San Joaquin Valleywide Air Pollution
STUDY AGENCY

Funding air quality research in Central California

REQUEST FOR PROPOSAL
for
CORROBORATIVE & WEIGHT-OF-EVIDENCE DEVELOPMENT AND ANALYSES

Prepared by the Staff of San Joaquin Valley Unified Air Pollution Control District

Authorized by the Policy Committee of the San Joaquin Valleywide Air Pollution Study Agency

Funded by the Central California Ozone Study
under the authority of the San Joaquin Valleywide Air Pollution Study Agency

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Submittal: Proposals must be received at the address below on or before **Monday, September 12, 2011, 5:00 PM**

Proposals received after the date and time stated above will not be accepted.

Submissions must include:
- two (2) signed copies of Proposal delivered by mail or messenger to establish official receipt;
- one (1) unbound master suitable for black and white reproduction; and
- one (1) electronic copy (CD-ROM) of all submittal documents in Word or PDF format.

Address Submissions to:
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Fresno, CA 93726-0244

Mark Envelope: "PROPOSAL: Corroborative & Weight-of-Evidence"

RFP Issuance Date: August 11, 2011

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TABLE OF CONTENTS

PROJECT ABSTRACT **3**

1. BACKGROUND **3**

2. PROJECT PURPOSE **4**

2.1 TECHNICAL DISCUSSION OF PURPOSE 5

3. PROJECT DESCRIPTION **6**

3.1 OBJECTIVE 6
3.2 TASKS/SCOPE 7
3.3 WORK PRODUCTS/DELIVERABLES 11
3.4 UTILIZATION OF RESULTS 14

4. PROJECT SCHEDULE **15**

5. BUDGET **15**

6. REQUIRED QUALIFICATIONS **16**

6.1 EXCLUDED PARTIES LIST SYSTEM (EPLS) 17
6.2 COMPLIANCE WITH FEDERAL AND STATE REQUIREMENTS 17

7. PROJECT DIRECTION **18**

7.1. MANAGEMENT 18
7.2. SUBMITTAL OF RESULTS 18

8. CONTENTS OF PROPOSALS **18**

9. SUBMISSION OF PROPOSAL **21**

10. PROCESS **22**

10.1. ADDENDA AND SUPPLEMENTS TO THE RFP 22
10.2. EVALUATION CRITERIA FOR QUALIFICATION FOR RESPONDENTS 22
10.3. CONTRACT NEGOTIATION AND APPROVAL 23

11. INSURANCE **23**

12. DATA OWNERSHIP AND PUBLICATION **24**

13. CONFIDENTIAL INFORMATION **24**

14. REFERENCES **24**

ATTACHMENT A **26**

ATTACHMENT B **27**

ATTACHMENT C **28**

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PROJECT ABSTRACT

The Central California Ozone Study Technical Committee of the San Joaquin Valleywide Air Pollution Study Agency (Study Agency) is issuing this Request for Proposal (RFP) to fund development of additional weight of evidence and corroborative analysis techniques to support future year ozone attainment predictions. This product is to be used to mitigate uncertainty of photochemical grid modeling projections and augment and/or supplant weight of evidence methodologies recommended by EPA. Although some modeling techniques may be appropriate, ***this project is not intended to be a model evaluation project***. Since contractor selection will be based in part on the potential value of proposed methods, proposers are encouraged to adequately recommend and defend proposed techniques in submitted proposals. The contractor will be expected to complete this project by May 2012, with a budget determined by competitive bidding for no more than $130,000.

1. BACKGROUND

The San Joaquin Valleywide Air Pollution Study Agency, a joint powers agency that coordinates scientific research on air quality issues in Central California, is the sponsor of this project. The Study Agency's decision-making body is a Governing Board consisting of one supervisor from each of the eight counties in the San Joaquin Valley. The mission of the Study Agency is guided by policy and technical committees of state, federal, and district air agency staff, and public- and private-sector stakeholders. Its projects are typically carried out by contractors who are coordinated and managed by the staff of the California Air Resources Board (ARB) and San Joaquin Valley Air Pollution Control District (SJVAPCD). This project will be conducted by a contractor engaged by the Study Agency and guided by the appointed Study Agency Project Manager who reports to the Study Agency and consults with its Technical Committee members.

This project is part of the Central California Ozone Study (CCOS) and is made possible with federal funding. CCOS is a large-scale program involving many sponsors and participants. Three entities are involved in the overall management of CCOS. First, the San Joaquin Valleywide Air Pollution Study Agency directs the fund-raising and contracting aspects of CCOS. Second, the Study Agency's Policy Committee provides guidance on the objectives and funding levels of Study Agency projects; approves the selection of proposals and final budget for projects, approves preparation of an agreement with the selected contractor, and approves release of final reports. Third, the Study Agency's Technical Committee develops RFPs to select contractors for projects authorized by the Policy committee, provides overall technical guidance and

direction during progress of work, and reviews all technical reports, papers and presentations produced from the study. ARB staff provides coordination for Policy Committee actions, appoints Chairs for the Technical Committees, and provides program management for the approval of project invoices during the conduct of work. SJVAPCD staff provides assistance with the coordination of the Study Agency Governing Board actions as well as legal and financial management.

2. PROJECT PURPOSE

The Technical Committee of the San Joaquin Valleywide Air Pollution Study Agency (Study Agency) is issuing this Request for Proposal (RFP) to fund development of additional weight of evidence and corroborative analysis techniques to support future year ozone attainment predictions. This product is to be used to mitigate uncertainty of photochemical grid modeling projections and augment and/or replace weight of evidence methodologies recommended by EPA in *Guidance on the Use of Models and Other Analyses for Demonstrating Attainment of Air Quality Goals for Ozone, PM2.5, and Regional Haze (2007)*. The project will evaluate one or more alternative analysis or modeling techniques to be used by decision makers for assessing future year air quality projections in Central California.

