



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 Field Operational Trial to Assess the Influence of In-Vehicle Displays and Driver Training	
Solicitation No. - N° de l'invitation T8009-130044/A	Date 2013-10-21
Client Reference No. - N° de référence du client T8009-130044	
GETS Reference No. - N° de référence de SEAG PW-13-00508970	
File No. - N° de dossier	CCC No./N° CC - FMS NO. / N° VME
Solicitation Closes - L'invitation prend fin at - à 2:00 PM on - le 2013-12-02	Time Zone Fuseau horaire Eastern Standard Time EST
F.O.B. - F.A.B Plant-Usine : <input type="checkbox"/> Destination: <input type="checkbox"/> Other-Autre: <input type="checkbox"/>	
Address Enquiries to: - Adresser toutes questions à: François Pageau	Buyer Id - Id de l'acheteur 071ss
Telephone No. - N° de téléphone 819-956-3563	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 and the Basis of Payment.

2. Summary

Transport Canada and Natural Resources Canada are collaborating to undertake a field operational trial whose objective is to provide a better understanding of the potential of in-vehicle displays and driver training to encourage fuel efficient and safe driving. The field operational trial will assess how the type of information presented on an in-vehicle display affects fuel consumption and aggressive driving.

The field operational trial must be planned for 100 participants that must be monitored for a period of six months.

The selected contractor will need to answer the following questions:

1. Does the presence of a feedback display in the vehicle improve fuel consumption and safety behaviour?
2. How does the type of information displayed affect fuel consumption and safety behaviour?
3. How or does training impact driving behaviour?
4. How does both feedback and driver training impact driving behaviour?
5. Usefulness and potential distraction of the display and feedback information.

Services are required from date of contract award and the completion of the contract, including collection, analysis, and reporting of the trial must be completed before March 31, 2015.

The Agreement on Internal Trade (AIT) applies to this procurement. The requirement is limited to Canadian suppliers and Canadian goods and/or services.

This procurement is excluded from the North American Free Trade Agreement (NAFTA) under Annex 1001.1b-2, Section 2, and World Trade Organization - Agreement on Government Procurement (WTO-AGP) under Appendix 1, Annex 4.

Bidders must provide a complete list of names, or other related information as needed, pursuant to section 01 of Standard Instructions 2003. Furthermore, as determined by the Special Investigations

Directorate, Department Oversight Branch, each individual named on the list may be requested to complete a Consent to a Criminal Record Verification form.

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 fifteen (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 five (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

2. Submission of Bids

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

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

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.

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:

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

7. Maximum Funding

The maximum funding available for the contract resulting from the bid solicitation is \$200,000.00 (Goods and Services Tax or the Harmonized Sales Tax excluded, as appropriate). Bids valued in excess of this amount will be considered non-responsive. This disclosure does not commit Canada to pay the maximum funding available.

Transport Canada intends to make optimal use the limited number of data loggers and in-vehicle display units available. Therefore it is requested that a fixed price is provided to complete the scope of work.

Due to availability of financial resources, it is preferred that all preparatory work that may be completed prior to the operational trial commencement are completed and invoiced before March 31, 2014. Work prior to this date is expected to include milestones 1 through 5 according to Attachment 1 - Financial Bid Presentation Sheet (milestone 6 may also be prior to this date depending on Bidder's proposed timeline). Please clearly indicate the cost to be invoiced prior to this date in the proposal.

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 & Management Bid (4 hard copies & one electronic copy on CD or DVD)

Section II : Financial Bid (1 hard copy)

Section III : Certifications (1 hard copy)

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

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

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

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

In April 2006, Canada issued a policy directing federal departments and agencies to take the necessary steps to incorporate environmental considerations into the procurement process Policy on Green Procurement

(<http://www.tpsgc-pwgsc.gc.ca/ecologisation-greening/achats-procurement/politique-policy-eng.html>). To assist Canada in reaching its objectives, bidders should:

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

Section I : Technical & Management 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 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.

In their management bid, bidders must describe their capability and experience, the project management team and provide client contact(s).

Section II : Financial Bid

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

- (a) A firm all-inclusive cost for each milestone identified in Attachment 1 to Part 3 Financial Presentation Sheet.
- (b) A total firm all inclusive price that must not exceed the contract maximum funding of \$200,000.00 as specified in Part 2 Bidder Instructions (GST/HST excluded).
- (c) Prices must be in Canadian funds, Delivery Duty Paid, Canadian customs duties and excise taxes included, and Goods and Services Tax (GST) or Harmonized Sales Tax (HST) excluded.

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 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 hourly rate, inclusive of overhead and profit; and ii) the estimated number of hours.
- (b) Equipment : Specify each item required to complete the Work and provide the pricing basis of each one, Canadian customs duty and excise taxes included, as applicable. These items will be deliverable to Canada upon completion of the contract.
- (c) Materials and Supplies : Identify each category of materials and supplies required to complete the Work and provide the pricing basis.
- (d) Travel and Living Expenses : Indicate the number of trips and the number of days for each trip, the cost , destination and purpose of each journey, 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.
- (e) Subcontracts : Identify any proposed subcontractor and provide for each one the same price breakdown information as contained in this article.
- (f) Other Direct Charges : Identify any other direct charges anticipated, such as long distance communications and rentals, and provide the pricing basis .
- (g) GST/HST : Identify any applicable GST or HST separately.

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, management 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).

1.1.1 Mandatory Criteria

Refer to Attachment 2, Mandatory and Point Rated Criteria.

1.1.2 Point Rated Criteria

Refer to Attachment 2, Mandatory and Point Rated Criteria.

1.1.3 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 determined as follows:

Aggregate price of all milestones = evaluated price of the Bid

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 evaluation criteria;
 - (c) obtain a minimum of 38 points out of 55 points for the Technical Criteria, as specified in Attachment 2 - Mandatory and Point Rated Criteria; and,
 - (d) obtain a minimum of 38 points out of 55 points for the Management Criteria, as specified in Attachment 2 - Mandatory and Point Rated Criteria.

Bids not meeting (a) or (b) or (c) or (d) will be declared non-responsive.

- 2. The selection will be based on the highest responsive combined rating of technical merit and price. The ratio will be 90 % for the technical merit and 10% for the price.

3. To establish the technical merit score, the overall technical score (the combined points for the Technical Criteria and Management Criteria) for each responsive bid will be determined as follows: total number of points obtained / maximum number of points available multiplied by the ratio of 90 %.
4. To establish the pricing score, each responsive bid will be prorated against the lowest evaluated price and the ratio of 10%.
5. For each responsive bid, the technical merit score and the pricing score will be added to determine its combined rating.
6. 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 90/10 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 (90%) and Price (10%)

	Bidder		
	Bidder 1	Bidder 2	Bidder 3
Overall Technical Score	115/135	93/135	92/135
Bid Evaluated Price	\$55,000.00	\$50,000.00	\$45,000.00
Calculations			
Technical Merit Score	$115/135 \times 90 = 76.67$	$93/135 \times 90 = 62$	$92/135 \times 90 = 61.33$
Pricing Score	$45/55 \times 10 = 8.18$	$45/50 \times 10 = 9$	$45/45 \times 10 = 10$
Combined Rating	84.85	71	71.33
Overall Rating	1st	3rd	2nd

PART 5 - CERTIFICATIONS

Bidders must provide the required certifications and related documentation to be awarded a contract. Canada will declare a bid non-responsive if the required certifications and related documentation are not completed and submitted as requested.

Compliance with the certifications Bidders provide to Canada is subject to verification by Canada during the bid evaluation period (before award of a contract) and after award of a contract. The Contracting Authority will have the right to ask for additional information to verify the Bidders' compliance with the certifications before award of a contract. The bid will be declared non-responsive if any certification made by the Bidder is untrue, whether made knowingly or unknowingly. Failure to comply with the certifications to provide the related documentation or to comply with the request of the Contracting Authority for additional information will also render the bid non-responsive.

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 and related documentation.

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.

2. Additional Certifications Precedent to Contract Award

The following certifications 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 Federal Contractors Program for Employment Equity - Certification

2.1.1 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](http://www.labour.gc.ca/eng/standards_equity/eq/emp/fcp/list/inelig.shtml)" 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.

2.2 Former Public Servant - Competitive Requirements

Contracts with former public servants (FPS) in receipt of a pension or of a lump sum payment must bear the closest public scrutiny, and reflect fairness in the spending of public funds. In order to comply with Treasury Board policies and directives on contracts with FPS, bidders must provide the information required below.

Definitions

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

- a. an individual;
- b. an individual who has incorporated;
- c. a partnership made of former public servants; or
- d. a sole proprietorship or entity where the affected individual has a controlling or major interest in the entity.

