

State of California  
AIR RESOURCES BOARD

RESEARCH PROPOSAL

Resolution 05-4

January 20, 2005

Agenda Item No.: 05-1-2

WHEREAS, the Air Resources Board has been directed to carry out an effective research program in conjunction with its efforts to combat air pollution, pursuant to Health and Safety Code sections 39700 through 39705;

WHEREAS, a research proposal, number 2562-246, entitled "Monitoring and Modeling of Ultrafine Particles and Black Carbon at the Los Angeles International Airport", has been submitted by the University of California, Los Angeles;

WHEREAS, the Research Division staff has reviewed and recommended this proposal for approval; and

WHEREAS, the Research Screening Committee has reviewed and recommends for funding:

Proposal Number 2562-246 entitled "Monitoring and Modeling of Ultrafine Particles and Black Carbon at the Los Angeles International Airport", submitted by the University of California, Los Angeles, for a total amount not to exceed \$117,986.

WHEREAS, the United States Environmental Protection Agency will fund this project in full for a total amount not to exceed \$117,986.

NOW, THEREFORE BE IT RESOLVED, that the Air Resources Board, pursuant to the authority granted by Health and Safety Code section 39703, hereby accepts the recommendation of the Research Screening Committee and approves the following:

Proposal 2562-246 entitled "Monitoring and Modeling of Ultrafine Particles and Black Carbon at the Los Angeles International Airport", submitted by the University of California, Los Angeles, for a total amount not to exceed \$117,986.

BE IT FURTHER RESOLVED, that the Executive Officer is hereby authorized to initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed herein, and as described in Attachment A, in an amount not to exceed \$117,986.

I hereby certify that the above is a true and correct copy of Resolution 05-4, as adopted by the Air Resources Board.

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Lori Andreoni, Clerk of the Board

## ATTACHMENT A

### "Monitoring and Modeling of Ultrafine Particles and Black Carbon at the Los Angeles International Airport"

#### **Background**

The Los Angeles International Airport (LAX) is one of the largest airports in the world. Based on estimates of aircraft emission rates and activity at LAX, aircraft emissions may contribute significantly to ambient levels of fine and ultra-fine particulate matter (PM) near LAX. The South Coast Air Quality Management District studied emissions near LAX, but they were not able to distinguish between emissions from LAX and emissions from nearby roadways such as I-405.

#### **Objective**

The objectives of this project are to: 1) characterize near-source and downwind PM levels, 2) analyze the temporal patterns of emissions, and 3) investigate the contribution of aircraft emissions to local fine and ultra-fine PM levels in residential areas downwind of LAX.

#### **Methods**

The contractor will assemble, install, and operate near-real-time instruments to monitor fine and ultra-fine PM concentrations, particle size distributions, black carbon, and PM<sub>2.5</sub> at LAX near a major take-off runway. An upwind site will also be installed with the same instruments, to provide background data for comparison. Subsequently, the contractor will use a similarly outfitted minivan to measure pollutant levels at seven sites in the downwind community. The results will be subjected to statistical analysis and modeling.

#### **Expected Results**

The contribution of emissions from aircraft take-offs and landings to fine and ultra-fine PM levels in residential areas downwind of LAX will be determined.

#### **Significance to the Board**

Exposure to ambient PM poses serious health concerns to Californians, with fine and ultra-fine PM exposure of special concern. Emissions from aircraft at major airports could have significant impacts on neighboring communities, but prior studies have not been able to quantify nearby PM exposures nor the extent of health concern. Residents of communities near LAX are concerned about its air quality impacts. If aircraft activities at LAX were found to contribute inordinate amounts of pollutants to the nearby neighborhoods, the ARB could work with stakeholders to mitigate the problem.

#### **Contractor:**

University of California, Los Angeles

#### **Contract Period:**

24 months

**Principal Investigator (PI):**

John R. Froines, Ph.D.

**Contract Amount:**

\$117,986

**Co-Funding:**

The U.S. EPA Region IX is funding the total cost of the project. ARB will manage the project in collaboration with U.S. EPA.

**Basis for Indirect Cost Rate:**

The State and the UC system have agreed to a ten percent indirect cost rate.

**Past Experience with this Principal Investigator:**

Since 1999, the principal investigator has directed the Southern California Particle Center and Supersite, which, with funding from the ARB and the federal government, has published many worthwhile papers on environmental toxicity.

**Prior Research Division Funding to UCLA:**

Year	2004	2003	2002
Funding	\$109,975	\$0	\$0

# BUDGET SUMMARY

University of California, Los Angeles

Monitoring and Modeling of Ultrafine Particles and Black Carbon  
at the Los Angeles International Airport

## **DIRECT COSTS AND BENEFITS**

1.	Labor and Employee Fringe Benefits	\$ 87,274	
2.	Subcontractor	\$ 10,000 <sup>1</sup>	
3.	Equipment	\$ 4,000	
4.	Travel and Subsistence	\$ 4,970	
5.	Electronic Data Processing	\$ 500	
6.	Reproduction/Publication	\$ 0	
7.	Mail and Phone	\$ 0	
8.	Supplies	\$ 880	
9.	Analyses	\$ 0	
10.	Miscellaneous	<u>\$ 0</u>	
	Total Direct Costs		\$107,624

## **INDIRECT COSTS**

1.	Overhead	\$ 10,362	
2.	General and Administrative Expenses	\$ 0	
3.	Other Indirect Costs	\$ 0	
4.	Fee or Profit	<u>\$ 0</u>	
	Total Indirect Costs		<u>\$10,362</u>

## **TOTAL PROJECT COSTS**

\$117,986

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<sup>1</sup> Constantinos Sioutas will provide technical assistance and consultation on the development, implementation, and evaluation of the proposed field studies included in this proposal. He is a Professor in the Department of Civil and Environmental Engineering at the University of Southern California. Professor Sioutas is charging \$7,000 for salary and \$3,000 for indirect costs.