Travaux publics et Services gouvernementaux Canada

Public Works and Government Services Canada

RETURN BIDS TO:
RETOURNER LES SOUMISSIONS À:

Bid Receiving - PWGSC / Réception des soumissions - TPSGC
11 Laurier St. / 11, rue Laurier
Place du Portage , Phase III
Core 0A1 / Noyau 0A1
Gatineau, Québec K1A 0S5
Bid Fax: (819) 997-9776

REQUEST FOR PROPOSAL
DEMANDE DE PROPOSITION

Proposal To: Public Works and Government Services Canada

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

Proposition aux: Travaux Publics et Services Gouvernementaux Canada

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

Comments - Commentaires

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

Issuing Office - Bureau de distribution

Science Procurement Directorate/Direction de l'acquisition
de travaux scientifiques
11C1, Phase III
Place du Portage
11 Laurier St. / 11, rue Laurier
Gatineau, Québec K1A 0S5

Title-Sujet ENVIRONMENTAL IMPACT STUDY	
Solicitation No. - N° de l'invitation T8009-130016/A	**Date** OCTOBER 28, 2013
Client Reference No. - N° de référence du client T8009-130016	
GETS Reference No. - N° de référence de SEAG PW-13-00512115	
File No. – N° de dossier 066ssT8009-130016	**CCC No./N° CC – FMS NO. / N° VME**
Solicitation Closes – L'invitation prend fin **at – à 2:00 PM** **on – le 2013-12-09**	**Time Zone** **Fuseau horaire** Eastern Standard Time EST
F.O.B. – F.A.B **Plant-Usine :** ☐ **Destination:** ☐ **Other-Autre:** ☐	
Address Enquiries to: - Adresser toutes questions à: WILSON, HEATHER	**Buyer Id – Id de l'acheteur** 066ss
Telephone No. - N° de téléphone 819-956-1354	**FAX No. - N° de FAX** 819-997-2229
Destination of Goods, Services and Construction: **Destinations des biens, services et construction :** Specified Herein Précisé dans les présentes	

Instructions : See Herein

Instructions : voir aux présentes

Delivery Required - Livraison exigée See Herein	**Delivery Offered - Livraison proposée**
Vendor/Firm Name and Address **Raison sociale et adresse du fournisseur/de l'entrepreneur** **Telephone No. - N° de telephone** **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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PART 1 - GENERAL INFORMATION

1. Introduction

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

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

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

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

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

Part 5 Certifications: includes the certifications to be provided;

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

The Annexes include the Statement of Work, the Basis of Payment, the Non-Disclosure Agreement, and the Task Authorization Form.

2. Summary

(i) Statement of Work

Transport Canada has a requirement for the delivery of Research and Development Services as follows;

A. Light Duty Truck Weight Reduction Study with Crash Model, Feasibility and Cost Analyses: Transport Canada has a requirement to demonstrate that a baseline and light weighted light-duty truck (LDT) can achieve an acceptable/good rating on the Insurance Institute for Highway Safety (IIHS) Small Overlap Crash Test while, at a minimum, meeting the performance functions of the original baseline vehicle. This will be done through the use of Computer Aided Engineering (CAE) model simulations and data collected in an actual vehicle crashworthiness test of a 4x4 Crew Cab Silverado 1500.

The proposed work is to use advanced design, material and manufacturing processes to develop a LDT design that incorporates mass reduction strategies (is light-weighted) and can maintain or exceed the performance functions of a reference baseline LDT that does not incorporate mass reduction strategies in CAE space. The study will also consider vehicle manufacturing costs and performance requirements, specifically safety, fuel economy, vehicle utility/performance (i.e., towing, payload capacity), noise vibration harshness (NVH), manufacturability, aesthetics, ergonomics, durability and serviceability, as it relates to the LDT design model.

The reference baseline LDT refers to a 2007/2010 Silverado 1500 crew cab 4x2 CAE Model developed using a pre-existing GMC Silverado 1500 MY 2007 model provided by the U.S. National Highway Traffic Safety Authority (NHTSA), which was subsequently modified to include an updated cab/frame/fenders/box/gate from a 2010/2011 GMC Silverado 1500.

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

B. Task Authorized Work: The Contractor may be required to carry out tasks, on an "as and when requested" basis, as described as follows:

- Participation in meetings and briefings to industry as described in **Section B** of the Statement of Work at **Annex A**.

(ii) Services are required from date of contract award to June 30, 2015 inclusive.

(iii) Pursuant to section 01 of Standard Instructions 2003, Bidders must submit a complete list of names of all individuals who are currently directors of the Bidder. Furthermore, as determined by the Special Investigations Directorate, Departmental Oversight Branch, each individual named on the list may be requested to complete a Consent to a Criminal Record Verification form.

(iv) The requirement is subject to the provisions of the Agreement on Internal Trade (AIT).

(v) The requirement is for an Environmental Impact Study which is excluded from the application of the North American Free Trade Agreement (NAFTA) as per Annex 1001.1b-2, Class A (Research and Development), AND the World Trade Organization - Agreement on Government Procurement (WTO-AGP) under Appendix 1, Annex 4.

3. Debriefings

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

4. Communications

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

5. Conflict of Interest

The Work described herein and the deliverable items under any resulting Contract specifically exclude the development of any statement of work, evaluation criteria or any document related to a bid solicitation. The Contractor, its subcontractor(s) or any of their agent(s) directly or indirectly involved in the performance of the Work and/or in the production of the deliverables under any resulting Contract will not be precluded from bidding on any potential future bid solicitation related to the production or exploitation of any concept or prototype developed or delivered under any resulting Contract.

PART 2 - BIDDER INSTRUCTIONS

1. Standard Instructions, Clauses and Conditions

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

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

The 2003 (2013-06-01) Standard Instructions - Goods or Services - Competitive Requirements, are incorporated by reference into and form part of the bid solicitation.

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

Delete: sixty (60) days
Insert: one hundred twenty (120) days

1.1 SACC Manual Clauses

A7035T(2007-05-25), List of Proposed Subcontractors

2. Submission of Bids

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

3. Enquiries - Bid Solicitation

All enquiries must be submitted in writing to the Contracting Authority 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 questions or may request that the Bidder do so, so that the proprietary nature of the question is eliminated, and the enquiry can be answered with copies to all bidders. Enquiries not submitted in a form that can be distributed to all bidders may not be answered by Canada.

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4. Applicable Laws

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

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

5. Improvement of Requirement During Solicitation Period

Should bidders consider that the specifications or Statement of Work contained in the bid solicitation could be improved technically or technologically, bidders are invited to make suggestions, in writing, to the Contracting Authority named in the bid solicitation. Bidders must clearly outline the suggested improvement as well as the reason for the suggestion. Suggestions that do not restrict the level of competition nor favour a particular bidder will be given consideration provided they are submitted to the Contracting Authority at least ten (10) days before the bid closing date. Canada will have the right to accept or reject any or all suggestions.

6. Basis for Canada's Ownership of Intellectual Property

Transport Canada has determined that any intellectual property rights arising from the performance of the Work under the resulting contract will belong to Canada, on the following grounds:

(a) the main purpose of the contract, or of the deliverables contracted for, is to generate knowledge and information for public dissemination.

PART 3 - BID PREPARATION INSTRUCTIONS

1. Bid Preparation Instructions

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

Section I : Technical Bid (1 hard copy and 1 soft copy on CD)

Section II: Financial Bid (1 hard copies and 1 soft copy on CD)

Section III: Certifications (1 hard copies)

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

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

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

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

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

(1) use paper containing fibre certified as originating from a sustainably-managed forest and containing minimum 30% recycled content; and

(2) use an environmentally-preferable format including black and white printing instead of colour prinnting, print double sided/duplex, using staples or clips instead of cerlox, duotangs or binders.

Section I : Technical Bid

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

The technical bid should clearly address 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

1.1 Bidders must submit their financial bid in accordance with the following :

1.1.1 FOR ITEM A, FIRM MILESTONE SCHEDULE, OF ATTACHMENT 2, FINANCIAL BID PRESENTATION SHEET:

(a) A Firm, all inclusive lot price for the Work. The total amount of Applicable Taxes is to be shown separately, if applicable. The information should be provided in accordance with the Financial Bid Presentation Sheet at Attachment 2.

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

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

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

1.1.1.1 Price Breakdown

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

(a) Labour : For each individual and (or) labour category to be assigned to the Work, indicate: i) the per diem rate, inclusive of overhead and profit; and ii) the estimated number of hours.

(b) Equipment : Specify each item required to complete the Work and provide the pricing basis of each one, Canadian customs duty and excise taxes included, as applicable. These items will be deliverable to Canada upon completion of the contract.

(c) Materials and Supplies : Identify each category of materials and supplies required to complete the Work and provide the pricing basis.

(d) Subcontracts : Identify any proposed subcontractor and provide for each one the same price breakdown information as contained in this article.

(e) Travel and Living Expenses : The firm price excludes Travel and Living Expenses incurred in the performance of the Task Authorized Work detailed in the section of the Statement of Work entitled **Travel**. Indicate the number of trips and the number of days for each trip, the cost , destination and purpose of each journey for all other travel and living expenses, together with the basis of these costs which must not exceed the limits of the Treasury Board (TB) Travel Directive. With respect to the TB Directive, only the meal, private vehicle and incidental allowances specified in Appendices B, C and D of the Directive http://www.njc-cnm.gc.ca/directive/travel-voyage/index-eng.php , and the other provisions of the Directive referring to "travellers", rather than those referring to "employees", are applicable.