"lump sum payment period" means the period measured in weeks of salary, for which payment has been made to facilitate the transition to retirement or to other employment as a result of the implementation of various programs to reduce the size of the Public Service. The lump sum payment period does not include the period of severance pay, which is measured in a like manner.

"pension" means, a pension or annual allowance paid under the Public Service Superannuation Act (PSSA), R.S., 1985, c.P-36, and any increases paid pursuant to the Supplementary Retirement Benefits Act, R.S., 1985, c.S-24 as it affects the PSSA. It does not include pensions payable pursuant to the Canadian Forces Superannuation Act, R.S., 1985, c.C-17, the Defence Services Pension Continuation Act, 1970, c.D-3, the Royal Canadian Mounted Police Pension Continuation Act, 1970, c.R-10, and the Royal Canadian Mounted Police Superannuation Act, R.S., 1985, c.R-11, the Members of Parliament Retiring Allowances Act, R.S., 1985, c.M-5, and that portion of pension payable to the Canada Pension Plan Act, R.S., 1985, c.C-8.

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:

- a. name of former public servant;
- b. date of termination of employment or retirement from the Public Service.

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

Work Force Reduction Program

Is the Bidder a FPS who received a lump sum payment pursuant to the terms of a work force reduction program? Yes () No ()

If so, the Bidder must provide the following information:

- a. name of former public servant;
- b. conditions of the lump sum payment incentive;
- c. date of termination of employment;
- d. amount of lump sum payment;
- e. rate of pay on which lump sum payment is based;
- f. period of lump sum payment including start date, end date and number of weeks;
- g. number and amount (professional fees) of other contracts subject to the restrictions of a work force reduction 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 the Goods and Services Tax or Harmonized Sales Tax.

Certification

By submitting a bid, the Bidder certifies that the information submitted by the Bidder in response to the above requirements is accurate and complete.

2.3 Canadian Content Certification

This procurement is limited to Canadian services.

The Bidder certifies that:

() the service(s) offered is(are) a Canadian service as defined in paragraph 2 of clause A3050T.

2.3.1 SACC Manual clause A3050T (2010-01-11), Canadian Content Definition

3. Status and Availability of Resources

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

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

4. 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.

5. 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

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

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 Supplemental General Conditions

The following supplemental general conditions apply to and form part of the Contract:

4008 (2008-12-12), Personal Information

2.3 SACC Manual Clauses

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

A9113C (2008-12-12), Handling of Personal Information

3. Term of Contract

3.1 Period of Contract

The period of the Contract is from date of Contract to March 31, 2015 inclusive.

4. Authorities

4.1 Contracting Authority

The Contracting Authority for the Contract is:

François Pageau
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: 819-956-3563
Facsimile: 819-997-2229
E-mail address: francois.pageau@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 will be identified 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 will be identified at contract award.

5. Proactive Disclosure of Contracts with Former Public Servants

SACC Manual Clause A3025C (2012-11-19)

6. Payment

6.1 Basis of Payment

In consideration of the Contractor satisfactorily completing all of its obligations under the Contract, the Contractor will be paid a firm price, as specified in Annex "B" for a cost of \$ _____ (*amount to be inserted 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.

6.2 Limitation of Price

SACC Manual Clause C6000C (2011-05-16), Limitation of Price

6.3 Method of Payment

6.3.1 Milestone Payments

Canada will make milestone payments in accordance with the Schedule of Milestones detailed in Annex "B" 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.

6.4 SACC Manual Clauses

A9117C (2007-11-30), T1204 - Direct Request by Customer Department

7. Invoicing Instructions - Progress Claim

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; and,
- (c) the description and value of the milestone claimed as detailed in the Contract.

Each claim must be supported by:

- (a) a copy of the 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.

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.

8.2 SACC Manual Clauses

A3060C (2008-05-12), Canadian Content Certification

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 supplemental general conditions 4008 (2008-12-12), Personal Information;
- (c) the general conditions 2040 (2013-06-27), Research & Development;
- (d) Annex "A", Statement of Work;
- (e) Annex "B", Basis of Payment;
- (f) the Contractor's bid dated _____, as clarified on _____ or, as amended on _____.

11. Insurance

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

ATTACHMENT 1 FINANCIAL BID PRESENTATION SHEET

For evaluation purposes only, the following information will be utilized to determine the financial bid price. The Bidder should complete this Financial Bid Presentation Sheet and include it in its financial bid once completed. As a minimum, the Bidder must include in its financial bid its quoted firm all-inclusive amount (in Canadian \$) for each milestones specified below.

No travel and living expenses will be paid for services provided within or outside the National Capital Region (NCR). All travel and living costs are to be included in the firm all-inclusive milestones payment requested below.

Milestone No.	Task	Description	Delivery Date	Firm Amount (CAD) Excluding GST/HST
1	6.1	A final work plan and schedule that incorporates the comments from the project kick-off meeting.	2 weeks after Project Kick off meeting	\$ _____
	6.3	Copy of Institutional Review Board (IRB) approval	1 month after Project Kick off meeting	
2	6.4	Details of mix of participants and vehicles	2014-03-31	\$ _____
	6.5	Copy of the completed initial questionnaire to solicit participants	2014-03-31	
3	6.7	Demonstration of operation of website and database	2014-03-31	\$ _____
	6.13	Copy of SIM card numbers	2014-03-31	
	6.15	Contractor must provide to the Technical Authority the e-mail address which participants may use should they have questions or issues	2014-03-31	
4	6.4, 6.6, 6.8, 6.9 & 6.11	A report with participant/ vehicle/device details, installation dates, issues, signed consent forms and initial compensation.	2014-03-31	\$ _____
	6.5	Copy of the completed second questionnaire at the start of the trial	2014-03-31	
5	6.12	Provide report with details of the training.	2014-04-30	\$ _____
6	6.5	Copy of the completed third questionnaire at the end of the trial.	2014-10-31	\$ _____
7	6.17	Report on questionnaire analyses	2014-12-31	\$ _____

8	6.16	Contractor is responsible to remove all equipment and deliver the equipment to the Technical Authority	2015-01-30	\$ _____
	6.18	Report on Data Analyses	2015-01-30	
9	6.19	Contractor will provide a draft report with executive summary	2015-02-27	\$ _____
	6.20	Contractor will address the comments on the draft report and/prepare/deliver a final report. Also in electronic format all raw and reduced data.	2015-03-31	

ATTACHMENT 2

MANDATORY AND POINT RATED CRITERIA

1. Mandatory Criteria

At bid closing time, the Bidder must comply with the following Mandatory Requirements and provide the necessary documentation to support compliance. Any proposal, which fails to meet the following Mandatory Requirements will be deemed non-responsive and will not be given further consideration. Each requirement should be addressed separately.

No.	Mandatory Evaluation Criteria	Compliance	Comments
M1	<p>Demonstrate experience performing data collection through questionnaires and statistical analysis of questionnaire responses within the last five years.</p> <p>The Bidder must provide a brief description of two successfully completed projects that demonstrate their experience. The description must clearly indicate:</p> <ul style="list-style-type: none"> • The objective of the work; • The methodology used; • Description of the sample; • Some key considerations of the work; and, • Description of analysis performed. 	<input type="checkbox"/> MET <input type="checkbox"/> NOT MET	
M2	<p>Demonstrate experience in the use of electronic data acquisition equipment (eg. OBDII vehicle data logger) and analysis of large samples of data (greater than 1,000 individual values) within the last five years.</p> <p>The Bidder must provide a brief description of two successfully completed projects that demonstrate their experience (the same project used for requirement M1 may be used again here if applicable). The description must clearly indicate:</p> <ul style="list-style-type: none"> • The objective of the work; • The methodology used; • Description of the sample; • Some key considerations of the work; and, • Description of analysis performed. 	<input type="checkbox"/> MET <input type="checkbox"/> NOT MET	

2. Point Rated Criteria

Each Technical and Management Proposal that meets the Mandatory Requirements specified above will be evaluated and scored in accordance with the following evaluation criteria:

<i>Point Related Evaluation Criteria</i>	<i>Rating Scale</i>	<i>Comments</i>	<i>Maximum Points: 110</i>
I. TECHNICAL PROPOSAL (MIN 38/55 POINTS)	<input type="checkbox"/> MET <input type="checkbox"/> NOT MET		
A. UNDERSTANDING OF TECHNICAL MATERIAL (35 POINTS) Proposal should include the Bidder's approach to achieving the overall objectives of the project, and its approach to each of the tasks in the Statement of Work. The Bidder's understanding of the issues should be evident both in a Background section of its proposal, and also in a task by task description of their proposed approach for completing the study described in the Statement of Work. The approach should address potential issues that may arise during the conduct of the project and the Bidder's strategy for handling any problems.			
A1. Demonstrated understanding of objectives and issues through background section, (10 points)	0: Not provided. 3: Inadequate: incorrect, imprecise, or lacking evidence of understanding of scope. 6: Adequate: understands the scope of the project, but without any additional insights. 8: Good: understands the scope with some additional insights that demonstrate a better understanding of the objectives. 10: Excellent: complete and correct understanding of scope combined with significant added insights that demonstrate the completeness of understanding of the objectives.		