The purpose of the project is to identify and evaluate promising innovative methods which can be used to reduce uncertainty in ozone attainment strategies. **Due to funding restrictions this project must be completed by May 2012 therefore, the methods explored must be able to be taken from concept to testing phase within the allowed schedule.**

The analysis approaches should be sufficiently rigorous for potential use in corroborating air monitoring data analysis and trends projections and photochemical modeling results. Proposed corroborative analysis approaches should make appropriate use of the extensive ambient air quality and meteorological data from the CCOS and other recent field measurement studies in Central California. There is also a need to examine how the results of this study can be effectively combined with already existing information (such as the findings from CCOS data analyses and other projects) to increase the confidence in CCOS photochemical modeling results. Extra value would be provided if the method is able to assess the effectiveness of VOC and NOx emission controls in reducing future 1-hour and 8-hour ozone concentrations in the study area or provide additional policy relevant information not provided by current methods such as determination of the amount of regional/local influence of sources.

The product is to be used for substantiation of conclusions drawn from current methods of air monitoring data/trend analysis and regional photochemical modeling projections and/or to provide findings of value to policy makers that the current methods do not provide. Recommendations and improved modeling techniques developed from this project may be used in policy decisions for future ozone implementation plans.

2.1 Technical Discussion of Purpose

The purpose of this project is to develop new methods for evaluating attainment strategies in Central and Northern California. EPA's *Guidance on the Use of Models and Other Analyses for Demonstrating Attainment of Air Quality Goals for Ozone, PM2.5, and Regional Haze (2007)* recommends that the uncertainty of photochemical grid modeling projections be mitigated through additional analyses and techniques. These additional evaluations are intended to increase confidence in attainment predictions through increasing weight of evidence.

A variety of weight of evidence techniques have been proposed by EPA and others for mitigating uncertainty. These methods range from grid model sensitivity analysis to trend analysis to hybrid methods. Although certain modeling analysis techniques may be appropriate, ***this project is not intended to be a model evaluation project***. To avoid being a model evaluation project, it is anticipated that this project will focus on observation-based techniques. Other analysis methods will be considered if they satisfy the goal of establishing attainment targets and inferring important relationships between ozone, precursors, and the sources of these precursors.

A variety of observation-based methods have been developed to infer important relationships between ozone, precursors, and the sources of these precursors. These methods are driven principally by observed data as opposed to air quality simulation models that are driven by meteorology and emission inventories. Observation-based methods include receptor models, regression and transport characterization techniques, ambient pollutant ratios, multivariate trend analysis, indicator species, satellite remote sensing and methods that combine observational data with analytical modeling methods. Observation-based methods are used to assess emission inventories, infer the effects of VOC and/or NOx controls on observed ozone concentrations, and to assess the contribution of transport of ozone and its precursors to ozone exceedances in downwind areas. These methods are expected to provide an independent evaluation of the accuracy of emission-based model predictions.

In August of 2005, the CCOS Technical Committee (TC) sponsored a workshop to discuss alternative methodologies for corroborating photochemical modeling results developed to support State Implementation Plan (SIP) updates for Central and Northern California. The workshop was intended to promote the free exchange of information between those engaged in the development and application of corroborative analysis approaches and those responsible for performing and assessing SIP modeling studies in Central and Northern California. The presentations given at this workshop may be viewed at http://www.arb.ca.gov/airways/ccos/pages/TCmeetings.htm. This conference discussed a variety of observation-based methods and model enhancement approaches.

Various reviews of observation-based methods have been published in the peer-reviewed literature. Of particular note is a three-part series of papers that discuss the use of observation-based methods in developing ozone process insights from field

measurement programs. Hidy (2000) provides an overview of selected approaches recently adopted to analyze observations from field experiments that characterize the tropospheric physics and chemistry of ozone and related oxidation products. Kleinman (2000) discusses techniques based on whether predicted quantities pertain to the present state of an air parcel or its history. Blanchard (2000) examines a quantity known as the extent of reaction, which is an indicator of the sensitivity of instantaneous ozone production to changes in VOC or NOx concentrations. Trainer et al. (2000) discuss approaches applied by the NOAA Aeronomy Laboratory to determine the rate and amount of ozone that is photochemically produced in the atmosphere by ozone precursors of both anthropogenic and natural origin. A critical review of observation-based methods was conducted by Sillman and He (2002). A subsequent paper by Liang, Jackson and Kaduwela (2006) discusses criteria for evaluating indicator ratios and presents an assessment of their possible regulatory utility in determining VOC- and NOx-limited conditions in various areas of Central California. This paper also includes a comprehensive list of references to previous investigations of indicator ratios and related methods.

Ambient VOC source apportionment techniques in Central California were evaluated by Fujita, Snorradottir, and Campbell (2005) as part of CCOS Contract 01-03 *Advanced Data Analysis for the Central California Ozone Study (CCOS).* Chemical Mass Balance (CMB) incorporated Photochemical Assessment Monitoring Station (PAMS) VOC data to evaluate source contributions. Since VOC samples for most of the sites were highly aged, a more limited set of unreactive fitting species was used in CMB calculations, limiting the extent to which sources could be apportioned. Model performance was fair to poor and substantial collinearity occurred between gasoline exhaust and evaporative emissions and diesel exhaust.

Innovative proposals will be considered, even if they recommend refined implementation of previously used methods or methods that have not previously been attempted. If the method has not been previously attempted, proof that the new concept is of a scope that can be taken from developmental to demonstration in the allowed schedule will be expected. Innovative approaches may use either a top down or bottom up strategy.

3. PROJECT DESCRIPTION

3.1 Objective

The objective of this project is to propose and demonstrate new alternative methodology(ies) for weight of evidence evaluation to support State Implementation Plan (SIP) updates for Central and Northern California. The proposed methods should not duplicate existing approaches of air monitoring data analysis and regional photochemical modeling. The new methodology(ies) are to provide corroborative analysis and/or produce additional findings of value for decision makers to provide support for SIP development. The desired benefits of the new tool are to provide

additional confidence in future year projections of the benefits of emission changes and/or provide additional evaluation of the effectiveness of VOC and NOx control measures and/or provide assessment of the local/regional influences of emissions.

3.2 Tasks/Scope

This project consists of three tasks and the preparation of a Final Report:

1. **CONCEPT ASSESSMENT:** Conduct a preliminary evaluation of the proposed method(s) to determine the practicality of implementation and provide a recommendation to the Study Agency Project Manager for continuing development. Compare the proposed method to EPA recommended and commonly used weight of evidence and corroborative analysis techniques.

