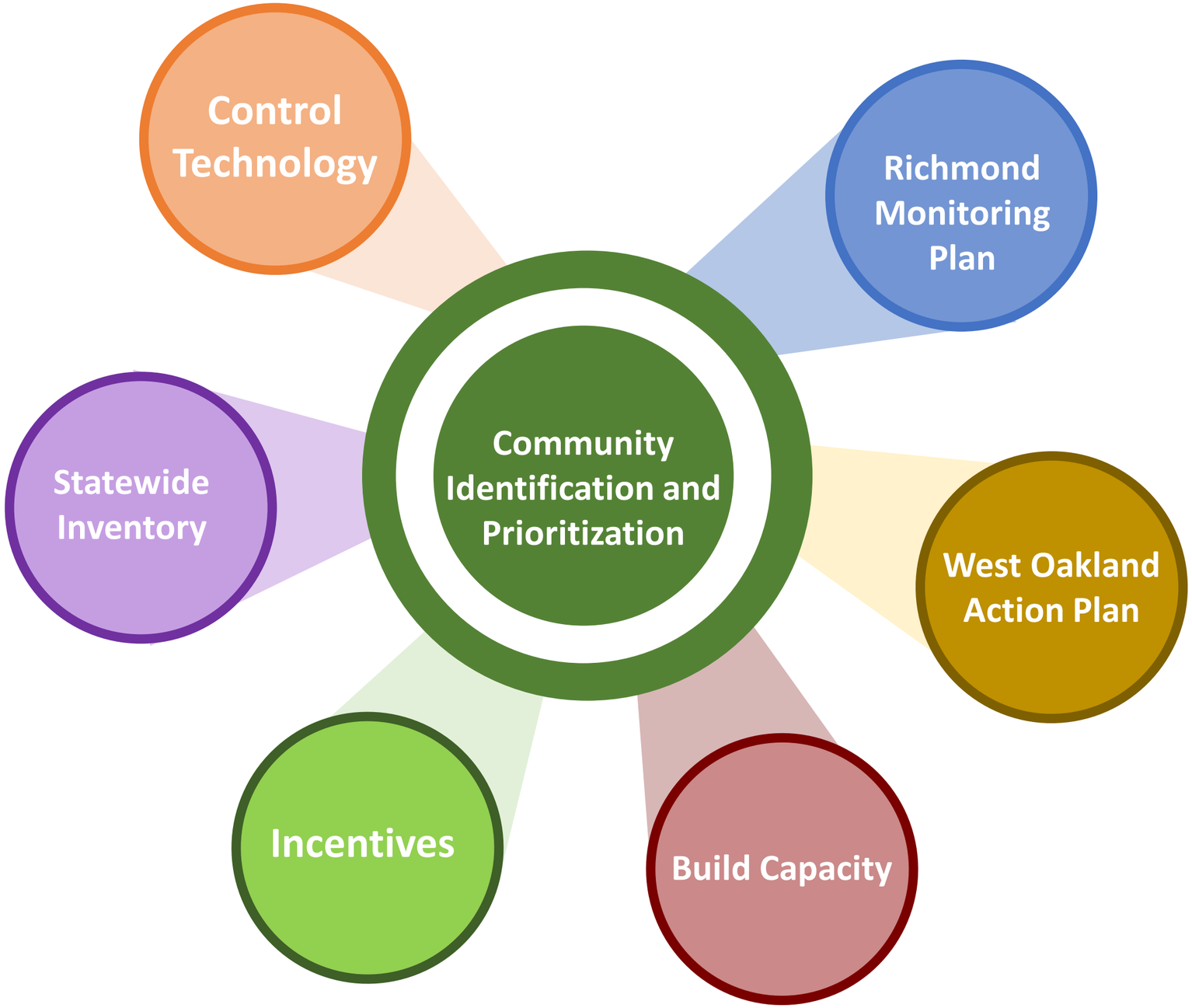
AGENDA: 4

AB 617: Community Health Protection Program

Bay Area Air Quality Management District

Elizabeth Yura
Advisory Council Meeting
October 29, 2018



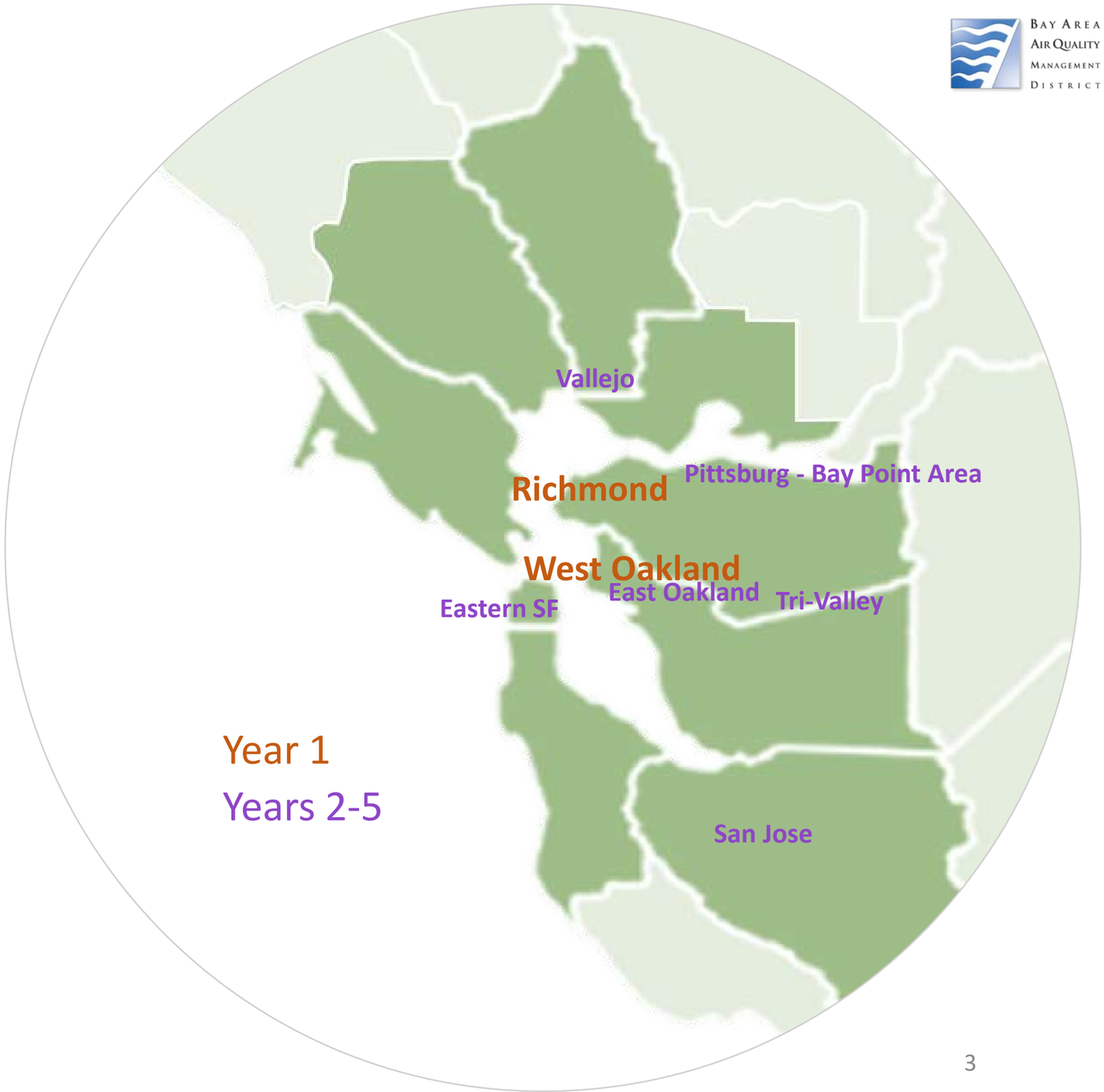
AB 617 Program Components

Community Identification and Prioritization

Year 1

West Oakland – action plan

Richmond - monitoring



Richmond Monitoring Plan

Richmond Monitoring Plan

Summer 2018 | Fall 2018 | Winter 2018 | Winter 2018 | Winter-Summer 2019

Select Consultant → Facilitated Discussions → Community Summit Design Team → Community Summit → Monitor Planning Process