Point Related Evaluation Criteria	Rating Scale	Comments	Maximum Points: 110
<p><i>A.2. Clear, complete and feasible description of research methodology and approach (10 points)</i></p>	<p>0: Not provided.</p> <p>3: Inadequate: flawed, imprecise, or lacking description of proposed work and methodology.</p> <p>6: Adequate: adequate description of proposed work but without any additional insights.</p> <p>8: Good: complete description of proposed work and methodology with some additional insights that demonstrate a more complete understanding.</p> <p>10: Excellent: comprehensive description of proposed work and methodology with significant added insights that demonstrate the completeness of understanding.</p>		
<p><i>A.3. Identification of anticipated problems and adequacy of proposed solutions, including quality control measures (10 points)</i></p>	<p>0: Not provided.</p> <p>3: Inadequate: flawed, imprecise, or lacking recognition of problems and proposed solutions.</p> <p>6: Adequate: complete and correct recognition of problems and solutions but without any additional insights.</p> <p>8: Good: complete and correct recognition of problems and solutions, demonstrating a solid understanding of each issue with some insight included in response.</p> <p>10: Excellent: complete and correct recognition of problems and solutions combined with significant added insights that demonstrate the completeness of understanding.</p>		

Point Related Evaluation Criteria	Rating Scale	Comments	Maximum Points: 110
<p><i>A.4. Adequacy of work plan, schedule and deliverables (5 points)</i></p>	<p>0: Not evident: no work plan provided.</p> <p>2: Inadequate: unrealistic or incomplete work plan or work plan that does not meet due date requirements.</p> <p>4: Good: work plan is complete and achievable and will meet all due date requirements and utilizes parallel work streams to accelerate critical tasks where feasible.</p> <p>5: Excellent: work plan is complete and achievable and will meet all due date requirements and utilizes parallel work streams to accelerate critical tasks where feasible. Work plan and scheduling allow for unavoidable delays where possible (have thoughtfully considered slack time built in).</p>		
<p>B. DATA COLLECTION AND ANALYSIS (20 POINTS)</p> <p>The Bidder should clearly indicate what data will be collected and the detailed procedures that they would use to obtain the data, including quality control measures. The Bidder should also describe how the data will be analysed for meaningful interpretation.</p>			

Point Related Evaluation Criteria	Rating Scale	Comments	Maximum Points: 110
<p>B.1. Strategy for collecting appropriate data, protocols (10 points)</p>	<p>0: Not provided.</p> <p>3: Inadequate: flawed, imprecise, or incomplete strategy proposed.</p> <p>6: adequate: proposed strategy is partially complete, realistic and achievable within the available time and resources. Only partial details of description of protocols and procedures provided.</p> <p>8: Good: proposed strategy is complete and realistic, detailed description of procedure and protocols and is achievable.</p> <p>10: Excellent: proposed strategy is comprehensive, detailed description of procedure and protocols, including thoughtful consideration of primary and secondary details and is achievable.</p>		
<p>B.2. Description of statistical analysis; i.e., how fuel consumption, safety effects will be quantified, the justification or appropriateness for using a particular approach, and interpretation (10 points)</p>	<p>0: Not provided.</p> <p>3: Inadequate: flawed, imprecise, or lacking description of statistical analysis of data and interpretation.</p> <p>6: Adequate: Demonstrates fundamental understanding of statistical analysis approach and interpretation.</p> <p>8: Good: complete and correct statistical analysis approach and interpretation.</p> <p>10: Excellent: comprehensive understanding of statistical analysis approach and interpretation, demonstrating thoughtful consideration of primary and secondary details.</p>		
<p>II. MANAGEMENT PROPOSAL (MIN 38/55 POINTS)</p>	<p><input type="checkbox"/> MET <input type="checkbox"/> NOT MET</p>		

Point Related Evaluation Criteria	Rating Scale	Comments	Maximum Points: 110
<p>A. A) QUALIFICATIONS OF PROJECT MANAGER AND PROJECT PERSONNEL (20 POINTS)</p> <p><u>Project Manager</u> The Bidder should provide the name of the Project Manager who will be assigned to this requirement, demonstrating his/her education, qualifications and experience. His/her curriculum vitae should also be included (curriculum vitae should be limited to two pages max).</p> <p><u>Key Personnel</u> The Bidder should also describe the qualifications and relevant experience of key personnel demonstrated by similar and/or related work experience. Provide the names of all other key personnel who will be assigned to this requirement, demonstrating their education, qualifications and experience. Their curriculum vitae should also be included (curriculum vitae should be limited to two pages max).</p>			
<p>A.1. Academic qualifications of the project manager (5 Points)</p>	<p>One additional point will be given for professional engineer or project management accreditation, for a potential maximum rating of 5 points.</p> <p>0: High School diploma.</p> <p>1: Diploma from a recognized Canadian College (or equivalent as established by a recognized Canadian academic credentials assessment service¹, if obtained outside Canada) in engineering, social science, psychology, or a related field.¹</p> <p>2: Bachelor's degree from a</p>		

¹ Information on Educational Credential Assessment (ECA) is available on the Foreign Credentials Referral Office website: www.credentials.gc.ca

Point Related Evaluation Criteria	Rating Scale	Comments	Maximum Points: 110
	<p>recognized Canadian university (or equivalent as established by a recognized Canadian academic credentials assessment service, if obtained outside Canada) in engineering, social science, psychology, or related field.</p> <p>3: Master's degree from a recognized Canadian university (or equivalent as established by a recognized Canadian academic credentials assessment service, if obtained outside Canada) in engineering, social science, psychology, or related field.</p> <p>4: PhD from a recognized Canadian university (or equivalent as established by a recognized Canadian academic credentials assessment service, if obtained outside Canada) in engineering, social science, psychology, or related field.</p>		
<p>A.2. The relevant experience of the project manager (10 points)</p> <p>Bidder should provide commencement date and completion date for each project.</p> <ul style="list-style-type: none"> • Experience in leading multi-disciplinary work groups • Experience in field studies or driver behaviour and human factors research • Experience in conducting or leading scientific research 	<p>0: Not evident, no experience.</p> <p>2: Inadequate, less than 1 year experience.</p> <p>6: Adequate, 1+ to 3 years experience.</p> <p>8: Good, 3+ to 5 years experience.</p> <p>10: Excellent, 5+ years experience.</p>		

Point Related Evaluation Criteria	Rating Scale	Comments	Maximum Points: 110
<p>A.3. Academic qualifications of key personnel (5 points).</p> <p>Scoring is based on the average score of two (2) personnel who would play a principle role in fulfilling the project tasks. The Bidder must identify the two (2) personnel to be evaluated under this criteria, otherwise the Technical Authority may select which two (2) personnel to evaluate based on the information provided by the Bidder.</p>	<p>0: Not evident/no degree.</p> <p>1: Degree in progress.</p> <p>2: Diploma from a recognized Canadian College (or equivalent as established by a recognized Canadian academic credentials assessment service², if obtained outside Canada) in engineering, social science, psychology, or a related field.</p> <p>3: Bachelor's degree from a recognized Canadian university (or equivalent as established by a recognized Canadian academic credentials assessment service, if obtained outside Canada) in engineering, social science, psychology, or related field.</p> <p>4: Master's degree from a recognized Canadian university (or equivalent as established by a recognized Canadian academic credentials assessment service, if obtained outside Canada) in engineering, social science, psychology, or related field.</p> <p>5: PhD from a recognized Canadian university (or equivalent as established by a recognized Canadian academic credentials assessment service, if obtained outside Canada) in engineering, social science, psychology, or related field.</p>		

² Information on Educational Credential Assessment (ECA) is available on the Foreign Credentials Referral Office website: www.credentials.gc.ca

Point Related Evaluation Criteria	Rating Scale	Comments	Maximum Points: 110
<p>B. PAST PROJECT EXPERIENCE (30 POINTS)</p> <p>Bidder's organization, including subcontractors (if applicable) - relevant experience and competence proven by similar or related work, and resource capability. A list of relevant projects completed by the Bidder's organization within the last five (5) years should be provided, including a brief description of each project, the responsibilities of the Bidder, the project duration, the dollar value and the name of the client organization.</p> <p>Areas of Experience:</p> <ul style="list-style-type: none"> i) Field observational studies or naturalistic studies of human factors in road safety; ii) Fuel consumption and/or vehicle safety studies; iii) Vehicle instrumentation, electronics, and data communication; iv) Data collection, database development and management; and, v) Statistical analysis programs and data analysis. 	<p>0: No relevant experience</p> <p>6: One (1) project with relevant experience in one (1) area.</p> <p>12: One (1) project with relevant experience in two (2) areas; or two (2) projects with relevant experience in one (1) area each.</p> <p>18: One (1) project with relevant experience in three (3) areas; or numerous projects with relevant experience in a combined total of three (3) areas.</p> <p>24: One (1) project with relevant experience in four (4) areas; or numerous projects with relevant experience in a combined total of four (4) areas.</p> <p>30: One (1) or more project(s) with relevant experience in all five (5) areas; or numerous projects with relevant experience in a combined total of five (5) areas.</p>		

Point Related Evaluation Criteria	Rating Scale	Comments	Maximum Points: 110
<p>C. PROJECT MANAGEMENT TOOLS AND METHODOLOGY (5 POINTS)</p> <p>The Bidder should describe how it proposes to implement the management of the project, including subcontracts. In particular, where the Bidder represents a consortium, the approach should include clear descriptions of the arrangements between the members of the consortium and the management processes to be put in place to manage the ongoing performance of the consortium members.</p> <p>Includes adequacy of management support systems; such as computing, website, database and analysis capabilities.</p>	<p>0: Not provided.</p> <p>2: Inadequate: Vague, incomplete or lacking evidence of project management tools and capabilities.</p> <p>3: Adequate: Partially demonstrates project management tools and capabilities.</p> <p>4: Good: fulfills all project management tools and demonstrates good capabilities.</p> <p>5: Excellent: completely fulfills all project management tools and proficiency in all aspects.</p>		

Technical Criteria points scored : _____ (min 38 points)

Management Criteria points scored : _____ (min 38 points)

Total points scored : _____
(min 76 points - max 110 points)

ANNEX “A”

STATEMENT OF WORK

Field Operational Trial to Assess the Influence of In-Vehicle Displays and Driver Training on Driver Behaviour

1 OBJECTIVE

Transport Canada’s mission is to serve the public interest through the promotion of a safe and secure, efficient and environmentally responsible transportation system in Canada. Natural Resources Canada is mandated to strengthen and expand Canada’s commitment to energy efficiency to help address the Government of Canada’s policy objectives.

The two departments are collaborating to undertake a field operational trial whose objective is to provide a better understanding of the potential of in-vehicle displays and driver training to encourage fuel efficient and safe driving. The field operational trial will assess how the type of information presented on an in-vehicle display affects fuel consumption and aggressive driving.

2 BACKGROUND

Variances in driving style can have a significant effect on fuel consumption and Greenhouse Gas (GHG) emissions. Aggressive behaviours such as excessive speed, unnecessary rapid acceleration and unnecessary abrupt braking increase fuel consumption, as well as increase the risk and potential severity of crashes. High speeds can increase driver workload and provide less time to detect and react to dangerous situations especially when visibility is limited or in inclement weather. Transport Canada and Natural Resources Canada are seeking to gain knowledge on the effect of in-vehicle fuel economy displays on driver behaviour. These in-vehicle displays are normally integrated in the instrument panel or console of the vehicle, and will indicate real-time fuel economy-related information to the driver, such as fuel consumption, CO2 emissions, cost per trip, and acceleration and braking input.

Feedback from in-vehicle displays may influence drivers to alter their driving behaviours to reduce fuel consumption. These changes in driving behaviour may also positively affect safety-related behaviours such as excessive speed, aggressive driving and following too closely. Awareness of fuel consumption and fuel savings or trip costs might also encourage drivers to take other measures that can positively influence safety such as keeping tires properly inflated, removing unnecessary cargo from the trunk, or even taking fewer unnecessary trips. There is some concern, however, that in-vehicle displays that provide real-time feedback may also be distracting to drivers, raising safety concerns. There may be other, negative safety-related behaviours, such as driving too slowly for conditions and posing a hazard to surrounding traffic, or avoiding braking to a dangerous extent.

The U.S. National Highway Traffic Safety Administration (NHTSA) recently completed a multi-task study³ to evaluate fuel consumption (FC) displays for improving fuel economy and safety. The study consisted of a literature review of available fuel economy display technology, focus group testing of drivers to gather information about their driving behaviours, their opinions regarding the usefulness and potential for distraction of several different displays, a usability evaluation that identified which components of the fuel economy designs would be most useful, and a driving simulator study.

³ Fuel economy driver interfaces. National Highway Traffic Safety Administration, Washington, DC. DOT HS 811 319, 2010; DOT HS 811 092, 2009.

The literature review found that fuel economy display technology differ widely from simple to complicated and are not standardized. Little is known about how to design displays to maximize benefits while minimizing risks of distraction or unsafe driving. During the usability evaluation, they found that presenting fuel economy-related information as graphical bars produced the fastest and most accurate performance at determining fuel economy levels. A long-term evaluation in a naturalistic setting, i.e. a field operational trial, was recommended to examine the effects of behavioural adaptation to information type displayed. Limited research has been published that supports the hypothesis that the use of fuel economy displays is associated with improvements in fuel economy or safety. These displays are being put in vehicles in Canada, yet their impact on safety has not been assessed or demonstrated.

Large decreases (average of 25 %) in fuel consumption have been reported from “ecodriving” type challenges or tests but these tests are usually of a very short duration on either a controlled test track drive or a driving simulator.⁴

Natural Resources Canada's Auto\$mart Initiative engages novice and experienced drivers about the effects of driving on the environment, the importance of choosing a fuel-efficient vehicle, and the ways drivers can reduce their fuel consumption when they get behind the wheel. However, no studies have been undertaken to assess the effects of this training over the longer term.

A field operational trial allows for evaluation in real-world driving conditions in which drivers use their own vehicles on roads with which they are familiar. Field trials have become feasible as a research method because of the development of technologies to collect data easily and inexpensively.

There have been no such studies in Canada so this will be the first comprehensive study to provide Canadian data on the influence of in-vehicle displays on driving behaviour and information on the effect of driver training in the medium to long term.

3 REQUIREMENT

3.1 FIELD OPERATIONAL TRIAL REQUIREMENTS

The Contractor must conduct a field operational trial that must focus on responding to the following questions:

1. Does the presence of a feedback display in the vehicle improve fuel consumption and safety behaviour?
2. How does the type of information displayed affect fuel consumption and safety behaviour?
3. How or does training impact driving behaviour?
4. How does both feedback and driver training impact driving behaviour?
5. Usefulness and potential distraction of the display and feedback information.

3.2 WORK PLAN REQUIREMENTS

The Contractor's proposal must address the following work plan elements:

- the methodology to determine the effectiveness of the in-vehicle display and driver training on fuel consumption and safety;
- matrix of participants;
 - i) a matrix that would be adequate to achieve significance across each group at power =

⁴ Lean and Clean, Best Practices for Fuel-efficient Driving. Natural Resources Canada, Office of Energy Efficiency, M144-220/2010E-PDF, 2010

0.8 and at a 0.01 level of significance;

- behaviours that will be observed;
- how changes in driving conditions will be controlled for (e.g., traffic conditions, roadway types, ambient temperature);
- how the drivers will be recruited;
- how dropouts of participating drivers will be mitigated and at what point in the schedule is the deadline for instating a replacement driver;
- how the installation, maintenance and repair of in-vehicle equipment will be managed;
- how data collection, storage, security and privacy will be managed;
- how participants can report problems;
- how the questionnaires will be administered;
- how distraction will be evaluated;
- perceived problems and how they will be resolved;
- proposed location of the trial; and,
- data analysis plan of statistical methods to identify if significant differences exist in performance:
 - i) with and without display;
 - ii) between different types of information
 - iii) with and without driver training;
 - iv) between driver training and types of feedback;
 - v) between driver training with feedback and feedback only;
 - vi) from the short to longer term;
 - vii) between and within groups;
 - viii) individual differences; and
 - ix) between phases.

3.3 SEASONAL CLIMATE CONSIDERATION

Inclement and widely variable weather conditions could have significant effects on data collected which may reduce the ability to answer the questions addressed by the trial. Therefore it is undesirable to perform the trial during winter in a location where weather conditions may become severe or regularly vary over a wide range relative to other seasons.

It is strongly recommended that the trial begins no earlier than April 1, 2014, when weather conditions are expected to have a lower impact on drivers than the winter season (as proposed in the schedule of deliverables in section 7 - Deliverables). The bidder may propose to begin the trial earlier than April 1, 2014, if appropriate justification (e.g., location of trial has suitable seasonal climate for proposed schedule of trial or there is significant evidence that effects of weather can be controlled for) is given to the satisfaction of the Technical Authority.

4 GOVERNMENT SUPPLIED MATERIAL

The Technical Authority will provide the following materials to the Contractor:

- 40 Otto View-CD data loggers (referred to as “data loggers”) with 2 GB SD memory cards;
- 40 GPS antenna-receivers;
- 40 mounting tie-wrap kits;
- 60 CVS43 in-vehicle displays (referred to as “in-vehicle display devices”) with 2 GB SD memory cards;
- 60 windshield mounting cups;
- 100 OBDII- RJ45 cable harnesses;
- 50 Auto\$mart training kits;

- Three questionnaires (100 of each) as specified under article 6.5 below; and,
- The consent form.

5 SCOPE OF WORK

The Contractor must recruit the participants, install, maintain and repair as necessary the data loggers and feedback displays in the participants vehicles, provide training on driving fuel efficiently, monitor their performance and the operation of the devices, administer questionnaires, collect the behaviour data, remove the devices from the vehicles, and analyse the qualitative and quantitative data that will respond to the questions in section 3 above. The data loggers that will be used are the Otto View-CD and the in-vehicle feedback displays are the CVS43, both developed by Persentech.

The field operational trial must be planned for 100 participants (20 in each of groups 1 and 2 and 30 in each of groups 3 and 4) that must be monitored for a period of six months.

- Group 1, 20 participants, is a control group.
- Group 2, 20 participants, is to receive training on driving fuel efficiently (NRCan's Auto\$mart initiative).
- Group 3, 30 participants, is to receive Auto\$mart training and feedback through an in-vehicle display (CVS43).
- Group 4, 30 participants, is to receive feedback through an in-vehicle display (CVS43).

Participants from groups 1 and 2 must be monitored using an Otto View-CD data logger that is installed in their vehicle (see specifications in *Appendix 1 – Device Specifications for Field Trial of In-Vehicle Feedback Displays*). Participants from groups 3 and 4 must be monitored with in-vehicle displays (CVS43) installed in their vehicles.

Descriptions of the screen layouts for the in-vehicle display device (CVS43) are provided in Appendix 1. The device integrates seven major functional blocks including a GPS receiver and antenna, an OBDII transceiver and compliant SAEJ1979 code set, a map parsing function that compares current position with an underlying coverage map that includes posted speed limits, a GSM cellular radio for over-the-air trip transmission reports to a web server, a 3.5" TFT colour display, a resistive touch-screen interface, and a screen switching function to allow an administrator to remotely change the displayed screen at any time to any device. During the baseline phases (initial and post), a blank screen appears on the display. The touch screen functionality involves a simple background screen colour change that allows a user (driver) to switch between a white background with black text and a black background with white text by touching anywhere on the screen and pressing lightly.

5.1 AUTO\$MART TRAINING INITIATIVE

The Auto\$mart training Initiative kit includes resources such as workbooks, videos, and PowerPoint presentations, to teach drivers about fuel efficiency.

Training should be comprised of reviewing the four modules of the Auto\$mart kit with groups 2 and 3 only:

- Module 1: Driving and the Environment;
- Module 2: Behind the Wheel;
- Module 3: The vehicle for you; and,
- Module 4: Auto\$mart Summary.

Particular emphasis should be placed on Modules 2 and 4. All modules follow the same lesson structure

(warm-up exercise, theory, video, review) and should take approximately 30 minutes per module to complete. This training should be conducted in a classroom-type setting. The Auto\$mart training for the drivers in Group 2 and 3 must take place at the end of the baseline period.

5.2 FIELD OPERATIONAL TRIAL PHASES

All four groups will run in parallel during the trial.

Group 1 is the control group and will be monitored with the Otto View-CD data logger throughout the trial.

Group 2 will be monitored with the Otto View-CD data logger throughout the trial and will receive Auto\$mart training after the initial baseline period.

Groups 3 and 4 will have the CVS43 display installed at the beginning of the trial and there will be three phases for these two groups:

- a. a baseline period;
- b. a feedback period; and,
- c. a post-baseline period.

Group 3 will also receive Auto\$mart training following the initial baseline period.

No feedback is provided during the baseline and post-baseline periods (i.e., the screen will be blank) to Groups 3 and 4.

During the feedback period, each participant in Groups 3 and 4 will see the information from the 3 screens.

The Contractor must use all three screens to assess driver behaviour in groups 3 and 4. The information will be presented on the screen in the in-vehicle display (CVS43) as follows:

- Screen 1 - Current acceleration and braking, average smoothness, and current fuel consumption;
- Screen 2 - Current and average fuel consumption and current and average emissions (CO₂); and
- Screen 3 - Cumulative trip cost, average trip cost/10 km, cumulative fuel use, and current idling.

At the end of a trip, summary information is presented for the current trip, the previous trip, and an average of all trips in that phase (or specific screen display).

6 TASKS

6.1 PROJECT KICK-OFF

The Contractor must meet with the Technical Authority to review, update and finalize the work plan and schedule within 1-week of contract award. The Contractor must provide the Technical Authority with a finalized copy of the work plan and schedule.

6.2 MONTHLY PROGRESS REPORTS

The Contractor must submit by the 30th of each month to the Technical Authority a Monthly Status Report, detailing dates, activities conducted, problems encountered and accomplishments achieved during the previous month. The Monthly Status Report must contain a section documenting the degree to which the performance targets listed throughout this statement of work were achieved. The report must also

include a schedule for all anticipated activities for the upcoming month. The report must also include summaries and trends of the trip data.

6.3 ETHICS REVIEW

The Contractor is responsible for obtaining Institutional Review Board (IRB) approval for research involving human subjects⁵ and providing the Technical Authority with a copy of the approval.

6.4 RECRUIT PARTICIPANTS

The Contractor is responsible for recruiting the participants for the field trial. The matrix for the field trial will include participants from different age groups and gender. The Contractor must ensure that there is a range of vehicle sizes representative of the vehicle fleet mixes in Canada. The Contractor must submit to the Technical Authority details pertaining to the mix of participants and vehicles for approval to proceed.

The Contractor is requested to implement strategies to mitigate loss, or “dropout”, of participants over the course of the trial. For example, recruitment of stand-by participants or emphasize to drivers the importance of participating until the trial’s conclusion. Specific mitigation strategies are to be determined by the Contractor and subject to approval by the Technical Authority.

6.5 ADMINISTRATION OF QUESTIONNAIRES

The Technical Authority will develop 3 questionnaires that the Contractor will be responsible for administering to each participant. There will be an initial questionnaire to solicit participants, a second questionnaire to be administered at the start of the trial, and the third questionnaire to be administered at the end of the trial. The questionnaires will serve to gather data on driver attitudes, usefulness, and potential distraction of these devices. A copy of all completed questionnaires must be provided to the Technical Authority.

6.6 CONSENT FORMS

A consent form will be provided by the Technical Authority to the Contractor to seek each participants signatures on the consent form prior to the installation of the equipment. A copy of the signed consent form must be provided to the Technical Authority.

6.7 WEB APPLICATION PORTAL

The Contractor is responsible for setting up a web application portal and database that is reliable and consistently accessible. This can be hosted with a third party service provider within a professional data centre. This will be used to control and monitor the data loggers and in-vehicle display devices wirelessly. The web application portal will be used for:

- Implementing screen changes on the in-vehicle display devices for Groups 3 and 4;
- Managing the allocation of both the data loggers and display devices to vehicles and the associated drivers;
- Monitoring the operation of all data loggers and in-vehicle display devices to detect abnormalities; and,
- Generating trip reports from data downloaded wirelessly from the devices.

The supplier of the data loggers and in-vehicle display devices (PERSENTECH) offers the capability of wirelessly accessing and controlling the devices with its “OttoFleet Management System” (OFMS). Information on the technical support role of PERSENTECH is detailed in section 10.

⁵ <http://www.pre.ethics.gc.ca/eng/policy-politique/initiatives/tcps2-eptc2/Default/>

A demonstration of the operation of the website and database must be provided to the Technical Authority.

6.8 PREPARATION AND INSTALLATION OF DATA LOGGERS

The Contractor must have access to facilities whereby the installation, repair and removal of components to be used in, on and around the vehicles in this trial are possible. The Otto View-CD data logger connects to any vehicle model, year 1996 or newer via the On-Board Diagnostics II (OBDII) port, usually located under the dashboard on the driver's side of the vehicle. The logger receives power from the vehicle and is designed to run autonomously once installed. The Contractor is responsible for:

- Ensuring that the firmware (to be supplied free of charge by the manufacturer) on the loggers is up-to-date;
- Ensuring that all loggers contain the most up-to-date configuration file (configuration files to be provided by the Technical Authority);
- Coordinating access to the participants' vehicle to perform the installation;
- Installation (under the dash and out of site) of the data loggers in Groups 1 and 2;
- Keeping a record of the Otto View-CD Logger Serial Number with the assigned participant including their address, e-mail and telephone number and providing this information to the Technical Authority; and,
- Ensuring that each device is compatible and works properly when installed by undertaking a brief test drive as a minimum.

