AB 617: Community Health Protection Program
AB 617 Program Components

- Control Technology
- Statewide Inventory
- Richmond Monitoring Plan
- West Oakland Action Plan
- Incentives
- Build Capacity

Community Identification and Prioritization
Community Identification and Prioritization

Year 1

West Oakland – action plan

Richmond - monitoring

Year 1

Years 2-5
Richmond Monitoring Plan

Summer 2018

Select Consultant

Fall 2018

Facilitated Discussions

Winter 2018

Community Summit Design Team

Winter 2018

Community Summit

Winter-Summer 2019

Monitor Planning Process

Final Report

Communicate Data

Interpret Results

Collect Data

Ongoing Summer 2019 through Fall 2020
West Oakland Action Plan

Sources
- Stationary
- Mobile
- Other known
- Unknown

Emissions/Impact of Sources
- Total emissions
- Land use/proximity
- Community input

Strategies
- Regulations
- Electrification / Zero Emissions Vehicles (ZEV)
- Permits
- Traffic enforcement
- Incentives
- Other

Authority
- BAAQMD
- CARB
- Port of Oakland
- City of Oakland
- MTC/ACTC (grants, funding capital projects)

Outcomes (final plan)

Track Progress
- Metrics
- Enforcement Plan

Action Plan Components
West Oakland Action Plan

July 2018
- Member Introductions
- Purpose and Goals
- Previous Planning Efforts

September 2018
- Plan Elements
- Pollution Sources
- Citizen Science

October 2018
- Technical Assessment
- Enforcement and Authority

November 2018
- Health Impacts
- Prioritize Sources
- Project Funding

Dec 2018 – Mar 2019
- Success Metrics
- Source Attribution
- Define Strategies
Success Metric Ideas

- Total counts
- Relative threshold of potential risk
- Exposure
- Air pollution-related health outcomes
Build Capacity

Relationship Building
- Community members and organizations
- Local governments
- Regional agencies

Needs Assessment
- Knowledge of issues & efforts
- Leadership
- Community climate
- Resources

Strategies
- Training and technology transfer
- Technical assistance
- Community-based participatory research
- Empowerment approaches
- Authentic participation process
Incentives

FY 2018/19

- $50 Million to Bay Area
- $200 Million Rest of State
- clean trucks
- buses
- locomotive
- construction and
- agriculture equipment

FY 2019/20

- $? Million to Bay Area
- $245 Million Statewide
- clean trucks
- buses
- locomotives
- construction and
- agriculture equipment
- **stationary sources**
ARB DRAFT Criteria and Toxics Reg Released in July

Uniform Statewide Reporting

Affected Facilities
• Subject to GHG reporting
• Emit => 250 tons/year
• Elevated prioritization score

Air District Required Reporting will Continue

Toxics Criteria Pollutants
Control Technology

Cap-and-Trade
Source Categories w/ no BARCT

- Organic Liquid Storage Tanks
- Petroleum Wastewater Treating
- Portland Cement
- Refinery fluid catalytic cracker units (FCCUs) and boilers
- Refinery Heavy Liquid Leaks
- Petroleum Coke Calcining

Reduce Pollutants

SO₂
NOₓ
PM
ROG
What’s next?

• Community Summit in Richmond
• Select Strategies and Measures for Success in West Oakland
• BARCT Rule Development
Update on the Air Sensor International Conference

Advisory Council Meeting
October 29, 2018

Eric Stevenson, Director of Meteorology and Measurement
Air Sensor International Conference (ASIC)

- Event: September 12-14 in Oakland
- Over 600 people attended
  - 15 countries
  - 16 states
- Included representatives from government, academia, industry, advocacy groups and the public
- Eight training sessions
- Air District participated in 4 of 40+ Sessions
  - Opening panel, overall welcome and technical presentations
Topics Covered

- Community Air Protection (AB 617)
- Regulations and Performance Standards
- Indoor Air Quality
- Data Analytics
- Citizen and Community Science
- Gas and Vapor Sensing
- Data Assimilation
- Community Perspectives
- Low and Middle Income Countries
- Youth Education
- Field Experience
- Particle Sensing
- Data Communication
- Mobile Technologies
- Federal Connections
- International Perspectives
- Exposure and Health
- Monitor Siting
- Emerging Technologies
- Source Characterization
- Data Sharing and Harmonization