Collect Data → Interpret Results → Communicate Data → Final Report

Ongoing Summer 2019 through Fall 2020

West Oakland Action Plan

Track Progress

- Metrics
- Enforcement Plan

- Stationary
- Mobile
- Other known
- Unknown

- Total emissions
- Land use/proximity
- Community input

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

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

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

West Oakland Action Plan

Success Metric Ideas

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

Dec 2018 – Mar 2019

Success Metrics

Source Attribution

Define Strategies

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

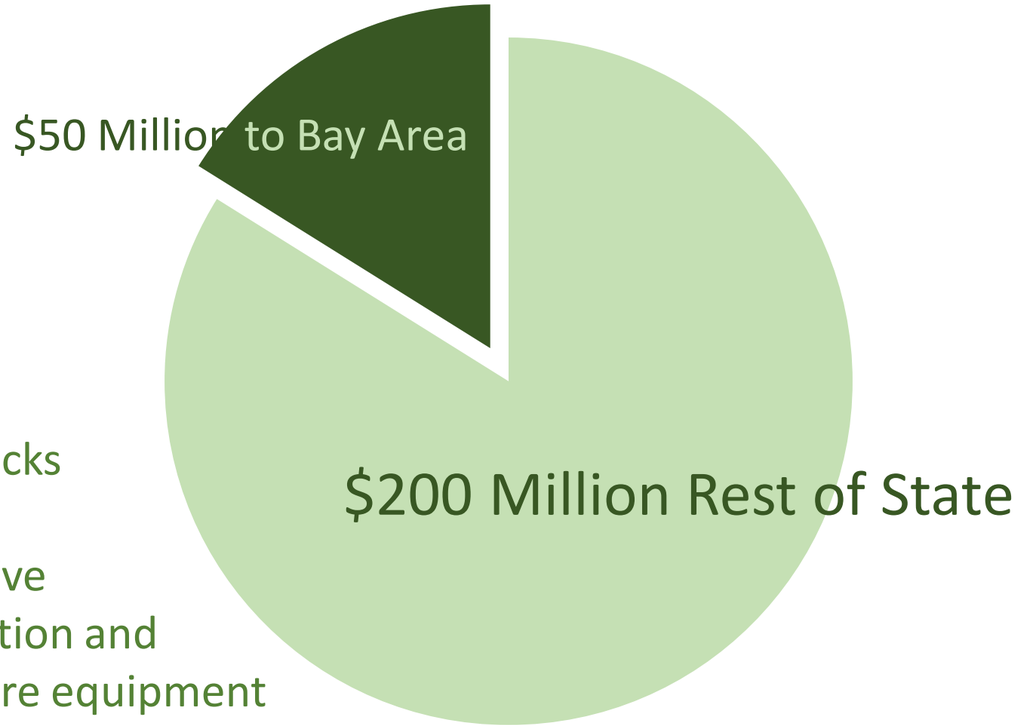
Community-based participatory research

Empowerment approaches

Authentic participation process

Incentives

FY 2018/19



- 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**

Statewide Inventory

ARB DRAFT Criteria and Toxics Reg Released in July

Air District Required Reporting will Continue

Uniform Statewide Reporting

Affected Facilities

- Subject to GHG reporting
- Emit => 250 tons/year
- Elevated prioritization score

