

BOARD MEETING DATE: October 2, 2015

AGENDA NO. 10

PROPOSAL: Recognize Revenue and Appropriate Funds to Support Air Quality Sensor Performance Evaluation Center Program

SYNOPSIS: SCAQMD applied for U.S. EPA “Community-Scale Air Toxics Ambient Monitoring” funds for FY 2015-16 through FY 2017-18 and was awarded \$569,682 to study air toxic emissions from refineries and the spatial and temporal distribution of such emissions over impacted local communities, utilizing next generation monitoring technologies. This action is to recognize \$569,682 in revenue into the General Fund and appropriate \$508,729 to the Science & Technology Advancement Budget (exclusive of the \$60,953 in Salaries and Benefits), to support the Air Quality Sensor Performance Evaluation Center Program.

COMMITTEE: Technology, September 18, 2015; Recommended for Approval

RECOMMENDED ACTION:

Recognize \$569,682 in revenue into the General Fund, and as set forth in the Attachment, appropriate \$508,729, upon receipt into Science & Technology Advancement’s FY 2015-16, FY 2016-17, and/or FY 2017-18 Budget, Services and Supplies/Capital Outlays Major Objects, as needed (exclusive of the \$60,953 in Salaries and Benefits already included in the Budget).

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Executive Officer

MMM:LT:AP

Background

On November 7, 2014, the U.S. EPA released RFP #EPA-OAR-OAQPS-15-01 to announce the availability of funds for “Community-Scale Air Toxics Ambient Monitoring” projects. Specifically, the RFP solicited proposals for projects designed to assist state, local and tribal communities in identifying and profiling air toxics sources, assessing emerging measurement methods, characterizing the degree and extent of local-scale air toxics problems and tracking progress of air toxics reduction activities.

To be considered for funding under this RFP, each project had to address only one of the following four categories: community-scale monitoring, monitoring in the near-road environment, methods evaluation or analysis of existing data. SCAQMD staff submitted a grant proposal to U.S. EPA within the community-scale monitoring category requesting funding in the amount of \$569,682.

On June 25, 2015, U.S. EPA informed staff that the SCAQMD proposal was selected for award based on its score, rank and technical merit.

Proposal

This comprehensive three-year effort is to apply next generation air monitoring methods to characterize hazardous air pollutant (HAP) emissions from refineries and assess potential impacts to surrounding communities. The project will use low-cost air quality sensors and optical remote sensing techniques to accurately measure air toxic emissions from refineries and their potential impact on local communities. These state-of-the-art measurement methods are currently being tested and used within our existing Air Quality Sensor Performance Evaluation Center (AQ-SPEC) and fence-line monitoring programs.

The amount of air pollutants released from refineries is typically estimated using empirical calculations provided by available emission inventories and is not completely characterized. There is also a growing body of evidence suggesting that emission inventories for most pollutants, particularly VOCs, may be largely underestimated. Furthermore, there is a dearth of information regarding the dispersion patterns of such emissions over the surrounding communities. Therefore, improved knowledge of the actual magnitude of VOC and other HAP emissions from industrial facilities as well as a better understanding of their temporal and spatial distribution is crucial for attaining U.S. EPA's air quality standards and for protecting surrounding communities. This challenge is further augmented by the fact that HAPs are usually present at very low ambient concentrations and are difficult to measure with conventional monitoring instruments.

Most available monitoring methods for air toxics are limited to the collection of integrated field samples (e.g., using canisters), followed by laboratory analysis, and do not allow for continuous monitoring or dense spatial coverage, nor do they provide the ability to realistically ascertain total emissions from a facility. Emerging novel technologies, such as low-cost air monitoring sensors and optical remote sensing (ORS) methods (often referred to as Next Generation Air Monitoring or NGAM), may represent viable alternatives to reliably measure the atmospheric concentrations of these air toxics in real time. However, field data obtained using NGAM technology is scarce, and significant work is needed to gather long-term monitoring data to ascertain its feasibility, accuracy and cost-effectiveness and fully characterize industrial emissions and their impact on nearby communities.

Staff applied to U.S. EPA for funding and was awarded \$569,682 to conduct a comprehensive study targeted at making significant advancements in these areas that focuses on the following specific objectives:

1. Long-term use of ORS methods to monitor HAP emissions from refineries and to estimate their annual VOC emissions; and
2. Long-term use of ORS methods and low-cost sensors for assessing the impact of industrial HAP emissions on surrounding communities.

EJ communities, such as Carson and Wilmington, are potentially impacted by increased ground level VOC concentrations, diesel particulate matter, ultrafine particles and other air toxics due to their close proximity to refineries, industrial facilities, the port complex and major transportation corridors. Many Carson and Wilmington residents live directly downwind from these industrial, commercial and transportation sources and are consequently at a greater risk of HAP exposure. This three-year study will for the first time utilize ORS methods in conjunction with low-cost air quality sensors to monitor HAP emissions from large industrial facilities in the Carson-Wilmington area and the spatial and temporal distribution of such emissions over neighboring communities.

Benefits to SCAQMD

This work will provide unprecedented monitoring information on HAP emissions from refineries and other industrial sources and allow mapping of ambient level HAP concentrations in surrounding neighborhoods. The work will also assist in identifying and addressing specific concerns related to air toxic exposure in the Carson-Wilmington area. Additionally, it will serve as a template for developing monitoring strategies and/or studies to provide information on mitigation efforts and their future implementation.

Resource Impacts

The \$569,682 in U.S. EPA funding will partially support the AQ-SPEC and fence-line monitoring programs. In summary, \$569,682 in revenue from U.S. EPA shall be recognized into the General Fund, and as set forth in the Attachment, \$508,729 will be appropriated into Science and Technology Advancement's FY 2015-16, FY 2016-17, and/or FY 2017-18 Budget, Services and Supplies/Capital Outlays Major Objects as needed. The remaining \$60,953 was already included in the adopted budget in the Salaries and Employee Benefits Major Object.

Attachment

Proposed Appropriations for FY 2015-16, FY 2016-17, and/or FY 2017-18

Attachment
Proposed Appropriations for FY 2015-16, FY 2016-17, and/or FY 2017-18

Account Description	Account Number	Estimated Expenditure
Services and Supplies/Capital Outlays Major Objects		
Solar Occultation Flux (SOF) Instrument (purchase or lease)	67300/77000	\$ 388,729
Communications	67900	\$ 25,000
Lab Supplies	68050	\$ 15,000
Small Tools, Instruments, Equipment	68300	\$ 50,000
Miscellaneous Expenses	69700	\$ 30,000
Total Services and Supplies/Capital Outlays Major Objects		\$508,729
Total Appropriations		\$508,729
Salaries and Benefits Major Object*		\$60,953
Total Award		\$569,682

* Salaries and Benefits are already included in the adopted budget