

AB 617: SAN BERNARDINO / MUSCOY

CO-HOSTS:
ANGIE BALDERAS
DANIEL WONG

1st Quarter - 2021

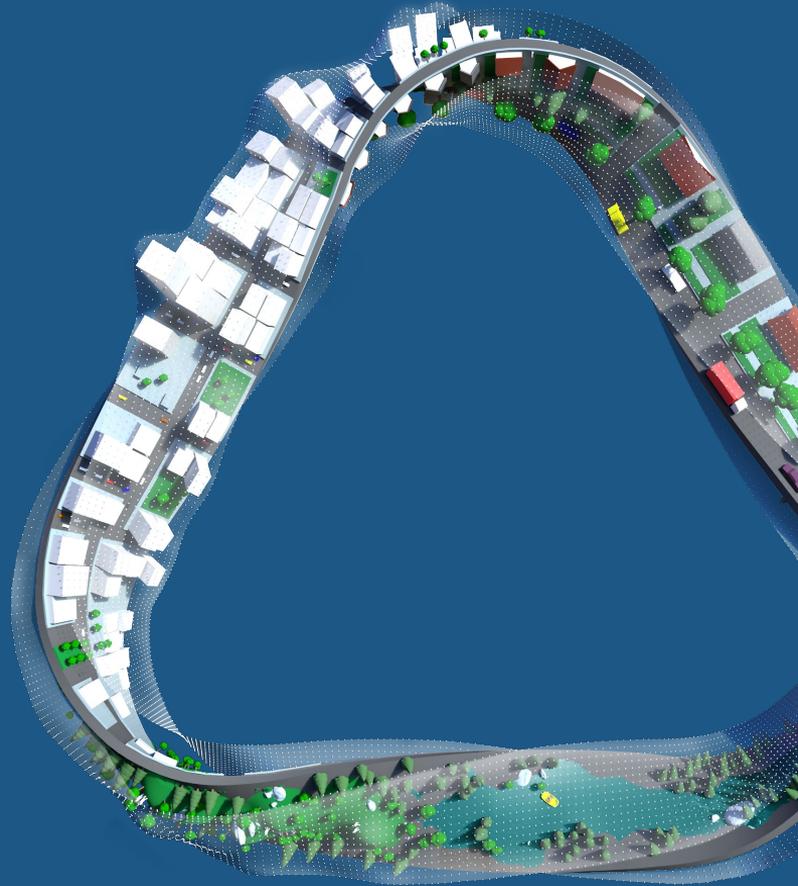
RESIDENT TESTIMONIAL

Jane Hunt-Ruble
Resident of Muscoy



acLima Overview

DAVIDA HERZL, CO-FOUNDER & CEO
hello@aclima.io



Why we're here

“ Air pollution is a pandemic.
You can't escape it.
The people who suffer are the most vulnerable.

Janet Johnson
Environmental Justice Organizer
Richmond, CA

Built for good. Catalyzing change.

A **Public Benefit Corporation**, Aclima is the world leader in hyperlocal air quality and greenhouse gas measurement and analysis. Our full stack monitoring platform helps governments, communities, and businesses reduce emissions, protect public health and advance equity.

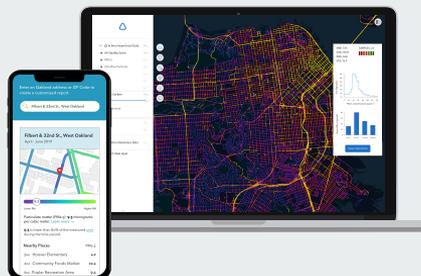
A PIONEER, BORN IN THE USA

Over the last +10 years, Aclima has pioneered the science of block-by-block air pollution and GHG measurement and analysis. Founded in the CA, built in partnership with communities.



PROVIDING A ONE-STOP SHOP

Breakthrough sensing technology, software and data science, delivered in a single package, enabling regulators & communities to focus on reducing emissions and protecting health.



TO DELIVER CLEAN AIR FOR ALL

We are already covering millions, in partnership with advocates in communities and government, from small NGOs to the EPA.





Built in partnership with communities

Aclima's participatory development process engages community members directly in technology design. Investing in trust and long-term relationships unlocks rich feedback loops.