Toxics

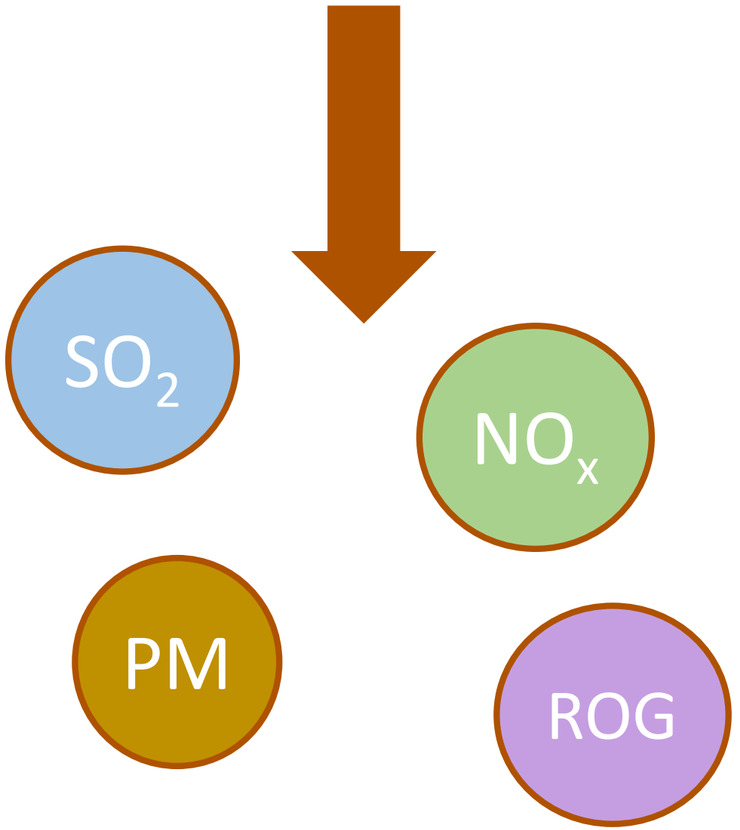
Criteria Pollutants

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



What's next?

- Community Summit in Richmond
- Select Strategies and Measures for Success in West Oakland
- BARCT Rule Development

AGENDA: 5

Update on the Air Sensor International Conference

Advisory Council Meeting
October 29, 2018

Eric Stevenson, Director of Meteorology and Measurement

Statistics

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

ASIC

Bay Area Air Quality Management District

Topics Covered

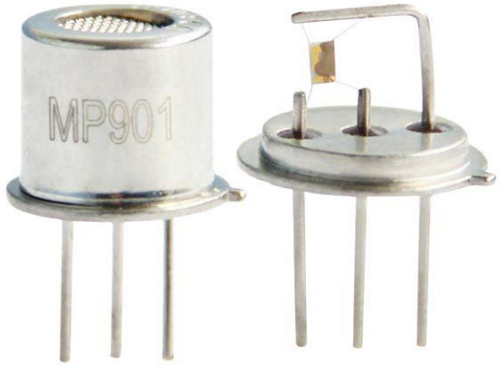
- Community Air Protection (AB 617)
- Regulations and Performance Standards
- Indoor Air Quality
- Data Analytics
- Citizen and Community Science
- Gas and Vapor Sensing
- Data Assimilation
- Community Perspectives
- Low and Middle Income Countries
- Youth Education
- Field Experience
- Particle Sensing
- 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)

