARO ARM	FARO TECHNOLOGIES	PLATINUM	\$201,718
2004	OUTRIGGERS-STABILIZERS	SAE	S/O	\$11,955
2004	OUTRIGGERS-STABILIZERS	SAE	S/O	\$11,955
2008	HIGH SPEED CAMERA	VISION RESEARCH	PHANTOM MIRO3	\$28,556
2008	HIGH SPEED CAMERA	VISION RESEARCH	PHANTOM MIRO3	\$28,556
2008	HIGH SPEED CAMERA	VISION RESEARCH	PHANTOM MIRO3	\$28,556
2008	HIGH SPEED CAMERA	VISION RESEARCH	PHANTOM MIRO3	\$28,556
2008	HIGH SPEED CAMERA	VISION RESEARCH	PHANTOM MIRO3	\$28,556

DATE	DESCRIPTION	FABRICANT / MANUFACTURER	MODÈLE / MODEL	VALEUR / COST
2008	HIGH SPEED CAMERA	VISION RESEARCH	PHANTOM MIRO3	\$28,556
2008	SERVER SQL	DELL	XEON E5405	\$23,910
2008	DATA ACQUISITION SYSTEM 24 BITS	LDS	DIMENSION 4I	\$29,300
2008	DATA ACQUISITION SYSTEM 24 BITS	LDS	DIMENSION 4I	\$29,300
2008	GPS GUIDANCE AND NAVIGATION SYSTEM	OXFORD TECHNICAL SOLUTIONS	RT	\$97,165
2008	GPS GUIDANCE AND NAVIGATION SYSTEM	OXFORD TECHNICAL SOLUTIONS	RT	\$97,165
2008	CORREVIT	CORRSYS-DATRON	L-350	\$17,073
2008	CORREVIT	CORRSYS-DATRON	L-350	\$17,073
2008	HIGH SPEED CAMERA	NAC	MEMRECAMGX1	\$70,902
2008	HIGH SPEED CAMERA	NAC	MEMRECAMGX1	\$70,902
2008	HIGH SPEED CAMERA	NAC	MEMRECAMGX1	\$70,902
2008	HIGH SPEED CAMERA	NAC	MEMRECAMGX1	\$70,902
2008	DUMMY 5% WITH KAYSER SYSTEM	KAYSER-THREDE	HIII 5%F	\$386,773
2008	DATA ACQUISITION SYSTEM	ASTRO-MED	DASH 18X	\$26,318
2008	DATA ACQUISITION SYSTEM	ASTRO-MED	DASH 18X	\$26,318
2008	DATA ACQUISITION SYSTEM	ASTRO-MED	DASH 18X	\$26,318
2008	DATA ACQUISITION SYSTEM THERMOCOUPLES	FLUKE	FE2686A	\$16,139
2008	65 INCH TELEVISION	SHARP	CL-65SE94U	\$8,550
2008	65 INCHTELEVISION	SHARP	CL-65SE94U	\$8,550
2008	52 INCH TELEVISION	SHARP	LC-52D1048SL	\$2,728
2008	DIADEM #2	NATIONAL INSTRUMENTS	0	\$4,475

DATE	DESCRIPTION	FABRICANT / MANUFACTURER	MODÈLE / MODEL	VALEUR / COST
2008	DIADEM #1	NATIONAL INSTRUMENTS	0	\$4,475
2008	NI DEVELOPER SUITE #2	NATIONAL INSTRUMENTS	0	\$3,100
2008	NI DEVELOPER SUITE #2	NATIONAL INSTRUMENTS	0	\$3,100
2009	PEDAL FORCE TRANSDUCER	RS TECHNOLOGIES	42430-00501	\$1,658
2009	TEST SYSTEM CMVSS 206	PMG		\$106,003
2009	RIB-EYE MULTIPOINT DEFLECTION MEASUREMENT SYSTEM	DENTON	8700	\$135,111
2009	INSTRUMENTATION MEASUREMENT ARM & DATA	ACCUREX MEASUREMENTS	DUPOS	\$177,291
2009	DUMMY SID IIS & RIB EYE	DENTON	VERSION D	\$269,769
2009	DUMMY Q6S	FIRST TECHNOLOGY	Q6S	\$104,158
2010	FLOOR SCRUBBER	TENNANT	T7	\$20,024
2010	ELEVATING PLATFORM	GENIE	GS3232	\$22,721
2010	MILLING MACHINE MAXIMART	MAXIMART	MX-B51V	\$49,513
2009	ACQUISITION MODULE NXT32	KAYSER-THREDE	NXT32	\$67,326
2011	TEST SYSTEM NSVAC 135	PMG		\$72,545
2011	GPS GUIDANCE AND NAVIGATION SYSTEM	OXFORD TECHNICAL SOLUTIONS	RT4002	\$73,029
2011	STABILISATEURS / OUTRIGGERS-STABILIZERS	EMC	NHTSA-10000-A	\$40,134
2011	CRASH LINK HUB WITH RIB EYE	KAYSER-THREDE	K3779	\$22,920
2011	BATTERIE / ONBOARD BATTERY K3785	KAYSER-THREDE	K3785	\$16,179
2010	PROGRAMMABLE STEERING WHEEL CONTROLLER	SEA LTD	ASCII	\$119,804
2011	VTS INSTRUMENTATION	MTS		\$344,971
2011	CONCRETE SAW	STIHL	TS420	\$1,184

DATE	DESCRIPTION	FABRICANT / MANUFACTURER	MODÈLE / MODEL	VALEUR / COST
2012	LABELING SYSTEM GLOBAL MARK	BRADY	GLOBAL MARK 2	\$4,547
2010	TESTER MEGGER	MEGGER	TDR1000-2	\$1,587
2012	VBOX SYSTEM 3I INERTIAL GUIDANCE	VBOX USA	VBOX 3I	\$27,707
2012	VBOX SYSTEM 3I INERTIAL GUIDANCE	VBOX USA	VBOX 3I	\$27,707
2012	GPS GUIDANCE AND NAVIGATION SYSTEM	OXFORD TECHNICAL SOLUTIONS	RT4002	\$73,423
2012	COMPUTER PE R710	PE	INTEL XEON X5650	\$7,202
2012	COMPUTER DELL EQUAL LOGIC	DELL	PS4100X	\$23,757
2012	CAMERA NRXS3 MOTION EXTRA	HOSKIN	NRXS3	\$45,200
2012	CAMERA NRXS3 MOTION EXTRA	HOSKIN	NRXS3	\$45,200
2012	CAMERA NRXS3 MOTION EXTRA	HOSKIN	NRXS3	\$45,200
2012	CAMERA NRXS3 MOTION EXTRA	HOSKIN	NRXS3	\$45,200
2012	CAMERA NRXS3 MOTION EXTRA	HOSKIN	NRXS3	\$45,200
2012	CAMERA NRXS3 MOTION EXTRA	HOSKIN	NRXS3	\$45,200
2012	CAMERA NRXS3 MOTION EXTRA	HOSKIN	NRXS3	\$45,200
2012	CAMERA NRXS3 MOTION EXTRA	HOSKIN	NRXS3	\$45,200
2012	CAMERA NRXS3 MOTION EXTRA	HOSKIN	NRXS3	\$45,200
2012	CAMERA NRXS3 MOTION EXTRA	HOSKIN	NRXS3	\$45,200
2012	CAMERA NRXS3 MOTION EXTRA	HOSKIN	NRXS3	\$45,200
2012	CAMERA NRXS3 MOTION EXTRA	HOSKIN	NRXS3	\$45,200
2012	LOAD CELL AXIS FEMUR	KAYSER-THREDE	M501A1ABM	\$2,132
2012	LOAD CELL AXIS FEMUR	KAYSER-THREDE	M501A1ABM	\$2,132
2012	LOAD CELL	KAYSER-THREDE	1716NXT	\$23,125
2012	LOAD CELL LOWER NECK	KAYSER-THREDE	2430NXT	\$12,749

DATE	DESCRIPTION	FABRICANT / MANUFACTURER	MODÈLE / MODEL	VALEUR / COST
2012	LOAD CELL LUMBAR	KAYSER-THREDE	2431NXT	\$12,177
2012	UNIVERSAL II HOUSING MICRODAU	KAYSER-THREDE	7000NXT	\$3,840
2012	UNIVERSAL II HOUSING MICRODAU	KAYSER-THREDE	7000NXT	\$3,840
2012	UNIVERSAL II HOUSING MICRODAU	KAYSER-THREDE	7000NXT	\$3,840
2012	UNIVERSAL II HOUSING MICRODAU	KAYSER-THREDE	7000NXT	\$3,840
2012	UNIVERSAL II HOUSING MICRODAU	KAYSER-THREDE	7000NXT	\$3,840
2012	UNIVERSAL II HOUSING MICRODAU	KAYSER-THREDE	7000NXT	\$3,840
2012	UNIVERSAL II HOUSING MICRODAU	KAYSER-THREDE	7000NXT	\$3,840
2012	UNIVERSAL II HOUSING MICRODAU	KAYSER-THREDE	7000NXT	\$3,840
2012	UNIVERSAL II HOUSING MICRODAU	KAYSER-THREDE	7000NXT	\$3,840
2012	HUB	KAYSER-THREDE	K3820-7-A.1	\$3,236
2012	MICRODAU HOUSING	KISTLER (KAYSER)	KTC-1F000013	\$82,167
2012	DUMMY Q3	HUMANETICS (FTSS)	H3-6C ATD	\$47,875
2013	LOAD CELL 6X, UPPER & LOWER NECK Q'S	HUMANETICS	IF-217	\$15,267
2013	LOAD CELL 6X, UPPER & LOWER NECK Q'S	HUMANETICS	IF-217	\$15,267
2013	LOAD CELL 6X, UPPER & LOWER NECK Q'S	HUMANETICS	IF-217	\$15,267
2013	LOAD CELL 6X, UPPER & LOWER NECK Q'S	HUMANETICS	IF-217	\$15,267
2013	NXT MODULE	KISTLER	NXT32 K3870	\$131,977
2013	DUMMY Q1.5	HUMANETICS	Q1.5	\$163,737
2013	DUMMY Q3	HUMANETICS	Q3	\$58,920
2013	DUMMY Q3	HUMANETICS	Q3	\$127,663
2014	MOBILE WORKSHOP	PMG TECHNOLOGIES		\$24,550

DATE	DESCRIPTION	FABRICANT / MANUFACTURER	MODÈLE / MODEL	VALEUR / COST
2014	4TH AXIS ROTARY TABLE SYSTEM	TJR	AR-125R-TJSJ	\$11,489
2014	TURRET MILLING MACHINE	MANFORD	CV-520	\$45,800
2014	DATA ACQUISITION SYSTEM DEWETRON	DEWETRON	DEWE2-A4	\$80,248
2014	EURO NCAP VEHICLE TARGET VI	MESSRING	ADAC	\$111,308
2014	STRIKABLE SURROGATE VEHICLE	WOLF COMPOSITE SOLUTIONS	SSV	\$36,093
2014	DATA ACQUISITION SYSTEM DEWETRON	DEWETRON	DEWE2-A4	\$76,675
2014	DATA ACQUISITION SYSTEM DEWETRON	DEWETRON	DEWE2-A4	\$75,469
2014	DIGITAL POWER ANALYZER	YOKOGAWA	WT1800	\$23,607
1997	LOAD CELL	DENTON	3167A	\$5,252
1997	LOAD CELL	DENTON	3229	\$13,202
1997	LOAD CELL	DENTON	3167A	\$5,252
1997	LOAD CELL	DENTON	1716A	\$11,701
1997	LOAD CELL	DENTON	3166	\$13,202
1997	LOAD CELL	DENTON	3229	\$13,202
1997	LOAD CELL	DENTON	2152A	\$10,200
1997	LOAD CELL	DENTON	1716A	\$11,700
1997	BALL BEARING KNEE SLIDERS	APPLIED SAFETY TECHNOLOGIES	EX-593	\$9,906
1997	BALL BEARING KNEE SLIDERS	APPLIED SAFETY TECHNOLOGIES	EX-593	\$9,906
1997	LOAD CELL	DENTON	3287	\$5,089
1997	LOAD CELL	DENTON	3115	\$5,089
1997	LOAD CELL	DENTON	3287	\$5,089

DATE	DESCRIPTION	FABRICANT / MANUFACTURER	MODÈLE / MODEL	VALEUR / COST
1997	LOAD CELL	DENTON	3115	\$5,089
1997	LOAD CELL KNEE	DENTON	1587	\$11,618
1997	LOAD CELL KNEE	DENTON	1587	\$11,618
1997	LOAD CELL	DENTON	1716A	\$11,701
1997	LOAD CELL	DENTON	3166	\$13,202
1998	LOAD CELL	DENTON	2150	\$10,521
1998	LUMBER SPINE LOAD CELL	DENTON	2431	\$13,429
1999	DUMMY HYBRID III 3 YEARS OLD	FIRST TECHNOLOGY	210-0000	\$42,178
1999	INSTRUMENTED ARM FOR HIII & SID IIS	ENDEVCO	J3525	\$34,844
1999	LOAD CELL	DENTON	3115	\$5,714
1999	LOAD CELL	DENTON	3115	\$5,714
1999	LOAD CELL	DENTON	3287	\$5,714
1999	LOAD CELL	DENTON	3287	\$5,714
1999	LOAD CELL	DENTON	3287	\$5,807
1999	LOAD CELL	DENTON	3287	\$5,807
1999	LOAD CELL NECK	DENTON	3715 Q SERIES	\$11,202
1999	LOAD CELL NECK	DENTON	3715 Q SERIES	\$11,202
1999	LOAD CELL NECK	DENTON	3715 Q SERIES	\$11,202
1999	LOAD CELL	DENTON	3115	\$5,807
1999	LOAD CELL	DENTON	3115	\$5,807
1999	DUMMY 3 YEARS OLD Q3	TNO	Q 3	\$49,404

DATE	DESCRIPTION	FABRICANT / MANUFACTURER	MODÈLE / MODEL	VALEUR / COST
1999	MINIDAU 32 CHANNELS	KAYSER-THREDE	K3700-32-16	\$121,904
1999	LOAD CELL NECK	DENTON	1794A	\$13,317
1998	DUMMY HYBRID III 3 YEARS OLD	FIRST TECHNOLOGY	210-0000	\$48,825
2000	COMPUTER	DELL	PIII 600 Mhz	\$5,116
2000	LAPTOP COMPUTER	DELL	7500	\$6,574
2000	VIDEO ACQUISITION CARD (PCI)	PINNACLE SYSTEMS	DVD 1000	\$13,945
2000	DAT LOGGER	FLUKE	2625	\$6,532
2001	COMPUTER	DELL	PRECISION 420	\$5,528
2001	COMPLETE DIGITAL CAMERA	ROPER SCIENTIFIC	2000 COLOR	\$137,529
2001	MINIDAU 32 CHANNELS	KAYSER-THREDE	K3700-32-16	\$135,482
2001	TRACC MEASURING DEVICE THORAX IR	FIRST TECHNOLOGY	IF - 2000 - PROT	\$81,163
2001	POWERSHIELD	DELL	210S BASE	\$9,199
2001	TAPE BACKUP POWERSHIELD	DELL	PV120 T	\$7,187
2001	LOAD CELL UPPER NECK	DENTON	4085J	\$11,348
2001	SHOULDER LOAD CELL FOR EUROSID	DENTON	3155 3 CHANNEL	\$5,914
2001	LUMBAR SPINE LOAD CELL FOR EUROSID	DENTON	3290	\$7,165
2001	LOAD CELL Q SERIES LOWER NECK / LUMBAR	DENTON	3715	\$11,700
2001	LOAD CELL Q SERIES LOWER NECK / LUMBAR	DENTON	3715	\$11,700
2001	LOAD CELL Q SERIES LOWER NECK / LUMBAR	DENTON	3715	\$11,700
2002	LOAD CELL UPPER NECK	DENTON	1716 A	\$12,455
2002	LOAD CELL 5 CHANNEL - THORACIC SPINE	DENTON	1911A	\$12,455

DATE	DESCRIPTION	FABRICANT / MANUFACTURER	MODÈLE / MODEL	VALEUR / COST
2002	LOAD CELL UPPER NECK	DENTON	1716-A	\$11,506
2002	LOAD CELL 6X, UPPER & LOWER NECK HIII 3 YEARS OLD 6 CHANNELS	DENTON	3303	\$10,621
2002	LOAD CELL 6X, UPPER & LOWER NECK HIII 3 YEARS OLD 6 CHANNELS	DENTON	3303	\$10,621
2002	LUMBAR SPINE LOAD CELL POUR HIII 3 YEARS OLD 6 CHANNEL	DENTON	2944	\$10,793
2002	ANTERIOR SUPERIOR ILIAC SPINE FOR HIII 3 YEARS OLD	DENTON	3079	\$7,196
2001	DUMMY EUROSID II	FIRST TECHNOLOGY	EUROSID II	\$78,684
2002	UPPER TIBIA LOAD CELL FOR THOR 5-CHANNEL	DENTON	4509J	\$6,873
2002	UPPER TIBIA LOAD CELL FOR THOR 5-CHANNEL	DENTON	4509J	\$6,873
2002	FEMUR LOAD CELL 6-CHANNEL	DENTON	1914	\$13,422
2002	FEMUR LOAD CELL 6-CHANNEL	DENTON	1914	\$13,422
2002	3-CHANNEL ACETABULUM (left position) LOAD CELL	DENTON	3855J	\$6,531
2002	3-CHANNEL ACETABULUM (left position) LOAD CELL	DENTON	3455J	\$6,531
2002	LOWER NECK LOAD CELL POUR THOR 6-CHANNEL	DENTON	4366J	\$13,161
2002	LOWER TIBIA LOAD CELL FOR THOR 5-CHANNEL	DENTON	4929J	\$6,960
2002	LOWER TIBIA LOAD CELL FOR THOR 5-CHANNEL	DENTON	4929J	\$6,960
2002	JUNCTION BOX HG	KODAK	0	\$9,600
2002	BALL SLIDER LEFT/RIGHT KNEE ASSEMBLY ADVANCED DUMMY (THOR)	DENTON	EX-593	\$8,487
2002	MINIDAU 32 CHANNELS	KAYSER-THREDE	K3700-32-16	\$101,925
2002	MINIDAU 32 CHANNELS	KAYSER-THREDE	K3700-32-16	\$101,925
2002	ONBOARD BATTERY K3785	KAYSER-THREDE	K3785	\$15,425
2002	MINIDAU 32 CHANNELS	KAYSER-THREDE	K3700-32-16	\$101,925

DATE	DESCRIPTION	FABRICANT / MANUFACTURER	MODÈLE / MODEL	VALEUR / COST
2002	MINIDAU 32 CANAUX / MINIDAU 32 CHANNELS	KAYSER-THREDE	K3700-32-16	\$101,925
2002	REMORQUE DE SIMULATION POUR VÉHICULE / VEHICLE SIMULATION TRAILER	ROUSH INDUSTRIES INC.	MONTE CARLO	\$46,850
2002	MANNEQUIN / DUMMY Q6	FIRST TECHNOLOGY	Q6	\$53,312
2002	SYSTÈME D'ÉTALONNAGE DE MANNEQUINS - FLEXION DU THORAX / DUMMY CALIBRATION SYSTEM - THORAX FLEXION	DENTON	TMA-001	\$29,146
2002	SYSTÈME D'ÉTALONNAGE DE MANNEQUINS - HANCHE / DUMMY CALIBRATION SYSTEM - HIP	DENTON	V00039	\$39,893
2002	MINIDAU 96 CANAUX / MINIDAU 96 CHANNELS	KAYSER-THREDE	K3700-96-16	\$327,712
2002	BATTERIE / ONBOARD BATTERY K3785	KAYSER-THREDE	K3785	\$20,467
2002	SERVEUR / SERVER	DELL	POWEREDGE 4600	\$12,278
2002	SYSTÈME D'ESSAI NSVAC 122 / TEST SYSTEM CMVSS 122	PMG		\$219,275
2003	MEMBRE INFÉRIEUR POUR THOR / THOR FLX/HIIIR LOWER LEG ASSY PAIE	DENTON	495-000	\$34,500
2003	MEMBRE INFÉRIEUR POUR THOR / THOR FLX/HIIIR LOWER LEG ASSY PAIE	DENTON	495-000	\$34,500
2003	CELLULE DE CHARGE POUR TIBIA POUR THOR / LOAD CELL LOWER TIBIA FOR THOR	DENTON	4826J	\$9,600
2003	CELLULE DE CHARGE COU SUPÉRIEUR / LOAD CELL UPPER NECK	DENTON	1716A	\$11,901
2003	CELLULE DE CHARGE - COLONNE LOMBAIRE / LUMBER SPINE LOAD CELL	DENTON	2431	\$13,427
2003	CELLULE DE CHARGE COU INFÉRIEUR / NECK LOAD CELL LOWER	DENTON	5124J	\$12,206
2003	MANNEQUIN 10 ANS / DUMMY 10 YEARS OLD IR- TRACC HYBRID III	FIRST TECHNOLOGY	IR-TRACC HIII	\$47,944
2003	CELLULE DE CHARGE TIBIA INFÉRIEUR POUR THOR / LOAD CELL LOWER TIBIA FOR THOR	DENTON	4826J	\$9,600
2003	CELLULE DE CHARGE TIBIA INFÉRIEUR POUR THOR / LOAD CELL LOWER TIBIA FOR THOR	DENTON	4826J	\$9,600
2003	CELLULE DE CHARGE TIBIA INFÉRIEUR POUR THOR / LOAD CELL LOWER TIBIA FOR THOR	DENTON	4826J	\$9,600
2003	CELLULE DE CHARGE TIBIA INFÉRIEUR POUR THOR / LOAD CELL LOWER TIBIA FOR THOR	DENTON	4825J	\$7,772
2003	CELLULE DE CHARGE TIBIA INFÉRIEUR POUR THOR / LOAD CELL LOWER TIBIA FOR THOR	DENTON	4825J	\$7,772

DATE	DESCRIPTION	FABRICANT / MANUFACTURER	MODÈLE / MODEL	VALEUR / COST
2003	LOAD CELL LOWER TIBIA FOR THOR	DENTON	4825J	\$7,772
2003	LOAD CELL LOWER TIBIA FOR THOR	DENTON	4825J	\$7,772
2003	MINIDAU 96 CHANNELS	KAYSER-THREDE	K3700-96-16	\$282,141
2002	AIR BAG TIMER BOX	KAYSER-THREDE	K3789R	\$36,863
2003	THORAX THMPHR HYBRID III, IR-TRACC	FIRST TECHNOLOGY	78051-1000	\$30,709
2003	THORAX THMPHR HYBRID III, IR-TRACC	FIRST TECHNOLOGY	78051-1000	\$30,709
2003	MANNEQUIN / DUMMY WORLDSID	FIRST TECHNOLOGY	WORLDSID	\$586,167
2003	MANNEQUIN / DUMMY USSID (DOTSID)	DENTON	SA-SID-M001	\$31,200
2003	MANNEQUIN / DUMMY WORLDSID	DENTON	WORLDSID	\$819,080
2003	MANNEQUIN / DUMMY HYBRID III 50%	DENTON	HYBRID III 50%	\$36,168
2003	MANNEQUIN / DUMMY HYBRID III 50%	DENTON	HYBRID III 50%	\$36,168
2003	HEADFORM FOR CALIBRATION WORLDSID	FIRST TECHNOLOGY	W50-83000	\$8,806
2003	LOAD PLATFORM FOR 207-210-222 (BUS SEAT PROGRAM)	TOUCAN		\$45,500
2003	SONOMETER (WITH MIC)	LARSON DAVIS	824 (& 2541)	\$12,427
2004	LOAD CELL 6 AXIS LUMBAR SPINE	FIRST TECHNOLOGY	IF-439	\$10,915
2004	LOAD CELL 4 AXIS BACK PLATE	FIRST TECHNOLOGY	IF-441	\$6,568
2004	DUMMY HYBRID III 95%	FIRST TECHNOLOGY	880995-000-XD	\$35,170
2004	DUMMY HYBRID III 6 YEARS OLD	DENTON	127-0000	\$85,949
2004	COMPUTER DIMENSION + SCREEN DELL 8300	DELL	8300 DIMENSION	\$6,563
2004	SPEEDCAM VISARIO + LENS	WEINBERGER	C-1	\$64,535
2004	CAMERA HAUTE VITESSE VISARIO / SPEEDCAM VISARIO	WEINBERGER	C-1	\$58,885

DATE	DESCRIPTION	FABRICANT / MANUFACTURER	MODÈLE / MODEL	VALEUR / COST
2004	HUB VISARIO AND ACCESSORIES	WEINBERGER	VISARIO	\$16,949
2004	CORREVIT	CORRSYS-DATRON	HS-CE	\$24,998
2004	DUMMY Q3S	FIRST TECHNOLOGY	Q3S-SBL-B	\$101,265
2004	RIB EXTENSION KIT FOR EUROSID	FIRST TECHNOLOGY	E2A.DCJ	\$30,491
2004	SPEEDCAM VISARIO	WEINBERGER	C-1	\$58,885
2004	SPEEDCAM VISARIO	WEINBERGER	C-1	\$58,885
2004	LINKBOX VISARIO	WEINBERGER	N/A	\$10,626
2004	LINKBOX VISARIO	WEINBERGER	N/A	\$10,626
2004	HUB VISARIO AND ACCESSORIES	WEINBERGER	VISARIO	\$11,550
2004	DUMMY HYBRID III 10 YEARS OLD	FIRST TECHNOLOGY	H3-10	\$54,784
2004	TDAS5-VDS ON-VEHICLE DOCKING STATION	DTS	TDAS5-VDS	\$20,130
2004	TDAS-WET-11B WIRELESS ETHERNET COMMUNICATIONS LINK	DTS	TDAS-WET-11B	\$6,336
2004	TDAS-PRO STATUS DISTRIBUTION BOX	DTS	TDAS5-SDB	\$14,513
2005	SPECTRA CALIBRATION SYSTEM	SPEKTRA	CS18HF- 2911(SRS-35)	\$148,934
2005	SERVER DELL EMC AX100	DELL	EMC AX100	\$25,720
2005	UPPER NECK NXT 9 CANAUX	KAYSER-THREDE	NXT	\$23,180
2005	K3779 CRASH LINK HUB	KAYSER-THREDE	K3779	\$15,250
2005	PROGRAMMABLE STEERING WHEEL CONTROLLER	SEA LTD	ASCII	\$157,944
2005	LOAD CELL FOR SPINE 5%F	DENTON	2152A	\$16,226
2005	TIRE MACHINE & ACCESSORIES	CORGHI	ARTIGLIO	\$19,732
2005	ELECTRONIC WHEEL BALANCE	CORGHI	EM8540	\$8,670

DATE	DESCRIPTION	FABRICANT / MANUFACTURER	MODÈLE / MODEL	VALEUR / COST
N/A	UMBILICAL CORD REEL			\$12,500
1986	FIVE AXES STEERING COLUMN LOAD CELL	DENTON	1968	\$9,357
N/A	UMBILICAL CORD REEL			\$13,400
1979	TEST SYSTEM CMVSS 216	PMG		\$89,557
1996	FEMALE DUMMY HYBRID III 5%	FIRST TECHNOLOGY	880105-000	\$227,942
1994	DUMMY HYBRID III 3 D H-POINT	SAE	J828	\$44,786
1994	PRECISION BALANCE	SARTORIUS	LC1200S	\$6,313
1983	AUTOROBOT	AUTOROBOT	695-IIAS	\$10,000
N/A	CONCENTRATOR NETWORK BELL		CEVA	\$7,985
1984	LAPTOP COMPUTER	NEC	486 DX2 50MHZ	\$13,578
1998	HYDRAULIC POWER UNIT	BRIGGS & STRATTON	5HP	\$5,698
2000	CAMCOMPLETE DIGITAL CAMERA	ROPER SCIENTIFIC	2000 COLOR	\$123,161
2001	OIL MANAGEMENT SYSTEM	PETRO VEND	K800	\$13,661
2001	GAS LEAK DETECTOR	EXCELTEC	0	\$59,702
2002	MICROSTAR SENSOR	CORRSYS-DATRON	S32434	\$14,386
2001	CONTROL SYSTEM - CYCLING	FESTO	404-02-001206	\$6,165
1983	LIFT ACCESSORY	ROTARY	4648807042	\$11,047
1978	RIDE METER SYSTEM	ENDEVCO	RM-1	\$7,915
1978	DATA ACQUISITION SYSTEM CARD CORDER	SOMAT	CILL-500	\$14,735
1995	COLOUR MONITOR	PANASONIC	PC28NE	\$9,380
1995	DRIVER'S AID	HORIBA	SADA	\$13,845

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1993	OSCILLOSCOPE	NICOLET	420	\$22,340
1979	WHEEL PULSE TRANSDUCER (1000 PULSES)	BALLUFF	BDG6360-2-10-30-V-184-1000-65	\$6,300
1978	PROGRAMMABLE LOGIC CONTROLLER	ALLEN BRADLEY	SLC500	\$9,785
1977	MILLING MACHINE	JAROCINSKA	FWD32JUAA	\$15,000
1988	PRESS DRILL -125588	DO ALL	DG24 PM-200442	\$6,038
1978	VERTICAL BANDSAW	WELLSAW	W20	\$6,622
N/A	MECANICAL RESCUE TOOL	EDWARDS	3.85/1250DD	\$13,508
1979	DYNAMOMETER	CLAYTON	CTE-50	\$55,000
1992	TEST SYSTEM CMVSS 215	PMG		\$82,786
1990	WEIGHT SCALE 4 PLATFORMS	TOLEDO	8146-00-21-000	\$25,742
1988	TEST SYSTEM CMVSS 214	CEVA	CEVA	\$10,000
1990	TEST SYSTEM CMVSS 222 STATIC	PMG		\$44,737
1981	LIFT ACCESSORY	ROTARY	4648807042	\$11,047
1989	DYNAMOMETER	CLAYTON	CTE50/DCK80	\$125,000
1983	WEIGHT SCALE (CAP 200 LBS)	FAIRBANKS	H90-7601	\$6,000
1983	DYNAMOMETER	CLAYTON	HCT 250/250	\$65,000
N/A	FILTRE BRICKWALL	WAVETEK	753A	\$6,904
2010	ACCELEROMETER CALIBRATOR	ENDEVCO	28959F	\$13,725
1983	DUMMY EUROSID 1	TNO	TNO-E.A1	\$112,772
1988	DUMMY HYBRID III 3 YEARS OLD	FIRST TECHNOLOGY	SA103C002	\$15,335
1990	DUMMY BIO-SID	FIRST TECHNOLOGY	SA-SIDM001	\$31,757