2. **DEVELOPMENT AND TESTING:** Upon approval by the Study Agency Project Manager, develop the proposed methodology, prepare a test case (subset approved by Study Agency Project Manager or entire CCOS domain) and evaluate the draft methodology, provide results and recommendations for modifications to the Study Agency Project Manager for discussion with the Technical Committee, receive recommendations from Study Agency Project Manager and Technical Committee along with approval/disapproval of recommended revisions.

3. **DELIVERY OF PRODUCT AND DOCUMENTATION:** If Task 2 review identifies refinements, finalize the methodology and prepare a final test and evaluation. Prepare final documentation of the methodology and any computer codes developed to implement the project, and deliver the final set of codes and methodology documentation to the Study Agency Project Manager.

4. **REPORTS:** Prepare a draft final report for review by the Study Agency Project Manager and Technical Committee. Based upon comments received, prepare the final report.

Once the program of work has been agreed to and initiated, the contractor must seek approval of the Study Agency Project Manager prior to recommending or implementing any changes to the proposed project. During conduct of the project, additional data collection by the contractor beyond the specified program of work must remain within the authorized budget.

Supplemental data collection or measurement programs are not anticipated to be included as products required under this agreement. Additional efforts of any type not specified as a work product for this agreement will only be authorized by the Study Agency Project Manager for conduct by the contractor if these additional tasks are within the approved project budget and do not impair completion of other assigned tasks.

Task 1: ***Concept Assessment***

Conduct a preliminary practical assessment of the approach or combination of approaches contained in the proposal. The proposal may call for development of one or more innovative approaches with an expectation that preliminary testing may be required to assess the practicality of implementing the proposed approach(es). Preliminary assessment is required to establish the practical limitations for proceeding to development and testing of the proposed approach. Task 1 should result in a brief analysis and recommendation paper to be presented to the Study Agency Project Manager for review and approval to proceed with further development and testing. Additionally, Task 1 should include a description of how this method is anticipated to compare with EPA recommended and commonly used approaches.

The proposal should specify how the preliminary evaluation for Task1 will be conducted and the timeline for completion of this phase. The extent of this task will depend on the current state of development of the proposed approach. If the proposed approach has not been developed beyond a conceptual stage, Task1 may involve substantial literature search and preliminary testing or calculations prior to development of a recommendation paper. If the approach is already partially developed, the recommendation paper may be prepared directly or after minimal additional preliminary testing. The paper may recommend modifications to the proposed approach; however, such modification must remain within the approved budget. Modification of the proposed approach must continue to be focused on providing maximum benefit by supporting the requirement to develop an additional method of analysis to strengthen weight of evidence evaluation for future year ozone predictions and provide corroborative analysis and/or produce additional findings of value for decision makers to provide support for SIP development.

If more than one option is contained in the proposal, the preliminary assessment and recommendation paper should determine which subset of methods are most likely to be practical for development and testing in the time allowed by the schedule for this project. Selection of the subset or single option for final development must continue to be focused on providing maximum benefit by supporting the requirement to develop an additional method of analysis to strengthen weight of evidence evaluation for future year ozone predictions and provide corroborative analysis and/or produce additional findings of value for decision makers to provide support for SIP development.

The results of this task shall be provided as a technical paper for review and discussion by the Study Agency Project Manager and Technical Committee. The Study Agency Project Manager will approve any recommended modifications that arise from this discussion. Contractor and Study Agency Project Manager must establish agreement through cost evaluation and discussion that recommended modifications, if any, remain within the approved budget. The Study Agency Project Manager will provide the approval to proceed with further development and testing as required for Task2.

Criteria for Task 1:

- Due to funding restrictions the project must be completed by May 2012. Therefore, the proposed approach(es) must be able to be taken from concept to testing phase within the allowed schedule.

- The proposed approach(es) should be procedures that can be implemented with a reasonable level of staff resources and obtainable data. This is essential to meet the intent of this project to provide methodology documents for use by member agencies. While innovation and new approaches are encouraged, the method(s) should not be an esoteric exercise or one that requires great expense to acquire data or conduct the processing. When developing the method(s), the contractor should make every effort to use inputs that are widely and freely available.

Task 2: ***Development and Testing***

Upon approval, develop the proposed methodology, prepare a test case and conduct evaluation of the draft methodology. The contractor will include calculations in the form of a case study for a representative area within the CCOS domain. The methodology should be tested using either the entire CCOS domain or a subset of the domain suitable for test of the methodology. Selection of a subset domain must be approved by Study Agency Project Manager. Results of the test case should be analyzed by the contractor and be developed into a technical paper and presentation for communication to the Study Agency Project Manager and Technical Committee. A successful case study will demonstrate the ability to analyze ozone formation or formation potential and provide information of value for the selected area. Value is shown by meeting the objective to support weight of evidence evaluation for future year ozone predictions and provide corroborative analysis and/or produce additional findings of value for decision makers to provide support for SIP development.

The contractor shall receive recommendations from Study Agency Project Manager and Technical Committee in response to the technical paper and presentation. If the contractor's analysis identifies deficiencies or limitations in the approach which require further evaluation or effort, these findings should be included in the technical paper for consideration and approval of additional effort. Additional modification of the approach to implement changes recommended by the Study Agency Project Manager or contractor must remain within the authorized budget for the project.

In addition to the technical paper and presentation, the contractor shall provide to the Study Agency Project Manager all spreadsheets or databases with necessary data and equations and calculated emissions used for the case study. The format of the spreadsheets or database is dependent on the methodology. The contractor should use good spreadsheet or database design principles and techniques in developing the spreadsheets or databases. Modeling code, if used, shall be versions approved by

ARB and acceptable to the Study Agency Project Manager. Any new code written by the contractor must be provided to the Study Agency for future use without restriction other than identification of copyright and authorship.

Criteria for Task 2:

- Analysis approaches should be sufficiently rigorous for potential use in corroborating the results of the proposed approach to air monitoring data analysis and trends projections and photochemical modeling results.
- Proposed corroborative analysis approaches should make appropriate use of the extensive ambient air quality and meteorological data from CCOS and other recent field measurement programs.
- Methods and assumptions should be appropriate for the Central California CCOS domain.
- Extra value would be provided if the method is able to assess the effectiveness of VOC and NOx emission controls in reducing future 1- and 8-hour ozone concentrations in the study area or provide additional policy relevant information not provided by current methods such as determination of the amount of regional/local influence of sources.