ASIC

Bay Area Air Quality Management District

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

ASIC

Bay Area Air Quality Management District

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

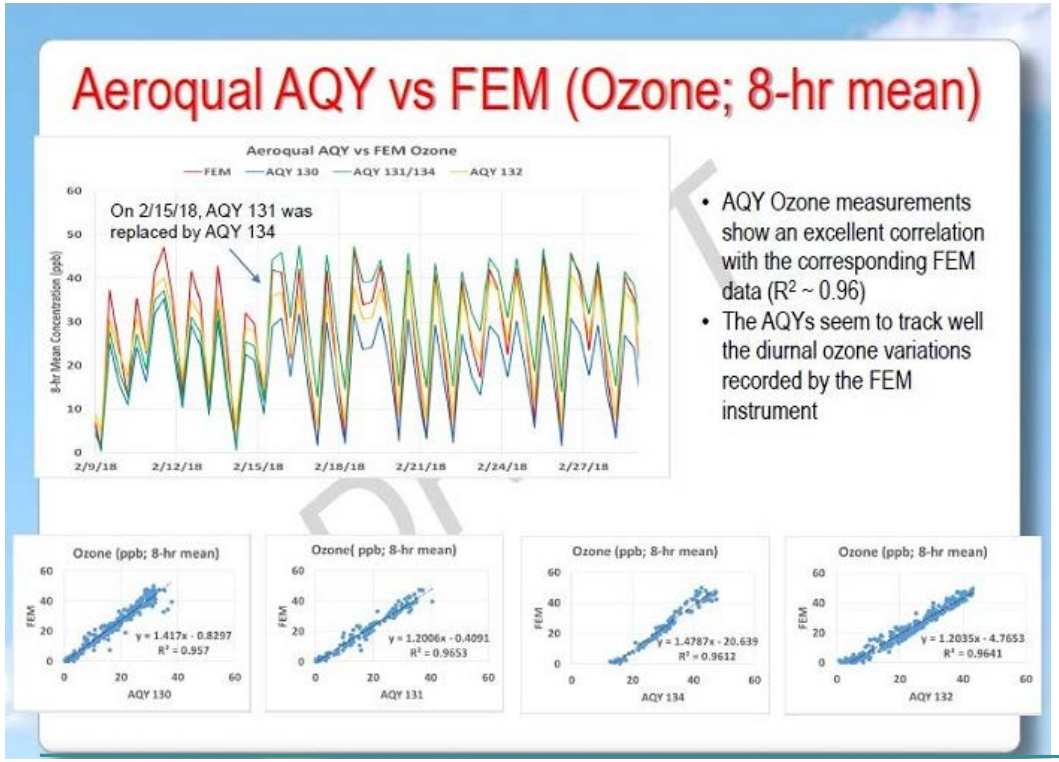
ASIC

Bay Area Air Quality Management District

Testing

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

ASIC

Bay Area Air Quality Management District

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

ASIC

Bay Area Air Quality Management District

45 Vendors/Exhibitors

- 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 Environmetal 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

ASIC

Bay Area Air Quality Management District

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

ASIC

Bay Area Air Quality Management District

Big Take Aways

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

ASIC

Bay Area Air Quality Management District

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

ASIC

Bay Area Air Quality Management District

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

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

For example, compare West Oakland to Montclair

+ Addresses issue of equity
+ Requires a reference “clean” area

- How equitable is equitable enough?