DATE	DESCRIPTION	FABRICANT / MANUFACTURER	MODÈLE / MODEL	VALEUR / COST
1978	DUMMY BIO-SID	FIRST TECHNOLOGY	890-520-000	\$43,095
1978	DUMMY BIO-SID	FIRST TECHNOLOGY	890-520-000	\$43,095
1984	FEMALE DUMMY HYBRID III 5%	FIRST TECHNOLOGY	880105-300	\$113,521
1988	MALE DUMMY HYBRID II 50%	HUMANOÏD	PART 572	\$10,646
1978	MALE DUMMY HYBRID II 50%	HUMANOÏD	PART 572	\$10,646
1992	MALE DUMMY HYBRID II 50%	HUMANOÏD	PART 572	\$10,646
1995	CRABI DUMMY 18 MONTHS OLD	FIRST TECHNOLOGY	930910-000	\$11,200
1987	DUMMY HYBRID III 6 YEARS OLD	FIRST TECHNOLOGY	127-0000	\$54,084
2020	SNOW SCRAPER (FOR FENDT 718S4 TRACTOR)	S HOULE	SNOW BLASTER CATÉGORIE L	\$10,895
2016	SNOW BLOWER (FOR FENDT 718S4)	PRONOVOST	P-982TRC	\$20,820
2015	SNOW SCRAPER (FOR FENDT 718)	HOULE	8-13-36 CATÉGORIE L	\$10,190
2014	SNOW BLOWER FOR FENDT 718	AGRIMETAL	MTC-P 50100	\$16,000
2002	VEHICLE BODY (FOR NISSAN FRONTIER)	SPACEKAP	6 PIEDS	\$7,445
2014	VBOX	RACELOGIC		\$36,972
2015	DATA ACQUISITION SYSTEM	DEWETRON		\$32,475
2015	LOAD CELL FOR SACROILIAC FOR DUMMY 12X	HUMANETICS		\$34,640
2015	K3890A W50 64	KISTLER		\$32,698
2015	ACCELERATOR/BREAKING ROBOT	AB DYNAMICS		\$292,124
2015	DUMMY THOR	HUMANETICS		\$531,882
2015	SHREDDER	SHRED-TECH CORPORATION		\$62,002
2015	BATIFERME	D'ACIER UNGAVA USC LTÉE	BF30X48X16	\$17,000

DATE	DESCRIPTION	FABRICANT / MANUFACTURER	MODÈLE / MODEL	VALEUR / COST
2015	DUMMY THOR	HUMANETICS	THOR MALE	\$614,727
2015	RT-INERTIA NAVIGATOR PLATFORM 250HZ	OXFORD TECHNICAL SOLUTIONS	RT 4002	\$82,217
2016	V BOX	RACELOGIC		\$21,677
2016	DRIVER'S AID	CBB ENGINEERING		\$18,564
2016	SOFT PEDESTRIAN TARGET	ANTHONY BEST DYNAMICS		\$172,633
2016	ARTICULATED ADULT 3D DUMMY	ANTHONY BEST DYNAMICS		\$22,796
2016	ARTICULATED CHILD 3D DUMMY	ANTHONY BEST DYNAMICS		\$18,459
2016	RT-INERTIA NAVIGATOR PLATFORM	OXFORD TECHNICAL SOLUTIONS	RT 4003	\$81,706
2016	KIDAU	KISTLER		\$65,004
2016	K3889A KI TIMER	KISTLER		\$38,544
2016	LINEAR TRANSDUCER CALIBRATER	HUMANETICS		\$23,139
2016	RT RANGE S	OXFORD TECHNICAL SOLUTIONS		\$23,200
2016	RT RANGE S	OXFORD TECHNICAL SOLUTIONS		\$23,200
2017	HIGH SPEED CAMERA 16 GB	IDT	Os9-V3-S1-C- VO-16GB-noSSD	\$49,701
2017	HIGH SPEED CAMERA 16 GB	IDT	Os9-V3-S1-C- VO-16GB-noSSD	\$49,701
2017	HIGH SPEED CAMERA 16 GB	IDT	Os9-V3-S1-C- VO-16GB-noSSD	\$49,701
2017	HIGH SPEED CAMERA 16 GB	IDT	Os9-V3-S1-C- VO-16GB-noSSD	\$49,701
2017	HIGH SPEED CAMERA 16 GB	IDT	Os9-V3-S1-C- VO-16GB-noSSD	\$49,701
2017	HIGH SPEED CAMERA 16 GB	IDT	Os9-V3-S1-C- VO-16GB-noSSD	\$49,701
2017	HIGH SPEED CAMERA 16 GB	IDT	Os9-V3-S1-C- VO-16GB-noSSD	\$49,701

DATE	DESCRIPTION	FABRICANT / MANUFACTURER	MODÈLE / MODEL	VALEUR / COST
2017	HIGH SPEED CAMERA 16 GB	IDT	Os9-V3-S1-C-VO-16GB-noSSD	\$49,701
2017	HIGH SPEED CAMERA 16 GB	IDT	Os9-V3-S1-C-VO-16GB-noSSD	\$49,701
2017	HIGH SPEED CAMERA 16 GB	IDT	Os9-V3-S1-C-VO-16GB-noSSD	\$49,701
2017	HARD DISK EQUALOGIC	DELL	PS4210X	\$15,700
2017	CAMERA CC MINI	IDT	CCMini-C	\$40,440
2017	AEB HYBRID TEST SYSTEM	WOLFDEN PRODUCTS		\$113,347
2017	2VB EURO NCAP VEHICLE TARGET	WOLFDEN PRODUCTS		\$20,206
2018	GUIDED SOFT TARGET (GST)	ANTHONY BEST DYNAMICS		\$624,709
2018	SOFT CAR BODY	ANTHONY BEST DYNAMICS		\$56,298
2017	K3881 CIMID32 KIDAU CLASSIC	KISTLER		\$61,202
2017	K3881 CIMID32 KIDAU CLASSIC	KISTLER		\$61,202
2017	K3881 CIMID32 KIDAU CLASSIC	KISTLER		\$61,202
2017	SYSTÈME TC ART 1000	KISTLER		\$360,930
2018	BATTERY K3885 FOR TC AM ART 1000 SYSTEM	KISTLER		\$18,635
2018	K3881 C1MID32 KIDAU CLASSIC	KISTLER		\$45,919
2018	KIHUB E000007281	KISTLER		\$12,644
2018	KIHUB E000007281	KISTLER		\$12,644
2018	K3881 C1MID32 KIDAU CLASSIC	KISTLER		\$53,668
2018	K3881 C1MID32 KIDAU CLASSIC	KISTLER		\$53,668
2018	K3881 C1MID32 KIDAU CLASSIC	KISTLER		\$53,668
2018	K3881 C1MID32 KIDAU CLASSIC	KISTLER		\$53,668

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2018	K3881 C1MID32 KIDAU CLASSIC	KISTLER		\$53,668
2018	K3881 C1MID32 KIDAU CLASSIC	KISTLER		\$53,668
2018	ONBOARD BATTERY K3885	KISTLER		\$16,095
2018	ONBOARD BATTERY K3885	KISTLER		\$16,095
2018	ONBOARD BATTERY K3885	KISTLER		\$16,095
2018	ONBOARD BATTERY K3885	KISTLER		\$16,095
2017	RT-INERTIA NAVIGATOR PLATFORM 250HZ	OXFORD TECHNICAL SOLUTIONS	RT 4002	\$72,811
2017	HIGH SPEED CAMERA	IDT	CC MINI 3510	\$43,400
2017	HIGH SPEED CAMERA	IDT	CC MINI 3510	\$43,400
2017	HIGH SPEED CAMERA	IDT	CC MINI 3510	\$43,400
2017	HIGH SPEED CAMERA	IDT	CC MINI 3510	\$43,400
2017	HIGH SPEED CAMERA	IDT	CC MINI 3510	\$43,400
2017	HIGH SPEED CAMERA	IDT	CC MINI 3510	\$43,400
2017	HIGH SPEED CAMERA	IDT	CC MINI 3510	\$43,400
2017	TC 19-HUB	IDT	TC 19-HUB	\$12,785
2017	TC 19-HUB	IDT	TC 19-HUB	\$12,785
2017	IDRAULIC KNIFE	AEROFEU	Edraulic S700E	\$12,139
2017	EDRAULIC SPREADER	AEROFEU	Edraulic SP333E	\$12,985
2018	LUMBER SPINE LOAD CELL	KISTLER		\$13,916
2018	DTI LUMBER SPINE PITCH CHANGE KIT	HUMANETICS		\$23,650
2018	DTI LUMBER SPINE PITCH CHANGE KIT	HUMANETICS		\$23,650

DATE	DESCRIPTION	FABRICANT / MANUFACTURER	MODÈLE / MODEL	VALEUR / COST
2018	LEG ASSEMBLY LEFT	HUMANETICS		\$15,943
2018	LEG ASSEMBLY LEFT	HUMANETICS		\$15,943
2018	RIGHT ASSEMBLY LEFT	HUMANETICS		\$15,943
2018	RIGHT ASSEMBLY LEFT	HUMANETICS		\$15,943
2018	NECK ASSEMBLY THOR	HUMANETICS	THOR	\$26,968
2018	NECK ASSEMBLY THOR	HUMANETICS		\$26,968
2018	NECK LOAD CELL LOWER	HUMANETICS		\$19,525
2018	NECK LOAD CELL LOWER	HUMANETICS		\$19,525
2018	LOAD CELL UPPER NECK	HUMANETICS		\$19,525
2018	LOAD CELL UPPER NECK	HUMANETICS		\$19,525
2018	WORLDSID RIBEYE UPGRADE	BOXBORO		\$19,596
2019	FARO ARM QUANTUM S	FARO		\$74,145
2019	FARO ARM QUANTUM S	FARO		\$74,534
2019	FOOT IMPACT TEST FIXTURE	HUMANETICS		\$39,889
2019	POWER PULL FOOT IMPACT	HUMANETICS		\$55,804
2019	HEIGHT GAUGE	HUMANETICS		\$17,836
2019	HIP CAL CONTROLLER (FOOT IMPACT)	HUMANETICS		\$18,960
2019	FLOOR SCRUBBER T7 800	TENNANT	T7 800	\$19,035
2019	FLOOR SCRUBBER T7 800	TENNANT	T7 800	\$19,035
2019	K3881 C1M1D32 KIDAU CLASSIC	KISTLER		\$68,349
2019	K3881 C1M1D32 KIDAU CLASSIC	KISTLER		\$68,349

DATE	DESCRIPTION	FABRICANT / MANUFACTURER	MODÈLE / MODEL	VALEUR / COST
2019	K3881 C1M1D32 KIDAU CLASSIC	KISTLER		\$68,349
2020	CELLULE DE CHARGE COLONNE LOMBAIRE H3 5% / LUMBER SPINE LOAD CELL H3 5%	KISTLER		\$13,533
2019	KIHUB E000007281	KISTLER		\$22,738
2019	KIHUB E000007281	KISTLER		\$22,738
2020	LUMBER SPINE LOAD CELL H3 HM	KISTLER		\$12,559
2019	NECK LOADCELL UPPER Q6	HUMANETICS		\$17,029
2019	NECK LOADCELL UPPER Q6	HUMANETICS		\$17,029
2019	LUMBER LOAD CELL Q6	HUMANETICS		\$17,029
2019	PELVIS ASSEMBLY Q6	HUMANETICS		\$10,740
2019	Q6 DUMMY	HUMANETICS	Q6	\$87,190
2020	BLOWER FOR TRACTOR JD 1585 2020	NORMAND	N62-240HFMV	\$7,703
2020	MOWER FOR TRACTOR FOR TRACTOR JD 1585 2020	JOHN DEERE	72S F15 72"	\$6,313
2018	LOAD CELLS FOR NARROW OFFSET BARRIER	MESSRING		\$687,939
2019	HIGH SPEED CAMERA 16 GB OS9	IDT	OS9-V3-S1-C	\$49,819
2019	HIGH SPEED CAMERA 16 GB OS9	IDT	OS9-V3-S1-C	\$49,819
2019	HIGH SPEED CAMERA 16 GB OS9	IDT	OS9-V3-S1-C	\$49,819
2019	HIGH SPEED CAMERA 16 GB OS9	IDT	OS9-V3-S1-C	\$49,819
2019	HIGH SPEED CAMERA 16 GB OS10	IDT	OS10-V3-S1-C	\$59,783
2019	HIGH SPEED CAMERA 16 GB OS10	IDT	OS10-V3-S1-C	\$59,783
2020	CRASH CAM STICK	IDT		\$13,220
2021	DUMMY THOR 5TH	HUMANETICS	5TH	\$884,800

DATE	DESCRIPTION	FABRICANT / MANUFACTURER	MODÈLE / MODEL	VALEUR / COST
2021	ONBOARD BATTERY K3885	KISTLER	K3385A	\$21,227
2021	ONBOARD BATTERY K3885	KISTLER	K3385A	\$21,227
2021	ONBOARD BATTERY K3885	KISTLER	K3385A	\$21,227
2021	KIHUB E000007281	KISTLER		\$22,597
2021	K3389B KI TIMER	KISTLER		\$37,661
2021	HIGH SPEED CAMERA	IDT	CCM 3510	\$35,794
2021	HIGH SPEED CAMERA	IDT	CCM 3510	\$35,794
2021	HIGH SPEED CAMERA 16 GB OS9	IDT	OS9-V3-S1-C	\$52,290
2021	HIGH SPEED CAMERA 16 GB OS9	IDT	OS9-V3-S1-C	\$52,290
2021	TC 19-HUB	IDT	TC 19-HUB	\$11,062
2021	TC 19-HUB	IDT	TC 19-HUB	\$11,062
2019	COMBINED BRAKE AND ACCELERATOR ROBOT (CBAR)	ANTHONY BEST DYNAMICS	CBAR600	\$151,715
2019	COMBINED BRAKE AND ACCELERATOR ROBOT (CBAR)	ANTHONY BEST DYNAMICS	CBAR600	\$154,401
2019	STEERING ROBOT	ANTHONY BEST DYNAMICS	SR60	\$186,735
2018	ADULT PEDESTRIAN TARGET	4ACTIVE SYSTEMS	4ACTIVEPA	\$20,127
2018	CHILD PEDESTRIAN TARGET	4ACTIVE SYSTEMS	4ACTIVEPA	\$16,444
2018	BICYCLE TARGET	4ACTIVE SYSTEMS	4ACTIVEPA	\$22,890
2019	EURO NCAP VEHICLE TARGET (EVT)	MESSRING		\$34,987
2018	RT-INERTIA NAVIGATOR PLATFORM 250HZ	OXFORD TECHNICAL SOLUTIONS	RT 4002	\$60,776
2018	AUDIO-VISUAL ALERT PROCESSOR	DTC SOLUTIONS	AVAD3	\$23,202
2018	EURO NCAP VEHICLE TARGET TOWING SYSTEM	MESSRING		\$67,766

DATE	DESCRIPTION	FABRICANT / MANUFACTURER	MODÈLE / MODEL	VALEUR / COST
2019	SOFT CAR 360 REV F	ANTHONY BEST DYNAMICS		\$56,032
2018	RT RANGE S	OXFORD TECHNICAL SOLUTIONS		\$19,680
2018	RT-INERTIA NAVIGATOR PLATFORM 250HZ	OXFORD TECHNICAL SOLUTIONS	RT 4002	\$60,776
2018	AUDIO-VISUAL ALERT PROCESSOR	DTC SOLUTIONS	AVAD3	\$23,087
2019	COMBINED BRAKE AND ACCELERATOR ROBOT (CBAR)	ANTHONY BEST DYNAMICS	CBAR600	\$164,033
2021	LOADCELL NECK, LUMBAR SPINE HIGH CAP Q10	HUMANETICS		\$12,598
2021	LOADCELL NECK, LUMBAR SPINE HIGH CAP Q10	HUMANETICS		\$12,598
2021	LOADCELL NECK, LUMBAR SPINE HIGH CAP	HUMANETICS		\$12,598
2021	Q10 SIDE IMPACT KIT ASSEMBLY	HUMANETICS		\$13,153
2021	Q10 2020 UPDATE KIT	HUMANETICS		\$14,764
2021	PELVIS ASSEMBLY Q10	HUMANETICS		\$10,204
2021	DUMMY Q10	HUMANETICS	Q10	\$74,924
2021	APTS D50 PRESSURE CELL	TRANSPOLIS		\$9,923
2021	APTS D50 PRESSURE CELL	TRANSPOLIS		\$9,923
2020	GUIDED SOFT TARGET (GST)	ANTHONY BEST DYNAMICS	GST MKII	\$552,779
2020	GST HD TRUCK PANELS + FRONT RAMP	ANTHONY BEST DYNAMICS		\$78,464
2020	SOFT CAR 360 REV F	DRI ADVANCED TEST SYSTEMS		\$41,114
2020	AUDIO-VISUAL ALERT PROCESSOR	DTC SOLUTIONS	AVAD3	\$31,333
2021	TRACKFI POWER MESH (VEHICLE UNIT)	ANTHONY BEST DYNAMICS	P8888	\$12,151
2021	TRACKFI POWER MESH (VEHICLE UNIT)	ANTHONY BEST DYNAMICS	P8888	\$12,151
2021	ADDITIONAL AXIS FOR STEERING ROBOT TORUS SR 60	ANTHONY BEST DYNAMICS		\$21,900

DATE	DESCRIPTION	FABRICANT / MANUFACTURER	MODÈLE / MODEL	VALEUR / COST
2021	POWER PACK	ANTHONY BEST DYNAMICS		\$11,908
2019	AUDIO-VISUAL ALERT PROCESSOR	DTC SOLUTIONS	AVAD3	\$39,699
2019	SPECTRUM ANALYSER	TEKTRONIC	RSA507A	\$23,818
2019	ADDITIONAL AXIS FOR STEERING ROBOT SR 60	ANTHONY BEST DYNAMICS		\$21,167
2019	TRACKFI POWER MESH (VEHICLE NODE)	ANTHONY BEST DYNAMICS		\$12,534
2019	TRACKFI POWER MESH (VEHICLE NODE)	ANTHONY BEST DYNAMICS		\$12,534
2019	TRACKFI POWER MESH (VEHICLE NODE)	ANTHONY BEST DYNAMICS		\$12,534
2019	TRACKFI POWER MESH (VEHICLE NODE)	ANTHONY BEST DYNAMICS		\$12,534
2019	TRACKFI POWER MESH (VEHICLE NODE)	ANTHONY BEST DYNAMICS		\$12,534
2019	TRACKFI POWER MESH (VEHICLE NODE)	ANTHONY BEST DYNAMICS		\$12,534
2019	TRACKFI POWER MESH (VEHICLE NODE)	ANTHONY BEST DYNAMICS		\$12,534
2019	TRACKFI POWER MESH (VEHICLE NODE)	ANTHONY BEST DYNAMICS		\$12,534
2019	TRACKFI POWER MESH (STATIC NODE)	ANTHONY BEST DYNAMICS		\$13,400
2019	EURO NCAP NIGHT LIGHTING SYSTEM	4ACTIVE SYSTEMS		\$46,170
2018	RT-INERTIA NAVIGATOR PLATFORM 250HZ	OXFORD TECHNICAL SOLUTIONS	RT 3002	\$69,182
2018	RT-INERTIA NAVIGATOR PLATFORM 250HZ	OXFORD TECHNICAL SOLUTIONS	RT 3002	\$69,182
2019	TRACKFI POWER MESH (VEHICLE NODE)	ANTHONY BEST DYNAMICS		\$12,411
2019	STEERING ROBOT POWER DUO	ANTHONY BEST DYNAMICS	SR60-S TORUS	\$205,395
2020	RT-BASE S	OXFORD TECHNICAL SOLUTIONS	RT-BASE	\$31,262
2020	VRU PLATFORM WITH HD PANELS	ANTHONY BEST DYNAMICS	LAUNCH PAD	\$380,290
2020	EURO NCAP MOTORCYCLE TARGET	4ACTIVE SYSTEMS		\$30,668
2020	RT-INERTIA NAVIGATOR PLATFORM 250HZ	OXFORD TECHNICAL SOLUTIONS	RT 3002	\$76,551

DATE	DESCRIPTION	FABRICANT / MANUFACTURER	MODÈLE / MODEL	VALEUR / COST
2020	ON-BOARD UNIT (OBU)	COMMSIGNIA	ITS-OB4	\$10,444
2021	COMBINED BRAKE AND ACCELERATOR ROBOT (CBAR)	ANTHONY BEST DYNAMICS	CBAR600	\$150,650
2021	STEERING ROBOT SR 60	ANTHONY BEST DYNAMICS	SR60-S TORUS	\$232,263
2021	RADAR MEASUREMENT CART	DRI ADVANCED TEST SYSTEMS	DRI-TM-20-10-2	\$50,349
2021	STEERING ROBOT SR 60	ANTHONY BEST DYNAMICS	SR60-S TORUS	\$256,291
2021	VBOX 3i100HZ	RACELOGIC		\$20,729
2021	STEERING ROBOT SR 60	ANTHONY BEST DYNAMICS	SR60-S TORUS	\$181,720
				\$26,933,001

APPENDIX N: Description of the Facility

A description of the facility, including details regarding the specialized labs and equipment, can be found at: <https://navigator.innovation.ca/en/facility/transport-canada/motor-vehicle-test-centre-mvtc>.

The link is provided for context only and does not form part of the contract.

The Building Condition Report summarized below provides a description of the buildings and does not include all specialized equipment.

BUILDING CONDITION REPORT EXECUTIVE SUMMARY

General

In 2020–2021, a Building Condition Report (BCR) was commissioned to assess the overall current condition of the Motor Vehicle Test Centre (MVTC) located in Blainville, Quebec, which involved the assessment of eight buildings (11,300 m² in total area).

The BCR assessed the condition of each building's architectural, structural, electrical and mechanical systems, in accordance with Uniformat II Level 3 nomenclature. The condition assessment of the systems was conducted based on a review of plans, reference documents, staff interviews, and on-the-job observations.

Based on the assessment of the building condition and the estimated remaining lifespan, projected maintenance or replacement requirements were estimated. The requirements are defined by Class D estimates for system repair or replacement costs over 25 years. Work under \$5,000 and tasks performed by staff as part of routine maintenance are generally not considered as requirements.

The BCR describes the systems and their current condition and provides maintenance forecasts for the coming years.

Facility Condition Index (FCI):

- FCI < 5% = Good
- FCI 5% - 10% = Fair
- FCI 10% - 30% = Poor
- FCI > 30% = Critical

Site History

The MVTC was created by TC in 1978 on land originally owned by the Department of National Defence. TC operated the Centre until 1996, when PMG Technologies took over the Centre's operation under a government-owned, contractor operated (GOCO) contract. In October 2007, TC signed a new, five-year contract with PMG Technologies Inc., with two options to extend the contract up to an additional five years. At the time of the assessment, PMG Technologies Inc. was operating the Centre under the second contract option (from 2018 to 2022).

1977 *Creation of the MVTC*

1990-1995	<i>Replacement, by Transport Canada, of the roof and the Styrofoam insulation due to shrinkage (manufacturing defect dated to 1978: Styrofoam had failed to harden)</i>
2001	<i>Expansion of the crash test dummy laboratory</i>
2002	<i>Replacement of the garage doors</i>
2003	<i>Installation of fire protection alarms</i>
2005	<i>Expansion (vehicle preparation area)</i>
2005	<i>Installation of lightning arrestors on the buildings</i>
2006	<i>Addition of a carport</i>
2007	<i>Replacement of entrance doors and siding</i>
2008	<i>Replacement of lighting (laboratory and administration building)</i>
2008	<i>Ventilation of the service station and workshop</i>
2008	<i>Laboratory exhaust vent</i>
2009	<i>Ventilation of collision ditch</i>
2009	<i>Demolition of four bunkers</i>
2009	<i>Replacement of suspended ceilings in the laboratory and the administration building</i>
2010	<i>Expansion of the crash laboratory</i>
2010	<i>Elevator cylinder</i>
2010	<i>Replacement of security barriers</i>
2010	<i>Installation of the generator</i>
2010	<i>New electrical entrance</i>
2010	<i>Evacuators in chambers</i>
2010	<i>Painting of the laboratory</i>
2010	<i>Replacement of carpets in the administration building and the laboratory, and installation of ceramics on the ground floor of the administration building</i>
2010	<i>Replacement of lighting in the laboratory</i>
2012	<i>Electricity in the pump house</i>
2013	<i>Structural repairs of bunkers 1 and 4</i>
2014	<i>Concrete polishing in the chambers</i>
2014	<i>Re-roofing of the laboratory and workshop</i>
2016	<i>Re-roofing of the small garage, the fire station, the weigh station, the service station, the walkways, the administration building, the booth, the laboratory and workshop (basin 49), the crash laboratory, the crash test area (original plan), as well as the preparation and dummy calibration areas (basin 30)</i>

2018	<i>Re-roofing of the crash laboratory, the collision area (basins 22 and 23) and ramp 2 area (basin 41 and part of basin 42)</i>
2019	<i>Ventilation in the administration building, the laboratory and workshop, and ad hoc repairs to the roof of the administration building</i>
2019	<i>Major renovation at the pumping station</i>

Building Condition – Administration

17.1 Asset information

Year built:	1977
Year of major renovations:	2009
Gross area of assessed asset:	258.27 m ² administration building/ (11 300 m ² =Total)
Current replacement value:	\$1.6 million

17.2 Overall assessment of the condition of the building

According to the facility condition index (FCI), which is the ratio of deferred maintenance costs to the current building replacement value, the building is in generally fair condition.

17.3 Overview of architectural systems condition

At the time of the assessment, renovations were underway in the hallways and ceilings. Some systems are newer and therefore at the beginning of their design life. All other systems are at the end of their design life but are in fair to good condition. However, the windows, which are original, should be changed (B2020 – Exterior windows – Aluminum windows). In addition, there is an issue with the partition in the main floor corridor (C1010 – Interior partitions – Steel stud partitions), that requires repairs which affects related systems (doors, trims, junctions with the floor and the ceiling), as doors do not close properly.

17.4 Overview of structural condition

The structure of this building constructed in 1977 consists of a steel frame with steel bracing and concrete block walls. The structure is supported by vertical joists which form the facades of the building. The foundation consists of reinforced concrete walls on steel piles, with a typical slab-on-grade on the ground floor. The floor of the upper storey consists of concrete slabs on a steel bridging. At the time of the assessment, the overall building structure did not have any significant deficiencies that would affect the building's integrity or significantly shorten its lifespan. Overall, the structure is in good condition.

17.5 Overview of mechanical systems condition

Most plumbing fixtures are original; only the toilets in the main floor washrooms and the men's washroom were changed in 2005. All other toilets should be replaced soon. The domestic, sanitary and storm water piping system has a design lifespan of 50 years. As the design lifespan will end in 2026, a reassessment at that time is recommended to determine the condition of the piping system so that it may be used beyond its notional useful life.

The refrigerated water fountains use R22 refrigerant and no longer meet standards. They must be replaced immediately.

The HVAC systems were installed in two phases—the original installation, and changes made in 2020.

In general, the ventilation system is in good condition and operational. The major change required is the replacement of the rooftop washroom exhaust fan. Fans have an average design lifespan of 20 to 25 years and the fan has largely exceeded its design lifespan and should be changed to optimize system performance.

Ventilation duct systems can have a virtually endless design lifespan if they are adequately protected against water access, corrosion, and physical damage. It is recommended that return, exhaust and supply ducts, fans, and air handling systems be cleaned every ten years. A study should be conducted to determine the presence of fungi and moulds, especially in systems with humidifiers that are conducive to the growth of micro-organisms, mainly in air supply ducts.

The black steel fire protection piping has a useful lifespan of 50 years. As the useful lifespan will end in 2026, a reassessment is recommended to confirm the aging of the piping so that it may be used beyond its notional useful life. In accordance with NFPA 25 requirements for fire protection systems, the piping must be inspected for obstructions, and the water sprinklers and other components must be tested by an external firm to ensure they are up to standards.

The portable fire extinguishers are inspected once a year by an external firm. They are in good condition and will be replaced at the end of the lifespan in accordance with the preventive maintenance contract.

17.6 Overview of electrical systems condition

The distribution panels, branch circuit panels and safety switches are original (approximately 1978) and nearing their end of life. It is important to note that the internal breakers of distribution panel PP-1 have been discontinued. However, because thermography scans are carried out each year and replacement parts are available from suppliers, the service panels should be replaced in 2025.

The building's lighting system underwent a major transformation in 2008. The project converted all T8 fluorescent light fixtures. In 2019, another project involved changing several T8 fixtures to LED on the building floor. The buildings' emergency exit indicators were converted to LED. The lamp posts are original (approximately 1978) and in fair condition.

