

**REQUEST FOR PROPOSAL**  
**for**  
**INCORPORATION OF RURAL NO<sub>x</sub> FLUX INTO THE OZONE MODEL**

*Prepared by the Staff of San Joaquin Valley Unified Air Pollution Control District  
and Bay Area Air Quality Management 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*

---

**Submittal:** Proposals must be received at the address below on or before  
**Monday, June 20, 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:** James Sweet, Senior Air Quality Specialist  
San Joaquin Valley Unified Air Pollution Control District  
1990 East Gettysburg Avenue  
Fresno, CA 93726-0244

**Mark Envelope:** "PROPOSAL: Incorporation of Rural NO<sub>x</sub> Flux into the Ozone Model"

**RFP Issuance Date:** May 17, 2011

**Contact:** James Sweet, (559) 230-6100, [james.sweet@valleyair.org](mailto:james.sweet@valleyair.org)

## TABLE OF CONTENTS

<b>PROJECT ABSTRACT .....</b>	<b>3</b>
<b>1. BACKGROUND .....</b>	<b>3</b>
<b>1.1 ABOUT THE STUDY AGENCY .....</b>	<b>3</b>
<b>1.2 PROJECT BACKGROUND.....</b>	<b>4</b>
<b>2. PROJECT PURPOSE .....</b>	<b>5</b>
<b>3. PROJECT DESCRIPTION .....</b>	<b>5</b>
<b>3.1 OBJECTIVE .....</b>	<b>5</b>
<b>3.2 TASKS/SCOPE .....</b>	<b>6</b>
<b>3.3 WORK PRODUCTS/DELIVERABLES .....</b>	<b>8</b>
<b>3.4 UTILIZATION OF RESULTS .....</b>	<b>11</b>
<b>4. PROJECT SCHEDULE .....</b>	<b>11</b>
<b>5. BUDGET.....</b>	<b>12</b>
<b>6. REQUIRED QUALIFICATIONS.....</b>	<b>13</b>
<b>6.1 EXCLUDED PARTIES LIST SYSTEM (EPLS).....</b>	<b>13</b>
<b>6.2 COMPLIANCE WITH FEDERAL AND STATE REQUIREMENTS.....</b>	<b>14</b>
<b>7. PROJECT DIRECTION.....</b>	<b>14</b>
<b>7.1. MANAGEMENT.....</b>	<b>14</b>
<b>7.2. SUBMITTAL OF RESULTS.....</b>	<b>15</b>
<b>8. CONTENTS OF PROPOSALS .....</b>	<b>15</b>
<b>9. SUBMISSION OF PROPOSAL .....</b>	<b>17</b>
<b>10. PROCESS .....</b>	<b>18</b>
<b>10.1. ADDENDA AND SUPPLEMENTS TO THE RFP .....</b>	<b>18</b>
<b>10.2. PROPOSAL EVALUATION AND CONTRACTOR SELECTION PROCESS .....</b>	<b>19</b>
<b>11. INSURANCE .....</b>	<b>20</b>
<b>12. DATA OWNERSHIP AND PUBLICATION .....</b>	<b>20</b>
<b>13. CONFIDENTIAL INFORMATION .....</b>	<b>21</b>
<b>ATTACHMENT A .....</b>	<b>22</b>
<b>ATTACHMENT B .....</b>	<b>23</b>
<b>ATTACHMENT C .....</b>	<b>24</b>

**REQUEST FOR PROPOSAL  
for the  
INCORPORATION OF RURAL NO<sub>x</sub> FLUX INTO THE OZONE MODEL**

**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) requesting development of a GIS-compatible computer modeling code for estimating the net flux of NO<sub>x</sub> emissions from soils, agricultural fields, and natural vegetation into the free atmosphere. It should be capable of calculating the net flux of emissions, including any removal processes, for a given polygon area, provided the necessary inputs of land cover type, soil conditions, management practices, time period, and the prevailing weather. The proposed budget for this project is up to \$100,000. The goal is to have this project completed by May 2012 with a final presentation of the results in June 2012.