Task 3: ***Delivery of Product and Documentation***

Make refinements and conduct final evaluation of the method(s) if the review conducted in Task 2 identifies this as a requirement.

Prepare final documentation of the method(s) and any spreadsheets, databases or computer codes developed to implement the project, and deliver the final set of codes and documentation to the Study Agency Project Manager. Modeling code, if used, shall be versions approved by ARB and acceptable to the Study Agency Project Manager. Any new code written by the contractor must be provided to the Study Agency for future use without restriction other than identification of copyright and authorship. Final analysis files and model output files will also be provided as a product of this task.

The contractor will provide a brief technical paper to document the recommended assumptions and processes suitable for the CCOS domain and discuss the policy implications of this approach in comparison to air monitoring data analysis and regional photochemical modeling. The contractor may receive recommendations from Study Agency Project Manager in response to the technical paper and shall discuss and resolve any deficiencies. Approval of this work product will authorize completion of a final report to document all phases of the project.

Task 4: ***Reports***

After the Study Agency has approved all work for prior tasks, the contractor will provide a draft final report for review by the Study Agency Project Manager and Technical Committee. This report will bring components of all other tasks together to describe a recommended corroborative analysis framework for consideration in policy making decisions. This report will describe the project approach and present the results. The report shall present the following:

- An executive summary which will contain an abstract of the project and a summary of key findings.
- Discussion of the findings and products of Tasks 1, 2 and 3, including the recommended methodology and a summary of the case study results.
- Comparison of this method(s) to EPA recommended and other commonly used techniques.
- Supporting technical documents and calculations shall be included with the report as appendices. Files too large to be included as text documents shall be provided in electronic format as specified by the Study Agency Project Manager.

After the contractor submits the Draft Final Report, the Study Agency Project Manager will provide comments to the contractor. The contractor shall comply with the Study Agency Project Manager's requests for supplemental documentation and clarifications in the report and address the Study Agency Project Manager's comments. The contractor will provide the Final Report within 45 days after receipt of the Study Agency Project Manager's comments. The Final Report must be complete in providing documentation and results for all required objectives. The Study Agency requires that the technical writing be adequate to clearly explain the processes used to carry out the project. Multiple revisions may be required if the Final Report is not written to the satisfaction of the Study Agency.

3.3 Work Products/Deliverables

Initial Conference Call: At the start of the contract period, the contractor will meet with the Study Agency Project Manager via telephone or in person to discuss the overall plan, details of performing the tasks, the project schedule, items related to personnel or changes in personnel, and any issues that should be resolved before work can begin. The Study Agency Project Manager may include key personnel of the Technical or Policy Committees in this discussion as needed.

Progress Reports: The contractor will provide brief, written progress reports to the Study Agency Project Manager every month and participate in conference calls to discuss the progress reports.

Progress reports shall include:

- Current status of work products and deliverables.
- Evidence or submittal of items deemed to be complete.
- A budget status summary indicating the percentage expended on major elements and explanation for any items that are not in conformance with the submitted project budget. Note: Provisions of Study Agency agreements allow some reallocation of funding resources during conduct of the project; however, exceeding the total budget is not authorized.
- A review of the project timeline and justification for any requested revisions to intermediate progress dates.
- Action items for which the contractor desires direction or approval.

When requested by the Study Agency Project Manager, the contractor shall meet with the Study Agency Project Manager via telephone to discuss the overall plan, details of task progress, or concerns regarding compliance with required performance objectives or timelines. The Study Agency Project Manager will notify the contractor in advance of any special topics so contractor may assemble key staff or information to respond. Contractor shall involve in this discussion key project personnel or subcontractors necessary to provide details of task progress. The day before the conference call, the contractor shall email the Study Agency Project Manager the progress report and any presentation material necessary for the meeting.

The Study Agency may request other interim deliverables. Based on progress reports and preliminary results, the Study Agency may provide direction to contractor to delete or amend objectives and deliverables. Deletion of tasks or deliverables is fully within the authority of the Study Agency; however, contractor will be compensated for work already completed on curtailed tasks. The contractor and Program Manager must ensure that any amended deliverables are within the authorized budget for the project. Any extra effort directed by the Study Agency that does not fall within the authorized budget requires formal amendment to the agreement. If the Study Agency determines a need for additional tasks or services not included in the proposal, the contract may be amended by agreement of both parties to include additional tasks and related costs.

Electronic Data Submittal: The contractor shall provide reports and data to the Study Agency in a format specified by the Study Agency using Microsoft Office Professional software (Word, Excel or Access) and shall provide draft and final computer code, supporting data, and input files if applicable in formats agreed upon by the contractor and Study Agency Project Manager. Supporting files or additional final products such as databases, model input files or related technical data shall be delivered in the format specified by the Study Agency Project Manager.

Deliverables: The contractor shall deliver an electronic copy for each of the following:

- **Task 1:** Technical paper with recommendations submitted to the Program Manager for approval.
- **Task 2**: Presentation and technical paper of test case results, including suitable spreadsheet, database or modeling output for discussion with the Study Agency Project Manager and Technical Committee.
- **Task 3**: Final test and evaluation files if applicable. Methodology documentation and any spreadsheets, databases or computer codes developed to implement the project.
- **Task 4**: Comprehensive draft final report for review by the Study Agency Project Manager and Technical Committee and final report responsive to requests for additional documentation or clarification.

The Study Agency requires that the technical writing of all final products be adequate to clearly explain the processes used to carry out the project. Multiple document revisions may be required if reports are not written to the satisfaction of the Study Agency.

