Project Title: Sacramento PM2.5 NAA Area Community Air Shed Project

Applicant Information:

Sacramento Metropolitan Air Quality Management District
777 12th Street, Suite 300
Sacramento, CA 95814
Phone: (916) 874-4872
Program Contact: Mark Loutzenhiser, mloutzenhiser@airquality.org
DUNS number: 0264538990000

Budget Summary:

EPA Funding Requested	Voluntary Cost Share	Total Project Cost
$ 7,070,148	**$ 6,533,165**	**$ 13,603,313**

Project Period:

April 15, 2022 – April 15, 2027

Project Description:

Sacramento AQMD is the primary applicant and will coordinate activities to be implemented in the other Sacramento nonattainment area (NAA) air districts: El Dorado Air Quality Management District (EDC AQMD), Placer County Air Pollution Control District (PC APCD) and Yolo Solano Air Quality Management District (YS AQMD). This project includes six PM2.5 reducing components to be implemented in El Dorado, Placer and Yolo Solano communities within the NAA area. Those components and the anticipated accomplishments are:

1. **Heavy Duty Electrification (HDE).** Replace 10 old diesel school buses with 10 new electric school buses.
2. **Off Road Ag Equipment Replacement** Replace approx. 20 pieces of ag equipment with cleaner equipment.
3. **Unpaved Road Paving (URP).** Pave 4.8 miles of unpaved roadways.
4. **Biomass Chipping** Chip 250,000 cubic yards of residential biomass as an alternative to open burning.
5. **Low-Dust Harvesting Equipment Replacement.** Pilot program replacing approximately 5 existing harvesters with new, low-dust equipment.
6. Agricultural Chipping. **Pilot program to provide orchard growers with incentives to chip approx**. **630 acres as an alternative to open burning.**

Project Location:

Sacramento 2006 24-hour PM2.5 NAAQS NAA Area

Work plan:

Section 1 Project Summary and Approach

A. Ongoing, Significant Emission Reductions & Consideration of Other Activities

The Sacramento region NAA area—which includes all or part of El Dorado, Placer, Sacramento, Yolo and Solano counties—was designated as NAA for the 2006 24-hour PM2.5 National Ambient Air Quality Standard (NAAQS) in 2009. EPA has determined the region is among the top five most polluted areas in the U.S. relative to the 24-hour PM2.5 NAAQS and is eligible for Targeted Airshed Grant (TAG) funding. The NAA air districts are joining together on this project to achieve the overall goal of the TAG Program of reducing ambient PM2.5 air concentrations for our community residents. This project will be implemented in accordance with EPA's FY 2018-2022 Strategic Plan in that the program will be administered efficiently and consistently throughout the targeted communities ensuring that more Americans are living and working in areas that meet high air quality standards.

Elevated 24-hour PM2.5 concentrations have been observed in winter, typically from November through February, throughout the NAA. PM2.5 air quality data suggest local meteorological conditions often play a significant role during these episodes by creating adverse dispersion conditions and favoring the formation of secondary aerosols. During these periods, the stable layer above the ground is much deeper than a typical nocturnal inversion. Cold air is trapped in the Sacramento valley and foothill communities when the air mass stabilizes as high pressure aloft overtakes the region. Under such circumstances, a prolonged strong inversion layer (or layers) limits vertical mixing, trapping local pollutants in a thin layer against the valley floor and eastern foothills. The NAA topographical features lead to fast forming, more intense, and more persistent cold-air pools. This scenario has led to exceedances and violations of the 24-hour health standard for PM2.5 in the past. In other times of the year, PM2.5 concentrations are generally low and are well within the annual health standard for PM2.5.

The districts continually work to reduce PM2.5 emissions in the most cost efficient and effective manner. The approach taken to develop a project plan and this application to employ US EPA TAG funding was to review the application materials, review other successful projects, discuss with potential partners, and convene district management discussions where project components were considered. TAG Projects reviewed included those previously awarded to and implemented by other air districts (Idaho Department of Environmental Quality, San Joaquin Valley Air Pollution Control District and Utah Department of Environmental Quality). We also reviewed Sacramento area districts' current and past projects implemented with limited district and State funding, and projects implemented by other entities. Air District APCOs and staff met on several occasions to determine which projects would most cost-effectively reduce PM2.5 in their communities. Staff from all four districts contributed to the application development.

This project includes six components that address major emission categories in the Sacramento area: heavy duty vehicle electrification, agricultural equipment replacement, alternatives to open burning, better harvesting equipment, and road dust. Combined, all components work will result in significant decreases of direct PM2.5 emissions along with reductions in PM2.5 precursor emissions, specifically NO_X and VOCs. The associated products to be developed or produced include education and outreach materials, advertisements, newly paved roadways, agricultural and residential vegetation chipping (in lieu of burning), and the replacement of old, high-polluting vehicles and equipment with the cleanest available vehicles to make progress toward meeting NAAQS in the NAA.

The potential audiences for these programs are community residents, visitors, and businesses within the NAA. The benefits to the public include increased awareness of actions being taken and the programs they can participate in, to reduce emissions, and ultimately improve air quality. Additional benefits from the heavy-duty electrification project include reduced exposure to criteria pollutants and toxic air contaminants for sensitive groups including school-age children and residents in low-income communities. Additional benefits from the agricultural equipment replacement project include more investment to create incentives for farmers to increase turnover of decades old equipment delayed due to the volatility of the agricultural sector. Additional benefits from the low-dust harvesting equipment replacement include reduced exposure to emissions by nearby low-income and migrant communities. Additional benefits from the agricultural chipping project include improved soil quality, increased water use efficiency and reduced exposure by nearby communities to smoke from agricultural burning. Additional benefits from the road paving project include increased public safety and reduced asbestos emissions as most proposed roadways are in or near Naturally Occurring Asbestos (NOA) areas.

These programs will achieve ongoing, significant reductions of direct PM2.5 emissions within the NAA area. Existing heavy duty vehicles and ag equipment replaced with this funding will be destroyed or permanently removed from use in the nonattainment area resulting in emission reductions for the duration of the 20+ year useful life for the new purchase. Once paved, the roadways will continue to be maintained by the El Dorado County Transportation Department. If chip-sealed roads get additional double layers of chip seal every 7 years, they can last indefinitely. If not, they will deteriorate and have a project life of about 10 years.

We considered several other available PM2.5 and PM2.5 precursor emission reducing activities, other mobile sources, stationary sources, construction, demolition, and biomass transport projects. The group concluded that the projects selected for consideration were the most efficient and effective at reducing emissions. Although on road and other mobile sources are regulated by the State of California, and other incentive programs exist, the amount of funding available to

schools and the ag sector has been insufficient to drive higher turnover of this old, high-polluting equipment. Stationary sources are highly regulated by California's 35 air districts. District rules address emissions from all significant stationary sources. District's also have in place and proactively implement fugitive and NOA dust control Rules that control emissions from construction and demolition activities. The projects chosen for this grant program were determined to be the best options for fostering further emission reductions.

Component 1 – Heavy Duty Vehicle Electrification (HDVE)

Heavy duty vehicles contribute 3.5% of direct PM2.5 emissions and 16.3% of the PM2.5 precursor emissions in the NAA. This project component will reduce emissions from heavy duty vehicles by 0.01 percent for both direct PM2.5 and precursor emissions and will result in further emission reductions due to increased adoption of zero-emission technology within the NAA. In addition, the emission reductions will persist way beyond the life of this funding cycle and for the duration of the buses 18-year useful life. This project component will build upon successful but underfunded programs that have already replaced 35 diesel school buses in Placer County since 2018 and 16 diesel school buses in Yolo and Solano Counties since 2017.

Commented [JB1]: …many projects?

Thus far, Placer County has funded charging infrastructure for the Eureka Union School District (EUSD), but has not funded any electric school buses due to limited funds. EUSD is prepared to immediately replace 2 of their buses with zero-emission electric buses. Additionally, Roseville Joint Union High School District (RJUHSD) is prepared to immediately replace 8 buses in their fleet with zero-emission buses.

CARB has developed an inventory of school buses statewide which lists 71 buses operating in the NAA of Placer County that are 2007 bus model year (2006 engine model year) or older. Most engines model year 2007 or newer come assembled from the manufacturer equipped with a PM exhaust filter. These older buses, although they may be retrofitted with a diesel particulate filter, are more polluting, with higher deterioration of PM filters due to aging. This exposes children, a sensitive population group, to more emissions. By replacing EUSD and RJUHSD buses, this project proposes to fund turnover of the oldest and dirtiest school buses from CARB's inventory to reduce exposure to pollutants including diesel particulate matter, a toxic air contaminant, with the majority of the funding benefitting low-income communities.

Since 2007, the PM standard has been 0.01 g/bhp-hr. The PM emission standard prior to 1991 was 0.60 g/bhp-hr, which is 60 times the emissions of the current PM standard. This highlights the importance of retiring the oldest school buses as the emission limits of the past are so much higher than the current emission standards. The proposed replacements in the EUSD would be pre-1991 engines.

We're focusing on funding zero-emission replacements because, while diesel-to-diesel replacement represents real, immediate reductions of emissions and PM exposure, diesel vehicles have a long operational lifespan and replacing with diesel could prolong eventual turnover to zero-emission electric school buses. According to the 2020 SB 1403 State School Bus Incentive Programs Report, hybrid and electric school buses currently make up only approximately one percent of the statewide school bus inventory, suggesting significant barriers to adoption exist for school districts. Funding electric school bus replacements combined with educating the school districts on the feasibility of these projects will further promote the adoption of this technology throughout the NAA.

Since 2017, YSAQMD has been working with local school districts and supporting implementation of electrification of bus fleets through various programs. The project will provide incentives for 2 new electric vehicles for school districts in Solano and Yolo Counties. The Vacaville Unified School District (VUSD) was the first in Solano County to operate an electric school bus, which was a collaboration of local air district and state funding. The VUSD bus yard is in one of the poorest communities in Vacaville, and home to a large minority population which is exposed to higher emissions from buses and other fleet vehicles due to proximity to the yard. The project for Esparto Unified School District would be the first electric bus for the school district. Esparto is a small, rural school district that is in a low-income area of California, the district would like to use the electrification as a platform to educate youth on the importance and impact of emission reductions.

Replacing heavy polluting diesel buses with zero-emission school buses provides an immediate and significant reduction in the emissions to these communities in addition to the broader benefits of emission reductions for children, school employees and the city. Both school districts have leveraged significant amounts of funding from other air districts, state

and federal partners, provided matching funds and conducted thorough planning and investment in infrastructure to ensure the success of a new electric fleet.

Disadvantaged community census tracts are identified by CalEPA per SB 535 (De León, Chapter 830, Statutes of 2012), and available at http://www.calepa.ca.gov/EnvJustice/GHGInvest/ Low-income communities are defined as census tracts with a median household income at or below 80 percent of the statewide median household income or with a median household income at or below the threshold designated as low-income by Department of Housing and Community Development's State Income Limits adopted pursuant to Health and Safety Code Section 50093 (AB 1550 (Gomez, Chapter 369, Statutes of 2016). Low-income community maps can be viewed at https://www.arb.ca.gov/cc/capandtrade/auctionproceeds/communityinvestments.htm Low-income households are those with incomes at or below 80 percent of the statewide median household income or with household incomes at or below the threshold designated as low-income by the Department of Housing and Community Development's list of state income limits adopted pursuant to Section 50093. (AB 1550 (Gomez, Chapter 369, Statutes of 2016))

Component 2 – Ag Equipment Replacement

Ag equipment contributes 1% of direct PM2.5 emissions and 2% of the PM2.5 precursor emissions in the NAA. This project component will reduce emissions from ag equipment by 0.4% for both direct PM2.5 and precursor emissions. In addition, the emission reductions will persist beyond the life of this funding cycle and for the duration of the 20+ year useful life of the equipment.

Even with increasingly more stringent emission standards on engine manufacturers, emissions from agricultural equipment are a significant source of air pollution. Reducing these emissions are necessary to meet federal particulate matter air quality standards, particularly in the Sacramento Valley where the agricultural sector is a vibrant and critical part to the local and state economy, but which also contributes to the poor air quality.

Most agricultural vehicles and equipment are operated for several decades – sometimes because the equipment is only used seasonally, but also due to the equipment durability, and relatively low cost to maintain compared to the cost of purchasing new vehicles or equipment. Unpredictable weather, varying commodity prices, farm size, and other factors impact a farmer's ability to purchase new equipment. Because of the volatility of this sector, businesses are often reluctant to purchase new equipment unless absolutely necessary.

Natural turnover is not sufficient to meet California's clean air needs. The primary driver for increased turnover in the off-road agricultural sector is due to local, state, and federal dollars leveraged with substantial private investment. While our air district and agricultural industry partners have been diligent in continuing to make strides in turning over their vehicles and equipment, more investment is needed.

Component 3 – Reducing Road Dust Emissions

EDC AQMD will partner with EDC Transportation Department (EDC DOT) to double chip seal slurry unpaved roads. Roadway sections to be improved are:

i.	South Street	9,080 sq ft	454 linear feet	$73k	ADT	VMT	15,548
ii.	Luneman Rd	3,880 sq ft	194 linear feet	$12k	ADT	VMT	5,906
iii.	Mount Murphy Rd	143,600 sq ft	7,180 linear feet	$115k	ADT	VMT	110,283
iv.	Russel Hollow Rd	69,603 sq ft	3,485 linear feet	$56k	ADT	VMT	4,812
v.	Tullis Mine Rd	23,649 sq ft	1,162 linear feet	$19k	ADT	VMT	98,102
vi.	Sweeney Rd	260,915 sq ft	13,042 linear feet	$209k	ADT	VMT	84,265

The 9,080 square feet or 454 linear feet of South Street to be paved is located entirely within a NOA area. The 3,880 square feet or 756 linear feet of Luneman Road to be paved is located entirely within a NOA area. The other roadway sections are not located within a NOA area. However, adjacent areas are located within a known NOA areas and it's quite possible that the sections to be paved in this project also contain NOA soils that have not been identified.

Road dust accounts for 6% of directly emitted PM2.5 emissions in the NAA. Of the unpaved roads in the NAA portion of El Dorado County, these proposed roads have the highest Average Daily Traffic (ADT) counts. Additionally, Bear Creek

Road and Oriental Street are in NOA areas. EDC AQMD partnered with EDC DOT in 2015 to pave 2.7 miles of Bayne Road near the Coloma community. U.S. EPA and the California Department of Toxic Substances Control (DTSC) have also paved NOA roads in EDC. Under a previous TAG grant, 4.7 miles of NOA and near NOA roadways will be paved.

EDC DOT will prepare and submit to EDC AQMD an engineering cross-section detailing the double chip seal slurry. This will be referenced during field inspections by EDC AQMD staff and be submitted with progress reports to US EPA. Before and after photographs will be taken at the mile markers within the paving project areas. Figures of each road segment will be developed. The figures will show cross streets, landmarks and mile markers delineating road paving start and stop endpoints.

Component 4 – Reducing Residential Vegetation Burning Emissions by Chipping

The El Dorado Fire Safe Council (FSC) has implemented a very popular and successful chipping program for several years. This project would provide additional funding for that program and allow it to continue to serve additional residents reducing fire danger as well as $PM_{2.5}$. Managed burning and disposal produces about 3% of the $PM_{2.5}$ emissions in the NAA. When wildfires occur far more $PM_{2.5}$ is emitted. The 97,000 acre King Fire that occurred in El Dorado in 2014, produced 53,000 tons of $PM_{2.5}$ or roughly 8 times as much $PM_{2.5}$ produced by all other sources in the NAA combined. Efforts like the chipping program and the biomass transport program that reduce wildfire danger have the potential to prevent the creation of far more $PM_{2.5}$ than it may appear on the surface.

Component 5 – Low-Dust Harvesting Equipment Replacement Pilot Program

The Yolo-Solano Air Quality Management District (YSAQMD) is home to more than 74,000 acres of almond and walnut orchards, with consistent growth in the acreage of planted and producing orchards. Agricultural equipment contributes 1% of direct PM2.5 emissions and 2% of the PM2.5 precursor emissions in the NAA. During harvest, highly visible and concentrated particulate emissions impact neighboring communities, including migrant camps and low-income communities, nearby roads, and highways. Harvest operations (within the boundaries of YSAQMD) for almond and walnuts account for approximately 170 tons of PM2.5 each season, typically between August and early October. The almond and walnut harvest involves shaking, sweeping and pickup; shaking is responsible for approximately 11% of the particulate emissions produced and sweeping represents approximately 13% (Spencer, 2017).

Harvesting equipment is frequently in service for twenty or more years due to the seasonal nature of use, lower cost of maintenance and common practice to sell used equipment to other farmers who continue to operate the higher emitting equipment. Farmers are often hesitant to accelerate turnover of equipment due to the unpredictable nature of the agricultural sector and the size of investment necessary for turnover.

This project would build upon the successful but underfunded programs that have replaced dozens of tractors and pieces of agricultural equipment within the district. YSAQMD would use this pilot project to offer incentives to farmers to purchase new low-dust harvesters (shakers and/or sweepers) that can effectively reduce particulates emissions by more than 40%. (Capareda, 2017-2018, p. 11) Applicants will need to demonstrate sufficient emission reductions, based on the equipment they are replacing, a maximum of two (2) pieces of equipment per applicant and must select a new piece of equipment from a preauthorized list. Participants would be required to permanently remove from service the replaced device to ensure emissions reductions are achieved within the NAA.

Component 6 – Agricultural Chipping Pilot Program

Agricultural Burning in the Yolo-Solano Air Quality Management District has seen an increase in acreage being burned over the last five years despite increased regulation and restrictions. Each year burning for almond and walnut orchards, which represents approximately 62% of ag burning in the district, produces more than 7 tons of PM2.5, in addition to emissions of other criteria pollutants.

YSAQMD has received many requests by growers for assistance with alternatives to open burning. The current statistics for orchard removal indicate that 32% is burned and only 1% is recycled, in large part due to cost. (UC Sustainable Agriculture Research and Education Program, 2021) This project would provide an alternative to open burning to growers by funding a pilot program offering incentives to chip or shred agricultural material. In addition to reduction in particulate matter from smoke, this burning alternative provides improvement to soil, water efficiency and other agronomic benefits.

The project would focus on increased collaboration, education, and outreach with stakeholders to encourage long-term sustainable alternatives to open burning.

B. Emissions Inventory & Progress Towards Attainment

A qualitative description and quantitative data of our emissions inventory analysis for all relevant pollutants is included in the attached PM2.5 Implementation/Maintenance Plan and Re-designation Request submitted to EPA for the PM2.5 NAA. It shows that residential combustion from fireplaces and woodstoves is the main contributor to the directly emitted PM2.5 inventory at 52% and produces a significant percentage (11%) of PM2.5 precursor emissions. Woodstove replacements are not part of this application as the Sacramento Regional Air Districts were successful in obtaining EPA TAG funding in the previous round (2019-2020). We are therefore focusing on other areas of the emissions inventory pie, such as mobile, on-road vehicles, road dust, and farming operations.

