



Air Resources Board



Matthew Rodriguez
Secretary for
Environmental Protection

Mary D. Nichols, Chair
1001 I Street • P.O. Box 2815
Sacramento, California 95812 • www.arb.ca.gov

Edmund G. Brown Jr.
Governor

June 20, 2016

Dear UC/CSU Researchers:

The California Air Resources Board (ARB or Board) is soliciting draft research proposals from California public universities and colleges for the project described in the enclosed solicitation.

If you are interested in submitting a draft proposal for the research project described in this solicitation, please send an email to Álvaro Alvarado (alvaro.alvarado@arb.ca.gov) indicating your intent to submit by **July 1, 2016**. Draft proposals will then be due no later than **July 15, 2016**. Applicants should submit their draft proposal via email to Álvaro Alvarado (alvaro.alvarado@arb.ca.gov). Guidelines for developing your draft proposal are included in this solicitation package. The amount of money allocated for this project is \$150,000. Projects that provide co-funding or other leveraging will be evaluated more favorably.

We expect to select a proposal by July 22 for further refinement and review by the Board's Research Screening Committee in September. A final proposal incorporating comments by ARB staff and the Research Screening Committee will be needed by August 5 for a final decision by the Board and our target of executed contracts by December 2016.

Prospective investigators are encouraged to contact Dr. Álvaro Alvarado at (916) 445-4843 or alvaro.alvarado@arb.ca.gov for any clarification on these topics.

Sincerely,

Bart E. Croes, P.E.
Chief, Research Division

Enclosure

cc: Álvaro Alvarado, Research Division

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our website: <http://www.arb.ca.gov>.

California Environmental Protection Agency

**CALIFORNIA AIR RESOURCES BOARD
FISCAL YEAR 2016-17 ANNUAL RESEARCH PLAN**

**SOLICITATION OF DRAFT RESEARCH PROPOSALS
FROM CALIFORNIA PUBLIC UNIVERSITIES AND
COLLEGES**

IMPROVING CALENVIROSCREEN SCORE AT US-MEXICO BORDER

I. OBJECTIVE

California law defines environmental justice (EJ) as the fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies. As an aid to ensure that EJ is fully considered in its activities the California Environmental Protection Agency (CalEPA) has developed two screening tools to assess the vulnerability of California communities. One, the Environmental Justice Screening Method (EJSM) [Sadd et al 2011], was developed by academic researchers under contract with the Air Resources Board (ARB). The second, CalEnviroScreen [Alexeef et al 2012], was developed by the Office of Environmental Health Hazard Assessment (OEHHA) to assist with identifying communities that are eligible for funding for environmental and economic improvement projects under SB 535. Both screening tools combine data on measures of environmental quality and toxic substance emissions with metrics of community socio-economic characteristics to evaluate the level of EJ vulnerability in each community in California.

Both screening tools lack an important component: neither adequately captures how California communities on the U.S. - Mexico border are impacted by emissions sources located on the Mexico side of the border. This request for proposals is intended to take an initial step towards filling that data gap by identifying and characterizing emissions sources in Mexico that impact California communities. The objective is to characterize the locations and types of emission sources located in the area of Mexico immediately adjacent to California as fully as possible within time and budget constraints. It is not anticipated that this project will provide a comprehensive characterization of emissions sources, but rather that it will be an initial step that provides a foundation for future work, while still providing data that can be incorporated into the screening tools. The precise definition of the border area is flexible, as discussed below.

While reliable, quantitative estimates of emissions from sources in Mexico and their impact on air quality in California are desirable in the long run, for the purpose of strengthening the screening tools it is sufficient to provide data on the locations of sources of air pollution emissions, and the types of emissions produced. The air pollutant emissions sources of primary interest include those emitting toxic air contaminants, for example chrome plating facilities, and criteria pollutants, particularly ozone precursors and particulate matter, as well as hazardous waste generating and/or disposal facilities.

II. BACKGROUND

In 2008 the ARB contracted with Manuel Pastor, Rachel Morello-Frosch and James Sadd to create the first version of the EJSM screening tool [Sadd et al 2011]. The first version was limited to the South Coast (Los Angeles) and San Francisco Bay areas of California. In 2011 the ARB contracted with the same researchers to develop an expanded version covering the entire state of California, that also incorporated improvements based on experience with the initial version. The current version of the

EJSM scores each 2010 Census tract in four categories: social and health vulnerability, exposure and risk, hazard proximity, and climate change vulnerability.