Draft and Final Report: The contractor shall deliver an electronic copy of the draft and final reports in Microsoft Word to the Study Agency Project Manager for review by the Study Agency Committees. The Study Agency requires that the technical writing be adequate to clearly explain the processes used to carry out the project. Multiple document revisions may be required if reports are not written to the satisfaction of the Study Agency. The contractor is expected to comply with requests for supplemental documentation and clarification of discussion in the draft report. The report must be complete in providing documentation and results for all required objectives. The contractor will be expected to provide revisions in the final report within 15 days after receipt of the Study Agency Project Manager's comments. General standards for completeness of the final report include:

- The executive summary of the final report shall include a summary of the key findings.
- The report shall present all methodologies, calculations, and assumptions critical to the development of conclusions.
- Modeling source code documentation shall include information such as the algorithms, assumptions, calculations, externally written source code utilized, and other support data if used.
- Calculations utilized to complete each task, and utilized within the modeling source code, shall be completely documented and referenced.
- Supporting technical documents and calculations shall be included with the report as appendices or may be cited as references if publically published and available for free electronic download.
- The report shall also include a bibliography of data sources referenced or used to support the evaluation and completion of each task. The Study Agency may request that a copy of these reference documents accompany the final report in order to provide complete documentation of the report unless these documents are

publically published and available for free electronic download in which case an internet address should be included along with the bibliography citation.

Copies of Final Report: Upon approval of the final report by the Study Agency, the contractor shall deliver to the Study Agency five bound copies and one unbound reproduction master copy of the report incorporating all final alterations, additions and appendices. The contractor shall also deliver an electronic copy of the final report produced in Microsoft Office Professional.

Invoices: The contractor will be paid for each deliverable when the Study Agency deems that the invoice and deliverable satisfy the applicable requirements of the contract. Ten percent (10%) of each invoice payment will be withheld until all work is complete and approved by the Study Agency. The total of payments shall be separated into 5 invoices:

- Invoice One should reflect costs for Task 1 and be submitted with the technical paper with recommendations of Task 1
- Invoice Two should reflect costs for Task 2 and be submitted after presentation of the results for Task 2
- Invoice Three should reflect costs for Task 3 and be submitted at the time of delivery of methodology and computer codes
- Invoice Four should reflect costs for Task 4 and be submitted with the final report
- Invoice Five should reflect the sum of 10% retentions withheld for previous invoices and should be submitted after approval of the final report

The contractor shall submit invoices in triplicate. The invoices shall be included with the final reports. The invoices must list the contract number.

Additional tasks performed by the contractor or its subcontractors to develop supporting information or analysis, which were not specified in the proposal, will not be reimbursed without prior written approval from the Study Agency. Unapproved additional tasks are not reimbursable.

3.4 Utilization of Results

The results of the “Corroborative & Weight-Of-Evidence Development and Analyses” project as described above would help provide an additional tool for consideration in the weight of evidence determination for ozone attainment planning. An additional tool of this type will support further efforts to reduce the uncertainty associated with projection of future ozone concentrations. The research may help the participating air districts determine the effectiveness of proposed actions and provide the public with additional scientific assurance regarding the soundness and effectiveness of proposed efforts.

The Proposer should consider the intended end-use of the results and provide data suitable for this purpose. Proposer is not authorized to establish restrictions on the release or use of final products by the Study Agency.

4. PROJECT SCHEDULE

The Study Agency intends for the project to be completed according to the following schedule of deliverables (the Study Agency may agree to a different schedule which would be specified in the contract). Payments must correspond with the submission of final reports. Progress reports and conference calls are not included in Table 2.

Table 1: Project Schedule and Deliverables

Action/Work Product	**Approximate Date**
Release of RFP	August 11, 2011
Deadline for Proposal	September 12, 2011
Contractor Selection	September 2011
Contract Development	September 2011
Contract Approval	October 20, 2011
Deadline for Task 1	Timeline to be recommended in proposal and be approved by Study Agency Project Manager
Deadline for Task 2	Timeline to be recommended in proposal and be approved by Study Agency Project Manager
Deadline for Task 3	Timeline to be recommended in proposal and be approved by Study Agency Project Manager
Deadline for Draft Report	March 2011
Deadline for Final Report	April 2012
Report Presentation	May 2012

5. BUDGET

Costs will be a factor in evaluating proposals responding to this RFP. Proposers are directed to provide task-related costs in their proposal budget summary rather than a lump sum amount. Proposals will be evaluated both by comparison of cost for comparable tasks as well as projected total cost. The Study Agency's review committee is authorized to consider the comprehensiveness of proposed efforts as well as total proposed cost to provide reasonable comparisons of the proposals. All evaluation criteria are described in Section 10.2.

The Study Agency's budget for this project is $130,000. The budgeted amount is available to the contractor for research, analysis, coordination, teleconferences,

meetings, report writing, subcontractors, and all other efforts undertaken by the contractor for this project.

The Proposer's costs must be itemized by the following categories:

Task: List a total cost per task. The Study Agency reserves the right to remove tasks as deemed necessary to remain within budget.

Labor: List an hourly labor rate for each assigned principal and technical specialist. The rate quoted must include labor, general, administrative, and overhead costs.

Subcontractor Costs: Identify subcontractors by name, list their cost per hour or per day, and the number of hours or days their services will be used.

Travel Costs: Identify estimated travel costs, including the number of trips required, destinations, and approximate costs of travel. Travel costs are reimbursed at prevailing rates for the contracting company or rates approved by the Study Agency, whichever is lower, unless negotiated otherwise.

Miscellaneous Costs: If any.

Total cost must be clearly indicated in the Costs of Proposal section of the proposal.

It is expected that general overhead and administrative costs are included in the hourly rate for labor. It will be assumed that all contingencies and/or anticipated escalations are included. No additional funds will be paid above and beyond the contracted amount for the services specified in the proposal. If the Study Agency determines a need for additional tasks or services not included in the proposal, the contract may be amended by agreement of both parties to include additional tasks and related costs.

6. REQUIRED QUALIFICATIONS

To be selected, a Proposer must have demonstrated extensive experience and expertise in the following areas:

- Skill in performing the types of technical tasks required for completion of this project;
- Excellent working relationships with government agencies;
- Skill in preparing clear reports; and
- Excellent technical writing skills.

To be selected, the Proposer must also demonstrate the ability and resources to produce the deliverables requested in this RFP. The Study Agency reserves the right to reject any proposal deemed non-responsive to the RFP, not responsible, and/or not reasonable.