(f) Other Direct Charges : Identify any other direct charges anticipated, such as long distance communications and rentals, and provide the pricing basis .

(g) Applicable Taxes: Identify any Applicable Taxes separately.

1.1.2 FOR ITEM B, TASK AUTHORIZED WORK, OF ATTACHMENT 2, FINANCIAL BID PRESENTATION SHEET:

The firm per diem rate for each proposed category of labour for the contract period will be determined based upon the price breakdown identified at article 1.1.1.1 Price Breakdown for the applicable fiscal year.

1.2 Exchange Rate Fluctuation

C3011T (2010-01-11), Exchange Rate Fluctuation

Section III : Certifications

Bidders must submit the certifications required under Part 5.

PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION

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.

1.1 Technical Evaluation

Except where expressly provided otherwise, the experience described in the bid must be the experience of the Bidder itself (which includes the experience of any companies that formed the Bidder by way of a merger but does not include any experience acquired through a purchase of assets or an assignment of contract). The experience of the Bidder's affiliates (i.e. parent, subsidiary or sister corporations), subcontractors, or suppliers will not be considered.

1.1.1 Mandatory Technical Criteria

Refer to Attachment 1 entitled, "Mandatory and Point Rated Technical Criteria".

1.1.2 Point Rated Technical Criteria

Refer to Attachment 1 entitled, "Mandatory and Point Rated Technical Criteria".

1.2 Financial Evaluation

1.2.1 Evaluation of Price

The price of the bid will be evaluated in Canadian dollars, the Goods and Services Tax or the Harmonized Sales Tax excluded, Delivery Duty Paid (DDP), Canadian customs duties and excise taxes included.

For evaluation purposes only, the price of the bid will be the Total Firm All-Inclusive Amount (Applicable Taxes excluded) of the Firm Milestone Schedule included in Attachment 2, Financial Bid Presentation Sheet.

2. Basis of Selection

2.1 Basis of Selection - Highest Combined Rating of Technical Merit and Price

1. To be declared responsive, a bid must:

   (a) comply with all the requirements of the bid solicitation;

   (b) meet all mandatory criteria; and

   (c) obtain the required minimum of 91 points overall for the technical evaluation criteria which are subject to point rating. The rating is performed on a scale of 130 points.

2. Bids not meeting (a) or (b) or (c) 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 75% for the technical merit and 25% for the price.

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 75%.

5. To establish the pricing score, each responsive bid will be prorated against the lowest evaluated price and the ratio of 25%.

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 75/25 ratio of technical merit and price, *respectively. The total available points equals 135 and the lowest evaluated price is $45,000 (45).*

Basis of Selection - Highest Combined Rating Technical Merit (75%) and Price (25%)

		Bidder	
	Bidder 1	**Bidder 2**	**Bidder 3**
Overall Technical Score	115/135	89/135	92/135
Bid Evaluated Price	$55,000.00	$50,000.00	$45,000.00
Calculations			
Technical Merit Score	115/135 x 75 = 63.89	89/135 x 75 = 49.44	92/135 x 75 = 51.11
Pricing Score	45/55 x 25 = 20.45	45/50 x 25 = 22.5	45/45 x 25 = 25.00
Combined Rating	84.34	71.94	76.11
Overall Rating	**1st**	**3rd**	**2nd**

PART 5 - CERTIFICATIONS

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

The certifications provided by bidders to Canada are subject to verification by Canada at all times. 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 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 with this request will also render the bid non-responsive or will constitute a default under the Contract.

1. Mandatory Certifications Required Precedent to Contract Award

1.1 Code of Conduct and Certifications - Related documentation

By submitting a bid, the Bidder certifies as per section 01 of Standard Instructions 2003, for himself and his affiliates, to be in compliance with the Code of Conduct and Certifications clause of the Standard instructions. The related documentation therein required will help Canada in confirming that the certifications are true.

1.2 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 (http://www.labour.gc.ca/eng/standards_equity/eq/emp/fcp/list/inelig.shtml) available from Human Resources and Skills Development Canada (HRSDC) - Labour's website.

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.

2. Additional Certifications Precedent to Contract Award

The certifications listed below should be completed and submitted with the bid but may be submitted afterwards. If any of these required certifications is not completed and submitted as requested, the Contracting Authority will so inform the Bidder and provide the Bidder with a time frame within which to meet the requirement. Failure to comply with the request of the Contracting Authority and meet the requirement within that time period will render the bid non-responsive.

2.1 Former Public Servant - Competitive Requirements

Contracts awarded to 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 with FPS, bidders must provide the information required below before contract award.

Definitions
For the purposes of this clause, "former public servant" is any former member of a department as defined in the Financial Administration Act, R.S., 1985, c. F-11, a former member of the Canadian Armed Forces or a former member of the Royal Canadian Mounted Police. A former public servant may be:

i. an individual;
ii. an individual who has incorporated;
iii. a partnership made of former public servants; or

iv. 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 FPS in receipt of a pension, as applicable:
i. name of former public servant;
ii. date of termination of employment or retirement from the Public Service.

By providing this information, Bidders agree that the successful Bidder's status, with respect to being a former public servant in receipt of a pension, will be reported on departmental websites as part of the published proactive disclosure reports in accordance with Contracting Policy Notice: 2012-2 and the Guidelines on the Proactive Disclosure of Contracts.

Work Force Reduction Program
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:

i. name of former public servant;
ii. conditions of the lump sum payment incentive;
iii. date of termination of employment;
iv. amount of lump sum payment;
v. rate of pay on which lump sum payment is based;
vi. period of lump sum payment including start date, end date and number of weeks;
vii. number and amount (professional fees) of other contracts subject to the restrictions of a work force adjustment program.

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

2.2 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.

2.3 Education and Experience

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

2.4 Language Capability

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

PART 6 - RESULTING CONTRACT CLAUSES

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

1. Statement of Work

Transport Canada has a requirement for the delivery of Research and Development Services as follows;

A. Light Duty Truck Weight Reduction Study with Crash Model, Feasibility and Cost Analyses: The Contractor must perform the Work in accordance with **Section A** of the Statement of Work at **Annex A** and the Contractor's technical bid entitled _____ dated _____.

B. Task Authorized Work: The Contractor may be required to carry out tasks, on an "as and when requested" basis, as described as follows:

- Participation in briefings to industry as described in **Section B** of the Statement of Work at **Annex A**.

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.

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 specified in Annex D.

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 ten (10) 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. The Contractor must not commence work until a TA is authorized by the Technical Authority, and the Contracting Authority if applicable, has been received by the Contractor. The Contractor acknowledges that any work performed before a TA has been received will be done at the Contractor's own risk.

1.1.2 Task Authorization Limit

The Technical Authority may authorize individual task authorizations up to a limit of **$5,000.00**, Goods and Services Tax or Harmonized Sales Tax included, inclusive of any revisions.

Any task authorization to be issued in excess of that limit must be authorized by the Technical Authority and Contracting Authority before issuance.

1.2 Work Authorization

Despite any other condition of the Contract, the Contractor is only authorized to perform the Work required to complete Task 1 and 2 of the Statement of Work of the Contract. Upon completion of Task 2

the Work will be reviewed before the Contractor is authorized to commence any Work for each of the subsequent Tasks described in the Statement of Work. Depending on the results of the review and evaluation of the Work, Canada will decide at its discretion whether to continue with the Work.

If Canada decides to continue with each of the subsequent Tasks the Contracting Authority will advise the Contractor in writing to commence work on each subsequent Task. The Contractor must immediately comply with the notice.

If Canada decides not to proceed with each subsequent Task the Contracting Authority will advise the Contractor in writing of the decision and the Contract will be considered completed at no further costs to Canada. In no event will the Contractor be paid for any cost incurred for unauthorized work.

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) issued by Public Works and Government Services Canada.

2.1 General Conditions

2040 (2013-06-27), General Conditions - Research & Development, apply to and form part of the Contract.

2.2 SACC Manual Clauses

K3410C (2008-12-12), Canada to Own Intellectual Property Rights in Foreground Information

2.3 Non-disclosure Agreement

The Contractor must obtain from its employee(s) or subcontractor(s) the completed and signed non-disclosure agreement, attached at Annex C, and provide it to the Technical Authority before they are given access to information by or on behalf of Canada in connection with the Work.

3. Term of Contract

3.1 Period of Contract

The period of the Contract is from date of Contract to June 30, 2015 inclusive.

4. Authorities

4.1 Contracting Authority

The Contracting Authority for the Contract is:

Heather Wilson
Supply Specialist
Public Works and Government Services Canada
Acquisitions Branch
Science Procurement Directorate
Place du Portage, Phase III, 11C1
11 Laurier Street
Gatineau, Quebec
K1A 0S5

Telephone: (819) 956-1354
Facsimile: (819) 997-2229
E-mail address: Heather.Wilson@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.

4.2 Technical Authority

The Technical Authority for the Contract is to be inserted at contract award.