As the area has recently been designated as attainment for the PM2.5 NAAQS, this project is expected to help the area continue to make progress and maintain attainment. The estimated pollutant emission reductions from the project are expected to significantly reduce the public health and economic impacts caused by PM2.5 exposure. In 2008 the California Air Resources Board (CARB) estimated that each year PM2.5 causes 90 premature deaths, 1,200 asthma cases, 7,900 lost work days and other health impacts annually in the Sacramento area. These impacts resulted in an estimated annual economic impact of over $3 million.

Further detail on the Sacramento Nonattainment Area's Emission Inventory is provided in Attachment A: Emissions Inventories. Further detail on the emission reductions benefits of the proposed project components is provided in Attachment B: Emission Reduction Calculations.

C. Innovative Emission Reductions

The proposed projects are not of themselves innovative. These programs have been implemented in the past when funding and sufficient staffing were available. They are, however, well-conceived strategies for achieving the greatest amount of emission reductions in that they will be implemented cost effectively by staff very experienced with these programs.

What is innovative is the significant amount of outreach that will be done to inform the residents of these programs and the scale of the investments that will be available. Numerous advertising mediums and venues will be frequently utilized to educate residents about the program. By frequently publishing advertisements in numerous, varied publications and promoting the program at several community events, we have found that more residents willing and able to utilize lower amounts of funding will participate. This can dramatically increase the cost effectiveness of these programs thereby creating greater emission reductions for all citizens in accordance with EPA's Strategic Plan. With other funding sources the air districts have previously implemented these programs. By advertising extensively and relying on existing relationships, these programs will achieve the high participation rate with relatively low funding amounts making them very cost effective.

Another innovative aspect of this proposal is, in addition to funding the purchase of zero emissions school buses for the participating school districts, we will create a learning community that will include transportation directors in the NAA to provide learning opportunities and resources to educate them on new technology and overcome other barriers to adoption. The learning community will seek to build partnerships with local, state, and federal agencies; organizations working to develop clean, efficient transportation solutions; manufacturers of school buses and charging equipment; and utilities to make the adoption of electric school buses and infrastructure installation easier and more accessible.

D. Roles and Responsibilities

Component 1 – Heavy Duty Vehicle Electrification

This project will be administered by district staff in the PCAPCD portions of the NAA. As part of the approval process, District staff will utilize EPA's interactive map with current status of PM-2.5 (2006) Nonattainment/Maintenance Areas at:*https://epa.maps.arcgis.com/apps/MapSeries/index.html?appid=726f1f1c59ab41c4ae65ea1f8dc743ca&webmap=2ce*

c12bef377476cadd38af48918c5a3 by entering applicants' addresses to determine if its use lies within the nonattainment area.

Component 2 – Ag Equipment Replacement

This project will be implemented by PCAPCD staff in the NAA portions of the district. The PCAPCD currently administers the overly subscribed Moyer incentive program that obtains significant reductions in PM2.5 and the PM precursor NOx.

This project will build on PCAPCD's highly successful existing Moyer program provides financial incentives for growers to replace older mobile agricultural equipment with newer more efficient equipment. Since 2018, PCAPCD has funded over $2.1 million in projects. Demand has been high and PCAPCD is requesting funding to support the additional need for these effective and well-implemented incentives.

The program will be implemented consistent with CARB guidelines for the Moyer program, which use a cost-effectiveness methodology limiting funding for any one tractor to a maximum of 80% of the cost: requiring the grower to contribute at least 20%.

PCAPCD has administered the statewide FARMER program on behalf of the 18 air districts with the smallest Ag equipment emissions inventories in California. Being the administrator of this "shared" pool of funding, PCAPCD does not partake in FARMER-projects as this would be a conflict of interest. Therefore, the TAG funding would provide a funding source for agricultural equipment replacements in Placer County in lieu of FARMER.

Component 3 – Reducing Road Dust Emissions

This project will be administered by district staff in the EDCAQMD portion of the NAA. EDCAQMD will partner with El Dorado County Transportation Department (EDCDOT) to double chip seal slurry unpaved roads. EDCDOT will be responsible for road preparation and paving and maintenance activities.

Contract documents will require paving and grading activities be conducted in accordance with EDCAQMD's Rules 223 Fugitive Dust – General Requirements, Rule 223-1 Fugitive Dust – Construction Requirements, Rule 223-2 Fugitive Dust Asbestos Hazard Mitigation and CARB's Asbestos Airborne Toxic Control Measure (ATCM) for Construction, Grading, Quarrying and Surface Mining Operations. These are the most restrictive NOA dust control requirements in the nation. By complying with these requirements and the applicable CalOSHA worker safety requirements, we will ensure workers and nearby residents are protected from excessive exposure to NOA dust.

Component 4 – Reducing Residential Vegetation Burning Emissions by Chipping

The El Dorado Fire Safe Council (FSC) has implemented a very popular and successful chipping program for several years. This project would provide additional funding for that program and allow it to continue to serve additional residents reducing fire danger as well as PM2.5. Managed burning and disposal produce about 3% of the PM2.5 emissions in the NAA. When wildfires occur far more PM2.5 is emitted. The 97,000-acre King Fire that occurred in El Dorado in 2014, produced 53,000 tons of PM2.5 or roughly 8 times as much PM2.5 produced by all other sources in the NAA combined. Efforts like the chipping program and the biomass transport program that reduce wildfire danger have the potential to prevent the creation of far more PM2.5 than it may appear on the surface.

Component 5 – Low Dust Harvesting Equipment Replacement Pilot Program

The project will be implemented by YSAQMD staff within the NAA. The YSAQMD current operates the FARMER program, which is oversubscribed and continues to receive increasing interest in replacing a variety of orchard equipment. This project will provide targeted investment for the replacement of harvest equipment that uses new low-dust technology. Growers will need to apply to the program directly, meet emission reduction criteria developed, be approved, and replace pre-approved equipment. As cost-effectiveness is an important part of replacement programs, participants will be asked to contribute at least 30% of the cost of replacement equipment. Applicants will need to submit reports for a minimum of 5 years and will be required to remove from use in the NAA or recycle existing equipment.

Component 6 – Agricultural Chipping Pilot Program

YSAQMD will implement this pilot program within the NAA. Growers will need to apply to the district for funding and be approved prior to any removal or other work commencing on the project. Project funds will be issued on a reimbursement basis following inspection and/or sufficient documentation applicant has completed the project. Maximum incentive is $400 per acre for chipping and soil incorporation and a reduced incentive of $200 for chipping without soil incorporation.

Section 2 Community Benefits, Engagement and Partnerships

A. Community Benefits

The Heavy-Duty Vehicle Electrification Program

In Placer County, we will partner with two school districts, EUSD and RJUHSD to replace six of the oldest and highest polluting heavy-duty diesel school buses in their fleet with zero emission battery electric buses.

EUSD is seeking funding to replace 2 buses from their aging fleet of 14 heavy duty school buses ranging in model year from 1989 to 2006 with zero emission buses. EUSD has charging infrastructure and 2 electric school buses currently in their fleet.

RJUHSD is seeking funding to replace 8 buses in their aging fleet of 16 heavy duty school buses ranging in model year from 1998 to 2001 with zero emission buses. RJUHSD has received a bid for infrastructure and is ready to begin construction and purchase electric buses but lacks financial resources needed to complete the project. They are a multi-county school district providing transportation to students in low-income communities in the NAA of Placer and Sacramento counties.

The California Air Resources Board provided a fleet list of school buses in Placer County and these two districts have some of the oldest and therefore highest polluting buses in the county and specifically in the NAA.

The students and residents of the communities in the vicinity of the schools and the bus routes, including sensitive groups and low-income households disproportionately impacted by air pollution, will benefit from reduced exposure to particulate matter and toxic air contaminants found in diesel particulate matter. These reductions in PM2.5 pollution will have significant short- and long-term health benefits. Short-term exposures to PM2.5 can aggravate lung disease, causing asthma attacks and acute bronchitis, and may also increase susceptibility to respiratory infections.

Long-term exposures have been associated with reduced lung function and the development of chronic bronchitis and even premature death. In Yolo and Solano Counties, the projects will include the Vacaville and Esparto school districts replacement of 30 plus year old heavy-duty diesel school buses with zero-emission electric buses.

VUSD has a long-range plan for fleet electrification that includes turn-over of 8 buses over the next several years, the replacement of this 1999 diesel with a zero-emission bus is just the first in the next phase of this goal. VUSD has already invested in infrastructure to support a new fleet and purchased or contracted for 4 electric buses including this one, which will serve the special needs students of the district. In addition to the emission reduction, these buses also provide the benefit of children sensitive to noise quieter bus rides.

EUSD will benefit the students in low-income communities of the NAA in Yolo County. It will be innovative for their district and provide an example of the positive benefits of electrification to the youth of the small community. YSAQMD already partnered with EUSD on the infrastructure for the electrification of its bus fleet and looks forward to continuing this work, when safe, to provide educational programs to EUSD students regarding the benefits of electric vehicles and feasibility within the district.

The Agriculture Equipment Replacement Program

Ag equipment replacements will reduce exposures to agriculture workers and to rural residential communities adjacent to agricultural operations. PCAPCD will be coordinating the organizations and agencies serving agricultural communities.

Placer County maintains an incentive funding outreach list and partners with the local Ag Commissioner, University of California Cooperative Extension Farm Advisors, the Placer County Resource Conservation District and the USDA-NRCS to disseminate information about funding opportunities for ag equipment replacement.

The Road Paving Project Program

The road paving projects will benefit communities in the Diamond Springs, El Dorado, Garden Valley and Somerset. All of these communities have areas identified as having NOA soils. In 1986, EPA emergency response teams completed seven miles of paving projects in Garden Valley. In 2002 and 2003, DTSC conducted a study that evaluated airborne NOA concentrations near a roadway in the Garden Valley area before and after DTSC's contractor resurfaced the roadway. The study found up to a 100-fold reduction in the airborne asbestos concentrations near the road. DTSC recommended that property owners and agencies responsible for maintaining serpentine roads resurface their roads with non-NOA-containing materials. In accordance with EDC AQMD Rules and CARB's ATCM for Surfacing applications, and as a condition of the contract, the roads will be resurfaced with non-NOA-containing materials. All similar projects in the future will also be required to comply with these requirements. These proposed paving projects will reduce PM2.5 and also reduce airborne asbestos fibers in communities vulnerable to this environmental burden.

The Residential Biomass Chipping Program

The chipping program will benefit the rural communities of Camino, Placerville, Somerset, Diamond Springs, Coloma, Garden Valley, Georgetown, Pilot Hill, and others. They also have abundant vegetation due to higher rainfall amounts than in valley areas. During the winter smoke from outdoor vegetation burning inundates these communities. Residents frequently express concerns of respiratory health impacts by lodging complaints with districts. These programs will maximize public health benefits by working with residents to chip vegetation rather than burn it. These communities are disproportionately impacted due to differential proximity to exposure of various environmental hazards. This project will address an important community need by reducing exposure to local toxic air contaminants and criteria air pollutants from wood smoke.

El Dorado County has the second highest average age of all counties in the U.S. Many rural residents are low income and there are many areas classified as low-income communities by the State of California. Widespread mountain community home fire insurance policy cancellations and replacements with costly State of California Fair Plan policies have created financial hardships for many moderate and low income residents.

Low Dust Harvesting Equipment Replacement Program

The low-dust harvesting equipment replacement program will benefit valley communities adjacent to farm lands and low-income agricultural workers exposed to the emissions daily. There are several Low-Income and Disadvantaged Communities identified by the state of California in Woodland, Esparto, Davis, and West Sacramento, in addition to migrant camps directly adjacent to orchards, that would benefit from these equipment emission reductions.

Agricultural Chipping Program

Implementation of the agricultural chipping pilot program would benefit the rural communities and lands adjacent to farms that typically conducted ag burns. Many of these residents are in Low-Income and Disadvantaged Communities, often populations that are heavily minority and suffer from higher rates of asthma. The air district receives more than a dozen complaints related to smoke and ag burns each year, many from residents that are repeatedly impacted by smoke from burning. This program would lead to a reduction of exposure to air pollutants from woodsmoke in these vulnerable populations.

B. Community Engagement and Partnerships

Affected communities are those identified above and include many residents with greater susceptibility to adverse effects from environmental hazards due to age and proximity. El Dorado County residents have the second highest average age of all U.S. counties. Western Placer and El Dorado residents are susceptible to emissions from upwind urban Sacramento and Bay Area emission sources, as well as emissions from a major west coast railyard and a major

interstate highway. Yolo/Solano residents include communities that are identified in the highest tier of communities identified by Cal Enviro Screen.

EDCAQMD staff have attended and conducted outreach at numerous community events. We have reached out to and presented incentive program information to many residents. We will continue to build and support partnerships with the EDCDOT and the Fire Safe Council. There is overwhelming community support for the paving and chipping programs. Support for the chipping program is evidenced by the rapid rate at which the FSC has expended existing available USFS and CA Cap and Trade proceeds grants by performing hundreds chipping projects including 79 in December 2019 alone. NOA continues to be a concern for many residents. In 2017, we engaged and presented NOA dust control program information to the El Dorado Hills Area Planning Advisory Committee (APAC). APAC members were very supportive of our continued efforts to reduce emissions NOA PM2.5 emissions.

PCAPCD has engaged the identified Low-Income Communities in Roseville directly by public workshops and by contacting and attending neighborhood association meetings; through community-based organizations, such as Invest Health Roseville and Breathe Sacramento; and through non-governmental organizations (NGO) such as the Climate Readiness Collaborative and Valley Vision. A survey of workshop participants identified school bus replacements as "Very Important" projects for funding consideration.

We will engage additional school districts in the NAA and form partnerships to create a learning community providing education opportunities and resources for school districts to overcome barriers to adoption of zero emission technology. We will build on and share information about the already existing programs developed by other organizations such as CALSTART. These include the School Bus Fleet Infrastructure Planning Tool[1], a document that covers important considerations for school districts planning to install infrastructure, a systematic installation timeline, and an infrastructure-planning checklist; and the Zero-Emission Technology Inventory (ZETI) [2] tool, an interactive online resource that provides information about all commercially available offerings of zero-emission medium-and heavy-duty vehicles (MHDVs). A list of local, state and federal funding opportunities for school bus fleet modernization will be developed, updated and distributed through the learning community.

YSAQMD has developed and fostered successful relationships with the school districts of Yolo and Solano counties, which provides for more successful and proactive projects that benefit these communities. Partnering, once safe, to engage the students about electrification and the benefits to our air and our health is the goal after implementation to ensure that the benefits of these projects have the potential to encourage other beneficial changes by students and the community at large.

YSAQMD conducted outreach with numerous industry stakeholders in the development of the low dust harvesting equipment replacement pilot program. Local famers avidly support programs that will aid farmers in increasing turn-over of equipment and implement newer technology in their operations. The district is routinely oversubscribed for the other agricultural replacement program it operates and continues to receive inquiries from farmers regarding opportunities to participate in these programs. This program would be unique in targeting a specific industry and set of equipment but would yield significant reductions to the local communities as harvesting emissions are concentrated in three short months.

For the agricultural chipping pilot program, YSAQMD conducted research on the age of orchards within the district and will target engagement with growers having the oldest orchards. YSAQMD will work with established programs, such as UC Davis Orchard Recycling Program to educate local farmers and work with farmers to apply for additional local, state and federal dollars to maximize the potential benefits of this program.

[1] *School Bus Infrastructure Planning Tool*, https://californiahvip.org/wp-content/uploads/2020/09/Infrastructure-Planning_Guide_SCHOOL-BUS_FINAL-Digital.pdf
[2] CALSTART (2020): Drive to Zero's Zero-emission Technology Inventory (ZETI) Tool Version 5.9. Available online at https://globaldrivetozero.org/tools/zero-emission-technology-inventory/

Section 3 Project Sustainability

The proposed project components have long life expectancies and will achieve emission reductions beyond the five year grant funding period. The paved roadways will last at least 10 years and longer if adequately maintained. Electric school buses are expected to have an 18 year lifespan or more.[3] Low dust harvesting equipment are expected to have a minimum of 10 years. After EPA funding for this project has ended, the districts will continue efforts to reduce emissions in the area by continuing to conduct public outreach for these programs. We will utilize state subvention, California Climate Investments, Carl Moyer and other funding, when available. County resident vehicle registration fee motor vehicle emission reduction funding will be used to pave additional unpaved roadways when the projects are determined to be cost effective.

Section 4 Environmental Results

A. Expected Project Outputs and Outcomes

Project Outputs: Outputs related to this activity that will be realized are qualitative, quantitative, measurable and include:

Number of Heavy Duty Vehicle Replacements: 10 school buses replaced.
Number of Ag Off-road Equipment Replaced: Replace approximately 20 pieces of ag equipment with cleaner equipment As the destruction or removal from the NAA of old equipment will be required, emission reductions from this project will be sustainable.
Miles of Unpaved Roadways Paved: Roadways chosen for this project are those with the highest Average Daily Transport (ADT) numbers of all unpaved roads in the NAA area (NAA) and are in or near Naturally-Occurring Asbestos (NOA) areas.
Number of Cubic Yards of Vegetation Chipped: The amount of vegetation chipped will only be limited by the amount of available funding allocated, but we are targeting at least 250,000 cubic yards. Residents survey information gathered by the EDC FSC indicates that were it not for the availability of chipping, 68% of the chipped vegetation would have been open burned.
Number of Low Dust Harvesters Replaced: Replace approximately 5-7 harvesters with low-dust equipment. As the old equipment is required to be removed from service or destroyed, emission reductions from this project will be sustainable.
Number of Acres of Orchards Chipped: Provide incentives for approximately 630 acres of chipping as an alternative to open burning. Orchards selected for this project will be limited by the amount of funding allocated.

Project Outcomes

142 tons of PM2.5 will be reduced annually and 261 tons of PM2.5 will be reduced over the lifetime of the project. Total cost per ton efficiency is $27,089/ton of PM2.5 reduced. Students riding the bus and those living along established school bus routes will have increased air quality due to use of zero emission buses. Those living near agricultural operations will likewise have improved air quality due to the use of lower-emitting ag equipment and a reduction in agricultural burning. Residents traveling on and living near newly paved roads will experience reduced exposures. Wildfire risk reduction benefits will be realized by chipping vegetation rather than burning (increased risk of fire escapes).