- Poster sessions and training (to provide better understanding of topics presented during the conference)
Adoption Challenges

Heard many viewpoints on what’s needed

• Continued work on sensor technology and testing
• Development of better data management techniques
• Standardization of data communication protocols
• Develop better ways to provide context and understanding of the measurements for the general public
Continued Challenges

Comparability between sensors

• Calibration
• Temperature/humidity and other interferences
• Instrument lifetime
• Proprietary algorithms/data ingestion and display
• Communication protocols
• Averaging time and other issues
AQ Spec at South Coast

- Laboratory and field testing

- Air District is currently setting up a Sensor Center to assist communities with technical assistance

- CARB currently working to set up another site

- EPA involved but no official testing program set up
Continued Growth

Continued enthusiasm for widespread sensor use

- Capacity for communities to engage in air quality measurement continues to develop
- Technologies continue to grow and adapt to needs of the public and government agencies
- Uses and applications of sensor design continue to expand
- More mature industries are starting to move into sensor development, data management and data communications
BAAQMD
CARB
SCAQMD
Airthinx
Aclima
PurpleAir
Aeroqual
2B Technologies
Aethlabs
Agilaire LLC
Ambilabs
APOS AQ
Atmosfir Optics
Axetris AG
Clarity IO
Earthworks
EME Systems
Berkeley Air Monitoring Group
EDF
Envirosuite
IQAir
Kaiterra
Klear Environmental Group
Kuak Technologies
MetOne Instruments
MDPI
Mountain Air Engineering
Omniscent
Scentroid
Sunset CES
STI
TRC Companies
TSI Inc.
US EPA
University of Illinois
uRADMonitor
Vaporsens, Inc
Vaisala
Wynd Technologies
World-wide Participation

**Advocacy Groups**
- 350
- Blue Ridge Environmental Defense League
- Asian Health Services
- Alaska Native Tribal Health Consortium
- EDF
- Sierra Club
- Barry Commoner Center for Health and the Environment
- Central California Asthma Collaborative
- Coalition for Clean Air

**International Organizations**
- Academia de Cincias SIMES
- Academia Sinica
- Beijing EPA

**Swiss Federal Lab**
- European Commission – Joint Research Center

**Government Organizations, Cities and Counties**
- Various air districts
- U.S. EPA
- CDPH
- DTSC
- Cal EPA
- CDC
- Cal Tech
- Carnegie Mellon
- City and County of Denver
- City of Cleveland
- City of Portland
- Albuquerque
- Clark County

**Academia**
- City University of Hong Kong
- Boston University School of Public Health
- Columbia University
- City University of Hong Kong
- MIT
- NYU
- DRI
- Duke University

**Others**
- Davis Senior High School
- Albany High School
- Google
- LBL
Successful conference that brought a wide range of interested parties together

• Wide range of important topics covered
• Provided information on what issues need to be addressed from various viewpoints
• Brought together new equipment and evolving technologies
• Provided different points of view and expanded on potential future uses and needs of sensors
Next Steps

Quickly evolving technologies and uses point to a need of an ongoing conference

• Working with ARB and South Coast to ensure future conferences address our needs
• Incorporating positive experiences and lessons learned into next conference
• Continuing to work with manufactures and others to best implement sensor technologies
• Moving forward with developing and implement a Community Sensor Center to build community capacity and employ relevant technologies
AB 617: Strategic Targets

Phil Martien, PhD
Bay Area Air Quality Management District
Advisory Council Meeting
October 29, 2018
Overview

METRIC AND GOAL OPTIONS

WEST OAKLAND APPROACH

EXAMPLES

?’S

DISCUSSION
Metric/Goal Options: Actions Taken

Counts
- Commitments
- Measures
- Participation

Air pollutant emissions

+ Relatively easy to determine, track
+ Closely related to actions taken
- Far from outcomes of concern
Metric/Goal Options: Incremental or Absolute Concentration

- Increment in risk or pollutant concentrations
- Absolute risk or pollutant concentrations

+ Closer to outcomes of concern
+ Clear precedents *(Health Risk Assessments and NAAQS)*
- How clean is clean enough?
Metric/Goal Options: Relative Concentration

Relative risk or concentration

+ Addresses issue of equity
+ Requires a reference “clean” area
- How equitable is equitable enough?