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

4.3 Contractor's Representative

The Contractor's Representative for the Contract is:

_____ (Name)
_____ (Title)
_____ (Address)

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

5. Proactive Disclosure of Contracts with Former Public Servants (if applicable)

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

6. Payment

6.1 Basis of Payment

6.1.1 Firm Price (FOR ITEM A "FIRM MILESTONE SCHEDULE" OF ANNEX B *BASIS OF PAYMENT*)

In consideration of the Contractor satisfactorily completing all of its obligations under the Contract, the Contractor will be paid firm lot price(s), as specified in the Basis of Payment at Annex B for a cost of $ _____ **(to be determined at contract award)**. Customs duties are included and Goods and Services Tax or Harmonized Sales Tax is extra, if applicable.

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

6.1.2 Task Authorization (FOR ITEM B "TASK AUTHORIZED WORK" OF ANNEX B *BASIS OF PAYMENT*)

The following type of basis of payment will form part of the approved Task Authorization (TA). The task price must be determined in accordance with the Basis of Payment at Annex B.

(a) TA 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 Goods and Services Tax or Harmonized Sales Tax is extra, if applicable.

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.

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

Canada's obligation with respect to the portion of the Work under the Contract that is performed through task authorizations is limited to the total amount of the actual tasks performed by the Contractor.

6.2.1 Limitation of Expenditure - Cumulative Total of all Task Authorizations

1. Canada's total liability to the Contractor under the Contract for all authorized Task Authorizations (TAs), inclusive of any revisions, must not exceed the sum of $ 28,000.00. Customs duties and Travel and Living Expenses are included and the Goods and Services Tax or Harmonized Sales Tax is extra, if applicable.

2. No increase in the total liability of Canada will be authorized or paid to the Contractor unless an increase has been approved, in writing, by the Contracting Authority.

3. The Contractor must notify the Contracting Authority in writing as to the adequacy of this sum:

   (a) when it is 75 percent committed, or
   (b) four (4) months before the contract expiry date, or

(c) as soon as the Contractor considers that the sum is inadequate for the completion of the Work required in all authorized TAs, inclusive of any revisions,

whichever comes first.

4. 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.

6.3 Method of Payment

6.3.1 Payments will be made not more frequently than once a month.

6.3.2 Milestone Payments

FOR ITEM A "FIRM MILESTONE SCHEDULE" OF ANNEX B *BASIS OF PAYMENT*

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

(a) an accurate and complete claim for payment using form PWGSC-TPSGC 1111 (http://www.tpsgc-pwgsc.gc.ca/app-acq/forms/documents/1111.pdf) and any other document required by the Contract have been submitted in accordance with the invoicing instructions provided in the Contract;

(b) all the certificates appearing on form PWGSC-TPSGC 1111 have been signed by the respective authorized representatives;

(c) all work associated with the milestone and as applicable any deliverable required has been completed and accepted by Canada.

6.3.3 Single Payment

FOR ITEM B "TASK AUTHORIZED WORK" OF ANNEX B *BASIS OF PAYMENT*

Canada will pay the Contractor upon completion and delivery of the Work in accordance with the payment provisions of the Task Authorization and 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 delivered has been accepted by Canada.

6.4 SACC Manual Clauses

A9117C (2007-11-30), T1204 - Direct Request by Customer Department
C2000C (2007-11-30), Taxes - Foreign-based Contractor

6.5 Discretionary Audit

SACC Manual Clause C0705C (2010-01-11), Discretionary Audit

7. Invoicing Instructions

7.1 Invoicing Instructions - Progress Claim

FOR ITEM A "FIRM MILESTONE SCHEDULE" OF ANNEX B *BASIS OF PAYMENT*

1. The Contractor must submit a claim for progress payment using form PWGSC-TPSGC 1111 (http://www.tpsgc-pwgsc.gc.ca/app-acq/forms/documents/1111.pdf).

   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.

   (d) a copy of the monthly progress report.

2. The Contractor must prepare and certify an original claim on Form PWGSC-TPSGC 1111, and forward it to the Contracting Authority for certification in an electronic format to the electronic mail address identified under section entitled "Authorities" of the Contract. Adobe Reader (.pdf) format is acceptable. The Contracting Authority will then forward the certified claim, in an electronic format, to the Technical 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.

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

7.2 Invoicing Instructions - Task Authorization Progress Claim

FOR ITEM B "TASK AUTHORIZED WORK" OF ANNEX B *BASIS OF PAYMENT*

1. The Contractor must submit a claim for progress payment using form PWGSC-TPSGC 1111. Form PWGSC-TPSGC 1111 is available at the following Website http://www.tpsgc-pwgsc.gc.ca/app-acq/forms/formulaires-forms-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) the Task Authorization (TA) number;
   (d) the description of the milestone invoiced, as applicable.

2. For 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;
   (c) a copy of the invoices, receipts, vouchers for all direct expenses, travel and living expenses;

3. Goods and Services Tax (GST) or Harmonized Sales Tax (HST), as applicable, 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 GST/HST 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 Contracting Authority for certification.

   The Contracting Authority will then forward the original and two (2) copies of the claim to the Technical 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 until all work identified in the claim is completed.

8. Certifications

8.1 Compliance

Compliance with the certifications and related documentation provided by the Contractor in its bid is a condition of the Contract and subject to verification by Canada during the entire contract period. If the Contractor does not comply with any certification, provide the related documentation or if 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.

9. Applicable Laws

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

10. Priority of Documents

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

(a) the Articles of Agreement;
(b) the general conditions 2040 (2013-06-27), General Conditions - Research & Development
(c) Annex A, Statement of Work;
(d) Annex B, Basis of Payment
(e) Annex C, Non-disclosure Agreement
(f) the signed Task Authorizations (including all of its annexes, if any);
(g) the Contractor's bid dated _____ (insert date of bid).

11. Foreign Nationals

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)

12. Insurance

SACC Manual clause G1005C (2008-05-12), Insurance

13. 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 quarterly basis to the Contracting Authority. The quarterly periods are defined as follows:

1st quarter: April 1 to June 30;
2nd quarter: July 1 to September 30;
3rd quarter: October 1 to December 31; and
4th quarter: January 1 to March 31.

The data must be submitted to the Contracting Authority no later than ten (10) 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:

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, GST or HST extra;
(iv) the total amount, GST or HST extra, 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 (GST or HST extra) 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, GST or HST extra, expended to date against all authorized Tas.

ATTACHMENT 1

MANDATORY AND POINT RATED TECHNICAL CRITERIA

1. Mandatory Criteria

At bid closing time, the Bidder must comply with the following mandatory technical criteria and provide the necessary documentation to demonstrate their compliance. Any bid that fails to meet the following mandatory technical criteria will be declared non-responsive. Each criterion should be addressed separately.

For mandatory criteria (M1-M4), Bidders can use the same project (or sub-projects) to demonstrate their experience. For example, consider a case where the Bidder completed PROJECT A that required them to develop and run a crashworthiness simulation of a light-duty vehicle using Livermore Software LS-DYNA finite element analysis models (M1), and also perform automotive noise, vibration, harshness analysis using NASTRAN finite element analysis software (M3). In this case, the Bidder can submit PROJECT A as experience under mandatory criteria M1 and M3. Alternatively, bidders can submit separate projects for each criterion.

Similarly, for mandatory criteria (M1-M4), Bidders can use the same resource to demonstrate their experience. For example, consider a case where the Bidders RESOURCE A completed a project to develop and run a crashworthiness simulation of a light-duty vehicle using Livermore Software LS-DYNA finite element analysis models (M1), and also perform automotive noise, vibration, harshness analysis using NASTRAN finite element analysis software (M3). In this case, the Bidder can submit the same resource under mandatory criteria M1 and M3. Alternatively, bidders can submit separate resources for each criterion.

M1. **The Bidder must propose a resource who has** successfully commenced and completed **one** (1) **project** within the past five (5) years, measured from the date of bid closing, developing and running crashworthiness simulations of light-duty vehicles using Livermore Software LS-DYNA finite element analysis (FEA) models. The Bidder must demonstrate compliance by providing a brief abstract of the project undertaken that clearly demonstrates: the month and year commenced and completed, and how (through what activities, responsibilities and approach) they successfully completed the project.

M2. **The Bidder must propose a resource who has** successfully commenced and completed **one** (1) **project** within the past five (5) years, measured from the date of bid closing, involving the application of advanced light-weight vehicle design to a light-duty automobile, including developing a large working finite element analysis (FEA) model in Livermore Software (LS-DYNA) to evaluate the design. The Bidder must demonstrate compliance by providing a brief abstract of the project undertaken that clearly demonstrates; the month and year commenced and completed, and how (through what activities, responsibilities and approach) they successfully completed the project.

M3. **The Bidder must propose a resource who has** successfully commenced and completed **one** (1) **project** within the past five (5) years, measured from the date of bid closing, performing automotive noise, vibration, harshness (NVH) analysis using NASTRAN finite element analysis (FEA) software. The Bidder must demonstrate compliance by providing a brief abstract of the project

undertaken that clearly demonstrates; the month and year commenced and completed, and how (through what activities, responsibilities and approach) they successfully completed the project.

M4. **The Bidder must propose a resource who has** successfully commenced and completed **one** (1) **project** within the past five (5) years, measured from the date of bid closing, involving cost analysis in the automotive industry, including cost tear-down studies of motor vehicle components, parts and systems and identifying tooling and capital equipment costs related to the introduction of new vehicle designs and manufacturing processes. The Bidder must demonstrate compliance by providing a brief abstract of the project undertaken that clearly demonstrates; where, the month and year commenced and completed, and how (through what activities, responsibilities and approach) they successfully completed the project.