Outputs	Outcomes
Replace 10 (HDVE)	**Annual Emissions Reduced = 0.02 tons of PM2.5, 1.96 tons of NOx, 0.17 tons of VOCs**
	Lifetime Emissions Reduced = 0.351 tons of PM2.5, 35.343 tons of NOx, 2.97 tons of VOCs
Replace approx. 20 (Ag)	**Annual Emissions Reduced = 0.7 tons of PM2.5, 12.2 tons of NOx, 1.3 tons of VOCs**
	Lifetime Emissions Reduced = 15 tons of PM2.5, 243.1 tons of NOx, 25.1 tons of VOCs
Pave 4.8 miles/510,727 square feet unpaved roadways.	**Annual Roadway Emissions Reduced = 25.89 tons of PM2.5**
	Lifetime Roadway Emissions Reduced = 181.25 tons of PM2.5

[3] *"Electric Buses Guide: What They Are and How They Work", Poole, Gregory, June 11, 2020*

Chip 250,000 cubic yards of residential biomass as an alternative to open burning.	**Annual Brush Burning Emissions Reduced = 8 tons of PM2.5, 1 ton of NOx, 10.9 tons of VOCs**
	Lifetime Brush Burning Emissions Reduced = 40.2 tons of PM2.5, 5.1 tons of NOx, 54.6 tons of VOCs
Replace (Low Dust Harvesters)	**Annual Emissions Reduced = 2.21 tons of PM2.5** **Lifetime Emissions Reduced = 22.125 tons of PM2.5**
Agricultural Chipping (approximately 630 acres)	**Annual Emissions Reduced= 1.83 tons of PM2.5, 1.78 tons NOx, 1.72 tons VOC and 20.6 tons CO**
Lifetime Emission Reduction Totals	**261 tons of PM2.5, 285 tons of NOx, 84 tons of VOCs**

B. Performance Measures

Project Component	Performance Measure
Heavy Duty Replacement Replace 10 old diesel school buses with zero-emission electric buses.	**Overseeing:** PCAPCD and YSAQMD **Tracking:** PCAPCD, YSAQMD and applicants **Reporting:** PCAPCD, YSAQMD and applicants **Measuring:** PCAPCD and YSAQMD by calculating the VMT of zero-emission buses and the emissions that would have occurred had those buses been the replaced diesel buses.
Ag Equipment Replace approx.. 20 pieces of diesel agricultural equipment with cleaner equipment.	**Overseeing:** PCAPCD and YSAQMD **Tracking:** PCAPCD, YSAQMD, and applicants **Reporting:** PCAPCD, YSAQMD, and applicants **Measuring:** PCAPCD and YSAQMD by calculating emissions or the old equipment and new equipment given the same number of hours of operation and finding the difference to arrive at the net emissions benefit.
Unpaved Road Paving (URP). Pave 4.8 miles of unpaved roadways.	**Overseeing:** EDCDOT and subcontractors for paving. **Tracking:** Subcontractor will obtain dust plans from the District. **Reporting:** EDCDOT will provide the number of miles paved and quarterly ADT counts. Photographs of each roadway segment will be taken before and after paving activities. **Measuring:** Emission reductions calculated by VMT emission factors between unpaved & paved roadways.
Biomass Chipping Chip 250,000 cubic yards of residential biomass instead of burning.	**Overseeing:** EDCAQMD will enter into an agreement with EDCFSC and administrate that agreement by conducting program performance audits **Tracking:** EDC Fire Safe Council will track numbers of participants and quantities of vegetation chipped **Reporting:** EDCFSC will provide the number of miles paved and quarterly ADT counts. Photographs of each roadway segment will be taken before and after paving activities. **Measuring:** Emission reductions calculated by emission factors between open burning & chipper operation.
Low Dust Harvesting Equip Replacement Replace approx. 5 harvesters with low-dust harvesters.	**Overseeing:** YSAQMD **Tracking:** YSAQMD and applicants **Reporting:** YSAQMD and applicants **Measuring:** YSAQMD by calculating the net emission reductions between old and new equipment.
Agricultural Chipping Chip approximately 630 acres of ag land instead of burning.	**Overseeing:** YSAQMD **Tracking:** YSAQMD and applicants **Reporting:** YSAQMD and applicants **Measuring:** YSAQMD will calculate emission reduction factors between open burning and chipping operations.

C. Performance Plan

Districts will track and measure progress towards achieving project outputs and outcomes for all components by recording projects completed in all component categories as identified in the Performance Measures matrix above. Short term results include the completion of contracts and MOUs with project partners (ex. EDCDOT, EDCFSC). Program advertisements will be developed and widely distributed. Long term results include tons of biomass chipped, miles of roadways paved, hours of ag equipment use, and miles of school bus travel. Progress will be measured by comparing quarterly reporting criteria identified in the Performance Measures matrix with the total projected output of that respective project component with reference to the amount of time remaining in the project period.

This approach will use monetary and staff time resources efficiently and effectively by repeatedly conducting very broad, outreach and education. By conducting frequent advertising, residents will learn of these programs and participation levels will be high. We will mass market these programs to increase participation.

Air Districts will retain the records for at least three years after the TAG funding agreement with SMAQMD has ended. All records shall be stored in secured and safe storage facilities that maintain confidentiality and provides fire and natural disaster protection.

D. Timeline and Milestones

The projects timeline is shown below. The projects will be implemented throughout the grant term.

Project	2022		2023		2024		2025		2026	2027
	Apr-Jun	Jul-Dec	Jan-Jun	Jul-Dec	Jan-Jun	Jul-Dec	Jan-Jun	Jul-Dec	Jan-Dec	Jan-Apr
Heavy-Duty Vehicle Electrification										
A. Advertising/Community Engagement										
B. Eligibility Determination										
C. Replacements										
Ag Equipment Replacement										
D. Advertising/Community Engagement										
E. Eligibility Determination										
F. Replacements										
Road Paving										
A. Design										
B. Construction										
Biomass Chipping										
C. Advertising										
D. Chipping										
Low Dust Harvesting Equipment										
A. Community Engagement										
B. Eligibility Determination										
C. Replacements										
Ag Chipping										
A. Engagement										
B. Eligibility Determination										
C. Chipping										
Reporting										

Section 5 Programmatic Capability and Past Performance

A. & B. Management, Completion and Reporting Requirements

Recent federally funded assistance agreements that are similar in size, scope and relevance to this project include:

1) Congestion Management Air Quality grant issued to EDC AQMD for Electric Vehicle Supply Equipment. This agreement funded electric vehicle charging stations for County owned plug-in vehicles at County offices.
2) EPA Targeted Airshed Grant 2019-2020: Funding for woodstove replacements and unpaved road paving.

C. Staff Expertise

The NAA districts have extensive experience administering on and off-road vehicle replacement programs. PCAPCD has replaced 35 on and off-road vehicles since 2018. YSAQMD has replaced 39 on and off-road vehicles since 2018. Many of these replacements have been funded with FARMER, Moyer, Community Air Protection, and vehicle registration fees. The primary limitations to replacing more on and off-road vehicles are funding as these programs are always oversubscribed. During its most recent request for applications, the funding request for eligible projects exceeded $5,300,000 with only $1,400,000 in available funds.

EDCDOT is one of the few local jurisdiction transportation departments that perform road paving projects, rather than contracting out all of the work. EDCDOT staff have conducted many paving projects.

EDC FSC has been implementing residential chipping programs for over 27 years, when funding has been available.

Section 6 Leveraged Funding

The Sacramento region districts will leverage additional funds and resources to the maximum extent practicable to support the proposed project activities. Contributions from the air districts, the EDCDOT, EDCFSC, residents and others will ensure project success. The districts will contribute the costs of the fringe benefits earned by staff for the time spent working on the TAG program.

The PCAPCD will contribute $465,414 (3.3% of Components 1 & 2 award ask) in the form of leveraged staff costs. PCAPCD administers a Clean Air Grants program which uses state funding (Carl Moyer and Community Air Protection (CAP)) to fund heavy-duty vehicle and agricultural equipment replacements. Components 1 & 2 of this proposal would be absorbed into those existing programs to gain efficiencies in processing and award approval, but at a lower administrative cost (3.3% of total grant award versus the 12.5% allowed by Moyer & CAP).

The YSAQMD will contribute $30,000 to the cost of infrastructure for Esparto Unified School District. This will enable the seamless implementation of the new electric bus and provide the foundation for future fleet electrification. In addition, YSAQMD will contribute up to $165,000 in funding toward each of the bus replacements to ensure the feasibility of these impactful projects within the communities of Esparto and Vacaville.

The EDCDOT will contribute the cost of all road preparation work that must be done prior to the paving. The preparation work will include design, grading, brushing, ditching and installing culverts. For the entire 5 miles of roadways to be paved, the cost of preparation will be $483,441, the total leverage amount will be 46.5% of the total project

Section 7 Budget

A. Expenditure of Awarded Funding

District staff will employ an approach, procedures and controls to ensure the awarded grant funds are expended in a timely and efficient manner. (As discussed above in Section 5, “Programmatic Capability and Past Performance.”)

If in the later years of the grant performance period the program needs are determined to be greater in one district than another, project funds may be reallocated to the areas of higher need. This will help to ensure maximum emission reductions from the awarded funding, to achieve greater emission reductions with available funding thereby ensuring that more Americans are living and working in areas that meet high air quality standards in accordance with EPA’s FY 2018-2022 Strategic Plan.

B. Reasonableness of Budget

The proposed costs are all based on existing similar program costs. The proposed HDVE costs are based on known costs to these 10 specific projects. The proposed Ag Equipment costs are based on an average of ag equipment replacement costs and emission reductions from the previous three years of district grant programs. The proposed paving costs are based on known costs to construct similar road improvement projects. The proposed chipping costs are based on known costs to implement the current EDCFSC USFS funded project. The proposed low-dust harvest equipment costs are based on the average cost of eligible replacement equipment and associated reductions in addition to experience from previous district programs. The agricultural chipping costs are based upon estimated acreage and costs to implement program as estimated by UC Davis Whole Orchard Recycling Program. Estimates of staff labor devoted to these tasks are derived from existing program budgets. Grant funding provided by the State of California to districts typically provide for administration costs of up to 12.5% of total grant funding for small districts and 6.5% for large districts. This project budget includes only $237,207 or 3.36% of EPA TAG funding for staff time by the air districts. The additional district staff fringe benefits and contributions by the residents and the transportation department will be attributed to the non-federal Cost Share.

C. Budget Detail

Line Item & Itemized Cost				EPA Funding	Non-Federal Cost Share
PERSONNEL	**Hourly Rate**	**Hours per Week**	**Number of Weeks**		
EDC AQMD Staff Time on Components 3 & 4					
Air Quality Technician	$ 23.87	0.10	240	$ 573	
Air Quality Administrative Analyst	$ 42.69	0.50	240	$ 5,123	
Air Quality Specialist	$ 41.05	0.10	240	$ 985	
Air Quality Engineer	$ 45.95	0.10	240	$ 1,103	
Senior Air Quality Engineer	$ 52.85	0.20	240	$ 2,537	
Air Pollution Control Officer	$ 75.77	0.40	240	$ 7,274	
EDC AQMD Subtotal				$ 17,594	$ -
Placer APCD Staff Time on Components 1 & 2	**Hourly Rate**	**Hours per Week**	**Number of Weeks**		
Account Clerk	$ 27.21	1.00	240	$ 6,530	
Administrative Technician	$ 33.08	1.00	240	$ 7,939	
IT Technician	$ 41.01	0.00	240	$ -	
Senior Administrative Services Officer	$ 53.59	2.00	240	$ 25,723	
AQ Specialist	$ 50.14	6.00	240	$ 72,202	
Senior AQ Planner	$ 56.59	0.00	240	$ -	
Senior Air Quality Engineer	$ 52.66	0.50	240	$ 6,319	
Deputy APCO	$ 68.33	2.00	240	$ 32,798	
Air Pollution Control Officer	$ 91.89	0.00	240	$ -	
Placer APCD Subtotal				$ 151,512	$ 465,414.04
Yolo Solano AQMD Staff Time on Components 1, 5 & 6	**Hourly Rate**	**Hours per Week**	**Number of Weeks**		
Administrative Assistant	$ 27.08	0.25	240	$ 1,625	
Administrative Analyst	$ 45.44	1.75	240	$ 19,085	
Deputy APCO	$ 77.76	0.25	240	$ 4,666	
Administrative Services Manager	$ 66.98	0.25	240	$ 4,019	
Yolo Solano AQMD Subtotal				$ 29,394	$ -
Sacramento AQMD Staff Time on Administration	**Hourly Rate**	**Hours per Week**	**Number of Weeks**		
Fiscal Assistant	$ 30.81	0.20	240	$ 1,479	
Sr. Accountant	$ 50.29	0.80	240	$ 9,656	
Controller	$ 75.96	0.30	240	$ 5,469	
Division Manager	$ 87.32	0.35	240	$ 7,335	
District Counsel	$ 119.14	0.05	240	$ 1,430	
Admin Specialist	$ 46.55	0.05	240	$ 559	
Legal Assistant	$ 38.31	0.05	240	$ 460	
APCO	$ 105.12	0.05	240	$ 1,261	
Sacramento AQMD Subtotal				$ 27,648	$ -
TOTAL PERSONNEL				$ 226,148	$ 465,414.04
Fringe Benefits	Total Personnel	20%	40%		
Fringe Benefits EDC, Placer, YoloSolano 20% (FICA, Health, Life Ins, Workers Comp, Retirement)	$ 198,500	0.2			$ 39,700
Fringe Benefits Sacramento 40%	$ 27,648		0.4	$ 11,059	
TOTAL FRINGE BENEFITS				$ 11,059	$ 39,700
Supplies	Printing Cost	Mailing Cost	Number of Fliers		
Direct Mail Fliers for Chipping Component	$ 0.34	$ 0.50	3,000	$ 2,797	
TOTAL SUPPLIES				$ 2,797	$ -
CONTRACTUAL					
Component 1 Heavy Duty Vehicle Electrification (HDVE)	Incentive Amount	Number			
Incentives for school districts serving disadvantaged & low income communities in Placer	$ 200,000	8		$ 1,600,000	
Incentives for school districts	$ 400,000	2		$ 800,000	
Learning community coordination expenses (outreach materials, event coordination expenses)				$ 50,000	
Placer School districts contribution and leveraged funding	$ 1,982,117				$ 1,982,117
Incentives for diesel school bus to zero-emission electric school buses in Yolo Solano	$ 150,000	2		$ 300,000	
YSAQMD contribution toward replacement projects	$ 165,000	2			$ 330,000
Yolo/Solano School districts contribution and leveraged funding	$ 154,415	2			$ 308,829
Subtotal Heavy Duty Electrification				$ 2,750,000	$ 2,620,946
Component 2 Off Road Ag Equipment (AER)	Average Cost per Ag Equipment	Number of Units Replaced			
Grant amount paid to farmers to replace Ag Equipment	$ 130,295	20		$ 2,605,898	
Additional amount paid by farmers to replace old Ag Equipment	$ 92,901	20			$ 1,858,020
Print, online and other forms of advertising (Ag Alert and local newspapers)				$ 2,950	$ 2,950
Subtotal Off Road Ag Equipment Replacement				$ 2,608,848	$ 1,860,970
Component 3 Unpaved Road Paving (URP)	Cost per Square Foot of Roadway	Square Feet of Roadway Prepped	Square Feet of Roadway Paved		
EDC Road prep, planning, grading, roadbase, culverts by EDC Dept of Trans - Leveraged Funding	$ 1.00	521,127			$ 521,127
Road paving with double chip seal by EDC Department of Transportation	$ 1.15		521,127	$ 599,296	
Subtotal URP				$ 599,296	$ 521,127
Component 4 Biomass Chipping (BC)	Amount per Cubic Yard	Cubic Yards			
EDC Fire Safe Council cost to chip vegetation	$ 1.42	250,000		$ 355,000	
	Cost per Job	Number of Jobs			
EDC Residents' contribution match (amounts paid to contractors for clearing and stacking bursh, and value of residents' in kind labor)	$ 229.00	2083			$ 477,007
Subtotal BC				$ 355,000	$ 477,007
Component 5 Low Dust Harvesting Equipment Replacement	Incentive Amount	Number			
Incentive for low-dust harvester replacement (self-propelled)	$ 161,000.00	1		$ 161,000	
Incentive for low-dust harvester replacement (pull behind)	$ 49,000.00	4		$ 196,000	
	Patricipant Contribution	Number of Incentives			
Incentive program participant share of cost for new low-dust harvester (self-propelled)	$ 69,000.00	1			$ 69,000.00
Incentive program participant share of cost for new low-dust harvester (pull behind)	$ 21,000.00	4			$ 84,000.00
Subtotal LDHER				$ 357,000	$ 153,000.00
Component 6 Agricultural Chipping Pilot (ACP)	Incentive Amount (per acre)	Acres			
Incentive Amount for Chipping w/ soil incorporation	$ 400.00	200		$ 80,000	
Incentive Amount for Chipping w/o soil incorporation	$ 200.00	400		$ 80,000	
	Participant Contribution	Number of Acres			
Incentive program participant share of cost w/ soil incorporation	$ 675.00	200			$ 135,000.00
(estimated cost of chipping w/ soil incorporation is $850-$1300, average being $1,075)					
Incentive program participant share of cost w/o soil incorporation	$ 650.00	400			$ 260,000.00
(estimated cost of chipping w/ soil incorporation is $700-$1,000, average being $850)					
Subtotal ACP				$ 160,000	$ 395,000.00
TOTAL CONTRACTUAL				$ 6,830,144	$ 6,067,751
Indirect Charges	Rate	Hours			
SMAQMD Federal Negotiated Cost Rate					
TOTAL INDIRECT					
TOTAL FUNDING				**$ 7,070,149**	$ 6,533,165
			% staff funding	3.36%	
TOTAL PROJECT COST					**$ 13,603,313**

Section 8 Attachments

Attachment A. Emission Inventories
Attachment B. Emission Reduction Calculations
Attachment C. Leveraged Funds Cost Share Commitment Letters & Letters of Support
Attachment D. Biographical Sketches
Attachment E. Partnership Letters
Attachment F. Budget Detail

ATTACHMENT A – EMISSION INVENTORIES

PM2.5 IMPLEMENTATION/MAINTENANCE PLAN AND REDESIGNATION REQUEST

FOR SACRAMENTO PM2.5 NONATTAINMENT AREA

(WITH ERRATA SHEET INCOPORATED ON FEBRUARY 5, 2014)
October 24, 2013

4 Emissions Inventory

- 4.1 Introduction to Emissions Inventory

An emissions inventory is an accounting of the amount of air pollutants discharged into the atmosphere of a geographical area during a given time period. The maintenance plan must require the submittal of attainment year (2011), interim year (2017) and maintenance year (2024) emissions inventories of directly emitted PM2.5 and its precursors[21]. Year 2024 is designated as the maintenance plan's final year inventory based on the assumption that the United States Environmental Protection Agency (EPA) will approve the Region's re-designation request in 2014 and the requirement under Clean Air Act (CAA) Section 175A to demonstrate maintenance of the National Ambient Air Quality Standards (NAAQS) for at least 10 years. The 2017 interim year inventory is used to demonstrate that the emissions in the area are not expected to exceed the attainment year inventory between the attainment year and the final year of the maintenance plan. These three sets of emissions inventories are used to determine whether the Sacramento Federal PM2.5 Nonattainment Area (SFNA-PM2.5) will remain in attainment through the final year, 2024, despite growth in the area.

The emissions inventory undergoes continuous updating to improve its accuracy. The 2011, 2017 and 2024 emissions inventories use the latest planning assumptions and emissions data in California Air Resources Board's (CARB's) PM2.5 SIP planning projections model, California Emission Projection Analysis Model (CEPAM). The emission inventories are presented in tons per day for an average winter day. Future year inventories are forecast using latest socio-economic growth indicators and applying the emission reduction benefits from adopted control strategies.