For example, compare West Oakland to Montclair
Health outcomes related to air pollution

Intake fraction or exposure

+ Closest to outcomes of concern
- Observed health outcomes difficult to attribute to mitigation actions
Air pollution is one of many factors that contribute to health inequities

- Health indicators take a while to change
- It will be difficult to attribute changes in health outcome to specific interventions

Credit: ACPHD
Health Departments: Indicators to Consider

- Air pollution exposure
- Specific health risks associated with air pollution
  - Asthma, chronic lower respiratory disease
  - Stroke, heart attacks, cancer
- Cumulative health risks and impacts
  - All-cause mortality, life expectancy
- Social and economic factors that lead to extreme health vulnerability
  - Persistent and high poverty
  - Race and racism

Credit: ACPHD
West Oakland Approach

West Oakland Action Plan

Sources
- Stationary
- Mobile
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Outcomes (final plan)

Action Plan Components

Track Progress
- Metrics
- Enforcement Plan
West Oakland Technical Assessment

- Source boundary
- Receptor boundary
Pollutants Included in the Assessment

Particulate Matter
The greatest health burden from air pollution is from particulate matter

Toxic Air Contaminants
Diesel PM is a major concern in West Oakland and including toxics will allow us to estimate cancer risk

Black Carbon
Measurements are available in West Oakland and we can use these to compare with modeling results
Identify Local Sources

Port of Oakland
Trucks, ships, harbor craft, locomotives, cargo-handling equipment, and other off-road equipment

Trains
Passenger and freight

Permitted stationary sources
Metal melters, scrap handlers, recycling facilities, diesel engines, backup generators, boilers, and gas stations

Cars and trucks
Freeways and surface streets

Truck-related businesses
Distribution centers, parking, recyclers, scrap handlers

Ships, ferries, harbor craft
Add Regional Contribution

Use regional model to determine how much air pollution comes into West Oakland from outside of local area.
West Oakland Options

- Set goals based on actions
- Use modeling to evaluate actions
- Partner with health department to track health outcomes
Example:
San Francisco Community Risk Reduction Plan

Assess local and regional sources, and contribution of each to air pollution exposure
Example: SF Goals or “Standards”

City-wide:
• Cancer risk at or above 100/million
• PM$_{2.5}$ at or above 10 ug/m$^3$

Health vulnerable areas:
• Cancer risk standard reduced to 90/million
• PM$_{2.5}$ standard reduced to 9 ug/m$^3$
### Example: Simulated Health Outcomes

<table>
<thead>
<tr>
<th>Inputs</th>
<th>Method</th>
<th>Health Impacts</th>
<th>Mapping Metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Pollution</td>
<td>Risk Factors from Cal/EPA</td>
<td>• Increased cancer risk</td>
<td></td>
</tr>
<tr>
<td>• TAC</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Air Pollution   | Effect Estimates from US EPA’s BenMAP | • Increased death rate  
| • PM$_{2.5}$    |                                 | • Increased costs from hospitalizations and ER visits |                |
| • Ozone         |                                 |                                       |                |
| Health Records  |                                 |                                       |                |
| • Death rates   |                                 |                                       |                |
| • Hospital admissions |                           |                                       |                |
| • ER visits     |                                 |                                       |                |
Questions

• How can we relate PM$_{2.5}$ concentration to a risk?
• What level of PM$_{2.5}$ is health protective?
• For relative metrics, what levels are equitable?
• Can we use observed health outcomes to measure success?
Resources

AB 617 Consultation Group Meetings:

https://ww2.arb.ca.gov/our-work/programs/community-air-protection-program-ab617/events/community-air-protection-program

Community Air Risk Evaluation (CARE) Program: