



BAY AREA  
AIR QUALITY  
MANAGEMENT  
DISTRICT

July 2, 2018

Request for Proposals# 2018-009

**Developing Improved Methods for Spatially Allocating  
Emissions to Support Local-Scale Modeling**

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**SECTION I – SUMMARY**

The Bay Area Air Quality Management District (Air District or District) is requesting proposals from experienced and qualified organizations to develop improved methods for spatially allocating emissions to support community-scale modeling and analyses related to Assembly Bill 617 (C. Garcia, Chapter 136, Statutes of 2017). The selected contractor will update current emissions gridding methods, review and evaluate available spatial datasets, assign location coordinates to point sources with fixed locations, and develop gridded spatial allocation factors for remaining sources using appropriate surrogates such as land use or demographic data.

To respond to this Request for Proposals (RFP), an interested company should submit one (1) electronic copy (in Adobe Acrobat PDF file format) of its proposal to the Air District’s Procurement Portal (Portal):

Cynthia Zhang, Staff Specialist  
Bay Area Air Quality Management District  
375 Beale Street, Suite 600; San Francisco, CA 94105  
Portal link: <https://baaqmd.bonfirehub.com>

**Proposals must be submitted and received by 4:00 p.m. on August 30, 2018.  
Late proposals will not be considered.**

Proposals must address all information requested in this RFP. A proposal may add

information not requested in this RFP, but the information should be in addition to, not instead of, the requested information and format. Minority business enterprises, women's business enterprises, veteran's business enterprises, and Certified Green Businesses are encouraged to submit proposals. **Any questions regarding this RFP should be submitted through the Portal.**

## **SECTION II – BACKGROUND**

### **A. Air District Overview**

The Bay Area Air Quality Management District (Air District) was created by the California Legislature in 1955 as the first regional agency to deal with air pollution in California. The Air District jurisdiction includes Alameda, Contra Costa, Marin, Napa, Santa Clara, San Francisco, San Mateo, southwestern Solano, and southern Sonoma counties.

The State Legislature originally gave the Air District the authority to regulate stationary sources of air pollution, such as factories, oil refineries, chemical plants, gasoline stations, and agricultural burning. With more recent legislation, the Air District was granted authority to enact certain transportation and mobile source measures.

The Air District is governed by a twenty-four member Board of Directors, consisting of elected officials, including county supervisors, mayors, and city council members. The Executive Officer / Air Pollution Control Officer for the Air District is Jack P. Broadbent.

### **B. Developing Improved Methods and Datasets for Spatially Allocating Emissions**

Assembly Bill (AB) 617, which was recently adopted in California, requires air agencies to identify communities most impacted by air pollution, characterize emissions and air quality in those communities, and reduce disparities in exposures and health risks. To support AB 617 activities, the Air District plans to characterize criteria pollutant and air toxics concentrations at the community scale (i.e., at grid resolutions in the range of 100 to 1,000 meters). This will require innovative modeling approaches, such as performing regional photochemical modeling with the Community Multiscale Air Quality (CMAQ) model at a 1-km or finer grid resolution, supplemented by sub-grid scale dispersion or box modeling. To properly characterize the geographic distribution of emissions at the local scale, the Air District seeks to develop improved methods and data sets for spatially allocating its emissions inventory data.

Common modeling practice involves the use of spatial surrogate data to assign county-level emissions to individual grid cells in the modeling domain. Spatial data sets such as Census block-level population estimates are intersected with the modeling grid definition, and spatial allocation factors are calculated that represent the fraction of the county-level surrogate associated with each grid cell. These allocation factors are then used to apportion emissions estimates to appropriate grid cells.

The Air District's current spatial surrogates, which were prepared at 1-km and 4-km grid resolutions to support regional modeling applications, are not suitable for the community-scale analyses required under AB 617 for several reasons:

- The surrogates do not account for emission gradients at scales finer than 1-km

and cannot be used to accurately characterize localized source-receptor relationships.

- The data was developed in 2008 and are no longer fully representative of the Bay Area due to land use and demographic changes.
- Surrogates were developed for some stationary sources, such as gas stations, restaurants, and dry cleaners, that could potentially be treated as individual point sources with specified location coordinates.
- The vertical distribution of emissions from sources such as bridges and other elevated road segments was not addressed; emission release heights for these sources may be important at the local scale.

This project would address these issues by developing improved methods and datasets for spatially characterizing emissions at the local scale. Note that permitted point sources with facility- or stack-level emissions estimates that are already assigned to location coordinates will not be addressed by this study.

### **SECTION III – SCOPE OF WORK**

This scope of work will lead staff and the selected contractor through a review and update of the methods and datasets available to spatially allocate the Air District's criteria pollutant and air toxics emissions estimates, led to the development of approaches to characterize source locations at scales ranging from 100 to 1,000 meters.