The fire and intrusion alarm system was modified in 2002 and is functional. Maintenance and testing comply with standards.

The buildings' electric heaters are functional, however, some heater components are dirty. Several components, while functional, have exceeded their useful life. A modernization project should be considered in the next few years.

17.7 Overview of site development condition

All of the systems are nearing their end of design lifespan. However, they can be considered to be in average condition if repairs are made.

During the assessment, it was noted that in some areas, the landscape is improperly graded and results in water accumulation near the buildings, especially near garage doors. Water must be drained off as far as possible from the buildings to reduce the risk of backflow, cracks, or any other damage.

It was also noted that in some areas, primarily in middle zones, the asphalt is damaged, due to various types of cracks. However, most of the cracks are small, with a width of less than half an inch, while

others extend to the access road. These cracks can be repaired by resurfacing the asphalt or using crack filler rope, if the crushed stone foundation is of good quality and the drainage slope is adequate. The resurfacing must accommodate an additional one-inch layer of compacted asphalt after scarification. Some pothole-type cracks (greater than ¾ inches) were also observed. A reassessment is recommended in three to five years to determine whether existing surfaces should be redone completely.

Catch basins are located at the end of the access roads and near the concrete curb. These areas could pose a problem in the winter due to snow and ice accumulation.

The sidewalks are in good condition and require only regular maintenance.

There are no issues with the landscaping. Only annual maintenance is required.

17.8 Summary of renewal costs

		0-5 years	6-10 years	11-15 years
A	INFRASTRUCTURE	\$0	\$0	\$0
B	SUPERSTRUCTURE AND ENVELOPE	\$48,300	\$21,000	\$3,000
C	INTERIOR DESIGN	\$88,500	\$43,600	\$50,500
D	SERVICES	\$214,700	\$347,000	\$2,400
E	EQUIPMENT AND FURNISHINGS	\$0	\$6,000	\$0
F	SPECIAL CONSTRUCTION AND DEMOLITION	\$0	\$0	\$0
G	SITE WORK	\$0	\$0	\$0
	Total	\$351,500	\$417,600	\$55,900

Building Condition - Laboratory and Workshop

17.9 Asset information

Year built:	1977
Year of major renovations:	2009
Gross area of assessed asset:	4,685 m ² Laboratory and Workshop / (11,300 m ² =Total)
Current replacement value:	\$6.1 million

17.10 Overall assessment of the condition of the building

According to the facility condition index (FCI, which is the ratio of deferred maintenance costs to the current building replacement value, the building is in generally fair condition.

17.11 Overview of architectural systems condition

All of the systems are at their end of design lifespan. However, they are in fair or even good condition. The windows, which are original, should be replaced (B2020 – Exterior windows – Aluminum windows). During our visit, renovations were underway; therefore, some systems (such as the ceiling) are at the beginning of their design lifespan. In addition, some systems, such as the stairs (C201001 – Stairs), are not compliant to building standards.

17.12 Overview of structural condition

The building's structure, dated to 1977, consists of a steel frame braced with horizontal and vertical cross bracing. The foundations consist of reinforced concrete walls on steel piles, with a typical slab-on-grade on the ground floor. A cold room is located on the west side of the building, on the mezzanine level, which was built in 1979–1980.

At the time of the assessment, the building's structure, built in several phases, did not have significant deficiencies that would affect the integrity of the building or significantly shorten its lifespan. Overall, the structure is in good condition, but the slab-on-grade has cracks. These defects are not critical, but some minor interventions are recommended to ensure the longevity of the structure.

17.13 Overview of mechanical systems condition

Most of the plumbing fixtures are original. Only the kitchen sinks have been replaced; those in the rest of the building are nearing their end of lifespan. They should be replaced soon. The water heater, which was installed in the laboratory in 1999 must also be replaced, because it is also at its end of useful lifespan and its warranty has expired. The domestic, sanitary and storm water piping system has a design lifespan of 50 years. As the design lifespan will end in 2026, a reassessment is recommended to determine the condition of the piping system so that it may be used beyond its notional useful life.

The refrigerated water fountains use R22 refrigerant and no longer meet standards. They will need to be changed at some point.

The HVAC systems were installed in two phases—the original installation and the changes made in 2020.

In general, the ventilation systems are in good condition and operational. It is recommended to replace the five fans, which are original to the building. The fans have an average design lifespan of 20 to 25 years. The fans are well beyond their design lifespan and should be replaced to optimize system performance. In addition, the air supply units on the laboratory's ceiling are original and will also need to be replaced. A visual inspection of the units was not carried out due to restricted access to the machines. They may be operational for a few more years, but a replacement is recommended for the optimization of the system and to ensure it is fully operational.

Ventilation duct systems can have a virtually endless design lifespan if they are adequately protected against water access, corrosion, and physical damage. It is recommended that return, exhaust and supply ducts, fans, as well as air handling units be cleaned every ten years. An air quality test should be conducted to determine the presence of fungi and moulds, especially in systems with humidifiers that are conducive to the growth of micro-organisms, mainly in air supply ducts.

The black steel fire protection piping has a useful lifespan of 50 years. As the useful lifespan will end in 2026, an expert study is recommended to confirm the aging of the piping so that it may be used beyond its notional useful life. In accordance with NFPA 25 requirements for fire protection systems, the piping must be inspected for obstructions, and the water sprinklers and other components must be tested by an external firm to ensure they are up to standards.

Portable fire extinguishers are inspected once a year by an external firm. They are in good condition and will be replaced at their end of life in accordance with the preventive maintenance contract.

17.14 Overview of electrical systems condition

The 5,000-amp capacity main distribution system has approximately 40 years of useful lifespan. Taking into account its upgrade in 2010, it has approximately 30 years of remaining useful life. Thermographic inspections have been conducted at regular intervals to ensure that the components are in good operating condition.

The distribution panels and branch circuit panels are of good quality and durable; their estimated useful lifespan is 30 years. Due to the modernization and continuous modifications to the building, several panels are in good condition and most of the panels have spare spaces or circuit breakers. However, some of the panels are original to the building and are at their end of useful life. It is also important to note that the internal breakers of several original panels have been discontinued. Other distribution components such as switches, breakers, and motor control centres (MCCs) have an estimated useful lifespan of approximately 30 years, depending on how often they are in operation.

The generator set, which was installed in 2010, is in good condition. Its useful lifespan is approximately 30 years. Its transfer switch has approximately 20 years of remaining useful life. According to available annual verification reports, a change had to be made to the battery charger over the past year to ensure it is working properly. Maintenance and testing are compliant to standards.

The building's lighting system underwent a major transformation in 2008. The project involved the installation of T5 and T8 fluorescent lighting. In 2019, another project involved changing several T8 fixtures to LED on the second floor of the building. The buildings' emergency exit indicators were converted to LED. The exterior lights of the building are generally in good condition. The lamp posts are original (approximately 1978) and are in fair condition.

The fire and intrusion alarm system was modified in 2002 and is functional. Maintenance and testing are compliant to standards.

The building's electric heaters are functional. However, some components are dirty. Several components, while functional, have exceeded their useful lifespan. A modernization project should be considered in the next few years.

17.15 Summary of renewal costs

		0-5 years	6-10 years	11-15 years
A	INFRASTRUCTURE	\$0	\$0	\$0
B	SUPERSTRUCTURE AND ENVELOPE	\$39,700	\$0	\$113,000
C	INTERIOR DESIGN	\$101,500	\$161,300	\$141,100
D	SERVICES	\$359,200	\$563,600	\$99,400
E	EQUIPMENT AND FURNISHINGS	\$5,000	\$4,000	\$0
F	SPECIAL CONSTRUCTION AND DEMOLITION	\$0	\$0	\$0
G	SITE WORK	\$0	\$0	\$0
	Total	\$505,400	\$728,900	\$353,500

Building Condition - Crash Laboratory

17.16 Asset information

Year built:	1977
Year of major renovations:	2009
Gross area of assessed asset:	4,000 m ² collision area / (11,300 m ² =Total)
Current replacement value:	\$9.5 million

17.17 Overall assessment of the condition of the building

According to the facility condition index (FCI), which is the ratio of deferred maintenance costs to the current building replacement value, the building is in generally good condition.

17.18 Overview of architectural systems condition

None of the systems are nearing their end of design life. Due to various construction phases, all of the systems have newer elements, but also elements at the end of their lifespan. However, most of them are in good condition. The exterior doors are in poor condition (B2030 – Exterior doors - Exterior doors with a steel frame) and need to be refurbished, in particular the bottom of the frame, as a result of winter conditions and salt corrosion.

17.19 Overview of structural condition

The building's structure dated 1977, consists of a steel frame braced with horizontal and vertical cross bracing. The foundation consists of reinforced concrete walls on steel piles, with a typical slab-on-grade on the ground floor. The first expansion on the northeast side was completed around 2005, and the room also consists of a steel structure on pile foundations. A subsequent expansion between 2006 and 2008 added a room to the west side of the original building (steel building on piles), a roof to the existing outdoor track, as well as a vehicle shelter. The two expansions also consist of steel structures on conventional foundations (strip and individual footings). The last expansion in 2010 added rooms near the original building, a new vehicle shelter, a new room in the test laboratory, and extended a roofed acceleration ramp. The acceleration ramp was rebuilt from the block in the original building and an outside track was added. The structure of the added building section is composed of steel frames, some on conventional foundations and others on piles.

At the time of the assessment, the structure of the building constructed in various phases, did not have any significant deficiencies that would affect the integrity of the building or significantly shorten its lifespan. Overall, the structure is in good condition. The acceleration ramp is cracked, but this will not have an impact on its function.

17.20 Overview of mechanical systems condition

Most of this building's plumbing fixtures have been changed, apart from the service sink in the washroom under the observatory, which has not yet been replaced. However, it should be replaced soon. The domestic, sanitary and storm water piping system has a design lifespan of 50 years. The entire piping system was installed in several phases—the original installation (domestic, rainwater and sanitary piping); in 2005 (domestic and rainwater piping); in 2006 (domestic, rainwater and compressed air piping); and in 2010 (domestic, rainwater, sanitary and compressed air piping). As the useful lifespan will

end in 2026, a reassessment is recommended to confirm the condition of the piping so that it may be used beyond its notional useful lifespan. A study could be completed to confirm the condition of the piping so that it may be used beyond its notional useful lifespan.

The HVAC systems were installed in several phases—the original installation; the expansions in 2005, 2006 and 2010; and the changes made in 2020.

In general, the ventilation systems are in good condition and operational. The recommended action is the replacement of the fans, which are original to the building. Fans have an average design lifespan of 20 to 25 years. The fans have largely exceeded their design lifespans and should be replaced to optimize system performance.

A humidifier (H-1) should be replaced in the near future, and other humidifiers should be replaced by 2025. Some of the rooftop units were installed in 2010, and will require replacement by 2035, while other units are newer and have a lifespan of twenty-five (25) years, if properly maintained.

Ventilation duct systems can have an endless design lifespan if they are adequately protected against water access, corrosion, and physical damage. It is recommended that return, exhaust and supply ducts, fans, as well as air handling units be cleaned every ten years. An air quality test should be conducted to determine the presence of fungi and moulds, especially in systems with humidifiers that are conducive to the growth of micro-organisms, mainly in air supply ducts.

The fire protection piping was installed in several phases—the original phase; in 2006; and in 2010. The black steel fire protection piping has a useful lifespan of fifty (50) years. As the useful lifespan will end in 2026, a study is recommended to confirm the condition of the piping so that it may be used beyond its notional useful life. In accordance with NFPA 25 requirements for fire protection systems, the piping must be inspected for obstructions, and the water sprinklers and other components must be tested by a third-party to ensure they are up to standards.

The portable fire extinguishers are inspected once a year by a third-party. They are in good condition and will be replaced at their end of life in accordance with the preventive maintenance contract.

17.21 Overview of electrical systems condition

The distribution panels and the branch circuit panels are of good quality and durable. Their useful lifespan is estimated to be 30 years. Due to the modernization and continuous expansion of the building, several panels are in good condition and most of them have spare spaces or circuit breakers. However, some of the panels are original to the building and are at their end of useful lifespan. It is important to note that the internal breakers of several original panels have been discontinued. Other distribution components such as switches, breakers and motor control centres (MCCs) have an estimated useful lifespan of approximately 30 years, depending on how often they are in operation.

The building's lighting system consists of type T8 fluorescent lighting. Because the building was built over several years, the lighting fixtures have various installation dates. The emergency exit indicators, which had been installed in 1978, were converted to LED. The emergency exit indicators in the other areas of the building are in good condition. The exterior lights adjacent to the building are generally in good condition. The lamp posts are original (approximately 1978) and in fair condition.

The fire and intrusion alarm system was modified in 2002 and is functional. Maintenance and testing are compliant to standards.

The buildings' electric heaters are functional. Because the building was constructed over several years, the lighting fixtures have various installation dates. However, some heater components are dirty. A cleaning should be considered in the next year.

17.22 Summary of renewal costs

		0-5 years	6-10 years	11-15 years
A	INFRASTRUCTURE	\$0	\$0	\$0
B	SUPERSTRUCTURE AND ENVELOPE	\$8,000	\$0	\$1,037,200
C	INTERIOR DESIGN	\$1,000	\$199,200	\$0
D	SERVICES	\$33,600	\$143,000	\$57,800
E	EQUIPMENT AND FURNISHINGS	\$0	\$0	\$0
F	SPECIAL CONSTRUCTION AND DEMOLITION	\$0	\$0	\$0
G	SITE WORK	\$0	\$0	\$0
	Total	\$42,600	\$342,200	\$1,095,000

Building Condition – Small Garage

17.23 Asset information

Year built:	1977
Year of major renovations:	2009
Gross area of assessed asset:	260 m ² garage / (11,300 m ² =Total)
Current replacement value:	\$330,000

17.24 Overall assessment of the condition of the building

According to the facility condition index (FCI), which is the ratio of deferred maintenance costs to the current building replacement value, the building is in generally fair condition.

17.25 Overview of architectural systems condition

All of the systems are at the end of their design lifecycle. However, they are in fair or even good condition. The windows, which is original, should be replaced (B2020 – Exterior windows – Aluminum windows). In addition, the exterior doors are in poor condition (B2030 – Exterior doors – Exterior doors with steel framing) and need to be refurbished.

17.26 Overview of structural condition

The building's structure dated 1977, consists of a steel frame braced with steel cross bracing. The foundation consists of reinforced concrete walls on conventional footings, with a slab-on-grade on the ground floor. At the time of the assessment, the overall building structure did not have any significant deficiencies that would affect the integrity of the building or significantly shorten the building's lifespan. Overall, the structure is in good condition, but a few minor superficial repairs are recommended to ensure the longevity of the structure.

17.27 Overview of mechanical systems condition

The service sink is original and should be replaced soon. The water heater must be replaced because it has exceeded its useful life and is no longer under warranty. The domestic, sanitary and storm water piping system has a design lifespan of 50 years. As the useful lifespan will end in 2026, a study is recommended to confirm the condition of the piping so that it may be used beyond its notional useful life.

No HVAC system has been installed in this building. No mechanical intervention is required for this component.

D40 Fire Protection: This building does not have a sprinkler system, and no mechanical intervention is required in the next twenty-five (25) years for this component.

The portable fire extinguishers are inspected once a year by a third-party. They are in good condition and will be replaced at the end of their lifespan in accordance with the preventive maintenance contract.

17.28 Overview of electrical systems condition

The branch circuit panels, transformers, and safety switches are original to the building (approximately 1977) and are at the end of their useful lifespan. However, as thermography scans are carried out each year and replacement parts are available from suppliers, the service panels may be replaced in 2025.

The building's lighting system underwent a major transformation in 2008. The project involved converting all T8 fluorescent light fixtures. The buildings' emergency exit indicators were converted to LED. The lamp posts are original (approximately 1977) and in fair condition.

The fire and intrusion alarm system was modified in 2002 and is functional. Maintenance and testing are compliant to standards.

The buildings' electric heaters are functional. However, some heater components are dirty. While functional, several components installed in the building have exceeded their useful lifespan. A modernization project should be considered in the next few years.

17.29 Summary of renewal costs

		0-5 years	6-10 years	11-15 years
A	INFRASTRUCTURE	\$0	\$0	\$0
B	SUPERSTRUCTURE AND ENVELOPE	\$3,000	\$0	\$12,000
C	INTERIOR DESIGN	\$1,300	\$6,100	\$13,800
D	SERVICES	\$35,000	\$17,500	\$31,700
E	EQUIPMENT AND FURNISHINGS	\$0	\$0	\$0
F	SPECIAL CONSTRUCTION AND DEMOLITION	\$0	\$0	\$0
G	SITE WORK	\$0	\$0	\$0
	Total	\$39,300	\$23,600	\$57,500

Building Condition – Gatehouse

17.30 Asset information

Year built:	1977
Year of major renovations:	2009
Gross area of assessed asset:	18 m ² booth / (11,300 m ² =Total)
Current replacement value:	\$86,000

17.31 Overall assessment of the condition of the building

According to the facility condition index (FCI), which is the ratio of deferred maintenance costs to the current building replacement value, the building is in generally poor condition.

17.32 Overview of architectural systems condition

All of the systems are at their end of design life. However, they are in fair or even good condition. Only the booth's floors (C3020 – Floor finishes – Ceramic tiles) and the suspended ceiling (C3020 – Ceiling finishes – Acoustic tile 305 x 605 mm) show ad hoc repairs. The original windows should be replaced (B2020 – Exterior windows – Aluminum windows).

17.33 Overview of structural condition

The building's structure dated 1977, consists of a steel frame with concrete blocks. The foundation consists of reinforced concrete walls on conventional footings, with a slab-on-grade on the ground floor. At the time of the surveys, the overall building structure did not have any significant deficiencies that would affect the integrity of the building or significantly shorten the building's lifespan. Overall, the structure is in good condition.

17.34 Overview of mechanical systems condition

The plumbing fixtures are original and at the end of their life. They should be replaced soon. The domestic, sanitary and storm water piping system has a design life of 50 years. As the design life will end in 2026, a study is recommended to confirm the condition of the piping so that it may be used beyond its notional useful life.

The HVAC systems were installed in several phases—the original installation and the changes made in 2020.

In general, the ventilation systems are in good condition and operational. Only the toilet exhaust fan needs to be replaced, as it is original to the building, and fans have an average design lifespan of only twenty (20) to twenty-five (25) years. The fan is well beyond its design life and should be changed to optimize system performance. The rooftop air conditioning unit is brand new and will operate properly for twenty-five (25) years with the appropriate preventive maintenance.

Ventilation duct systems can have a virtually endless design lifespan if they are adequately protected against water access, corrosion, and physical damage. It is recommended that return, exhaust and supply ducts, fans, as well as air handling units be cleaned every ten years. A study should be conducted to determine the presence of fungi and moulds, especially in systems with humidifiers that are conducive to the growth of micro-organisms, mainly in air supply ducts.

The portable fire extinguishers are inspected once a year by a third-party. They are in good condition and will be replaced at their end of life in accordance with the preventive maintenance contract.

17.35 Overview of electrical systems condition

The distribution panel is original (approximately 1977) and is at the end of its useful life. However, since thermography scans are carried out each year and replacement parts are available from suppliers, the service panels could wait to be replaced until 2025.

The building’s lighting system underwent a major transformation during 2008. The project involved the conversion of all T8 fluorescent light fixtures.

The fire and intrusion alarm system was modified in 2002 and is functional. Maintenance and testing are compliant to standards.

The buildings’ electric heaters are functional. However, some heater components are dirty. While functional, several components installed in the building have exceeded their useful life. A modernization project should be considered in the next few years.

17.36 Summary of renewal costs

		0-5 years	6-10 years	11-15 years
A	INFRASTRUCTURE	\$0	\$0	\$0
B	SUPERSTRUCTURE AND ENVELOPE	\$13,700	\$3,800	\$0
C	INTERIOR DESIGN	\$4,400	\$4,000	\$200
D	SERVICES	\$5,100	\$8,600	\$5,200
E	EQUIPMENT AND FURNISHINGS	\$0	\$0	\$0
F	SPECIAL CONSTRUCTION AND DEMOLITION	\$0	\$0	\$0
G	SITE WORK	\$0	\$0	\$0
	Total	\$23,200	\$16,400	\$5,400

Building Condition – Service Station

17.37 Asset information

Year built:	1977
Year of major renovations:	2009
Gross area of assessed asset:	213 m ² service station / (11,300 m ² =Total)
Current replacement value:	\$420,000

17.38 Overall assessment of the condition of the building

According to the facility condition index (FCI), which is the ratio of deferred maintenance costs to the current building replacement value, the building is in generally poor condition.

17.39 Overview of architectural systems condition

All of the systems are at the end of their design lifecycle. However, they are in fair or even good condition. Only the guardrails (C2010 – Stairs – Guardrails in the mezzanine) should be upgraded. In addition, the exterior doors (B2030 – Exterior doors– Exterior doors with steel framing) are in poor condition and should be refurbished.

17.40 Overview of structural condition

The building's structure dated 1977, consist of a steel frame with steel cross bracing. The foundations consist of reinforced concrete walls on conventional footings, with a slab-on-grade on the ground floor. At the time of the surveys, the overall building structure did not have any significant deficiencies that would affect the integrity of the building or significantly shorten the building's lifespan. Overall, the structure is in good condition, but a few minor superficial repairs are recommended to ensure the longevity of the structure.

17.41 Overview of mechanical systems condition

All of the plumbing fixtures are original and at the end of their lifespan. They should be replaced soon. The domestic, sanitary and storm water piping system has a design life of 50 years. As the design life will end in 2026 a study is recommended to confirm the condition of the piping so that it may be used beyond its notional useful life. The two outdoor water hydrants, unlike those of the other buildings of the site, have never been changed. They should be replaced very shortly. The same applies to all drainage network interceptors that are also at their end of life.

The HVAC systems were installed in several phases—the original installation and the changes made in 2008 and 2020.

In general, the ventilation systems are in good condition and operational. The major required change is the replacement of the two fans, which are original to the building. One of them is the washroom exhaust fan, and the other one is located under the walkway. The fans have an average design lifespan of twenty (20) to twenty-five (25) years. The fans are well beyond their design life and should be changed to optimize system performance. The heat and energy recovery ventilators are functional. However, the electrical coil in the air supply duct towards the garage will need to be changed. The multi-zone cassette air conditioning system on the roof above each office is new, as are its controls. No major intervention is required for the next twelve (12) years if the annual maintenance is performed properly.

Ventilation duct systems can have a virtually endless design life if they are adequately protected against water access, corrosion, and physical damage. It is recommended that return, exhaust and supply ducts, fans, as well as air handling units be cleaned every ten years. A study should be conducted to determine the presence of fungi and moulds, especially in systems with humidifiers that are conducive to the growth of micro-organisms, in other words, mainly in air supply ducts.

The black steel fire protection piping has a useful lifespan of 50 years. As the useful lifespan will end in 2026, a study is recommended to confirm the condition of the piping so that it may be used beyond its notional useful life. In accordance with NFPA 25 requirements for fire protection systems, the piping must be inspected for obstructions, and the water sprinklers and other components must be tested by a third-party to ensure they are up to standard.

The portable fire extinguishers are inspected once a year by a third-party. They are in good condition and will be replaced at their end of life in accordance with the preventive maintenance contract.

17.42 Overview of electrical systems condition

The distribution panels, the branch circuit panels, the transformer and the safety switches are original to the building (approximately 1977) and at the end of their useful life. It is important to note that the internal breakers of the distribution panel have been discontinued. However, as thermography scans are carried out each year and replacement parts are available from suppliers, the service panels could be replaced in 2025.

The building's lighting system underwent a major transformation in 2008. The project involved the conversion of all T8 fluorescent light fixtures. A project in 2019 involved changing several T8 lighting fixtures to LED in the administrative section of the building. The buildings' emergency exit indicators were converted to LED. The lamp posts are original (approximately 1977) and in fair condition.

The fire and intrusion alarm system was modified in 2002 and is functional. Maintenance and testing are compliant to standards.

17.43 Summary of renewal costs

		0-5 years	6-10 years	11-15 years
A	INFRASTRUCTURE	\$0	\$0	\$0
B	SUPERSTRUCTURE AND ENVELOPE	\$9,800	\$0	\$14,900
C	INTERIOR DESIGN	\$9,300	\$12,000	\$14,000
D	SERVICES	\$66,400	\$7,600	\$64,300
E	EQUIPMENT AND FURNISHINGS	\$0	\$0	\$2.5
F	SPECIAL CONSTRUCTION AND DEMOLITION	\$0	\$0	\$0
G	SITE WORK	\$0	\$0	\$0
	Total	\$85,500	\$19,600	\$95,700

Building Condition – Fire Station and Weighing Station

17.44 Asset information

Year built:	1977
Year of major renovations:	2009
Gross area of assessed asset:	158 m ² weighing station / (11,300 m ² =Total)
Current replacement value:	\$300,000

17.45 Overall assessment of the condition of the building

According to the facility condition index (FCI), which is the ratio of deferred maintenance costs to the current building replacement value, the building is in generally poor condition.

17.46 Overview of architectural systems condition

All of the systems are at the end of their design lifecycle. However, they are in fair or even good condition. The original windows should be replaced (B2020 – Exterior windows – Aluminum windows).

In addition, the exterior doors are in poor condition (B2030 – Exterior doors– Exterior doors with steel framing) and need to be refurbished.

17.47 Overview of structural condition

The building’s structure, dated to 1977, consists of a steel frame. The foundations consist of reinforced concrete walls on conventional footings, with a slab-on-grade on the ground floor. At the time of the visit, the overall building structure did not have any significant deficiencies that would affect the integrity of the building or significantly shorten the building’s lifespan. Overall, the structure is in good condition, but a few minor superficial repairs are recommended to ensure the longevity of the structure.

17.48 Overview of mechanical systems condition

All of the plumbing fixtures are original to the building and have been at the end of their lifecycle for several years. They should be replaced soon. The domestic, sanitary and storm water piping system has a design lifespan of approximately 50 years. As the design lifespan will end in 2026, a study is recommended to confirm the condition of the piping to determine that it may be used beyond its notional useful lifespan.

The installation phases of the HVAC systems in this building are rather short: exhaust of the original bathrooms, installation of the extraction arm in 2008, and installation of the split air conditioning unit for the office in 2014. Generally, the ventilation system is in good condition and operational. It does not require any immediate intervention, besides replacement in several years.

The portable fire extinguishers are inspected once a year by a third-party. They are in good condition and will be replaced at the end of their lifespan in accordance with the preventive maintenance contract.

17.49 Overview of electrical systems condition

The electrical distribution equipment is functional but in fair condition overall, as most of the equipment has reached the end of its design lifespan. The design lifespan could be extended with proper maintenance of the equipment. A more detailed analysis will need to be carried out during the planning of the renewal project.

The lighting fixtures are working well. However, they have reached the middle of the design lifecycle for this type of equipment. Their condition is therefore considered as average. Currently, most of the equipment is of type T8. When the fixtures are replaced, it is recommended that LED lighting technology be used instead of LED tubes. In addition to being more energy efficient than the T8, LED lighting has a longer lifespan and requires less maintenance.