6.1 Excluded Parties List System (EPLS)

A Proposer or any individual identified in the proposal that appears in the Excluded Parties List System (EPLS) is not eligible for award of a contract. The EPLS is a central registry that contains information regarding entities debarred, suspended, proposed for debarment, excluded, or otherwise declared ineligible from receiving Federal contracts. Access to the EPLS is available at www.epls.gov.

The Proposer certifies by signing the signature page of the original copy of the submitted proposal and any amendment signature page(s) that the Proposer is not presently debarred, suspended, proposed for debarment, declared ineligible, voluntarily excluded from participation, or otherwise excluded from or ineligible for participation under federal assistance programs. The Proposer should complete and return the attached certification regarding debarment, etc., i.e. Exhibit A, with their bid. This document must be satisfactorily completed prior to award of the contract.

6.2 Compliance with Federal and State Requirements

The selected contractor shall comply with applicable federal requirements including but not limited to Office of Management and Budget Circular No. A-87 (Cost Principles for State, Local, and Indian Tribal Governments) and Circular No. A-102 (Grants and Cooperative Agreements With State and Local Governments), and Circular No. A-133 (Audits of States, Local Governments, and Non-Profit Organizations).

California Government Code Section 1090 generally prohibits a public official from being financially interested in a contract which he or she has made or participated in an official capacity. Under certain circumstances, persons who perform work pursuant to a contract with a government agency may be subject to the restrictions of Government Code Section 1090. With respect to the CCOS, this means that based on participation in the planning of the project, certain consultants are precluded from participating in all or some of the post-planning contracts. This preclusion would apply to a contractor as either a prime contractor or a subcontractor. In most cases, whether a particular contractor is eligible to bid will depend on an analysis of all of the circumstances surrounding the contractor's earlier participation in the CCOS and the work that that contractor now proposes to perform. Any response to this RFP which includes a paid participant who is ineligible based on Government Code Section 1090 will be rejected during the review of the proposals.

Questions concerning the eligibility of a potential contractor must be directed to the Study Agency attorney at the address provided below prior to the preparation of a proposal.

General Counsel
San Joaquin Valleywide Air Pollution Study Agency
San Joaquin Valley Air Pollution Control District
1990 East Gettysburg Avenue
Fresno, CA 93726

7. PROJECT DIRECTION

7.1. Management

The contractor selected to conduct this work shall report to the Study Agency Project Manager, who will be identified in the contract. For the purposes of this project, the staff of the SJVAPCD will write and monitor contracts with the participants and will be the primary interface between the contractor, the Policy and Technical Committees, and the Study Agency. The contractor must not begin work on the project until a contract is fully approved by the San Joaquin Valleywide Air Pollution Study Agency.

7.2. Submittal of Results

All completed files or reports shall be released by the contractor to the Study Agency Project Manager for distribution and review by the Study Agency. The Study Agency may review any of the results in whole or in part and submit comments or questions to the contractor through the Study Agency Project Manager. The contractor shall perform any additional work needed to address issues raised by this process for the items authorized by the Study Agency Project Manager unless such effort would exceed the authorized budget. Any extra effort directed by the Study Agency that does not fall within the authorized budget requires formal amendment to the agreement. If the Study Agency determines a need for additional tasks or services not included in the proposal, the contract may be amended by agreement of both parties to include additional tasks and related costs.

8. CONTENTS OF PROPOSALS

Proposals must be signed by a duly authorized official of the responder and must state that the proposal is valid for a period of not less than ninety (90) days from the date of submittal. The Proposer's name and address as used in contractual agreements should be provided. The name, address, title, telephone number, fax number and email address of the person(s) authorized to execute agreements and the person(s) acting as principal for the work conducted in the proposal should be provided.

Information in the proposals shall become public property subject to disclosure under the Public Records Act. Proposals should convey a maximum of technical content related to the relevant task with a minimum of extraneous material. Proposals should convey a high degree of technical understanding and innovation while demonstrating

the ability to present complex scientific results to decision-makers. The proposal should be clear and concise. The response to the RFP is expected to be brief, with text of the proposed approach to completing the tasks limited to less than 30 pages, not inclusive of qualification information (e.g. attached resumes, etc.), budget summary table and timeline.

Submitted proposals must follow the format outlined below and all requested information must be supplied. The submitted proposal shall be limited to 30 pages, single-sided or 15 pages, double sided, with 1-inch margins. Proposal shall be printed on white paper and the font shall be black Arial and no smaller than 12 point. Failure to submit proposals in the required format may result in elimination from proposal evaluation.

Cover Letter - Must include the name, address, and telephone number of the Proposer's company, total cost, the name of the contact person for the proposal, and be signed by the person or persons authorized to represent the firm.

Table of Contents - Clearly identify material contained in the proposal by section and page number.

Summary (Section I) - State the overall approach to the analysis and objective(s). Demonstrate a clear understanding of the analysis goal. Include total project cost. Provide specific examples of steps to be taken to complete the analysis, as well as measures to assure repeatability, reliability and applicability of analysis.

Work Program (Section II) - Include the approach to completing tasks identified in Section 3 of this RFP. Describe work activities or tasks to be performed including the sequence of activities and a description of methodology or techniques to be used. Proposer may include suggestions of any missing tasks to add for fulfillment of Section 3 objectives.

Program Schedule (Section III) - Provide projected milestones or benchmarks for major products/reports within the total time allowed. This proposed schedule may include flexibility reflecting the investigative nature of the project. Include information on the availability of the Proposer and proposed subcontractors during the proposed term. Indicate and explain or justify adjustments to the schedule anticipated by or proposed by respondent.

Project Organization (Section IV) - Describe the proposed management structure, organization of the contracting group, and facilities available.

Assigned Personnel (Section V) - Identify the principals having primary responsibility for conducting the analysis. Discuss their professional and academic backgrounds. Provide a summary of similar work they have previously performed. List the amount of time, on a continuous basis, that each principal will spend on this project. Describe the responsibilities and capacity of the technical personnel involved. Substitution of the

project manager and/or lead personnel shall not be permitted without prior written approval of the Study Agency Project Manager.

Study Agency and District Resources (Section VI) - Describe any Study Agency or District services and staff resources needed to supplement contractor activities to achieve identified objectives.