When the screening methods were developed, recent data on air pollution emissions from the portion of Mexico adjoining California were not available. This has resulted in incomplete characterization of environmental risk in the border communities of California. As a result, CalEPA's understanding of environmental risk in the border communities of California is insufficient to assess the need for and the adequacy of environmental health protection programs in these communities. Several independent initiatives are underway that may supply data to help fill this gap, namely the U.S. EPA's TRI Around World project (the Trans-boundary Air Pollution Monitoring project), the Commission for Environmental Cooperation, and the Right-to-Know network. Remote sensing data may also provide insights.

III. SCOPE OF WORK

The study must address the following objectives:

1. Provide locations and characterization of air pollutant emission sources located in the area of Mexico immediately adjoining California, focusing on those emissions sources that impact communities in California.
2. Provide data in a format that can be incorporated into the EJSM and CalEnviroScreen tools
3. Develop a process for identifying and characterizing emissions sources in the border area of Mexico that can be expanded on to provide greater accuracy and completeness in future work to characterize emissions from the border area of Mexico.

It is not the objective of this project to provide a complete emissions inventory for the border region of Mexico. Rather, the goal is to identify major sources, and their locations with sufficient detail to prioritize them and guide the decision of the radius of influence to use when assigning hazard proximity scores to border communities in California.

Identification of emissions sources in Mexico near to and upwind from populated areas in California should be given the highest priority, specifically areas south of San Diego and adjacent communities, and the area south of Calexico, although the choice of what portion of Mexico to consider is left to the investigators. The geographical scale of interest may vary by type of emissions source. For instance, sources with tall stacks that impact a wide area might be important to California community exposure on a scale of tens of kilometers, while the influence of small, ground level sources might be on a much smaller scale.

While the relative importance of large facilities is not yet known, it is anticipated that toxic waste disposal sites and manufacturing facilities (maquiladoras) will rank high in terms of emissions volume and potential health impacts. Mobile sources, especially diesel trucks, are expected to contribute significantly to emissions. Emissions from small point sources such as residential and commercial cooking, trash burning, and similar localized sources may contribute substantial emissions, in which case, it may be necessary to apportion emissions to areas rather than individual sources.

IV. DELIVERABLES

- Quarterly progress reports
- Final report
- Geocoded database (such as a shapefile) of identified emissions sources with coordinates, and type of facility and emissions

V. TIMELINE

It is anticipated this project will be completed in 24 months from the start date. The estimated budget for this project is \$150,000.

VI. REFERENCES

George V. Alexeeff, John B. Faust, Laura Meehan August, Carmen Milanese, Karen Randles, Lauren Zeise and Joan Denton. A Screening Method for Assessing Cumulative Impacts
Int. J. Environ. Res. Public Health 2012, 9, 648-659

James L. Sadd, Manuel Pastor, Rachel Morello-Frosch, Justin Scoggins, and Bill Jesdale. Playing It Safe: Assessing Cumulative Impact and Social Vulnerability through an Environmental Justice Screening Method in the South Coast Air Basin, California
Int. J. Environ. Res. Public Health 2011, 8, 1441-1459

Guidelines for Preparing and Submitting Draft Proposals

PROPOSAL PREPARATION GUIDELINES

The technical proposal portion of the draft proposal should be clear and concise, no more than approximately 20 pages in length. To conserve paper, please use single or one-and-a-half spacing. The technical proposal should be paginated as a stand alone document using the “Page xx of xx” format in the top right corner.

The technical proposal must include the following parts:

- Title page. The purpose of this page is to provide in one location information needed by our administrative staff. It must contain all of the following items (see [Example A](#)):
 - the title of the draft proposal
 - the name of the principal investigator
 - a statement that the draft proposal was prepared for ARB’s Research Division
 - the name and address of the university
 - the date of the draft proposal
 - check box if proposed research uses human or animal subjects
- Table of contents.
- Abstract. A one-page abstract of the proposed research briefly summarizing the main points of the various sections of the draft proposal.
- Introduction. Several paragraphs should be dedicated to explaining the relevance of this project. This section should include a brief description of research that has been conducted or is currently underway by the applicant and others in areas related to the draft proposal.
- Objectives. Describe the objectives of this project and how the results will be beneficial to ARB.
- Technical plan. This shall include at least the following topics:
 - A description of experimental techniques or research methods to be employed, including requirements for test specimens, laboratory animals, or human subjects.
 - A discussion of the major tasks to be conducted and how those tasks will be performed. Provide sufficient detail to allow technical reviewers to compare your proposal to others submitted in response to the same project solicitation. This section should demonstrate that adequate facilities and appropriate equipment are available to complete the project and describe protocols to ensure quality control and quality assurance.