Metric/Goal Options: Exposure or Health Outcomes

Intake fraction or exposure

Health outcomes related to air pollution

+ 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

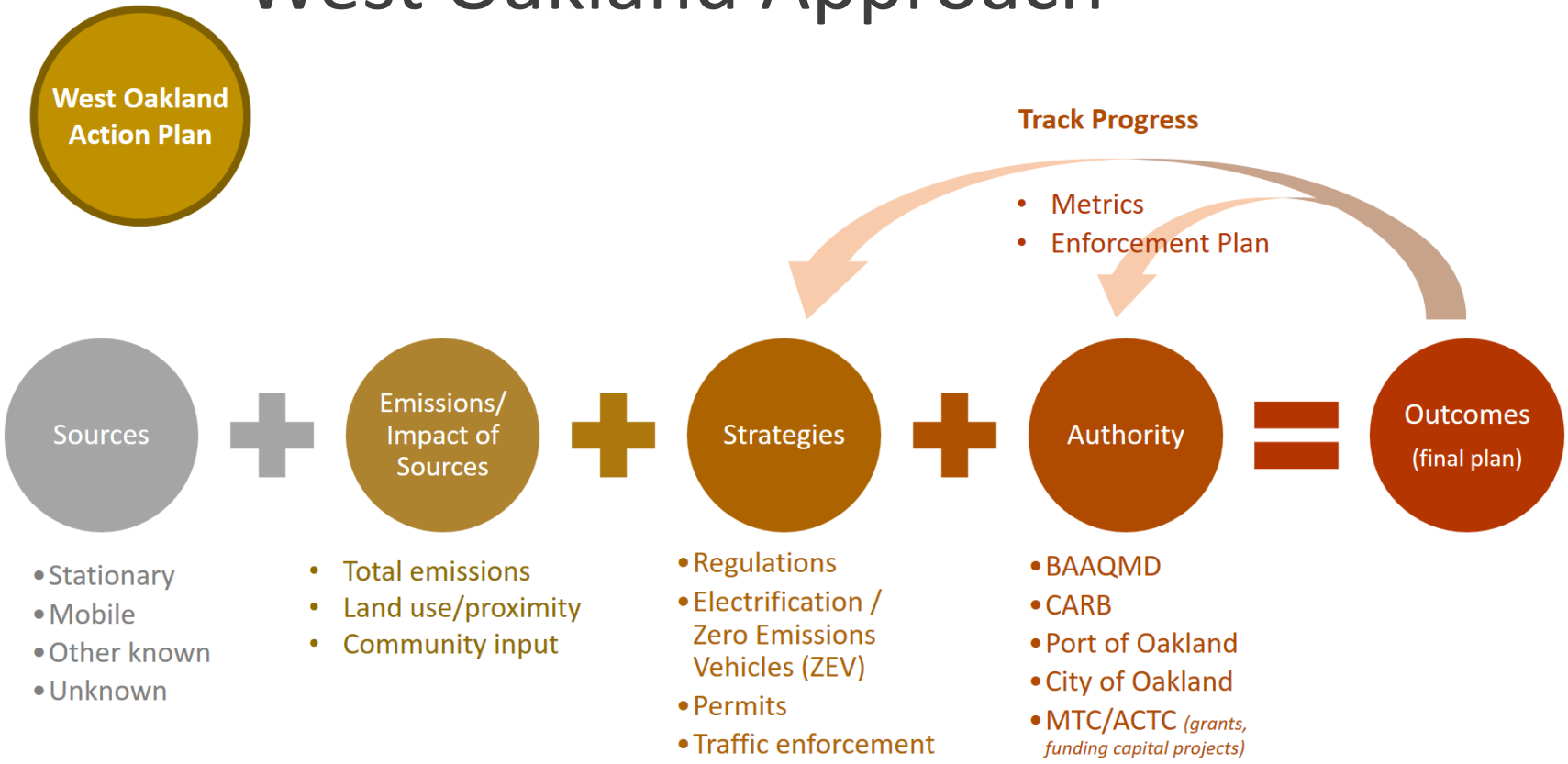
Credit: ACPHD

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

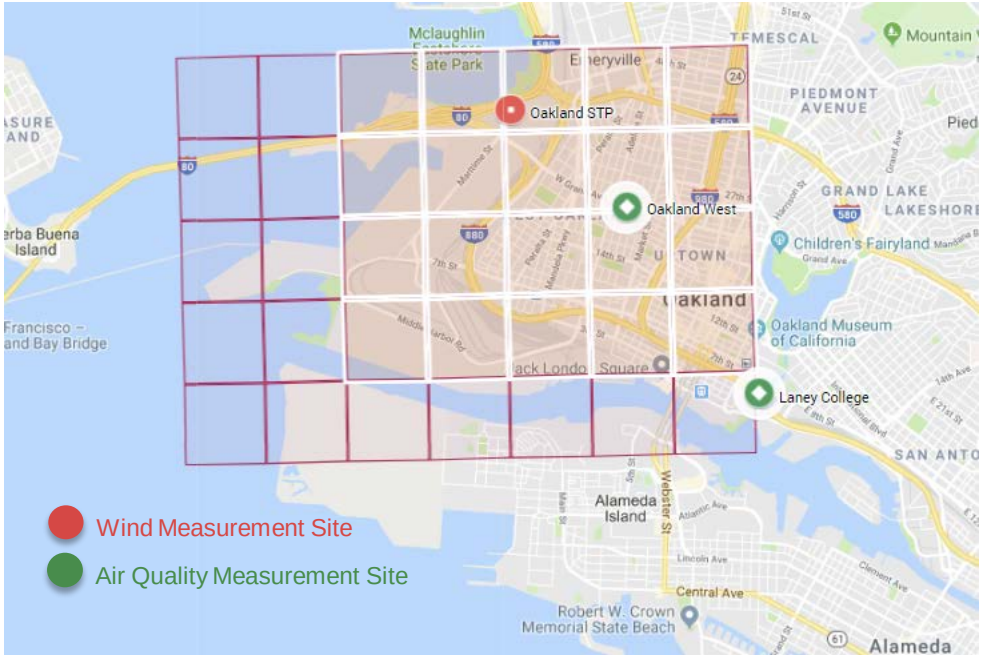
Credit: ACPHD

West Oakland Approach



Action Plan Components

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

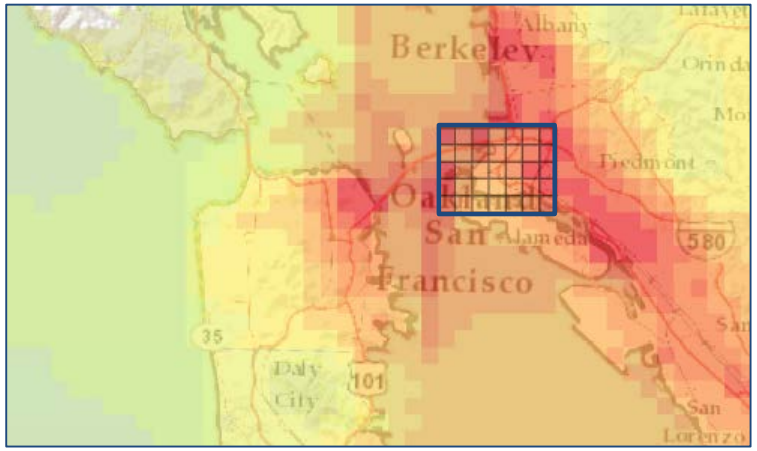