The emission inventories include emissions for the SFNA-PM2.5, which encompasses all of Sacramento County, the eastern portion of Yolo County, the western portions of El Dorado and Placer counties, and the northeast portion of Solano County. Figure 2.1 in Chapter 2 contains the map of the SFNA-PM2.5.

This chapter begins with a discussion of the emissions inventory by different air pollutant source categories for the SFNA-PM2.5. Directly emitted PM2.5, and PM2.5 precursors of NO_X (Nitrogen Oxides), SO_2 (Sulfur Dioxide), VOC (Volatile Organic Compounds), and NH_3 (Ammonia) emissions, in tons per day for an average winter day, are then summarized for 2011, 2017 and 2024 in tabular and graphical formats. This is followed by a section analyzing the emissions inventory forecasts and emissions inventory maintenance demonstration. Final sections of this chapter include a discussion of emission reduction credits (ERCs), which are included in the emissions inventory forecasts to ensure that the potential use of ERCs is reflected in the maintenance year inventory. More detailed information and emissions inventory tables are provided in Appendix B – Emissions Inventory.

[21] CAA Sections 172(c)(3) and175A, and 40 CFR 51.1008

4.2 Emissions Inventory Requirements

Emissions are updated as part of the overall requirement for "plan revisions to include a comprehensive, accurate, current inventory of actual emissions from all sources of the relevant pollutants" under CAA sections 172(c)(3), 40 CFR 51 Subpart A, and 40 CFR 51.1008.

4.3 Precursors to PM2.5

In accordance with SIP emission inventory requirements under 40 CFR part 51 subpart A, CAA Section 172(c)(3) and 40 CFR 51.1008, this PM2.5 plan contains an emissions inventory for total directly emitted PM2.5, and all precursors of PM2.5. Emissions of NO_X, SO_2, VOC and NH_3 are precursors of PM2.5 because these pollutants can undergo chemical reactions in the atmosphere to form secondary PM2.5, such as ammonium nitrate and ammonium sulfate.

4.4 Emissions Inventory Source Categories

Due to the large number and wide variety of emission processes and sources, a hierarchical system of emission inventory categories was developed for more efficient use of the data. The anthropogenic (man-made) emissions inventory is divided into four broad categories: stationary sources, area-wide sources, on-road mobile sources, and other mobile sources. Each of these major categories is subdivided into more descriptive subcategory sources. Each of these subcategories is further defined into more specific emission processes.

4.4.1 Stationary Sources

The stationary source category of the emissions inventory includes non-mobile, fixed sources of air pollution. They are comprised of individual, industrial, manufacturing, and commercial facilities called "point sources". A point source which emits 10 tons or more per year of any criteria pollutant is specifically included as a facility in the inventory. Small facilities such as gas stations, dry cleaners, and concrete batch plants are grouped together under aggregated point source categories. The more descriptive subcategories include fuel combustion (e.g. power plant gas turbines), waste disposal (e.g. landfills), petroleum production and marketing, and industrial processes (e.g. rock crushing plant). The process and emissions data reported by industrial facility operators are used to calculate emissions from point sources.

4.4.2 Area-Wide Sources

The area-wide sources inventory category includes aggregated emissions data from processes that are individually small and widespread or not well-defined stationary sources. The area-wide subcategories include residential wood combustion, farming operations, construction and demolition activities, and road dust. Emissions from these sources are calculated from fuel usage, product sales, population, employment data, and other parameters for a wide range of activities that generate air pollution across the Sacramento region.

4.4.3 On-Road Motor Vehicles

The on-road motor vehicles inventory category consists of trucks, automobiles, buses, and motorcycles. EMFAC (EMission FACtor) is the California model for estimating emissions from on-road motor vehicles operating in California. It is built on decades of vehicle testing and analysis. It uses travel activity data from metropolitan planning organizations, vehicle registration data from the Department of Motor Vehicles (DMV), and data from the Smog Check program.

<u>Motor Vehicle Emissions Model, EMFAC2011</u>

CARB has continued to update and improve its EMFAC on-road motor vehicle emissions model. CARB's latest model, EMFAC2011, was released in September 2011. EMFAC2011 model improvements include:

- The latest information on vehicle populations and miles traveled in California.
- The impacts of recently adopted diesel regulations including the Truck and Bus Rule and other diesel truck fleet rules; the Pavley Clean Car Standard, and the Low Carbon Fuel Standard.
- The latest emissions inventory methods for heavy duty trucks and buses.

EMFAC2011 software and detailed information on the vehicle emission model can be found on the CARB website: http://www.arb.ca.gov/msei/modeling.htm.

Vehicle Activity Data

On-road motor vehicle emission estimates were developed using the latest available transportation data and California's EMFAC2011 model. The forecasted vehicle miles traveled (VMT) and speed distributions used in this plan are based on the Sacramento region's Metropolitan Transportation Plan/Sustainable Communities Strategy 2035 (MTP/SCS 2035) (Abraham, 2012a, Crow, 2012, and Abraham, 2012b), which was adopted by the Sacramento Area Council of Governments (SACOG) on April 19, 2012. Vehicle activity data for Solano County, however, is based on the Plan Bay Area Preferred Land Use Scenario/Transportation Investment Strategy (May 11, 2012) and was provided by the San Francisco Bay Area Metropolitan Transportation Commission (MTC) to SACOG (Brazil, 2012)

4.4.4 Other Mobile Sources

The emission inventory category for other mobile sources includes aircraft, trains, boats, and off-road vehicles and equipment used for construction, farming, commercial, industrial, and recreational activities. The other mobile source categories are estimated by category specific methods and inventory models that are developed for specific regulatory support projects. The diesel equipment categories using category specific method include: In-Use Off-Road Equipment (Construction, Industrial, Airport Ground Support, and Oil Drilling); Cargo Handling Equipment; In-Use Mobile Agricultural Equipment; Locomotives; Transport Refrigeration Units; Commercial Harbor Craft; Ocean Going Vessels; and Stationary Commercial Engines. The OFFROAD2007 emission model is used for estimating emissions for equipment categories that have not yet been replaced within a category specific method. In general, emissions are calculated by using estimated equipment population, engine size and load, usage activity, and emissions factors.

Off-road inventory improvements include:

- Updated estimates of equipment population,
- New data from 2009 academic studies and reducing certain load factors by 33% at engine manufacturers recommendation, and
- Decreases in construction activity and revised growth projections due to the recent economic recession.

More detailed information on the latest off-road motor vehicle emissions inventory can be found on the CARB website: http://www.arb.ca.gov/msei/categories.htm#offroad_motor_vehicles.

- 4.5 Attainment Year Emissions and Forecasts

4.5.1 Anthropogenic Emissions Tables by Source Category

In the SFNA-PM2.5, peak concentrations typically occur under late fall and winter weather conditions when temperature inversions and low wind speeds trap and concentrate PM2.5 emissions near the ground, cooler

temperature and high humidity increase the secondary formation of particulates, and residential wood burning increases. Therefore, the emissions inventories for directly emitted PM2.5 and its precursors of NO_X, SO_2, VOC, and NH_3 are compiled for an average winter day, which are the average daily emissions in the winter planning season of November to April.

The following tables (Tables 4.1, 4.2 and 4.3) show the anthropogenic emissions inventory of directly emitted PM2.5, and its precursors of NO_X, SO_2, VOC and NH_3 by source categories for the SFNA-PM2.5. The emissions inventory is shown for an average winter day in units of tons per day. Inventories except on-road vehicles were obtained using CEPAM: NORCAL 2012 PM2.5 SIP Baseline Emission Projections for the attainment year 2011, the interim year 2017, and the maintenance plan year 2024[22]. On-road vehicle inventories for these years were provided by CARB (Taylor, 2012b), (Taylor, 2012c).

Targeted emission reduction benefits from SMAQMD Rule 421, Mandatory Episodic Curtailment of Wood and Other Solid Fuel Burning, on directly emitted PM2.5 inventory are not well represented in a winter average inventory scenario. During a poor air quality day, Rule 421 is expected to reduce an additional 5 tons per day of SFNA PM2.5 emissions in 2024 or an additional reduction of 20% in the 2024 SFNA directly emitted PM2.5 inventory.

[22] CARB. *CEPAM. Section a1 - Emission Projections With External Adjustments*. Web 11 October, 2012 <http://www.arb.ca.gov/app/emsinv/2012pm25sip/norcal2012pm25sip/

Table 4.1 Average Winter Day Directly Emitted PM2.5 Emissions (tons per day) Sacramento Federal PM2.5 Nonattainment Area

CATEGORY	PM2.		
	2011	2017	2024
TOTAL EMISSIONS	**26**	**27**	**26**
STATIONARY	2.8	3.4	3.7
AREAWIDE	19.6	20.4	20.2
ON-ROAD MOTOR VEHICLES	2.2	1.7	1.6
OTHER MOBILE	1.1	1.0	0.7
STATIONARY			
Fuel Combustion	1.2	1.3	1.3
Industrial Processes	1.6	2.0	2.3
Other	0.0	0.1	0.1
AREAWIDE			
Residential Fuel Combustion	13.4	13.7	13.5
Farming Operations	1.1	1.1	1.1
Construction and Demolition	2.0	2.2	2.2
Paved Road Dust	1.2	1.3	1.4
Unpaved Road Dust	0.4	0.4	0.4
Managed Burning and Disposal	0.7	0.8	0.7
Cooking	0.6	0.7	0.7
Other	0.2	0.2	0.2

ON-ROAD MOTOR VEHICLES			
Light/Medium-Duty Vehicle	1.2	1.1	1.1
Heavy-Duty Trucks	0.9	0.5	0.4
Other	0.1	0.1	0.1
OTHER MOBILE			
Aircraft	0.1	0.1	0.1
Trains	0.1	0.1	0.1
Boats/Rec Vehicles	0.2	0.2	0.1
Off-Road Equipment	0.4	0.4	0.3
Farm Equipment	0.3	0.2	0.1
Fuel Storage & Handling	0.0	0.0	0.0

Data Source: Except for on-road, CARB CEPAM: NORCAL 2012 PM2.5 SIP Baseline Emission Projections, Section a1 - Emission Projections with External Adjustments, downloaded on October 11, 2012. On-road emissions include CARB external adjustments and are based on emissions generated by SACOG using EMFAC2011 and SACOG MTP/SCS2035 vehicle activity forecasts. ERCs plus additional adjustments from Tables B5.1 and B5.2 are included in the table. The Motor Vehicle Emission Budgets (MVEB) includes a safety margin for PM2.5 that is not reflected in this table. The total emissions are rounded to nearest integer.

Table 4.2 Average Winter Day PM2.5 Precursor Emissions (tons per day) Sacramento Federal PM2.5 Nonattainment Area

CATEGORY	**NO_X**			**SO_2**		
	2011	**2017**	**2024**	**2011**	**2017**	**2024**
TOTAL EMISSIONS	**100**	**79**	**60**	**2**	**2**	**2**
STATIONARY	10.7	12.4	12.6	0.6	1.0	1.0
AREAWIDE	7.2	8.3	8.3	0.7	0.8	0.8
ON-ROAD MOTOR	60.3	37.1	22.1	0.3	0.3	0.4
OTHER MOBILE	21.3	20.7	16.8	0.2	0.2	0.2
STATIONARY						
Fuel Combustion	10.1	11.6	11.7	0.4	0.7	0.7
Industrial Processes	0.4	0.6	0.7	0.1	0.2	0.2
Other	0.2	0.2	0.2	0.1	0.1	0.1
AREAWIDE						
Residential Fuel	6.8	7.8	7.8	0.6	0.7	0.7
Managed Burning and Disposal	0.4	0.5	0.5	0.1	0.1	0.1
Consumer Products	0.0	0.0	0.0	0.0	0.0	0.0
Architectural Coatings	0.0	0.0	0.0	0.0	0.0	0.0
Pesticides/Fertilizers	0.0	0.0	0.0	0.0	0.0	0.0
Farming Operations	0.0	0.0	0.0	0.0	0.0	0.0
Other	0.0	0.0	0.0	0.0	0.0	0.0
ON-ROAD MOTOR VEHICLES						
Light/Medium-Duty Vehicle	23.3	12.3	7.1	0.2	0.2	0.3

Heavy-Duty Trucks	33.2	21.7	12.5	0.1	0.1	0.1
Other	3.8	3.1	2.5	0.0	0.0	0.0
OTHER MOBILE						
Aircraft	2.3	2.8	3.0	0.2	0.2	0.2
Trains	5.9	6.2	5.6	0.0	0.0	0.0
Boats/Rec Vehicles	2.1	1.6	1.5	0.0	0.0	0.0
Off-Road Equipment	6.0	6.9	4.9	0.0	0.0	0.0
Farm Equipment	5.0	3.2	1.8	0.0	0.0	0.0
Fuel Storage & Handling	0.0	0.0	0.0	0.0	0.0	0.0

Data Source: Except for on-road, CARB CEPAM: NORCAL 2012 PM2.5 SIP Baseline Emission Projections, Section a1 - Emission Projections with External Adjustments, downloaded on October 11, 2012. On-road emissions include CARB external adjustments and are based on emissions generated by SACOG using EMFAC2011 and SACOG MTP/SCS2035 vehicle activity forecasts. ERCs plus additional adjustments from Tables B5.1 and B5.2 are included in the table. The Motor Vehicle Emission Budgets (MVEB) includes a safety margin for NO_X that is not reflected in this table. The total emissions are rounded to nearest integer.

Table 4.3 Average Winter Day PM2.5 Precursor Emissions (tons per day) Sacramento Federal PM2.5 Nonattainment Area

CATEGORY	**VOC**			**NH_3**		
	2011	**2017**	**2024**	**2011**	**2017**	**2024**
TOTAL EMISSIONS	**106**	**97**	**94**	**27**	**27**	**28**
STATIONARY	23.1	26.3	27.8	5.5	6.0	6.3
AREAWIDE	41.4	44.3	45.4	18.9	19.1	19.3
ON-ROAD MOTOR	27.4	14.4	10.8	2.8	2.3	2.1
OTHER MOBILE	14.2	11.6	10.2	0.0	0.0	0.0
STATIONARY						
Fuel Combustion	1.3	1.3	1.3	0.5	0.5	0.5
Industrial Processes	7.5	8.4	9.3	0.0	0.0	0.0
Other	14.3	16.6	17.2	5.0	5.5	5.8
AREAWIDE						
Residential Fuel	17.6	18.5	18.1	0.8	0.8	0.8
Managed Burning and Disposal	0.6	0.7	0.6	0.1	0.1	0.1
Consumer Products	12.4	13.0	14.0	0.0	0.0	0.0
Architectural Coatings	5.9	6.8	7.5	0.0	0.0	0.0
Pesticides/Fertilizers	1.1	1.2	1.1	7.1	6.9	6.7
Farming Operations	2.8	3.0	3.0	7.1	7.1	7.1
Other	1.0	1.1	1.1	3.8	4.2	4.6
ON-ROAD MOTOR VEHICLES						
Light/Medium-Duty Vehicle	20.2	9.3	6.4	2.5	2.0	1.9
Heavy-Duty Trucks	4.6	3.0	2.3	0.3	0.3	0.2

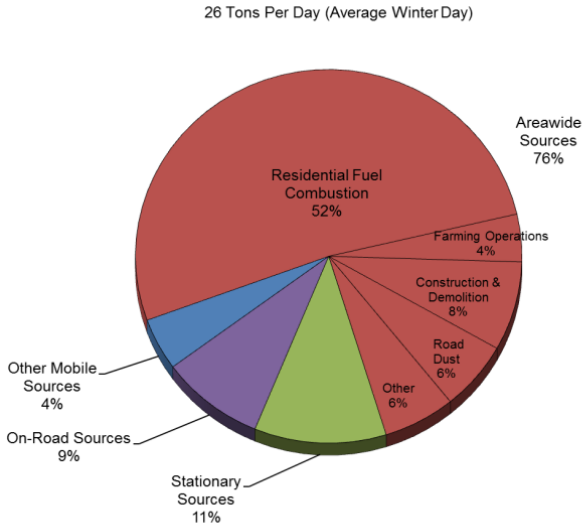
Other	2.6	2.1	2.1	0.0	0.0	0.0
OTHER MOBILE						
Aircraft	0.6	0.6	0.6	0.0	0.0	0.0
Trains	0.4	0.3	0.2	0.0	0.0	0.0
Boats/Rec Vehicles	5.0	4.1	3.5	0.0	0.0	0.0
Off-Road Equipment	6.1	5.2	4.8	0.0	0.0	0.0
Farm Equipment	1.0	0.6	0.4	0.0	0.0	0.0
Fuel Storage & Handling	1.1	0.8	0.7	0.0	0.0	0.0

Data Source: Except for on-road, CARB CEPAM: NORCAL 2012 PM2.5 SIP Baseline Emission Projections, Section a1 - Emission Projections with External Adjustments, downloaded on October 11, 2012. On-road emissions include CARB external adjustments and are based on emissions generated by SACOG using EMFAC2011 and SACOG MTP/SCS2035 vehicle activity forecasts. ERCs plus additional adjustments from Tables B5.1 and B5.2 are included in the table. The total emissions are rounded to nearest integer. The total emissions are rounded to nearest integer.

4.5.2 2011 Attainment Year Emissions Distribution

Figure 4.1 shows the 2011 directly emitted PM2.5 emission inventory categories as a percentage of the total inventory for SFNA-PM2.5. Areawide sources make up 76% of directly emitted PM2.5 emissions. At 52%, the Residential Fuel Combustion category of areawide sources dominates the PM2.5 inventory. Other areawide sources, which include Construction & Demolition, Road Dust, Farming Operation and Other categories, contribute 24%. Mobile sources and stationary sources contribute 13% and 11%, respectively.

Figure 4.1 2011 Directly Emitted PM2.5 Emissions Distribution Sacramento Federal PM2.5 Nonattainment Area



Data Source: Table 4.1

Figure 4.2 shows 2011 PM2.5 precursor emission inventory categories as a percentage of the total inventory for SFNA-PM2.5. The main contribution of PM2.5 precursors (NO_X, VOC, SO_2, and NH_3) comes from mobile sources. On-road motor vehicles account for about 39% of the PM2.5 precursor inventory, and other mobile sources contribute 15%. Areawide Sources and stationary

sources, mostly from solvent evaporation and fuel combustion, contribute 29% and 17%, respectively. Residential fuel combustion, a subset of areawide sources, contributes 11% to the total inventory.

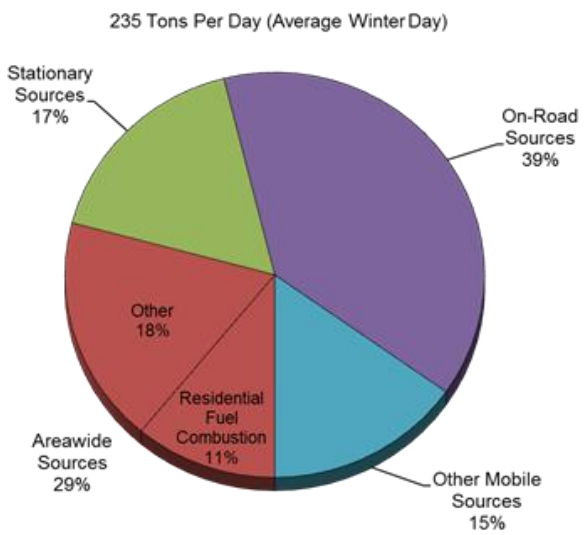


Figure 4.2 2011 PM2.5 Precursor (NO_X + VOC + SO_2 + NH_3) Emissions Distribution Sacramento Federal PM2.5 Nonattainment Area

Data Source: Tables 4.2a and 4.2b.