6.9 PREPARATION AND INSTALLATION OF IN-VEHICLE DISPLAYS;

The Contractor is responsible for installation of the CVS43 in-vehicle devices in Groups 3 and 4. The displays connect to the vehicle via the OBDII port. The Contractor is also responsible for:

- Ensuring that the firmware (to be supplied) is up-to-date;
- Ensuring that the displays contain the most up-to-date configuration file (to be supplied);
- Coordinating access to the participants' vehicle to perform the installation;
- Ensuring that each device is compatible and works properly when installed by undertaking a brief test drive as a minimum; and,
- Keeping a record of the displays serial number with the assigned participant including their address, e-mail and telephone number and providing this information to the Technical Authority.

6.10 RELOCATION OF DATA LOGGERS OR IN-VEHICLE DISPLAYS

During the trial period it may be necessary to remove the device and install it in another vehicle (either another vehicle with the same driver, or the vehicle of a replacement participant). The Contractor is responsible for removal of the devices and installation into the replacement vehicle, in accordance to section 6.8 (for a data logger) or section 6.9 (for the in-vehicle display). The Contractor can only perform such work with written authorization by the Technical Authority.

6.11 INCENTIVES

The Contractor is responsible for providing incentives to the participants as a means of recruiting and ensuring that they complete the trial. An initial sum of \$50 will be paid to each participant upon installation of the equipment and an additional \$150 when the equipment is removed at the end of the trial. The Contractor must provide a listing of participants who were given compensation at the beginning to the trial and at the end of the trial to the Technical Authority.

6.12 TRAINING

The Contractor is responsible for coordinating, scheduling and conducting 2-3 hours of Auto\$mart training for Groups 2 and 3. The training must take place in either official language based on the preference of the Participants and in an appropriate venue, which can accommodate all participants in a classroom type environment. The Contractor must provide the Technical Authority with confirmation of those participants who have completed the training.

6.13 PURCHASE OF AIRTIME

The data loggers contain a Global System for Mobile communication (GSM) cellular data modem which permits the Contractor to monitor whether the unit is installed and working properly. Each device at the end of a trip will transmit trip data. The Contractor must supply the necessary Subscriber Identity Module (SIM) cards and the associated airtime so that this functionality can be activated. It is expected that no more than 1 megabyte of data per month will be transmitted by each unit. A listing of each SIM card number must be provided to the Technical Authority.

6.14 TRIAL MONITORING

The Contractor is responsible for closely (daily) monitoring the functionality of the system and integrity of the data and to take proactive and corrective measures in order to ensure availability. In the event that the equipment is not functioning, or not functioning correctly (including not being able to communicate) the Contractor must recognize and resolve the problem within 24 hours.

6.15 TECHNICAL SUPPORT

The Contractor must provide an e-mail address that participants may use should they have questions or issues with the equipment or any aspect of the trial. The e-mail address must be monitored during normal business hours. The maximum response time must be not longer than one (1) business day from receipt of the technical support request. Services must be provided in the official language of choice of the Participant.

6.16 EQUIPMENT REMOVAL

Once the trial period has been completed, the Contractor will be responsible for removing the equipment from all the participants' vehicles. The Contractor must remove the SecureDigital (SD) memory card from each unit and download the binary-encoded data using an SD card reader to a secure server for analysis. The Contractor must return all the equipment to the Technical Authority at the end of the contract.

6.17 ANALYSIS OF QUESTIONNAIRE RESPONSES

The Contractor must provide the Technical Authority with an analysis of the questionnaire responses which must include, but not limited to, the following:

- Demographics;
- Driving experience;
- Data on the frequency drivers look at their displays;
- Perceived level of distraction caused by the display;
- Usability;
- Mental workload;
- Importance/desirability of having a display;
- Usefulness/effectiveness;
- Importance of achieving ideal fuel economy;
- Importance of saving money;

- Importance of being environmentally friendly;
- Importance of safety;
- Knowledge of methods for decreasing fuel consumption;
- Any perceived changes in driving behaviour due to the displays or training; and,
- Any correlation between their attitudes (responses) and behaviour (field data).

6.18 DATA ANALYSES

The Contractor must provide the Technical Authority with an analysis of all the data collected which must include, but not limited to:

- frequency in speeding;
- rapid braking;
- rapid acceleration;
- number of stops;
- average speed;
- amount of speeding;
- % idling;
- rates of acceleration/deceleration;
- hard acceleration/braking events;
- average acceleration/deceleration;
- throttle variation;
- route changes;
- trip planning (combining trips);
- changes in CO2 emissions;
- % time coasting;
- changes in fuel consumption;
- proportion of steady speed;
- accelerating from stops; and,
- average trip cost.

6.19 DRAFT FINAL REPORT

The Contractor must provide to the Technical Authority a draft report with executive summary that includes, but not limited to:

- Background
- Research questions
- goals
- study design
- description of equipment
- methods
- data analysis
- linkages of statistical results to study design and questionnaire results
- Interpretation of results
- Issues
- Research gaps

6.20 FINAL REPORT

The Contractor must address the comments received on the draft report with executive summary from the Technical Authority and prepare a final report. The Contractor must also submit all raw and reduced data

(in electronic format).

7 DELIVERABLES

The completion of the contract, including collection, analysis, and reporting of the trial must be completed before March 31, 2015.

The following table proposes the desired schedule of deliverables.

Deliverable Number	Deliverable Tasks (reference to Section)	Item	Date of Delivery
1	Task 6.1	A final work plan and schedule that incorporates the comments from the project kick-off meeting	2 weeks after Project Kick off meeting
2	Task 6.2	Monthly Progress Report	30 th of each month
3	Task 6.3	Copy of Institutional Review Board (IRB) approval	1 month after Project Kick off meeting
4	Task 6.4	Details of mix of participants and vehicles	2014-03-31
5	Task 6.5	Copy of the completed initial questionnaire to solicit participants	2014-03-31
6	Task 6.7	Demonstration of operation of website and database	2014-03-31
7	Task 6.13	Copy of SIM card numbers	2014-03-31
8	Task 6.15	Contractor must provide to the Technical Authority the e-mail address which participants may use should they have questions or issues	2014-03-31
9	Tasks 6.4, 6.6, 6.8, 6.9 & 6.11	A report with participant/vehicle/device details, installation dates, issues, signed consent forms and initial compensation.	2014-03-31
10	Task 6.5	Copy of the completed second questionnaire at the start of the trial	2014-03-31
11	Task 6.12	Provide report with details of the training.	2014-04-30
12	Task 6.5	Copy of the completed third questionnaire at the end of the trial	2014-10-31
13	Task 6.17	Report on questionnaire analyses	2014-12-31
14	Task 6.16	Contractor is responsible to remove all equipment and deliver the equipment to the Technical Authority	2015-01-30
15	Task 6.18	Report on Data Analyses	2015-01-30
16	Task 6.19	Contractor will provide a draft report with executive summary	2015-02-27
17	Task 6.20	Contractor will address the comments on the draft report and/prepare/deliver a final report. Also in electronic format all raw and reduced data.	2015-03-31

8 TECHNICAL AUTHORITY SUPPORT

The Technical Authority will be responsible for accepting and approving Contractor deliverables:

- Respond, as required, to provide input, answer questions, and evaluate deliverables.
- Provide available reference and supporting documentation to the Contractor, if required.
- Review and provide comments on reports and all submitted deliverables in a timely manner.

9 WORK LOCATION

Work will be conducted at the Contractor's facility(ies) except where otherwise not feasible, for example, the installation/removal of equipment, driver training, and the location of the field trial. The Contractor must propose a location (city) for the field trial in its work plan. The location must have digital speed maps that are compatible with the equipment utilized for the field trial. The speed map should be available for an area that covers over 90% of the expected driving in the trial. The existing digital speed maps can be licensed from Persentech for use in the trial. All locations and digital speed maps must be approved by the Technical Authority.

