

BOARD MEETING DATE: August 2, 2024

AGENDA NO. 7

PROPOSAL: Execute Contract to Determine Brake and Tire Wear Exposure Concentrations in South Coast Air Basin and Coachella Valley

SYNOPSIS: In December 2023, the Board approved \$850,000 from the Clean Fuels Fund for a study on brake and tire wear particulate matter levels in the South Coast AQMD jurisdiction as part of MATES VI. This action is to execute a contract with Emissions Analytics, LLC selected with South Coast AQMD's competitive RFP process to conduct a brake and tire wear study in an amount not to exceed \$850,000.

COMMITTEE: Administrative, June 14, 2024; Recommended for Approval

RECOMMENDED ACTIONS:

Authorize the Executive Officer to execute a contract with Emissions Analytics, LLC to conduct a brake and tire wear study in an amount not to exceed \$850,000 from the General Fund (01).

Wayne Natri
Executive Officer

SR:SE:NS

Background

South Coast AQMD experiences some of the highest pollutant levels in the nation. Mountain ranges act as barriers to limit ventilation and persistent clear and calm conditions enhance photochemical reactions, contributing to high pollutant concentrations such as particle mass (particulate matter, including PM2.5 and PM10) and the highest ozone concentrations in the nation. Air toxic pollutant emissions are also high within the South Coast AQMD, with many emission sources including goods movement (one third of United States containerized cargo is moved through the region), 10 million vehicles, and 28,000 permitted stationary sources.

South Coast AQMD has studied air toxic pollution and the associated health risks to the 17 million residents living in the region through MATES. Since the 1980s, five MATES campaigns have tracked progress in reducing air toxic exposures and health risks (<https://www.aqmd.gov/home/air-quality/air-quality-studies/health-studies>). MATES VI is currently underway and will use comprehensive ambient measurements and regional modeling to estimate air toxic exposures and health risks, with a special focus on non-exhaust mobile source emissions (NEE) for the first time. As emissions from most sources decrease, NEE are becoming a larger fraction of total air toxic emissions, a trend that is predicted to continue in the next decades. Some of the most important components of NEE due to the associated health risks are brake wear particles (BWP) and tire and road wear particles (TRWP). In December 2023, the Board approved \$850,000 for a study on brake and tire wear particulate matter levels and the transfer of those funds from the Clean Fuels Program Fund to the General Fund to support the MATES VI program. South Coast AQMD released RFP #P2024-09 to solicit bids to quantify BWP and TRWP exposure concentrations due to emissions from vehicles and roads in coordination with MATES VI. South Coast AQMD staff will use the exposure concentrations developed through this study to estimate health risks of BWP and TRWP exposure.

Outreach

In accordance with South Coast AQMD's Procurement Policy and Procedure, a public notice advertising the RFP and inviting bids was published in the Los Angeles Times, the Orange County Register, the San Bernardino County Sun, and Riverside County's Press Enterprise newspapers to leverage the most cost-effective method of outreach throughout the region.

Additionally, potential bidders were notified utilizing South Coast AQMD's own electronic listing of certified minority vendors. Notice of the RFP was emailed to the Black and Latino Legislative Caucuses and various minority chambers of commerce and business associations and placed on South Coast AQMD's website (<http://www.aqmd.gov>). In addition, staff reached out to potential qualified bidders whose work has been cited in related literature or referred to staff by other subject experts.

Bid Evaluation

Four proposals were received by the 2:00 p.m. deadline on March 2, 2024 in response to the RFP #P2024-09. The Attachment reflects the evaluation of the four proposals that were submitted by:

- University of California Riverside (UCR) with Georgia Institute of Technology as a subcontractor
- Aerodyne Research, Inc
- University of California, Los Angeles (UCLA)
- Emissions Analytics, LLC with University of California, Irvine (UCI) and University of Southern California (USC) as subcontractors

Using the prescribed evaluation criteria to consider technical and cost qualifications, proposals from UCR with Georgia Institute of Technology; UCLA; and Emissions Analytics, LLC with UCI and USC were scored as technically qualified. The proposal from Emissions Analytics, LLC with UCI and USC received the highest score.