- 4.6 Analysis of Emissions Inventory Forecasts

Emissions Inventory Trends

Figure 4.3 shows the attainment year inventory and forecasts through 2024 for PM2.5 and its precursors in the SFNA-PM2.5. These forecasts take into account anticipated population and economic growth and emission benefits from the federal, state and local control measures adopted as of mid-2011.

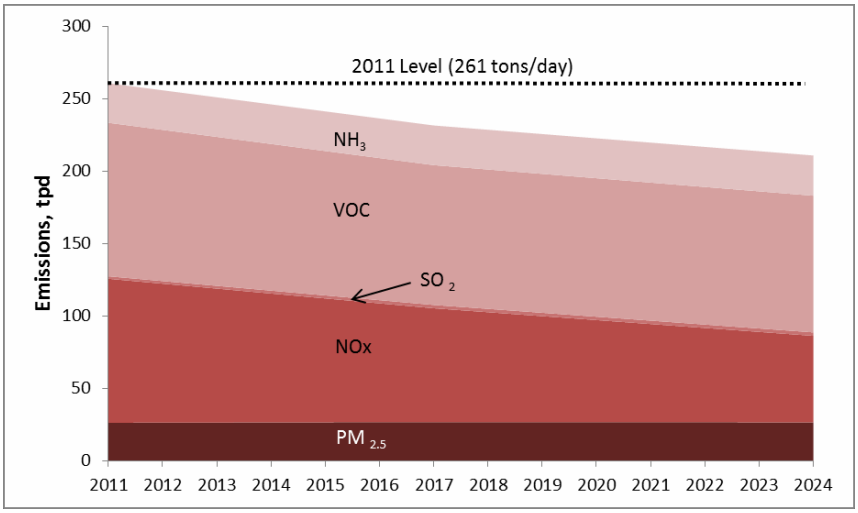


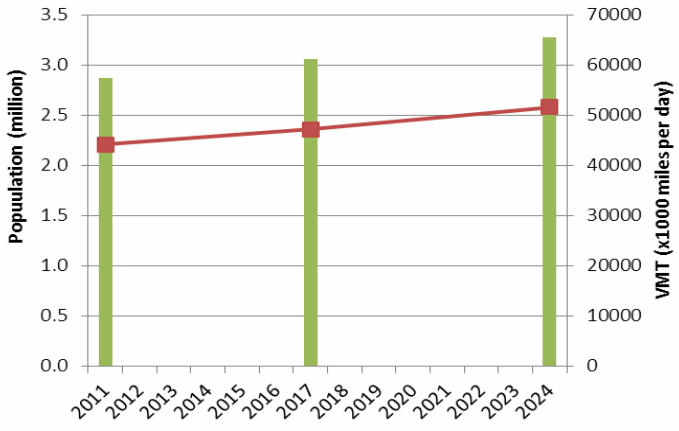
Figure 4.3 PM2.5 & PM2.5 Precursor Emissions Forecasts Sacramento Federal PM2.5 Nonattainment Area (Average Winter Day)

Data Source: Tables 4.1, 4.2a, and 4.2b.

The emission inventory trends show that between 2011 and 2024, the directly emitted PM2.5 remains fairly constant at 26 tons/day with a slight increase of 0.4 ton/day while the PM2.5 precursors steadily decline by 21%. The reductions in directly emitted PM2.5 gained from the controls on residential wood combustion, diesel trucks and off-road equipment are offset by growth in the Sacramento region. Whereas, despite growth, the PM2.5 precursors are projected to decrease by 50 tons per day from 2011 to 2024. The reduction in PM2.5 precursors are predominately from cleaner vehicles and equipment replacement due to mobile fleet turnover and from the adopted NO_X and VOC control commitments in the ozone attainment plans. Chapter 6 contains a discussion on control measures which have been implemented by the local air districts of the Sacramento Region, as well as State and federal agencies. These permanent and enforceable measures, which have reduced directly emitted PM2.5 and its precursors have decreased the region's PM2.5 design value significantly and led to PM2.5 attainment in 2011. These measures will continue to reduce emissions in future years so that the combined total emissions of directly emitted PM2.5 and its precursors remain below the attainment year emission level.

The SFNA-PM2.5 emissions inventory continues to decline despite increasing population and vehicle activity. Figure 4.4 illustrates trends in population and VMT. Based on SACOG forecasts and the U.S. Census (Glover 2012)(California Department of Finance, 2012), the population in the SFNA-PM2.5 is projected to grow at an

average of 1.3% annually from 2011 to 2024. The 2011, 2017 and 2024 VMT data are based on SACOG's adopted MTP/SCS 2035. Between 2011 and 2024, population and VMT in SFNA-PM2.5 are expected to increase by 17% and 14%,respectively. These growth projections are used to make the 2017 and 2024 emissions inventory forecasts.



	2011	2017	2024
VMT (x1000 miles/day)	57397	61275	65654
Population (millions)	2.2	2.4	2.6

Figure 4.4 Population and Vehicle Miles Traveled (VMT) Forecasts - Sacramento Federal PM2.5 Nonattainment Area (2011-2024)

Data sources:

- (Glover, 2012)
- Solano pop is from DOF website: http://www.dof.ca.gov/research/demographic/reports/estimates/e-5/2001-10/view.php.
- (Abraham, 2012a), (Crow, 2012), (Abraham, 2012b)

4.7 Emission Reduction Credits

Certain pollutant emission reductions due to equipment shutdown or voluntary controls may be converted to emission reduction credits (ERCs) and registered with the air district. These ERCs may then be used as "offsets" to compensate for an increase in emissions from a new or modified major emission source. In Sacramento County, ERCs may also be used as an alternative to, or bridge, to compliance with specified rules.

Since ERCs represent potential emissions, they need to be taken into account in the emission inventories. One method is to assume that the use of ERCs will already be included within the projected rate of stationary source growth in the emissions inventory. However, if the use of available ERCs exceeds anticipated emissions growth, future emissions could be underestimated. Therefore, to ensure that the use of ERCs will not be inconsistent with the future PM2.5 maintenance goals, the amount of ERCs issued for reductions that

occurred prior to the 2011 base year are added to the emission inventory forecasts in the maintenance demonstration.

Unused Banked Emission Reduction Credits

The current unused banked ERCs[23] in the SFNA-PM2.5 are accounted for in this PM2.5 maintenance plan. Reductions in rice burning in Yolo-Solano air district are banked under Rule 3.21 Rice Straw Emission Reduction Credits and in Placer County Air Pollution District are banked under Rule 516 Rice Straw Emission Reduction Credits, and are included under unused banked ERCs. These ERCs are included to maintain the validity of previously banked ERCs and other reductions.

Future Bankable Rice Burning Emission Reduction Credits

California legislation[24] in 1991 (known as the Connelly Bill) required rice farmers to phase down rice field burning on an annual basis, beginning in 1992. A burn cap of 125,000 acres in the Sacramento Valley Air Basin was established, and growers with 400 acres or less were granted the option to burn their entire acreage once every four years. Since the rice burning reductions were mandated by state law, they would ordinarily not be "surplus" and eligible for banking. However, the Connelly bill included a special provision declaring that the reductions are qualified for banking if they meet the State and local banking rules.

Reduction in rice burning may be banked in the future because of ERC rules[25] under development in the Sacramento Air District. Table 4-4 shows the total amount of potential bankable rice burning ERCs in the SFNA-PM2.5.

Available Wood Stove/Fireplace Change-Out Incentive Program Emission Reduction Credits

Sacramento County's Wood Stove/Fireplace Change-Out Incentive Program was established in June 2006 to provide financial incentives to remove or replace existing fireplaces and dirty wood stoves. Part of the funding for this incentive program comes from Sacramento County's Solutions for the Environment and Economic Development (SEED) program. One of the SEED program requirements is that the revenue generated from ERCs be used to replenish the ERC bank. The emissions reductions generated using SEED revenue in this incentive program must be banked as ERCs. About half of the emission reductions from this program will be available for the ERC bank. These ERCs from the Wood Stove/Fireplace Change-Out Incentive Program from Sacramento County are also added to the total ERCs.

Summary of Emission Reduction Credits

ERCs issued for reductions that occurred prior to the 2011 attainment year and potential future bankable ERCs from rice burning and Wood Stove/Fireplace Change Out Incentive Program are summarized for the SFNA-PM2.5 in Table 4.4 and are accounted for in the emissions forecasts in Tables 4.1, 4.2, and 4.3. These ERCs are in tons per day for average winter day and are included in the PM2.5 maintenance demonstration for 2017 and 2024. See Appendix B6 for details.

[23] Each district provided their ERC information to CARB and is summarized in (Taylor, 2012a).

[24] Connelly-Areias-Chandler Rice Straw Burning Reduction Act of 1991, section 41865 of California Health and Safety Code.

[25] This rice burning ERC rule must be approved by EPA into the SIP for the rice ERCs to be used for compliance with federal air quality requirements.

Table 4.4 Emission Reduction Credits Added to the Maintenance Demonstration - Sacramento Federal PM2.5 Nonattainment Area

Emissions in tons/day (winter average day)	PM2.5	SO_X	NO_X	VOC
Emission Reduction Credits (Includes YS Rice ERC)	1.6	0.6	2.8	4.3
Future Bankable Rice Burning Emission Reduction Credits (Sac County + Placer County)	0.31	0.06	0.28	0.25
Wood Stove/Fireplace Change-Out Incentive Program (Sac County Only)	0.09	0.001	0.01	0.10
Total ERCs	**2.0**	**0.6**	**3.1**	**4.6**
Total ERCs (rounded up)	**2**	**1**	**4**	**5**

- 4.8 Emissions Inventory Documentation

More detailed tables of the PM2.5, SO_2, NO_X, VOC, and NH_3 emissions inventory are provided in Appendix B. This appendix contains the estimated 2011, 2017, and 2024 emissions inventory for the SFNA-PM2.5.

Emission inventories are constantly being updated to incorporate new and better information and methodologies. Detailed information on emission methodologies, changes and forecasts can be found on CARB websites:
http://www.arb.ca.gov/ei/ei.htm and http://www.arb.ca.gov/msei/msei.htm

4.9 Emissions Inventory Conclusions

This maintenance plan includes an emissions inventory for total directly emitted PM2.5, and its precursors, SO_2, NO_X, VOC, and NH_3. The emissions inventory shows that residential combustion from fireplaces and woodstoves is the main contributor to the directly emitted PM2.5 inventory at 52%. It also shows that mobile sources dominate the PM2.5 precursor inventory at 54%.

The emission inventory trends show that between 2011 and 2024, PM2.5 precursors steadily decline about 21% primarily due to the phase-in of cleaner vehicles and equipment subject to steadily tightening emission standards. The trends show that PM2.5 increases slightly by 1%. Thus, the emission inventory trends demonstrate that the region will continue to attain the 24- hour PM2.5 NAAQS through 2024 by showing that the combined total future emissions of directly emitted PM2.5 plus its precursors for SFNA-PM2.5 remain below the attainment year emission level.

4.10 References

Abraham, Binu (SACOG). *"Re: SACOG Activity Data."* Message to Jason Crow (CARB). 17 May 2012. E-mail. [2012a]

Abraham, Binu (SACOG). *"Re: Eastern Solano 2011."* Message to Hao Quinn (SMAQMD). 13 September 2012. E-mail. [2012b]

Brazil, Harold (MTC). "Re: Eastern Solano County Activity Data Assumptions for E2011 SIP Runs." Message to Binu Abraham (SACOG). 14 September 2012. E-mail.

California Department of Finance. E-5 by Year, 2001-10, with 2000 Benchmark - California Department of Finance. Web 12 Oct 2012. <http://www.dof.ca.gov/research/demographic/reports/estimates/e-5/2001-10/view.php>

CARB. *CEPAM.* Web 14 Jun. 2012a. <http://www.arb.ca.gov/app/emsinv/2012pm25sip/norcal2012pm25sip/>.

CARB. CEPAM. Section a1 - Emission Projections With External Adjustments. Web 11 October, 2012b <http://www.arb.ca.gov/app/emsinv/2012pm25sip/norcal2012pm25sip/>CARB. *ARB's Emission Inventory.* Web. 11 Oct 2012c. <http://www.arb.ca.gov/ei/ei.htm>

CARB. *Mobile Source Emission Inventory – Modeling & Data.* Web. 12 Oct, 2012d. <http://www.arb.ca.gov/msei/modeling.htm>

Crow, Jason (CARB). *"Re SACOG 2011 Activity Data."* Message to Charles Anderson, (SMAQMD). 22 August 2012. E-mail.

EPA. *"Emission inventory requirements for the PM2 5 NAAQS."* Code of Federal Regulations Title 40, Pt. 51.1008, referenced on 12 October, 2012.

EPA. *"Air Emissions Reporting Requirements."* Code of Federal Regulations Title 40, Pt. 51 subpart A, referenced on 12 October, 2012.

Glover, Tina (SACOG). *"RE: Human Population Projections – MTP/SCS 2035*" Message to Hao Quinn (SMAQMD). 22 June 2012. E-mail.

Quinn, Hao. SMAQMD *Control Profile, Rule 421 – Mandatory Episodic Curtailment of Wood and Other Solid Fuel Burning*. CA: Sacramento Metropolitan Air Quality Management District, Sacramento, CA [2010.]

SACOG. *Metropolitan Transportation Plan/Sustainable Communities Strategy 2035*, Sacramento Area Council of Governments. Sacramento, CA [2012.]

SACOG. *SACOG – Demographics.* Web. 12 Oct 2012. <http://www.sacog.org/demographics/pophsg/>

Taylor, Cheryl (CARB). *"Re: ERC Adjustments for other districts."* Message to Hao Quinn (SMAQMD). 21 June 2012. E-mail. [2012a]

Taylor, Jonathan (CARB). *"Re: Sacramento and Feather River Planning Inventories."* Message to Charles Anderson (SMAQMD). 18 October 2012. E-mail. [2012b]

Taylor, Jonathan (CARB). *"Re: Eastern Solano 2011."* Message to Hao Quinn (SMAQMD). 23 October 2012. E-mail. [2012c]

Federal Clean Air Act, 42 U.S.C. 7502(c)(3), Title 1, Part D, Section 175A, [1990.], referenced on 12 October, 2012.

Federal Clean Air Act, 42 U.S.C. 7505A, Title 1, Part D, Section 175A, [1990.], referenced on 12 October, 2012.

ATTACHMENT B – EMISSION REDUCTION CALCULATIONS

Emission Reduction Calculations

The following calculations and assumptions were used to derive the anticipated emission reduction benefit of the proposed grant application components.

1. **Heavy Duty Vehicle Replacement.** Replace 10 diesel school buses with electric school buses.

The California Air Resources Board (CARB) has developed multiple tools to evaluate projects and report both the emissions and cost per pound or ton of pollutants reduced. Using CARB's Transportation Strategies and Air Quality Replacing Cost-Effectiveness Analysis Tool, the replacement of 10 Diesel school bus with a zero-emission electric model will have the following emission reductions:

Project Information			Emissions		
Project Title	Applicant	Total Project Cost	NOx	PM	ROG
RJUHSD Bus 5	RJUHSD	$414,180.26	0.19	0.001	0.01
RJUHSD Bus 10	RJUHSD	$414,180.26	0.22	0.001	0.02
RJUHSD Bus 14	RJUHSD	$414,180.26	0.16	0.001	0.01
RJUHSD Bus 54	RJUHSD	$394,839.59	0.14	0.001	0.01
RJUHSD Bus 6	RJUHSD	$414,180.26	0.11	0.000	0.01
RJUHSD Bus 9	RJUHSD	$414,180.26	0.11	0.000	0.01
RJUHSD Bus 18	RJUHSD	$394,839.59	0.11	0.000	0.01
RJUHSD Bus 53	RJUHSD	$394,839.59	0.07	0.000	0.00
EUSD Bus 1	EUSD	$400,000.00	0.17	0.003	0.03
EUSD Bus 2	EUSD	$400,000.00	0.17	0.003	0.03
YS EUSD BUS 1	VUSD	$468,029.06	0.30	0.005	0.01
YS VUSD BUS 1	EUSD	$470,800.05	0.22	0.005	0.01
Total anticipated TAG grant emission reductions (1 yr)			1.96	0.02	0.17
Total anticipated TAG grant emission reductions (5 yr)			9.8175	0.0975	0.825
Total anticipated TAG grant emission reductions (12 yr)			23.562	0.234	1.98
Total anticipated TAG grant emission reductions (18 yr)			35.343	0.351	2.97
Anticpated reductions tons/day			0.00538	0.00005	0.00045

Commented [JB2]: Need writeups for all of the 6 components.

Commented [SH3]: Insert tables.

2. **Off Road Ag Equipment Replacement**. Replace approximately 20 pieces of ag equipment with cleaner equipment.