Green job creation

Aclima's approach to community-based monitoring will provide local economic stimulus through job creation:

- ✓ Full-time jobs with benefits
- ✓ Path to upskilling in the green economy
- ✓ Capacity building for employees and their communities
- ✓ Local economic stimulus, serving those most impacted
- ✓ Recruitment and hiring in partnership with environmental justice organizations



**A solution built
for this moment**

Pollution varies up to 800% from one block to the next



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High-Resolution Air Pollution Mapping with Google Street View Cars: Exploiting Big Data

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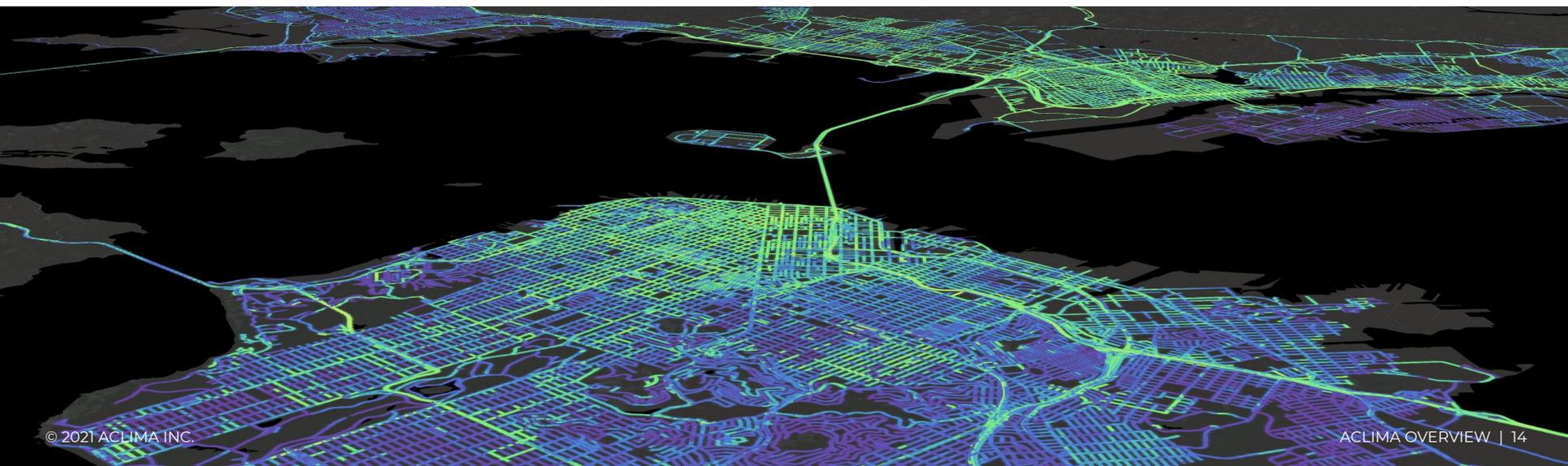
Supporting Information

ABSTRACT: Air pollution affects billions of people worldwide, yet ambient pollution measurements are limited for much of the world. Urban air pollution concentrations vary sharply over short distances (<1 km) owing to unevenly distributed emission sources, dilution, and physicochemical transformations. Accordingly, even where present, conventional fixed-site pollution monitoring methods lack the spatial resolution needed to characterize heterogeneous human exposures and localized pollution hotspots. Here, we demonstrate a measurement approach to reveal urban air pollution patterns at 4–5 orders of magnitude greater spatial precision than possible with current central-site ambient monitoring. We equipped Google Street View vehicles with a fast-response pollution measurement platform and repeatedly sampled every street in a 30-km² area of Oakland, CA, developing the largest urban air quality data set of its type. Resulting maps of annual daytime NO, NO₂, and black carbon at 30 m-scale reveal stable, persistent pollution patterns with surprisingly sharp small-scale variability attributable to local sources, up to 5–8× within individual city blocks. Since local variation in air quality profoundly impacts public health and environmental equity, our results have important implications for how air pollution is measured and managed. If validated elsewhere, this readily scalable measurement approach could address major air quality data gaps worldwide.

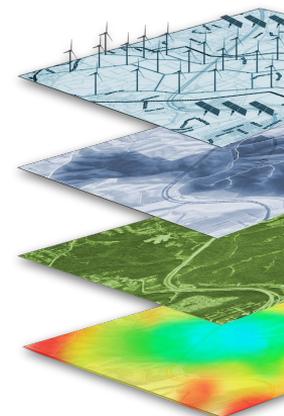
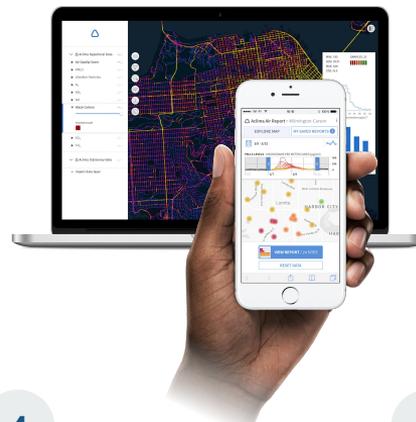
Measure what matters, everywhere