Subcontractors (Section VII) - If subcontractors are to be used, identify each of them in the proposal. Describe the work to be performed by them and the number of hours or the percentage of time they will devote to the project. Provide a list of their assigned staff, their qualifications, and their relationship to project management, schedule, costs and hourly rates.

Costs of Proposal (Section VIII) - Identify all costs associated with the execution of this RFP and any additional identified tasks. The proposed payment for each deliverable identified in Table 1 should be provided, as well as hourly billing rates and amount of time for each staff member that will be a part of this project. Any additional services that may be necessary to complete additional processing identified by the investigative tasks, if authorized for completion by the Study Agency Project Manager, should be clearly stated and identified by an hourly billing rate. Also, attach a Proposal Budget Summary Table similar to Attachment B of this RFP, which includes task costs, overhead, travel, and other administrative costs.

Contractor Capability and Client References (Section IX) - Provide a summary of the firm's relevant background experience. Discuss the applicability of each experience to this RFP. Qualifications of the Proposer, including in-house staff and subcontractors, to complete the required tasks should be included in this section. Include a brief summary of related studies completed for other parties that are of a similar nature to the work requested by this RFP. (Report examples [see Section 11] can be provided in an attachment. Attached documents are not part of the 30-page limitation.). Also provide a list of client references, including the client manager's name, title/function, and phone number for the most relevant projects.

Conflict of Interest (Section X) - Identify any actual or potential conflicts of interest resulting from any contractual work performed, or to be performed, for other clients, as well as any such work done, or to be done, by proposed subcontractors. Specifically, Proposer must disclose any recent or current contracts with the Study Agency, business entities regulated by any of the participating air districts, and/or any environmental group or business interest group. The Study Agency will consider the nature and extent of such work in evaluating the proposal (see Section 10.0).

Previous Work Samples (Section XI) - Attach a copy of any work prepared similar to what is requested in this RFP. These items shall not be considered part of the 30-page limitation set for the proposal.

Certificate of Eligibility for Federal Funding (Exhibit A) - The Proposer should complete and return the certification regarding debarment, Exhibit A, with their proposal.

Supplemental Information – Extensive documentation is discouraged, but attachments for the budget summary table and resumes can be included in the proposal. Attached documents are not part of the 30-page limitation.

9. SUBMISSION OF PROPOSAL

All proposals must be submitted according to the specifications set forth below. Failure to adhere to these specifications may be cause for rejection of proposal.

- Due Date - Proposal must be received no later than 5:00 p.m. on September 12, 2011. Late proposals will not be accepted. Any correction or resubmission by the Proposer will not extend the submittal due date.

- Delivery Address - Proposal must be directed to and received at the address below and should be directed to:

  David Nunes, Senior Air Quality Specialist
  San Joaquin Valley Unified Air Pollution Control District
  1990 E. Gettysburg Avenue
  Fresno, CA 93726-0244

- Identification – To accommodate processing and identification of time of receipt, the Proposer shall submit the required copies of the proposal in a sealed envelope, plainly marked in the upper left-hand corner with the name and address of the Proposer and the words:

  "PROPOSAL: Corroborative & Weight-of-Evidence"

- Electronic Copy (Compact Disc, read-only-memory) - The Proposer shall also submit an electronic copy of the proposal in Microsoft Word. The electronic copy shall be emailed to david.nunes@valleyair.org

Grounds For Rejection - A proposal may be immediately rejected if:

- It is received at any time after the exact due date and time set for receipt of proposals;
- It is not prepared in the format prescribed; or
- It is not signed by an individual authorized to represent the firm.

Once a proposal is submitted, the composition of the proposal team cannot be altered without prior written consent of the Study Agency. The proposal shall constitute a firm offer and may not be withdrawn for a period of ninety (90) days following the last day to

accept proposals. Proposals become the property of the Study Agency. The Study Agency reserves the right to reject all proposals and make no award.

10. PROCESS

10.1. Addenda and Supplements to the RFP

The Study Agency may modify the RFP and/or issue supplementary information or guidelines relating to the RFP during the proposal preparation period. In the event that it becomes necessary to revise any part of this RFP, or if additional information is necessary to enable adequate interpretation of the provisions of this RFP, or if it is necessary to extend the deadline for Proposals, a supplement to the RFP will be released and distributed in the same manner as the release of the RFP.

10.2. Evaluation Criteria for Qualification for Respondents

The Study Agency will evaluate all Proposals received by the deadline to determine responsiveness to the RFP, ensure the requirements for this project will be satisfied, and will then commend a contractor for approval by the Policy Committee. Failure to adhere to specifications in this RFP may be cause for rejection of the Proposal. The Technical Committee, Policy Committee, Study Agency, and participating air districts retain the right to reject all Proposals received and conduct direct negotiations with a selected Proposer if all Proposals are considered to be substantially nonresponsive to key issues.

Proposals will be rated on the following key factors:

1. A demonstration of the Proposer's qualifications and ability to perform the services requested in the RFP. Proposals should include a brief statement of qualifications of the proposed participants and a description of the duties they will perform, including specific discussions of (a) previous working relationships with government agencies, and (b) recent project experience. Extensive corporate experience is not as important as the qualifications of the principals who will be dedicated to the project. Greater detail may be incorporated by reference to a corporate website (preferred) or as a standard package.

2. Potential effectiveness of the proposed method(s) to meet the goals of the RFP; thoroughness and appropriateness of the proposed work program; and innovation in approach to work tasks.

3. Timeliness of the proposed schedule for the completion of tasks.

4. Efficiency and total cost of the Proposal.

5. Clarity and thoroughness of the Proposal; presentation, including good organization, formatting, and minimal grammatical errors.

During the selection process, the Study Agency may interview Proposers with scores above a natural break, for clarification purposes only. No new material will be permitted at this time.

A contract will be awarded to the Proposer with the best acceptable Proposal based on cost effectiveness and the criteria described in this section. The selection of contractor, final project budget and award of contract are subject to approval by the Policy Committee and the San Joaquin Valleywide Air Pollution Study Agency Governing Board. The Study Agency may choose to reject all Proposals. All Proposers will be notified of the selection process results by letter.