The selected contractor will be required to complete Task 1 before work commences on any subsequent tasks. Up to 30% of the total project budget may be allocated to Task 1. The Air District will work with the selected contractor to determine the appropriate project and task schedule(s) to ensure that work progresses in accordance with Air District priorities.

#### **Task 1: Scoping Study to Design Methods and Develop Recommendations**

The contractor will conduct an initial scoping study to innovatively design methods for characterizing the spatial distribution of emissions at resolutions sufficient to support local scale modeling. The contractor will identify and evaluate available approaches and data sets and will develop specific recommendations for characterizing emissions at the local scale. This assessment should focus on the types of sources described below, and each spatial data set should be evaluated in terms of its vintage, spatial resolution, quality, and accessibility (i.e., for purchase vs. publicly available).

- a. Small point sources such as restaurants, gas stations, and dry cleaners that have been allocated with surrogates in the past but can potentially be characterized with location coordinates. For these sources, available data sets could include Air District permit files, business listings, and direct marketing databases. To support sub-grid-scale dispersion modeling in selected communities of interest, information on emission release points (e.g., charbroiler vent heights) may also be needed.
- b. Nonpoint sources such as residential wood combustion or construction with county-level emissions estimates that must be geographically allocated with

- spatial surrogates. For these sources, available data sets could include ABAG land use data, Census data, off-road construction equipment data and various types of land cover data. The spatial resolution of such data will be of particular importance.
- c. Mobile sources such as on-road motor vehicles, commercial marine vessels, and locomotives. For these sources, available data sets could include traffic counts, travel demand model outputs, truck idling locations, and representations of shipping lanes and rail networks. To support fine-scale dispersion modeling in selected communities of interest, spatial surrogate data for major roadways will need to be supplemented with detailed, link-level location and elevation information. [Note that a roadway “link” is defined as a road segment of known length with consistent attributes, such as grade, fleet mix, and vehicle speeds.]

Deliverables: The contractor will be required to prepare a recommendations report that includes the following information:

- A list of small stationary sources that can be characterized with location coordinates, a summary of available spatial data sets for each source type, and a recommended data set.
- A list of non-point sources that will continue to be characterized with spatial surrogate data, a summary of available surrogate data sets for each source type, and a recommended surrogate.
- A list of on-road and off-road mobile sources, a summary of available surrogate data for each source type, and a recommended surrogate. For on-road mobile sources, a recommended data set for characterizing link-level roadway configurations in communities of interest should also be identified.
- For all source types and spatial data sets, recommended procedures for converting data to a useful format should be described. For example, facility addresses should be converted to latitude/longitude coordinates, and spatial surrogate data will need to be processed into spatial allocation factors that are readable by the SMOKE emissions model.
- Methods for data acquisition and processing should be designed to support future updates by Air District staff as new data become available.

## **Task 2: Data Processing and Delivery**

Following receipt of the report, Air District staff will work with the contractor to finalize the data sets and processing approaches to be used for each source type. The contractor will then perform data acquisition and processing to produce databases of source locations (for small stationary sources and selected roadway links) and spatial allocation factors (for spatial surrogates).

Data deliverables should cover the Air District's entire jurisdiction. However, it may be desirable to start with 1 or 2 pilot communities (e.g., Richmond or West Oakland) to test the recommended methods before they are fully implemented. Air District staff will work with the contractor on the best approach and schedule for data development.

Deliverables: The contractor will be required to provide the following:

- All raw data (e.g., shapefiles or marketing databases) used to prepare final data

deliverables (note that any purchased data will be owned by the Air District).

- A database of small stationary source locations in Excel or Access format. This database should include the facility name, type, size (e.g., annual throughput), county, address, and latitude/longitude coordinates.
- A collection of SMOKE-ready spatial surrogate files with spatial allocation factors that match the Air District's 1-km and 4-km modeling domains.
- A SMOKE-ready cross-reference file that matches each source code in the Air District's criteria and air toxics inventories with an available spatial surrogate.
- For selected communities, a set of link-level data for major roadways that characterizes the endpoint locations, length, width (in number of lanes), traffic volume, truck percentage, average speed, and elevation of each link.

### **Task 3: Documentation**

To assist the Air District with the subsequent updating and/or expansion of the spatial data sets developed for this project, the contractor should prepare a guidance document that summarizes the processing steps used to prepare final data deliverables. As appropriate, this document should be accompanied by sample scripts and code.

Deliverables: The contractor will be required to provide a guidance document and any sample scripts or code needed to replicate processing steps performed as part of this project.