Regional Scale
Block-by-block
Harmonized
Rigorous
Efficient
Cost-effective

Comprehensive coverage
 Hyperlocal spatial resolution
 Comparative data across geographies
 Science based standards of excellence
 Rapid, low-friction scale
 SaaS model pricing



A full stack solution



1

2

3

4

5

Mobile & stationary sensors

Best-in-class data quality

End-to-end network management

Unprecedented scale + block-by-block resolution, via multi-pass driving

Data management + analytics

Synthesis of Aclima and integrated third party data to derive insights

Powerful software tools

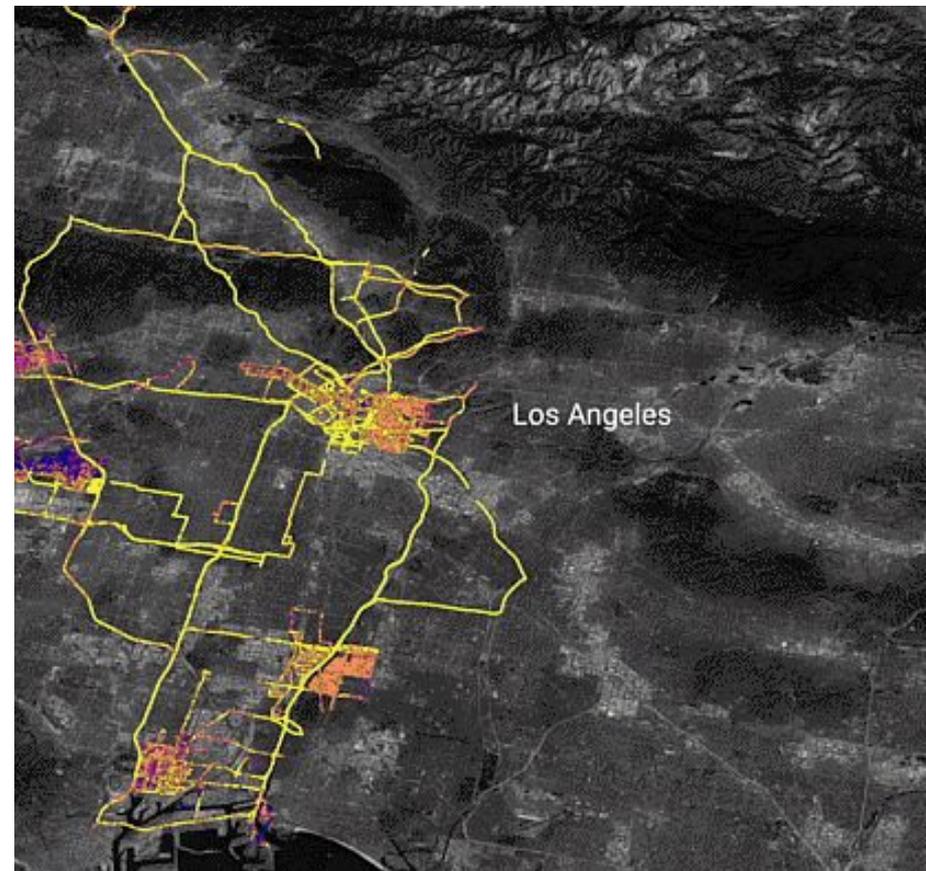
Intuitive software tools for experts and citizens to drive action

Data integration for diagnosis + action

Third party devices, wind, land-use, health data, more

Multipollutant approach

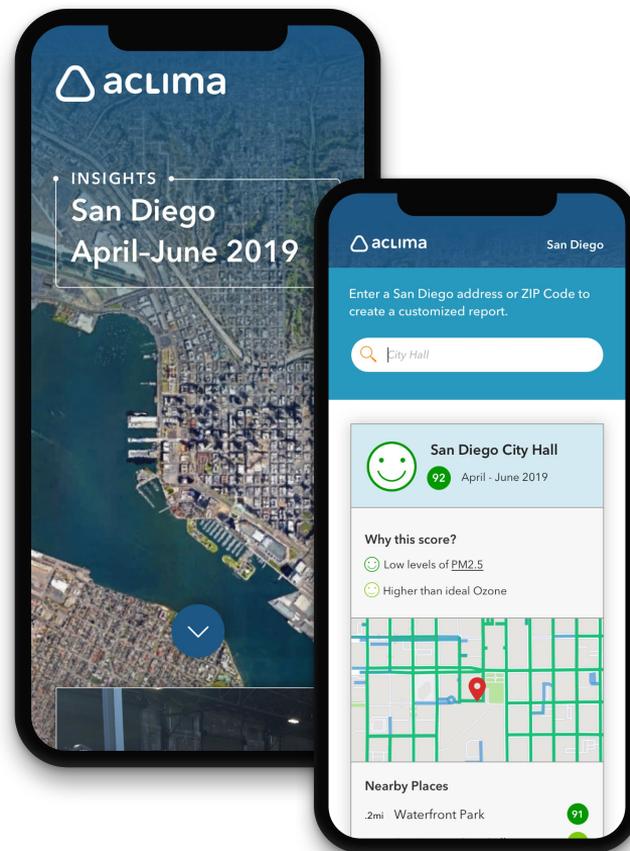
Carbon Dioxide (CO₂)
Carbon Monoxide (CO)
Ozone (O₃)
Nitrogen Dioxide (NO₂)
Nitric Oxide (NO)
Particulate Matter (PM_{2.5})
Black Carbon
Methane (CH₄) / Ethane (C₂H₆)
Total Volatile Organic Compounds (TVOC)
Temperature
+More