2019				Recommended	Reductions (tpy)		
Applicant	**Project Title**	**Total Project Cost**	**Req. Amount**	**Funding Amount**	**NOx**	**PM**	**ROG**
Miller Honey Farms	Ag Equipment Replacement	$ 44,947.80	$ 30,000.00	$ 22,456.00	0.03	0.005	0.02
Sierra Pacific Industries	Ag Equipment Replacement (Log Deck)	$ 777,899.00	$ 777,899.00	$ 381,497.00	1.08	0.06	0.11
Sierra Pacific Industries	Ag Equipment Replacement (1991 #618 Forklift)	$ 198,074.00	$ 198,074.00	$ 158,459.00	1.61	0.085	0.15
Sierra Pacific Industries	Ag Equipment Replacement (1997 #616 Forklift)	$ 198,074.00	$ 198,074.00	$ 158,459.00	1.58	0.109	0.16
AKT Wheatland Ranch (Tractor)	Ag Equipment Replacement (Tractor)	$ 53,530.00	$ 37,471.00	$ 30,496.00	0.11	0.006	0.01
Ideal Walnut Ranch (from FARMER)	Ag Equipment Replacement (Tractor)	$ 84,683.00	$ 44,241.00	$ 44,240.00	0.12	0.01	0.02
Auburn Ravine Ranch	Ag Equipment Replacement (Tractor)	$ 178,944.00	$ 160,000.00	$ 117,574.00	0.39	0.025	0.04
	average:	$ 219,450.26	$ 206,537.00	$ 130,454.43	0.70	0.04	0.07
2020				**Recommended**	**Reductions (tpy)**		
Applicant	**Project Title**	**Total Project Cost**	**Req. Amount**	**Funding Amount**	**NOx**	**PM**	**ROG**
Fowler Nursery	Off Road Equipment Replacement (2355N)	$ 67,600.00	$ 54,080.00	$ 54,080.00	0.16	0.014	0.02
Fowler Nursery	Off Road Equipment Replacement (2550)	$ 83,006.00	$ 70,555.00	$ 45,000.00	0.13	0.008	0.02
SPI	Off Road Equipment Replacement (forklift #621)	$ 212,358.20	$ 212,358.20	$ 169,886.36	0.77	0.054	0.08
SPI	Off Road Equipment Replacement (forklift #617)	$ 212,358.20	$ 212,358.20	$ 169,886.00	2.18	0.115	0.19
SPI	Off Road Equipment Replacement (log deck)	$ 760,932.41	$ 760,932.41	$ 321,911.00	1.01	0.055	0.1
Golden Valley Farms	Off Road Equipment Replacement	$ 166,824.90	$ 100,000.00	$ 29,494.00	0.12	0.009	0.01
	average:	$ 250,513.29	$ 235,047.30	$ 131,709.56	0.73	0.04	0.07
2021				**Recommended**	**Reductions (tpy)**		
Project Title	**Applicant**	**Total Project Cost**	**Req. Amount**	**Funding Amount**	**NOx**	**PM**	**ROG**
Strickler Tractor Replacement	Strickler Monster Farms	$ 45,858.20	$ 50,000.00	$ 36,686.56	0.98	0.088	0.15
Wheel Loader Replacement	SPI	$ 856,820.16	$ 856,820.16	$ 600,550.41	1.59	0.086	0.15
Skid Steer Replacement	Miller Honey Farms	$ 38,634.00	$ 22,500.00	$ 14,766.51	0.01	0.002	0.01
Fowler Tractor Replacement	Fowler Nurseries	$ 52,454.25	$ 41,963.40	$ 41,963.40	0.09	0.01	0.02
Farmall Tractor Replacement	Ellis Cattle Company	$ 100,670.75	$ 80,536.00	$ 13,151.70	0.04	0.002	0
4450 Tractor Replacement	Ellis Cattle Company	$ 166,847.46	$ 133,477.00	$ 133,477.97	0.38	0.021	0.03
Windrower Replacement	Ellis Cattle Company	$ 210,398.07	$ 168,318.00	$ 69,167.47	0.11	0.006	0.01
Bale Wagon Replacement	Ellis Cattle Company	$ 203,462.50	$ 162,770.00	$ 162,754.06	0.24	0.016	0.03
Bank Out Replacement	Pacific Agribusiness	$ 121,473.00	$ 121,473.00	$ 85,968.74	0.09	0.01	0.01
	average:	$ 199,624.27	$ 181,984.17	$ 128,720.76	0.39	0.03	0.05
		Total amount of projects funded 2019 and 2020		$1,703,438.36			
		Projects funded in 2018		$410,249.00			
			Total 3 years	$2,113,687.36			
					NOx	**PM**	**ROG**
	3-yr project average of grant amount and emission reductions per year	$ 223,195.94	$ 207,856.16	$ 130,294.92	0.61	0.04	0.06
	Anticipated Number of TAG Ag Replacements	20					
	Cost for all projects	$ 2,605,898.31					
	Farmer cost share per project	$ 92,901.02					
	Total farmer cost share	$ 1,858,020.41					
					NOx	**PM**	**ROG**
		Total anticipated TAG grant emission reductions (1 yr)			**12.2**	**0.7**	**1.3**
		Total anticipated TAG grant emission reductions (5 yr)			**60.8**	**3.7**	**6.3**
		Total anticipated TAG grant emission reductions (10 yr)			**121.6**	**7.5**	**12.6**
		Total anticipated TAG grant emission reductions (20 yr)			**243.1**	**15.0**	**25.1**

3. Unpaved Roadway Emissions – Pave 4.8 miles of unpaved road.

ARB Misc. Process Methodology 7.10, Unpaved Road Dust (Non-Farm Roads)
https://ww3.arb.ca.gov/ei/areasrc/fullpdf/full7-10_2012.pdf

PM10 Emissions (tons/yr) = VMT(miles/yr) x EF-PM10($_{lbsPM10/mile}$)/(2000 lbs/ton) x rainfall adjustment

Steps	All TAG application Roadways combined	
1	Miles of Road	4.8
2	Annual VMT	318,916
3	Rainfall Adj	0.8137
4	PM10 Emissions (tons/yr) (VMT x (EF-PM10/2000) x Rainfall Adj)	259.50
5	PM2.5 Emissions (tons/yr) (PM10/0.5943) x 0.0594	25.94
6	Total PM Emissions (PM10/0.5943)	436.65
7	PM10 Emissions for 5 years (tons)	1297.51
8	PM2.5 Emissions for 5 years (tons)	**129.69**

Inputs	
4.8	Total Miles of Road
	Average Daily Trips (ADT) or Passes/Day using EDC DOT traffic counts South Street 495 ADT (15,548 VMT/yr), Luneman Rd 440 ADT (5,906 VMT/yr), Mt Murphy Rd 222 ADT (110,283 VMT/yr), Russell Hollow Rd 20 ADT (4,812 VMT/yr), Tullis Mine Rd. 1221 ADT (98102 VMT/yr), Sweeney Rd 93.5 ADT (84,265 VMT/yr)
318,916	Total VMT/year = (Road miles x passes/day x days/year)
2	**(EF-PM10)** Emission Factor (lbs PM10/mile) from methodology
0.8137	Rainfall adjustment (365-P)/365
68	P from Table 3 (for EDC)

Using CARB's *Miscellaneous Process Methodology 7.9 Entrained Road Travel, Paved Road Dust (March 2018)* we estimate **0.218 tons/yr of PM2.5 emissions** would result after the 4.8 miles of unpaved roads are paved:

Paved Roadway Emissions

ARB Miscellaneous Processes Methodologies 7.9 - Entrained Road Travel, Paved Road Dust
https://ww3.arb.ca.gov/ei/areasrc/fullpdf/full7-9_2018.pdf

Steps	**All TAG application Roadways combined**	
1	Annual VMT	318916
2	Emissions Factor PM10 (lbs PM10/mile)	0.00181901
3	PM10 Emissions (tons/yr)	0.29005534
4	PM2.5 Emissions (tons/yr) (PM10 x (0.0686/0.4572))	0.04352099
	Based on 2006 updates to ARB speciation profiles for PM2.5, PM2.5 is estimated to be 6.86% of PM, or 15% of PM10	
5	PM10 Emissions for 5 years (tons)	1.450
6	PM2.5 Emissions for 5 years (tons)	**0.218**

Inputs	
0.0022	k = the U.S. EPA AP-42 particle size multiplier (PM10 = 0.0022 lb/VMT)
0.32	sL = the roadway-specific silt loading in grams/square meter (g/m^2) Table 7 2008 Silt Loadings
2.4	W = the average weight of vehicles traveling the road (California statewide default = 2.4 tons)
66	P = number of "wet" days, when at least one site per county received at least 0.01 inch of precipitation during the annual averaging period
365	N = the number of days in the annual averaging period (default = 365)
0.001819008	EF - PM10 from Table 7 (average of EDC & PC) per mile or calculated by: **EF-PM10 = [k(sL)$^{0.91}$(W)$^{1.02}$]x(1-/4N)** E = particulate emission factor in units of pounds of particulate matter per VMT

The estimated emission reductions of paving 4.8 miles of unpaved road are as follows:

	PM2.5 (tons)
Annual PM2.5 reductions	25.89
Emissions Reductions (5 yr)	129.5
Total Lifetime Emission Reductions (7 yr)	181.25

4. Biomass Chipping. 250,000 cubic yards of residential biomass as an alternative to open burning.

Placer APCD, US Department of Agriculture (USDA), and Missoula Fire Sciences Laboratory collaborated on two field studies in 2016 & 2017 to determine the emission factors for small open pile burning in the Sierra Nevada[4]. One field study was conducted in October 2016 on three burn piles near Truckee, CA and the other was conducted in November 2017 on three burn piles in Alta, CA. The piles contained a mixture of ponderosa pine, western cedar, incense cedar, white fir, live oak, blue oak and black oak; all typical contents of a 4' x 4' residential foothill burn pile. The studies determined the following emission factors based on field results:

	PM2.5 (g emitted/kg burned)	**NOx** (g/kg)	**VOC** (g/kg)
2016 study	2.39	0.36	2.97
2017 study	4.04	0.46	5.77
Average	3.22	0.41	4.37
Lbs emissions/ tons burned	6.43 (lbs/ton burned)	0.82 (lbs/ton)	8.74 (lbs/ton)

For this TAG application, we will assume 1 cubic yard of stacked material prior to chipping is equal to about 100 lbs (0.05 tons) of chips or material burned. This is consistent with forester rule-of-thumb estimates. EDC Fire Safe Council estimates they will chip approximately 250,000 cubic yards over the 5 year grant term. The following are the estimated emissions reductions of chipping this material rather than burning.

	PM2.5 (tons)	**NOx** (tons)	**VOC** (tons)
Annually 50,000 cubic yards (assumes 750k/5)	8.0	1.0	10.9
250,000 cubic yards (5yr)	40.2	5.1	54.6

5. Low-Dust Harvesting Equipment Replacement. Replacement of approximated 5 existing harvesters with new, low-dust equipment.

YSAQMD estimates the average harvester operated within the Yolo and Solano County portions of the NAA, is used to harvest a minimum of 500 acres of almonds per season. There are multiple low-dust harvesters commercially available on the market, with control efficiencies between 41% and 62%. The emission reductions for the replacement of 5 harvesters with new, low-dust equipment will be calculated using the most conservative efficiency (41%) as follows:

Emission Reductions (per harvester)*
= Acres harvested per year * Emission Factor * (1 – control efficiency)
= 500 acres/year * 2.95 lbs PM2.5/acre harvested * (1- 0.41)
= 885 lbs PM2.5 reduced per year

[4] *Emissions Sampling and Determination of Emission Factors from the Burning of Open Piled Forest Biomass Residue – Field Trip 1 Summary*, (Baker, Stephen, et al) April 2017
Determination of Black Carbon and Emission Factors from the Burning of Open Piled Forest Biomass Residue – Field Trip 2 Summary, (Baker, Stephen, et al) March 2018

If we replace 5 harvesters, that would be 4,425 lbs PM2.5 per year (2.2125 tons/year)
For a 10-year life, that would be 22.125 tons PM2.5

*Estimated using *CARB's 2012 Miscellaneous Process Methodology 7.5 Agricultural Harvest Operations* (2.95 lbs/PM2.5 per acre), and a conservative emission reduction of 41% based upon the University of Texas A&M study (Establishment of Newer PM2.5 Emission Factors with Various Almond Harvesting Machinery).

6. Agricultural Chipping. Chipping approximately 630 acres of orchards.

YSAQMD estimated this pilot program would target reducing open agricultural burning of almond and walnut orchards by 10%, which is approximately 630 acres. To calculate the reduction of emissions from this program the district must calculate the baseline emissions for burning estimated acreage and subtract the emissions from chipping that same amount of material.

Agricultural Open Burn Emissions							
Crop	**Acres**	**PM10**	**PM2.5**	**Nox**	**Sox**	**VOC**	**CO**
Almond	335	2,345	2,245	1,977	34	1,742	17,487
Walnut	295	1,487	1,416	1,593	71	1,699	23,718
Total	**(lbs)**	**3,832**	**3,661**	**3,570**	**104**	**3,441**	**41,205**
	(tons)	**1.92**	**1.83**	**1.78**	**0.05**	**1.72**	**20.60**

*Using emission factors and fuel loading from *CARB Managed Burning Emission Factor Table* for 630 acres of combined almond and walnut orchards *https://ww3.arb.ca.gov/ei/see/mngdburnemissionfactors.pdf*

To estimate the emissions for chipping operations, using the standard emission factors (AP42, District permitted sources), the district estimates the follow emissions:

Acreage Chipped	630 acres
Dry Weight of Wood (Dy)	530 tons/yr
VOC Emissions	.0014 tons/yr
PM10 Emissions	.004 ton/yr

The estimated emission reductions from chipping as an alternative to open burning approximately 630 acres of almond and walnut orchards is as follows:

Emissions	**PM10**	**PM2.5**	**NOx**	**Sox**	**VOC**	**CO**
tons/yr	1.91	1.83	1.78	0.05	1.72	20.6

Total Emission Reductions

The following table details the total emission reductions anticipated by the proposed suite of Targeted Airshed Grant projects. Emissions reductions are shown annually, a 5 year grant funded basis, and some components have a "Project Life" emissions reduction time period as their useful life which far exceed the grant term.

	PM2.5 Reductions (tons)	NOx Reductions (tons)	VOC Reductions (tons)
1.Heavy Duty Vehicle Replacement (HDVE)			
Annual Reductions	.02	1.96	.17
HDVE 5 Year Total Reductions	.0975	9.82	.825
HDVE Total Project Life Reductions (18 years)	.351	35.343	2.97
2. Off Road Ag Equipment Replacement (AER)			
Annual Reductions	0.7	12.2	1.3
AER 5 Year Total Reductions	3.7	60.8	6.3
AER Total Project Life Reductions (20yr)	15.0	243.1	25.1
3. Unpaved Road Paving (URP)			
Annual Reductions	25.89		
URP 5 Year Total Reductions	129.5		
URP Total Project Life Reductions (7yr)	181.25		
4. Biomass Chipping			
Annual Reductions	8.0	1.0	10.9
5 Year Total Reductions	40.2	5.1	54.6
5. Low-Dust Harvesting Equipment Replacement			
Annual Reductions	2.21		
5 Year Total Reductions	11.07		
Total Project Life Reductions (10yr)	22.125		
6. Agricultural Chipping			
Annual Reductions	1.83	1.78	1.72
Total Project Life Reductions (630 acres)	1.83	1.78	1.72
Total Annual Emission Reductions	**142**	**17**	**14**
Total 5 Year Emission Reductions	**186**	**78**	**63**
Total Project Lifetime Reductions	**261**	**285**	**84**

Attachment C. Leveraged Funds Cost Share Commitment Letters and Letters of Support

EL DORADO COUNTY
DEPARTMENT OF TRANSPORTATION
http://www.edcgov.us/DOT/

PLACERVILLE OFFICES:	LAKE TAHOE OFFICES:
MAIN OFFICE: 2850 Fairlane Court, Placerville, CA 95667 (530) 621-5900 / (530) 626-0387 Fax	ENGINEERING: 924 B Emerald Bay Road, South Lake Tahoe, CA 96150 (530) 573-7900 / (530) 541-7049 Fax
CONSTRUCTION & MAINTENANCE: 2441 Headington Road, Placerville, CA 95667 (530) 642-4909 / (530) 642-0508 Fax	MAINTENANCE: 1121 Shakori Drive, South Lake Tahoe, CA 96150 (530) 573-3180 / (530) 577-8402 Fax

February 1, 2020

Timothy Roberts
USEPA Headquarters
William Jefferson Clinton Building
1200 Pennsylvania Ave NW
Washington, DC 20460

RE: Letter of Support for RFA# EPA-OAR-OAQPS-20-01

Dear Mr. Roberts,

El Dorado County (EDC) Department of Transportation (DOT) supports the joint application of the *Sacramento Metropolitan Air Quality Management District* to the United States Environmental Protection Agency's (USEPA) 2019 Targeted Airshed Grant Program.

The western portion of EDC is part of the Sacramento Federal Nonattainment Area (SFNA) for 2006 PM2.5 24-hour standard, which also includes portions of Sacramento, Yolo, Solano and Placer Counties. EDC DOT regularly works with the EDC Air Quality Management District (AQMD) on transportation projects that improve air quality and quality of life for EDC residents.

EDC DOT has successfully partnered with AQMD in the past to install 2.54 miles of new chip seal pavement on a previously unpaved portion of Bayne Road. Bayne Road residents commented that they were impressed how DOT and AQMD worked together to deliver a well-executed and coordinated road improvement project.

Unpaved, dirt roads are often the only access residents in the rural areas of EDC have to their homes and EDC has approximately 58 miles of unpaved roads that, when traveled by motor vehicles, continue to create significant amounts of dust or particulate pollution. To date, funding the construction of paving projects on some of the most frequently used, unpaved roads in EDC have been cost prohibitive.

If awarded, financial assistance through the Targeted Airshed Grant Program would allow EDC DOT to construct three additional paving projects within the SFNA. Specifically, grant funds would be used by EDC DOT staff to pay for hiring a contractor for the construction phase of these three paving projects. All pre-construction and prep work would be funded and completed by EDC DOT.

DOT has a long history of partnering with AQMD on other transportation improvement projects to improve air quality. Our strong working relationship has allowed for the installation of electric vehicle charging stations at County-owned and leased facilities and the Diesel Fleet Retrofit project which brought County- owned diesel vehicles and equipment into compliance with Air Resources Board requirements.

EDC DOT and AQMD strongly support the Sac Metro Air District's application for the Targeted Airshed Grant Program. EDC DOT is confident that these projects will significantly reduce air pollution in the EDC portion of the SFNA.

This application is supported by multiple stakeholders within the SFNA and the projects proposed would be difficult to fund through other means. EDC DOT urges USEPA to give Sac Metro Air District's application **full** consideration.

Sincerely,

Rafael Martinez
Director of Transportation

Roseville Joint Union High School District
1750 CIRBY WAY, ROSEVILLE, CALIFORNIA 95661
Office: (916) 786-2051 • FAX (916) 786-2681 • www.rjuhsd.us
John Becker, Deputy Superintendent

BOARD OF TRUSTEES
Pete Constant
Heidi J. Hall
Julie K. Hirota
Scott E. Huber
Andrew Tagg

June 21, 2021

Timothy Roberts
US EPA Headquarters
William Jefferson Clinton Building
1200 Pennsylvania Ave., N.W.
Washington, D.C. 20460

Re: Support for EPA-OAR-OAQPS-21-03

Dear Mr. Roberts,

On behalf of the Roseville Joint Union High School District, we write to support the joint application of the Sacramento Metropolitan Air Quality Management District to the U.S. Environmental Protection Agency's 2021 Targeted Airshed Grant.

The Roseville Joint Union High School District (RJUHSD) serves the educational needs of more than 10,000 students. Geographically, the district includes the city of Roseville, the Granite Bay community, and a part of Antelope. It includes portions of both Placer and Sacramento counties. The district currently operates six comprehensive high schools, a continuation school, adult school, and an independent study school.

The bus yard and several schools in the district are located adjacent to low-income communities with two sites having 54% and 65% of the student population eligible for free and reduced-price meals and three Title I sites, with students from low-income families making up at least 40 percent of the enrollment.

The major elements of the Sac Metro Air District's joint proposal include incentive funding for school bus electrification. RJUHSD students, staff and the low-income communities surrounding our bus yard, schools and bus routes would benefit greatly from decreased pollution from zero-emission school buses. Our district is currently challenged to identify the financial resources to modernize our 20-year old fleet of 16 high-polluting diesel buses and the additional funding for the increased cost to purchase zero-emission school buses.

RJUHSD would like to serve as a model for other districts in the Sacramento Region Non-Attainment Area and participate in a learning community that will help other districts identify and overcome barriers to electrifying their school bus fleets in order to reduce particulate matter pollution.