17.50 Summary of renewal costs

		0-5 years	6-10 years	11-15 years
A	INFRASTRUCTURE	\$0	\$0	\$0
B	SUPERSTRUCTURE AND ENVELOPE	\$7,200	\$0	\$13,700
C	INTERIOR DESIGN	\$21,500	\$6,000	\$7,700
D	SERVICES	\$45,500	\$11,500	\$32,300

E	EQUIPMENT AND FURNISHINGS	\$0	\$0	\$0
F	SPECIAL CONSTRUCTION AND DEMOLITION	\$0	\$0	\$0
G	SITE WORK	\$0	\$0	\$0
	Total	\$74,200	\$17,500	\$53,700

APPENDIX O: MACHINERY AND SERVICE VEHICLES

MAKE	MODEL	DESCRIPTION	YEAR	KILOMETERS (See Note 1 below)	HOURS OF USE (See Note 1 below)
AGRIMETAL	MTC-P 50100	SNOW BLOWER (FOR FENDT 718)	2014		
CANA	MIGHT-E TRUCK	SMALL UTILITY ELECTRIC VEHICLE	2008		N/A
CANA	MIGHT-E-TRUCK	SMALL UTILITY ELECTRIC VEHICLE	2006		1800
CASE	590SN	TRACTOR WITH BACKHOE	2018		1500
CHEVROLET	EXPRESS	LIGHT TRUCK, VAN	2004	83000	
EDDYNET	RPHB 24-08	STREET BROOM (FOR CASE 590S BACKHOE)	2018		
EQUIFAB	2 VERGES DELUXE	SALT SPREADER FOR FORD F350 2014	2017		
FENDT	718	TRACTOR	2015		3300
FENDT	718S4	TRACTOR	2020		500
FORD	F250	PICK-UP TRUCK	2018	37000	
FORD	F350	PICK-UP TRUCK	2014	62500	
FORD	F550	TRUCK (FIRE TRUCK)	2001	85500	
FORD	CTV	TRUCK (AMBULANCE)	2008	240000	
HINO	258	FLAT BED TOWING	2021	1300	
HOULE	8-13-36 CATÉGORIE L	SNOW PLOW (FOR FENDT 718)	2015		
HYSTER	H100FT	FORK LIFT	2014		800
HYSTER	E50XN	FORK LIFT	2014		750
HYSTER	210	FORK LIFT	2004		N/A
IDEAL	IDR85 REVOLUTION	TRAILER CARGO FOR AEB	2020		
IHC	LEAD	TRAILER, SPECIAL	1971		
INTERNATIONAL	5600	TRUCK, SNOW PLOW & SALT SPREADER	2009	24000	
JGL	450AJ	45 FEET ARTICULATED BOOM	2014		250
JGL	E450AJ	CHERRY PICKER	2002		1200
JOHN DEERE	YH6X4	UTILITY VEHICLE, GATOR	2014		400
JOHN DEERE	1585	LAWN MOWER	2020		145
JOHN DEERE	72S F15 72"	LAWN MOWER 25 FT (FOR JOHN DEERE 1585)	2020		
K-TRAIL	D612-10	DUMPSTER TRAILER	2021		
MERCEDES-BENZ	SPRINTER 2500 (4x4)	LIGHT TRUCK, FULL SIZE VAN	2015	14500	
MERCEDES-BENZ	SPRINTER 2500	LIGHT TRUCK, FULL SIZE VAN	2010	9400	
NISSAN	FRONTIER	PICK-UP TRUCK	2016	12000	
NORMAND	N62-240HFMV	SNOW BLOWER (FOR JOHN DEERE 1585)	2020		
NOVILCO	NOVILCO	TRAILER FOR CMVSS 121 & 136 TESTS	2018		
PRONOVOST	P-982TRC	SNOW BLOWER (FOR FENDT 718S4)	2015		
S HOULE	SNOW BLASTER CATÉGORIE L	SNOW PLOW (FOR FENDT 718S4)	2021		
SCHULTE	FX-520	LAWN MOWER 25 FT (FOR FENDT 718)	2016		
SNO-PAC	LN100	SNOW SURFACE MACHINE	2021		

SPACEKAP	6 PIEDS	VEHICLE BODY (FOR NISSAN FRONTIER)	2002		
SURE-TRAC	SURE-TRAC	TRAILER	2011		
TOYOTA	SIENNA	MINI-VAN (FIRE STATION)	2015	25000	
TOYOTA	F645	FORK LIFT	1987		3500
TOYOTA	TACOMA	LIGHT TRUCK (FIRE STATION)	2016	19500	
WOODS	BW15.50QW	15 FEET ROTARY BRUSHCUTTER (FOR BOTH FENDT TRACTORS)	2020		
Note 1: As of June 2021					

APPENDIX P: LIST OF SOFTWARE CURRENTLY IN USE

Name	Version
National instrument development suite	2020
Diadem Crash analysis tool pack	2020
X-Crash	2020
Solidworks Premium	2021
Solidworks Standard	2021
SolidCam	2021
Tema	3.5
Windows Server Data Center	2019
Microsoft SQL	2019
Microsoft Exchange	2019
MS Office	2013-2016-2019-365
Datto	2019
ESET	8

ANNEX B – BASIS OF PAYMENT

ANNEXE B – BASIS OF PAYMENT for Operational and technical services for Transport Canada Motor Vehicle Test Center

Bidder's name : _____

Line No.	Table reference no.	Services / Reference to Appendix A – Statement of Work	Total amount / table
1	TABLE 1	Section 3.0 – Compliance and Research Test Services – Fixed-price Tests	\$ _____
2	TABLE 2	Services with firm hourly rates from the following sections: - Section 2.0 – Contract Phase-in and Completion - Section 3.0 – Compliance and Research Test Services - Section 4.0 – Maintenance, Improvements and Repair of Fixed Test Equipment - Section 5.0 – Site Maintenance	\$ _____
3	TABLE 3	Section 4.0 – Maintenance, Improvement and Support of Fixed Test Equipment	\$ _____
4	TABLE 4	Section 5.0 – Site Maintenance	\$ _____
5	TABLE 5	Section 6.0 – Management and Administration	\$ _____
TOTAL AMOUNT OF THE BID (Add lines 1 to 5)			\$ _____

TABLE 1 : Section 3.0 – Compliance and Research Testing Services - Firm Price Testing

1	Total amount Table 1-A	\$ _____
2	Total amount Table 1-B	\$ _____
TOTAL – Table 1 (Add lines 1 + 2)		
		\$ _____

TABLE 1-A : Section 3.0 - 3.7 Compliance Program – Firm-Price Tests (Excluding cost of all used or previously tested vehicle repair work, all replacement parts as well as the cost of deformable barriers)

Line No.	Compliance test	Firm price/test July 1, 2023 to March 31, 2024 (a)	Firm price/test April 1, 2024 to March 31, 2025 (b)	Firm price/test April 1, 2025 to March 31, 2026 (c)	Firm price/test April 1, 2026 to March 31, 2027 (d)	Firm price/test April 1, 2027 to March 31, 2028 (e)	Estimated number of tests over a one-year period (f)	Total amount per test = (a x f) + (b x f) + (c x f) + (d x f) + (e x f)
1	103	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	1	\$ _____
2	105 Electrical or mechanical system	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	2	\$ _____
3	111	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	6	\$ _____
4	118	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	1	\$ _____
5	121 Tractor Trailer (6x4) Air Brake	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	3	\$ _____

compression tests										
TOTAL – Table 1-A (Add lines 1 to 37) \$ _____										

TABLE 1-B : Section 3.0 – 3.9 Crashworthiness Program – Firm-price Tests (Excluding the cost of all used or previously tested vehicle repairs , all replacement parts as well as the cost of deformable barriers)

Line No.	Firm-price test	Firm price/test July 1, 2023 to March 31, 2024 (a)	Firm price/test April 1, 2024 to March 31, 2025 (b)	Firm price/test April 1, 2025 to March 31, 2026 (c)	Firm price/test April 1, 2026 to March 31, 2027 (d)	Firm price/test April 1, 2027 to March 31, 2028 (e)	Estimated number of tests over a one-year period (f)	Total amount per test = (a x f) + (b x f) + (c x f) + (d x f) + (e x f)
1	TYPE I: Research Frontal Barrier Crash (100% research)	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	5	\$ _____
2	TYPE II: Frontal Research Crash Test (SHARED with Compliance)	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	10	\$ _____
3	TYPE III: MDB/ Pole/ Dynamic Rollover Test	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	5	\$ _____
4	TYPE IV: Moving Car to Moving Car or Moving Car to Car	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	15	\$ _____

5	TYPEV: MDB/ Pole Test (shared with compliance)	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	5	\$ _____
TOTAL – Table 1-B (Add lines 1 to 5) \$ _____								

TABLE 2 – Services at Firm Hourly Rates

COMBINE all services payable at firm hourly rates from the following sections:

- Section 2.0 – Contract Phase-in and Completion
- Section 3.0 – Compliance and Research Test Services – Section 3
- Section 4.0 – Maintenance, Improvements and Repair of Fixed Test Equipment – Tasks 4.7.1 to 4.7.5
- Section 5.0 – Site maintenance – Tasks 5.6.2 to 5.6.5

Line No.	Resource category	Firm hourly rate, July 1, 2023 to March 31, 2024	Firm hourly rate, April 1, 2024 to March 31, 2025	Firm hourly rate, April 1, 2025 to March 31, 2026	Firm hourly rate, April 1, 2026 to March 31, 2027	Firm hourly rate, April 1, 2027 to March 31, 2028	Estimated effort level: Number of hours/year	Total amount by resource category
		(a)	(b)	(c)	(d)	(e)	(f)	= (a x f) + (b x f) + (c x f) + (d x f) + (e x f)
1	Engineering Manager/Seni or Expert	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	6600	\$ _____
2	Senior scientist	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	1650	\$ _____
3	Scientist	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	1650	\$ _____
4	Junior scientist	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	1650	\$ _____

Line No.	Resource category	Firm hourly rate, July 1, 2023 to March 31, 2024 (a)	Firm hourly rate, April 1, 2024 to March 31, 2025 (b)	Firm hourly rate, April 1, 2025 to March 31, 2026 (c)	Firm hourly rate, April 1, 2026 to March 31, 2027 (d)	Firm hourly rate, April 1, 2027 to March 31, 2028 (e)	Estimated effort level: Number of hours/year (f)	Total amount by resource category = (a x f) + (b x f) + (c x f) + (d x f) + (e x f)
5	Senior engineer	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	6600	\$ _____
6	Project engineer	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	13200	\$ _____
7	Engineer in training	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	1650	\$ _____
8	Technologist	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	46 200	\$ _____
9	Senior Specialized Technologist	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	4950	\$ _____
10	Specialized Technologist	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	3300	\$ _____
11	Technician	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	9900	\$ _____
12	Technical writer	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	1650	\$ _____
13	Skilled worker	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	8250	\$ _____
14	Senior professional	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	1650	\$ _____
15	Professional	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	1650	\$ _____
16	Administrative support	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	8250	\$ _____

Line No.	Resource category	Firm hourly rate, July 1, 2023 to March 31, 2024	Firm hourly rate, April 1, 2024 to March 31, 2025	Firm hourly rate, April 1, 2025 to March 31, 2026	Firm hourly rate, April 1, 2026 to March 31, 2027	Firm hourly rate, April 1, 2027 to March 31, 2028	Estimated effort level: Number of hours/year	Total amount by resource category
		(a)	(b)	(c)	(d)	(e)	(f)	$= (a \times f) + (b \times f) + (c \times f) + (d \times f) + (e \times f)$
17	Student	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	1650	\$ _____
18	Disbursement allowance (for the contract period)							
TOTAL – Table 2 (Add lines 1 to 17)								\$ _____

TABLE 3 : Section 4.0 – Maintenance, Improvement and Support of Fixed Test Equipment – Tasks 4.7.6 and 4.7.7 - Cost-reimbursable Services

Line No.	Allowance – estimated value of expenditures over the life of the contract	Percentage mark-up including administration and profit	Total amount
	(a)	(b)	$= a \times (1 + b)$
1	\$ 1 750 000	_____ %	\$ _____
TOTAL – Table 3 (Carry forward total amount from line 1)			\$ _____

TABLE 4 : Section 5.0 – Site Maintenance

1	Total amount Table 4-A	\$ _____
2	Total amount Table 4-B	\$ _____
TOTAL – Table 4 (Add lines 1 to 2)		\$ _____

TABLE 4-A : Section 5.0 – Facility Operations and Maintenance – Task 5.6.1 - Monthly Lump Sum Amount

Line No.	Monthly lump sum amount July 1, 2023 to March 31, 2024	Monthly lump sum amount April 1, 2024 to March 31, 2025	Monthly lump sum amount April 1, 2025 to March 31, 2026	Monthly lump sum amount April 1, 2026 to March 31, 2027	Monthly lump sum amount April 1, 2027 to March 31, 2028	Total amount for the duration of the contract
1	(a)	(b)	(c)	(d)	(e)	= a + b + c + d + e
	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____

TOTAL – Table 4-A (Carry forward total amount from line 1)						\$ _____
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TABLE 4-B : Section 5.0 – Site maintenance – Tasks 5.6.2, 5.6.4 and 5.6.5, Reimbursable-cost Services

Line No.	Service	Allowance – estimated value of expenditures over the life of the contract	Percentage mark-up including administration and profit	Total amount
1	Section 5 – Tasks no 5.6.2, 5.6.4 and 5.6.5	(a) \$ 4 250 000	(b) _____ %	= a x (1 + b) \$ _____
TOTAL – Table 4-B (Carry forward total amount from line 1)				\$ _____

TABLE 5 : Section 6.0 – Mangement and Administration – Monthly Lump Sum Amount

Line No	Monthly lump sum amount July 1, 2023 to March 31, 2024 (a)	Monthly lump sum amount April 1, 2024 to March 31, 2025 (b)	Monthly lump sum amount April 1, 2025 to March 31, 2026 (c)	Monthly lump sum amount April 1, 2026 to March 31, 2027 (d)	Monthly lump sum amount April 1, 2027 to March 31, 2028 (e)	Total amount for the duration of the contract = a + b + c + d + e
1	_____ \$	_____ \$	_____ \$	_____ \$	_____ \$	_____ \$
2	Allowance for disbursements – Electricity, gas and gasoline bills (for the period of the contract)					2 500 000 \$
3	Allowance for disbursements – Office supplies (for the period of the contract)					250 000 \$
TOTAL – TABLE 5 (Add lines 1 to 3)						_____ \$

TABLE 6 : Section 7.0 – Marketing and Commercialization – Usage Cost (This part will not be evaluated as part of the financial evaluation but the bidder will be contractually bound to the established rates, the credit percentage and line 7 Administration Cost

TABLE 6-A Test tracks and Environmental Chambers

Line No	Equipment (a)	Usage Cost (b)	(c)	Total amount = b x c
1	Test tracks	89.71 \$/hour	hours	_____ \$
2	Environmental Chambers	153.15 \$/hour	hours	_____ \$
3	SUBTOTAL – Table 6-A (Add lines 1 and 2)			_____ \$

TABLE 6-B : Calculation of usage cost of MVTC's Large Laboratory and Collision Laboratory installations, per year

Line No	Equipment (a)	Credit percentage to be paid to Transport Canada on any commercialization revenues generated by the use of the collision laboratory and large laboratory MINIMUM 20% ** (b)	Total amount = c (c)
4	Large Laboratory	_____%	_____ \$
5	Collision Laboratory	_____%	_____ \$
6	SUBTOTAL – Table 6B (Add lines 4 and 5)		_____ \$
7	Credit program administration cost (Fixed annual value, paid monthly)		(_____ \$)
8	GRAND TOTAL (TABLE 6A Line 3 + TABLE 6B Line 6 – Line 7)		_____ \$

* Section 7.0 – Marketing and Commercialization give the supplier the privilege to use the test equipment categorized into four activity centers on payment of a monthly credit for test equipment usage. The credit on commercialization revenues is applicable to the collision laboratory and the large laboratory and the hourly usage cost is applicable to the test tracks and environmental chambers (the description of the application is in the request for proposals at Section 7.8.7 Monthly credit for use of equipment for commercial purposes)

Bidders are not asked to give an estimate of the total number of hours in the bid. The costs associated to the administration of the data collection for appendix H of annex A will be paid monthly to the Contractor by TC. Bidders must only fill cells 4(b), 5(b) and 7(c) of table 6-B.

** The minimum percentage accepted by Canada is 20%. Any amount below 20% will be considered as being written down at 20% by the bidder for the purpose of the evaluation. The credit amount paid to Transport Canada will be the greater amount between: (a) 20% or (b) the percentage written by the bidder in Table 6B and will be applicable to the contract.

GENERAL NOTES APPLICABLE TO THE BASIS OF PAYMENT

NOTE 1:

Hourly firm rates include labor cost, social benefits, general expenses and administration, profits and travel and living expenses within a 50km radius of MVTC and between the contractor's place of business and the MVTC. Taxes are excluded.

NOTE 2:

All effort estimates, like the number of hours, number of tests and monetary estimates written in the tables are only provided for the purpose of determining the evaluated price of each bid. It is an estimate of the needs that does not take into consideration actual needs, that is provided in good faith and should not be considered as a contractual guarantee.

NOTE 3:

The firm price for tests includes labor cost, social benefits, general expenses and administration and profits, material costs and disbursements. Taxes are excluded.



**SECURITY REQUIREMENTS CHECK LIST (SRCL)
LISTE DE VÉRIFICATION DES EXIGENCES RELATIVES À LA SÉCURITÉ (LVERS)**

PART A - CONTRACT INFORMATION / PARTIE A - INFORMATION CONTRACTUELLE

1. Originating Government Department or Organization / Ministère ou organisme gouvernemental d'origine: **Transport Canada** 2. Branch or Directorate / Direction générale ou Direction: **Program Group - Innovation Centre**

3. a) Subcontract Number / Numéro du contrat de sous-traitance: 3. b) Name and Address of Subcontractor / Nom et adresse du sous-traitant:

4. Brief Description of Work / Brève description du travail
Provision of expert professional services to execute compliance and research programs and to manage, operate, maintain and contribute to the future expansion of programs at the Motor Vehicle Test Centre (MVTC) located in Blainville, Quebec

5. a) Will the supplier require access to Controlled Goods? / Le fournisseur aura-t-il accès à des marchandises contrôlées? No / Non Yes / Oui

5. b) Will the supplier require access to unclassified military technical data subject to the provisions of the Technical Data Control Regulations? / Le fournisseur aura-t-il accès à des données techniques militaires non classifiées qui sont assujetties aux dispositions du Règlement sur le contrôle des données techniques? No / Non Yes / Oui

6. Indicate the type of access required / Indiquer le type d'accès requis

6. a) Will the supplier and its employees require access to PROTECTED and/or CLASSIFIED information or assets? / Le fournisseur ainsi que les employés auront-ils accès à des renseignements ou à des biens PROTÉGÉS et/ou CLASSIFIÉS? (Specify the level of access using the chart in Question 7. c) / Préciser le niveau d'accès en utilisant le tableau qui se trouve à la question 7. c) No / Non Yes / Oui

6. b) Will the supplier and its employees (e.g. cleaners, maintenance personnel) require access to restricted access areas? No access to PROTECTED and/or CLASSIFIED information or assets is permitted. / Le fournisseur et ses employés (p. ex. nettoyeurs, personnel d'entretien) auront-ils accès à des zones d'accès restreintes? L'accès à des renseignements ou à des biens PROTÉGÉS et/ou CLASSIFIÉS n'est pas autorisé. No / Non Yes / Oui

6. c) Is this a commercial courier or delivery requirement with no overnight storage? / S'agit-il d'un contrat de messagerie ou de livraison commerciale sans entreposage de nuit? No / Non Yes / Oui

7. a) Indicate the type of information that the supplier will be required to access / Indiquer le type d'information auquel le fournisseur devra avoir accès

Canada <input checked="" type="checkbox"/>	NATO / OTAN <input type="checkbox"/>	Foreign / Étranger <input type="checkbox"/>
--	--------------------------------------	---

7. b) Release restrictions / Restrictions relatives à la diffusion

No release restrictions / Aucune restriction relative à la diffusion <input checked="" type="checkbox"/> Not releasable / À ne pas diffuser <input type="checkbox"/> Restricted to: / Limité à: <input type="checkbox"/> Specify country(ies): / Préciser le(s) pays:	All NATO countries / Tous les pays de l'OTAN <input type="checkbox"/> Restricted to: / Limité à: <input type="checkbox"/> Specify country(ies): / Préciser le(s) pays:	No release restrictions / Aucune restriction relative à la diffusion <input type="checkbox"/> Restricted to: / Limité à: <input type="checkbox"/> Specify country(ies): / Préciser le(s) pays:
--	--	--

7. c) Level of information / Niveau d'information

PROTECTED A / PROTÉGÉ A <input checked="" type="checkbox"/>	NATO UNCLASSIFIED <input type="checkbox"/>	PROTECTED A <input type="checkbox"/>
PROTECTED B / PROTÉGÉ B <input checked="" type="checkbox"/>	NATO NON CLASSIFIÉ <input type="checkbox"/>	PROTECTED B <input type="checkbox"/>
PROTECTED C / PROTÉGÉ C <input type="checkbox"/>	NATO RESTRICTED <input type="checkbox"/>	PROTECTED C <input type="checkbox"/>
CONFIDENTIAL / CONFIDENTIEL <input type="checkbox"/>	NATO DIFFUSION RESTREINTE <input type="checkbox"/>	CONFIDENTIAL / CONFIDENTIEL <input type="checkbox"/>
SECRET <input type="checkbox"/>	NATO CONFIDENTIAL <input type="checkbox"/>	SECRET <input type="checkbox"/>
TOP SECRET <input type="checkbox"/>	NATO SECRET <input type="checkbox"/>	TOP SECRET <input type="checkbox"/>
TOP SECRET (SIGINT) <input type="checkbox"/>	NATO SECRET <input type="checkbox"/>	TOP SECRET (SIGINT) <input type="checkbox"/>
	COSMIC TOP SECRET <input type="checkbox"/>	TRÈS SECRET <input type="checkbox"/>
	COSMIC TRÈS SECRET <input type="checkbox"/>	TRÈS SECRET (SIGINT) <input type="checkbox"/>



PART A (continued) / PARTIE A (suite)

8. Will the supplier require access to PROTECTED and/or CLASSIFIED COMSEC information or assets?
Le fournisseur aura-t-il accès à des renseignements ou à des biens COMSEC désignés PROTÉGÉS et/ou CLASSIFIÉS? No / Non Yes / Oui
If Yes, indicate the level of sensitivity:
Dans l'affirmative, indiquer le niveau de sensibilité :

9. Will the supplier require access to extremely sensitive INFOSEC information or assets?
Le fournisseur aura-t-il accès à des renseignements ou à des biens INFOSEC de nature extrêmement délicate? No / Non Yes / Oui

Short Title(s) of material / Titre(s) abrégé(s) du matériel :
Document Number / Numéro du document :

PART B - PERSONNEL (SUPPLIER) / PARTIE B - PERSONNEL (FOURNISSEUR)

10. a) Personnel security screening level required / Niveau de contrôle de la sécurité du personnel requis

- | | | | |
|---|---|---|--|
| <input checked="" type="checkbox"/> RELIABILITY STATUS
COTE DE FIABILITÉ | <input type="checkbox"/> CONFIDENTIAL
CONFIDENTIEL | <input type="checkbox"/> SECRET
SECRET | <input type="checkbox"/> TOP SECRET
TRÈS SECRET |
| <input type="checkbox"/> TOP SECRET- SIGINT
TRÈS SECRET - SIGINT | <input type="checkbox"/> NATO CONFIDENTIAL
NATO CONFIDENTIEL | <input type="checkbox"/> NATO SECRET
NATO SECRET | <input type="checkbox"/> COSMIC TOP SECRET
COSMIC TRÈS SECRET |
| <input type="checkbox"/> SITE ACCESS
ACCÈS AUX EMPLACEMENTS | | | |

Special comments:
Commentaires spéciaux :

NOTE: If multiple levels of screening are identified, a Security Classification Guide must be provided.
REMARQUE : Si plusieurs niveaux de contrôle de sécurité sont requis, un guide de classification de la sécurité doit être fourni.

10. b) May unscreened personnel be used for portions of the work?
Du personnel sans autorisation sécuritaire peut-il se voir confier des parties du travail? No / Non Yes / Oui
If Yes, will unscreened personnel be escorted?
Dans l'affirmative, le personnel en question sera-t-il escorté? No / Non Yes / Oui

PART C - SAFEGUARDS (SUPPLIER) / PARTIE C - MESURES DE PROTECTION (FOURNISSEUR)

INFORMATION / ASSETS / RENSEIGNEMENTS / BIENS

11. a) Will the supplier be required to receive and store PROTECTED and/or CLASSIFIED information or assets on its site or premises?
Le fournisseur sera-t-il tenu de recevoir et d'entreposer sur place des renseignements ou des biens PROTÉGÉS et/ou CLASSIFIÉS? No / Non Yes / Oui

11. b) Will the supplier be required to safeguard COMSEC information or assets?
Le fournisseur sera-t-il tenu de protéger des renseignements ou des biens COMSEC? No / Non Yes / Oui

PRODUCTION

11. c) Will the production (manufacture, and/or repair and/or modification) of PROTECTED and/or CLASSIFIED material or equipment occur at the supplier's site or premises?
Les installations du fournisseur serviront-elles à la production (fabrication et/ou réparation et/ou modification) de matériel PROTÉGÉ et/ou CLASSIFIÉ? No / Non Yes / Oui

INFORMATION TECHNOLOGY (IT) MEDIA / SUPPORT RELATIF À LA TECHNOLOGIE DE L'INFORMATION (TI)

11. d) Will the supplier be required to use its IT systems to electronically process, produce or store PROTECTED and/or CLASSIFIED information or data?
Le fournisseur sera-t-il tenu d'utiliser ses propres systèmes informatiques pour traiter, produire ou stocker électroniquement des renseignements ou des données PROTÉGÉS et/ou CLASSIFIÉS? No / Non Yes / Oui

11. e) Will there be an electronic link between the supplier's IT systems and the government department or agency?
Disposera-t-on d'un lien électronique entre le système informatique du fournisseur et celui du ministère ou de l'agence gouvernementale? No / Non Yes / Oui



PART C - (continued) / PARTIE C - (suite)

For users completing the form **manually** use the summary chart below to indicate the category(ies) and level(s) of safeguarding required at the supplier's site(s) or premises.

Les utilisateurs qui remplissent le formulaire **manuellement** doivent utiliser le tableau récapitulatif ci-dessous pour indiquer, pour chaque catégorie, les niveaux de sauvegarde requis aux installations du fournisseur.

For users completing the form **online** (via the Internet), the summary chart is automatically populated by your responses to previous questions.

Dans le cas des utilisateurs qui remplissent le formulaire **en ligne** (par Internet), les réponses aux questions précédentes sont automatiquement saisies dans le tableau récapitulatif.

SUMMARY CHART / TABLEAU RÉCAPITULATIF

Category / Catégorie	PROTECTED / PROTÉGÉ			CLASSIFIED / CLASSIFIÉ			NATO				COMSEC						
	A	B	C	CONFIDENTIAL	SECRET	TOP SECRET	NATO RESTRICTED	NATO CONFIDENTIAL	NATO SECRET	COSMIC TOP SECRET COSMIC TRÈS SECRET	PROTECTED / PROTÉGÉ			CONFIDENTIAL	SECRET	TOP SECRET	
				CONFIDENTIEL		TRÈS SECRET	NATO DIFFUSION RESTREINTE	NATO CONFIDENTIEL			A	B	C				CONFIDENTIEL
Information / Assets Renseignements / Biens Production																	
IT Media / Support TI																	
IT Link / Lien électronique																	

12. a) Is the description of the work contained within this SRCL PROTECTED and/or CLASSIFIED?
La description du travail visé par la présente LVERS est-elle de nature PROTÉGÉE et/ou CLASSIFIÉE?

No / Non Yes / Oui

**If Yes, classify this form by annotating the top and bottom in the area entitled "Security Classification".
Dans l'affirmative, classifiez le présent formulaire en indiquant le niveau de sécurité dans la case intitulée « Classification de sécurité » au haut et au bas du formulaire.**

12. b) Will the documentation attached to this SRCL be PROTECTED and/or CLASSIFIED?
La documentation associée à la présente LVERS sera-t-elle PROTÉGÉE et/ou CLASSIFIÉE?

No / Non Yes / Oui

**If Yes, classify this form by annotating the top and bottom in the area entitled "Security Classification" and indicate with attachments (e.g. SECRET with Attachments).
Dans l'affirmative, classifiez le présent formulaire en indiquant le niveau de sécurité dans la case intitulée « Classification de sécurité » au haut et au bas du formulaire et indiquer qu'il y a des pièces jointes (p. ex. SECRET avec des pièces jointes).**



Contract Number / Numéro du contrat T8127-200020
Security Classification / Classification de sécurité UNCLASSIFIED

PART D - AUTHORIZATION / PARTIE D - AUTORISATION

13. Organization Project Authority / Chargé de projet de l'organisme			
Name (print) - Nom (en lettres moulées) Jonathan Sabean	Title - Titre Director, Collaborations Innovation Centre	Signature 	
Telephone No. - N° de téléphone 613-404-4191	Facsimile No. - N° de télécopieur N/A	E-mail address - Adresse courriel jonathan.sabean@tc.gc.ca	Date June 28, 2021
14. Organization Security Authority / Responsable de la sécurité de l'organisme			
Name (print) - Nom (en lettres moulées) Gerry Babcock	Title - Titre Manager, Cyber Security	Signature Babcock, Gerry L. Digitally signed by Babcock, Gerry L. Date: 2021.07.05 13:28:17 -04'00'	
Telephone No. - N° de téléphone 613-979-1599	Facsimile No. - N° de télécopieur N/A	E-mail address - Adresse courriel gerry.babcock@tc.gc.ca	Date June 28, 2021 July 5, 2021
15. Are there additional instructions (e.g. Security Guide, Security Classification Guide) attached? Des instructions supplémentaires (p. ex. Guide de sécurité, Guide de classification de la sécurité) sont-elles jointes?			<input checked="" type="checkbox"/> No / Non <input type="checkbox"/> Yes / Oui
16. Procurement Officer / Agent d'approvisionnement			
Name (print) - Nom (en lettres moulées) Michèle Hivon	Title - Titre Operational Chief - Procurement	Signature	
Telephone No. - N° de téléphone 514-607-4952	Facsimile No. - N° de télécopieur N/A	E-mail address - Adresse courriel michele.hivon@tpsgc-pwgsc.gc.ca	Date
Stephanie Tompkins Contract Security Officer Stephanie.tompkins@tpgsc-pwgsc.gc.ca		Title - Titre Contract Security Officer	Signature Tompkins, Stephanie Digitally signed by Tompkins, Stephanie Date: 2021.07.16 08:38:21 -04'00'
		E-mail address - Adresse courriel	Date



TRANSPORT CANADA MOTOR VEHICLE TEST CENTER

ANNEX F

Mandatory and Point Rated Technical Criteria

MANDATORY REQUIREMENTS

The bid must meet the mandatory technical criteria specified below. The Bidder must provide the necessary documentation to support compliance with this requirement.

MANDATORY TECHNICAL CRITERIA	MET/NOT MET	REQUIRED DOCUMENTATION	CROSS REFERENCE WITH BID SUBSTANTIATING DETAIL
1. The Bidder must register for the site visit with the Contracting Authority no later than July 29, 2022 at 5:00 pm EDT.		The Bidder must provide proof of the registration with the Contracting Authority.	

POINT RATED REQUIREMENTS

The Bidder's technical proposal should demonstrate the capability to manage and perform the tasks and responsibilities of the Statement of Work (Annex A).

Experience: Only the experience of the Bidder shall be considered unless otherwise noted. Criterion that permit the Bidder to rely on the experience of its subcontractor shall be marked by the term "Bidder or its Subcontractor". If a Bidder is relying on the experience of its subcontractor to meet the requirements of this RFP, the Bidder should provide the following information in its Bid:

- (1) The name of each entity;
- (2) The name of a duly authorized representative of each entity;
- (3) Information about the nature of business of each entity;
- (4) The roles and functions each entity will be performing if the Bidder is awarded the contract; and
- (5) A letter from the entity indicating that it consents to being proposed as a subcontractor for this solicitation, and that it is willing to perform the roles and functions described in subsection (4) above.

