State of California
AIR RESOURCES BOARD

Resolution 03-34

December 11, 2003

Agenda Item No.: 03-10-5

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 2540-232, entitled "Traffic Pollution and Children's Health: Refining Estimates of Exposure For The East Bay Children's Respiratory Health Study," has been submitted by the Office of Environmental Health Hazard Assessment.

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 2540-232 entitled "Traffic Pollution and Children's Health: Refining Estimates of Exposure For The East Bay Children's Respiratory Health Study," submitted by the Office of Environmental Health Hazard Assessment, for a total amount not to exceed $218,355.

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 Number 2540-232 entitled "Traffic Pollution and Children's Health: Refining Estimates of Exposure For The East Bay Children's Respiratory Health Study," submitted by the Office of Environmental Health Hazard Assessment, for a total amount not to exceed $218,355.

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 $218,355.

ATTACHMENT A

"Traffic Pollution and Children's Health: Refining Estimates of Exposure For The East Bay Children's Respiratory Health Study"

Background

Traffic-related emissions are the principal source of air pollution in most urban areas. Several epidemiological studies suggest that residence near areas of high traffic density may be associated with a variety of respiratory health outcomes. Most of these epidemiological studies were conducted in Europe and Japan, and of the studies conducted in the United States and Canada only a few have measured levels of traffic pollutants at a school or residential location as part of the exposure assessment. Bart Ostro et al. of Office of Environmental Health Hazard Assessment (OEHHA) initiated the East Bay Children's Respiratory Health Study (EBCHRS) in 2000-2001. This study collected primary data on health and traffic-related pollutant concentrations from children attending elementary schools in Alameda County, California. Health outcomes evaluated included episodes of asthma and bronchitis. The proposed study builds on the Alameda County study.

Objective

This study will refine estimates of residential and school exposure to traffic-related pollutants through the integration of traffic, air pollution and time-activity data using geographic information methods. This study will provide methodological guidance for future traffic studies, help elucidate associations between traffic and health, and address issues of environmental justice.

Methods

The contractor will develop and test empirical models that relate school- and neighborhood-scale ambient pollution monitoring to Geographical Information Systems (GIS) based traffic metrics and use GIS-based traffic estimates to validate self-report traffic measures. They will also develop time-weighted estimates, using traffic-based exposure measures at the subjects' schools and residences and evaluate the impact of these traffic based exposure metrics on the direction, magnitude, and precision of the effect estimate. In addition, the contractor will evaluate other potential school-facility specific factors that might contribute to respiratory symptoms using a school indoor air quality survey and utilize GIS based traffic estimates to test empirically for differential residential exposures by socioeconomic status, race, and ethnicity in the study population.

Expected Results

This study will provide methodological guidance for future traffic studies, help elucidate associations between traffic and health, and investigate issues of environmental justice.

The investigators will be able to refine their exposure estimates, reduce exposure misclassification, and provide reliable estimates of the association between exposure to air pollution and adverse health outcomes.

Significance to the Board
The refinement and comparison of the various traffic metrics could lead to the best low-cost expedient methods of determining exposure for use in other epidemiological studies and risk assessments. Information generated from this study will be useful for both ambient air quality standards and pollution control strategies by identifying vulnerable populations and determining ambient concentrations that are levels of concern for these groups.

Contractor:
Office of Environmental Health Hazard Assessment

Contract Period:
24 months

Principal Investigator (PI):
Bart Ostro

Contract Amount:
$218,355

Cofunding:
None for this project.

Basis for Indirect Cost Rate:
Negotiated rate with the Office of Environmental Health Hazard Assessment of ten percent.

Past Experience with this Principal Investigator:
Bart Ostro is the Chief of the Air Pollution and Epidemiology Unit of the Office of Environmental Health Hazard Assessment. His experience in air pollution and epidemiology has led him, together with ARB, to evaluate the Ambient Air Pollutants Standards. He has published over 32 studies that are related to ambient air, indoor air pollution, and health effects.

BUDGET SUMMARY

Office of Environmental Health Hazard Assessment

"Traffic Pollution and Children's Health: Refining Estimates of Exposure For The East Bay Children's Respiratory Health Study"

DIRECT COSTS AND BENEFITS				
1.	Labor and Employee Fringe Benefits	$	0	
2.	Subcontractors	$	192,850*	
3.	Equipment	$	2,500	
4.	Travel and Subsistence	$	7,530	
5.	Electronic Data Processing	$	7,500	
6.	Reproduction/Publication	$	1,000	
7.	Mail and Phone	$	0	
8.	Supplies	$	2,000	
9.	Analyses	$	0	
10.	Miscellaneous	$	4,975	
	Total Direct Costs			$ 218,355
INDIRECT COSTS				
1.	Overhead	$	0	
2.	General and Administrative Expenses	$	0	
3.	Other Indirect Costs	$	0	
4.	Fee or Profit	$	0	
	Total Indirect Costs			$ 0
TOTAL PROJECT COSTS				**$ 218,355**

***Subcontractor's:**
California Department of Health Service for a total cost of $40,600
CSUS foundation for a total cost of $116,750
GIS consultant for a total cost of $32,000
Brett Singer, Ph.D for a total cost of $3,500