Sincerely,

John Becker, Superintendent

June 18, 2021

Timothy Roberts
US EPA Headquarters
William Jefferson Clinton Building
1200 Pennsylvania Ave., N.W.
Washington, D.C. 20460

Re: Support for EPA-OAR-OAQPS-21-03

Dear Mr. Roberts,

On behalf of the Eureka Union School District, we write to support the joint application of the Sacramento Metropolitan Air Quality Management District to the U.S. Environmental Protection Agency's 2021 Targeted Airshed Grant.

Eureka Union School District is a TK-8th grade district that encompasses 14.8 square miles in Granite Bay and an Eastern portion of the City of Roseville in Placer County, California. The District sits just East of Sacramento at the base of the Sierra Foothills bordered on the East by Folsom Lake and is comprised of seven schools, three with grades TK-3, two with grades 4-6 and two junior high schools. All students residing in the boundaries of Eureka Union SD are also students of the Roseville Joint Union High School District, and naturally matriculate into Granite Bay High School.

EUSD is currently the only school district in Placer County with zero-emission school buses and charging infrastructure and currently has 2 of electric buses in our fleet. The district identified a number of important green initiatives in their Facilities Maintenance Plan to be implemented over the next decade that included the purchase of electric buses that can run on electricity generated from solar power and anticipates that new buses, particularly electric buses, will significantly lower the maintenance and fuel costs associated with the existing aging fleet.

The major elements of the Sac Metro Air District's joint proposal include incentive funding for school bus electrification. EUSD students, staff and the communities surrounding the bus yard, schools and bus routes would benefit greatly from decreased pollution from zero-emission school buses. Our district is currently challenged to identify the financial resources to modernize our 30-year old fleet of 26 high-polluting diesel buses, which are some of the oldest in the county, and the additional funding for the increased cost to purchase zero-emission school buses.

EUSD would like to serve as a model for other districts in the Sacramento Region Non-Attainment Area and participate in a learning community that will help other districts identify and overcome barriers to electrifying their school bus fleets in order to reduce particulate matter pollution.

Sincerely,

Tom Tanis

EUSD Superintendent

ESPARTO UNIFIED SCHOOL DISTRICT

Dr. Christina Goennier, Superintendent

"Serving Yolo County Since 1868"

26675 Plainfield Street
Esparto, California 95627

Tel: (530) 787-3446
Fax: (530) 787-3033

June 23, 2021

Timothy Roberts
US EPA Headquarters
William Jefferson Clinton Building
1200 Pennsylvania Ave., N.W.
Washington, D.C. 20460

Re: Support for EPA-OAR-OAQPS-21-03

Dear Mr. Roberts,

On behalf of the Esparto Unified School District, we would like to express our support for Yolo-Solano Air Quality Management District's (YSAQMD) application to the U.S. Environmental Protection Agency's 2021 Targeted Airshed Grant.

The Esparto Unified School District (EUSD) is a small, rural school district that serves the educational needs of approximately 1,000 students. The EUSD has a geographical area of 550 square miles and consists of one elementary school, one middle school and two high schools serving the towns of Madison, Esparto, Capay, Brooks, Guinda and Rumsey. The schools in the district are in low-income communities having 83% of the student population eligible for free and reduced-price meals with 72% of EUSD students being socioeconomically disadvantaged.

The key highlights of YSAQMD's application include service to low-income communities. EUSD students, staff and the surrounding areas would benefit greatly from YSAQMD's application approval as it would provide additional financial assistance for large purchases such as an all-electric, zero emissions school bus; the first of its kind in our rural area and in our fleet. This bus would allow us to transport our students safely all while giving our area the chance to join the globally charged fight in climate change. Organizations like YSAQMD allow for the continued success of small and low-income communities such as ours.

We are excited at the opportunity to support this project that will result in the deployment of clean vehicles which will make a real difference in communities like Esparto. We greatly appreciate your time and consideration while reviewing this letter of support.

Sincerely,

Christina Goennier Ed.D.
Superintendent

Board of Trustees

Tracy Nash	Bonnie Simas	Ashleigh Green	Amanda Barwis	Larry Kieny
President	Trustee	Trustee	Trustee	Trustee

Attachment D. Biographical Sketches

El Dorado AQMD Staff:

Dave Johnston, Air Pollution Control Officer:

Mr. Johnston has worked for the County of El Dorado for 31 years for the Office of Emergency Services, Environmental Management Department and the Air Quality Management District. He has Bachelor's degrees in Chemistry and Psychology. He has administered over 75 grant projects totaling over $25M. Grant projects have included EV infrastructure, EV incentive, wood stove, Carl Moyer, FARMER, lawn mower, school bus, recycling, road paving, shuttle services, hazardous materials incident response, household hazardous waste, solid waste collection, used oil recycling, used tire recycling, and electronic waste recycling.

Scott Wilson, Air Quality Administrative Analyst:

Mr. Wilson has worked for the County of El Dorado for 14 years in lead fiscal/budgetary/administrative positions in the Department of Transportation, Community Development Agency, and the Air Quality Management District. He has a BA degree in Communication Studies from CSU Sacramento. He has administered grants ranging in size from several thousand dollars to multi-million dollars in the fields of local air quality improvement, electric vehicle infrastructure projects, and large transportation infrastructure projects.

Placer County APCD Staff:

Erik White, Air Pollution Control Officer:

Mr. White currently serves as the Air Pollution Control Officer (APCO) of the Placer County Air Pollution Control District (District), assuming the role in 2015. Prior to his appointment as District APCO, Erik spent 22 years with the California Air Resources Board (CARB) working in several high priority program areas, including the development and implementation of: California's reformulated fuels programs; many mobile source diesel risk reduction programs, including the Statewide Truck and Bus and In-Use Off-Road Vehicle Regulations; over $300 million in criteria and greenhouse gas incentive programs, including the Carl Moyer Program, the Air Quality Improvement Program, and the Low-Carbon Transportation Program; and new heavy-duty engine and vehicle standards. Erik has a B.S. in Aerospace Engineering from the University of California, Los Angeles.

Adam Baughman, Deputy Air Pollution Control Officer:

Mr. Baughman joined Placer County APCD after his 8+ year employment as an Air Quality Engineer with El Dorado AQMD. Prior to that, he worked in Transportation Planning for 4+ years with El Dorado County and Land Use Planning for over 8 years with Santa Barbara County. He has a Bachelor's degree in Geography and a Master's degree In Environmental Science and Management (MESM) from the University of California, Santa Barbara. He has both applied for and administered state and federal grants ranging in size from several thousand dollars to multi-million dollars in the fields of local air quality improvement, electric vehicle infrastructure projects, and large transportation infrastructure projects.

Molly, Johnson, Air Quality Specialist II

Commented [JB4]: Molly, add a quick bio for yourself here.

Ms. Johnson has been with the PCAPCD for many years in compliance and enforcement and grants and incentives. She currently heads the District's Community Air Protection (CAP) grant program and the Community Based Supplemental Environmental Projects (CBSEP) programs. She has been instrumental in the

success of the District's Woodstove Changeout program, Carl Moyer grants program, and many school bus and agricultural replacement grants.

Yolo-Solano AQMD Staff:

Mat Ehrhardt, Air Pollution Control Officer

Mr. Ehrhardt has held the position of Air Pollution Control Officer of the Yolo-Solano Air Quality Management District since 2003. In this position, Mr. Ehrhardt oversees all the operations of the district and coordinates with the district's Board of Directors to determine policies and overall direction for the district. Mr. Ehrhardt holds a degree in Mechanical Engineering and is a registered Professional Engineer.

Stephanie Holliday, Administrative Analyst

Ms. Holliday is the Administrative Analyst for the Yolo-Solano Air Quality Management District and has worked for the District since 2020. She is the district's primary point of contact for all ongoing incentive programs with responsibility for the day-to-day operations of these programs including financial tracking and reporting. Ms. Holliday has assisted in administering district incentive programs in compliance with the applicable program guidelines developed by the district's oversight agencies. To date, Ms. Holliday has assisted with successfully allocating $2 million to projects participating in the district's Clean School Bus Program, Agricultural Equipment Replacement Program, Woodstove Changeout program and Clean Air Fund Program. Prior to her tenure at the district, Ms. Holliday was a Senior Paralegal with Solano County District Attorney's Consumer and Environmental Crimes Unit.

Attachment E. Partnership Letters

The Cleaner Air Partnership

A joint project of Breathe California Sacramento Region, the Sacramento Metro Chamber of Commerce, Valley Vision, and others to help the Sacramento region meet clean air standards that protect health, promote economic growth, and support equity.

April 3, 2020

Timothy Roberts

U.S. EPA Headquarters

William Jefferson Clinton Building

1200 Pennsylvania Ave., N.W.

Washington, D.C. 20460

RE: Support for EPA-OAR-OAQPS-20-01

Dear Mr. Roberts,

On behalf of the Sacramento region's Cleaner Air Partnership, we write to support the joint application of the Sacramento Metropolitan Air Quality Management District to the U.S. Environmental Protection Agency's 2019 Targeted Airshed Grant Program.

The Cleaner Air Partnership (CAP) is a project of Breathe California Sacramento Region, the Sacramento Metro Chamber of Commerce, Valley Vision, and other public, private and nonprofit partners which include the applicant and project team, to help the Sacramento region meet clean air standards that protect health, promote economic growth, and support equity. We have worked together to achieve emissions reductions and improve health outcomes in our region for many years.

The major elements of The Sac Metro Air District's joint proposal are wood stove replacements, paving of unpaved rural roads, chipping and composting of vegetation, incentives for transportation of biomass, and replacement of agricultural equipment. Through these activities, this project will quantifiably reduce fine particulate matter (PM 2.5) in the Sacramento Federal PM 2.5 Nonattainment Area, while meaningfully augmenting its resilience to catastrophic wildfires.

Because U.S. EPA has determined that the region is among the top five most polluted areas relative to the 24-hour PM2.5 National Ambient Air Quality Standards (NAAQS), it is thus eligible for Targeted Airshed Grant (TAG) funding. This project will be implemented in accordance with EPA's FY 2018-2022 Strategic Plan in that the program will be administered efficiently and consistently throughout target communities to ensure that more Americans are living and working in areas that meet high air quality standards, in line with the priorities of the Cleaner Air Partnership.

We thank you in advance, on behalf of the Sacramento region's longstanding collaborative of business leaders, environmental advocates, and air quality regulators. If you have any questions, please reach out by emailing meg.arnold@valleyvision.org or calling (916) 325-1630.

Sincerely,

The Cleaner Air Partnership

John Lane,
Chairman,
Cleaner Air Partnership

Stacy Springer
CEO,
Breathe California Sacramento Region

Amanda Blackwood
President & CEO,
Sacramento Metro Chamber of Commerce

Meg Arnold
Interim CEO,
Valley Vision

Alberto Ayala, Ph.D., M.S.E
Executive Director, APCO
Sacramento Metro Air Quality Management District

Erik White
Air Pollution Control Officer,
Placer Air Pollution Control District

Dave Johnston
Air Pollution Control Officer,
El Dorado Air Quality Management District

Chris Brown
Air Pollution Control Officer,
Feather River Air Pollution Control District

Mat Ehrhardt
Air Pollution Control Officer,
Yolo-Solano Air Quality Management District

CHAIRMAN
BOARD OF SUPERVISORS
700 H Street, Suite 2450
Sacramento, CA 95814
Telephone: (916) 874-5485
Fax: (916) 874-7593
supervisorserna@saccounty.net

County of Sacramento

PHIL SERNA
SUPERVISOR
FIRST DISTRICT

LISA NAVA
Chief of Staff

April 7, 2020

Timothy Roberts
U.S. EPA Headquarters
William Jefferson Clinton Building
1200 Pennsylvania Ave., N.W.
Washington, D.C. 20460

RE: Support for EPA-OAR-OAQPS-20-01

Dear Mr. Roberts:

I write in my capacity serving on both the Sacramento County Board of Supervisors and as a member of the California Air Resources Board to express support for the joint application of the Sacramento Metropolitan Air Quality Management District to the U.S. Environmental Protection Agency's 2019 Targeted Airshed Grant Program.

Since 2013, I have represented the Sacramento Region Air Districts on the California Air Resources Board (CARB). The California Air Resources Board (CARB) is charged with protecting the public from the harmful effects of air pollution and developing programs and actions to fight climate change. From requirements for clean cars and fuels to adopting innovative solutions to reduce greenhouse gas emissions, California has pioneered a range of effective approaches that have set the standard for effective air and climate programs for the nation, and the world.

The major elements of the Sac Metro Air District's joint proposal are wood stove replacements, paving of unpaved rural roads, chipping and composting of vegetation, incentives for transportation of biomass, and replacement of agricultural equipment. Through these activities, this project will quantifiably reduce fine particulate matter (PM 2.5) in the Sacramento Federal PM 2.5 Nonattainment Area, while meaningfully augmenting its resilience to catastrophic wildfires.

CARB is concerned about the number of adverse health impacts associated with exposure to PM 2.5. Short-term exposures (up to 24-hours duration) have been associated with premature mortality, increased hospital admissions for heart or lung causes, acute and chronic bronchitis, asthma attacks, emergency room visits, respiratory symptoms, and restricted activity days. Of all of the common air pollutants, PM 2.5 is associated with the greatest proportion of adverse health effects related to air pollution, both in the United States and worldwide based on the World Health Organization's Global Burden of Disease Project.

Support letter from County Supervisor Phil Serna **April 7, 2020**
RE: Support for EPA-OAR-OAQPS-20-01

Because U.S. EPA has determined that the Sacramento region is among the top five most polluted areas relative to the 24-hour PM 2.5 National Ambient Air Quality Standards (NAAQS), it is thus eligible for Targeted Airshed Grant (TAG) funding. This project will be implemented in accordance with EPA's FY 2018-2022 Strategic Plan in that the program will be administered efficiently and consistently throughout target communities to ensure that more Americans are living and working in areas that meet high air quality standards, in line with the priorities of CARB and the Sacramento Region Air Districts.

I thank you in advance as a member of the California Air Resources Board leadership, and urge full consideration of this application. If you have any questions, please reach out to my Chief of Staff, Lisa Nava, by emailing NavaL@saccounty.net or calling (916) 874-5485.

Respectfully,

Phil Serna
Supervisor, First District
Member, California Air Resources Board

STATE CAPITOL
P.O. BOX 942849
SACRAMENTO, CA 94249-0006
(916) 319-2006
FAX (916) 319-2106

Assembly
California Legislature

KEVIN KILEY
ASSEMBLYMEMBER, SIXTH DISTRICT

April 6, 2020

Timothy Roberts
U.S. EPA Headquarters
William Jefferson Clinton Building
1200 Pennsylvania Ave., N.W.
Washington, D.C. 20460

RE: Support for EPA-OAR-OAQPS-20-01

Dear Mr. Roberts,

I write to support the joint application of the Sacramento Metropolitan Air Quality Management District to the U.S. Environmental Protection Agency's 2019 Targeted Airshed Grant Program.

The major elements of The Sac Metro Air District's joint proposal are wood stove replacements, paving of unpaved rural roads, chipping and composting of vegetation, incentives for transportation of biomass, and replacement of agricultural equipment. Through these activities, this project will quantifiably reduce fine particulate matter (PM 2.5) in the Sacramento Federal PM 2.5 Nonattainment Area, while meaningfully augmenting its resilience to catastrophic wildfires.

Because U.S. EPA has determined that the region is among the top five most polluted areas relative to the 24-hour PM2.5 National Ambient Air Quality Standards (NAAQS), it is thus eligible for Targeted Airshed Grant (TAG) funding. This project will be implemented in accordance with EPA's FY 2018-2022 Strategic Plan in that the program will be administered efficiently and consistently throughout target communities to ensure that more Americans are living and working in areas that meet high air quality standards, in line with the priorities of the Office of Assemblyman Kiley
.
We thank you in advance, and urge full consideration of this application.

Sincerely,

KEVIN KILEY
Assemblyman, 6th District

April 7, 2020

Timothy Roberts
U.S. EPA Headquarters
William Jefferson Clinton Building
1200 Pennsylvania Ave., N.W.
Washington, D.C. 20460

RE: Support for EPA-OAR-OAQPS-20-01

Dear Mr. Roberts,

I write in strong support of the joint application of the Sacramento Metropolitan Air Quality Management District to the U.S. Environmental Protection Agency's 2019 Targeted Airshed Grant Program.

As Sacramento's Representative in Congress, and as a senior member of the Energy and Commerce Committee, I am aware of the air quality challenges Sacramento faces and am committed to working together to make improvements. The major elements of The Sac Metro Air District's joint proposal are wood stove replacements, paving of unpaved rural roads, chipping and composting of vegetation, incentives for transportation of biomass, and replacement of agricultural equipment. Through these activities, this project will quantifiably reduce fine particulate matter (PM 2.5) in the Sacramento Federal PM 2.5 Nonattainment Area, while meaningfully augmenting its resilience to catastrophic wildfires.

Because U.S. EPA has determined that the region is among the top five most polluted areas relative to the 24-hour PM2.5 National Ambient Air Quality Standards (NAAQS), it is thus eligible for Targeted Airshed Grant (TAG) funding. This project will be implemented in accordance with EPA's FY 2018-2022 Strategic Plan in that the program will be administered efficiently and consistently throughout target communities to ensure that more Americans are living and working in areas that meet high air quality standards.

As the Member of Congress representing the heart of the Sacramento region, I am supportive of the application put forth and thank you for your consideration.

Sincerely,

Doris Matsui

DORIS MATSUI
Member of Congress

JOHN GARAMENDI
CALIFORNIA, 3RD DISTRICT

ARMED SERVICES COMMITTEE
CHAIRMAN READINESS
STRATEGIC FORCES

TRANSPORTATION AND INFRASTRUCTURE COMMITTEE
HIGHWAYS & TRANSIT
WATER RESOURCES
ECONOMIC DEVELOPMENT
COAST GUARD & MARITIME

UNITED STATES CONGRESS

2368 RAYBURN HOUSE OFFICE BUILDING
WASHINGTON, DC 20515
PHONE: (202) 225-1880

DISTRICT OFFICES:

412 G STREET
DAVIS, CA 95616
PHONE: (530) 753-5301

1261 TRAVIS BOULEVARD, SUITE 180
FAIRFIELD, CA 94533
PHONE: (707) 438-1822

April 8, 2020

The Honorable Andrew Wheeler, Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, DC 20460

RE: Support for EPA-OAR-OAQPS-20-01

Dear Administrator Wheeler:

I write to support the joint application by the Sacramento Metropolitan Air Quality Management District to the U.S. Environmental Protection Agency's Targeted Airshed Grant Program. The District comprises El Dorado, Placer, Sacramento, Solano, Sutter, and Yolo Counties in California.

As outlined in the application, the District's proposal includes woodstove replacements, paving of unpaved rural roads, chipping and composting of vegetation, incentives for transportation of biomass, and replacement of agricultural equipment. This project will reduce fine particulate matter (PM 2.5) in the Sacramento Federal PM 2.5 Nonattainment Area, while also improving resilience to catastrophic wildfires.