10 TECHNICAL SUPPORT FROM SUPPLIER (PERSENTECH) OF OTTOVIEW-CD IN-VEHICLE DISPLAY DEVICE AND CVS-43 DATA LOGGER

It is a requirement of this work that the contractor obtain technical support from Persentech. The terms are as follows (subject to change at anytime):

(1) Per diem rate for technical support at \$600 or \$75/hour for any technical support relating to the device setup, configuration etc. and trouble shooting for pre-installation check, during installation, and post-trial removal – level of support will vary depending on the capabilities of the organization, their installers and any previous OBDII interface and operational experiences;

(2) OttoFleet Management System (OFMS) website options –

(a) Purchase of an OFMS license for \$4,950 plus taxes - for installation by respondent on any server that has the required software platform (installation manual provided). The respondent/TC will own the license – there is a 90 day technical support period, after which the per diem rate noted above applies. The respondent/TC will need to provide and set up their own domain for this trial and use their preferred web hosting provider.

(b) Purchase of an OFMS Service that includes a 500 MByte database space allocation for a fee of \$290 per month plus taxes. PERSENTECH provides the portal through its existing service provider. The web portal will be dedicated for the project for the required number of months. The portal will be a sub domain of the myOttofleet.com site. After the trial is over and the database is exported, the service will be halted.

(3) Speed maps

Perform audit and update of existing speed map locations or create new speed map if location of trial is not within existing coverage map database – resources to be determined based on requirements. Per diem rate of \$600 or \$75/hour applies.

(4) General project management, documentation and trial support services as required to ensure that the project is a success – per diem rate of \$600 or \$75 / hour.

11 MEETINGS

The Contractor must conduct bi-weekly telephone status meetings with the Technical Authority to discuss progress of the Work or any issues requiring resolution. Meeting minutes are to be provided by the Contractor no later than 3 days after the meeting.

In addition to the timely submission of all deliverables and fulfillment of obligations specified herein, it is the responsibility of the Contractor to facilitate and maintain regular communication with the Technical Authority. Communication is defined as all reasonable efforts to inform the Technical Authority of plans, decisions, proposed approaches, implementation, and results of work, to ensure that the Work is progressing well and in accordance with the Work Plan.

12 TECHNICAL ENVIRONMENT

All Report and document versions must be provided in electronic format only. Electronic copies of all Reports must be delivered in the following format (as appropriate to their form): Microsoft Excel, Microsoft Word either via e-mail or on a CD.

13 LIABILITY, ETHICS, PRIVACY, SECURITY, AND INSURANCE

The Contractor is responsible for ensuring that the in-vehicle systems are operating properly and do not interfere, at any time, with the safe operation of the vehicle. The Government of Canada assumes no liability for units that have not been installed properly in the vehicles, or have been tampered with, including disabling of the unit.

The Contractor is required to complete an ethics review in order to assess and address any perceived risks. (Task 5.2)

The Contractor, any sub-contractor, or any third parties to be employed in this project must abide by the ethical principles of confidentiality.

The Contractor, any sub-contractor, or any third parties to be employed in this project must ensure the privacy of the participants and the security of the data at all times. The Contractor must outline what steps will be taken to ensure the privacy and security of the data.

All data collected must be turned over to Transport Canada and will remain the property of the federal government.

The participants must sign a consent form prior to participating in the field operational trial (Transport Canada will provide this form to the Contractor). The participants are responsible for driving in a safe and responsible manner and must respect any related provincial acts at all times. The Contractor and/or participants are responsible for their own vehicle insurance.

14 TRAVEL REQUIREMENTS

The Contractor may be required to travel to Transport Canada, Ottawa for two meetings.

15 LANGUAGE

The deliverables to the Technical Authority are required in English.

APPENDIX 1 TO ANNEX A

DEVICE SPECIFICATIONS

OTTOVIEW-CD DATA LOGGER

The OttoView-CD system connects to light-duty passenger vehicles through the OBDII Diagnostic Link Connector (DLC) and collects and stores location-based information and vehicle diagnostic information on an SD memory card.

The device is installed out-of-sight under the dash in vehicle model years 1996 and newer using a single OBDII cable.

An external GPS (Global Positioning System) antenna is the only visible element of the system and is installed above the dash for an unobstructed view of the sky.

System specifications:

- OttoView-CD device with SD memory card socket; RJ45 connector socket; 6-pin DIN socket; RCA connector for optional RFID antenna; and 5 LEDs.
- A GPS antenna-receiver.
- OBD cable: RJ45 plug (device connection) to SAEJ1962M (vehicle connection).
- A software application used to configure the device, and to manage and export the data stored on the SD memory card - runs on a Windows®-based Operating System.

The device is powered entirely through the vehicle's OBDII connector and will operate over a voltage range of +9VDC to +12 VDC. The device will turn-off (sleep mode) approximately 60 seconds after the vehicle is turned off, thereby not imposing any load on the vehicle's battery and electrical system. The device interrogates the vehicle's engine control module (ECM) for data and does not modify/change any vehicle parameters.

Logged data: Date, Time, Location (Latitude, Longitude), Speed, Posted Speed Limit (if coverage map is available), SAEJ1979 Mode 1 Service PIDs. Storage capacity is approximately 1,000 hours on a 2 GByte SD memory card with maximum number of channels selected.

Output Summary File (CSV) information per trip: Trip Start Date-Time, Trip End Date-Time, Trip Duration, RFID Keyfob ID, Idle Time, Fuel Consumed, Fuel Price, Trip Fuel

Cost, Total Trip Cost, Fuel Economy (litres per 100 km), Fuel Economy2 (km/litre), CO2 Emissions (kg), Average Trip Speed (with or without idle time included km/hr), Highway Speed Duration above a configurable setting, i.e. 100 km/hr.



Figure 1: OttView-CD data logger and accessories.

CVS43 IN-VEHICLE DISPLAY

The OttoView-CVS43 device is portable and is installed in 1996 and newer model year vehicles using a single cable. The device includes the OBDII interface, a Global Positioning System (GPS) receiver, a cellular GSM-GPRS radio, and a touch screen display.

The device is installed above the dash to provide the integrated GPS antenna a clear view of the sky and to present the screen information to the driver.



Figure 2: OttoView-CVS43 in-vehicle display unit.

System specifications:

- OttoView-CVS43 device with SD memory card socket; RJ45 connector socket; SIM card slot; Integrated GSM antenna with radome cover; Integrated GPS antenna with radome cover; Touch-sensitive LCD; Speaker; and a dual-T mounting bracket.
- OBD cable: RJ45 plug (device connection) to SAEJ1962M (vehicle connection).
- A software application used to configure the device, and to manage and export the data stored on the SD memory card - runs on a Windows®-based Operating System.

The device includes the following major functional blocks:

- The GPS functionality determines the time and date information; latitude and longitude position information; and speed information.
- OBDII code set according to SAEJ1979¹ used to link with a vehicle's ECM (engine control module) and to interrogate the ECM for vehicle PID (parameter identification) information to determine distance, fuel consumed, emissions and other vehicle performance information.
 - Connects to the vehicle's OBDII port using a single cable.
 - Powered through the OBDII Diagnostic Link Connector (DLC).
- The OttoMate™ coverage maps and sounds including the Posted Speed Limit (PSL) and other safety zone alerts that are managed using the SD memory card.

¹ http://standards.sae.org/j1979_201009

- A GSM cellular phone network using the GPRS (General Packet Radio Service) for the transmission of trip data to the OttoFleet Management Server (OFMS) server.
 - Supports 850-900-1800-1900MHz GSM band and TCP/IP data communications.
 - Utilizes a SIM (Subscriber Information Module) card.
- A QVGA 3.5" Thin Film Transistor (TFT) colour display.

SD Memory Card Specifications

The SD memory card is non-volatile and used in portable devices. SDSC capacity up to 2 GBytes.

Data is stored on the memory card in a binary format and is represented as an OTL file within a PC environment (OTL = **OT**to**L**ink). This data is the primary log file that contains the following information:

- Device serial number.
- Date and time (GMT), Latitude, Longitude, Speed, Posted Speed Limit.
- Selected engine parameter information.
- IMSI and IEMI numbers, time and number of transmissions and bytes through the GSM network.

The OTL file is uploaded from the SD memory card to the PC environment using the OttoFleet Configuration utility application. The same utility is used to export the information from the OTL file into a Comma Separated Value (CSV) format that has the following trip summary information:

- Trip number.
- Trip distance in km.
- Trip duration in hours, minutes, seconds.
- Idling time in minutes, seconds.
- Fuel consumed in litres.
- CO2 emissions in kg.
- Fuel price cents per litre.
- Total trip fuel cost in \$.
- Total vehicle operating cost in \$ based on annual vehicle use assuming the number of kilometres driven per year (assumption of annual mileage will

generate an insurance cost per kilometre, vehicle depreciation cost per kilometre, and vehicle maintenance cost per kilometre).

- Average fuel economy km per litre.
- Aggregate of data sent in kBytes during the trip.