## **SECTION IV – INSTRUCTIONS TO BIDDERS**

### **A. General**

1. Interested firms must create an account through the Portal described on p. 1 of this RFP to view RFP documents and addenda, and to submit questions and bid documents.
2. All proposals must be made in accordance with the conditions of this RFP. Failure to address any of the requirements is grounds for rejection of this proposal.
3. All information should be complete, specific, and as concise as possible.
4. Proposals should include any additional information that the respondent deems pertinent to the understanding and evaluation of the bid.
5. The Air District may modify the RFP or issue supplementary information or guidelines during the proposal preparation period prior to the due date. Please check our [Portal](#) for updates prior to the due date.
6. Proposals shall constitute firm offers. Once submitted, proposals may be withdrawn, modified and resubmitted through the Portal up until the August 30, 2018 due date.

7. The District reserves the right to reject any and all proposals.
8. The total quotation for this project should not exceed \$100,000. Any spatial data that needs to be purchased to support this project will be directly purchased by the Air District, and the price of such data should not be included in the quoted amount.
9. All questions must be in written form and submitted through the Portal no later than **4:00 p.m. on July 20, 2018**. Firms will not be able to submit questions after this time. All questions will be answered in writing and posted on the [Portal](#) by **6:00 p.m. on July 31, 2018**.
10. The cost for developing the proposal is the responsibility of the bidder, and shall not be chargeable to the Air District.

## **B. Submittal of Proposals**

All proposals must be submitted according to the specifications set forth in Section V (A) – Contents of Proposal, and this section. Failure to adhere to these specifications may be cause for the rejection of the proposal.

1. Due Date – All proposals are due no later than 4:00 p.m., August 30, 2018, and should be submitted via the Portal:  
  
Cynthia Zhang, Staff Specialist  
Bay Area Air Quality Management District  
375 Beale Street, Suite 600; San Francisco, CA 94105  
Portal link: <https://baaqmd.bonfirehub.com>
2. Uploading large documents may take significant time, depending on the size of the file(s) and Internet connection speed. Bidders should plan sufficient time before the due date to begin the uploading process and to finalize their submissions. Bidders will not be able to submit documents after the due date. Proposals received after the date and time previously specified will not be considered.
3. Signature – All proposals should be signed by an authorized representative of the bidder.
4. Submittal – Submit one (1) electronic copy (in Adobe Acrobat PDF file format). Electronic submissions submitted via the Portal will be acknowledged with a confirmation email receipt. Late proposals will not be accepted. Any correction or re-submission of proposals will not extend the submittal due date.
5. Grounds for Rejection – A proposal may be immediately rejected at any time if it arrives after the deadline, or is not in the prescribed format, or is not signed by an individual authorized to represent the firm.
6. Disposition of the Proposals – All responses to this RFP become property of

the Air District and will be kept confidential until a recommendation for award of a contract has been announced. Thereafter, submittals are subject to public inspection and disclosure under the California Public Records Act. If a respondent believes that any portion of its submittal is exempt from public disclosure, it may mark that portion "confidential." The District will use reasonable means to ensure that such confidential information is safeguarded, but will not be held liable for inadvertent disclosure of the information. Proposals marked "confidential" in their entirety will not be honored, and the District will not deny public disclosure of any portion of submittals so marked.

By submitting a proposal with portions marked "confidential," a respondent represents it has a good faith belief that such portions are exempt from disclosure under the California Public Records Act and agrees to reimburse the District for, and to indemnify, defend, and hold harmless the District, its officers, employees, and agents, from and against any and all claims, damages, losses, liabilities, suits, judgments, fines, penalties, costs, and expenses, including without limitation, attorneys' fees, expenses, and court costs of any nature whatsoever, arising from or relating to the District's non-disclosure of any such designated portions of a proposal.

7. Modification – Once submitted, proposals, including the composition of the contracting team, may be altered up until the due date. Proposals may not be modified after the due date. All proposals shall constitute firm offers valid for ninety (90) days from the August 30, 2018 due date.

### **C. Interviews**

1. The Air District, at its option, may interview bidders. The interviews will be for the purpose of clarifying the proposals.
2. Submittal of new proposal material at an interview will not be permitted.
3. Interviews may involve a presentation and/or a question-and-answer session.

## **SECTION V – PROPOSAL FORMAT, CONTENT, AND SUBMITTAL**

### **A. Contents of Proposal**

Submitted proposals must follow the format outlined below and include all requested information. Failure to submit proposals in the required format can result in the proposal being eliminated from evaluation and consideration.