Free public portal

Aclima's public portal combines Aclima data with stationary sensor data from citizen sensors, including CARB grantee projects. Examples are PSE (Richmond) and WOEIP. A next-generation app is being developed for release in 2021 with extensive new features, informed by community input:

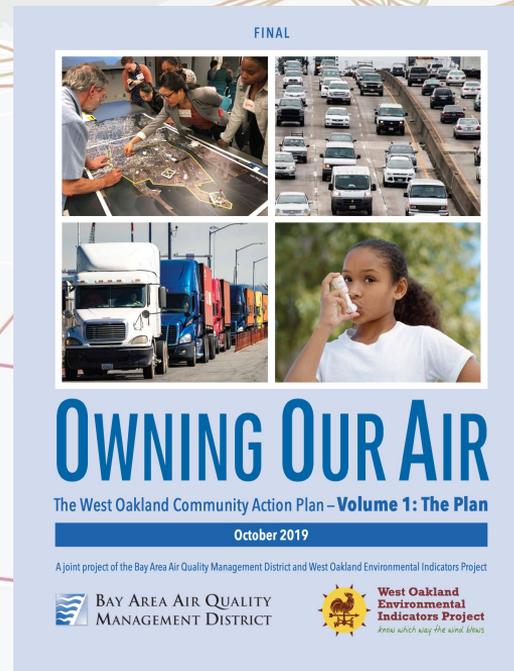
- ✓ Block-by-block data
- ✓ Real-time data from regulatory monitors
- ✓ Corrected data from citizen sensors
- ✓ Public annotation
- ✓ Social sharing



**A trusted partner,
delivering results**

Community-centered emissions reductions

The [West Oakland Environmental Indicators Project](#) draws on block-by-block Aclima data to lead an AB 617 steering committee. The [Community Emissions Reduction Plan](#) they created called “Owning Our Air” identifies seven Impact Zones and represents the most comprehensive community-led plan in California with 89 strategies.

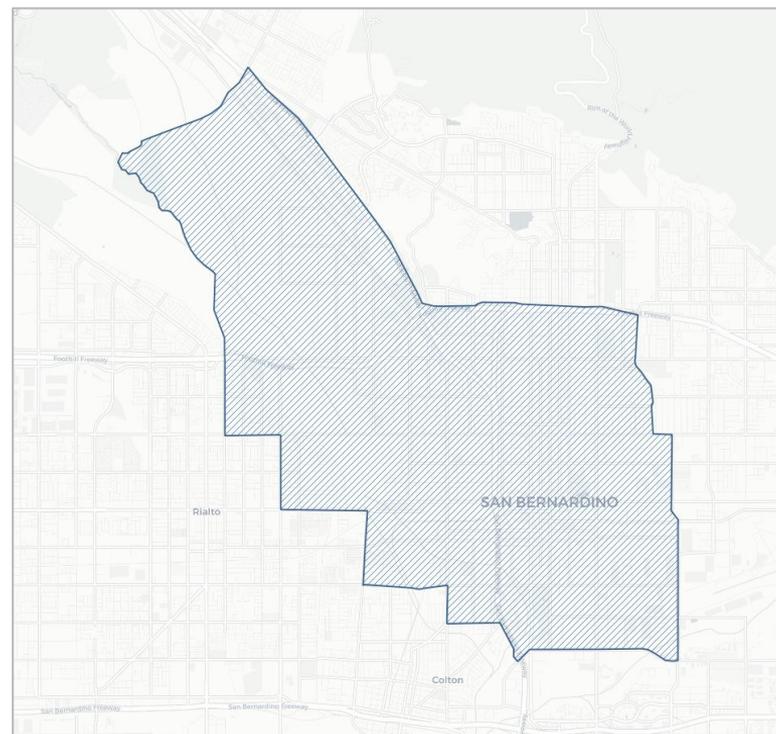


San Bernardino & Muscoy

San Bernardino & Muscoy

Aclima deploys an independently operated fleet of instrumented vehicles to conduct measurements. The cars are operated by drivers hired from the community. The collection campaign will monitor the broader geography for:

- 24 hrs/day, 7 days a week
- April 1 - June 30, 2021
- Measuring PM_{2.5}, Ozone, NO₂, NO, CO₂, CO, TVOC, Black Carbon



Benefits of Aclima approach

By monitoring for multiple pollutants at the same time at the block level, we can better understand sources and their impacts on the air that community members breathe:

- Understand potential sources, such as:
 - Neighborhood Truck Traffic
 - Railyards
 - Omnitrans Bus Yard
 - Concrete Batch Plants, Asphalt, Aggregate Plants
- Understand how the community is impacted at: Schools, Childcare Centers, Community Centers, and Homes



Aclima complements & enhances South Coast AQMD efforts

- Aclima's approach reveals persistent hotspots for further investigation by South Coast AQMD and the community
- Aclima also identifies areas of "anomalies", which can be used to target testing with South Coast AQMD's platform
- Aclima is currently supporting a similar effort for Richmond-San Pablo and the Bay Area Regulator





Thank you.

CERP & CAMP IMPLEMENTATION

UPDATE – 1ST QUARTER 2021

San Bernardino, Muscoy
March 18, 2021

ROBERT DALBECK
AIR QUALITY SPECIALIST

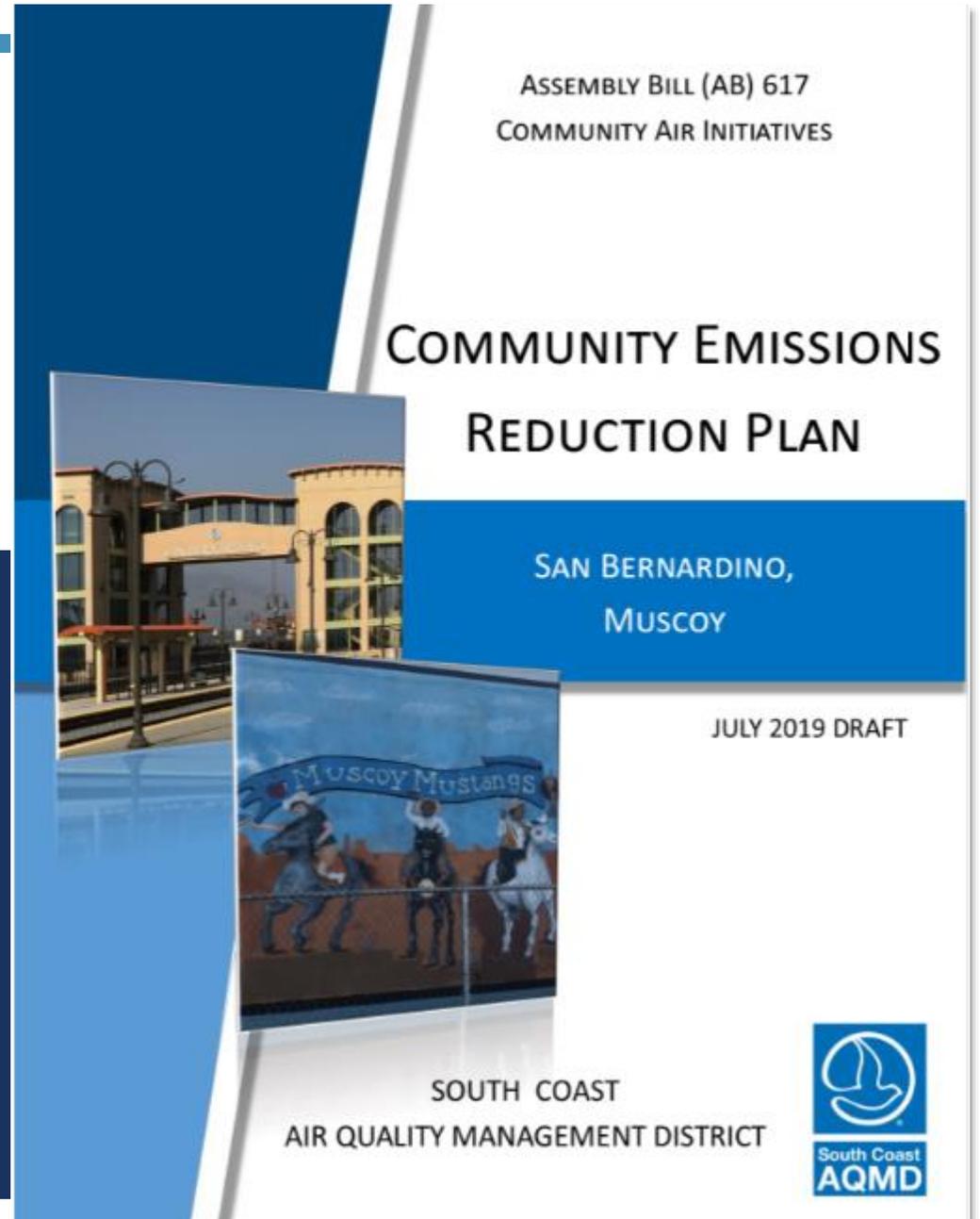
ASSEMBLY BILL (AB) 617
COMMUNITY AIR INITIATIVES

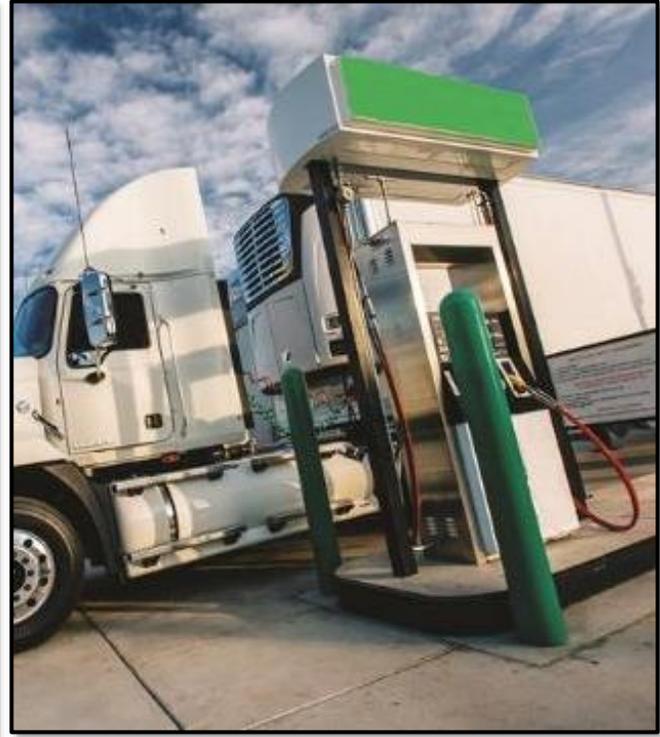
COMMUNITY EMISSIONS REDUCTION PLAN

SAN BERNARDINO,
MUSCOY

JULY 2019 DRAFT

SOUTH COAST
AIR QUALITY MANAGEMENT DISTRICT





INCENTIVES BUDGETING WORKSHOP

ROBERT DALBECK
AIR QUALITY SPECIALIST



PROJECT FUNDING PROCESS – OVERVIEW