**1. BACKGROUND**

***1.1 About the Study Agency***

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 the core efforts of the Central California Air Quality Studies (CCAQS), and 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 an appointed project manager who reports to the Study Agency and consults with its Technical Committee members.

Study Agency research includes ozone, particulate matter and related precursors. The California Regional PM10/PM2.5 Air Quality Study (CRPAQS) provides particulate and particulate precursor research. The Central California Ozone Study (CCOS) was developed as a companion effort to evaluate ozone and ozone precursors. Projects conducted for these studies have included evaluation of monitoring technology, emissions evaluations, major field studies for data collection followed by database construction and data analysis, regional episodic and seasonal air quality modeling, and control measure evaluations. Research commissioned by the Study Agency has produced extensive, valuable information for attainment planning efforts, and daily forecasting of air quality and smoke management. Current research focuses on

completion efforts for both CCOS and CRPAQS including projects for conceptual synthesis, elucidation of results, and projects to fill remaining data or evaluation gaps.

## **1.2 Project Background**

Emissions estimates for oxides of nitrogen (NO<sub>x</sub> = NO + NO<sub>2</sub>) are important inputs to air quality models for both ozone and fine particulate matter (PM<sub>2.5</sub>). Significant but highly uncertain fluxes of NO<sub>x</sub> occur from soils, agricultural fields, and natural vegetation. Refined NO<sub>x</sub> emissions estimates for these sources into the free atmosphere, coordinated with estimation of removal processes, are needed for central California air quality modeling applications. Emissions may vary considerably by land cover type(s) and land management practices (e.g. irrigation, fertilizers, and forestry management). Emissions at a given location vary seasonally and diurnally, with soil type, and with soil conditions which depend mostly on the weather. Decay of vegetative matter will add NO<sub>x</sub> emissions, but these emissions are at least partly reduced by removal processes. Chemistry in a vegetative canopy may modify the mixture of pollutants released into the free atmosphere. Canopies may also limit the rate of pollutant diffusive fluxes into the free atmosphere. Pollutant deposition and (possibly) reentrainment also occur from soil and canopy surfaces.

The California Ozone Deposition Experiment (CODE) conducted in 1991 provided limited measurements of pollutant fluxes from over various land cover types (Massman, 1996). Aircraft-based eddy covariance measurements were made during one summer over three dominant central California land cover types. Fluxes were measured for ozone and other pollutants; however, instrumentation to measure NO<sub>x</sub> fluxes was not available at the time the field study was conducted.

The first measurements of NO<sub>x</sub> emissions from central California soils were conducted over the summer of 1995 (Matson and Firestone, 1997). Measurements were conducted from agricultural fields used for a variety of crops. NO<sub>x</sub> fluxes from soils were directly measured by collecting the released NO<sub>x</sub> in a vessel open to the soil and closed to the atmosphere. NO<sub>x</sub> fluxes from soils were estimated as a function of land cover type, fertilizer application, irrigation practices, soil properties, and the weather. The study did not account for additional factors (e.g. canopy effects and deposition) influencing NO<sub>x</sub> fluxes into the atmosphere above any land cover.

One common model for estimating agricultural soil NO<sub>x</sub> fluxes for air quality modeling applications is the Emissions Modeling System version 1995 (EMS-95). The model is based upon calculations described by Williams et al. (1992). These estimates were based on national soil NO<sub>x</sub> data, none of which were collected in California. Fluxes are estimated as a function of land cover type and air temperature. The land cover types included in the model are not necessarily representative of central California agricultural practices. Also, no canopy effects are included. This model is suspected of severely overestimating agricultural soil NO<sub>x</sub> emissions for central California. The Biogenic Emissions Inventory System (BEIS) estimates soil NO<sub>x</sub> emissions using a more sophisticated approach based on more recent data than EMS-95. Still, it is not

necessarily representative of central California agricultural practices and does not include canopy effects. Previous estimation methodologies for release of NO<sub>x</sub> from soil bacterial activity assumed a linear relationship with temperature that does not reflect reduction of bacterial activity due to heat stress and surface desiccation common to the climate of central California.