Freeways and surface streets

Truck-related businesses

Distribution centers, parking, recyclers, scrap handlers

Ships, ferries, harbor craft

Add Regional Contribution



Annual-average simulated ($PM_{2.5}$)

$PM_{2.5}$ (ug/m^3)

- < 5.5
- 5.5 - 6.0
- 6.0 - 6.5
- 6.5 - 7.0
- 7.0 - 7.5
- 7.5 - 8.0
- 8.0 - 8.5
- 8.5 - 9.0
- 9.0 - 9.5
- 9.5 - 10.0
- > 10.0

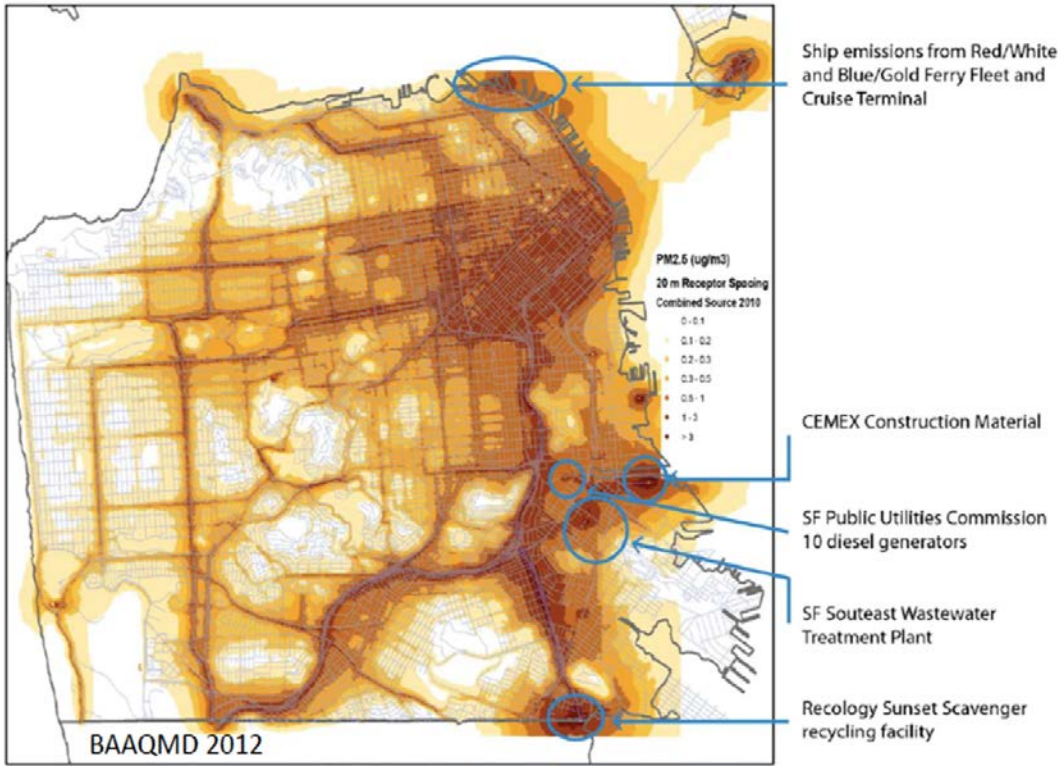
Use regional model to determine how much air pollution comes into West Oakland from outside of local area