2. Point Rated Criteria

The Technical Bid will be evaluated and scored in accordance with the following evaluation criteria and point rating scale.

Maximum Rated Points Available: 130 points
Minimum Overall Pass Mark: 91 points (70%)

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

Criteria	Scoring	Max. Pts.	Cross-Reference to Proposal
R1-R3. Technical Proposal Bidders should submit a detailed technical proposal that includes the sub-elements identified in the following criteria (R1-R3):			
R1. Statement of understanding of the projects scope and objectives. The Bidders technical proposal should include a statement of understanding of the project's scope and objectives.	**R1. Maximum of 20 points** **(20 points):** Bidders technical proposal demonstrates a complete and thorough understanding of the project's scope and objective, i.e. **addresses all** project elements, deliverables and anticipated outcomes, and also includes significant added insights that demonstrate the completeness of understanding of the objectives. **(15 points):** Bidders technical proposal demonstrates thorough understanding of the project's scope and objectives, i.e. **addresses major** project elements, deliverables or anticipated outcomes and also includes added insights that demonstrate the completeness of understanding of the objectives. **(10 points):** Bidders technical proposal demonstrates a general understanding of the project's scope and objective, i.e. **addresses most major** project elements, deliverables and anticipated outcomes. **(5 points):** Bidders technical proposal demonstrates an incomplete or incorrect understanding of the project's scope and objectives, i.e. **does not address** or include major project elements, deliverables or anticipated outcomes. **(0 points):** Bidders technical proposal **does not demonstrate or address** any understanding of the project's scope and objectives.	**/20**	

Attention Bidders: *Write beside each of the criteria the relevant page number(s) from your proposal which addresses the requirement identified in the criteria.*			
Criteria	**Scoring**	**Max. Pts.**	**Cross-Reference to Proposal**
R2. Proposed approach The Bidders technical proposal should include a proposed approach to how they would complete the Work included in the Statement of Work.	**R2. Maximum of 40 points** **(40 points):** Bidder provides a comprehensive description of their proposed technical approach with significant added insights. The Bidder identifies all of the technical issues to be addressed; provides a detailed methodology/approach to addressing the issues; includes a detailed description of potential risks and risk mitigation strategies; and clearly identifies and discusses all assumptions they make in their proposed approach. **(30 points):** Bidder provides a complete description of their proposed technical approach with some added insights. The Bidder identifies most of the technical issues to be addressed; provides a detailed methodology/approach to addressing the issues; includes a description of potential risks and risk mitigation strategies, and identifies most assumptions they make in the proposed approach. **(20 points):** Bidder provides a general description of their proposed technical approach with a few added insights. The Bidder identifies the major technical issues to be addressed; provides a high-level methodology/approach to addressing the issues; provides a limited description of potential risks and risk mitigation strategies, and identifies only major assumptions they make in their proposed approach **(10 points):** Bidder provides an incomplete description of their proposed technical approach with no added insights. The Bidder does not identify technical issues to be addressed; provides an incomplete methodology/approach to addressing the issues; provides no description of potential risks and risk mitigation strategies, and does not identify any details on assumptions they make in their proposed approach **(0 points):** Bidder does not provide a proposed approach to complete the Statement of Work.	**/40**	

Attention Bidders: *Write beside each of the criteria the relevant page number(s) from your proposal which addresses the requirement identified in the criteria.* **Criteria**	**Scoring**	**Max. Pts.**	**Cross-Reference to Proposal**
R3. Project plan and schedule The Bidder's technical proposal should include a project plan and schedule that details deadlines and milestones. The project plan will be evaluated for its completeness, clarity and achievability, as demonstrated through use of a work-breakdown structure mapped to the Statement of Work (SoW) tasks.	**R3. Maximum of 20 points** **(20 points):** Bidder's technical proposal includes a detailed project plan that identifies all of the necessary management, administrative and engineering tasks required for successful completion of each task outlined in the SoW, and at a higher level of detail that is described in the SoW. All tasks and sub-tasks are reflected in a comprehensive schedule that includes risks, required inputs from Canada (if any are identified in the bidders proposal), identifies critical path activities and presents consideration to anticipate and avoid delays. **(15 points):** Bidder's technical proposal includes a project plan that identifies the major management, administrative and engineering tasks required for successful completion of each task outlined in the SoW, and at level of detail that is described in the SoW, or higher. All tasks and sub-tasks are reflected in a comprehensive schedule that includes risks, required inputs from Canada (if any are identified in the bidders proposal), identifies critical path activities and presents consideration to anticipate and avoid delays. **(10 points):** Bidder's technical proposal includes a project plan that only includes major management, administrative and engineering tasks required for successful completion of each task outlined in the SoW Only major tasks are reflected in a schedule; risks and required inputs from Canada (if any are identified in the bidders proposal), are not identified; only high-level critical path activities are identified, and there is minimal consideration to anticipate and avoid delays. **(5 points):** Bidder's technical proposal includes a project plan that does not include major management, administrative and engineering tasks required for successful completion of each task outlined in the SoW. Some major tasks are not reflected in a schedule; risks and required inputs from Canada (if any is identified in the bidders proposal) are not identified; there are no critical path activities identified, and there is no consideration to anticipate and avoid delays. **(0 points):** Bidder does not provide a project plan.	**/20**	

Attention Bidders: *Write beside each of the criteria the relevant page number(s) from your proposal which addresses the requirement identified in the criteria.* **Criteria**	**Scoring**	**Max. Pts.**	**Cross-Reference to Proposal**
R4. Experience **Bidders should submit projects, <u>in addition to those submitted under the mandatory criteria</u>, to illustrate the proposed resources additional experience, as identified in the criteria below (R4.1-R4.5).** For criterion R4.1 to R4.5, Bidders can use the <u>same project</u> (or sub-projects) to demonstrate their experience. For example, consider a case where the bidder completed PROJECT A that required them to develop a FEA LS DYNA model (R4.2) and perform NVH analysis (R4.3) as sub-project elements. In this case, the Bidder can submit PROEJCT A as experience under criteria R4.2 and R4.3. Alternatively, bidders can submit separate projects for each criterion. Similarly, for criterion R4.1 to R4.5, Bidders can use the <u>same resource</u> when demonstrating their experience. For example, consider a case where the bidders RESOURCE A completed a project to develop a FEA LS DYNA model (R4.2), and also a project to perform NVH analysis (R.4.3). In this case, the Bidder can submit the same resource under criteria R4.2 and R4.3. Alternatively, bidders can submit separate resource for each criterion.			
R4.1 Experience in Light-Weight Vehicle Design The Bidder should demonstrate the proposed resources experience in reducing light-duty vehicle weight through creative and light weight design, application of advanced light-weight material and joining techniques and improved manufacturing processes. The Bidder should demonstrate this experience by providing a brief abstract of project(s) the proposed resource has commenced and completed, within the past five (5) years, measured from the date of bid closing, that clearly demonstrates the month and year commenced and completed, and how (through what activities, responsibilities and approach) they successfully completed each project.	**R4.1 Maximum of 10 points** **(10 points):** Bidder demonstrates 3 or more projects; **(7 points)**: Bidder demonstrates 2 projects; **(5 points):** Bidder demonstrates 1 project; **(0 points):** Bidder demonstrates 0 projects.	**/10**	

Attention Bidders: *Write beside each of the criteria the relevant page number(s) from your proposal which addresses the requirement identified in the criteria.* **Criteria**	**Scoring**	**Max. Pts.**	**Cross-Reference to Proposal**
R4.2 Experience developing FEA LS-DYNA models The Bidder should demonstrate the proposed resources experience in developing FEA LS-DYNA finite element models including experience running crashworthiness simulations of light-duty vehicle models. The Bidder should demonstrate this experience by providing a brief abstract of project(s) the proposed resource has commenced and completed, within the past five (5) years, measured from the date of bid closing, that clearly demonstrates the month and year commenced and completed, and how (through what activities, responsibilities and approach) they successfully completed each project.	**R4.2 Maximum of 10 points** **(10 points):** Bidder demonstrates 3 or more projects; **(7 points)**: Bidder demonstrates 2 projects; **(5 points):** Bidder demonstrates 1 project; **(0 points):** Bidder demonstrates 0 projects.	**/10**	
R4.3 Experience performing NVH analysis The Bidder should demonstrate the proposed resources experience performing automotive noise, vibration, harshness (NVH) analysis using NASTRAN finite element analysis software. The Bidder should demonstrate this experience by providing a brief abstract of project(s) the proposed resource has commenced and completed, within the past five (5) years, measured from the date of bid closing, that clearly demonstrates the month and year commenced and completed, and how (through what activities, responsibilities and approach) they successfully completed each project.	**R4.3 Maximum of 10 points** **(10 points):** Bidder demonstrates 3 or more projects; **(7 points)**: Bidder demonstrates 2 projects; **(5 points):** Bidder demonstrates 1 project; **(0 points):** Bidder demonstrates 0 projects.	**/10**	

Attention Bidders: *Write beside each of the criteria the relevant page number(s) from your proposal which addresses the requirement identified in the criteria.* **Criteria** **Scoring**		**Max. Pts.**	**Cross-Reference to Proposal**
R4.4 Experience performing cost analysis The Bidder should demonstrate the proposed resources experience performing cost analysis in the automotive industry, cost tear-down studies of motor vehicle components, parts, or systems and in identifying fixed and variable costs; and experience identifying tooling and capital equipment costs related to the introduction of new vehicle designs and manufacturing processes; The Bidder should demonstrate this experience by providing a brief abstract of project(s) the proposed resource has commenced and completed, within the past five (5) years, measured from the date of bid closing, that clearly demonstrates the month and year commenced and completed, and how (through what activities, responsibilities and approach) they successfully completed each project.	**R4.4 Maximum of 10 points** **(10 points):** Bidder demonstrates 3 or more projects; **(7 points)**: Bidder demonstrates 2 projects; **(5 points):** Bidder demonstrates 1 project; **(0 points):** Bidder demonstrates 0 projects.	**/10**	
R4.5 Experience assessing manufacturing techniques and processes The Bidder should demonstrate the proposed resources experience performing analyses of vehicle manufacturing techniques, processes, specifically assessing the manufacturability, durability, serviceability and reparability of new materials and designs. The Bidder should demonstrate this experience by providing a brief abstract of project(s) the proposed resource has commenced and completed, within the past five (5) years, measured from the date of bid closing, that clearly demonstrates the month and year commenced and completed, and how (through what activities, responsibilities and approach) they successfully completed each project.	**R4.5 Maximum of 10 points** **(10 points):** Bidder demonstrates 3 or more projects; **(7 points)**: Bidder demonstrates 2 projects; **(5 points):** Bidder demonstrates 1 project; **(0 points):** Bidder demonstrates 0 projects.	**/10**	

ATTACHMENT 2

FINANCIAL BID PRESENTATION SHEET

A. FIRM MILESTONE SCHEDULE:

Milestone No.	Description	Due Date (From Contract Award Date)	Firm Milestone Amount (GST/HST excluded)
1	Kick-off Meeting and Work-Plan, as described in Task 1 of Annex A "Statement of Work"	No later than 26 days after contract award	$_____ * *No more than 5% of the Total Firm All-inclusive Amount (Applicable Taxes excluded).
2	Validation and Correlation of Baseline CAE Model Crashworthiness Simulation, as described in Task 2 of Annex A "Statement of Work"	No later than 80 days after contract award	$_____
3	Modification of the Baseline CAE Model for 4 x 4 Design and Simulation of IIHS Small Overlap Frontal Crashworthiness Evaluation, as described in Task 3 of Annex A "Statement of Work"	No later than 210 days after contract award	$_____
4	Modify the IIHS Small Overlap 4x4 CAE Model To Obtain a Good or Acceptable Rating in a Small Overlap Frontal Crash Test Simulation, as described in Task 4 of Annex A "Statement of Work"	No later than 300 days after contract award	$_____
5	Modify the Good/Acceptable IIHS Small Overlap 4x4 CAE Model to Incorporate Light-Weighting Design Features, as described in Task 5 of Annex A "Statement of Work"	No later than 390 days after contract award	$_____
6	Cost Analyses, as described in Task 6 of Annex A "Statement of Work"	No later than 420 days after contract award	$_____
7	Reporting and Peer Review, as described in Task 7 of Annex A "Statement of Work"	No later than 570 days after contract award	$_____ * *No more than 5% of the Total Firm All-inclusive Amount (Applicable Taxes excluded).
Total Firm All-Inclusive Amount (Applicable Taxes excluded)			$_____

B. TASK AUTHORIZED WORK:

1. LABOUR: at firm all-inclusive per diem rates, GST/HST extra, Delivery Duty Paid (DDP) (for goods), in accordance with the following:

Name	Title	Firm Per Diem Rate
		$
		$
		$
		$

TOTAL ESTIMATED LABOUR: $18,000.00

2. TRAVEL & LIVING: at actual cost without markup but not to exceed the limits of the Treasury Board Travel Directive. With respect to the TB Travel Directive, only the meal, private vehicle and incidental allowances specified in Appendices B, C and D of the TB Travel Directive http://www.tbs-sct.gc.ca/hr-rh/gtla-vgcl/ and the other provisions of the directive referring to "travellers" rather than those referring to "employees", are applicable. *Details are to be provided on a separate sheet.*

TOTAL ESTIMATED TRAVEL & LIVING: $15,000.00

TOTAL ESTIMATED COST TO A LIMITATION OF EXPENDITURE: $_____
(Applicable taxes extra)

ANNEX A

STATEMENT OF WORK

A. LIGHT-DUTY TRUCK WEIGHT REDUCTION STUDY WITH CRASH MODEL, FEASIBILITY AND DETAILED COST ANALYSIS

1.0 Introduction

1.1 Transport Canadas (TC) ecoTECHNOLOGY for Vehicles Program (eTV)

Transport Canadas *ecoTECHNOLOGY for Vehicles Program* (eTV) www.tc.gc.ca/eTV is a horizontal initiative of the Clean Air Agenda, which forms part of the Government of Canadas broader efforts to address the challenges of climate change and air pollution, with a view to ensuring a clean and healthy environment for all Canadians. eTVs mandate is to carry out proactive work to assess the environmental performance and potential safety risks of emerging and advanced on road vehicle technologies.

The program tests, evaluates and provides expert technical information on light-duty vehicle (LDV) and heavy-duty vehicle (HDV) technologies that are anticipated to enter the Canadian market over the next 10-15 years. Work is managed by Transport Canada (TC), with guidance from an interdepartmental governance structure.

Results are provided to vehicle regulators, including TC, Environment Canada (EC), Natural Resources Canada (NRCan) and United States (U.S.) and international agencies. One of the key regulatory drivers for the program is to support the development of greenhouse gas (GHG) regulations for on-road vehicles.

The eTV programs testing will include addressing Canadian unique conditions (e.g. cold weather) and technologies (e.g. vehicles or technologies more applicable to Canada). Results will help ensure that Canadian circumstances are taken into consideration during the regulatory development stage to facilitate regulatory harmonization and alignment.

1.2 Environment Canada (EC)

ECs mandate is to protect the environment, conserve the country's natural heritage, and provide weather and meteorological information to keep Canadians informed and safe. Environment Canada is building on its accomplishments with the environment through credible science, effective regulations and legislation, successful partnerships, and high-quality service delivery to Canadians.

1.3 U.S. Environmental Protection Agency (EPA) Assessment and Standards Division, National Vehicle and Fuel Emissions Laboratory, Office of Transportation and Air Quality

The U.S. Environmental Protection Agencys (EPA) Assessment and Standards Division identifies and develops future emission control strategies (such as new vehicle, engine, and fuel quality standards) and national policy on mobile source emission control. The division develops regulations and policies, determines the contribution of mobile sources to pollutant emission inventories, and assesses the feasibility, cost, and in-use effectiveness of emission control technologies.

2.0 Background

The North American automotive sector is highly integrated and a key contributor to the economy in Canada and the U.S. The importance of this sector is reflected in its inclusion as a priority area under the *U.S.-Canada Regulatory Cooperation Council* (RCC).

Under the RCC, both countries are undertaking efforts to better align the regulatory environment between Canada and the United States through a variety of tools such as enhanced technical collaboration, mutual recognition of standards and joint work sharing. Greater alignment and better mutual reliance in our regulatory approaches are *expected to lead to lower costs for consumers and businesses, create more*

efficient supply chains, increase trade and investment, generate new export opportunities, and create jobs on both sides of the border. [1]

In addition to the RCC, both countries signed the *Canada-United States Air Quality Agreement* on March 13, 1991 to address trans-boundary air pollution leading to acid rain. Both countries agreed to reduce emissions of sulphur dioxide (SO_2) and nitrogen oxides (NOx), the primary precursors to acid rain, and to work together on acid rain related scientific and technical cooperation.

Under the context of these cooperative instruments, which promote joint technical work to support regulatory developments, Transport Canada (TC) is leading a tri-partite study with the U.S. Environmental Protection Agency (EPA) and Environment Canada (EC) to examine the safety and environmental performance of new light-duty truck structural designs.

ECs *Regulations Amending the Passenger Automobile and Light Truck Greenhouse Gas Emission Regulations* are aligned with the U.S. Final Rule *2017 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions and Corporate Average Fuel Economy Standards*, in accordance with the mandate of the RCC. The Canadian and U.S. rules reduce greenhouse gas (GHG) emissions for model years (MYs) 2017 through 2025 light-duty vehicles. The standards apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles, in MYs 2017 through 2025.

Given the long time frame in setting standards for MYs 2022-2025, TC and EC will collaborate with the U.S. EPA on technical studies and research to inform a comprehensive U.S.-led mid-term evaluation. This collaboration will include partnerships on studies relevant to both countries. Should the mid-term evaluation lead to changes to the U.S. EPA regulations, EC intends to undertake formal consultations with provincial and territorial governments and stakeholders to discuss whether any change to Canadas Regulations is warranted for model years 2022 to 2025. EC also intends to undertake a review of the impacts associated with any proposed new standard resulting from the U.S. mid-term evaluation in order to inform the path forward.