## **2. PROJECT PURPOSE**

The purpose of this project is to create a GIS-compatible computer model for estimating the net flux of NO<sub>x</sub> emissions from soils, agricultural fields, and natural vegetation into the free atmosphere for subsequent use in ozone modeling and potentially also for PM<sub>2.5</sub> modeling. The product of this project should be capable of calculating the net flux of emissions, including any removal processes, using 1-hour averaging intervals or smaller, for a given polygon area, provided the necessary inputs of land cover type, soil conditions, management practices, time period, and the prevailing weather.

## **3. PROJECT DESCRIPTION**

### ***3.1 Objective***

The contractor is expected to create a GIS-compatible computer model for estimating the net flux of NO<sub>x</sub> emissions from soils, agricultural fields, and natural vegetation into the free atmosphere.

In consultation with Project Manager, the contractor should include the bulk of all major soil types, land cover types, and management practices relevant for central California air quality modeling applications.

NO<sub>x</sub> emissions associated with soils, land cover, and management practices should be modeled as area sources. Emissions from a given area are the net result of a number of physical processes: direct NO<sub>x</sub> emissions from fertilizers, soil-borne microbes, and decaying ground-level vegetative matter; deposition and reentrainment of NO<sub>x</sub> onto both soil and vegetative surfaces; NO<sub>x</sub> chemistry occurring within any vegetative canopy; and the rate of mixing of pollutants from the canopy (or bare ground) into the air above.

Emissions should be estimated using 1-hour averaging intervals or smaller. The model should represent diurnal and seasonal variability in the NO<sub>x</sub> emissions. An important consideration for the seasonal variability is NO<sub>x</sub> released from fertilizer application. Seasonal variability due to decaying ground-level plant matter may also be included, to the extent feasible.

Soil NO<sub>x</sub> produced from microbial action should be modeled as a function of temperature and possibly other parameters. Soil NO<sub>x</sub> produced from microbial action is not included in CCOS modeling at this time because the existing function is linear with temperature. This relationship is not appropriate above certain temperature ranges

frequently found in California, for which microbial action tails off instead of increasing further. The contractor is requested to evaluate available literature on this topic to provide an updated function which includes the tailing off of microbial activity above their stress temperature. The contractor should create a subroutine to interpolate observed temperatures for calculating local soil NO<sub>x</sub> emissions rates. If no information is available to update the function, the contractor should provide a description of field experimentation that would be sufficient to provide a reasonable estimate.

The contractor is expected to use existing published literature and data for these processes. Data specific or at least relevant to central California should be used when possible. Conducting additional measurements is beyond the scope of this RFP.

The contractor is expected to deliver a functional and modular GIS-compatible computer model coded in a standard scientific computing language and executable on a common UNIX/Linux or PC platform. Deliverables also include its source code, source code documentation, a user manual, all supporting data and input files, a sample input data set with benchmarked outputs, and comprehensive documentation of the model and its data sources. Depending upon the level of project complexity, the contractor may optionally develop a short training course (3-4 hours) for the computer program.

The contractor will present results to the CCOS Technical Committee (TC) at key milestones along the project's scope of work. Discussions will be held to ensure that tasks are adequately completed, to the extent feasible, before progressing to subsequent milestones.

### **3.2 Tasks/Scope**

**Task 1:** Develop a methodology for estimating the net NO<sub>x</sub> flux into the atmosphere.

- 1) Prepare lists of soil types, land cover types, and land management practices associated with the bulk of related NO<sub>x</sub> emissions for central California. Determine ranges of meteorological and soil conditions typically experienced in central California.
- 2) Perform a literature review to find published data for each relevant soil type, land cover type, and land management practice. Obtain data specific or at least relevant to central California, if possible. Find data reflecting range of typical meteorological and soil conditions experienced in central California, if possible. Data should reflect the following physical and chemical processes to allow estimation of net NO<sub>x</sub> emissions at 1-hour averaging intervals or smaller:
  - Soil NO<sub>x</sub> from microbial action as a function of soil type, soil properties, and weather,
  - NO<sub>x</sub> from fertilizers, including seasonality,
  - NO<sub>x</sub> from decaying vegetative matter, including seasonality,

- Impacts of irrigation and other land management practices, including seasonality,
- Deposition and other removal processes,
- Reentrainment of deposited NO<sub>x</sub>, if quantifiable,
- Canopy resistance to NO<sub>x</sub> exchange with free atmosphere, as a function of land cover type, and
- Canopy chemistry as a function of land cover type, if quantifiable.