The “raw” data upon which the summary information is also exported with 1 Hz or 5 Hz samples (depending on sampling mode implemented). The files contain all the GPS, coverage map, trip, and OBD information.

Over-the-Air OttoFleet Trip Log Specifications

The trip summary information is sent immediately after the vehicle’s ignition is turned off (“trip summary transmission”), and at regular intervals during a trip (known as the “heartbeat transmission” duration).

SCREEN DISPLAYS

The touch screen functionality involves a simple background screen colour change that allows a user (driver) to switch between a white background with black text and a black background with white text by touching anywhere on the screen and pressing lightly. This feature applies for the three screens detailed below.

Screen 1 - Smoothness

The Smoothness screen is based on the following information and threshold values:

1. A bar that displays the vehicle’s braking and acceleration events every 600 msec according to defined value ranges represented by the colours green, yellow and red.
2. A cumulative moving average of the acceleration and braking events that exceed a defined threshold value of an acceleration or braking event.
3. A real-time representation of the vehicle’s current fuel consumption in litres/100 km.

Driving Smoothness Summary Screen

The end of a trip is initiated when the vehicle’s ignition is turned off (RPM = 0), and the vehicle’s ECM stops responding (timeout = 1 second). A summary screen is presented to the user-participant that contains three columns of data describing the driving performance of the most recent trip, the previous trip, and the average of all previous trips while the device remained in the smoothness screen display mode. The average value will reset to zero when screen display modes are changed.

The parameters displayed include the cumulative average of the acceleration and braking performance, the smoothness factor based on the resultant average acceleration smoothness, the sum of the number of hard braking and acceleration events, and the average fuel consumption.

The summary values are enclosed within a colour-coded summary box.

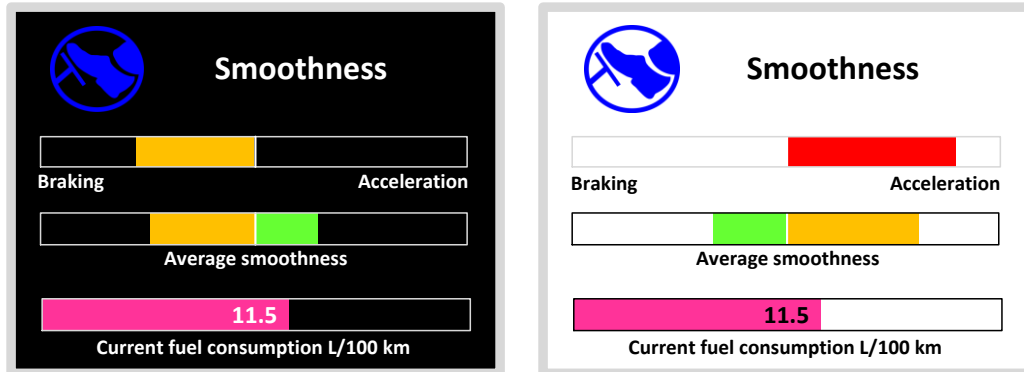


Figure 3: Example of Smoothness screen with black background and white background.

Screen 2 - Emissions

The driving emissions screen presents information calculated from the data available from the OBDII interface. It presents current CO₂ and fuel consumption bars and numeric average CO₂ and fuel consumption values. The current and average fuel consumption and emissions are determined by the calculated fuel volume, both instantaneous and accumulated during a trip. The CO₂ emission values are calculated using CO₂ content constants for each fuel type.

Emissions Summary Screen

The parameters displayed include the total CO₂ emissions in grams for the trip, the average CO₂ emissions per kilometer, and the average fuel consumption in L/100 km.

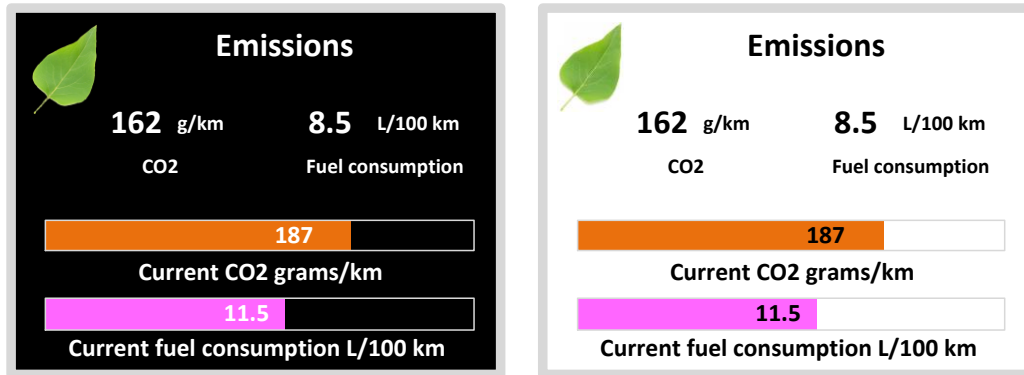


Figure 4: Example of Emissions screen with black background and white background.

Screen 3 - Cost

The driving “Cost” screen presents information calculated from the data available on the OBDII interface. The current trip cost and fuel consumed are displayed, along with the average trip cost per 10 km and the current percentage of time spent idling during the current trip.

Driving Cost Summary Screen

The parameters displayed include the total fuel cost, the average fuel cost per 10 km, the total idling time as a percentage of the overall trip time, the average speed, the trip time, and the trip length.

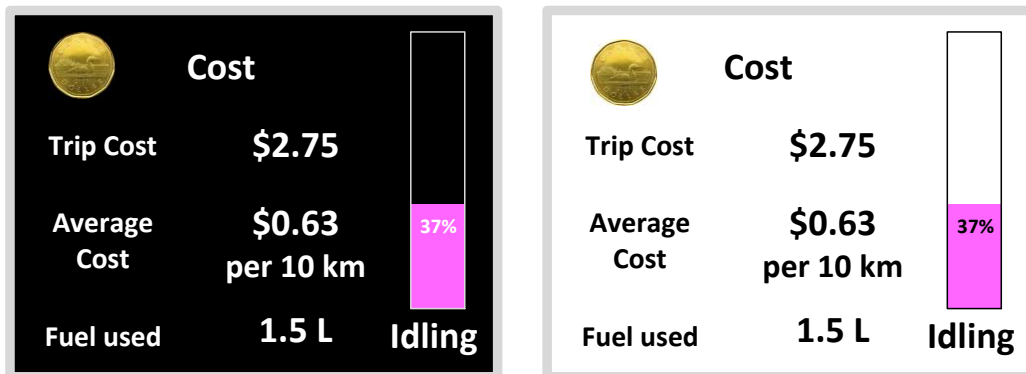


Figure 5: Example of Cost screen with black background and white background.

ANNEX “B”

BASIS OF PAYMENT

The Contractor will be paid its costs reasonably and properly incurred in the performance of the Work in accordance with the following:

1. Schedule of Milestones

The schedule of milestones for which payments will be made in accordance with the Contract is as follows:

Milestone No.	Task	Description	Delivery Date	Firm Amount (CAD) Excluding GST/HST
1	6.1	A final work plan and schedule that incorporates the comments from the project kick-off meeting.	2 weeks after Project Kick off meeting	\$ _____
	6.3	Copy of Institutional Review Board (IRB) approval	1 month after Project Kick off meeting	
2	6.4	Details of mix of participants and vehicles	2014-03-31	\$ _____
	6.5	Copy of the completed initial questionnaire to solicit participants.	2014-03-31	
3	6.7	Demonstration of operation of website and database	2014-03-31	\$ _____
	6.13	Copy of SIM card numbers	2014-03-31	
	6.15	Contractor must provide to the Technical Authority the e-mail address which participants may use should they have questions or issues	2014-03-31	
4	6.4, 6.6, 6.8, 6.9 & 6.11	A report with participant/ vehicle/device details, installation dates, issues, signed consent forms and initial compensation.	2014-03-31	\$ _____
	6.5	Copy of the completed second questionnaire at the start of the trial	2014-03-31	
5	6.12	Provide report with details of the training.	2014-04-30	\$ _____
6	6.5	Copy of the completed third questionnaire at the end of the trial.	2014-10-31	\$ _____
7	6.17	Report on questionnaire	2014-12-31	\$ _____

		analyses		
8	6.16	Contractor is responsible to remove all equipment and deliver the equipment to the Technical Authority	2015-01-30	\$ _____
	6.18	Report on Data Analyses	2015-01-30	
9	6.19	Contractor will provide a draft report with executive summary	2015-02-27	\$ _____
	6.20	Contractor will address the comments on the draft report and/prepare/deliver a final report. Also in electronic format all raw and reduced data.	2015-03-31	

2. Canada's Total Cost

\$ _____
(GST/HST extra)