Incentive Strategies Workshop

- Overview of Past CAPP incentives
- Overview of funding across all 5 AB 617 communities

October 15, 2020



CSC Meeting – Incentives Strategy

- Guideline Requirements for Year 3 CAPP Incentives
- Overview of staff recommendation for Year 3 CAPP Incentives

December 10, 2020



Governing Board Meeting

- Recognized Year 3 CAPP incentive funds
- Approved Year 3 CAPP Incentive funds for mobile source and other eligible projects

January 8, 2021



Incentives Budgeting Workshop

- CSC input to develop eligible project list supported by SBM CERP

Today



Submit funding request to CARB for approval

May 1, 2021

INCENTIVES STRATEGY FOR YEAR 3 CAPP FUNDS

Total Year 3 CAPP Funds: \$74.5 Million

MOBILE SOURCE PROJECTS* (~\$37.7 MILLION)



- \$430,000 for mobile source projects in SBM
 - 0.3 tons of NOx reductions
 - 0.02 tons of DPM reductions
- Projects in SBM include an off-road equipment replacement project and an infrastructure project (i.e., battery charging station)

COMMUNITY-IDENTIFIED* AND OTHER ELIGIBLE PROJECTS (~\$36.7 MILLION)



- \$10 million for community identified projects in SBM
- CSC input on projects to be funded

DECEMBER CSC MEETING RECAP – INCENTIVES STRATEGY FOR YEAR 3 CAPP FUNDS *(CONTINUED)*

Small Business

- Ensure incentive information is distributed to owner-operators and/or small businesses
- Prioritize investments in small businesses
- Identify ways to supplement existing funding limitations

Zero Emission Technology

- Replace older vehicles with zero emission (ZE) vehicles and installation of ZE infrastructure

Health Benefits

- Invest in other measures and projects that reduce health risks

Cost-effectiveness

- Select cost-effective projects and projects that have greatest impact

INCENTIVES STRATEGY FOR REMAINING YEAR 3 CAPP FUNDS – CERP INCENTIVE OPPORTUNITIES

| AQ Priority | CERP Incentive Opportunities |
|---|--|
| Neighborhood Truck Traffic | <ul style="list-style-type: none"> • Replace older trucks with cleaner equipment (prioritizing zero emission technology) |
| Warehouses | <ul style="list-style-type: none"> • Install zero-emission infrastructure |
| OmniTrans | <ul style="list-style-type: none"> • Replace older buses with zero emission buses • Support zero emission infrastructure |
| Railyards | <ul style="list-style-type: none"> • Replace locomotives and on-site diesel equipment with cleaner models • Install zero-emission infrastructure |
| Exposure Reduction for Sensitive Populations in Schools, Childcare Centers, and Homes | <ul style="list-style-type: none"> • Replace older school buses with near zero or zero emission school buses • School air filtration systems and/or replacement filters • Home air filtration systems • Tree planting (native, drought tolerant) |

TODAY'S PRIORITIZATION ACTIVITY

LIVE POLL

Please rank your 1st, 2nd, and 3rd priority

- a) Trucks: zero emission
- b) Trucks: low NOx
- c) Warehouses: zero emission equipment or infrastructure
- d) OmniTrans: zero emission bus or infrastructure
- e) Railyards: zero emission infrastructure or equipment
- f) Railyards: zero emission locomotives
- g) Exposure Reduction: School Air Filtration Systems
- h) Exposure Reduction: Home Air Filtration Systems
- i) Exposure Reduction: tree planting
- j) Exposure Reduction: school buses

- Today staff will present cost and emission reductions information for incentive projects
- Staff will ask CSC members to prioritize incentive projects to fund in the community
- AB 617 funds currently available for the SBM Community is \$10 M

AVERAGE COST-EFFECTIVENESS* FOR CERP INCENTIVE PROJECT TYPES – MOBILE SOURCE PROJECTS*

| Project Type | Project Cost | South Coast AQMD Funding Amount* | Avg. Cost Effectiveness (\$/ton) | Avg. NOx Reductions (tpy) | Avg. ROG Reductions (tpy) | Avg. PM Reductions (tpy) |
|---|--|----------------------------------|----------------------------------|---------------------------|---------------------------|--------------------------|
| Class 8 Low-NOx Truck | \$150,000 - \$190,000 | \$51,618 - \$100,000 | \$31,085 | 0.42 | 0.05 | <0.001 |
| Class 8 Zero Emission Truck (Yard trucks) | \$380,000 - \$550,000 | \$17,438 - \$200,000 | \$79,972 | 0.39 | 0.03 | <0.001 |
| Zero Emission Bus (Transit)** | \$445,000 - \$1,140,000 (30 ft - 60 ft) | \$9,000 - \$28,500 | \$100,000 | 0.01 | <0.01 | <0.001 |
| Zero Emission Bus (School) | \$320,000 - \$420,000 (Class A - D) | \$155,000-\$370,000 | \$1,820,000 (Class D) | 0.14 | 0.005 | <0.001 |
| Zero Emission Cargo Handling Equipment | \$1 million | \$240,046 | \$80,141 | 0.59 | 0.15 | 0.01 |
| Tier 4 Hybrid Cargo Handling Equipment | \$640,200 - \$2.5 million | \$449,156 | \$30,000 | 2.27 | 0.21 | 0.03 |
| Tier 4 Off-Road Construction Equipment | \$48,000 - \$1 million | \$157,000 | \$28,375 | 1.09 | 0.01 | 0.01 |
| Tier 4 Locomotives (Freight) | \$2.5 million | \$1.9 million | \$21,830 | 4.7 | 0.25 | 0.08 |
| Zero Emission Infrastructure | \$681,000 - \$3.4 million | \$336,000 - \$1 million | N/A | N/A | N/A | N/A |

*Based on averages from previously awarded incentive projects. Averages are subject to change given new project applications, incentive program criteria and/or funding limits.