1. Technical Proposal
  - a. Cover Letter (Section I) – Must include the name, address, and telephone number of the company, and must be signed by the person(s) authorized to represent the firm.
  - b. Firm Contact Information – Provide the following information about the

firm:

- Address and telephone number of office nearest to San Francisco, California and the address and phone number of the office that each of the proposed staff members are based out of if different.
  - Name of firm's representative designated as the contact and email address
  - Name of project manager, if different from the individual designated as the contact
- c. Table of Contents – Clearly identify material contained in the proposal by section.
- d. Summary (Section II) – State overall approach to Developing Improved Methods for Spatially Allocating Emissions to Support Local-Scale Modeling, including the objectives and scope of work.
- e. Program Schedule (Section III) – Provide projected milestones or benchmarks for completing the project within the total time allowed.
- f. Firm Organization (Section IV) – Provide a statement of your firm's background and related experience in providing similar services to governmental organizations, if any. Describe the technical capabilities of the firm and, in particular, the firm's exposure with working with environmental regulations, if any. Provide references of other, similar projects including contact name, title, and telephone number for all references listed.
- g. Project Organization (Section V) – Describe the proposed management structure, program monitoring procedures, and organization of the engagement team. Provide a statement detailing your approach to the project, specifically addressing the firm's ability and willingness to commit and maintain staffing to successfully conclude the project on the proposed schedule.
- h. Assigned Personnel (Section VI) – Provide the following information about the staff to be assigned to the project:
- List all key personnel assigned to the project by level and name. Provide a description of their background, along with a summary of their experience in providing similar services for governmental agencies, and any specialized expertise they may have. Background descriptions can be a resume, CV, or summary sheet. Substitution of project manager or staff will not be permitted without prior written approval of the Air District's assigned program manager.
  - Provide a statement of the availability of staff in any local office with requisite qualifications and experience to conduct the requested project.



- Provide a statement of education and training programs provided to, or required of, the staff identified for participation in the project. Make particular mention of with reference to experience dealing with governmental agencies, procedures, and environmental regulations.
  - i. Retention of Working Papers (Section VII) – All working papers are the property of the Air District. Include a statement acknowledging that if your firm is awarded the contract, you will retain project related papers and related reports for a minimum of five (5) years.
  - j. Subcontractors (Section VIII) – List any subcontractors that will be used, the work to be performed by them, and the total number of hours or percentage of time they will spend on the contract.
  - k. Conflict of Interest (Section IX) – Address possible conflicts of interest with other clients affected by contractors' actions performed by the firm on behalf of the Air District. The Air District recognizes that prospective bidders may have contracts to perform similar services for other clients. Include a complete list of such clients for the past three (3) years with the type of work performed and the total number of years performing such tasks for each client. The Air District reserves the right to consider the nature and extent of such work in evaluating the proposal.
  - l. Additional Data (Section X) – Provide other essential data that may assist in the evaluation of the proposal (e.g. green business certification, etc).
2. Cost Proposal
- a. Name and Address – The Cost Proposal must have the name and complete address of the bidder in the upper, left hand corner.
  - b. Cost Proposal – The Cost Proposal must list the fully-burdened hourly rates and the total number of hours estimated for each level of professional and administrative staff to be used to perform the tasks required by this RFP. In addition, costs should be estimated for each of the components of the Scope of Work.
  - c. The Cost Proposal does not need to be a separate, sealed document.

## **SECTION VI – PROPOSAL EVALUATION**

A panel of Air District staff will evaluate all proposals. The panel will recommend the selection of the contractor to the Air Pollution Control Officer (APCO), who will, in turn, make a recommendation to the Air District Board of Directors. The Air District Board of Directors may need to approve the contract to carry out the work described in this RFP. A link to a typical contract for professional services used by the Air District is included in Section VII.

Proposals will be evaluated on the following criteria:

<b>Criteria</b>	<b>Description</b>	<b>Weight</b>
Expertise	Technical expertise, size and structure of the firm and personnel assigned to RFP tasks; firm's ability to perform and complete the work in a professional and timely manner.*	25%
Skill	Past experience of the firm and, in particular, experience of the team working on projects of similar scope for other governmental agencies.	25%
Approach	Responsiveness of the proposal, based upon a clear understanding of the work to be performed.	40%
Cost	Cost or cost effectiveness and resource allocation strategy.	5%
Firm's Specialty Focus Area	Local business (2.5%)/Green Business (2.5%)**	5%
	<b>Total</b>	<b>100%</b>

- \* "Size and structure of firm" refers to the ability of a firm's size to meet the needs of the Air District. It does not give absolute preference to larger or smaller firms.
- \*\* The Air District gives preferences to local business and those that are certified as green businesses by a government agency or independent private rating organization. Local business refers to a firm's headquarters located in the nine counties of the Air District's jurisdiction.

The Air District reserves the right to reject any and all proposals submitted and/or request additional information.

If two or more proposals receive the same number of points, the Air District will accept the lower cost offer.

## **SECTION VII – SAMPLE CONTRACT**

A sample contract to carry out the work described in this RFP is available on the Air District's website at <http://www.baaqmd.gov/about-the-air-district/request-for-proposals-rfp-rfq/samples-previous>.