An existing program being led by the U.S. EPAs Office of Transportation and Air Quality is examining the mass reduction potential of light-duty vehicle (LDV) pick-up trucks as part of broader technical work required for the mid-term technical assessment of the *2017 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions and Corporate Average Fuel Economy Standards.* In support of these efforts, U.S. EPA commissioned a study to identify 20% mass reduction opportunities on a mid-sized sports utility vehicle (SUV) while maintaining performance parity and direct manufacturing cost relative to the current vehicle.

Due to differences in functional purpose between passenger cars and light trucks, and the structural differences between unibody and body on frame vehicles, it is important to consider distinctions in mass reduction techniques between these vehicle types. Further research exploring the potential differences in mass reduction approaches for passenger cars and light trucks would be helpful in this regard.

The Mid Term Evaluation (MTE) is a process through which the latest information on all of the topics included in the U.S. *2017 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions and Corporate Average Fuel Economy Standards* is collected and evaluated. The U.S. Final Rule-Making for the *2017 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions and Corporate Average Fuel Economy Standards* is available through the U.S. Federal Registrar at).

The Government of Canada has published proposed *Regulations Amending the Passenger Automobile and Light Truck Greenhouse Gas Emission Regulations (20172025)*, in alignment with the U.S. EPA standards. Environment Canada, which published the proposed standards under the *Canadian Environmental Protection Act* (CEPA, 1999), has incorporated the U.S. EPA regulatory standards by reference (as amended from time to time) as the most efficient means of maintaining harmonization.

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[1] http://actionplan.gc.ca/en/page/rcc-ccr/regulatory-cooperation-council

Information for the MTE will be collected through 2016, at which time a report will be written in collaboration with the U.S. Department of Transportation National Highway Traffic Safety Administration (NHTSA) and the California Air Resources Board (CARB). For EPA and CARB, the MTE will be the basis for determining whether changes have to be made in the *2017 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions and Corporate Average Fuel Economy Standards.*

3.0 Purpose

The objective of the proposed work is to demonstrate that a baseline[2] and light weighted light-duty truck[3] (LDT) (otherwise known as a pick-up truck) can achieve an acceptable/good rating on the Insurance Institute for Highway Safety (IIHS) Small Overlap Crash Test while, at a minimum, meeting the performance functions of the original baseline vehicle. This will be done through the use of Computer Aided Engineering (CAE) model simulations and data collected in an actual vehicle crashworthiness test of a 4x4 Crew Cab Silverado 1500.

Second, the proposed work is to use advanced design, material and manufacturing processes to develop a LDT design that incorporates mass reduction strategies (is light-weighted) can maintain or exceed the performance functions of a reference baseline LDT that does not incorporate mass reduction strategies in CAE space. The study will also consider vehicle manufacturing costs and performance requirements, specifically safety, fuel economy, vehicle utility/performance (i.e., towing, payload capacity), noise vibration harshness (NVH), manufacturability, aesthetics, ergonomics, durability and serviceability, as it relates to the LDT design model.

4.0 Tasks

The proposed work is divided into seven tasks described below:

4.1 Task 1: Kick-off Meeting and Work-Plan

Within two weeks of contract award, the Contractor must meet with the Technical Authority at their offices, located in Ottawa, Ontario, Canada (330 Sparks St.). The purpose of the kick-off meeting is to discuss the contract objectives, timelines, and administrative details. The Contractor must present their updated work-plan to meet the contract requirements. The Technical Authority will have five (5) working days, following this meeting, to review and provide comments on the updated work-plan to the Contactor. The Contractor will then have another five (5) working days to address the Technical Authority's comments and provide a final work-plan to the Technical Authority.

4.2 Task 2: Validation and Correlation of Baseline CAE Model Crashworthiness Simulation

The Contractor must utilize an existing Finite Element Analysis (FEA) Livermore Software (LS-DYNA) Computer Aided Engineering (CAE) model of a production light-duty truck, (specifically a GMC Silverado 1500), which will be provided to the Contractor by the Technical Authority. The model was previously developed by the US EPA. This will be referred to as the **Baseline CAE Model.**[4] The

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[2] Baseline refers to a 2007/2010 Silverado 1500 crew cab 4x2 CAE Model developed using a pre-existing GMC Silverado 1500 MY 2007 model provided by the U.S. National Highway Traffic Safety Authority (NHTSA), which was subsequently modified to include an updated cab/frame/fenders/box/gate from a 2010/2011 GMC Silverado 1500. (Refer to task 2 for additional details).

[3] Light-Duty Truck is a truck with a gross vehicle weight rating from 6,001 to 8,500 pounds

[4] It is to be noted that the Baseline Model is a 2007/2010 Silverado 1500 crew cab 4x2. It was developed using a pre-existing GMC Silverado 1500 model year (MY) 2007 model provided by the U.S. National Highway Traffic Safety Authority (NHTSA), which was subsequently modified to include an updated cab/frame/fenders/box/gate from a 2010/2011 MY GMC Silverado 1500. The weight for the 4x4 has drive-train been distributed throughout the vehicle, but the 4x4 components have not yet been added to the Baseline CAE Model. This Baseline CAE Model has been compared to actual NHTSA crash data through various crash tests. The spring mount constants have

Contractor must take the provided Baseline CAE Model and perform a series of crash test simulations using LS-DYNA. The Contractor must provide their own barrier crash programs and conduct the following simulated crash tests:

- Frontal Impact (FMVSS 208-USNCAP)
- Side Impact (FMVSS 214 MDB-NCAP)
- Side Impact (FMVSS 24 Pole 5th impact)
- Rear Impact (FMVSS 301)
- Roof Crush (FMVSS 216a)
- Frontal Offset Impact (IIHS ODB)
- Side Impact (IIHS Side MDB Impact)

The Contractor must also convert the Baseline CAE Model into a NVH simulation model to correlate both the static torsion and bending stiffness using NASTRAN software. Results from tasks will be referred to as the Contractors **Baseline CAE Model Crash Test and NVH Results**.

Once the Contractor has finalized the above tasks, they must validate and correlate their Baseline CAE Model Crash Test and NVH Results with existing results (Crashworthiness / NVH) that will be provided by the Technical Authority for the following tests:

- Frontal Impact (FMVSS 208-USNCAP)
- Side Impact (FMVSS 214 MDB-NCAP)
- Side Impact (FMVSS 24 Pole 5^{th} impact)
- Rear Impact (FMVSS 301)
- Roof Crush (FMVSS 216a)
- Frontal Offset Impact (IIHS ODB)
- Side Impact (IIHS Side MDB Impact)
- NVH: Frame, cabin and box static torsion and bending stiffness.

The Contractors Baseline CAE Model Crash Test and NVH Results must correlate to the test results provided by the Technical Authority, to the satisfaction of the Technical Authority, in order for the Contractor to proceed to the next task. Specifically, the results must demonstrate similar trends and magnitudes for intrusion values, acceleration pulse, dynamic crush, time to zero and visual appearance to the actual crashed vehicle results. The model developed in this phase will be referred to as the **Baseline CAE model**.

4.3 Task 3: Modification of the Baseline CAE Model for 4 x 4 Design and Simulation of IIHS Small Overlap Frontal Crashworthiness Evaluation

Once the Technical Authority has accepted the validity of the Contractors Baseline CAE Model Crash Test and NVH Results (as per Task 2), the Contractor must refine the Baseline CAE Model to include the components necessary to make it representative of a vehicle equipped with a 4x4 drive-train. This will require the Contractor to obtain, scan and insert Silverado 1500 crew cab 4x4 unique parts into the Baseline CAE Model. These parts include the transfer case, drive shaft and axles, and any other part that the contractor and technical authority agree must be incorporated into the model.

Concurrently, in this task the Contractor must add in the necessary details (i.e. vehicle component/ structural details) so that the model can be used to accurately simulate an IIHS Small Overlap Frontal Crash Test. The Contractor must add details to into the failure modes to the suspension, tire deflation timing, fender/bumper interactions and structural weld failures.

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been rigidtized (between frame/box, frame/cab, cab/box) and so there will be some known differences between the model and the Federal Motor Vehicle Safety Standards (FMVSS) crash test results.

This revised Baseline CAE Model will be referred to as the **IIHS Small Overlap 4x4 CAE Model**.

In parallel with this task, the Technical Authority will conduct a physical IIHS Small Overlap Frontal Crashworthiness Test on a Model Year (MY) 2013 Silverado 1500 (4x4 crew cab) at Transport Canadas Motor Vehicle Test Centre, located in Blainville, QC. This crash test will be performed using standard crash test protocols, as well as input from the Contractor.

Results from this physical test will be provided to the Contractor and must be used by the Contractor to refine and correlate the IIHS Small Overlap 4x4 CAE model. Information to be collected during Transport Canadas Test includes numerical intrusion data and failure observations of the suspension, tires, structure and driveline. The Contractor must identify and adjust their model to account for minor differences between the IIHS Small Overlap 4x4 CAE Model and the 2013 Silverado 1500 4x4 crew cab (which TC will use to conduct the physical crash test), especially those that can influence the crash results.[5]

Once the Contractor has completed the above tasks, the IIHS Small Overlap 4x4 CAE Model must be used to perform the following crash test simulations:

- IIHS Small Overlap Crash Test
- Frontal Impact (FMVSS 208-USNCAP)
- Side Impact (FMVSS 214 MDB-NCAP)
- Side Impact (FMVSS 24 Pole 5th impact)
- Rear Impact (FMVSS 301)
- Roof Crush (FMVSS 216a)
- Frontal Offset impact (IIHS ODB)
- Side Impact (IIHS Side MDB Impact)
- NVH: Frame, cabin and box static torsion and bending stiffness.