**Baseline buses were all CNG fueled with engines certified at 0.20 g/bhp-hr NOx

| Project Type | Cost* | Implementation Difficulty | PM Emission Reductions | NOx Emission Reductions |
|---|----------|---|---|---|
| Class 8 Low-NOx Truck | \$\$ |  |  |  |
| Class 8 Zero Emission Truck (Yard trucks) | \$\$\$ |  |  |  |
| Zero Emission Bus (Transit) | \$\$\$\$ |  |  |  |
| Zero Emission Bus (School) | \$\$\$ |  |  |  |
| Zero Emission Cargo Handling Equipment | \$\$\$\$ |  |  |  |
| Tier 4 Hybrid Cargo Handling Equipment | \$\$\$\$ |  |  |  |
| Tier 4 Off-Road Construction Equipment | \$\$\$ |  |  |  |
| Tier 4 Locomotives (Freight) | \$\$\$\$ |  |  |  |
| Zero Emission Infrastructure | \$\$\$ |  | N/A | N/A |

* Based on average cost-effectiveness from previously awarded incentive projects. Averages are subject to change given new project applications, incentive program criteria and/or funding limits.

ESTIMATED COST-EFFECTIVENESS FOR CERP INCENTIVE PROJECTS – EXPOSURE REDUCTIONS

| Project Type | Cost | Air Quality Benefit |
|------------------------------|-----------------------|---------------------|
| School Air Filtration System | \$30,000 - \$300,000* | Exposure Reductions |
| Tree Planting | \$100 - \$150** | Exposure Reductions |

* Cost varies by school type, school size, and years of maintenance provided

** Cost per tree plus installation cost

INCENTIVES STRATEGY FOR YEAR 3 CAPP FUNDS – PROJECT EXAMPLES



33 School Air Filters

- Install air filters at 33 schools
- Exposure reductions

OR



18 Electric Trucks

- Replace ~ 18 Class 8 trucks with zero emission trucks
- Reduces ~ 7.0 tpy of NOx and 0.5 tpy of ROG

OR



52 Class 8, Low – NOx Trucks

- Replace ~ 52 Class 8 trucks with low-NOx trucks
- Reduces ~ 21.8 tpy of NOx and 2.6 tpy of ROG

~\$10 million* =

* Costs vary by project

DISCUSSION

- Are there any additional projects* that you want to suggest that support actions in the SBM CERP?
- Staff will send a follow-up survey by e-mail for community members unable to participate in today's poll



* If needed, a plan will be developed for community-identified projects for approval by CARB

NEXT STEPS

March

Staff will compile results of incentives prioritization activity and present them to the CSC

April

Work with CSC to develop incentives budget and identify eligible project list

May

Submit funding request to CARB

LIVE POLL

Please rank your 1st, 2nd, and 3rd priority

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- b) Trucks: low NOx
- c) Warehouses: zero emission equipment or infrastructure
- d) OmniTrans: zero emission bus or infrastructure
- e) Railyards: zero emission infrastructure or equipment
- f) Railyards: zero emission locomotives
- g) Exposure Reduction: School Air Filtration Systems
- h) Exposure Reduction: Home Air Filtration Systems
- i) Exposure Reduction: tree planting
- j) Exposure Reduction: school buses

Please submit your ranking in the Zoom chat or to AB617comments@aqmd.gov as follows:

Priority Rank (Project letter)

Example:

1. (a) Trucks: zero emission
2. (f) Railyards: zero emission locomotives
3. (g) Exposure Reduction: School Air Filtration Systems

SOUTH COAST AQMD CONTACTS: SBM



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Questions?
¿Preguntas?

AB617comments@aqmd.gov

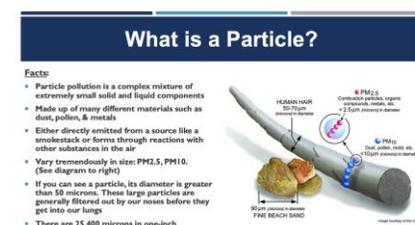
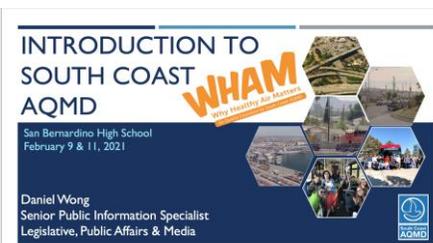
SCHOOLS OUTREACH RECAP

Three **WHAM** Presentations

Why Healthy Air Matters
Air Quality Education by South Coast AQMD

San Bernardino High School

- February 9th & 11th - Mrs. Luna's 9th Grade English Class
- March 9th - Mr. Salas' 9th Grade Ethnic Studies Class



FUTURE AGENDA ITEMS & CSC MEMBER UPDATES

Future Agenda Items & CSC Member Updates

PUBLIC COMMENT / COMENTARIO PÚBLICO

AB617comments@aqmd.gov

THANK YOU / GRACIAS

**For more information, questions, or suggestions after this meeting:
Para más información, preguntas o sugerencias después de esta reunión:**

Daniel Wong

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