Provided Documentation: The bid will be evaluated solely on its content. Canada will not take into consideration any references in a bid to additional information not submitted with the bid, such as: (a) website addresses where additional information can be found; (b) technical manuals or brochures not submitted with the bid; or (c) past or existing standing offers, supply arrangements or contracts with the Government of Canada.

TECHNICAL EVALUATION

Bidders should address all of the technical evaluation criteria indicated in Annex F. Each of the technical evaluation criteria will be analyzed on the basis of Bidder provided information in their technical offers.

Bidders are advised that they should address all criteria presented in the Request for Proposal and that it is essential that the elements contained in their bid be stated completely and clearly. Bidders will be awarded points only if they have demonstrated the requirements set out in the evaluation criteria. No partial points will be awarded.

Unless otherwise indicated, the point allocation represents the maximum achievable score for the category.

The Bidder must provide the required documentation for Section One (1) of the Point Rated Technical Criterion (Experience of the Bidder in the Operation & Maintenance of a Research Test Facility) in **55** pages or less. The maximum allowed page limits for Section 2 and Section 3 of the Point Rated Technical Criteria are indicated in the corresponding section of the evaluation grid.

Offers failing to achieve the required pass marks in the point rated evaluation criteria will be excluded from further consideration.

Only offers that obtain the required minimum pass mark of **700** in the point rated criteria will be subject to financial evaluation.

The technical evaluation will account for **1000** points of the overall score.

POINT ALLOCATION

Table 1: SUMMARY OF POINT DISTRIBUTION

ELEMENTS	POINT ALLOCATION		MINIMUM PASS
	MAXIMUM	%	
1.0 EXPERIENCE OF THE BIDDER IN THE OPERATION & MAINTENANCE OF A RESEARCH TEST FACILITY	220		
1.1 DESCRIPTION OF THE RESEARCH TEST FACILITY OR FACILITIES	60		
1.2 DESCRIPTION OF BUILDING AND SITE MAINTENANCE SERVICES PROVIDED	20		
1.3 DESCRIPTION OF TECHNICAL SERVICES PROVIDED	140		
1.3.1 Experience in the provision of compliance test services	50		
1.3.2 Experience in the provision of automotive research test services	50		
1.3.3 Experience in the design, fabrication and application of customized test fixtures and customized test software	30		
1.3.4 Experience in the acquisition of test fixtures and instrumentation	10		
2.0 CAPABILITY FOR THE DELIVERY OF ENGINEERING TEST SERVICES	280		170 (60%)
2.1.1 TECHNICAL PLAN FOR THE PROVISION OF ENGINEERING TEST SERVICES	50		
2.1.2 TECHNICAL PLAN FOR THE PROVISION OF MAINTENANCE OF FIXED TEST EQUIPMENT	50		
2.2 CAPABILITY TO CONDUCT CRASHWORTHINESS RESEARCH TESTS	120		
2.3 CAPABILITY TO CONDUCT CRASH AVOIDANCE RESEARCH TESTS	60		
3.0 KEY PERSONNEL	500		300 (60%)
1. Engineering Manager	60		
2. Crash Lab Manager	75		
3. Crashworthiness Instrumentation Lab Manager	30		
4. Vehicle Test Structures Lab (VTS) Manager	35		
5. Crash Avoidance Research Lab Manager	35		
6. Crash Avoidance Test Development Specialist	25		
7. Environmental Lab and Plant Manager	75		
8. Sled Lab Manager	35		
9. High speed video specialist	30		

10. Refrigeration systems specialists 1	50		
11. Refrigeration systems specialists 2	50		
TOTAL	1000		700

POINT RATED TECHNICAL CRITERION	REQUIRED DOCUMENTATION	EVALUATION SCHEMA	POINTS
<p>1.0 EXPERIENCE OF THE BIDDER IN THE OPERATION AND MAINTENANCE OF A RESEARCH TEST FACILITY</p>	<p>The Bidder must provide the required documentation for Section 1 in 55 pages or less</p>	<p>The Bidder has not demonstrated that it has at least five (5) years of experience within the last 10 years in the operation and maintenance of a research test facility; OR</p> <p>The test laboratory or laboratories described do not include high energy fixed test equipment that is comparable to a hydraulic or electrically driven vehicle propulsion system, an acceleration sled, or a deceleration sled.</p>	<p>220</p>
<p>1.1 DESCRIPTION OF THE RESEARCH TEST FACILITY OR FACILITIES</p> <p>The Bidder should demonstrate that it has five (5) years or more of experience within the last ten (10) years in the operation and maintenance of a research test facility where the following characteristics are comparable to, or greater than, the Motor Vehicle Test Centre (MVTC):</p> <ul style="list-style-type: none"> • Scope is the number of different laboratories • Complexity refers to the necessity for specialized trades for the operation, maintenance and/or repair to ensure safety of persons and compliance with applicable regulations 	<p>The bidder should provide a description of at least five (5) years of experience within the last ten (10) years for the operation and maintenance of a research test facility where the size, scope, and complexity are comparable to, or greater than, the Motor Vehicle Test Centre (MVTC). In particular, the following details should be included:</p> <ol style="list-style-type: none"> A description of the site, including location, size of facilities and year of construction; A list of all indoor and outdoor laboratories including approximate dimensions, a description of principal test fixtures, capabilities at the facility; A description of the in-house support installations for example the machine shop, fuelling station, fire station, and store-keeping services; located at the facility; An explanation of how the operation and maintenance experience of the facility is comparable or greater to the scope, and complexity of the Motor Vehicle Test Centre described in Annex A. 	<p>0 Points</p> <p>The Bidder has not demonstrated that it has five (5) years or more of experience in the operation and maintenance of a research test facility; AND</p> <p>The Bidder has demonstrated that the test laboratory or laboratories that were operated and maintained by the Bidder contain some high energy fixed test equipment that are comparable to a hydraulic or electrically driven vehicle propulsion system or an acceleration sled or a deceleration sled; OR</p> <p>The Bidder has not demonstrated that it has operated and maintained an environmental chamber large enough to accommodate a passenger car.</p> <p>42 Points</p> <p>The Bidder has demonstrated that it has five (5) years of experience or more in the operation and maintenance of a research test facility; AND</p> <p>The Bidder has demonstrated that they have</p>	<p>60</p>

POINT RATED TECHNICAL CRITERION	REQUIRED DOCUMENTATION	EVALUATION SCHEMA	POINTS
		<p>operated and maintained a test facility that is comparable to the scope or complexity of the MVTC:</p> <p>a) The <i>scope</i>:</p> <ul style="list-style-type: none"> • The facility described includes at least three (3) temperature-controlled test laboratories; <u>AND</u> • The facility described includes at least three (3) different outdoor test areas; <u>AND</u> • The facility includes at least two (2) of the following support services: machine shop, fuelling station, fire station, or store-keeping services. <p><u>OR</u></p> <p>b) The complexity:</p> <ul style="list-style-type: none"> • The facility operated and maintained by the Bidder includes a mix of high energy fixed test equipment that are comparable to a hydraulic or electrically driven vehicle propulsion system, an acceleration or a deceleration sled and a VTS; <u>AND</u> • The facility operated and maintained by the Bidder includes an environmental chamber large enough to accommodate a light duty vehicle which includes an industrial refrigeration system that can maintain constant temperatures within a range of -30 C to 60 C or greater for at least 36 hours. <p>60 Points</p> <p>The Bidder has demonstrated that it has five (5) years of experience or more in the operation and maintenance of a research test facility; <u>AND</u></p> <p>The Bidder has demonstrated that the research test</p>	

POINT RATED TECHNICAL CRITERION	REQUIRED DOCUMENTATION	EVALUATION SCHEMA	POINTS
		<p>facility that was operated and maintained by the Bidder is comparable or exceeds the scope and complexity of the Motor Vehicle Test Centre:</p> <p>a) The scope:</p> <ul style="list-style-type: none"> • The facility includes at least three (3) different temperature-controlled laboratories containing high energy fixed test equipment; <u>AND</u> • The facility includes a network of test tracks with surfaces able to accommodate brake testing, dynamic testing, high speed testing of light and heavy-duty vehicles; <u>AND</u> • The facility includes all the following support services: machine shop, fuelling station, fire station, and store-keeping services. <p><u>AND</u></p> <p>b) The <u>complexity</u>:</p> <ul style="list-style-type: none"> • The Bidder has demonstrated that the test laboratories operated and maintained by the Bidder contain high energy fixed test equipment. The fixed test equipment includes a hydraulic or electrically driven multi-track vehicle propulsion system with high intensity lighting; and an acceleration sled; and a vehicle test structure (VTS) or pedestrian launcher; <u>AND</u> • At least one environmental chamber can accommodate a full size school bus and is controlled by an industrial refrigeration system that can maintain constant temperatures within a range of -30 C to 60 C or greater for at least 36 hours while compensating for the heat load generated during dynamometer testing. 	

<p>1.2 DESCRIPTION OF BUILDING AND SITE MAINTENANCE SERVICES PROVIDED</p> <p>The Bidder or its Subcontractor should demonstrate that it has at least five (5) years of experience within the last 10 years in the provision of building and site maintenance services that are comparable to, or greater than, the size, scope and complexity of requirements of the tasks described in Section 5 of Annex A.</p> <ul style="list-style-type: none"> • Size is the area of the facility and approximate area of temperature-controlled buildings • Scope and complexity is the number and type of building services as well as the type and number of specialized services managed by the Bidder for the maintenance services 	<p>Citing no more than three (3) total reference projects, the Bidder or its Subcontractor should demonstrate that it has at least five (5) years of experience (within the last ten (10) years) in the provision of building and site maintenance services that are comparable to, or greater than, the size, scope and complexity of the requirements of the tasks described in Section 5 of Annex A.</p> <p>The following information should be provided in the response:</p> <ol style="list-style-type: none"> The name of the site, description of the site, the size of the facility and location of the site if different from 1.1 The duration in years that the services were provided A description of maintenance services demonstrating how and why these are similar or greater in size, scope, and complexity to the requirements of Annex A, specifically the type of systems for which the services were provided should be included: <ol style="list-style-type: none"> Maintenance of heating and ventilation systems Maintenance of fire protection systems Maintenance of emergency power systems Maintenance of pressurized vessels Maintenance of a fuel station and pumping system Maintenance of conveying systems, Maintenance of electrically driven machinery 	<p>0 Points</p> <p>The Bidder or its Subcontractor has not demonstrated that:</p> <ol style="list-style-type: none"> It has at least five (5) years of experience within the last 10 years in the provision of building and site maintenance services; OR The building and site maintenance services included less than 2 of the 8 services identified in item c of the required documentation. <p>8 Points</p> <p>The Bidder has demonstrated the following:</p> <ol style="list-style-type: none"> It has at least 5 years of experience within the last 10 years in the provision of building and site maintenance services; AND The Bidder has demonstrated that it has provided building maintenance service for temperature-controlled buildings of at least 4,000 square meters; AND the building services provided included the 2 of the 8 services identified in item c of the required documentation. <p>14 Points</p> <p>The Bidder or his subcontractor has demonstrated the following:</p> <ol style="list-style-type: none"> It has at least 5 years of experience within the last 10 years in the provision of building and site maintenance services; AND The Bidder or his subcontractor has demonstrated that it has provided building and site maintenance service for temperature controlled buildings of at least 4,000 square meters and are located on approximately 200 hectares of land; AND
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	<p>viii. Maintenance of fleet vehicles</p>	
<p>c) The building and site maintenance services included four (4) of the following services:</p> <ul style="list-style-type: none"> • Maintenance of heating and ventilation systems • Maintenance of fire protection systems • Maintenance of emergency power systems • Maintenance of pressurized vessels • Maintenance of conveying systems <p>20 Points</p> <p>The Bidder or his subcontractor has demonstrated the following:</p> <p>a) It has more than five (5) years of experience within the last 10 years in the provision of building and site maintenance services; AND</p> <p>b) The building and site maintenance services provided were for a facility that is comparable or greater than the size of the Motor Vehicle Test Centre: the Bidder or his subcontractor has demonstrated that it has provided building and site maintenance services for temperature controlled buildings of at least 4,000 square meters and are located on approximately 200 hectares of land and that include access roads; AND</p> <p>c) the building and site maintenance services provided were comparable or exceed the scope and complexity: The services included all of the following:</p> <ul style="list-style-type: none"> • Maintenance of heating and ventilation systems • Maintenance of fire protection systems • Maintenance of emergency power systems 		

	<ul style="list-style-type: none"> Maintenance of pressurized vessels Maintenance of a fuel station and pumping system Maintenance of conveying systems, vehicle lifts Maintenance of electrically driven machinery Maintenance of fleet vehicles including industrial landscaping equipment 		140
<p>1.3 DESCRIPTION OF TECHNICAL SERVICES PROVIDED</p> <p>1.3.1 EXPERIENCE IN THE PROVISION OF COMPLIANCE TEST SERVICES</p> <p>The Bidder should demonstrate that it has least five (5) years (within the last ten (10) years) of experience in the provision of Canadian Motor Vehicle Safety Standards (CMVSS), Federal Motor Vehicle Safety Standards (FMVSS), or New Car Assessment Program (NCAP) test services that are comparable to, or greater than, the scope, size, and complexity of compliance test protocols described in Section 3.7 and Appendix C of Annex A.</p> <ul style="list-style-type: none"> Scope is the number of different compliance test protocols addressing different types of vehicles or child restraints Size is the average number of tests conducted per year by type 	<p>The Bidder should demonstrate that it has at least five (5) years of experience (within the last ten (10) years) in the provision of CMVSS, FMVSS, or NCAP test services that are comparable to, or greater than, the scope, size, and complexity of compliance test protocols described in Section 3 of Annex A. The Bidder should:</p> <ul style="list-style-type: none"> List the <u>types</u> (identified by test protocol) of CMVSS and/or FMVSS compliance and certification tests, and/or <u>type</u> of consumer test conducted; List the <u>number</u> of CMVSS and/or FMVSS compliance and certification tests, and the number of NCAP test conducted by type, and each year; List the type of ATDs used for the programs. 	<p>0 points</p> <p>The Bidder has not demonstrated that it has at least five (5) years of experience within the last 10 years in the provision of CMVSS, FMVSS, or NCAP test services that are comparable to, or greater than, the scope, size, and complexity of compliance test protocols described in Section 3 of Annex A; OR</p> <p>The Bidder has demonstrated experience with fewer than 10 different types of C/FMVSS protocols listed in Appendix C of Annex A</p> <p>20 Points</p> <p>The Bidder has demonstrated that it has at least five (5) years of experience within the last 10 years in the provision of CMVSS, FMVSS, or NCAP test services. AND</p> <p>The bidder has demonstrated:</p> <p>a) experience with at least 10 different types of C/FMVSS protocols listed in Appendix C of Annex A or NCAP dynamic test protocols and</p>	50

<ul style="list-style-type: none"> Complexity refers to the types of vehicles and types of ATDs 	<p>the test protocols include the evaluation of light duty vehicles and child seats. AND</p> <p>b) that the Bidder has conducted an average of 60 tests or more per year in accordance with an average of at least 10 different C/FMVSS protocols or NCAP dynamic test protocols per year. AND</p> <p>c) the test experience described includes crash testing of light duty vehicles; the Bidder has provided evidence of experience with the Hybrid III (child and adult), SIDIIIs, and ES2 (re) ATDs.</p>	
	<p>30 Points</p> <p>The Bidder has demonstrated the following that it has at least 5 years of experience within the last 10 years in the provision of CMVSS, FMVSS, or NCAP test services. AND</p> <p>The bidder has demonstrated:</p> <p>a) experience with more than 20 different types of C/FMVSS protocols listed in Appendix C of Annex A or NCAP dynamic test protocols and the test sample includes a mix of light and heavy-duty vehicles, school buses, motorcycles, and child seats; AND</p> <p>b) that the Bidder has conducted an average of 100 or more tests per year in accordance with an average of at least 15 different C/FMVSS or NCAP dynamic test protocols per year; AND</p> <p>c) the test experience described includes crash testing of light and heavy-duty vehicles and school buses; the Bidder has provided evidence of experience with the Hybrid III family (child and adult), SIDIIIs, and ES2 (re) ATDs.</p>	

	<p>50 Points</p> <p>The Bidder has demonstrated that it has at least five (5) years of experience within the last 10 years in the provision of CMVSS, FMVSS, or NCAP test services. AND</p> <p>a) The bidder has demonstrated experience with at least 20 different types of C/FMVSS protocols listed in Appendix C of Annex A or NCAP dynamic test protocols; the test sample includes a mix of light and heavy duty vehicles, school buses, motorcycles, snowmobiles and child seats. AND</p> <p>b) The size of programs conducted per year in the last 5 years is comparable or exceeds the compliance program presented in Annex A - Appendix I; the Bidder has conducted an average of 200 tests per year in accordance with an average of at least 20 C/FMVSS or NCAP dynamic test protocols. AND</p> <p>c) The test experience described includes crash testing of Internal Combustion Engine (ICE) and Electric Vehicles (EV), and may include other alternate fuel vehicles; and crash avoidance testing, including stability control of heavy-duty vehicles. The Bidder has provided evidence of experience with the complete Hybrid III family, SIDIIIs, and ES2 (re) ATDs.</p>
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<p>1.3.2 EXPERIENCE IN THE PROVISION OF AUTOMOTIVE RESEARCH TEST SERVICES</p> <p>The Bidder should demonstrate that it has it has least five (5) years of experience (in the last ten (10) years) in the provision of automotive research test services that are comparable to, or greater than, the size, and complexity of crash avoidance and crashworthiness test protocols described in Section 3.8 and 3.9 of Annex A.</p> <ul style="list-style-type: none"> • Scope is the number of different research test protocols addressing different types of vehicles or child restraints • Size is the average number of tests conducted per year • Complexity refers to the types of vehicles and types of ATDs 	<p>The Bidder should demonstrate that it has it has least five (5) years of experience (in the last ten (10) years) in the provision of automotive research test services that are comparable to, or greater than, the scope, size, and complexity of crash avoidance and crashworthiness test protocols described in Section 3 of Annex A.</p> <p>The bidder should describe the type of research program, and the type and number of tests conducted within each year of the program. The description should include, but not be limited to:</p> <ul style="list-style-type: none"> • the program objectives • type of test sample • the instrumentation and the data acquisition method 	<p>0 Points</p> <p>The Bidder has not demonstrated</p> <p>a) That it has at least five (5) years of experience in the last 10 years in the provision of automotive research test services OR</p> <p>b) The Bidder has demonstrated experience with fewer than three (3) different research crash configurations; or fewer than three (3) different research crash avoidance programs; OR</p> <p>c) The total number of tests for each of the crashworthiness and crash avoidance is fewer than 10; OR</p> <p>d) The test experience described does not include crash testing with multiple ATDs.</p> <p>20 Points</p> <p>The Bidder has demonstrated that it has at least five (5) years of experience in the last 10 years in the provision of automotive research test services;</p> <p>AND</p> <p>The Bidder has demonstrated two (2) of the following:</p> <p>a) the Bidder has demonstrated experience with several research crash configurations including rigid barrier and frontal and side impact MDB; and the crash avoidance program includes CAV evaluations with at least five (5) different systems evaluated; OR</p> <p>b) the total number of tests for the crashworthiness programs includes at least five (5) fully instrumented car crash tests; and crash avoidance includes at least 500 test</p>
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<p>runs; <u>OR</u></p> <p>c) the test experience described includes crash testing with multiple ATDs, at least 5 on-board cameras and interior lighting; and the test sample includes a mix of ICE and HEV vehicles; <u>OR</u></p> <p>d) the CAV evaluations include the development and implementation of test scenarios and programming of driving robots, targets.</p>	<p>30 Points</p> <p>The Bidder has demonstrated that it has at least 5 years of experience in the last 10 years in the provision of automotive research test services;</p> <p><u>AND</u></p> <p>The Bidder has demonstrated the following:</p> <p>a) the Bidder has demonstrated experience with more than three (3) different research crash configurations including moving car-to-moving car; and the crash avoidance program includes CAV evaluations with at least five (5) different systems evaluated; <u>AND</u></p> <p>b) the total number of tests for the crashworthiness programs includes at least 10 fully instrumented moving car-to-moving car crash tests; and crash avoidance includes at least 500 test runs; <u>AND</u></p> <p>c) the test experience described includes crash testing with multiple ATDs, at least 5 on-board cameras and interior lighting; and the test sample includes a mix of ICE, HEV and EV vehicles as well as heavy vehicles; and the CAV evaluations includes the development and implementation of test scenarios and programming of driving robots,</p>	
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<p>targets.</p> <p>50 Points</p> <p>The Bidder has demonstrated that it has more than 5 years of experience in the last 10 years in the provision of automotive research test services.</p> <p>The Bidder has demonstrated the following:</p>	<p>a) the Bidder has demonstrated experience with several research crash configurations including moving car-to-moving car frontal, frontal offset; MDB or bullet vehicle rear and side impact crash tests; side impact pole tests; and the crash avoidance program includes CAV evaluations with at least 15 different systems evaluated; AND</p> <p>b) the total number of tests for the crashworthiness programs includes more than 15 fully instrumented crash tests and the crash avoidance includes more than 1,000 test runs; AND</p> <p>c) the test experience described includes crash testing with multiple ATDs including THOR and WorldSID; and at least five (5) on-board high speed cameras and interior lighting; and the test sample includes a mix of ICE, HEV and EV vehicles as well as heavy vehicles such as school buses and/or transit buses; and the CAV evaluations include development and implementation of test scenarios and programming of driving robots and targets; and analysis.</p>

<p>1.3.3 EXPERIENCE IN THE DESIGN, FABRICATION AND APPLICATION OF CUSTOMIZED TEST FIXTURES AND CUSTOMIZED TEST SOFTWARE</p>			
<p>1.3.3.1 EXPERIENCE IN THE DESIGN, FABRICATION AND APPLICATION OF CUSTOMIZED TEST FIXTURES</p> <p>The Bidder should demonstrate that it has experience in the last ten (10) years in the design, fabrication and application of two customized test fixtures to enhance the safety, accuracy and/or repeatability of test programs that are similar in scope and complexity to those described in Sections 3 and 4 of Annex A. The Bidder should:</p> <ol style="list-style-type: none"> Provide two (2) different examples of customized test fixtures that were designed, fabricated and implemented to enhance the safety, accuracy and/or repeatability of test programs; Describe the project objectives; Describe the responsibilities of the Bidder as well as the methods used by the Bidder to meet the objectives and assure best value; Describe how any technical challenges that were encountered were resolved; Provide a brief description of how the test fixtures have been implemented; and Provide a photo of the finished product in situ. 	<p>The Bidder should demonstrate that it has experience in the last 10 years in the design, fabrication and application of customized test fixtures to enhance the safety, accuracy and/or repeatability of test programs that are similar in scope and complexity to those described in Sections 3 and 4 of Annex A. A maximum of 10 points will be provided for each example.</p> <p>For each example (up to a maximum of 2)</p> <p>0 Points No example provided OR;</p> <p>The example contains omissions and/or multiple deficiencies, such as:</p> <ul style="list-style-type: none"> The project objectives do not support the purpose as presented. OR The responsibilities of the Bidder are not clearly described. OR The technical challenges are not described or not pertinent to the example. OR The purpose of the test fixture design is not explained. <p>4 Points The example contains significant weaknesses that are not offset by strengths. Weaknesses would likely have a negative impact on the design, fabrication, and application of customized test fixtures:</p> <ul style="list-style-type: none"> The purpose of the test fixture design is explained but fails to demonstrate how the 	<p>The Bidder should demonstrate that it has experience in the last ten (10) years in the design, fabrication and application of two customized test fixtures to enhance the safety, accuracy and/or repeatability of test programs that are similar in scope and complexity to those described in Sections 3 and 4 of Annex A. The Bidder should:</p> <ol style="list-style-type: none"> Provide two (2) different examples of customized test fixtures that were designed, fabricated and implemented to enhance the safety, accuracy and/or repeatability of test programs; Describe the project objectives; Describe the responsibilities of the Bidder as well as the methods used by the Bidder to meet the objectives and assure best value; Describe how any technical challenges that were encountered were resolved; Provide a brief description of how the test fixtures have been implemented; and Provide a photo of the finished product in situ. 	<p>The Bidder should demonstrate that it has experience in the last 10 years in the design, fabrication and application of customized test fixtures to enhance the safety, accuracy and/or repeatability of test programs that are similar in scope and complexity to those described in Sections 3 and 4 of Annex A. A maximum of 10 points will be provided for each example.</p> <p>For each example (up to a maximum of 2)</p> <p>0 Points No example provided OR;</p> <p>The example contains omissions and/or multiple deficiencies, such as:</p> <ul style="list-style-type: none"> The project objectives do not support the purpose as presented. OR The responsibilities of the Bidder are not clearly described. OR The technical challenges are not described or not pertinent to the example. OR The purpose of the test fixture design is not explained. <p>4 Points The example contains significant weaknesses that are not offset by strengths. Weaknesses would likely have a negative impact on the design, fabrication, and application of customized test fixtures:</p> <ul style="list-style-type: none"> The purpose of the test fixture design is explained but fails to demonstrate how the

<p>design of the test fixture enhanced the safety, accuracy and/or repeatability of test programs. OR</p> <ul style="list-style-type: none"> • The responsibilities of the Bidder are unclear or incomplete. OR • The technical challenges are described but are missing obvious elements. 		
<p>7 Points Weaknesses are offset by strengths or should have an insignificant impact on contract performance:</p> <ul style="list-style-type: none"> • The purpose of the test fixture design is explained clearly enough such that it provides evidence that the need for safety, accuracy and/or repeatability of test programs is understood. AND • The project objectives are aligned with the purpose as presented. AND • The responsibilities of the Bidder are clear and complete: the distribution of work assignments to staff and/or subcontractors and the rational for doing so are explained and reasonable. AND • The technical challenges are realistic and can be clearly linked to the purpose and objectives of the project and reality of a research test facility. AND • The test fixture has been implemented and a photo of the test fixture is provided. 		
<p>10 Points Strengths far outweigh Weaknesses.</p> <ul style="list-style-type: none"> • The purpose of the test fixture design is explained clearly enough such that it provides evidence that the need for safety, accuracy 		

	<p>and/or repeatability of test programs is well understood. <u>AND</u></p> <ul style="list-style-type: none"> • The project objectives are aligned with the purpose as presented. <u>AND</u> • The purpose of the test fixture design reflects an understanding of technological advances and how these may influence future test methods and takes into consideration integration with existing test equipment. <u>AND</u> • The example includes innovative elements and is not a reproduction of an existing test fixture. <u>AND</u> • The responsibilities of the Bidder are clear and complete; the distribution of work assignments to staff and/or subcontractors and the rationale for doing so are explained and reasonable. <u>AND</u> • The technical challenges are realistic and can be clearly linked to the purpose and objectives of the project and reality of a research test facility. <u>AND</u> • The test fixture has been implemented and a photo of the test fixture is provided. 	