Results from the above simulation tests must be achieved within acceptable parameters. Specifically results must correlate with the anticipated outcomes of a vehicle crash test (if one were to be performed), to the satisfaction of the Technical Authority, including results in terms of overall impact deformation; component failure modes; intrusion values, crash pulses, velocity and acceleration at various locations in the vehicle. The Contractor must also assure that that NVH (torsion and bending stiffness, modal analyses) results are within a minimum of 5% of the Baseline CAE Model.

4.4 Task 4: Modify the IIHS Small Overlap 4x4 CAE Model to Obtain a Good or Acceptable Rating in a Small Overlap Frontal Crash Test Simulation

The Technical Authority anticipates that the IIHS Small Overlap 4x4 CAE Model developed in Task 3 may obtain a Poor rating during an IIHS Small Overlap Frontal crash test simulation.

The Technical Authority also anticipates that the physical IIHS Small Overlap Frontal Crash Test performed on a MY 2013 Silverado 1500 (4x4 crew cab) at Transport Canadas Motor Vehicle Test Centre may obtain a Poor rating.

Therefore, in Task 4 the Contractor must design countermeasures into the IIHS Small Overlap 4x4 CAE Model such that the model will be able to achieve a good/acceptable rating in this test. The Contractor must ensure that the baseline crash and NVH performance is maintained. For the NVH

[5] Because the vehicle manufacturer has not redesigned the truck between 2007-2013, it is anticipated that there will only be minor differences that would have little impact on the Contractors ability to incorporate physical crash test results/data into the IIHS Small Overlap 4x4 CAE model. Examples of changes would include minor revisions to interior vehicle details, (i.e. location and placement of instrument, controls, interior lighting, etc.)

(torsion and bending stiffness, modal analyses) results must be within a minimum of 5% of the Baseline CAE Model.

This new model developed in this task will be referred to as the Good/Acceptable IIHS Small Overlap 4x4 CAE Model.

The Contractor must ensure that the Good/Acceptable IIHS Small Overlap 4x4 CAE Model correlates with the Baseline CAE Model crash tests, including performance in the following tests:

- Frontal Impact (FMVSS 208-USNCAP)
- Side Impact (FMVSS 214 MDB-NCAP)
- Side Impact (FMVSS 24 Pole 5th impact)
- Rear Impact (FMVSS 301)
- Roof Crush (FMVSS 216a)
- Frontal Offset Impact (IIHS ODB)
- Side Impact (IIHS Side MDB Impact)
- IIHS Small Overlap Crash Test
- NVH: Frame, cabin and box static torsion and bending stiffness.

The Contractor must find ideas for compliance in the IIHS databases, available at http://www.iihs.org. The IIHS does provide results, either free or for a fee, on various vehicles for a number of IIHS tests including the Small Overlap Frontal Crashworthiness Evaluation. While most of these results are on unibody designs, there may be some ideas that can be obtained from this source.

Other resources for design modifications must be researched by the Contractor and potential plans and initial results must be discussed with and approved by the Technical Authority, prior to final adoption.

4.5 Task 5: Modify the Good/Acceptable IIHS Small Overlap 4x4 CAE Model to Incorporate Light-Weighting Design Features

In Task 5, using the Good/Acceptable IIHS Small Overlap 4x4 CAE Model as a starting point, the Contractor must research LDT light-weighting concepts. The Contract must use their expertise and knowledge of advanced vehicle design, material and manufacturing processes that will likely be available in the 2020-2030 time period to develop a light-weight pick-up truck CAE model that is capable of high-volume production.

Discussions must be held with the Technical Authority throughout the design process to determine the goals for percentage and mass reduction and cost targets. For example, if frame redesign only is chosen then the mass reduction goal, for frame redesign with IIHS compliance, may be 5-10% from the baseline frame (242 kg) within a less than $2/kg cost.

For Task 5, the Contractor must complete the following steps:

- Review previous designs of innovative light-duty truck body and frame structures, considering both paper studies and actual implementations. The review should include:
  - Three Dimensional Vehicle Frame (US Patent 7862085 B2, Jan. 2011)
  - Lightweight SUV Frame engineering report (Altair, May 2003)[6]
  - Next Generation Frame aluminium frame design and prototyping (Pacific Northwest National Laboratory, 2006)[7]

[6] http://altairenlighten.com/wp-content/uploads/2011/12/Lightweight-SUV-Frame-Design-Development.pdf

[7] http://www.pnl.gov/breakthroughs/issues/2006-issues/summer/solutions_update.stm

- Magna lightweight heavy-duty truck frame[8]
- Honda Ridgeline integrated frame and body

- Consider several design ideas to redesign the light duty truck, for example:
  - Redesign of the frame, including integration of the frame and the body in an effort to eliminate functional duplication of components and further reduce the overall weight of the vehicle
  - Redesign of the frame only with modifications to the cabin as needed.

- Design parameters:
  - Maintain current performance of the Baseline CAE Model (payload capacity, towing, crash test compliance, NVH).
  - General characteristic of the vehicle would have to be constant but minor changes to ride heights or packaging would be permitted.
  - Design must consider drivability (ride & handling), manufacturability (no quality deterioration), serviceability and reparability (impacts on costs or service must be considered and clearly identified).

- Identify the components and manufacturing process adjustments needed to provide flexibility for the various truck configurations
  - Bed length (Long/short), Cab style (Regular, Extended, Crew), Drive type (2WD/4WD)

- Hold informal and bilateral discussions with the Frame Manufacturers, Steel and Aluminium Associations, and automotive manufacturers in order to identify and validate approaches to address the Statement of Work.

Based on the research and design parameters above, the Contractor must apply light-weighting concepts to the Good/Acceptable IIHS Small Overlap 4x4 CAE Model. These concepts include using changes in materials, gages and design changes. The Contractor must provide vehicle design information with sufficient detail such that computer aided engineering analysis can be performed to demonstrate crashworthiness and NVH performance.

The Contractor must produce a revised CAE model that will be referred to as the **Light-weighted CAE Model**.

Once the Light-weighted CAE Model is completed, it must demonstrate similar performance for both NVH and crash against the Baseline CAE Model, including the following tests:

- Frontal Impact (FMVSS 208-USNCAP)
- Side Impact (FMVSS 214 MDB-NCAP)
- Side Impact (FMVSS 24 Pole 5th impact)
- Rear Impact (FMVSS 301)
- Roof Crush (FMVSS 216a)
- Frontal Offset Impact (IIHS ODB)
- IIHS Small Overlap Crash Test
- Side Impact (IIHS Side MDB Impact).
- NVH: Frame, cabin and box static torsion and bending stiffness.

[8] http://autocarpro.in/contents/othersDetails.aspx?OtherID=59

4.6 Task 6: Cost Analyses

In Task 6, the Contractor must calculate and provide a comprehensive incremental cost estimate for the Light-weighted CAE Model relative to the Baseline CAE model, including both direct manufacturing cost and indirect cost estimates, including as tooling and equipment investment.

The U.S. EPAs contract contains extensive spreadsheets on costing of various vehicle components that have been modified for a light -weighted design. It is likely that some of these parts have been modified in this work and the baseline costs for these parts can be provided as the Contractor works to calculate an expected change in cost due to the modified components for this work.

As part of the calculations to create an increased cost for parts not included in the above mentioned U.S. EPA work, the Contractor must create a baseline cost. The cost analyses for the work must be consistent with the approach used for the related EPA project. A final mass reduction and $/kg value must be determined for the new light weighted design.

4.7 Task 7: Reporting and Peer Review

Upon successful completion of the previous tasks, the Contractor must prepare a draft final report that will be reviewed by the Technical Authority. The draft report must include a final FEA LS-DYNA model of the vehicle including a finalized design report detailing the rationale for the design, manufacturing considerations, engineering analysis and estimated cost breakdown documenting the design conforms to the performance criteria of the Base CAE Model.

The Technical Authority will review the final draft report and model and return comments to the Contractor. The Contractor must revise the final draft report and model to address the Technical Authority's comments, and submit a revised final draft report.

The Contractor must then make the revised final draft report and the model available for peer review by third parties that are to be identified by the Technical Authority, and include industry, parts suppliers and government regulators.

The Contractor must participate in the peer review process, by attending and answering questions from peer reviewers during a 2-3 hour conference call, to be established at a time of the Technical Authority's choosing. The Contractor must also accept written comments from peer reviewers during the peer review process.

The Contractor must then provide the Technical Authority with a peer review report from the peer review process. The peer review report must include a detailed summary of each comment received throughout the peer review process (and from whom), and how the Contractor would address and incorporate each peer review comment into the final draft report and model.

The Technical Authority will review the final peer review report and the Contractors report and how they plan to address each comment, and will provide direction to the Contractor on how to address and incorporate peer review comments in the final report and model.

The Contractor must then produce a final peer reviewed report and model.

The Technical Authority will review deliverables for technical content, completeness, and grammar. Final inspection, testing and acceptance of all reports, code, and other deliverables will be performed by the Technical Authority.

