SACRAMENTO METROPOLITAN AIR QUALITY
MANAGEMENT DISTRICT

For Agenda of October 23, 2014

To: Board of Directors
   Sacramento Metropolitan Air Quality Management District

From: Larry Greene
      Executive Director/Air Pollution Control Officer

Subject: Information Item on the Development of a Pilot Program using New Particle
         Sensor Technology to Engage and Educate High School Students about Air
         Quality

Recommendation
Information Item

Background
On winter nights, cool temperatures and stagnant air in Sacramento County often result in high
concentrations of fine particle pollution ($PM_{2.5}$). Smoke from residential wood burning is the
major contributor to our winter pollution and it is associated with increased asthma rates and
school absences. Wood burning also releases toxic pollutants that may contribute to cancer. It is
important to public health to increase awareness of $PM_{2.5}$ air pollution and related health effects,
especially among youth.

Project Summary
The District, in conjunction with Sonoma Technology, Inc., and Upward Bound, will work with
high school science students to conduct a pilot project to measure pollution using portable
sensors in the communities where the students live. Upward Bound has existing relationships
with high schools in Sacramento County and has identified candidate schools and teachers for
this project. The project will entail (1) the District team educating the students about air pollution
and pollution sensors, (2) the students, with support from the District team, using sensors to
measure $PM_{2.5}$ over several weeks this coming winter, and (3) the students and District team
conducting analysis of the measurements to understand $PM_{2.5}$ in the students' communities.

The main expected outcomes of this pilot study are a framework for future programs to educate
Sacramento's youth about fine particle pollution in their communities; an increase in awareness
of wood smoke's contribution to air pollution; and a better understanding of air pollution
characteristics and variability within a neighborhood. In addition, this project will provide the
District with an excellent opportunity to better understand how new low-cost air quality sensors
can be used to measure air pollution, which could support decisions related to other air pollution
monitoring needs.
About the External Team Members
Sonoma Technology, Inc. is at the forefront of using new portable sensing technology to measure PM$_{2.5}$ from wood smoke and recently authored U.S. EPA's guidebook on low-cost sensors. In addition, STI has recently conducted PM$_{2.5}$ measurement programs with high school students in a program called Kids Making Sense.

Upward Bound is an academic and college preparatory program based out of UC Davis and is funded by the U.S. Department of Education. Upward Bound works with low-income students to develop their academic skills and foster an interest in post-secondary education.

Fiscal Impact
There is no fiscal impact. The $20,000 cost for this pilot program will be identified in savings out of the Professional Services account in the approved FY14-15 budget. The Executive Director/APCO will use his contract authority to execute contracts up to $50,000 per year, which was recently amended under Resolution 2014-022.

Respectfully submitted,

[Signature]

Larry Greene
Executive Director/Air Pollution Control Officer
Sacramento Metropolitan Air Quality Management District

Approved as to form:

[Signature]

Kathrine Pittard
District Counsel
Sacramento Metropolitan Air Quality Management District