As determined by USEPA, the Sacramento region is among the top 5 most impacted areas in the nation under the 24-hour PM 2.5 National Ambient Air Quality Standards. If approved for grant funding, the actions outlined in District's application will reduce particulate matter significantly, achieving long-term public health and air quality benefits.

As California continues to face devastating wildfires, we must make every effort to improve resiliency and reduce particulate matter in the Sacramento metropolitan region and across the state. Again, I urge you to give all due consideration to the District's application for the Targeted Airshed Grant Program. Thank you for your consideration.

Sincerely,

JOHN GARAMENDI
Member of Congress

STATE CAPITOL
P.O. BOX 942849
SACRAMENTO, CA 94249-0004
(916) 319-2004
FAX (916) 319-2104

Assembly
California Legislature

CECILIA M. AGUIAR-CURRY
ASSEMBLYMEMBER, FOURTH DISTRICT

COMMITTEES
CHAIR: LOCAL GOVERNMENT
AGRICULTURE
GOVERNMENTAL ORGANIZATION
TRANSPORTATION
JOINT LEGISLATIVE COMMITTEE ON EMERGENCY MANAGEMENT

April 6, 2020

Timothy Roberts
U.S. EPA Headquarters
William Jefferson Clinton Building
1200 Pennsylvania Ave., N.W.
Washington, D.C. 20460

RE: Support for EPA-OAR-OAQPS-20-01

Dear Mr. Roberts,

I write to support the joint application of the Sacramento Metropolitan Air Quality Management District to the U.S. Environmental Protection Agency's 2019 Targeted Airshed Grant Program.

My rural Assembly district includes communities in Yolo, Solano, Colusa, Napa, Sonoma, and Lake Counties. The geography and terrain in our area unfortunately present fuel for fire, and put us at extreme risk of wildfires each year. In the last three years, our counties have been devastated by multiple fires, and is often heavily impacted by subsequent air quality issues, endangering the health of our community members. The number of Spare the Air days, when sensitive residents must limit their outdoor exposure, is increasing, not just due to fire but climate change as a whole.

The major elements of The Sac Metro Air District's joint proposal are wood stove replacements, paving of unpaved rural roads, chipping and composting of vegetation, incentives for transportation of biomass, and replacement of agricultural equipment. Through these activities, this project will quantifiably reduce fine particulate matter (PM 2.5) in the Sacramento Federal PM 2.5 Nonattainment Area, while meaningfully augmenting its resilience to catastrophic wildfires.

Because U.S. EPA has determined that the region is among the top five most polluted areas relative to the 24-hour PM2.5 National Ambient Air Quality Standards (NAAQS), it is thus eligible for Targeted Airshed Grant (TAG) funding. This project will be implemented in accordance with EPA's FY 2018-2022 Strategic Plan; the program will be administered efficiently and consistently throughout target communities to ensure more Americans live and work in areas that meet high air quality standards.

I urge full consideration of this application; please contact me if I can be of further assistance.

Sincerely,

Cecilia Aguiar-Curry

CECILIA AGUIAR-CURRY
Assemblymember, 4th District

STATE CAPITOL, ROOM 4032
SACRAMENTO, CA 95814
TEL (916) 651-4003
FAX (916) 651-4903

California State Senate

BILL DODD

SENATOR, THIRD DISTRICT

CHAIR: SENATE GOVERNMENTAL ORGANIZATION COMMITTEE

COMMITTEES
BUSINESS, PROFESSIONS & ECONOMIC DEVELOPMENT
ENERGY, UTILITIES & COMMUNICATION
INSURANCE
TRANSPORTATION
JOINT COMMITTEE
EMERGENCY MANAGEMENT
SELECT COMMITTEE
CALIFORNIA'S WINE INDUSTRY
CO-CHAIR

April 8, 2020

Timothy Roberts
U.S. EPA Headquarters
William Jefferson Clinton Building
1200 Pennsylvania Ave., N.W.
Washington, D.C. 20460

RE: Letter of Support for EPA-OAR-OAQPS-20-01

Dear Mr. Roberts,

I am writing to support the joint application of the Sacramento Metropolitan Air Quality Management District (SMAQMD) to the U.S. Environmental Protection Agency's (EPA) 2019 Targeted Airshed Grant Program. The Sacramento Metropolitan Air Quality Management District proposal will help address both air quality and wildfire resilience.

The U.S. EPA determined that the Sacramento region is among the top five most polluted areas relative to the 24-hour PM2.5 National Ambient Air Quality Standards (NAAQS). Therefore, the region is eligible for Targeted Airshed Grant (TAG) funding. The goals of the SMAQMD are to use the grant funding from the U.S. EPA to replace wood stoves, pave rural roads, facilitate the chipping and composting of vegetation, provide incentives for transportation of biomass, and replace of aging agricultural equipment. By accomplishing each of its goals, the SMAQMD will quantifiably reduce fine particulate matter (PM 2.5) in the Sacramento Federal PM 2.5 Nonattainment Area (SFNA), while meaningfully augmenting its resilience to catastrophic wildfires.

This project will be implemented in accordance with EPA's FY 2018-2022 Strategic Plan, in that, the program will be administered efficiently and consistently throughout target communities to ensure that more Americans are living and working in areas that meet high air quality standards. Consequently, the funding provided by the U.S. EPA will provide cleaner air to the residents of all five counties in the SFNA (El Dorado, Placer, Sacramento, Solano, and Yolo).

As it would be difficult for the SMAQMD to obtain funding through other means, I strongly encourage you to help provide a cleaner and healthier environment in the Sacramento region by fulling the grant request of SMAQMD.

Sincerely,

Bill Dodd

BILL DODD
Senator, District 3

CAPITOL OFFICE
STATE CAPITOL
ROOM 5114
SACRAMENTO, CA 95814
TEL (916) 651-4006
FAX (916) 651-4906

DISTRICT OFFICE
2251 FLORIN ROAD
SUITE 156
SACRAMENTO, CA 95822
TEL (916) 262-2904
FAX (916) 914-2179

California State Senate

SENATOR
DR. RICHARD PAN
SIXTH SENATE DISTRICT

CHAIR
PUBLIC EMPLOYMENT & RETIREMENT
BUDGET SUBCOMMITTEE #3 ON HEALTH AND HUMAN SERVICES

COMMITTEES
AGRICULTURE
BUDGET & FISCAL REVIEW
HEALTH
EDUCATION
BUSINESS, PROFESSIONS & ECONOMIC DEVELOPMENT

April 6, 2020

Timothy Roberts
U.S. EPA Headquarters
William Jefferson Clinton Building
1200 Pennsylvania Ave., N.W.
Washington, D.C. 20460

RE: Support for EPA-OAR-OAQPS-20-01

Dear Mr. Roberts,

As a Pediatrician and the State Senator for Sacramento, I write to support the joint application of the Sacramento Metropolitan Air Quality Management District to the U.S. Environmental Protection Agency's 2019 Targeted Airshed Grant Program.

The major elements of The Sac Metro Air District's joint proposal are wood stove replacements, paving of unpaved rural roads, chipping and composting of vegetation, incentives for transportation of biomass, and replacement of agricultural equipment. Through these activities, this project will quantifiably reduce fine particulate matter (PM 2.5) in the Sacramento Federal PM 2.5 Nonattainment Area, while meaningfully augmenting its resilience to catastrophic wildfires.

Because U.S. EPA has determined that the region is among the top five most polluted areas relative to the 24-hour PM2.5 National Ambient Air Quality Standards (NAAQS), it is thus eligible for Targeted Airshed Grant (TAG) funding. This project would be implemented in accordance with EPA's FY 2018-2022 Strategic Plan in that the program will be administered efficiently and consistently throughout target communities to ensure that more Americans are living and working in areas that meet high air quality standards, in line with the priorities of our region.

As a practicing pediatrician and State Senator, I want to thank you in advance, while asking for your full consideration of this application. If you have any questions, please contact my office at (916) 651-4006.

Sincerely,

Dr. Richard Pan, M.D.
Sixth Senate District

DIANNE FEINSTEIN
CALIFORNIA

COMMITTEE ON THE JUDICIARY - RANKING MEMBER
SELECT COMMITTEE ON INTELLIGENCE
COMMITTEE ON APPROPRIATIONS
COMMITTEE ON RULES AND ADMINISTRATION

United States Senate

April 8, 2020

Mr. Timothy Roberts
U.S. Environmental Protection Agency
1200 12 Pennsylvania Ave., NW
Washington, D.C. 20460

Dear Mr. Roberts,

I am writing in support of the Sacramento Metropolitan Air Quality Management District's (AQMD) joint application to the U.S. Environmental Protection Agency's (EPA) 2019 Targeted Airshed Grant (TAG) program.

The AQMD's joint proposal includes wide-ranging measures to reduce fine particulate matter ($PM_{2.5}$), including paving of unpaved rural roads, chipping and composting vegetation, incentivizing transportation of biomass, and replacing aging agricultural equipment and wood stoves. By utilizing these established methods, the proposed project will quantifiably reduce $PM_{2.5}$ in the Sacramento Federal $PM_{2.5}$ Nonattainment Area, while also increasing resilience to catastrophic wildfires.

The EPA has determined that Sacramento, California is among the top 5 most polluted areas for 24-hour $PM_{2.5}$, and is thus eligible for funding through the TAG program. AQMD has a strong track record of working with local partners to efficiently implement such programs in accordance with EPA's Strategic Plan. AQMD and its partners are dedicated to ensuring that target communities' members are living and working in areas that meet high air quality standards.

I urge you to give this application your full consideration. If you have any questions, please do not hesitate to contact my San Francisco office at (415) 393-0707.

Sincerely,

Dianne Feinstein
United States Senator

DF/zv

WASHINGTON, DC 20510-0504
http://feinstein.senate.gov

AMI BERA, M.D.
7TH DISTRICT, CALIFORNIA
COMMITTEE ON FOREIGN AFFAIRS:
SUBCOMMITTEES:
CHAIRMAN, OVERSIGHT AND INVESTIGATIONS
ASIA, THE PACIFIC, AND NONPROLIFERATION
COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY:
VICE CHAIRMAN
SUBCOMMITTEES:
SPACE

Congress of the United States
House of Representatives

WASHINGTON OFFICE
1727 LONGWORTH HOUSE OFFICE BUILDING
WASHINGTON, DC 20515
PHONE: (202) 225-5716
FAX: (202) 226-1298
DISTRICT OFFICE
8950 CAL. CENTER DRIVE
BUILDING 3, SUITE 100
SACRAMENTO, CA 95826
PHONE: (916) 635-0505
FAX: (916) 635-0514
HTTP://WWW.BERA.HOUSE.GOV
AMI.BERA@MAIL.HOUSE.GOV

April 8, 2020

Timothy Roberts
U.S. EPA Headquarters
William Jefferson Clinton Building
1200 Pennsylvania Ave., N.W.
Washington, DC 20460

Re: Sac Metro Air District's Joint TAG Grant Application

Dear Mr. Roberts:

It is with great pleasure that I write to you regarding the Sacramento Metropolitan Air Quality Management District's (Sac Metro Air District) joint application to the U.S. EPA's 2019 Targeted Airshed Grant (TAG) Program.

Sac Metro Air District's joint proposal is focused on reducing particulate air pollution in the Sacramento region. The major elements include wood stove replacements, paving rural roads, chipping and composting vegetation, incentivizing the transportation of biomass, and replacing agricultural equipment. Through these activities, this project will quantifiably reduce fine particulate matter, while meaningfully augmenting its resilience to catastrophic wildfires.

The U.S. EPA has determined this region to be among the top five most polluted areas relative to the 24-hour PM 2.5 National Ambient Air Quality Standard, rendering it eligible for TAG funding. This project will be administered throughout targeted communities to ensure that more Americans are living and working in areas that meet high air quality standards in accordance with EPA's FY 2018-2022 Strategic Plan.

I am proud to see multiple stakeholders coming together to pursue the shared regional goal of improving air quality. Thank you for your thorough and thoughtful consideration of Sac Metro Air District's joint proposal.

Be well,

Ami Bera

Ami Bera, M.D.
Member of Congress

CAPITOL OFFICE
STATE CAPITOL
SACRAMENTO, CA 95814
(916) 651-4004

CHICO DISTRICT OFFICE
2635 FOREST AVE., STE. 110
CHICO, CA 95928
(530) 879-7424

ROSEVILLE DISTRICT OFFICE
2200A DOUGLAS BLVD., STE. 100
ROSEVILLE, CA 95765
(916) 772-0571

YUBA CITY DISTRICT OFFICE
1110 CIVIC CENTER BLVD., STE. 202-A
YUBA CITY, CA 95993
(530) 751-8657

California State Senate

SENATOR
JIM NIELSEN
FOURTH SENATE DISTRICT

COMMITTEES
BUDGET & FISCAL REVIEW
VICE CHAIR
ELECTIONS & CONSTITUTIONAL AMENDMENTS
VICE CHAIR
GOVERNMENTAL ORGANIZATION
GOVERNANCE & FINANCE
VETERANS AFFAIRS

April 8, 2020

Mr. Timothy Roberts
United States Environmental Protection Agency/Headquarters
William Jefferson Clinton Building
1200 Pennsylvania Ave., N.W.
Washington, D.C. 20460

RE: Letter of Support for Environmental Protection Agency 2019 Targeted Airshed Grant

Dear Mr. Roberts:

I am writing to express my support for the joint application of the Sacramento Metropolitan Air Quality Management District (District) to the U.S. Environmental Protection Agency's (EPA) 2019 Targeted Airshed Grant Program (TAG).

Four air districts in the Sacramento region, Placer, Sacramento, El Dorado, and Yolo/Solano, are seeking the grant for funding up to $12 million to reduce particulate air pollution while augmenting regional wildfire resilience in the region. A key segment of the proposed project area is in Senate District 4, which I represent in the California State Legislature.

The joint proposal includes wood stove replacements, paving of unpaved rural roads, chipping and composting of vegetation, incentives for transportation of biomass, and replacement of agricultural equipment.

It is my understanding these activities will quantifiably reduce fine particulate matter (PM 2.5) in the Sacramento Federal PM 2.5 Nonattainment Area, while meaningfully contributing to the region's resilience to catastrophic wildfires. Because the EPA has determined that this region is among the top five most polluted areas relative to the 24-hour PM2.5 National Ambient Air Quality Standards (NAAQS), it is thus eligible for TAG funding.

I am confident this program will be administered efficiently and consistently throughout the project area in accordance with EPA's FY 2018-2022 Strategic Plan, and support the outcomes that will result.

The actions being taken through the TAG grant will most certainly provide a meaningful benefit to those individuals living in the project area, but also for those who work and visit these five counties, and will contribute to the betterment of the overall quality of life in the region. Further, It will assist with meeting stringent air quality standards and boost fire prevention efforts that are critical in rural and wildfire prone areas in the district.

In conclusion, I am pleased to give my support to the Sacramento Metropolitan Air Quality Management District in its application for the 2019 Targeted Airshed Grant. If you have further questions, please contact my Deputy Chief of Staff, Rob Olmstead, at (916) 772-0571.

Again, thank you for your consideration of this request.

Sincerely,

Jim Nielsen

JIM NIELSEN
Senator, Fourth District

JN:ln

STATE CAPITOL
SACRAMENTO, CA 95814
(916) 651-4001

California State Senate

SENATOR
BRIAN DAHLE
FIRST SENATE DISTRICT

April 8, 2020

Timothy Roberts
U.S. EPA Headquarters
William Jefferson Clinton Building
1200 Pennsylvania Ave., N.W.
Washington, D.C. 20460

RE: Support for EPA-OAR-OAQPS-20-01

Dear Mr. Roberts,

I write to support the joint application of the Sacramento Metropolitan Air Quality Management District to the U.S. Environmental Protection Agency's 2019 Targeted Airshed Grant Program.

The major elements of The Sac Metro Air District's joint proposal are wood stove replacements, paving of unpaved rural roads, chipping and composting of vegetation, incentives for transportation of biomass, and replacement of agricultural equipment. Through these activities, this project will quantifiably reduce fine particulate matter in the Sacramento Federal PM 2.5 Nonattainment Area, while meaningfully augmenting its resilience to catastrophic wildfires. The twin goals of community safety and air quality make this proposal highly beneficial to the rural foothill communities of the air basin.

Because U.S. EPA has determined that the region is among the top five most polluted areas relative to the 24-hour PM2.5 National Ambient Air Quality Standards (NAAQS), it is thus eligible for Targeted Airshed Grant (TAG) funding. This project will be implemented in accordance with EPA's FY 2018-2022 Strategic Plan to ensure that more Americans live and work in areas that meet high air quality standards.

Thank you for your careful consideration of this application. If you have any questions, please contact my District Director, Bruce Ross, at Bruce.Ross@sen.ca.gov.

Sincerely,

Brian Dahle

BRIAN DAHLE
Senator, 1st District

COMMITTEES
VICE CHAIR: APPROPRIATIONS
VICE CHAIR: GOVERNMENTAL ORGANIZATION
INSURANCE
HEALTH
WATER, PARKS AND WILDLIFE

Assembly
California Legislature

FRANK BIGELOW
ASSEMBLYMEMBER, FIFTH DISTRICT

STATE CAPITOL
P.O. BOX 942849
SACRAMENTO, CA 94249-0005
(916) 319-2005
FAX (916) 319-2105

DISTRICT OFFICES
460 SUTTER HILL ROAD, SUITE C
SUTTER CREEK, CA 95685
(209) 267-0500

730 NORTH I STREET, SUITE 102
MADERA, CA 93637
(559) 673-0501

2441 HEADINGTON ROAD
PLACERVILLE, CA 95667
(530) 295-5505

1 April 8, 2020

Timothy Roberts
U.S. EPA Headquarters
William Jefferson Clinton Building
1200 Pennsylvania Ave., N.W.
Washington, D.C. 20460

RE: Support for EPA-OAR-OAQPS-20-01

Dear Mr. Roberts,

As a representative for the 5th Assembly District, I write in support of the joint application of the Sacramento Metropolitan Air Quality Management District to the U.S. Environmental Protection Agency's 2019 Targeted Airshed Grant Program.

The major elements of The Sac Metro Air District's joint proposal are wood stove replacements, paving of unpaved rural roads, chipping and composting of vegetation, incentives for transportation of biomass, and replacement of agricultural equipment. Through these activities, this project will quantifiably reduce fine particulate matter (PM 2.5) in the Sacramento Federal PM 2.5 Nonattainment Area, while meaningfully augmenting its resilience to catastrophic wildfires.

Because U.S. EPA has determined that the region is among the top five most polluted areas relative to the 24-hour PM2.5 National Ambient Air Quality Standards (NAAQS), it is thus eligible for Targeted Airshed Grant (TAG) funding. This project will be implemented in accordance with EPA's FY 2018-2022 Strategic Plan in that the program will be administered efficiently and consistently throughout target communities to ensure that more Americans are living and working in areas that meet high air quality standards. This is additionally in line with my interest in helping to reduce catastrophic wildfires in the State of California.

Thank you for your consideration of this application. If you have any questions, please reach out to my Capitol Office at 916-319-2005.

Sincerely,

Frank Bigelow

Frank Bigelow
5th Assembly District