



COORDINATING RESEARCH COUNCIL, INC.

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ALPHARETTA, GA 30022
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December 18, 2018

In reply, refer to:

CRC Project No. RW-105

Dear Prospective Bidder:

The Coordinating Research Council (CRC) invites you to submit a written proposal to provide services for “Roadside Measurement of Evaporative and PM emissions” (CRC Project No. RW-105). A description of the project is presented in Exhibit A, “Statement of Work.”

Please indicate by letter, fax, or email by **January 4, 2019** if you or your organization intends to submit a written proposal for this research program. CRC will answer technical questions regarding the Request for Proposal if they are submitted in writing. CRC will then return written answers to all of the bidders, along with a copy of the original questions.

A CRC technical group composed of industry representatives will evaluate your proposal. CRC reserves the right to accept or reject any or all proposals.

The reporting requirements will be monthly progress reports and a summary technical report at the end of the contractual period. The reporting requirements are described in more detail in the attachment entitled “Reports” (Exhibit B).

The proposal must be submitted as two separate documents. The technical approach to the problem will be described in part one, and a cost breakdown that is priced by task will be described in part two. The cost proposal document should include all costs associated with conducting the proposed program. The technical proposal shall not be longer than 10 pages in length.

CRC expects to negotiate a cost-plus fixed fee or cost reimbursement contract for the research program.

Contract language for intellectual property and liability clauses is presented in Exhibit C and in Exhibit D, respectively.

Important selection factors to be taken into account are listed in Exhibit E. CRC evaluation procedures require the technical group to complete a thorough technical evaluation before considering costs. After developing a recommendation based on technical considerations, the costs are revealed and the recommendation is modified as needed.

Electronic copies of the technical and cost proposals should be submitted to:

Amber B. Leland
Coordinating Research Council
5755 North Point Parkway, Suite 265
Alpharetta, GA 30022

Phone: 678-795-0506
Fax: 678-795-0509
E-mail: aleland@crcao.org

The deadline for receipt of your proposal is **January 18, 2019.**

Yours truly,

Amber B. Leland
Deputy Director

EXHIBIT A
CRC Real World Group Project RW-105
TITLE: Roadside Measurement of Evaporative and PM
Emissions

Objective

To understand the capabilities of both HEAT and FEAT to measure and interpret high evaporative emitters as well as particulate matter emissions. Roadside measurements of PM will include installation of an on-board PEMS unit on test vehicles to serve as a reference measurement.

Task 0:

This task is essentially to act as a project manager to facilitate the co-location of FEAT and HEAT at a mutually acceptable time in 2019. CRC will provide the contractor with a list of dates and locations of planned FEAT and HEAT campaigns. The contractor is expected to contact both organizations and find an acceptable time and location where both can set their instruments. FEAT and HEAT should expect to remain at the site for a minimum of 5 days, with at least 3 complete days of useful vehicle data. The contractor will assist in obtaining any permits or permissions required. If one of the two, HEAT or FEAT, is already scheduled to be located somewhere and the second organization can meet there, this would be acceptable to the project panel.

While the contractor is expected to coordinate and assist in the location and planning of this project, the contracts for FEAT and HEAT will be handled separately by CRC.

Since the present project involves some traditionally distinct research areas, such as evaporative, roadside, and PEMS measurements, the respondents to this request for proposal are free to use subcontractors as needed.

Task 1:

A. Evap measurements

Two, or more, test vehicles will be needed, a recent vehicle certified as a PZEV, perhaps a 2016 or 2017 vehicle. This vehicle should not be a HEV or PHEV with a non-integrated evap system. The second vehicle should be older Tier 2, but still within reasonable useful life, perhaps a 2012 or 2013 pickup truck. The CRC project panel will assist in the selection of these vehicles, however, contractor input is requested.

The contractor will also be required to provide a ‘calibration vehicle’ which should be a vehicle with zero tailpipe emissions that can carry calibration gas bottles as cargo. This vehicle is expected to drive through the roadside worksite at least 3 times per day. The actual calibration gases should be discussed with the CRC project panel prior to setup.