10.3. Contract Negotiation and Approval

Contract negotiation will be conducted after approval of contractor selection by the Policy Committee. All agreements must be approved and executed by the Study Agency. Standard contract language is available for advance review by request to the Program Manager.

11. INSURANCE

The contractor shall provide insurance in coverage and amount acceptable to the Study Agency. The Study Agency will require that any contractor prior to endorsement of a contract meet the following insurance requirements for this project.

Without limiting Study Agency's right to obtain indemnification from contractor or any third parties, the contractor, at its sole expense, shall maintain in full force and effect throughout the term of this Agreement the following insurance policy(s):

1. Liability insurance for bodily injury, including automobile liability, with limits of coverage of not less than Five Hundred Thousand Dollars ($500,000) each person and One Million Dollars ($1,000,000) each occurrence; and

2. Liability insurance for property damage with limits of coverage not less than Fifty Thousand Dollars ($50,000) each occurrence; and

3. Workers compensation insurance in accordance with the California Labor Code; and

4. Commercial general liability insurance with minimum limits of coverage of not less than One Million Dollars ($1,000,000) per occurrence.

The foregoing insurance policy(s) shall not be canceled, reduced, or changed without a minimum of thirty (30) calendar days advance, written notice given to Study Agency.

Prior to performing its obligations under this Agreement, the contractor shall provide the Study Agency with a certificate of insurance from an insurer acceptable to Study Agency as evidence of complying with the insurance requirements described above.

12. DATA OWNERSHIP AND PUBLICATION

The Study Agency shall have the right, at reasonable times during the project, to inspect and reproduce any data received, collected, produced, or developed by the contractor. No reports, professional papers, information, inventions, improvements, discoveries, or data obtained, prepared, assembled, or developed by contractor shall be released or made available (except to the Study Agency) without prior, express written approval from the Study Agency Project Manager. At the completion of the project, the contractor shall provide the Study Agency all data developed through conduct of the project that is in its possession. All data which is received, collected, produced, or developed from conduct of the project shall become the exclusive property of the Study Agency; however, the contractor shall be allowed to retain a copy of any non-confidential data received, collected, produced, or developed by the contractor. Should the contractor subsequently include data collected in this project for other evaluations and publications, the Study Agency would appreciate a notification of publication and/or a copy of the article or manuscript published.

13. CONFIDENTIAL INFORMATION

All responsible proposals received by the Study Agency are public records available for review by the public after the selection process is completed. Proposals containing information the Proposer identifies as confidential or proprietary will be rejected as nonresponsive.

14. REFERENCES

Blanchard, C. L. (2000) Ozone process insights from field experiments - Part III: extent of reaction and ozone formation. *Atmospheric Environment*, *34*, 2035-2043

Fujita, E. M., Snorradottir, T., and Campbell, D. E. (2005). *Advanced Data Analysis for the Central California Ozone Study* (Contract No. 01-03). Retrieved from California Air Resources Board website: http://www.arb.ca.gov/airways/ccos/docs/01-3CCOS_DRI_Advanced%20Data%20Analysis.pdf

Hidy, G. M. (2000) Ozone process insights from field experiments - part I: overview. *Atmospheric Environment, 34*, 2001-2022

Kleinman, L. I. (2000) Ozone process insights from field experiments - part II: Observation-based analysis for ozone production. *Atmospheric Environment*, *34*, 2023-2033

Liang, J., Jackson, B., and Kaduwela, A. (2006) Evaluation of the ability of indicator species ratios to determine the sensitivity of ozone to reductions in emissions of volatile organic compounds and oxides of nitrogen in northern California*. Atmospheric Environment*, *40*, 5156-5166

Sillman, S., and He, D. (2002) Some theoretical results concerning O3-NOx-VOC chemistry and NOx-VOC indicators. *J. Geophysical Research*, *107*(D22), 4659

Trainer, M., Parrish, D. D., Goldan, P. D., Roberts, J., and Fehsenfeld, F. C. (2000). Review of observation-based analysis of the regional factors influencing ozone concentrations. *Atmospheric Environment*, *34*, 2045-2061

U.S. EPA (2007) *Guidance on the Use of Models and Other Analyses for Demonstrating Attainment of Air Quality Goals for Ozone, PM2.5, and Regional Haze.* EPA -454/B-07-002, April

ATTACHMENT A

Certification Regarding
Debarment, Suspension, Ineligibility and Voluntary Exclusion
Lower Tier Covered Transactions

This certification is required by the regulations implementing Executive Order 12549, Debarment and Suspension, 29 CFR Part 98 Section 98.510, Participants' responsibilities. The regulations were published as Part VII of the May 26, 1988, Federal Register (pages 19160-19211).

(1) The prospective recipient of Federal assistance funds certifies that neither it nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

(2) Where the prospective recipient of Federal assistance funds is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

_____

Name and Title of Authorized Representative

Signature_____Date_____

ATTACHMENT B
Proposal Budget Summary

Direct Costs:	
1. Labor: Employee Salaries and Benefits	$
2. Subcontractors	$
3. Travel	$
4. Materials and Supplies	$
5. Miscellaneous (please specify)	$
TOTAL DIRECT COST:	**$**
Indirect Costs:	
6. Labor Overhead (as percentage of Labor Cost) _____ % rate	$
7. Other Indirect Costs (please specify)	$
8. Fee or Profit (as percentage of Total Cost) _____ % rate	$
TOTAL INDIRECT COST:	**$**
TOTAL COST:	**$**

ATTACHMENT C

Proposal Budget Template, Itemized by Task and Personnel

Staff and Cost Categories	Hourly Rate*	Task 1 (hours)	Task 2 (hours)	Task 3 (hours)	Task 4 (hours)	Task 5 (hours)	Task 6 (hours)	Total Hours	Total Cost
Staff 1									
Staff 2									
Staff 3									
Staff 4									
Staff 5									
Subcontractor 1									
Subcontractor 2									
TOTAL HOURS BY TASK									
TOTAL COST BY TASK									
Travel									
Material and Other Direct Costs									
Fee									
Additional work (please specify)									
Miscellaneous (please specify)									
TOTAL FOR PROPOSAL									

* Salary, benefits, and overhead