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/m3

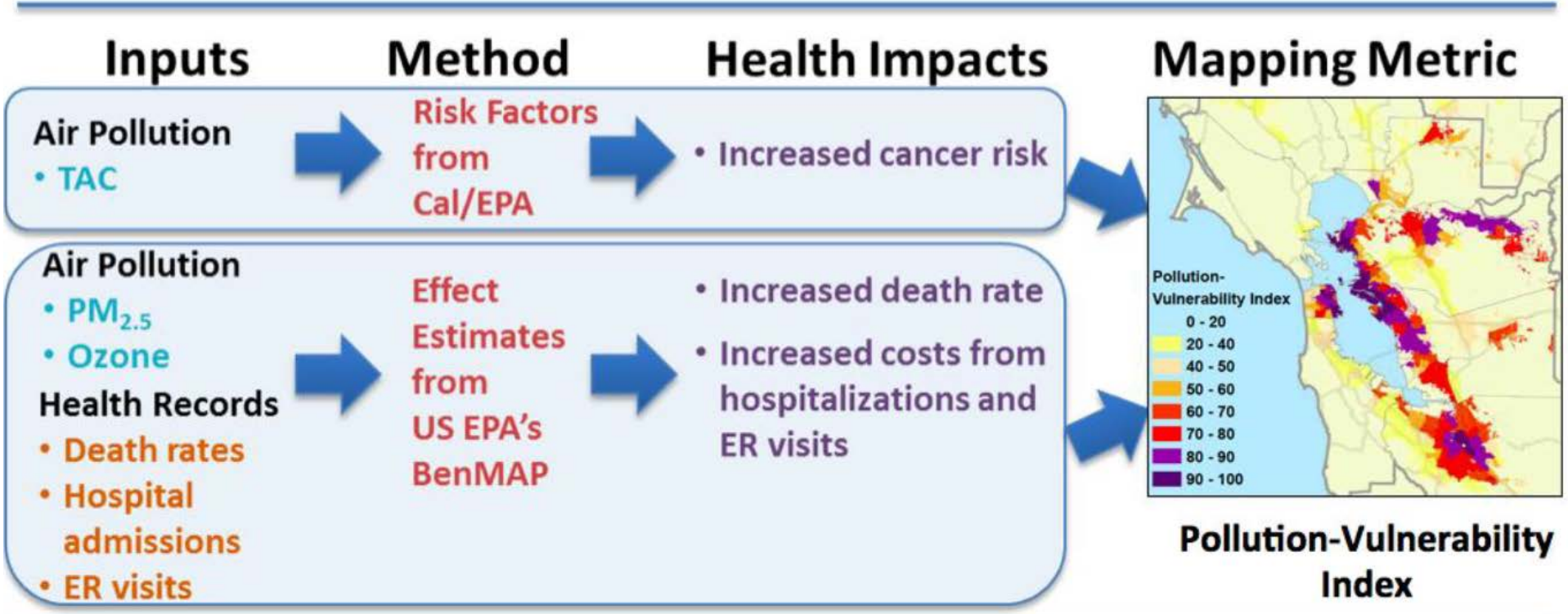
Incremental risk from local sources

Absolute concentration from local sources + background

Health vulnerable areas:

- Cancer risk standard reduced to 90/million
- $PM_{2.5}$ standard reduced to 9 ug/m3

Example: Simulated Health Outcomes



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:

http://www.baaqmd.gov/community-health/community-health-protection-program/community-air-risk-evaluation-care-program