<p>1.3.3.2 EXPERIENCE IN THE DEVELOPMENT, AND APPLICATION OF CUSTOMIZED TEST SOFTWARE</p> <p>The Bidder should demonstrate that it has experience in the last ten (10) years in the development and customization of software to enhance the safety, accuracy and/or repeatability of a compliance or consumer test program that are similar in scope and complexity the test programs described in Sections 3 and 4 of Annex A.</p> <p>“Deficiency” means a material failure to meet a requirement or a combination of significant Weaknesses that greatly increase the risk of unsuccessful performance.</p> <p>“Significant Weakness” means a flaw that appreciably increases the risk of unsuccessful performance.</p> <p>“Strength” means an aspect that has merit or exceeds specified performance or capability requirements in a way that will be advantageous during performance.</p> <p>“Weakness” means a flaw that increases the risk of unsuccessful performance.</p>	<p>The Bidder should demonstrate that it has experience in the last ten (10) years in the development of customized software to enhance the safety, accuracy and/or repeatability of a compliance or consumer test program that are similar in scope and complexity those described in Sections 3 and 4 of Annex A. The Bidder should provide:</p> <p>a) One (1) example of customized software that was developed and implemented to enhance the safety, accuracy and/or repeatability of a compliance or consumer test program;</p> <p>b) Describe the project objectives;</p> <p>c) The responsibilities of the Bidder in carrying out the work, including the outsourcing if applicable;</p> <p>d) Any technical challenges that were encountered and how these were resolved;</p> <p>e) Evidence (date of commencement, date of acceptance of the client) that the software has been implemented.</p>	<p>The Bidder should demonstrate that it has experience in the last ten (10) years in the development of customized software to enhance the safety, accuracy and/or repeatability of a compliance or consumer test program that are similar in scope and complexity those described in Sections 3 and 4 of Annex A.</p> <p>0 Points</p> <p>The example contains omissions and/or multiple Deficiencies such as:</p> <ul style="list-style-type: none"> • The purpose of the software design is not explained. OR • The project objectives do not support the purpose as presented. OR • The responsibilities of the Bidder are not clearly described. OR • The technical challenges are not described or not pertinent to the example. <p>4 Points</p> <p>The example contains significant weaknesses that are not offset by strengths. Weaknesses outweigh strengths, which would likely have a negative impact on contract performance.</p> <ul style="list-style-type: none"> • The purpose of the software is explained but fails to demonstrate how it improves the safety, accuracy and/or repeatability of test programs. OR • The responsibilities of the Bidder are unclear or incomplete. OR • The technical challenges are described but are missing obvious elements. 	<p>10</p>
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	<p>7 Points</p> <p>Weaknesses are offset by strengths or should have an insignificant impact on contract performance.</p> <ul style="list-style-type: none"> • The purpose of the software is explained clearly enough such that it provides evidence that the need for safety, accuracy and/or repeatability of test programs is well understood. <u>AND</u> • The responsibilities of the Bidder are clear and complete; the distribution of work assignments to staff and/or subcontractors and the rationale for doing so are explained and reasonable. <u>AND</u> • The technical challenges are realistic and can be clearly linked to the purpose and objectives of the project and reality of a research test facility. <u>AND</u> • The software has been implemented. 	
		<p>10 Points</p> <p>Strengths far outweigh weaknesses.</p> <ul style="list-style-type: none"> • The purpose of the software is explained clearly enough such that it provides evidence that the need for safety, accuracy and/or repeatability of test programs is well understood. <u>AND</u> • The purpose of the software reflects an understanding of technological advances and how these may influence future test methods. <u>AND</u> • The example is not a reproduction or modification of commercially available software and takes into consideration integration with existing systems. <u>AND</u> • The responsibilities of the Bidder in ensuring

	<p>best value are clear and complete: the distribution of work assignments to staff and/or subcontractors and the rational for doing so are explained and reasonable. AND</p> <ul style="list-style-type: none"> The technical challenges are realistic and can be clearly linked to the purpose and objectives of the project and reality of a research or compliance test programs. AND Evidence that the software has been implemented is provided. 	
<p>1.3.4 EXPERIENCE IN THE ACQUISITION OF TEST FIXTURES AND INSTRUMENTATION</p> <p>The Bidder should demonstrate that it has experience in the last five (5) years in the acquisition of at least ten (10) specialized test fixtures or instrumentation valued at \$100,000 CDN or more (taxes excluded) that are commensurate with the Tasks described in Sections 3 and 4 of Annex A.</p>	<p>The Bidder should demonstrate that it has experience in the last five (5) years in the acquisition of at least ten (10) specialized test fixtures and instrumentation valued at \$100,000 CDN or more that are commensurate with the Tasks described in Sections 3 and 4 of Annex A.</p> <p>The Bidder should:</p> <ol style="list-style-type: none"> Provide a list of specialized test fixture or instrumentation acquisition projects valued at \$100,000 CDN or more that were managed by the Bidder in the last five (5) years. <p>From this list select two (2) examples for two (2) different types of programs (i.e.; crashworthiness or crash avoidance) and for each example describe the following elements:</p> <ol style="list-style-type: none"> The intended purpose of the test fixture or instrumentation; the method of acquisition for each example (i.e. sole source, competitive, by invitation, or other); the steps taken to optimize compatibility with the facility and the existing test fixture(s), instrumentation or specialized equipment; the steps taken to ensure compliance with applicable codes and regulations; 	<p>0 Points</p> <p>The Bidder has not provided a list containing at least 10 specialized test fixtures and instrumentation valued at \$100,000 CDN or more that are commensurate with the Tasks described in Sections 3 and 4 of Annex A.</p> <p>4 Points</p> <p>The Bidder has provided</p> <ol style="list-style-type: none"> a list containing at least 10 specialized test fixtures and instrumentation valued at \$100,000 CDN or more that are commensurate with the Tasks described in Sections 3 and 4 of Annex A; OR 2 examples but 3 of the 5 elements (a-e) requested are missing or incomplete <p>7 Points</p> <p>The Bidder has provided</p> <ol style="list-style-type: none"> a list containing at least 10 specialized test fixtures and instrumentation valued at \$100,000 CDN or more that are commensurate with the Tasks described in Section 3 and 4 of Annex A; AND 2 examples, and each example contains the
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	<p>e) the steps taken by the Bidder to ensure best value.</p>	
<p>most of the 5 elements (a-e) of information requested; AND</p> <p>c) an explanation of best value with respect to the example demonstrates a good understanding long term costs of servicing/maintenance.</p> <p>10 Points The Bidder has provided</p> <p>a) A list of more than 10 acquisitions of specialized test fixtures and instrumentation valued at \$100,000 CDN or more that are commensurate with the Tasks described in Sections 3 and 4 of Annex A; AND</p> <p>b) The Bidder has provided 2 examples, and each example contains all 5 elements (a-e) of information requested; AND</p> <p>c) the examples include two different types of acquisitions; AND</p> <p>d) a description of the steps taken to optimize compatibility with the facility and the existing test fixture(s), instrumentation or specialized equipment reflects best practice in the industry; AND</p> <p>e) an explanation of best value with respect to the example demonstrates a good understanding the costs associated with incompatibility and long-term costs of servicing/maintenance.</p>		

<p>2.0 CAPABILITY FOR THE DELIVERY OF ENGINEERING TEST SERVICES</p>			280
<p>2.1.1 TECHNICAL PLAN FOR THE PROVISION OF ENGINEERING TEST SERVICES</p> <p>The Technical Plan submitted by the Bidder should provide evidence that the Bidder has a good understanding of the services required, the timeframe necessary to carry out the work, and challenges to deliver results. The proposal should include well-defined plans that identify clear and reasonable actions to ensure the safe conduct of programs and timely delivery of accurate results.</p> <p>For the purposes of this evaluation, "good understanding" means that the provided answer is complete, logical, feasible, project-specific and consistent with the industry's best practices.</p> <p>For this section:</p> <p>"Deficiency" means a material failure to meet a requirement or a combination of significant Weaknesses that greatly increase the risk of unsuccessful performance.</p> <p>"Significant Weakness" means a flaw that appreciably increases the risk of unsuccessful performance.</p> <p>"Strength" means an aspect that has merit or exceeds specified performance or capability requirements in a way that will be advantageous during performance.</p> <p>"Weakness" means a flaw that increases the risk of unsuccessful performance.</p>	<p>In twenty (20) pages or less, the Bidder should provide evidence that the Bidder has a good understanding of the services required, the timeframe necessary to carry out the work, and challenges to deliver results.</p> <p>The Bidder's proposal should include a well-defined plan that identifies clear and reasonable actions to ensure the safe conduct of programs and timely delivery of accurate results.</p> <p>The bidder should provide a Technical Plan for conducting the compliance and research test programs described in Sections 3 and 4 of Annex A, including:</p> <ol style="list-style-type: none"> A table should present the distribution of proposed baseline personnel as a function of activity centre, the key responsibility of each team member, labour category and back-up positions. An organizational chart outlining the the reporting structure. A plan to recruit, train and retain baseline personnel for the uninterrupted provision of technical services. An outline of how calibration and repairs of instrumentation and test equipment will be managed for each of crash avoidance and crashworthiness programs. Clear description of anticipated challenges that could lead to program interruptions or delays. Clear description of key mitigations to address challenges identified in e. 	<p>0 Points Fails to provide one or more elements of the required documentation. Significant weaknesses identified are not offset by strengths.</p> <p>20 Points Weaknesses outweigh strengths, which would likely have a negative impact on contract performance. The Bidder has provided</p> <ol style="list-style-type: none"> a table of proposed baseline personnel that is incomplete or reflects an inadequate understanding of safety and quality assurance in the crash avoidance and crashworthiness areas of testing; OR an organizational chart that is incomplete or provides evidence that the Bidder does not have a good understanding of the responsibilities the reporting structure or that does not reflect appropriate skill sets needed for the delivery of safe, accurate results in the timeline requested; several key resources within each team are missing; OR The plan to recruit, train and retain baseline personnel is incomplete or the training plan is not commensurate with the level of responsibility for the position. OR Proposed actions for the calibration and repairs of instrumentation and test equipment that include a somewhat reasonable approach but are missing elements or are not aligned with the realities of the industry lead times. 	50

	<p>35 Points</p> <p>Weaknesses are offset by strengths or should have an insignificant impact on contract performance.</p> <p>The Bidder has provided</p> <ul style="list-style-type: none"> a) a table of proposed baseline personnel that contains three (3) or fewer resources in any of the following activity centres: <ul style="list-style-type: none"> a. VTS & main lab b. Crash c. Sled d. Crash avoidance <p>The roles of the resources are described <u>AND</u></p> <ul style="list-style-type: none"> b) an organizational chart that provides evidence that the Bidder has a good understanding of the responsibilities and the tasks; the reporting structure includes resources required for the uninterrupted delivery of safe, accurate results in the timeline requested; some key resources within each team are missing or the evidence of back-up positions for these key resources is weak; <u>AND</u> c) a plan to recruit, train and retain baseline personnel that reflects current industry practice and is commensurate with the level of responsibility for the position; <u>AND</u> d) a list of proposed actions for the calibration and repairs of instrumentation and test equipment that includes a reasonable approach but is missing some elements or is not aligned with the realities of the industry lead times; <u>AND</u> e) a clear and reasonable description of anticipated challenges that could lead to program interruptions or delays; the description provides some evidence of an 		
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	<p>understanding of the automotive test industry.</p> <p>50 Points</p> <p>Strengths far outweigh weaknesses. The Bidder has provided</p> <ul style="list-style-type: none"> a) a table of proposed baseline personnel that contains at least three (3) resources in each of the following activity centres: <ul style="list-style-type: none"> a. VTS & main lab b. Crash c. Sled d. Crash avoidance <p>baseline personnel proposed for technical support of the activity centres are included in the table. The team structure demonstrates a good understanding of safety and quality assurance in each area of testing; <u>AND</u></p> <ul style="list-style-type: none"> b) an organizational chart that provides evidence that the Bidder has a good understanding of the responsibilities and the tasks; the reporting structure is sustainable and includes resources required for the uninterrupted delivery of safe, accurate results in the timeline requested; key resources within each team are identified and back-up positions for these key resources are also identified; <u>AND</u> <ul style="list-style-type: none"> c) a plan to recruit, train and retain baseline personnel that reflects current industry practice and is commensurate with the level of responsibility for the positions. Mechanisms to establish work teams with a mix of complementary skills to promote safety, quality control and efficiency are presented. <ul style="list-style-type: none"> d) proposed actions for the calibration and
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<p>repairs of instrumentation and test equipment include a reasonable approach that is aligned with the realities of the industry lead times; AND</p> <p>e) a clear and reasonable description of anticipated challenges that could lead to program interruptions or delays are supported by Bidder examples; the description provides evidence of a good understanding of the automotive test industry; AND</p> <p>f) a clear, logical, and well thought out description of key mitigations to address challenges supported by Bidder examples: The response demonstrates that the Bidder is experienced and able to offer a solid approach to ensure accurate, safe and timely program delivery.</p>		<p>2.1.2 TECHNICAL PLAN FOR THE PROVISION OF MAINTENANCE OF FIXED TEST EQUIPMENT</p> <p>The Technical Plan for the maintenance of fixed test equipment should provide evidence that the Bidder understands the type of maintenance and resources that are needed to minimize equipment malfunction or sub-optimal equipment performance of the fixed test equipment.</p> <p>“Deficiency” means a material failure to meet a requirement or a combination of significant Weaknesses that greatly increase the risk of unsuccessful performance under the Project Agreement.</p> <p>“Significant Weakness” means a flaw that appreciably increases the risk of unsuccessful performance under the Project Agreement.</p> <p>“Strength” means an aspect that has merit or exceeds specified performance or capability</p>
<p>0 Points</p> <p>Technical Plan for conducting the maintenance, troubleshooting and repair of fixed test equipment described in Section 4 of Annex A clearly does not meet evaluation criteria requirements and contains multiple Deficiencies.</p> <p>Significant weaknesses are identified that are not offset by Strengths.</p> <p>20 Points</p> <p>Weaknesses outweigh strengths, which would likely have a negative impact on contract performance.</p> <p>The Bidder has provided:</p> <p>a) An incomplete organizational chart that does not provide evidence that the Bidder has the baseline personnel required to deliver maintenance, troubleshooting and repairs in the timeline requested; several key</p>	<p>In fifteen (15) pages or less, the Bidder should provide a Technical Plan for conducting the maintenance, troubleshooting and repair of fixed test equipment described in Appendix N of Annex A, including:</p> <p>a) An organizational chart outlining the teams that will be assigned to carry out the maintenance services. The chart should include the key responsibility of each team member, labour category and back-up positions should be identified;</p> <p>b) A plan of how maintenance, troubleshooting and repairs of fixed test equipment will be managed;</p> <p>c) Clearly describe anticipated challenges that could lead to program interruptions or delays;</p> <p>d) Clearly describe key mitigations to address challenges identified in c).</p>	
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<p>requirements in a way that will be advantageous during performance under the Project Agreement.</p> <p>“Weakness” means a flaw that increases the risk of unsuccessful performance under the Project Agreement.</p>	<p>resources within each team are missing; <u>OR</u></p> <p>b) Proposed plan for the maintenance, troubleshooting and repair of fixed test equipment include a somewhat reasonable approach but are missing several elements or are not aligned with the realities of the industry lead times; <u>OR</u></p> <p>c) A clear and reasonable description of some anticipated challenges that could lead to program interruptions or delays; the description provides some evidence of an understanding of the automotive test industry; <u>OR</u></p> <p>d) A clear, logical, but incomplete description of key mitigations to address some of the challenges are identified: The response demonstrates that the Bidder may not be able to ensure accurate, safe and timely maintenance, troubleshooting and repairs of fixed test equipment.</p>	<p>35 Points</p> <p>Weaknesses are offset by strengths or should have an insignificant impact on contract performance.</p> <p>The Bidder has provided:</p> <p>a) An organizational chart that provides evidence that the Bidder has the baseline personnel required to deliver maintenance, troubleshooting and repairs of fixed test equipment in a safe, accurate manner and within the timeline requested; some key resources within each team are missing and the evidence of back-up positions for these key resources is weak; <u>AND</u></p> <p>b) The plan describes how team structure and assignments will contribute to the safe maintenance, troubleshooting and repairs of fixed test equipment; The plan may include a</p>
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	<p>mix of in-house and external resources</p> <p><u>AND</u></p> <p>c) A clear and reasonable description of anticipated challenges that could lead to program interruptions or delays; the description provides some evidence of an understanding of the automotive test industry; <u>AND</u></p> <p>d) A clear, logical, and well thought out description of key mitigations to address many of the challenges are identified; The response demonstrates that the Bidder is experienced and able to offer a reasonable approach to ensure accurate, safe and timely maintenance, troubleshooting and repairs of fixed test equipment.</p> <p>50 Points</p> <p>Strengths far outweigh weaknesses. The Bidder has provided:</p> <p>a) An organizational chart that provides evidence that the Bidder has the baseline personnel to deliver maintenance, troubleshooting and repairs of fixed test equipment in a safe, accurate and within the timeline requested; key resources within each team are identified and back-up positions for these key resources are identified; <u>AND</u></p> <p>b) The plan describes how team structure, training and assignments of tasks will contribute to the safe maintenance, troubleshooting and repairs of fixed test equipment; Mechanisms to establish work teams with a mix of complementary skills to benefit programs are presented. The plan relies primarily of in-house resources. <u>AND</u></p>	

		<p>c) Objectives and proposed actions for the calibration and repairs of the fixed test equipment includes a reasonable approach that is aligned with the realities of the industry lead times; AND</p> <p>d) A clear and reasonable description of anticipated challenges that could lead to program interruptions or delays are supported by Bidder examples: the description provides evidence of a good understanding of the automotive test industry; AND</p> <p>e) A clear, logical, and well thought out description of key mitigations to address challenges are supported by Bidder examples; The response demonstrates that the Bidder is experienced and able to offer a solid approach to ensure accurate, safe and timely program delivery.</p>	
<p>2.2 CAPABILITY TO CONDUCT CRASHWORTHINESS RESEARCH TESTS</p> <p>The Bidder should demonstrate a good understanding of the stated objectives, the safety and technical requirements, and the constraints and issues that will have an impact on crashworthiness research tests.</p>	<p>In thirty (35) pages or less, the Bidder should demonstrate a good understanding of the stated objectives, the safety and technical requirements, and the constraints and issues that will have an impact on crashworthiness research tests by providing the test procedure for TEST SCENARIO 1 presented in Appendix A of Annex F. The information provided should include:</p> <ul style="list-style-type: none"> a) Pre and post-test test procedure; highlighting the most important steps required to meet the test objectives b) Team members and areas of responsibility; and c) Time required to complete the test (from initial preparation to report submission). 	<p>0 Points</p> <p>The Bidder has not provided a demonstration of an understanding of the stated objectives, the safety and technical requirements, and the constraints and issues that will have an impact on crashworthiness research tests. In particular, the bidder has not provided:</p> <ul style="list-style-type: none"> a) a pre and post-test, test procedure that is clear and logical and is aligned with the objectives of the test; OR b) information about the team members and their responsibilities; OR c) a time estimate to complete the testing that is within industry norms. <p>40 Points</p> <p>The Bidder has provided</p>	120

<p>a) a pre and post test, test procedure that contains errors: significant details are either missing or incorrect; the content of the procedure addresses all of the following elements correctly:</p> <ul style="list-style-type: none"> • pre-launch safety checklist, • instrumentation preparation, installation, and verification, • quality control of the data <u>OR</u> <p>b) information about the team members but the responsibilities are not clearly identified; <u>OR</u></p> <p>c) a time required to complete testing that exceeds or underestimates industry averages.</p>	<p>80 Points</p> <p>The Bidder has provided</p> <p>a) a pre and post-test, test procedure that is clear and logical but contains some errors or omissions: some details are either missing or incorrect; the content of the procedure addresses all of the following elements correctly:</p> <ul style="list-style-type: none"> • pre-launch safety checklist, • vehicle preparation and verification, • vehicle measurement, • ATD positioning and measurement, • instrumentation preparation, and installation • quality control of the data <u>AND</u> <p>b) information about the team members and their responsibilities are clearly identified; <u>AND</u></p> <p>c) a time required to complete testing is within industry averages</p>
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		<p>120 Points The Bidder has provided</p> <p>a) a complete pre and post-test, test procedure that is clear and logical and contains minor errors or omissions: minor details are either missing or incorrect; the content of the procedure addresses all of the following elements and more, correctly:</p> <ul style="list-style-type: none"> • pre-launch safety checklist, • vehicle preparation and verification, • vehicle measurement • ATD positioning and measurement • instrumentation preparation, installation and verification, • DAS preparation and installation • Video camera selection, placement, frames and lighting • quality control of the data • post-test measurements AND <p>b) information about the team members and their responsibilities are clearly identified; and the team is of reasonable size to conduct a safe crash test; AND</p> <p>c) a time required to complete testing is within industry averages.</p>	
<p>2.3 CAPABILITY TO CONDUCT CRASH AVOIDANCE RESEARCH TESTS</p> <p>The Bidder should demonstrate an understanding of the stated objectives, the safety and technical requirements, and the constraints and issues that will have an impact on conducting crash avoidance research tests.</p>	<p>In twenty (20) pages or less, The Bidder should demonstrate an understanding of the stated objectives, the safety and technical requirements, and the constraints and issues that will have an impact on conducting crash avoidance research tests by providing the test procedure for TEST SCENARIO 2 presented in Appendix A of Annex F. The information provided should include:</p> <p>a) Complete pre and post-test, test procedure;</p> <p>b) Team members and areas of responsibility; and</p>	<p>0 Points</p> <p>The Bidder has not demonstrated an understanding of the stated objectives, the safety and technical requirements, and the constraints and issues that will have an impact on conducting crash avoidance research tests. In particular, the bidder has not provided:</p> <p>a) a pre and post-test, test procedure; OR</p> <p>b) information about the team members and their responsibilities; OR</p>	60

	<p>c) Time required to complete the test (from initial preparation to report submission).</p>	<p>c) a time required to complete testing that is grossly outside within industry norms</p> <p>25 Points The Bidder has provided:</p> <ul style="list-style-type: none"> a) a pre and post-test, test procedure that contains errors: significant details are either missing or incorrect; OR b) information about the team members but the responsibilities are not clearly identified; OR c) a time required to complete testing that exceeds industry norms <p>50 Points The Bidder has provided:</p> <ul style="list-style-type: none"> a) a pre and post-test, test procedure that is clear and logical but contains some errors or omissions: some details are either missing or incorrect; the content of the procedure addresses at least five (5) of the following elements or more: safety, vehicle preparation and verification; instrumentation preparation, installation, and verification; quality control of the data; and data storage AND b) information about the team members and their responsibilities are clearly identified; AND c) anticipated time required to complete testing that is close to industry averages <p>60 Points The Bidder has provided:</p> <ul style="list-style-type: none"> a) a complete pre and post-test, test procedure that is clear and logical; the content of the procedure addresses all the following elements or more: safety, vehicle preparation and verification; instrumentation preparation, installation, and verification; quality control of
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		<p>the data and data storage; <u>AND</u></p> <p>b) information about the team members and their responsibilities are clearly identified; the rationale for the composition of the team is clear and reasonable; <u>AND</u></p> <p>c) anticipated time required to complete testing is within industry averages.</p>	
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<p>3.0 KEY PERSONNEL</p> <p>Curriculum vitae demonstrate that the proposed personnel meet or exceed the required work experience, education, skills required for the responsibilities and tasks that are described in Annex A - Appendix B.</p> <p>Note:</p> <ul style="list-style-type: none"> a) Only one resource can be proposed for lab manager positions i.e., two or more resources cannot be proposed for a single lab management position; b) One resource can be proposed for no more than two (2) management positions c) A resource proposed for any lab manager position cannot also be proposed for a specialist position. d) The resource proposed for Safety & Security cannot be proposed for any other position (Management or Specialty); <p>The bidder should provide key personnel that meet the requirements as follows:</p>			500
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<p>3.1.1 Engineering Manager</p> <p>The Bidder should demonstrate that the resource has at least ten (10) years in the last fifteen (15) years of experience in operating and managing a research test facility.</p>	<p>In 10 pages or less, the Bidder should provide a description of least ten (10) years of experience in the last fifteen (15) years in operating and managing a research test facility. The following details should be included:</p> <ul style="list-style-type: none"> a) Name; b) Describe education: university degree, name of university and year of graduation; c) Describe the most recent large (\$1 million or more) multi-year, multi-disciplinary contract that was managed, include the value and describe responsibilities as engineering manager; d) Identify and describe capital acquisition projects valued at \$1 million or more that were directly managed by the candidate in the last 10 years; e) Describe, with chronological reference indicating years, experience in the management of human resources; f) Describe, with chronological reference indicating years, most recent experience in the management of the implementation and maintenance of quality assurance programs & standards; g) Describe, with chronological reference indicating experience, the management of infrastructure improvement projects valued at \$1 million or more that required integration into an existing infrastructure managed by the candidate. 	<p>0 Points</p> <p>The Bidder has not provided:</p> <ul style="list-style-type: none"> a) evidence that the resource has at least 10 years of experience in the last 15 years in operating and managing a research test facility; OR b) documentation to demonstrate that the resource meets the educational requirements <p>25 Points</p> <p>The Bidder has provided:</p> <ul style="list-style-type: none"> a) evidence that the resource has at least 10 years of experience in the last 15 years in operating and managing a research test facility; AND b) documentation to demonstrate that the resource meets the educational requirements; AND c) evidence of some experience in the management of a large multi-year, multi-disciplinary contract; AND d) evidence that the resource has managed at least one (1) capital acquisition or capital acquisition project valued at \$1 million or more in the last 10 years. <p>40 Points</p> <p>The Bidder has provided:</p> <ul style="list-style-type: none"> a) evidence that the resource has 10 years or more of experience in the last 15 years in operating and managing a research test facility; AND 	<p>60</p>
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	<p>b) documentation to demonstrate that the resource meets the educational requirements; <u>AND</u></p> <p>c) evidence of five (5) years or more of experience in the management of a large multi-year, multi-disciplinary contract; <u>AND</u></p> <p>d) evidence that the resource has managed at least two (2) capital acquisition or capital acquisition project valued at \$1 million or more in the last 10 years; <u>AND</u></p> <p>e) evidence that the resource has managed a multidisciplinary team of at least 30 professional and technical staff; <u>AND</u></p> <p>f) evidence of experience in the development and implementation and maintenance of a recognized quality assurance plan (i.e., ISO 2015 or later).</p> <p>60 Points</p> <p>The Bidder has provided:</p> <p>a) evidence that the resource has more than 10 years of experience in the last 15 years in operating and managing a research test facility; <u>AND</u></p> <p>b) documentation to demonstrate that the resource meets the educational requirements; <u>AND</u></p> <p>c) evidence of 10 years or more of experience in the management of a large multi-year, multi-disciplinary contract; <u>AND</u></p> <p>d) evidence that the resource has managed at least two (2) capital acquisition or capital acquisition project valued at \$1 million or more in the last 10 years; <u>AND</u></p> <p>e) evidence that the resource has managed a multidisciplinary team of at least 50</p>	
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<p>3.1.2 Crash Lab Manager</p> <p>The Bidder should demonstrate that the resource has at least ten (10) years in the last fifteen (15) years of experience in the engineering management in a Crash Laboratory.</p>	<p>In 10 pages or less, the Bidder should provide a description of least ten (10) years of experience in the last fifteen (15) years in the engineering management of a research test facility. The following details should be included:</p> <ul style="list-style-type: none"> a) Name; b) Education; c) Describe, with chronological reference indicating years since 2010, experience as a manager of a crash laboratory and provide a description of responsibilities; d) Describe, with chronological reference indicating years, engineering management experience in compliance crash testing; e) Describe, with chronological reference indicating years, engineering management experience in crashworthiness research testing; f) Describe, with chronological reference indicating years, experience in the management of human resources; g) Describe, with chronological reference indicating years, most recent experience in the management of the implementation and 	<p>professionals, technical, and support staff; AND</p> <ul style="list-style-type: none"> f) evidence of experience in the development and implementation and maintenance of a recognized quality assurance plan (i.e., ISO 2015 or later); AND g) evidence of at least two (2) infrastructure improvement projects valued at \$1 million or more that required integration into an existing infrastructure. The experience is well supported by examples describing the integration that was managed by the resource. 	
<p>0 Points</p> <p>The Bidder has not provided:</p> <ul style="list-style-type: none"> a) evidence that the resource has at least 10 years of experience in the last 15 years in engineering management of a crash laboratory; OR b) documentation to demonstrate that the resource meets the educational requirements. 		<p>30 Points</p> <p>The Bidder has provided:</p> <ul style="list-style-type: none"> a) evidence that the resource has at least 10 years of experience in the last 15 years in engineering management in a Crash Laboratory; AND b) documentation to demonstrate the resource meets the educational requirements; AND c) evidence that the experience of the resource includes 2 of the following: <ul style="list-style-type: none"> a. management of material acquisitions projects and crash laboratory improvements; and 	75

	<p>maintenance of quality assurance programs & standards;</p> <p>h) Describe, with chronological reference, projects valued at \$0.5 million or more managed by the candidate in the last 10 years, describing responsibilities of the resource.</p> <p>i) Describe, with chronological reference, crash lab improvements, including retrofitting or customizing of instrumentation managed or carried out by the candidate;</p>	
<p>b. light and heavy vehicle crash testing, in frontal and side impact crash configurations; and</p> <p>c. operation of an acceleration sled including, troubleshooting, minor repair, and improvement; AND</p> <p>d) evidence of at least two (2) years of experience in the management of C/FMVSS compliance crash testing; AND</p> <p>e) evidence that the resource has some experience in the assignment of teams to conduct crash testing in a safe, efficient and timely manner.</p>	<p>55 Points</p> <p>The Bidder has provided:</p> <p>a) evidence that the resource has at least 10 years of experience in the last 15 years in engineering management of a crash laboratory; AND</p> <p>b) documentation to demonstrate the resource meets the educational requirements; AND</p> <p>c) evidence that the experience of the resource includes at least three (3) years in each of the following:</p> <ul style="list-style-type: none"> • light and heavy vehicle crash testing, in multiple crash configurations including FFRB, side impact pole, rear and side impact MDB; • the operation of a sled, including troubleshooting, minor repair, and/or improvement; • the operation, troubleshooting, minor repair, and/or improvement of an electrical or hydraulic vehicle 	