The important factors noted by the review panel that contributed to Emissions Analytics, LLC with UCI and USC's score are: collaborative approach that will complement the MATES VI campaign, experience in air quality measurements and analysis to be performed in the study, work plan that includes determination of PM10 brake wear particles, tire particles, and road dust, extensive sample collection, and modeling approach that will deliver exposure surfaces along with model-ready emissions.

Panel Composition

The evaluation panel consisted of an Air Quality Specialist from the Planning, Rule Development and Implementation Division; a Program Supervisor from the Technology Advancement Office; an Atmospheric Measurements Manager from the Monitoring and Analysis Division; and a Climate Change Mitigation & Emissions Research Section Manager from CARB. Of the four panel members, two are Asian Pacific American, and one is Caucasian. All four panel members are male.

Summary Of Proposal

This action is to authorize the Executive Officer to execute a contract with Emissions Analytics, LLC to conduct the brake and tire wear study in an amount not to exceed \$850,000 from the General Fund (01). Emissions Analytics will sample 24-hour PM10 at MATES VI measurement stations during the MATES VI campaign. Data will be analyzed using gas chromatography and mass spectrometry with pyrolysis sample introduction to determine organic compound concentrations and then the data will be used along with a database of tire composition fingerprints to calculate the PM10 tire tread concentration. UC Irvine will determine brake emission composition fingerprints by testing several brake systems on a dynamometer and will then use the data along with South Coast AQMD ICP-MS analysis for MATES VI samples to calculate the PM10 brake particle concentration in the samples. The contractor will also calculate the PM10 from road dust using a similar method. The contractor will then use the calculated concentrations along with model data from South Coast AQMD and other data to calculate 2 km resolution exposure concentrations for brake wear particles and tire and road wear particles.

Benefits to South Coast AQMD

The MATES campaigns conducted by South Coast AQMD provide essential information on air toxics levels in the South Coast AQMD's jurisdiction and present a unique opportunity to evaluate long-term trends in air toxics and their health impacts. South Coast AQMD continues to work toward reducing air toxics emissions through supporting cleaner technologies (including cleaner diesel technologies), rulemaking to address toxic emissions from mobile and stationary sources, and implementing air toxics monitoring and enforcement initiatives. The MATES VI program complements these efforts and provides information to track progress on reducing air toxics in the region along with the identification of sources contributing to the air pollution health risk, of which exposure to BWP and TRWP emissions may play a key role. As emissions from most sources decrease, non-exhaust emissions including BWP and TRWP are becoming a larger fraction of air toxics, a trend that is predicted to continue in the next decades.

Resource Impacts

The contract with Emissions Analytics, LLC with UCI and USC as subcontractors will not exceed \$850,000 from the General Fund (01). In December 2023, the Board approved the transfer of sufficient funds from the Clean Fuels Program Fund to the General Fund to support the MATES VI program. The tire and brake wear study is included in the MATES VI campaign.

Attachment

Evaluation of Proposals for RFP #P2024-09

ATTACHMENT

Evaluation of Proposals for RFP #P2024-09

Brake and Tire Wear Exposure Concentrations in the South Coast Air Basin and Coachella Valley

Proposal	Affiliation	Cost	Cost Points	Technical Points	Additional Points*	Total Points
1	UCR and Georgia Institute of Technology	\$849,603.00	9.57	75.75	0	85
2	Aerodyne Research, Inc	\$814,613.00	10.00	49.75	10	70
3	UCLA	\$850,000.00	9.57	81.50	0	91
4	Emissions Analytics, UCI, and USC	\$850,000.00	9.57	81.00	15	106

*Additional points awarded for Small Businesses and Local Businesses according to South Coast AQMD Procurement Policies