5.0 Reports

The following applies to all tasks under this effort unless otherwise specified by the Technical Authority during the performance of that task:

- The Contractor must submit a Project Status Report with each deliverable, unless otherwise noted, which includes, at a minimum: the task/deliverable identified, type (draft or final), due date, submission date, deliverable name, and name of the project manager.
- The Contractor must deliver all draft and final reports, briefing materials and data sets and CAE models to the Technical Authority in electronic format (HTML, Visio, PowerPoint, Excel, Microsoft Word, Acrobat, as appropriate) via a delivery service or electronic mail.

6.0 Additional Considerations

A key objective in this work is transparency, methodologies, assumptions, and inputs should be well-documented, clearly explained, and releasable to the public, except to the extent that those essential inputs from industry or government include confidential proprietary or sensitive information, as determined by the Technical Authority.

7.0 Location of Work

The majority of the work is to be carried out in the Contractors facilities, and the majority of meetings will be held via video or teleconference, with the exception of on-site meetings, as required and agreed upon by the Contractor and the Technical Authority.

8.0 Weekly/Bi-weekly Status Meetings

The Contractor and Technical Authority must meet weekly or bi-weekly, to be determined during work plan development. These status meetings will be done via teleconference. The meeting attendants will discuss the project status, timelines, issues encountered, and any change in scope or funding. In addition, the Contractor must provide status briefings.

9.0 Monthly Progress Reporting

The Contractor must submit progress reports to the Technical Authority on a monthly basis. Specific reporting dates are to be approved by Technical Authority during work plan development. Each progress report must contain concise statements covering the activities relevant to the contract, including:

(a) A clear account of the work performed during the report period.
(b) An outline of the work to be accomplished during the next report period.
(c) A description of any problem encountered or anticipated that will affect the completion of any work within the time and fiscal constraints set, together with recommended solutions to such problems; or, a statement that no problems were encountered.
(d) A tabulation of the planned, actual and cumulative percent of effort expended by the personnel.
(e) A chart showing current and cumulative expenditures versus planned expenditures.

10.0 Schedule of Deliverables and Milestones

The Contractor must complete the tasks outlined in *Annex A* in accordance with the schedule below.

Deliverable by Task	Estimated Due Date (From Contract Award Date)
Task 1: Kick-off Meeting and Work-Plan	26 days
Task 2: Validation and Correlation of Baseline CAE Model Crashworthiness Simulation	80 days
Task 3: Modification of the Baseline CAE Model for 4 x 4 Design and Simulation of IIHS Small Overlap Frontal Crashworthiness Evaluation	210 days
Task 4: Modify the IIHS Small Overlap 4x4 CAE Model To Obtain a Good or Acceptable Rating in a Small Overlap Frontal Crash Test Simulation	300 days
Task 5: Modify the Good/Acceptable IIHS Small Overlap 4x4 CAE Model to Incorporate Light-Weighting Design Features	390 days
Task 6: Cost Analyses	420 days
Task 7: Reporting and Peer Review • Draft Report • Peer Review Report & Changes Incorporated • Final Report	 480 days 540 days 570 days

B. TASK AUTHORIZED WORK

The Contractor must assist the Technical Authority in preparing for and making presentations and briefings about the Work performed under this project to regulators and industry. The Contractor may be required to participate in 3-4 meetings with the Technical Authority and external entities related to the technology items of the *2017 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions and Corporate Average Fuel Economy Standards* final rulemaking as identified by written technical direction. In such meetings and briefings, the Contractor may be called upon to present the Work performed under this contract, including but not limited to technology assumptions as identified via written technical direction. Travel throughout North America, including Canada and the US will be required. The Contractor must send their project resources (to a maximum of three people) to attend these meetings in-person.

ANNEX B

BASIS OF PAYMENT

A. FIRM MILESTONE SCHEDULE:

Milestone No.	Description	Due Date (From Contract Award Date)*	Firm Milestone Amount (Applicable taxes excluded)
1	Kick-off Meeting and Work-Plan, as described in Task 1 of Annex A "Statement of Work"	No later than 26 days after contract award	$_____ *No more than 5% of the Total Firm All-inclusive Amount (Applicable Taxes excluded).
2	Validation and Correlation of Baseline CAE Model Crashworthiness Simulation, as described in Task 2 of Annex A "Statement of Work"	No later than 80 days after contract award	$_____
3	Modification of the Baseline CAE Model for 4 x 4 Design and Simulation of IIHS Small Overlap Frontal Crashworthiness Evaluation, as described in Task 3 of Annex A "Statement of Work"	No later than 210 days after contract award	$_____
4	Modify the IIHS Small Overlap 4x4 CAE Model To Obtain a Good or Acceptable Rating in a Small Overlap Frontal Crash Test Simulation, as described in Task 4 of Annex A "Statement of Work"	No later than 300 days after contract award	$_____
5	Modify the Good/Acceptable IIHS Small Overlap 4x4 CAE Model to Incorporate Light-Weighting Design Features, as described in Task 5 of Annex A "Statement of Work"	No later than 390 days after contract award	$_____
6	Cost Analyses, as described in Task 6 of Annex A "Statement of Work"	No later than 420 days after contract award	$_____
7	Reporting and Peer Review, as described in Task 7 of Annex A "Statement of Work"	No later than 570 days after contract award	$_____ *No more than 5% of the Total Firm All-inclusive Amount (Applicable Taxes excluded).
Total Firm All-Inclusive Amount (Applicable taxes excluded)			$_____

*** Actual Due Dates to be inserted at Contract Award**

B. TASK AUTHORIZED WORK

1. LABOUR: at firm all-inclusive per diem rates, GST/HST extra, Delivery Duty Paid (DDP) (for goods), in accordance with the following:

Name	Title	Firm Per Diem Rate
		$
		$
		$
		$

TOTAL ESTIMATED LABOUR: $18,000.00

2. TRAVEL & LIVING: at actual cost without markup but not to exceed the limits of the Treasury Board Travel Directive. With respect to the TB Travel Directive, only the meal, private vehicle and incidental allowances specified in Appendices B, C and D of the TB Travel Directive http://www.tbs-sct.gc.ca/hr-rh/gtla-vgcl/ and the other provisions of the directive referring to "travellers" rather than those referring to "employees", are applicable. *Details are to be provided on a separate sheet.*

TOTAL ESTIMATED TRAVEL & LIVING: $15,000.00

TOTAL ESTIMATED COST TO A LIMITATION OF EXPENDITURE: $_____
(Applicable taxes extra)

ANNEX C

NON-DISCLOSURE AGREEMENT

I, _____, recognize that in the course of my work as an employee or subcontractor of _____, I may be given access to information by or on behalf of Canada in connection with the Work, pursuant to Contract Serial No _____ between Her Majesty the Queen in right of Canada, represented by the Minister of Public Works and Government Services and _____, including any information that is confidential or proprietary to third parties, and information conceived, developed or produced by the Contractor as part of the Work. For the purposes of this agreement, information includes but not limited to: any documents, instructions, guidelines, data, material, advice or any other information whether received orally, in printed form, recorded electronically, or otherwise and whether or not labeled as proprietary or sensitive, that is disclosed to a person or that a person becomes aware of during the performance of the Contract.

I agree that I will not reproduce, copy, use, divulge, release or disclose, in whole or in part, in whatever way or form any information described above to any person other than a person employed by Canada on a need to know basis. I undertake to safeguard the same and take all necessary and appropriate measures, including those set out in any written or oral instructions issued by Canada, to prevent the disclosure of or access to such information in contravention of this agreement.

I also acknowledge that any information provided to the Contractor by or on behalf of Canada must be used solely for the purpose of the Contract and must remain the property of Canada or a third party, as the case may be.

I agree that the obligation of this agreement will survive the completion of the Contract Serial No:_____

_____
Signature

_____
Date

ANNEX D

TASK AUTHORIZATION FORM

PWGSC FILE NO.: _____ **CONTRACT SERIAL NO.:** _____

TASK NO.: _____ **AMENDMENT NO.:** _____

TITLE: _____

REASON FOR AMENDMENT, IF APPLICABLE:

_____

_____

_____

1.0 DESCRIPTION OF THE WORK: As follows ____ See attached_____

_____

_____

_____

Deliverables : As follows ____ See attached ____

_____

_____

Delivery Date(s) :

_____

_____

****

2. COST BREAKDOWN

(a) Labour:

Name	Title	Firm Per Diem Rate	Estimated Days	Estimated Amount
Total Estimated Labour Cost:				$

(b) Travel and living - at cost, without any allowance for profit and/or administrative overhead, in accordance with the meal, private vehicle and incidental expenses provided in Appendices B, C and D of the Treasury Board Travel Directive http://www.tbs-sct.gc.ca/hr-rh/gtla-vgcl/index_e.asp, 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. All payments are subject to government audit.

Specify: _____
_____
_____

Total Estimated Travel and Living Cost: $_____

TOTAL ESTIMATED COST: $_____
(Applicable taxes extra, as applicable)

3. BASIS OF PAYMENT :

____Limitation of Expenditure $_____ (Applicable taxes extra)

4. METHOD OF PAYMENT :

____Single payment

****

5.0 APPROVALS:

APPROVED: _____ _____ _____
Technical Authority Signature Date

APPROVED: _____ _____ _____
PWGSC Contracting Authority Signature Date