	<p>propulsion system; <u>AND</u></p> <p>d) evidence of at least three (3) years of experience in the management of compliance crash testing; <u>AND</u></p> <p>e) evidence of at least three (3) years of experience in the management of crashworthiness research testing; <u>AND</u></p> <p>f) evidence that the resource has a good understanding of the importance of team assignments and how this contributes to safe, efficient and timely crash testing: the information is supported by an explanation of the responsibilities of team members and the rationale for inclusion but some information may be missing; <u>AND</u></p> <p>g) evidence of experience in the development and implementation and maintenance of a recognized quality assurance plan (i.e., ISO 2015 or later); <u>AND</u></p> <p>h) evidence that the resource has managed two (2) or more projects valued at \$0.5 million or more in the last 15 years, the information includes a description of the resource's responsibilities.</p> <p>75 points</p> <p>The Bidder has provided:</p> <p>a) evidence that the resource has more than 10 years of experience in the last 15 years in engineering management of a crash laboratory; <u>AND</u></p> <p>b) documentation to demonstrate that the resource meets the educational requirements; <u>AND</u></p> <p>c) evidence that the experience of the resource includes five (5) years or more of experience</p>		
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	<p>in each of the following:</p> <ul style="list-style-type: none"> a. light and heavy vehicle crash testing, in multiple crash configurations including FFRB, side impact pole, rear and side impact MDB and moving car-to-moving crash testing; b. the operation, troubleshooting, repair, and/or improvement of an acceleration sled; c. the operation, troubleshooting, minor repair, and/or improvement of an electrical or hydraulic vehicle multi-track propulsion system; <u>AND</u> d) evidence of at least five (5) years of experience in the management of compliance crash testing; <u>AND</u> e) evidence of at least five (5) years of experience in the management of crashworthiness research testing; <u>AND</u> f) evidence that the resource has an excellent understanding of the importance of team assignments and how this contributes to safe, efficient, and timely crash testing; the information is supported by an explanation of the responsibilities of team members and the rationale for inclusion; <u>AND</u> g) evidence of experience in the development and implementation and maintenance of a recognized quality assurance plan (i.e., ISO 2015 or later); <u>AND</u> h) evidence that the resource has managed more than two (2) or more projects valued at \$0.5 million or more in the last 10 years, the information includes a description of the resource's responsibilities; <u>AND</u> i) evidence that the resource has experience in designing and developing solutions to improve 	
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<p>3.1.3 Crashworthiness Instrumentation Lab Manager</p> <p>The Bidder should demonstrate that the resource has at least five (5) years in the last ten (10) years of experience in the management of a crashworthiness instrumentation laboratory.</p>	<p>In five (5) pages or less, the Bidder should provide a description of least five (5) years in the last ten (10) years of experience in the management of a crashworthiness instrumentation laboratory, the following details should be included:</p> <ul style="list-style-type: none"> a) Name; b) Education; c) Describe, with chronological reference indicating years since 2010, experience as a manager of crashworthiness laboratory and provide a description of responsibilities; d) Describe, with chronological reference indicating years, experience as it relates to troubleshooting, calibration and repair of different types of ATDs, DAS, software and prototype instrumentation including sourcing of replacement parts; e) Describe experience in planning and implementation of improvements to the ATD lab that were directly managed by the candidate. 	<p>crash lab safety, efficiency, and capacity. The information is supported with examples of past projects.</p> <p>0 points The Bidder has not provided</p> <ul style="list-style-type: none"> a) evidence that the resource has at least five (5) years of experience in the last 10 years in the management of a crashworthiness instrumentation laboratory; <u>OR</u> b) documentation to demonstrate the resource meets the educational requirements <p>10 Points The Bidder has provided:</p> <ul style="list-style-type: none"> a) evidence that the resource has at least five (5) years of experience in the last 10 years in the management of a crashworthiness instrumentation laboratory; <u>AND</u> b) documentation to demonstrate the resource meets the educational requirements; <u>AND</u> c) management experience includes the purchase (including sourcing of replacement parts), management of calibration schedules, tracking and inventory management. <p>18 Points The Bidder has provided:</p> <ul style="list-style-type: none"> a) evidence that the resource has 5 or more years of experience in the last 10 years in the management of a crashworthiness instrumentation laboratory; <u>AND</u> b) documentation to demonstrate the resource meets the educational requirements; <u>AND</u> c) management experience includes the purchase (including sourcing of replacement parts), management of calibration schedules, 	<p>30</p>
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		<p>tracking and inventory management; <u>AND</u></p> <p>d) evidence of experience with the verification, troubleshooting, calibration and repair of different types of ATDs and all associated instrumentation including:</p> <ul style="list-style-type: none"> • THOR • WorldSID • child ATDs • DAS: both off-board and in-dummy DAS; and • associated software. <p>30 Points</p> <p>The Bidder has provided:</p> <p>a) evidence that the resource has more than five (5) years of experience in the last 10 years in the management of a crashworthiness instrumentation laboratory; <u>AND</u></p> <p>b) documentation to demonstrate the resource meets the educational requirements; <u>AND</u></p> <p>c) management experience includes the purchase including sourcing of replacement parts, management of calibration schedules, tracking and inventory management; <u>AND</u></p> <p>d) evidence of experience with the verification, troubleshooting, calibration and repair of different types of ATDs and all associated instrumentation and software including:</p> <ul style="list-style-type: none"> • THOR • WorldSID • child ATDs • DAS: both off-board and in-dummy DAS; • Q-series
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<ul style="list-style-type: none"> • ES2-re • SID/Is • Hybrid III (child and adult) • prototype measurement sensors such as RibEye, abdominal pressure sensors; AND <p>e) evidence that the resource has experience in planning and implementing solutions to improve crash instrumentation lab safety, efficiency, and capacity. The information is supported with examples of past projects.</p>		
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<p>3.1.4 Vehicle Test Structures Lab (VTS) Manager The Bidder should demonstrate that the resource has at least three (3) years in the last ten (10) years of experience in the management of a VTS laboratory.</p>	<p>In five (5) pages or less, the Bidder should provide a description of least three (3) years in the last ten (10) years of experience in the engineering management of a VTS laboratory. The following details should be included:</p> <ul style="list-style-type: none"> a) Name; b) Education; c) Describe, with chronological reference indicating years since 2010, experience as a manager of a VTS laboratory; d) Describe the VTS laboratory and provide a description of responsibilities; e) Describe, with chronological reference indicating years, engineering experience in research and compliance testing; f) Describe experience with respect to the programming of a VTS; g) Describe experience with respect to the operation, maintenance, troubleshooting and repair of fixed test equipment, specifically VTS; h) Describe experience in planning and implementation of improvements to the VTS, including retrofitting or customizing of instrumentation, lab fixtures or lab software 	<p>0 Points The Bidder has not provided: a) evidence that the resource has at least three (3) years of experience in the last 10 years in the management of a VTS laboratory; OR b) documentation to demonstrate that the resource meets the educational requirements.</p> <p>10 Points The Bidder has provided: a) evidence that the resource has at least three(3) years of experience in the last 10 years in the management of a VTS laboratory; AND b) documentation to demonstrate the resource meets the educational requirements; AND c) evidence that the experience includes less than three (3) years of engineering experience in research and compliance testing.</p> <p>21 Points The Bidder has provided: a) evidence that the resource has at least three (3) years of experience in the last 10 years in the management of a VTS laboratory; AND b) documentation to demonstrate that the resource meets the educational requirements; AND c) evidence of experience with team assignments and scheduling of tests; AND d) evidence that the experience includes three (3) years of engineering experience in research and C/FMVSS compliance testing and includes test sample preparation, and the</p>	<p>35</p>
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<p>preparation of instrumentation for testing; AND</p> <p>e) evidence that the resource has experience in troubleshooting, planning, overseeing, and verifying the programming of a VTS.</p>		
<p>35 Points The Bidder has provided</p> <p>a) evidence that the resource has at more than three (3) years of experience in the last 10 years in the management of a VTS laboratory; AND</p> <p>b) documentation to demonstrate that the resource meets the educational requirements; AND</p> <p>c) evidence of experience with team assignments and scheduling of tests; AND</p> <p>d) evidence that the experience includes more than three (3) years of engineering experience in research and C/FMVSS compliance testing which includes test sample preparation, test fixture design and modification and the preparation of instrumentation for testing; AND</p> <p>e) evidence that the resource has experience in troubleshooting planning, overseeing and verifying the programming of a VTS; AND</p> <p>f) evidence of experience in planning and implementation of improvements to the VTS, including retrofitting or customizing of instrumentation, lab fixtures or lab software. The information is supported with examples of past projects.</p>		

<p>3.1.5 Crash Avoidance Lab Manager</p> <p>The Bidder should demonstrate that the resource has at least three (3) years in the last ten (10) years of experience in the engineering management of a crash avoidance laboratory.</p>	<p>In five (5) pages or less, the Bidder should provide a description of least three (3) years in the last ten (10) years of experience in the engineering management of a crash avoidance laboratory. The following details should be included:</p> <ul style="list-style-type: none"> a) Name; b) Education; c) Describe, with chronological reference, experience in research and compliance crash avoidance testing programs (connected and automated vehicles (CAV), advanced driving assistance systems (ADAS)); d) Describe, with chronological reference indicating years, experience in the management of human resources; e) Describe, with chronological reference indicating years, experience in the planning and implementation of a preventive maintenance and calibration program for the crash avoidance lab; f) Describe, with chronological reference indicating years, most recent experience in the management of the implementation and maintenance of quality assurance programs & standards; g) Describe experience in the planning, sourcing and acquisition of test equipment for crash avoidance research programs, including retrofitting or customizing of instrumentation, lab fixtures or lab software recently designed, developed or carried out by the candidate. 	<p>0 Points</p> <p>The Bidder has not provided:</p> <ul style="list-style-type: none"> a) evidence that the resource has at least three (3) years of experience in the last ten (10) years in the management of a crash avoidance laboratory; OR b) documentation to demonstrate that the resource meets the educational requirements. <p>10 Points</p> <p>The Bidder has provided:</p> <ul style="list-style-type: none"> a) evidence that the resource has at least three (3) years of experience in the last 10 years in the management of a crash avoidance laboratory; AND b) documentation to demonstrate that the resource meets the educational requirements; AND c) evidence of experience in the management of CAVs, ADAS crash avoidance test programs. <p>21 Points</p> <p>The Bidder has provided:</p> <ul style="list-style-type: none"> a) evidence that the resource has at least three (3) years of experience in the last 10 years in the management of a crash avoidance laboratory; AND b) documentation to demonstrate that the resource meets the educational requirements; AND c) evidence of at least three (3) years of experience in the management of CAVs, ADAS crash avoidance test programs; the 	<p>35</p>
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<p>experience includes research and compliance programs and the development of test methodologies for CAVs, ADAS; <u>AND</u></p> <p>d) evidence that the resource has some experience in the assignment of teams to conduct crash avoidance testing in a safe, efficient and timely manner; <u>AND</u></p> <p>e) evidence that the resource has at least two (2) years of experience identifying, sourcing and acquisition of test equipment/ instruments for the evaluation of CAV technologies, ADAS, and vehicle dynamics programs.</p>		
<p>35 Points</p> <p>The Bidder has provided:</p> <p>a) evidence that the resource has more than three (3) years of experience in the last 10 years in the management of a crash avoidance laboratory; <u>AND</u></p> <p>b) documentation to demonstrate that the resource meets the educational requirements; <u>AND</u></p> <p>c) evidence of more than three (3) years of experience in the management of CAVs, ADAS crash avoidance test programs; the experience includes research and compliance programs and the development of test methodologies for CAVs, ADAS; <u>AND</u></p> <p>d) evidence that the resource has good experience in the assignment of multiple teams (more than two) to conduct crash avoidance testing in a safe, efficient and timely manner; this includes planning and management of test schedules to ensure on time delivery of weather dependent programs; <u>AND</u></p> <p>e) evidence that the resource has experience in</p>		

<p>3.1.6 Crash Avoidance Test Development Specialist</p> <p>The Bidder should demonstrate that the resource has at least five (5) years in the last ten (10) years of experience as a crash avoidance test development specialist.</p>	<p>In five (5) pages or less, the Bidder should provide a description of least five (5) years in the last ten (10) years of experience as a crash avoidance test development specialist. The following details should be included:</p> <ul style="list-style-type: none"> a) Name; b) Education; c) Describe, with chronological reference indicating years since 2010, experience as a crash avoidance test development specialist and provide a description of projects and responsibilities; d) Describe, with chronological reference indicating years, experience as it relates to troubleshooting, calibration and repair of crash avoidance test equipment and prototype instrumentation. 	<p>the planning and implementation of a preventive maintenance and calibration program for the crash avoidance lab; AND</p> <ul style="list-style-type: none"> f) evidence of experience in the development and implementation and maintenance of a recognized quality assurance plan (i.e. ISO 2015 or later); AND g) evidence that the resource has experience identifying, sourcing and acquisition of test equipment/ instruments for the evaluation of CAV technologies, ADAS, and vehicle dynamics programs. The information is supported with examples. 	
		<p>0 points</p> <p>The Bidder has not provided:</p> <ul style="list-style-type: none"> a) evidence that the resource has at least five (5) years of experience in the last 10 years as a crash avoidance test development specialist.; <p>OR</p> <ul style="list-style-type: none"> b) documentation to demonstrate the resource meets the educational requirements <p>10 Points</p> <p>The Bidder has provided:</p> <ul style="list-style-type: none"> a) evidence that the resource has at least 5 years of experience in the last 10 years as a crash avoidance test development specialist.; <p>AND</p> <ul style="list-style-type: none"> b) documentation to demonstrate the resource meets the educational requirements; AND c) evidence of experience with as a crash avoidance test development specialist that includes: <ul style="list-style-type: none"> o creating test paths for test vehicles and 	<p>25</p>

<p>targets.</p> <p>17.5 Points The Bidder has provided:</p> <ul style="list-style-type: none"> a) evidence that the resource has at least 5 years of experience in the last 10 years as a crash avoidance test development specialist; AND b) documentation to demonstrate the resource meets the educational requirements; AND c) evidence of experience as a crash avoidance test development specialist that includes: <ul style="list-style-type: none"> o creating test paths for test vehicles and targets, o programming and implementing specifications for speed, trajectory, and impact points as prescribed by Euro NCAP test protocols. AND d) evidence of at least 3 years of experience in troubleshooting, calibration and repair of crash avoidance test equipment and prototype instrumentation. 	<p>25 Points The Bidder has provided:</p> <ul style="list-style-type: none"> a) evidence that the resource has more than 5 years of experience in the last 10 years as a crash avoidance test development specialist; AND b) documentation to demonstrate the resource meets the educational requirements; AND c) evidence of experience with as a crash avoidance test development specialist that includes: <ul style="list-style-type: none"> o creating test paths for test vehicles and
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<p>3.1.7 Environmental Lab and Plant Manager The Bidder should demonstrate that the resource has at least five (5) years in the last ten (10) years of experience in the engineering management of an environmental laboratory and plant.</p>		<p>targets,</p> <ul style="list-style-type: none"> o programming and implementing specifications for speed, trajectory, and impact points as prescribed by Euro NCAP test protocols. o configuration of Road-Side Units and On-Board Units for Vehicle-to-Everything (V2X) communications; o Design of Time Tolerance Triggers (TTT); o configuration and integration of new equipment with existing test suite; AND <p>d) evidence of at least 3 years of experience in troubleshooting, calibration and repair of crash avoidance test equipment and prototype instrumentation.</p>	
<p>In 10 pages or less, the bidder should provide a description of least five (5) years in the last ten (10) years of experience in the engineering management of an environmental laboratory and plant, the following details should be included:</p> <ul style="list-style-type: none"> a) Name; b) Education; c) Describe with chronological reference indicating years, experience since 2010 as a plant manager. Include sourcing, overseeing and inspection of specialized services for improvements to building systems and management of team assignments; d) Describe the facilities and building systems, including environmental chambers and mechanical rooms that were managed by the candidate and detail responsibilities; e) Describe preventive maintenance and troubleshooting experience carried out to 	<p>0 Points The Bidder has not provided:</p> <ul style="list-style-type: none"> a) evidence that the resource has at least five (5) years of experience in the last 10 years in engineering management of an environmental laboratory and plant; OR b) documentation to demonstrate that the resource meets the educational requirements. <p>30 Points The Bidder has provided:</p> <ul style="list-style-type: none"> a) evidence that the resource has at least five (5) years of experience in the last 10 years in engineering management of an environmental laboratory and plant; AND b) documentation to demonstrate the resource meets the educational requirements; AND c) evidence that the experience includes at least 	<p>75</p>	

	<p>protect or extend the useful life of the facilities.</p> <p>f) Describe upgrades to complex refrigeration systems, valued at greater than 1 million, that were recently managed by the candidate;</p> <p>g) Describe, with chronological reference indicating years, experience in the management of human resources; and</p> <p>h) Describe, with chronological reference indicating years, most recent experience in the management of the implementation and maintenance of quality assurance programs & standards;</p>	<p>three (3) years in the following</p> <ul style="list-style-type: none"> o sourcing, overseeing and inspecting specialized services for improvements to building systems. o Management of team assignments to optimize safety, accuracy and efficiency. <p>55 Points The Bidder has provided:</p> <p>a) Evidence that the resource has at least 5 years of experience in the last 10 years in engineering management of an environmental laboratory and plant; AND</p> <p>b) documentation to demonstrate that the resource meets the educational requirements; AND</p> <p>c) Evidence that the experience includes 5 years or more in the following:</p> <ul style="list-style-type: none"> o sourcing, overseeing and inspecting specialized services for improvements to fixed test equipment; or o sourcing, overseeing and inspecting specialized services for improvements to building systems. <p>d) Evidence that the experience includes planning, management and integration of upgrades to complex refrigeration systems and major infrastructure and/or plant projects. The information is supported with examples; AND</p> <p>e) Evidence that experience includes the management of the implementation and maintenance of quality assurance programs & standards.</p>	
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	<p>75 Points The Bidder has provided:</p> <ul style="list-style-type: none"> a) Evidence that the resource has more than five (5) years of experience in the last 10 years in engineering management of an environmental laboratory and plant that includes a Cascade system; <u>AND</u> b) documentation to demonstrate that the resource meets the educational requirements; <u>AND</u> c) Evidence that the experience includes more than five (5) years in the following <ul style="list-style-type: none"> o sourcing, overseeing and inspecting specialized services for improvements to fixed test equipment; <u>AND</u> o Sourcing, overseeing and inspecting specialized services for improvements to building systems. d) Evidence of experience in the planning and implementation of a preventive maintenance plan and troubleshooting carried out to protect or extend the useful life of the facilities; <u>AND</u> e) Evidence that the experience in several projects including planning, management and integration of upgrades to a cascade refrigeration systems; major infrastructure and/or plant projects. The information is supported with examples; <u>AND</u> f) Evidence that the resource has five (5) years of experience in the management of multidisciplinary teams and specialties including the management of team assignments to optimize safety, accuracy and efficiency; <u>AND</u> g) Evidence that experience includes the management of the implementation and
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	<p style="text-align: center;">maintenance of quality assurance programs & standards.</p>	
<p>3.1.8 Sled Lab Manager The Bidder should demonstrate that the resource has at least three (3) years in the last ten (10) years of experience in the engineering management of a sled laboratory.</p>	<p>In five (5) pages or less, the Bidder should provide a description of at least three (3) years in the last ten (10) years of experience in the engineering management of a sled laboratory. The following details should be included:</p> <ul style="list-style-type: none"> a) Name; b) Education; c) Describe, with chronological reference indicating years, experience as a manager of a sled; d) Describe the type of sled(s) that was/were managed and detail responsibilities; e) Describe, with chronological reference indicating years, engineering experience in conducting sled testing and research, including test programs that were developed by the candidate and experience with the F/CMVSS 213 test protocol and producing compliance reports; f) Describe experience in conducting troubleshooting and other investigations to optimize repeatability of sled pulses and dummy responses. Provide examples to support response. g) Describe, with chronological reference indicating years, experience in the management of human resources. 	<p>0 Points The Bidder has not provided: a) evidence that the resource has at least three(3) years of experience in the last 10 years in the management of a sled laboratory OR b) documentation to demonstrate that the resource meets the educational requirements</p> <p>10 Points The Bidder has provided: a) evidence that the resource has at least three (3) years of experience in the last 10 years in the management of a sled laboratory AND b) documentation to demonstrate the resource meets the educational requirements; AND c) evidence that the resource has at least three (3) years of experience in the management of F/CMVSS 213 test programs.</p> <p>21 Points The Bidder has provided: a) evidence that the resource has at least three (3) years of experience in the last 10 years in the management of a sled laboratory AND b) documentation to demonstrate that the resource meets the educational requirements; AND c) evidence that the resource has experience managing an acceleration sled; AND d) evidence that the resource has at least</p> <p style="text-align: right;">35</p>

	<p>three(3) years of experience in the management of F/CMVSS 213 test programs</p> <p>35 Points The Bidder has provided:</p> <ul style="list-style-type: none"> a) evidence that the resource has more than three (3) years of experience in the last 10 years in the management of a sled laboratory AND b) documentation to demonstrate the resource meets the educational requirements; AND c) evidence that the resource has experience managing an acceleration sled and a deceleration sled; AND d) evidence that the resource has at least three (3) years of experience in the management of F/CMVSS 213 test programs and research programs; AND e) evidence that the resource has at least three (3) years of experience in troubleshooting and optimizing sled pulse and ATD response repeatability. The information is supported by examples. 	
	<p>0 points The Bidder has not provided:</p> <ul style="list-style-type: none"> a) evidence that the resource has at least two (2) years of experience in the last five (5) years as a high speed video specialist; OR b) documentation to demonstrate that the resource meets the educational requirements <p>10 Points The Bidder has provided:</p> <ul style="list-style-type: none"> a) evidence that the resource has at least two (2) 	
	<p>In five (5) pages or less, the Bidder should provide a description of least two (2) years in the last five (5) years of experience as a high speed video specialist. The following details should be included:</p> <ul style="list-style-type: none"> a) Name; b) Education; c) Describe, with chronological reference indicating years, experience as a video specialist; d) Describe the suite of cameras and lighting that was managed; 	
	<p>3.1.9 High Speed Video Specialist The Bidder should demonstrate that the resource has at least two (2) years of experience in the last five (5) years as a high speed video specialist.</p>	30

	<p>e) Describe experience with passenger vehicles and commercial vehicles crash tests;</p> <p>f) Describe experience in with troubleshoooting and customization of software;</p> <p>g) Describe experience in the specification of requirements for camera fixtures within the vehicle.</p>	<p>years of experience in the last five (5) years as a high speed video specialist; AND</p> <p>b) documentation to demonstrate that the resource meets the educational requirements; AND</p> <p>c) evidence that the experience includes a suite of at least 10 high speed cameras</p> <p>18 Points The Bidder has provided:</p> <p>a) evidence that the resource has at least two (2) years of experience in the last five (5) years as a high speed video specialist; AND</p> <p>b) documentation to demonstrate that the resource meets the educational requirements; AND</p> <p>c) evidence that the experience includes a suite of at least 15 high speed cameras with camera technologies that were introduced within the last 5 years; high intensity lighting systems and interior LED lighting.</p> <p>30 Points The Bidder has provided:</p> <p>a) evidence that the resource has at least two (2) years of experience in the last five (5) years as a high speed video specialist; AND</p> <p>b) documentation to demonstrate that the resource meets the educational requirements; AND</p> <p>c) evidence that the experience includes a suite of at least 15 high speed cameras with camera technologies that were introduced within the last 5 years; high intensity lighting systems and interior LED lighting; as well as</p>
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<p>related software; <u>AND</u></p> <p>d) evidence of experience in the standardisation of imagery for science analysis and archival purpose in the field of dummy kinematics and vehicle safety system performance; <u>AND</u></p> <p>e) evidence of experience in programming, customizing and troubleshooting of related software; <u>AND</u></p> <p>f) evidence of experience in assisting with the design and fabrication of custom camera fixtures on-board vehicles.</p>		
<p>0 points</p> <p>The Bidder has not provided:</p> <p>a) evidence that the resource has at least three(3) years of experience in the last 10 years as a refrigeration specialist; <u>OR</u></p> <p>b) documentation to demonstrate that the resource meets the educational requirements</p>	<p>In 6 pages or less, the Bidder should provide a description of least three (3) years in the last ten (10) years of experience as a refrigeration specialist. The following details should be included:</p> <p>a) Name;</p> <p>b) Education;</p> <p>c) Describe, with chronological reference indicating years, experience as a refrigeration system specialist;</p> <p>d) Describe experience in the operation, maintenance and upgrade of industrial HVAC systems;</p> <p>e) Describe experience in the operation, maintenance and upgrade of Cascade systems.</p>	<p>3.1.10 Refrigeration Systems Specialist 1</p> <p>The Bidder should demonstrate that the resource has at least three (3) years in the last ten (10) years of experience as a refrigeration specialist.</p>
<p>10 Points</p> <p>The Bidder has provided:</p> <p>a) evidence that the resource has at least three(3) years of experience in the last 10 years as a refrigeration specialist; <u>AND</u></p> <p>b) documentation to demonstrate that the resource meets the educational requirements</p>		
<p>20 Points</p> <p>The Bidder has provided:</p> <p>a) evidence that the resource has at least three (3) years of experience in the last 10 years as a refrigeration specialist; <u>AND</u></p> <p>b) documentation to demonstrate that the</p>		

	<p>resource meets the educational requirements; AND</p> <p>c) evidence that the resource has at least 3 years of experience in the operation and maintenance of industrial HVAC systems</p> <p>35 Points The Bidder has provided:</p> <p>a) evidence that the resource has at least three (3) years of experience in the last 10 years as a refrigeration specialist; AND</p> <p>b) documentation to demonstrate that the resource meets the educational requirements; AND</p> <p>c) evidence that the resource has at least three (3) years of experience in the operation and maintenance of industrial HVAC systems; AND</p> <p>d) evidence that the resource has at least one (1) year of experience in the operation and maintenance of a Cascade System</p> <p>50 Points The Bidder has provided:</p> <p>a) evidence that the resource has at least three (3) years of experience in the last 10 years as a refrigeration specialist; AND</p> <p>b) documentation to demonstrate that the resource meets the educational requirements; AND</p> <p>c) evidence that the resource has at least three (3) years of experience in the operation and maintenance of industrial HVAC systems; AND</p> <p>d) evidence that the resource has at least three</p>		
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		<p>(3) years of experience in the operation and maintenance of a Cascade System; AND evidence that the resource has experience in the upgrade of industrial HVAC systems.</p> <p>e)</p>	
<p>3.1.11 Refrigeration Systems Specialist 2 The Bidder should demonstrate that the resource has at least three (3) years in the last ten (10) years of experience as a refrigeration specialist.</p>	<p>In 6 pages or less, the Bidder should provide a description of at least 3 years in the last ten, 10 years of experience as a refrigeration specialist. The following details should be included:</p> <ul style="list-style-type: none"> a) Name; b) Education; c) Describe, with chronological reference indicating years, experience as a refrigeration system specialist; d) Describe experience in the operation, maintenance and upgrade of industrial HVAC systems. e) Describe experience in the operation, maintenance and upgrade of Cascade systems. 	<p>0 points The Bidder has not provided:</p> <ul style="list-style-type: none"> a) evidence that the resource has at least three(3) years of experience in the last 10 years as a refrigeration specialist; OR b) documentation to demonstrate that the resource meets the educational requirements <p>10 Points The Bidder has provided:</p> <ul style="list-style-type: none"> a) evidence that the resource has at least three (3) years of experience in the last 10 years as a refrigeration specialist; AND b) documentation to demonstrate that the resource meets the educational requirements <p style="text-align: right;">50</p>	
		<p>20 Points The Bidder has provided:</p> <ul style="list-style-type: none"> a) evidence that the resource has at least three (3) years of experience in the last 10 years as a refrigeration specialist; AND b) documentation to demonstrate the resource meets the educational requirements; AND c) evidence that the resource has at least three (3) years of experience in the operation and maintenance of industrial HVAC systems 	

	<p>35 Points The Bidder has provided:</p> <ul style="list-style-type: none"> a) evidence that the resource has at least three (3) years of experience in the last 10 years as a refrigeration specialist; <u>AND</u> b) documentation to demonstrate that the resource meets the educational requirements; <u>AND</u> c) evidence that the resource has at least three (3) years of experience in the operation and maintenance of industrial HVAC systems; <u>AND</u> d) evidence that the resource has at least one (1) year of experience in the operation and maintenance of a Cascade System <p>50 Points The Bidder has provided:</p> <ul style="list-style-type: none"> a) evidence that the resource has at least three (3) years of experience in the last 10 years as a refrigeration specialist; <u>AND</u> b) documentation to demonstrate the resource meets the educational requirements; <u>AND</u> c) evidence that the resource has at least three (3) years of experience in the operation and maintenance of industrial HVAC systems; <u>AND</u> d) evidence that the resource has at least three(3) years of experience in the operation and maintenance of a Cascade System; <u>AND</u> e) evidence that the resource has experience in the upgrade of industrial HVAC systems. 	
TOTAL		

Appendix A EXAMPLE TEST SCENARIOS

TEST SCENARIO 1- CRASHWORTHINESS

Provide a pre and post test procedure for a side impact oblique pole tests to be conducted at 32 km/h. The test is one of two paired research tests and the vehicle is a late model fully equipped 4 door EV sedan, there are 5 designated seat locations. Deliverables are as described for Crashworthiness research in Section 3.9 of Annex A.

CMVSS/ FMVSS 214P may be used as a baseline reference.

Test objectives:

- To quantify and compare the structural response (load path distribution) of the vehicle;
- To evaluate and compare the kinematic and injury responses of two restrained WorldSID 50th male dummies are seated in the front outboard seating positions;
- To evaluate and compare the belt restraint system and the kinematic and injury response of a restrained Q 10 dummy seated in the left outboard seat of the second row;
- To evaluate and compare the belt restraint system and the kinematic and injury response for a Q6 dummy installed in a booster seat in the right outboard seat of the second row;
- To evaluate electrical isolation of the vehicle

The test procedure should be written for use by the Contractor's staff at Blainville, Québec and include:

- a) Complete pre and post-test, test procedure;
- b) Team members and areas of responsibility; and
- c) Time required to complete the test (from initial preparation to the transfer of the processed data to the local network).

TEST SCENARIO 2- CRASH AVOIDANCE - ADAS

Provide a detailed test procedure to evaluate the response of a vehicle equipped with ADAS that would cross paths with a pedestrian target at a 25% nearside impact point on an urban curved road. The vehicle is equipped with the latest pedestrian detection technology and will be tested in ideal conditions. Deliverables are as described for Crash avoidance research in Section 3.8 of Annex A

Test objectives:

- To compare the response of the vehicle with standard test scenarios for vulnerable road user on a straight road under the AEB VRU Test Protocol v3.0.3 from EuroNCAP;
- To identify and quantify the limitations of the system and the test equipment.

The test procedure should be written for use by the Contractor's staff at Blainville, Québec and include:

- a) Complete pre and post-test, step by step procedure;
- b) Team members and areas of responsibility; and
- c) Time required to complete the test (from initial preparation to the transfer of the processed data to the local network).

Task Authorization Autorisation de tâche

Instruction for completing the form PWGSC - TPSGC 572 - Task Authorization
(Use form DND 626 for contracts for the Department of National Defence)

Instruction pour compléter le formulaire PWGSC - TPSGC 572 - Autorisation de tâche
(Utiliser le formulaire DND 626 pour les contrats pour le ministère de la Défense)

Contract Number

Enter the PWGSC contract number.