- A data management plan that identifies the data to be collected, the sample size required to assure statistical validity of the data, equipment or instrumentation that will be used, and approach to addressing quality assurance of the data.
- If applicable, a description of proposed human or animal subjects, including criteria for inclusion/exclusion, overview of recruitment plans, and need plans for Institutional Review Board (IRB) approval.
- References to publications describing similar work done by applicant(s) or others.

The proposal package must also include:

- Project schedule
 - List each task specified in the technical plan. Addressing each task, display the estimated timespan, with beginning and ending dates, of each individual task over the life of the contract. If tasks are extensive, they may be subdivided. Denote progress review meeting dates and dates of deliverables such as the draft final report (see [Example B](#)). Keep in mind that the draft final report must be provided to ARB six months prior to the contract end date in order to allow time for review by ARB staff and RSC.
- Curricula vitae or résumés of the key scientific personnel.
- Preliminary cost proposal.
 - Include the estimated cost breakdown by task (see [Example C](#)). Projects that provide co-funding will be evaluated more favorably.

PROPOSAL SUBMISSION GUIDELINES

- All materials comprising the draft proposal must be consolidated into a single Microsoft Word or Adobe pdf file.
- To submit your draft proposal, please send the file via email to Álvaro Alvarado (alvaro.alvarado@arb.ca.gov) no later than **July 15, 2016**.

DRAFT PROPOSAL

*Concentrations of Volatile Organic Compounds
in Urban Homes*

Principal Investigator:
Joanna Phillips

Prepared for:

State of California Air Resources Board
Research Division
PO Box 2815
Sacramento CA 95812

Prepared by:

University of California, Davis
One Shields Avenue
Davis, CA 90210
(888) 555-4433

August __, ____

Check if applicable:

Animal subjects _____

Human subjects _____

EXAMPLE B: SAMPLE PROJECT SCHEDULE

PROJECT SCHEDULE

Task 1: Purchase equipment

Task 2: Install equipment

Task 3: xxxxx

Task 4: xxxxx

Task 5: xxxxx

Task 6: Draft final report

Task 7: Amend final report

	MONTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
TASK																
1																
2																
3																
4																
5																
6																
7																
		m	p			m		p		m				dm		F

p = Quarterly progress report

d = Deliver draft final report (to be submitted 6 months prior to contract expiration)

f = Deliver final report

m = Meeting with ARB staff

EXAMPLE C: ESTIMATED COST BY TASK

Task	Labor	Employee Fringe Benefits	Subs, Consultan ts	Equip	Travel Subsist	EDP	Copy Print	Mail Phone Fax	Materials and Supplies	Analyses	Misc.	Overhead*	Total
1	\$4,200	\$1,260	\$0	\$5,200	\$4,240	\$0	\$15	\$5	\$25	\$0	\$0	\$840	\$15,785
2	\$5,000	\$3,000	\$5,430	\$0	\$0	\$0	\$45	\$60	\$34	\$0	\$0	\$2,000	\$15,569
3	\$10,000	\$1,500	\$0	\$0	\$0	\$450	\$10	\$10	\$66	\$365	\$0	\$1,000	\$13,401
4	\$8,000	\$102	\$0	\$72	\$340	\$0	\$5	\$10	\$52	\$1,024	\$0	\$68	\$9,673
5	\$4,500	\$1,350	\$0	\$0	\$0	\$0	\$10	\$10	\$52	\$0	\$0	\$900	\$6,822
6	\$340	\$2,400	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$245	\$1,600	\$4,585
	\$32,040	\$9,612	\$5,430	\$5,272	\$4,580	\$450	\$85	\$95	\$229	\$1,389	\$245	\$6,408	\$65,835

*For 2015/16 Proposals – Overhead shall be calculated at 10% of the modified total direct cost (MTDC). MTDC is the total cost less equipment, student fee remission, and the portion of each subcontract exceeding \$25,000.