- 3) Rank the central California soil NO<sub>x</sub> sources by their magnitude. Focus data-gathering efforts on the larger sources.

**Task 2:** Develop a proposal for the methodology for coding the net NO<sub>x</sub> flux estimates into a GIS-compatible computer model. Include strategy to account for seasonal and diurnal variability, including land management and meteorological impacts. Identify whether this will be done through a set of separate formulas representing distinct atmospheric processes or through a combined net estimation. Since a net estimation formula is less amenable to update for individual processes, justify the necessity for selection of combined net estimation approach, if used.

- 1) Assess the compiled literature and determine an approach for integrating NO<sub>x</sub> processes into the CCOS specified model. Separate formulas are preferred unless the processes can only be estimated as an integrated flux.
- 2) Develop a document for discussion with the Project Manager and TC outlining the proposed approach.

**Task 3:** Submit the proposed methodology to the Project Manager for review by the Technical Committee and authorization to proceed.

- 1) Discuss and refine the approach through interaction with the Project Manager and TC.

**Task 4:** Implement the proposal by developing the methodology, preparing the computer code, and providing all supporting data and input files to implement the methodology. The GIS-compatible program should implement all calculations at the polygon level. It should also post-process the results to yield gridded emissions fields that match the CCOS air quality modeling grid.

- 1) Develop algorithms for estimating NO<sub>x</sub> emissions and depositions. When feasible, also provide estimates of uncertainty. In the allocation of budgeted hours, give greater emphasis to the higher-ranking sources that will affect the total NO<sub>x</sub> flux the most. If small factors will require extensive allocation of hours to complete, contact the Project Manager for discussion and approval of project modifications.

- 2) Develop a flexible, preferably GIS-compatible computer program to implement the algorithms for a given polygon area. The program should accept inputs in standardized file formats that are agreed upon by the contractor and Project Manager.

**Task 5:** Deliver the program to Project Manager for testing of the air quality model with and without the code based on comparisons with appropriate observations. Develop an approach for evaluating the performance of the code. Evaluate the outcome and conduct revisions to the code if results indicate a need for improvement and/or document what additional information would be needed to refine the code further.

- 1) Deliver to Project Manager the computer model source code, all supporting data and input files.
- 2) Participate in the assessment of testing of the model code, recommend or develop improvements. Deliver final computer source code.
- 3) Identify additional information that would be required to further improve the code.

**Task 6:** Prepare a comprehensive final report of assumptions, methodologies and results. The final report shall also include all of the following:

- 1) A comprehensive documentation of the code, assumptions, methodology and data sources. Describe any further studies that would be needed to complete any tasks that were not feasible within the scope of the project.
- 2) A user manual for the program. Include instructions to process a sample input data set and provide benchmarked outputs.
- 3) Depending upon the level of project complexity, the report may optionally include a short training course or presentation for the computer program.

### **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 (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 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 Project Manager, the Contractor shall meet with the Project Manager via telephone to discuss the overall plan, details of task progress, or concerns regarding compliance with required performance objectives or timelines. The 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 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 2007 Professional software (Word, Excel or Access) and shall provide draft and final computer code supporting data and input files (Task 5) in formats agreed upon by the Contractor and 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 Project Manager.

**Modeling source code:** The Contractor will prepare a draft and final modeling source code which is able to quantify the rural NO<sub>x</sub> flux for incorporation into the emission input files for ozone modeling. This product should be consistent with the approved methodology established by Task 3.

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

- Proposal for model code development (Task 2 and Task 3),
- If applicable, written description of additional information needed to refine the code (Task 5 Item 3)
- If applicable, training course materials in written and/or electronic form.
- Comprehensive Final Report (Task 6) on the incorporation of rural NO<sub>x</sub> flux into ozone modeling.

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 MS Word to the Project Manager for review by the Study Agency Committees.

- 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 about the effectiveness, impacts, and applicability of incorporating rural NO<sub>x</sub> flux into the ozone model.
- 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.

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. 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 Project Manager's comments.

**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 2007 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 3 invoices:

- Invoice One should reflect costs for Tasks 1 – 3 and be submitted with the Methodology for Task 3
- Invoice Two should reflect costs for Tasks 4 and 5 and be submitted with the Model for Task 5
- Invoice Three should reflect costs for Task 6 and be submitted with the final report for Task 6

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 Incorporation of Rural NO<sub>x</sub> Flux into the Ozone Model project as described above would help provide a sound basis for future efforts to improve the ozone model. 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 1.

**Table 1: Project Schedule and Deliverables**

<b>Action/Work Product</b>	<b>Approximate Date</b>
Release of RFP	May 17, 2011
Deadline for Proposal	June 20, 2011
Contractor Selection	June –July 2011
Contract Development	July 2011
Contract Approval	August 18, 2011
Literature Review & Development of Model Code Methodology	August - October 2011
<b>Deadline</b> for Submittal of Proposed Methodology	October 17, 2011
<b>Deadline</b> for Final Methodology	October 31, 2011
<b>Deadline</b> for Draft Model	January 2011
Evaluation of Draft Model	February 2012
<b>Deadline</b> of Final Model	March 2012
<b>Deadline</b> for Draft Final Report	April 2012
<b>Deadline</b> for Final Report	May 2012
<b>Report Presentation</b>	June 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 \$100,000. The budgeted amount is available to the Contractor for research, analysis, coordination, teleconferences, meetings, development and transmittal of computer code, computer time on systems used by Contractor for code development and preliminary testing, 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. List the hours and cost expected for each team member for each task.

**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.

**Miscellaneous Costs:** If any.

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

Use Attachment C to demonstrate the overhead and administrative costs that are generally 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, the Proposer (including identified subcontractors) must demonstrate extensive experience and expertise in the following areas:

- Atmospheric science knowledge sufficient to accomplish requested tasks
- Modeling experience sufficient to develop requested modeling code
- Skill in performing the types of technical tasks required for this project
- Excellent working relationships with government agencies
- Excellent technical writing skills including skill in preparing clear reports to describe complex scientific issues

To be selected, the proposal and client references must demonstrate that Proposer has the ability and resources to produce the deliverables requested in this RFP. The Study Agency reserves the right to reject and 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 federal 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](http://www.epls.gov).

The Proposer should complete and return the attached certification (Exhibit A) regarding debarment with the proposal certifying. Signing Exhibit A certifies 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. 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 Unified Air Pollution Control District  
1990 East Gettysburg Avenue  
Fresno, CA 93726

## **7. PROJECT OVERSIGHT**

### **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 SJVUAPCD 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 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 Project Manager. The Contractor shall perform any additional work needed to address issues raised by this process for the items authorized by the 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 (Attachment 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 June 20, 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:

James Sweet, 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: Incorporation of Rural NO<sub>x</sub> Flux into the Ozone Model”

- 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 [james.sweet@valleyair.org](mailto:james.sweet@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 this RFP and/or issue supplementary information or guidelines relating to the RFP before the Proposal deadline. 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. Any addenda will be released at least five business days before the Proposal deadline.

## **10.2. Proposal Evaluation and Contractor Selection Process**

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. Effectiveness of the proposed action to meet the goals of the RFP; thoroughness and appropriateness of the proposed work program; 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 a minimum of 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.

## **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 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.

**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)	\$ _____
<b>TOTAL DIRECT COST:</b>	<b>\$ _____</b>

**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	\$ _____
<b>TOTAL INDIRECT COST:</b>	<b>\$ _____</b>

**TOTAL COST: \$ \_\_\_\_\_**

**ATTACHMENT C**  
 Proposal Budget Template, Itemized by Task and Personnel

<b>Staff and Cost Categories</b>	<b>Hourly Rate*</b>	<b>Task 1 (hours)</b>	<b>Task 2 (hours)</b>	<b>Task 3 (hours)</b>	<b>Task 4 (hours)</b>	<b>Task 5 (hours)</b>	<b>Task 6 (hours)</b>	<b>Total Hours</b>	<b>Total Cost</b>
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