Numéro du contrat

Inscrire le numéro du contrat de TPSGC.

Contractor's Name and Address

Enter the applicable information

Nom et adresse de l'entrepreneur

Inscrire les informations pertinentes

Security Requirements

Enter the applicable requirements

Exigences relatives à la sécurité

Inscrire les exigences pertinentes

Total estimated cost of Task (Applicable taxes extra)

Enter the amount

Coût total estimatif de la tâche (Taxes applicables en sus)

Inscrire le montant

For revision only

Aux fins de révision seulement

TA Revision Number

Enter the revision number to the task, if applicable.

Numéro de la révision de l'AT

Inscrire le numéro de révision de la tâche, s'il y a lieu.

Total Estimated Cost of Task (Applicable taxes extra) before the revision

Enter the amount of the task indicated in the authorized TA or, if the task was previously revised, in the last TA revision.

Coût total estimatif de la tâche (Taxes applicables en sus) avant la révision

Inscrire le montant de la tâche indiquée dans l'AT autorisée ou, si la tâche a été révisée précédemment, dans la dernière révision de l'AT.

Increase or Decrease (Applicable taxes extra), as applicable

As applicable, enter the amount of the increase or decrease to the Total Estimated Cost of Task (Applicable taxes extra) before the revision.

Augmentation ou réduction (Taxes applicables en sus), s'il y a lieu

S'il y a lieu, inscrire le montant de l'augmentation ou de la réduction du Coût total estimatif de la tâche (Taxes applicables en sus) avant la révision.

1. Required Work: Complete sections A, B, C, and D, as required.

1. Travaux requis : Remplir les sections A, B, C et D, au besoin.

A. Task Description of the Work required:

A. Description de tâche des travaux requis :

Complete the following paragraphs, if applicable.
Paragraph (a) applies only if there is a revision to an authorized task.

Remplir les alinéas suivants, s'il y a lieu : L'alinéa (a) s'applique seulement s'il y a révision à une tâche autorisée.

(a) Reason for revision of TA, if applicable:
Include the reason for the revision; i.e. revised activities; delivery/completion dates; revised costs. Revisions to TAs must be in accordance with the conditions of the contract. See Supply Manual 3.35.1.50 or paragraph 6 of the Guide to Preparing and Administering Task Authorizations.

(a) Motif de la révision de l'AT, s'il y a lieu : Inclure le motif de la révision c.-à.-d., les activités révisées, les dates de livraison ou d'achèvement, les coûts révisés. Les révisions apportées aux AT doivent respecter les conditions du contrat. Voir l'article 3.35.1.50 du Guide des approvisionnements ou l'alinéa 6 du Guide sur la préparation et l'administration des autorisations de tâches.

(b) Details of the activities to be performed (include as an attachment, if applicable)

(b) Détails des activités à exécuter (joindre comme annexe, s'il y a lieu).

(c) Description of the deliverables to be submitted (include as an attachment, if applicable).

(c) Description des produits à livrer (joindre comme annexe, s'il y a lieu).

(d) Completion dates for the major activities and/or submission dates for the deliverables (include as an attachment, if applicable).

(d) Les dates d'achèvement des activités principales et (ou) les dates de livraison des produits (joindre comme annexe, s'il y a lieu).

B. Basis of Payment:

Insert the basis of payment or bases of payment that form part of the contract that are applicable to the task description of the work; e.g. firm lot price, limitation of expenditure, firm unit price

C. Cost of Task:**Insert Option 1 or 2:****Option 1:**

Total estimated cost of Task (Applicable taxes extra): Insert the applicable cost elements for the task determined in accordance with the contract basis of payment; e.g. Labour categories and rates, level of effort, Travel and living expenses, and other direct costs.

Option 2:

Total cost of Task (Applicable taxes extra): Insert the firm unit price in accordance with the contract basis of payment and the total estimated cost of the task.

D. Method of Payment

Insert the method(s) of payment determined in accordance with the contract that are applicable to the task; i.e. single payment, multiple payments, progress payments or milestone payments. For milestone payments, include a schedule of milestones.

B. Base de paiement :

Insérer la base ou les bases de paiement qui font partie du contrat qui sont applicables à la description du travail à exécuter : p. ex., prix de lot ferme, limitation des dépenses et prix unitaire ferme.

C. Coût de la tâche :**Insérer l'option 1 ou 2****Option 1 :**

Coût total estimatif de la tâche (Taxes applicables en sus) Insérer les éléments applicables du coût de la tâche établies conformément à la base de paiement du contrat. p. ex., les catégories de main d'œuvre, le niveau d'effort, les frais de déplacement et de séjour et autres coûts directs.

Option 2 :

Coût total de la tâche (Taxes applicables en sus) : Insérer le prix unitaire ferme conformément à la base de paiement du contrat et le coût estimatif de la tâche.

D. Méthode de paiement

Insérer la ou les méthode(s) de paiement établit conformément au contrat et qui sont applicable(s) à la tâche; c.-à.-d., paiement unique, paiements multiples, paiements progressifs ou paiements d'étape. Pour ces derniers, joindre un calendrier des étapes.

2. Authorization(s):

The client and/or PWGSC must authorize the task by signing the Task Authorization in accordance with the conditions of the contract. The applicable signatures and the date of the signatures is subject to the TA limits set in the contract. When the estimate of cost exceeds the client Task Authorization's limits, the task must be referred to PWGSC.

3. Contractor's Signature

The individual authorized to sign on behalf of the Contractor must sign and date the TA authorized by the client and/or PWGSC and provide the signed original and a copy as detailed in the contract.

2. Autorisation(s) :

Le client et (ou) TPSGC doivent autoriser la tâche en signant l'autorisation de tâche conformément aux conditions du contrat. Les signatures et la date des signatures appropriées sont assujetties aux limites d'autorisation de tâche établies dans le contrat . Lorsque l'estimation du coût dépasse les limites d'autorisation de tâches du client, la tâche doit être renvoyée à TPSGC.

3. Signature de l'entrepreneur

La personne autorisée à signer au nom de l'entrepreneur doit signer et dater l'AT, autorisée par le client et (ou) TPSGC et soumettre l'original signé de l'autorisation et une copie tel que décrit au contrat.



Task Authorization Autorisation de tâche

Contract Number - Numéro du contrat

Contractor's Name and Address - Nom et l'adresse de l'entrepreneur	Task Authorization (TA) No. - N° de l'autorisation de tâche (AT)
	Title of the task, if applicable - Titre de la tâche, s'il y a lieu
	Total Estimated Cost of Task (Applicable taxes extra) Coût total estimatif de la tâche (Taxes applicables en sus) \$

Security Requirements: This task includes security requirements
Exigences relatives à la sécurité : Cette tâche comprend des exigences relatives à la sécurité

No - Non Yes - Oui If YES, refer to the Security Requirements Checklist (SRCL) included in the Contract
 Si OUI, voir la Liste de vérification des exigences relative à la sécurité (LVERS) dans le contrat

For Revision only - Aux fins de révision seulement

TA Revision Number, if applicable Numéro de révision de l'AT, s'il y a lieu	Total Estimated Cost of Task (Applicable taxes extra) before the revision Coût total estimatif de la tâche (Taxes applicables en sus) avant la révision \$	Increase or Decrease (Applicable taxes extra), as applicable Augmentation ou réduction (Taxes applicables en sus), s'il y a lieu \$
--	--	---

Start of the Work for a TA : Work cannot commence until a TA has been authorized in accordance with the conditions of the contract.

Début des travaux pour l'AT : Les travaux ne peuvent pas commencer avant que l'AT soit autorisée conformément au contrat.

1. Required Work: - Travaux requis :

A. Task Description of the Work required - Description de tâche des travaux requis	See Attached - Ci-joint <input type="checkbox"/>
B. Basis of Payment - Base de paiement	See Attached - Ci-joint <input type="checkbox"/>
C. Cost of Task - Coût de la tâche	See Attached - Ci-joint <input type="checkbox"/>
D. Method of Payment - Méthode de paiement	See Attached - Ci-joint <input type="checkbox"/>

Contract Number - Numéro du contrat

2. Authorization(s) - Autorisation(s)

By signing this TA, the authorized client and (or) the PWGSC Contracting Authority certify(ies) that the content of this TA is in accordance with the conditions of the contract.

En apposant sa signature sur l'AT, le client autorisé et (ou) l'autorité contractante de TPSGC atteste(nt) que le contenu de cette AT respecte les conditions du contrat.

The client's authorization limit is identified in the contract. When the value of a TA and its revisions is in excess of this limit, the TA must be forwarded to the PWGSC Contracting Authority for authorization.

La limite d'autorisation du client est précisée dans le contrat. Lorsque la valeur de l'AT et ses révisions dépasse cette limite, l'AT doit être transmise à l'autorité contractante de TPSGC pour autorisation.

Name and title of authorized client - Nom et titre du client autorisé à signer

Signature

Date

PWGSC Contracting Authority - Autorité contractante de TPSGC

Signature

Date

3. Contractor's Signature - Signature de l'entrepreneur

Name and title of individual authorized - to sign for the Contractor
Nom et titre de la personne autorisée à signer au nom de l'entrepreneur

Signature

Date



CONTRACT SECURITY PROGRAM (CSP)

Section A - Business Information

- **Legal name of the organization** refers to the legal name of the organization as it is organized & existing within the country of jurisdiction. In the case of Canadian legal entities, this would be the legal name that is registered with federal, provincial or territorial authorities.
- **Business or Trade name** refers to the name which a business trades under for commercial purposes, although its registered, legal name, used for contracts and other formal situations, may be another name.
- **Type of Organization** - All required documentation in relation to the type of organization must be provided
 - **Corporation** refers to an entity having authority under the law to act as a single person distinct from the shareholders who own it and having rights to issue stock and exist indefinitely.
Provide the following information to substantiate this "Type of Organization" selection:
 - Stock exchange identifier (if applicable);
 - Certificate of incorporation, compliance, continuance, current articles of incorporation, etc.
 - Ownership structure chart is mandatory
 - **Partnership** refers to an association or relationship between two or more individuals, corporations, trusts, or partnerships that join together to carry on a trade or business.
Provide the following information to substantiate this "Type of Organization" selection:
 - Evidence of legal status, ie. partnership agreement;
 - Provincial partnership name registration (if applicable);
 - Ownership structure chart
 - **Sole proprietor** refers to the owner of a business who acts alone and has no partners.
Provide the provincial registration documentation (if applicable) ie. master business license, provincial name registration document
 - **Other** (universities, financial institutions, unincorporated organizations, Assembly of First Nations, etc.)
Provide the following information to substantiate this "Type of Organization" selection:
 - Evidence of legal status such as acts, charters, bands, etc.
 - Ownership structure chart and management structure chart
- **Principal place of business** must be where the business is physically located and operating in Canada. Virtual locations, mail boxes, receiving offices, coworking spaces, representative agent's office, etc. will not be accepted.
- **Self-identify as a diverse supplier:** Public Services and Procurement Canada (PSPC) defines a diverse supplier as "a business owned or led by Canadians from underrepresented groups, such as women, Indigenous Peoples, persons with disabilities and visible minorities.

Section B - Security Officers

Identify the individual(s) you intend to nominate or are already appointed as your organization's company security officer and alternate company security officer(s). For Document Safeguarding Capability at other locations, please ensure to indicate address (site) the ACSO is located at. Add additional rows or provide a separate page as required. Employee has the same meaning as that used by the Canada Revenue Agency.

- Email address must be able to accept various types of correspondence from the CSP
- Security officers **must** meet all of the following criteria:
 - an employee of the organization;
 - physically located in Canada;
 - a Canadian citizen*; and
 - security screened at the same level as the organization (in some cases alternates may require a different level).

*Canadian citizenship is required due to the oversight responsibility entrusted to a security officer and some contractual requirements in relation to national security. This requirement may be waived on a case by case basis for Permanent Residents.



CONTRACT SECURITY PROGRAM (CSP)

Section C - Officers

- Your organization must list **all** the names and position titles for its officers, management, leadership team, executives, managing partners, authorized signatories, members, etc. that are responsible for the day to day operations of its business. A management structure chart must be provided to demonstrate the reporting structure. Add additional rows to the section if required.
- For the purposes of the Contract Security Program, the term "Country of Primary Residence/National Domicile" refers to the particular country for a person's true, fixed, principal and permanent home, to which that person intends to return and remain even though currently residing elsewhere.
- **Citizenship** refers to the status of being a citizen. A **citizen** is a person who, by either birth or naturalization, is a member of a state or nation, entitled to enjoy all the civil rights and protections of that state or nation and owing allegiance to its government.

Section D - Board of Directors

- List **all** members of your organization's board of directors. Indicate all board titles including the chairperson if there is one. Add additional rows to the section or on a separate page if required.
- For the purposes of the Contract Security Program, the term "Country of Primary Residence/National Domicile" refers to the particular country for a person's true, fixed, principal and permanent home, to which that person intends to return and remain even though currently residing elsewhere.
- **Citizenship** refers to the status of being a citizen. A **citizen** is a person who, by either birth or naturalization, is a member of a state or nation, entitled to enjoy all the civil rights and protections of that state or nation and owing allegiance to its government.

Section E - Ownership Information

- For the purposes of the CSP, the following interpretations are applicable:
 - **Direct (or registered) ownership** are **all** owners who hold legal title to a property or asset in that owner's name.
 - **Ownership** refers to either (1) voting rights attached to the corporation's outstanding voting shares or (2) outstanding shares measured by fair market value.
 - **Parent company** refers to a company which owns and/or controls controlling interest (e.g., voting stock) of other firms or companies, usually known as subsidiaries, which may give it control of the operation of the subsidiaries.

Section F - Justification (this section is to be completed by organizations that are undergoing a renewal ONLY - not bidding)

- Your organization is to provide a list of active federal contracts, subcontracts, leases, supply arrangements (SA), standing offers (SO), purchase orders that have security requirements. Indicate the contract number (lease, SA, SO, sub-contract, etc.), contracting authority or prime contractor and the security level requirement.

Section G - Certification and Consent

- Only an officer identified in Section C may complete this section.



CONTRACT SECURITY PROGRAM (CSP)

APPLICATION FOR REGISTRATION (AFR) for Canadian legal entities

NOTE:

The provision of false, misleading information, or concealment and/or failure to disclose of any material fact on this application will result in a denial or revocation of your organization security clearance and registration with the Contract Security Program which will immediately prohibit your eligibility to perform on contracts requiring organization security clearances. An incomplete form **will not** be processed.

SECTION A - BUSINESS INFORMATION	
1. Legal name of the organization	
2. Business or trade name (if different from legal name)	
3. Type of organization - Indicate the type of organization and provide the required validation documentation (select one only)	
<input type="checkbox"/> Sole proprietor <input type="checkbox"/> Partnership <input type="checkbox"/> Corporation <ul style="list-style-type: none"> <input type="checkbox"/> Private <input type="checkbox"/> Public <input type="checkbox"/> Other (specify)	
4. Provide a brief description of your organization's general business activities.	
5. Procurement Business Number (PBN) (if applicable)	6. Self-identify as a diverse supplier (provide profile)
7. Business civic address (head office)	
8. Principal place of business (if not at head office)	
9. Mailing address (if different from business civic address)	
10. Organization website (if applicable)	
11. Telephone number	12. Facsimile number
13. Number of employees in your organization or corporate entity	14. Number of employees requiring access to protected/classified information/assets/sites



CONTRACT SECURITY PROGRAM (CSP)

SECTION B – SECURITY OFFICERS

Please identify all security officers for your organization. For document safeguarding capability identify the site number for each ACSO and the corresponding address for each site below.

Add additional rows or attachments as needed if there is not enough space allotted

Position title	Site #	Surname	Given name	E-mail (where the CSP will send correspondence)
Company security officer (CSO)				
Alternate company security officer (ACSO)				
ACSO (if applicable)				
ACSO (if applicable)				
ACSO (if applicable)				

For Document Safeguarding Capability ONLY:

00 – Address will be principal place of business	
01 – Site address:	
02 – Site address:	

SECTION C – OFFICERS (managing partners, key leadership, signatories, etc.)

Add additional rows or attachments as needed and include management structure chart demonstrating reporting structures

Position title - within your organization	Surname	Given name	Citizenship(s)	Country of primary residence/National domicile



CONTRACT SECURITY PROGRAM (CSP)

SECTION D – LIST OF BOARD OF DIRECTORS

Add additional rows or attachments as needed

Position Title on the Board	Surname	Given name	Citizenship(s)	Country of primary residence/National domicile

SECTION E - OWNERSHIP INFORMATION - PLEASE COMPLETE FOR EACH LEVEL OF OWNERSHIP

Please complete for each level of ownership

Identify all entities, individuals, public or private corporations that have an ownership stake in your organization being registered. Indicate if the entity has a valid Facility Security Clearance from Public Services and Procurement Canada’s Contract Security Program or any other country. For publicly traded corporations, identify stock exchange. If there are more than three levels of ownership; please submit on an additional page to include **all** levels of ownership from direct to ultimate.

Note: The organization structure chart with percentages of ownership must be included with your submission

SECTION E-1 - OWNERSHIP LEVEL 1 (direct ownership) if more than three - please provide on additional sheet

Ownership - Level 1 (Direct Parent)			
Name of organization or individual			
Address			
Type of entity (e.g. private or public corporation, state-owned)			
Stock exchange identifier (if applicable)			
Facility security clearance (FSC) yes/no			
Percentage of ownership			
Country of jurisdiction or citizenship			



CONTRACT SECURITY PROGRAM (CSP)

SECTION E-2 - OWNERSHIP LEVEL 2

If there is any additional ownership for the names listed in the previous section (E-1) please provide the information below. If not, please indicate N/A (not applicable).

Ownership of entries listed in E-1 (Level 2)

Name of direct owner from E-1			
Name of organization or individual			
Address			
Type of entity (e.g. private or public corporation, state-owned)			
Stock exchange identifier (if applicable)			
Facility security clearance (FSC) yes/no			
Percentage of ownership			
Country of jurisdiction or citizenship			

SECTION E-3 - OWNERSHIP LEVEL 3

If there is any additional ownership for the names listed in the previous section (E-2) please provide the information below. If not, please indicate N/A (not applicable).

Ownership of entries listed in E-2 (Level 3)

Name of intermediary ownership from E-2			
Name of organization or individual			
Address			
Type of entity (e.g. private or public corporation, state-owned)			
Stock exchange identifier (if applicable)			
Facility security clearance (FSC) yes/no			
Percentage of ownership			
Country of jurisdiction or citizenship			



CONTRACT SECURITY PROGRAM (CSP)

SECTION F - JUSTIFICATION (FOR RENEWING ORGANIZATIONS)

Add additional rows or attachments as needed

Please provide all current procurement rationales that have security requirements - i.e. contracts, leases, RFP, RFI, ITQ, supply arrangements, standing offers, etc.

Contract, lease, SA, SO, etc. number	Client / contracting authority	Security Type & level	Expiry date (dd-mm-yyyy)

SECTION G - CERTIFICATION AND CONSENT (ONLY AN OFFICER IDENTIFIED IN SECTION C MAY COMPLETE THIS SECTION)

I, the undersigned, as the Officer authorized by the organization, have read the Privacy Notice to this application and do hereby certify that the information contained in this application is true, complete and correct. I acknowledge and agree to comply with the responsibilities outlined in the Public Services and Procurement Canada's Contract Security Manual and consent to the collection, use and disclosure of my personal information for the purposes as described above. **I agree to notify the Contract Security Program of any changes to the organization including but not limited to: change of address, phone number, contact information, change in security officers, officers and directors, board members, partners, management / leadership team and ownership.**

Surname	Given name
Position title	Telephone number (include extension number if any)
Facsimile number	Email address
Signature	Date (dd-mm-yyyy)

FOR USE BY THE PSPC'S CONTRACT SECURITY PROGRAM

Recommendations	
Recommended by e-signature	Approved by e-signature



CONTRACT SECURITY PROGRAM (CSP) INITIAL INTERNATIONAL SECURITY SCREENING FORM

Purpose

The purpose of this form is to initiate the security screening process for foreign suppliers who will need access to Canadian Protected/Classified information/assets/sites under a Government of Canada contract or Multinational Program processed by the Canadian Contract Security Program (CSP). The information provided may be disclosed to the Royal Canadian Mounted Police and Canadian Security Intelligence Service to conduct the requisite checks and/or investigation. Additionally, the information may be disclosed to and used by other Government of Canada institutions that may require this information as part of their functions or investigation under Canadian Law or for security assurances from foreign data protection authorities or industrial security programs of foreign governments.

The role of the Designated Security Authority for Canada (Canadian DSA) is performed by the International Industrial Security Directorate under the Contract Security Program and is the Canadian authority for confirming compliance with the Canadian national and international security requirements involving foreign suppliers.

Instructions for completing this form

General

- This form and the additional documentation required must be provided in English or French.
- In any instance where this form does not allow enough space for a complete answer, please include additional pages and/or table rows as required.
- Refusal to provide the information, the provision of false statement, misleading information, or concealment and/or failure to disclose of any material fact on this screening form will result in a denial or revocation of eligibility to perform on contracts or multinational programs requiring access to Canadian Protected/Classified information/assets/sites.

Section A - Business Information

- You must provide all required documentation (outlined below) in relation to the type of company or corporate entity. Company or corporate entity's organization chart is mandatory for all types of entity.
- **Legal name of the company or corporate entity** refers to the legal name of the company or corporate entity as it is registered with the relevant foreign government authorities.
- **Business or trade name** refers to the name which a business trades under for commercial purposes, although its registered legal name used for contracts and other formal situations, may be another name.
- **Corporation** refers to an entity having authority under the law to act as a single person distinct from the shareholders who own it and having rights to issue stock and exist indefinitely. Provide the following additional information to substantiate this type of company or corporate entity selection:
 - Stock exchange identifier (if applicable); and
 - Certificate of Incorporation, compliance, continuance, etc.
- **Partnership** refers to a voluntary contract between two or more competent persons to place their money, effects, labor, and skill, or some or all of them, in lawful commerce or business, with the understanding that there shall be a proportional sharing of the profits and losses between them. Provide the following additional information to substantiate this type of company or corporate entity selection:
 - Evidence of legal status (e.g. partnership documentation).
- **Sole proprietor** refers to the owner of a business who acts alone and has no partners. Provide the following additional information to substantiate this type of company or corporate entity selection:
 - Government registration documentation; and
 - Other (e.g. Master Business License).
- **State-owned entity** refers to a state-owned enterprise or government-owned enterprise where the government or state has significant control over this business entity through full, majority, or significant minority ownership. Provide the following additional information to substantiate this type of company or corporate entity selection:
 - National Law, Act or policies defining the entity; and
 - Evidence of legal status.



- **Other** (e.g. letters of patent, universities, financial institutions, unincorporated companies). Provide the following information to substantiate this type of company or corporate entity selection:
 - Evidence of legal status;
 - National laws and Acts; and/or
 - Charters.
- If the company or corporate entity is already registered in an industrial security program from the National Security Authority (NSA) or Designated Security Authority (DSA) of the relevant country, indicate the security level of its facility clearance and its date of validity.
- Indicate the name of the national Data Protection Authority (DPA) responsible for the protection of personal information in the country where the company or corporate entity is located and indicate the title of the legislation defining this authority.

Section B – Company Security Officer (CSO)

- Identify the individual that will be nominated as the company or corporate entity's Security Officer (hereinafter referred to as Company Security Officer (CSO)) who will be responsible for ensuring compliance with the security requirements of the Government of Canada contract or multinational program.
- The CSO **must** be:
 - an employee of the company or corporate entity; and
 - be security assessed at the same level as the company or corporate entity.
- The CSO must notify the Contract Security Program of any structure changes of the ownership for the company or corporate entity, including changes of the membership of its Board of Directors and the change of the nominated CSO.
- **Citizenship** refers to the status of being a citizen. A citizen is a person who, by either birth or naturalization, is a member of a political community, owing allegiance to the community and being entitled to enjoy all the civil rights and protections.
- For the purposes of the Contract Security Program, the term **Country of Primary Residence/National Domicile** refers to the particular country for a person's true, fixed, principal and permanent home, to which that person intends to return and remain even though currently residing elsewhere.

Section C – List of Board of Directors

- List all members of the company's Board of Directors. Applicants are to add additional rows to the section if required.
- **Citizenship** refers to the status of being a citizen. A citizen is a person who, by either birth or naturalization, is a member of a political community, owing allegiance to the community and being entitled to enjoy all the civil rights and protections.
- For the purposes of the Contract Security Program, the term **Country of Primary Residence/National Domicile** refers to the particular country for a person's true, fixed, principal and permanent home, to which that person intends to return and remain even though currently residing elsewhere.

Section D - Ownership Information

- For the purposes of the Contract Security Program, the following interpretations are applicable:
 - **Direct (or registered)** owners are owners who hold legal title to a property or asset in that owner's name.
 - **Ownership** refers to either (1) voting rights attached to the corporation's outstanding voting shares or (2) outstanding shares measured by fair market value.
- **Parent company or corporate entity** refers to a company or corporate entity which owns and/or controls controlling interest (e.g. voting stock) of other firms or companies, usually known as subsidiaries, which may give it control of the operation of the subsidiaries.

Section E - Certification and Consent

- Only an individual identified in Section C may complete this section.



IMPORTANT NOTE: The provision of false, misleading information, or concealment and/or failure to disclose of any material fact on this screening form will prohibit your eligibility to perform on contracts or multinational programs requiring access to Canadian Protected/Classified information/assets/sites. An incomplete form will not be processed by the Contract Security Program and will be returned to you.

SECTION A - BUSINESS INFORMATION		
Complete Section A and provide the required documentation identified in the instructions above.		
1. Legal name of the company or corporate entity		
2. Business or trade name (if different from legal name)		
3. Type of company or corporate entity (Indicate the type of organization and provide the required validation documentation) (select one only)		
<input type="checkbox"/> Sole proprietor <input type="checkbox"/> Partnership <input type="checkbox"/> Corporation (Private or Public) <input type="checkbox"/> State-owned entity <input type="checkbox"/> Other, specify:		
4. Provide a brief description of your company or corporate entity's general business activities		
5. Business (Head office) civic address		
6. Mailing address (if different from business civic address)		
7. Company or corporate website (if applicable)		
8. Business Identifier Number if applicable (e.g. CAGE/NCAGE code)	9. Telephone number (include country code and extension number if any)	10. Facsimile number if applicable (include country code)
11. Number of employees in your company or corporate entity	12. Number of employees who require access to Canadian Protected/Classified information/assets/sites	
13. Indicate the valid facility security level of the company or corporate entity granted by the relevant National Security Authority or Designated Security Authority (indicate NIL if none)	14. Provide the date of the validity of the facility clearance (if applicable)	
15. Name of the relevant national Data Protection Authority (DPA) responsible for the protection of personal information in the country (indicate NIL if none)	16. Title of the legislation defining the Data Protection Authority (DPA) (if applicable)	



SECTION B – COMPANY SECURITY OFFICER				
Complete Section B.				
Position title	Surname	Given name(s)	Citizenship(s)	Country of primary residence/National domicile
Email address for the company security officer:				

SECTION C – LIST OF MEMBERS OF THE BOARD OF DIRECTORS (INDICATE N/A IF NOT APPLICABLE)				
Complete Section C. Add additional rows or attachment as required				
Position title	Surname	Given name(s)	Citizenship(s)	Country of primary residence/National domicile

SECTION D – OWNERSHIP INFORMATION					
Complete Section D for each level of ownership					
Identify all entities, individuals, public or private corporations that have an ownership stake in the organization listed in Section 1. For publicly traded corporations, identify stock exchange. An ownership relation chart with percentages of ownership must be included.					
SECTION D-1 – OWNERSHIP LEVEL 1 (DIRECT OWNERSHIP)					
Identify all individual owners or direct organizations ownership related to the company or corporate entity identified in Section 1.					
Name of organization or individual	Address	Type of entity (e.g. private or public corporation, state-owned)	Stock exchange (public or private)	Percentage of ownership	Country of jurisdiction or citizenship
SECTION D-2 – OWNERSHIP LEVEL 2					
If there is any additional ownership for the names listed in the previous section (D-1), provide the information below. If none, please indicate N/A (not applicable).					
Name of organization or individual	Address	Type of entity (e.g. private or public corporation, state-owned)	Stock exchange (public or private)	Percentage of ownership	Country of jurisdiction or citizenship
SECTION D-3 – OWNERSHIP LEVEL 3					
If there is any additional ownership for the names listed in the previous section (D-2) please provide the information below. If none, please indicate N/A (not applicable).					
Name of organization or individual	Address	Type of entity (e.g. private or public corporation, state-owned)	Stock exchange (public or private)	Percentage of ownership	Country of jurisdiction or citizenship



SECTION E – CERTIFICATION AND CONSENT (only an individual identified in Section C may complete this section)	
I, the undersigned, as the individual authorized by the organization identified in Section 1, have read the purpose and instructions of this screening form and do hereby certify that the information contained in this screening form is true, complete and correct. I acknowledge and agree to comply with the responsibilities outlined in the Public Services and Procurement Canada's Contract Security Manual and consent to the collection, use and disclosure of the information provided in this screening form for the purposes as described above. I agree to notify the Contract Security Program of any changes to the organization such as change of address, contact phone numbers, email address, change in company management structure, ownership, company security officer and the members of the Board of Directors.	
Surname	Given name(s)
Position title	Telephone number (include country code and extension number if any)
Facsimile number if applicable (include country code)	Email address
Signature	Date

FOR USE BY THE PSPC'S CONTRACT SECURITY PROGRAM		
Recommendations		
Recommendation by analyst (Name)	Signature	Date
Approval (Name)	Signature	Date