Logistically it might be required for the contractor to find space nearby to the roadside to stage vehicles and prepare the various test cases. It seems reasonable that this space would be indoors to protect vehicles and personnel from weather while working.

Each gasoline vehicle should be leak checked by a pressure-decay method to ensure the fuel system is leak-free and functioning properly. OBD codes should also be checked.

Install approximately 40% local market fuel in fuel tank

The following test cases can be completed in any order, though it is suggested to do the properly functioning case first:

- Properly functioning
- Fuel cap off
- Vapor canister disconnected
- Purge valve disconnected
- *Pump module loose on top of tank

*This may be more complicated on certain vehicles without access panels in the backseat. The CRC project panel will decide on this case based on final vehicle selections. Other cases should be fairly easy to access, though heat shields may need to be removed for access to the canister.

The tests consist of running past the HEAT and FEAT roadside location. Drive through measurement location at least 4 times with at least 5 minutes between drives for each case. Project can be structured with 2 drivers to simultaneously drive both vehicles, or a single driver can be utilized, with each vehicle being done in series. Contractor should note the time of each drive for each test case for each vehicle as well as the license plates.

B. PM Measurement Correlation

Current FEAT system does not measure PM mass or particulate number, so the HEAT system must be correlated with some other measurement system.

Contractor will obtain a PM PEMS that has robust capability to measure particle mass and install on one or both of the evap vehicles. Installation can be completed at the same time as the evap measurements if PEMS does not interfere with these test cases. If so, PEMS system can be installed for all evap test cases to produce at least 16 runs for which correlations can be developed. If the PEMS is installed after evap test cases are complete, drive through measurement location at least 4 times with at least 5 minutes between each drive. The same PEMS can be used for both cars or 2 PEMS can be installed at the same time, if budget and resources allow. The contractor must provide the calibration data used to verify PEMS performance.

1. Obtain PEMS unit
2. Install in vehicle(s)
3. Calibrate unit and submit data to CRC
4. Drive vehicle through test site and record PM results (repeat as necessary)
5. When completed, remove PEMS from vehicle and return vehicle to standard

C. PEMS Criteria Pollutant Evaluation

While PEMS is installed in the test vehicles, also measure criteria pollutants during each test run and provide the results to CRC. Perform any necessary calibrations on the PEMS prior to each run. Provide these calibration results to CRC.

D. RSD 'calibration vehicle' setup

Provide a vehicle with zero criteria emissions for a 'calibration vehicle' to be driven through the worksite at least 3 times a day. The CRC project panel will advise on which calibration gases should be used. It is expected that there will be at least 2 gas bottles required so vehicle should have cargo space for these. Note the times of each calibration drive and concentrations of each gas. Also note the license plate of the 'calibration vehicle' for further analysis.

Task 2- Reporting

The contractor will provide CRC with monthly progress reports. Any questions or information needed to make project decisions will be communicated in a timely manner

Final report

The contractor will collect, and analyze the relevant Evap, PM and criteria pollutant data recorded during the test campaign. The test procedures, instrument calibration, and test data will be described in a project final report. This report will be reviewed by CRC and revised as necessary.

The contractor will not be responsible for data collected by HEAT and FEAT, except for the HEAT and FEAT data relevant to the Evap and PM test vehicles run by the contractor. The contractor will request this relevant data from HEAT and FEAT and include it in their final report. This includes a comparison between HEAT, FEAT, and contractor measurements of evaporative emissions, a comparison between HEAT and contractor measured PM emissions, and a comparison between HEAT and FEAT and contractor measurements of the calibration vehicle.

EXHIBIT B

REPORTS

MONTHLY TECHNICAL PROGRESS REPORTS

The contractor shall submit a monthly technical progress report covering work accomplished during each calendar month of the contract performance. An electronic Microsoft® Word compatible file (<1 MB) of the monthly technical progress report shall be distributed by the contractor within ten (10) calendar days after the end of each reporting period. The report shall contain a description of overall progress, plus a separate description for each task or other logical segment of work on which effort was expended during the reporting period.

FINAL REPORT

The contractor shall submit to or distribute for CRC an electronic (Microsoft Word) copy transmittable via email) of a rough draft of a final report within thirty (30) days after completion of the technical effort specified in the contract. The report shall document, in detail, the test program and all of the work performed under the contract. The report shall include tables, graphs, diagrams, curves, sketches, photographs and drawings in sufficient detail to comprehensively explain the test program and results achieved under the contract. The report shall be complete in itself and contain no reference, directly or indirectly, to the monthly report(s).

The draft report must have appropriate editorial review corrections made by the contractor prior to submission to CRC to avoid obvious formatting, grammar, and spelling errors. The report should be written in a formal technical style employing a format that best communicates the work conducted, results observed, and conclusions derived. Standard practice typically calls for a CRC Title Page, Disclaimer Statement, Foreword/Preface, Table of Contents, List of Figures, List of Tables, List of Acronyms and Abbreviations, Executive Summary, Background, Approach (including a full description of all experimental materials and methods), Results, Conclusions, List of References, and Appendices as appropriate for the scope of the study. Reports submitted to CRC shall be written with a degree of skill and care customarily required by professionals engaged in the same trade and /or profession.

Within thirty (30) days after receipt of the approved draft copy of the final report, the contractor shall make the requested changes and deliver to CRC ten (10) hardcopies including a reproducible master copy of the final report. The final report shall also be submitted as electronic copies in a pdf and Microsoft Word file format. The final report may be prepared using the contractor's standard format, acknowledging author and sponsors. An outside CRC cover page will be provided by CRC. The electronic copy will be made available for posting on the CRC website.

EXHIBIT C

INTELLECTUAL PROPERTY RIGHTS

Title to all inventions, improvements, and data, hereinafter, collectively referred to as (“Inventions”), whether or not patentable, resulting from the performance of work under this Agreement shall be assigned to CRC. Contractor X shall promptly disclose to CRC any Invention which is made or conceived by Contractor X, its employees, agents, or representatives, either alone or jointly with others, during the term of this agreement, which result from the performance of work under this agreement, or are a result of confidential information provided to Contractor X by CRC or its Participants. Contractor X agrees to assign to CRC the entire right, title, and interest in and to any and all such Inventions, and to execute and cause its employees or representatives to execute such documents as may be required to file applications and to obtain patents covering such Inventions in CRC’s name or in the name of CRC’s Participants or nominees. At CRC’s expense, Contractor X shall provide reasonable assistance to CRC or its designee in obtaining patents on such Inventions.

To the extent that a CRC member makes available any of its intellectual property (including but not limited to patents, patent applications, copyrighted material, trade secrets, or trademarks) to Contractor X, Contractor X shall have only a limited license to such intellectual property for the sole purpose of performing work pursuant to this Agreement and shall have no other right or license, express or implied, or by estoppel. To the extent a CRC member contributes materials, tangible items, or information for use in the project, Contractor X acknowledges that it obtains only the right to use the materials, items, or information supplied for the purposes of performing the work provided for in this Agreement, and obtains no rights to copy, distribute, disclose, make, use, sell or offer to sell such materials or items outside of the performance of this Agreement.

EXHIBIT D

LIABILITY

It is agreed and understood that _____ is acting as an independent contractor in the performance of any and all work hereunder and, as such, has control over the performance of such work. _____ agrees to indemnify and defend CRC from and against any and all liabilities, claims, and expenses incident thereto (including, for example, reasonable attorneys' fees) which CRC may hereafter incur, become responsible for or pay out as a result of death or bodily injury to any person or destruction or damage to any property, caused, in whole or in part, by _____'s performance of, or failure to perform, the work hereunder or any other act of omission in connection therewith.

EXHIBIT E

PROPOSAL EVALUATION CRITERIA

- 1) Merits of proposed technical approach.
- 2) Previous performance on related research studies.
- 3) Personnel available for proposed study – related experience.
- 4) Timeliness of study completion.
- 5) Cost.